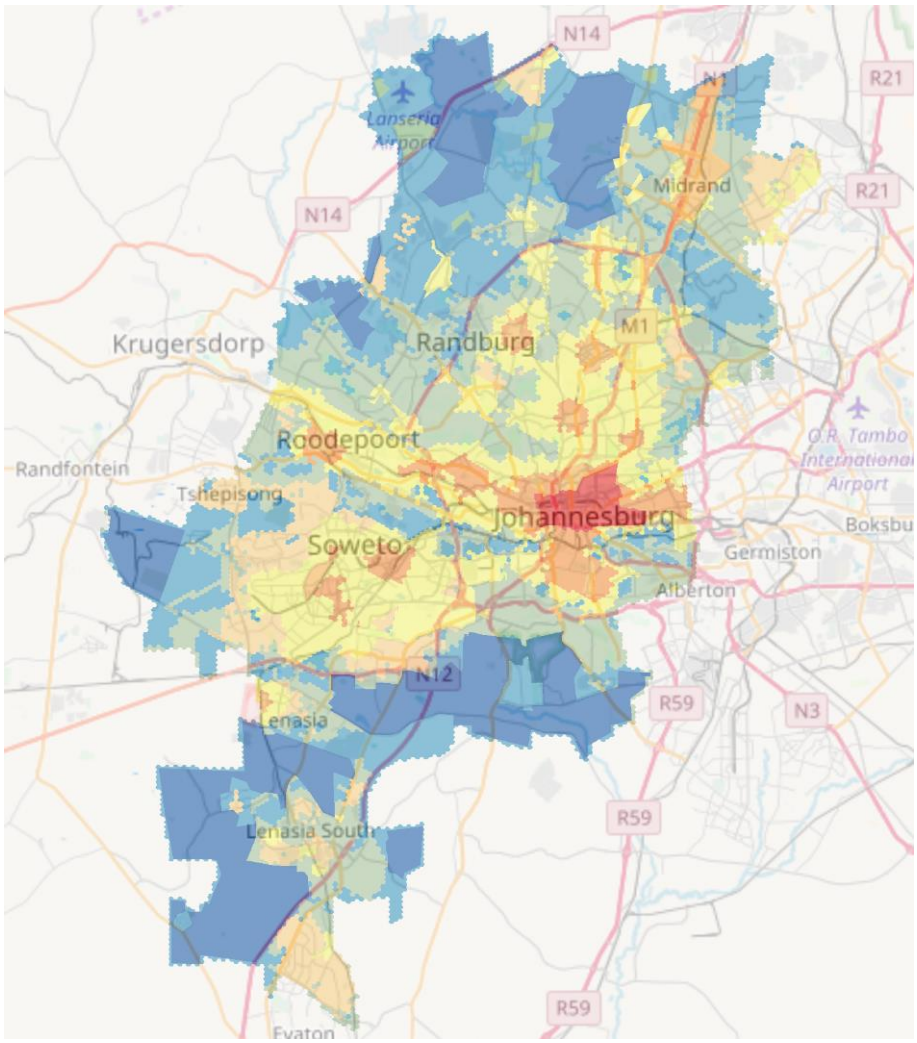
DRAFT NODAL REVIEW 2018

City of Johannesburg



City Transformation and Spatial Planning
February 2018

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1. Introduction

This document is being published for public comment, and is not approved council policy as yet.

The Spatial Development Framework 2040 (City of Johannesburg, 2016) and the SDFs that preceded it use a number of tools to direct urban growth and development. These tools ensure that development occurs in a way that is holistically sustainable: having positive environmental, social and economic effects. According to the SDF, development should be directed in a way that addresses the inequality and inefficiency in the City, transforming it into a more equitable, liveable, resilient, efficient and productive urban form. Additionally, private investment should be directed to match government capital investment, promoting a mutually beneficial multiplier effect.

Since the early 2000s, the City's strategy for urban growth management can broadly be described as one of 'compaction'. As the name suggests this promotes higher density, mixed use development in well located parts of the City, in place of outward sprawl (spreading the footprint of the city). Compact development allows for people to live close to where they work and go to school, makes public transit such as BRT viable, reduces the cost of providing infrastructure and other services, reduces pressure on the natural environment, and through agglomeration and clustering, promotes economic growth.

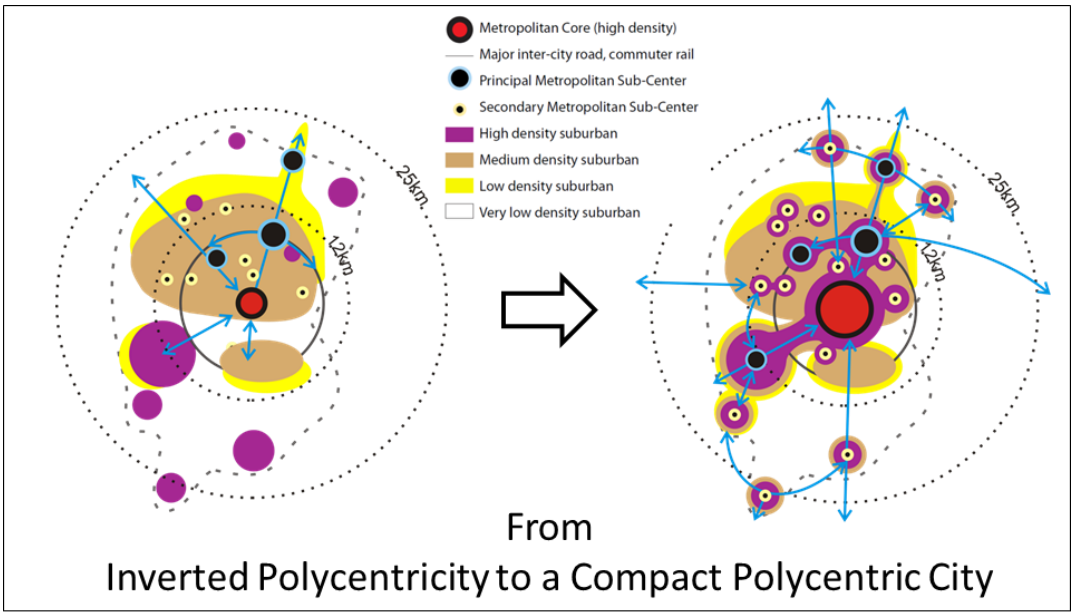

Figure 1: Spatial Transformation Model from the SDF 2040

For this plan to work high intensity development should be concentrated in clearly defined 'well located' areas. These areas are a key tool of the SDF and its predecessors where they are described as nodes, or mixed-use nodes. These nodes may differ from one another (for example some need more housing while others may need more business), but essentially they are areas where high intensity and mixed use development (supported by government infrastructure investment) should take place.

1.1. Why a Nodal Review?

In 2016, the Spatial Development Framework 2040 for Johannesburg was approved. That document, and the council minutes which adopted it, called for this Nodal Review to be drafted.

The nodes that are currently being used in the SDF 2040 are the same as those used in the 2010/11 SDF, various Regional Spatial Development Frameworks (RSDFs) from 2010/11, and subsequent Precinct Plans and Urban Development Frameworks. While it was initially intended that nodes be reviewed in the SDF 2040, it was decided that a dedicated process should rather take place following the adoption of the SDF, as outlined in the excerpt below.

> "This SDF does not include new alterations of any nodes (district, specialist, metropolitan, local or industrial), which remain the same as the most recent boundaries approved by council… The SDF process will be followed by a Nodal Review process, in which nodal boundary changes and additions will be considered. This process will include an urban potential modelling exercise, and public participation on nodal additions and/or amendments." *(City of Johannesburg, 2016, pp. 24-25)*

As such, this document reviews the nodes of the City, aiming to:

- Reflect the policy intentions of the SDF 2040
- Reflect the intentions of SPLUMA
- Respond to current realities in the CoJ
- Have a strong foundation in evidence-based planning
- Respond to changes that have taken place since the previous nodal delineation
- Address limitations of the previous nodal definitions

This document outlines the process that was followed in reviewing the nodes in the city, and describes a new 'transect' or 'development zone' approach which is an evolution of the nodal strategy. It then indicates the development guidelines that should be applied in each of the development zones of the city.

The following section describes how this Nodal Review relates to current spatial policies in the city.

1.2. Applying this Nodal Review in relation to existing spatial policies

This policy, once approved by Council, will form part of the SDF 2040 as an annexure. All nodes defined in the SDF 2040 or any existing RSDF, Precinct Plan or Urban Development Framework (approved before 2015), will be replaced by the nodes/urban development zones defined in this document. This section defines how existing approved spatial policies should be applied in relation to the Nodal Review.

As a general principle and as per the Spatial Planning and Land Use Management Act 16 of 2013 (SPLUMA) (see excerpts in Figure 2 & Figure 3 below) the SDF 2040 remains the overarching land use policy for the City of Johannesburg. Where the provisions of older policies are contrary to the ideals and guidelines of the SDF 2040, the SDF must override those policies. This includes all land use and development control decisions.

Neither the SDF 2040 nor the Nodal Review will override any heritage or environmental policy or legislation, and all applications are subject to infrastructure availability (as per SPLUMA, section 42 - Figure 3).

Part F

Status of spatial development frameworks

Status of spatial development frameworks

22. (1) A Municipal Planning Tribunal or any other authority required or mandated to make a land development decision in terms of this Act or any other law relating to land development, may not make a decision which is inconsistent with a municipal spatial development framework.

(2) Subject to section 42, a Municipal Planning Tribunal or any other authority required or mandated to make a land development decision, may depart from the provisions of a municipal spatial development framework only if site-specific circumstances justify a departure from the provisions of such municipal spatial development framework.

Figure 2: Status of Spatial Development Frameworks (SPLUMA, section 22. pg. 34)

Deciding an application

42. (1) In considering and deciding an application a Municipal Planning Tribunal must—

(a) be guided by the development principles set out in Chapter 2;

(b) make a decision which is consistent with norms and standards, measures designed to protect and promote the sustainable use of agricultural land, national and provincial government policies and the municipal spatial development framework; and

(c) take into account—

(i) the public interest;

(ii) the constitutional transformation imperatives and the related duties of the State;

(iii) the facts and circumstances relevant to the application;

(iv) the respective rights and obligations of all those affected;

(v) the state and impact of engineering services, social infrastructure and open space requirements; and

(vi) any factors that may be prescribed, including timeframes for making decisions.

(2) When considering an application affecting the environment, a Municipal Planning Tribunal must ensure compliance with environmental legislation.

(3) An application may be approved in whole or in part, or rejected.

Figure 3: Deciding an application (SPLUMA, section 42. pg. 50)

The sub-sections immediately below outline how specific policies are to be read in relation to this Nodal Review.

1.2.1. SDF 2040 Densities Table

Densities indicated in the SDF 2040 will remain in place. Table 2 on pg. 22 indicates how the densities table from the SDF 2040 should be applied to new development zones defined in this document.

1.2.2. Regional Spatial Development Frameworks 2010/11

This Nodal Review will rescind all sub area tables in the RSDFs, and RSDFs should be used for information only (including heritage/environmental policies where relevant). Guidelines in the SDF 2040 and this nodal review will override sub-area tables in the RSDFs.

1.2.3. Strategic Area Frameworks, Urban Development Frameworks and Precinct Plans

Guidelines from any Strategic Area Framework (SAF), Urban Development Framework (UDF) or Precinct Plan (PP) approved in 2015 or after will remain in place subject to sections 22 and 42 of SPLUMA outlined in Figure 2 & Figure 3 above. Guidelines from documents preceding 2015 will be replaced by those from the SDF 2040 and this Nodal Review.

1.2.4. Urban Development Boundary

The Urban Development Boundary (UDB) remains unchanged from the SDF 2040, except for any changes made through council resolutions since the adoption of the SDF 2040. One change to the UDB has been made to date (at the time of approving this policy) which was to move the boundary to allow for the in-situ upgrade of Dark City Informal Settlement, Poortjie.

1.2.5. Existing Neighbourhood Nodes

Neighbourhood nodes defined in a Council approved spatial policy that has not yet been rescinded shall be classified as "General Urban Zone" as per section 3 of this document. Such a neighbourhood node must have defined boundaries and, when used to make an argument for land use applications, should include a map, and verifiable references to the source document.

1.2.6. Plans that this policy will rescind

This policy will not rescind any plans, other than nodes that have been omitted or changed. As stated above, this policy may override existing plans when those plans are contrary to the ideals and guidelines of the SDF 2040, or this Nodal Review.

1.2.7. Industrial Nodes

Industrial Nodes remain unchanged from the SDF 2040. When considering rezoning from industrial to other land uses, careful consideration must be made as to whether the proposed land use is appropriate in the specific location, and be cognisant of maintaining the jobs and economic activity that industrial land uses provide.

1.3. Guiding Principles of the Nodal Review

This Nodal Review is based on the guiding principles of SPLUMA and the SDF 2040. The principles are outlined here, but the full versions of each document are available online.[1]

1.3.1. Spatial Planning and Land Use Management Act (SPLUMA)

The Spatial Planning and Land Use Management Act, 2013 (SPLUMA) came into effect on 01 July 2015. It is a framework act for all spatial planning and land use management legislation in South Africa. The legislation seeks to promote consistency and uniformity in procedures and decision-making related to the spatial planning environment across the country, and across all spheres of government.

SPLUMA reinforces and unifies the NDP's vision and policies in respect of using spatial planning mechanisms to tackle poverty and inequality while creating conditions for inclusive growth by fostering a high-employment economy that delivers on social and spatial cohesion.

[1] SPLUMA: http://bit.ly/spluma - SDF 2040: http://bit.ly/cojSDF2040

The five development principles, as set out in Section 7 (a) to (e) of SPLUMA are summarised as:

- **Spatial justice**: past spatial and other development imbalances must be redressed through improved access to and use of land.
- **Spatial sustainability**: spatial planning and land use management systems must promote the principles of socio-economic and environmental sustainability.
- **Efficiency**: land development must optimise the use of existing resources and the accompanying infrastructure.
- **Spatial resilience**: securing communities and livelihoods from spatial dimensions of socio-economic and environmental shocks through mitigation and adaptability that is accommodated by flexibility in spatial plans, policies and land use management systems.
- **Good administration**: all spheres of government must ensure an integrated approach to land use and land development and all departments must provide their sector inputs and comply with prescribed requirements during the preparation or amendment of SDFs.

1.3.2. Spatial Development Framework 2040

The SDF 2040 is referenced throughout this document, however it does outline a set of core principles, based on SPLUMA and other guiding documents. The document reads:

"To facilitate the spatial transformation needed in the city, the SDF 2040 endorses the following intertwined concepts of the new image of Johannesburg:

- **Compact city –** combining density, diversity, proximity and accessibility, reducing distances, travel times and costs, bringing jobs and social amenities to single use, marginalised residential areas, reducing energy consumption and infrastructure costs.
- **Inclusive city –** ensuring balanced service provision (hard and soft) and opportunities for all by diversifying land uses, promoting social mixing and bridging social, spatial and economic barriers.
- **Connected city** –enhancing public transit and ICT infrastructure at provincial and urban scales to re-connect the city, starting from 'the Corridors of Freedom' to street and neighbourhood-level connectivity.
- **Resilient city –** building a metropolitan open space system as a protection buffer, preserving valuable green infrastructure and areas of high agricultural potential, promoting sustainable energy use, reinforcing the urban development boundary and protecting biodiversity resources.
- **Generative city –** focusing investment in transformation areas and nodes towards: achieving positive social, economic and environmental returns on investment; spurring economic growth and job creation and enhancing public space and promoting sustainability (social, environmental and economic)." (City of Johannesburg, 2016, p. 14)

2. Developing the Nodal Review

The Nodal Review process has taken place in two broad parts: technical analysis/modelling and public participation. The modelling exercise was used to define the areas of greatest potential in the City for high intensity urban development forming the evidence based planning component. The public participation aspect has taken place throughout the project. It has been used to source ideas and proposals from the public, and as a means to participate in the debates around results and proposals. The two parts are outlined below.

2.1. Public Participation

The process of public participation started with a call for inputs circulated on the 7th of October 2016, with a deadline for submissions on the 11th of December 2016. The call was widely circulated, and it was requested that recipients circulate it as widely as possible. The call requested:

- *"Proposals for nodal extensions, reductions or re-classifications;*
- *Proposals for new nodes;*
- *Proposals on how nodes should be defined and how the nodal policy should work;"*

Some 80 inputs were received from interested parties including (to name a few) developers, planning consultants, GDARD, heritage organisations, environmental groups, residents associations, and CoJ departments. These inputs were collated in two ways. Firstly, a Geographic Information Systems (GIS) map was compiled including proposals for node extensions, reductions and new nodes. This map was then compared with the results of the modelling exercise (described below). Secondly, written inputs were analysed and collated into themes that gave guidance to the approach taken in the Nodal Review process. This required careful consideration to ensure that the comments incorporated are in line with the ideals of the SDF 2040 and SPLUMA and are in the general interest of the residents of the city.

Secondly, during July and August 2017, public participation sessions were held in each of the City's regions. At these meetings, the draft urban potential model and Nodal Review was presented and inputs received.

Following this, internal participation was held in the City of Johannesburg, mainly with the Land Use Planning department. Additionally, throughout the process, meetings have been held with individuals/groups of interested parties, upon request by those parties.

Once this document has been advertised for public comment, another round of public participation sessions will be held.

Summaries of the process above are attached as an annexure to this document (Annexure 1: Summary of Public Participation).

2.2. Spatial Analysis: Urban Potential Modelling

Cities are largely founded on connectivity and access. They are places where people and businesses concentrate to gain access to a number of services and amenities. These include (to name a few); jobs, economic activity, markets, schools, healthcare facilities, services, cultural/religious experiences, leisure, entertainment and interaction with other people. The SDF argues that the city needs to transform from a sprawled, car-oriented city, to a compact-polycentric, mixed use, walkable city.

Compact cities are argued to be more efficient, productive, liveable and sustainable and they also promote the use of public transit, rather than the private car. (Angel, Parent, Civco, & Blei, 2010) (Harrison, et al., 2014).

As such, along with the public participation component, the Nodal Review has largely been based on a modelling exercise that measures urban potential in the City, based on connectivity and access. This used current street networks and how they promote walkability, access to public transit stations, and various amenities. Importantly, it focussed on walkability and public transit, rather than car use.

The analysis created two indexes (one for commercial nodes, and the other for residential density) that score all parts of the City in terms of Urban Potential and Connectivity. Those areas that score highest inform the location of high intensity nodes, with those that score low indicating areas where development should be limited. Importantly too, it is intended that a gradient of intensity is created across the City. This is as per the SDF 2040, which calls for:

> *"a focus on the Inner City as the core node of Johannesburg, surrounded by mixed use nodes of various intensities connected by effective public transport and a more logical and efficient density gradient radiating outward from cores" (City of Johannesburg, 2016, p. 13).*

The urban potential model uses a sampling grid of 400m by 400m hexagons (easily walkable units) as a basis. This is to create a standard unit of analysis for land in the city because other shapes (wards, census boundaries, suburbs, erfs etc.) all differ significantly in size and shape and so are not comparable. Each hexagon was given a local walkability score based on the surrounding road network (1km walking distance). The wider the area one can reach on foot from the centre of each cell, the higher the walkability score, and more conducive that neighbourhood is to walking. An illustration of the road network walkability around four train stations in Johannesburg is show in Figure 4 below to show the importance of considering roads in such a model.

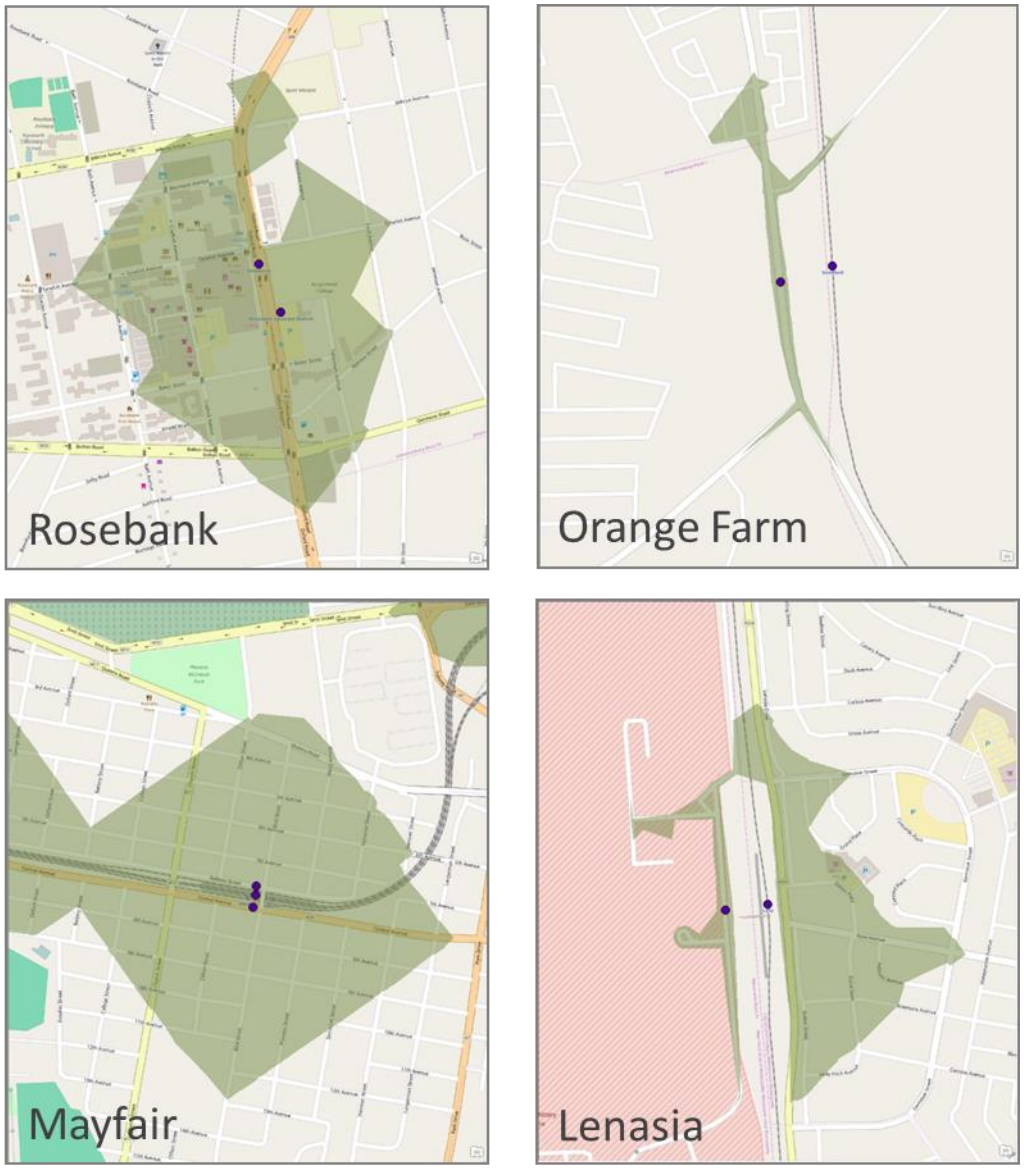

Figure 4: Comparative walkability of the road network around four rail stations (500m service areas) (Source: Own analysis)

Figure 4 shows how significant the road network is in terms of how walkable a neighbourhood is. A tight grid network (as with Mayfair) allows access on foot to a relatively large portion of the neighbourhood within a 500m walk. In Orange Farm on the other hand, with a disconnected road network, one can only reach a small area of the neighbourhood in 500m. This is important in the context of the SDF, which has a strong focus on developing walkable, mixed use neighbourhoods.

Added to the walkability score is the amenities that can be accessed within 2km walking distance[2] of each 400m hexagon, including:

- economic activity (the location of jobs and businesses)
- public transit (train and BRT stations)
- public open space

[2] 2km was used, as this provides a 30 minute commute (walking) time.

- social infrastructure (health and education facilities)
- capital projects of the City
- land use mix

Finally, once the index was created, current nodes were compared to the model and public inputs, in order to define the proposed development zones in this document.

A detailed report of how indexes were calculated and all of the data used is attached as Annexure 2: Urban Potential Modelling Method pg. 31. This also includes how existing nodes were incorporated into the new 'development zone' approach. In the spirit of transparency, the model used to make the calculations is also available for download at the following link: **http://bit.ly/nodal_rev_files**

3. Urban Development Zones (nodal hierarchy)

This section outlines the revised nodes and the proposed new approach which includes urban development zones, rather than just nodes. It starts with a description and rationale of the 'transect' or development zone approach taken in this document. It then includes a map of the proposed zones, as well as a description of the development vision for each of the proposed development zones.

3.1. Transect Approach

The SDF 2040 uses the following image to describe the compact polycentric vision for Johannesburg.

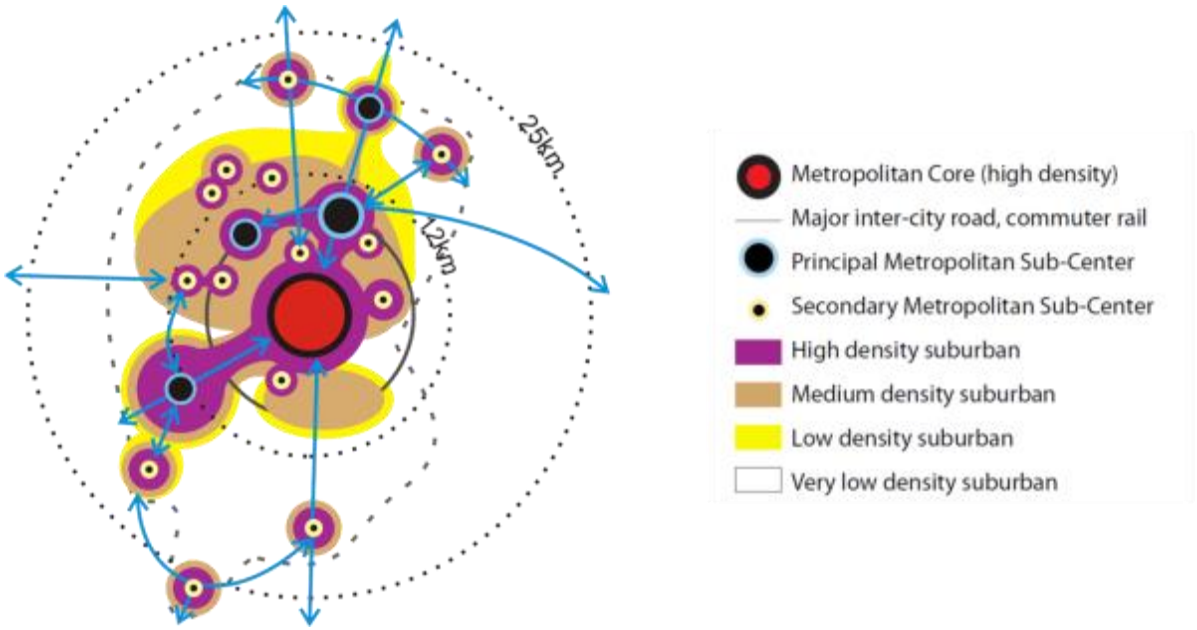

Figure 5: Johannesburg Future City Model: Compact Polycentric Urban Form

The document then describes the model thus:

> *"The future polycentric Johannesburg will bring jobs to residential areas and housing opportunities to job centres rather than merely transporting people between the two. It will create complete nodes where people can live work and play that are efficiently connected by public transport. It will bridge spatial and*

> *social barriers and build a framework for a spatially just city." (City of Johannesburg, 2016, p. 14)*

It goes on to say:

> *"The Compact Polycentric Urban model looks to adapt the current structural reality of the city into one that is more socially, environmentally and financially sustainable, efficient and equitable. The model seeks to create a well-connected (by public transit and other transport routes) series of dense metropolitan centres and sub-centres, each immediately surrounded by high density residential and mixed use areas, with residential densities declining with distance from these nodes or centres. Densification should also occur along defined corridors, specifically the Corridors of Freedom and the Randburg – OR Tambo Corridor. The model looks to maximise the potential of the current nodal structure of the city, while addressing the spatial inequalities that exist." (City of Johannesburg, 2016, p. 70)*

While the SDF promotes densification and diversification in well located parts of the City (including nodes, transformation areas and around public transit) it is arguably limited in two major ways. The first is that nodes are generally surrounded by low intensity development areas, often referred to in RSDFs. This is contrary to the outcomes sought in the quotes above. It is often the case that well located residential areas (surrounding nodes) are not the subject of intensification, in an effort to maintain the status quo, rather than follow the transformative agenda of the SDF. The second limitation of the plan (or planning broadly, through RSDFs and other plans) is when high intensity residential development takes place on the outskirts of the city. This, rather than contributing towards transformation to a compact polycentric city, sprawls the city further, compounding the current inverted polycentric structure.

While historically the city has promoted a number of nodes for development, and an urban development boundary that limits development on the periphery, the vast area in between has arguably been inconsistently treated, where high densities are allowed on the outskirts, yet prevented in some well-located parts of the city.

For this reason, and in order to sharpen the tools of the SDF, this document proposes a move away from three development zones (transformation zone (including nodes), the urban development boundary and the rest) to a "transect approach". This is directly in line with the SDF, and seeks to create a logical density gradient in the city. The approach looks to limit peripheral growth while making more land available in core areas for higher intensity growth through ***re***-development.

The transect approach describes different development zones of the city, that vary in character ranging from high intensity urban cores to rural areas on the periphery (CATS, 2013). These zones promote high intensity, mixed use development in well located, walkable parts of the city with good access to public transit, and lower intensity urban form moving away from the centre. Two graphical depictions of urban transects are shown in the image below.

The approach allows for a more concrete application of the SDF 2040. This can be seen when comparing the compact polycentric model (Figure 5), with the actual proposed development zones in the city (Figure 7).

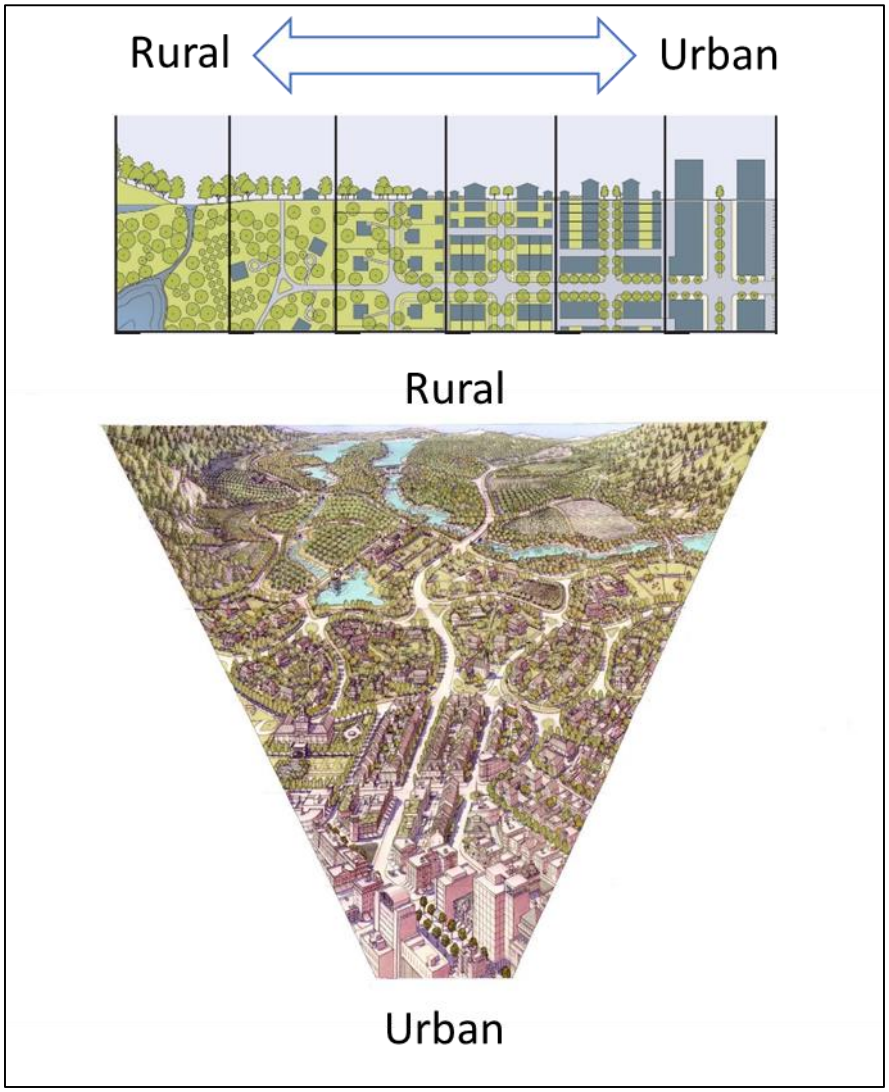

Figure 6: Graphical Examples of Urban Transects[3]

[3] After Duaney Plater-Zyberk & Company, https://transect.org/rural_img.html

3.2. Development Zones

The development zones depicted in this document, relate to the transect approach described above, as well as direct goals from the SDF 2040. The development zones are shown in Figure 7 below, and more detailed maps are available for download at: **http://bit.ly/nodal_rev_files**

There are six broad zones defined, being:

- 1: CBD, Metropolitan Core
- 2: Principle Metropolitan Sub-Centres
- 3: General Urban Zone
- 3a: Local Economic Development Zone
- 4: Suburban Zone
- 5: Peri-urban Zone
- 6: Outside the Urban Development Boundary

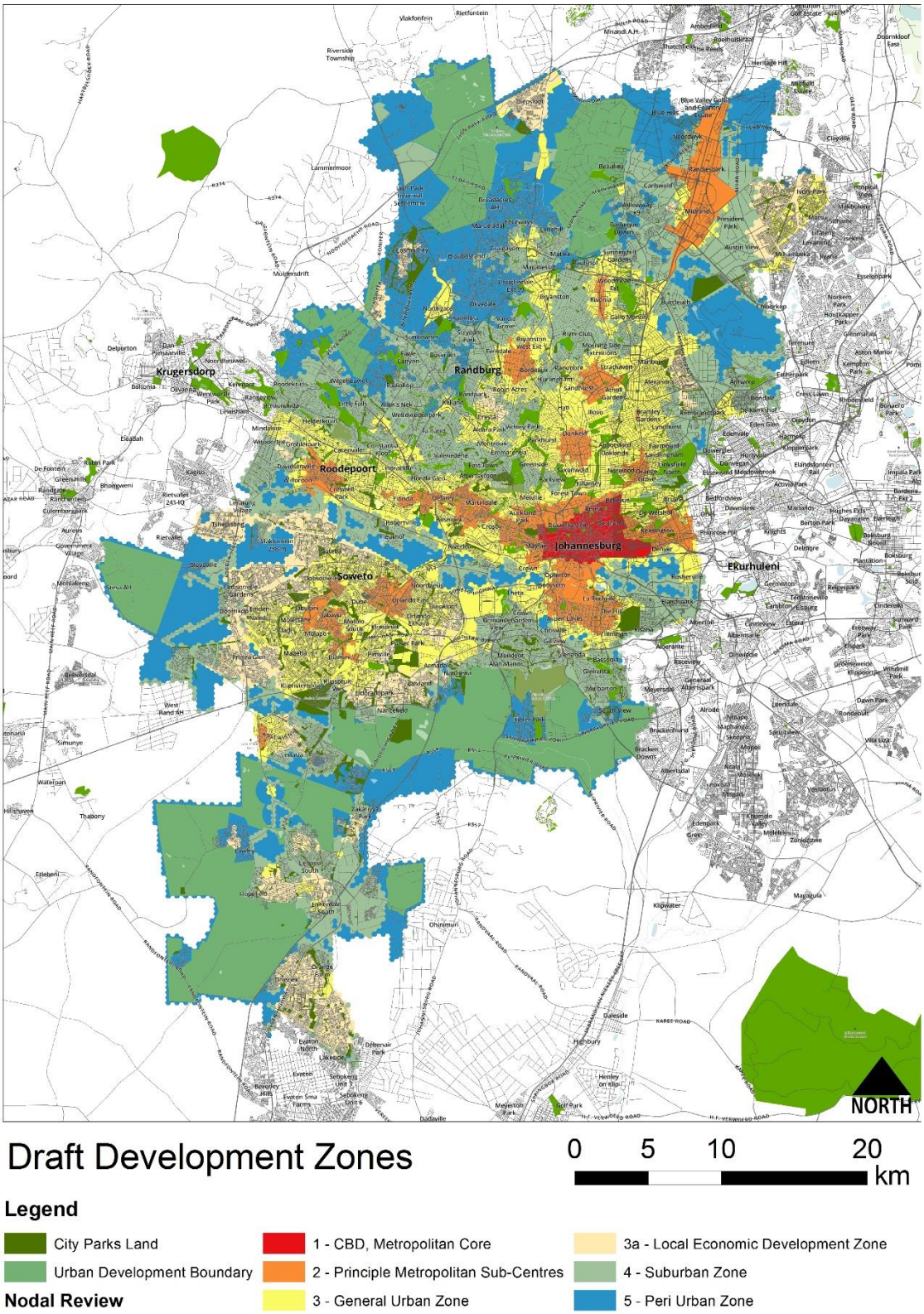

Figure 7: Development Zones

3.3. Development Guidelines

The table below details the development vision and guidelines for each of the development zones proposed.

Table 1: Development Guidelines

Development zone:	General Character/Aims	Mix Guidelines	Development Controls (general Principles)				
			Density	Building Placement	Frontage Types	Height (floors)	Parking Location (where required by scheme)
1: Inner City (Metropolitan Core)	The primary mixed use/commercial Node of the City. Highest intensity and mix of land use. Active, diverse ground floors (shops, restaurants, offices, services) with no setbacks. A vibrant and walkable area, with a focus on public transit, rather than transport by car.	Highest Mix of Land Uses (up to 100% of floor area per building may be for non-residential, but internal mix per building promoted). Commercial, residential, offices, retail and small scale, non-polluting (including noise) services.	See Table 2	Zero building lines supported. Building oriented toward the street. No boundary walls on the street (the building forms the boundary with street). Coverage up to 100%.	Active Street Frontages. Non-residential uses on ground floor with pedestrian access from the street.	4 and up (with surrounding buildings considered). Scaling down from the centre to the periphery of the zone is required. As a guide, not more than 1 storey higher than highest neighbouring erf's rights or use (whichever is higher)	Underground or at back of building (not forming a buffer between the street and the building). When above ground, ground floor street edges must be active (shops, offices, etc.) For open parking lots, permeable paving should be used.

Development zone:	General Character/Aims	Mix Guidelines	Development Controls (general Principles)				
			Density	Building Placement	Frontage Types	Height (floors)	Parking Location (where required by scheme)
2: Principle Metropolitan Sub-Centres	Secondary Mixed use/commercial nodes of the City. High intensity and Mix of Land Use. Active, diverse ground floors (shops, restaurants, offices, services) with minimal setbacks. Of a similar quality, but lower intensity to the Inner City.	Highest Mix of Land Uses (up to 100% of floor area per building may be for non-residential, but internal mix per building promoted). Commercial, residential, offices, retail and small scale, non-polluting (including noise) services.	See Table 2	Minimal building lines supported. Building oriented toward the street. No boundary walls on the street (building forms boundary with street). Coverage should be high, up to 80%.	Active Street Frontages. Non-residential uses on ground floor with pedestrian access from the street.	3 to 20 (with surrounding buildings considered) Scaling down from the centre to the periphery of the zone is required. As a guide, not more than 1 storey higher than highest neighbouring erf's rights or use (whichever is higher)	Underground or at back of building (not forming a buffer between the street and the building). When above ground, ground floor street edges must be active (shops, offices, etc.) For open parking lots, permeable paving should be used.

Development zone:	General Character/Aims	Mix Guidelines	Development Controls (general Principles)				
			Density	Building Placement	Frontage Types	Height (floors)	Parking Location (where required by scheme)
3: General Urban Zone	An urban (not suburban) zone of the city with up to 5 storey residential or mixed use buildings. Medium intensity area, with a good scattering of land use mix (local shops and businesses mixed throughout the area, but concentrated on high streets). A thoroughly walkable environment, with all local amenities available on foot.	A mix of uses allowed throughout the neighbourhood, but focussed on high streets (active pedestrian streets) and around public transport stations/stops. Up to 50% of floor area per building for non-residential. Commercial, residential, offices, retail and small scale, non-polluting (including noise) services.	See Table 2	Minimal building lines supported (1 to 2m). Building oriented toward the street. Boundary walls on the street discouraged- when in place should be visually permeable. Coverage up to 60% for three floors, 50% for 4, and 40% for 5.	Retail and service businesses (where present) on the ground floor, facing the street. Offices may be on other floors. When a building borders more than one street, active uses should face primary pedestrian movement street.	Up to 5 (with surrounding built form considered). Scaling down should be used, away from central parts of the zone, or higher level zones. As a guide, not more than 1 storey higher than highest neighbouring erf's rights or use (whichever is higher)	Underground or at back of building (not forming a buffer between the street and the building). Where feasible, on street parking should be allowed. For open parking lots, permeable paving should be used.

Development zone:	General Character/Aims	Mix Guidelines	Development Controls (general Principles)				
			Density	Building Placement	Frontage Types	Height (floors)	Parking Location (where required by scheme)
3a: Local Economic Development Zones	An environment similar to "General Urban Zone" but with a focus on promoting economic land uses (diversifying high density, single use, residential areas).	A mix of uses allowed throughout the neighbourhood, but focussed on high streets (active pedestrian streets) and around public transport stations/stops. Up to 80% of floor area per building for non-residential. Commercial, residential, offices, retail and small scale, non-polluting (including noise) services.	See Table 2	Minimal building lines supported (1 to 2m). Building oriented toward the street. Boundary walls on the street discouraged- when in place should be visually permeable. Coverage up to 60% for three floors, 50% for 4, and 40% for 5.	Retail and service businesses (where present) on the ground floor, facing the street. Offices may be on other floors. When a building borders more than one street, active uses should face primary pedestrian movement street	Up to 5 (with surrounding built form considered). Scaling down should be used, away from central parts of the zone, or higher level zones. As a guide, not more than 1 storey higher than highest neighbouring erf's rights or use (whichever is higher)	Underground or at back of building (not forming a buffer between the street and the building). Where feasible, on street parking should be allowed. For open parking lots, permeable paving should be used.

Develop-ment zone:	General Charac-ter/Aims	Mix Guidelines	Development Controls (general Principles)				
			Den-sity	Building Place-ment	Frontage Types	Height (floors)	Parking Location (where required by scheme)
4: Suburban Zone	Medium to low density residential areas (res 1) with mixing of land uses to accommodate local needs as per scheme (small home based shops, home en-terprises, local services - hair salons, estate agencies, etc.)	Mainly residential, but with local non-residential functions supported as per scheme. Where high streets are present, higher mix and intensity of land uses supported (as with the General Ur-ban Zone).	See Table 2	Variable. Cover-age as per scheme.	Boundary walls discouraged. Must promote surveillance of the street, visu-ally permeable fences where in place.	up to 3 or as per scheme	Variable, away from street boundary where possible. For open parking lots, permeable paving should be used.
5: Agricul-tural/Peri-Urban	Low density and inten-sity residential/agricul-tural areas. Mixing of land use as per scheme. Maintain low intensity residential/agricultural environment.	Agricultural or low inten-sity residential uses. Non-residential uses as per scheme.	See Table 2	Variable. Cover-age as per scheme.	Visually perme-able frontages for street sur-veillance and safety encour-aged.	as per scheme	Variable, away from street boundary where possible. For open parking lots, permeable paving should be used.

Development zone:	General Character/Aims	Mix Guidelines	Development Controls (general Principles)				
			Density	Building Placement	Frontage Types	Height (floors)	Parking Location (where required by scheme)
6: Outside the Urban Development Boundary	As per the SDF 2040	As per the SDF 2040	n/a	Maximum of 8% coverage of developable area (i.e. area excluding wetlands, building lines, etc.)	Visually permeable frontages for street surveillance and safety encouraged.	n/a	Any parking areas must be permeable (natural ground, grass, or permeable paving)
7: Critical Biodiversity Areas	As per environmental legislation, GDARD, EISD Policy the SDF.	n/a	n/a	n/a	n/a	n/a	n/a

4. Residential Densities

As mentioned in section 1.2.1, the densities table from the SDF 2040 will still apply. The table below indicates how the densities table in the SDF should apply to the development zones in the Nodal Review. This section also introduces the residential densification index, calculated for this Nodal Review.

4.1. Residential Densities and the SDF Densities Table

Except within previous nodal boundaries, and within TOD buffers as per the SDF, minimum densities should not be enforced, but are encouraged. In consent use applications, no minimum densities will be enforced. Minimum does however mean that there is no maximum, as long as dwelling units conform to building regulations and the relevant land use scheme, and that development controls are adhered to (height, coverage, FAR, unit size, etc.). This is to allow developers to build smaller, and thus more affordable units in well located areas (development zones 1, 2 and 3).

Table 2: Development Zones and the SDF 2040 Density Table

Name	Previous name/s (approxi-mately)[4]	Density (see table Table 3 for reference)
1: Inner City (Metropolitan Core)	CBD, Inner City	As per "CBD" in the SDF 2040;
2: Principle Metropolitan Sub-Centres	Metropolitan Nodes, Re-gional Nodes	As per "Metropolitan Nodes" in the SDF 2040
3: General Urban Zone	District Nodes, specialist nodes, Neighbourhood Nodes	As per "District/Specialist Nodes" in the SDF 2040
3a: Local Economic Devel-opment Zones	Parts of marginalised areas	As per "District/Specialist Nodes" in the SDF 2040
4: Sub-urban Zone	Consolidation Zone	As per "All existing single dwelling and low density residential areas outside of Transformation Zone, nodes, nodal buffers (defined below) and TOD nodes" In the SDF 2040; read in con-junction with the residential density in-dex from this document.
5: Agricultural/Peri-Urban	Consolidation Zone	As per "All existing single dwelling and low density residential areas outside of Transformation Zone, nodes, nodal buffers (defined below) and TOD nodes" In the SDF 2040; read in con-junction with the residential density in-dex from this document.
6: Outside the Urban De-velopment Boundary	Outside UDB	N/a. Densification not supported.

[4] Note, previous nodal definitions/categories do not correlate directly to new definitions. Current definitions are defined in this document.

4.2. Residential Density Index

As a part of this Nodal Review, along with the Nodal Review index itself, a second index was calculated for residential densification. This index is also based on urban potential: local access to amenities from schooling, to parks, public transit, healthcare and areas where the city is investing. The full explanation of the index is available in 'Annexure 2: Urban Potential Modelling Method' and at the following link: http://bit.ly/nodal_rev_files

The need for the residential density index has arisen from the SDF and from sometimes skewed implementation of density in different parts of the city, as described earlier in the document. It also rises from the section of the SDF densities table relating to "All existing single dwelling and low density residential areas outside of Transformation Zone, nodes, nodal buffers (defined below) and TOD nodes" included in the SDF densities table (Table 3) below.

That section of the SDF densities table calls for an interpretation on access to "economic activity; public transit; public open space; social infrastructure (health, education, public facilities); the potential to address deprivation area challenges and the surrounding built form" and gives guide densities, indicating that these can be deviated from if access to amenities is good.

The residential densification index gives a standard interpretation of the above, comparing all hexagons in the model equally on access to a range of amenities. While initially it was proposed that this model should produce actual guideline figures for dwelling units per hectare, it now gives densification potential as a percentage (with 100% being the highest potential, and 0% being the lowest). This is to be used by developers and decision makers in the City when applying for/assessing allowable densities in development zones 4 and 5, being "Suburban" and "Peri-Urban". The map below indicates the scores across the City, with more detailed maps available at: **http://bit.ly/nodal_rev_files**

Table 3: SDF 2040 Densities Table including "Consolidation Zone" for easy reference

Target Locations/Spatial Elements		Density /Mix Regulations	
		Housing Density (per erf)[5] (du = dwelling units)	Land Use Mix Allowed (in order of preference)[6]
1 **Transformation Zone**	Inner City	Urban node guideline for CBD to apply (see below)	As per approved local SAF/PP/UDF/Urban Performance Measures and guidelines (section 8.3)
	Corridors of Freedom	Apply public transport density and Corridors of Freedom guidelines	As per approved local SAF/PP/UDF/Urban Performance Measures and guidelines (section 8.3)
	Soweto	Subject to provisions and guidelines emanating from approved Strategic Area Frameworks to be developed Guide Density: 40 du/ha	As per approved local SAF/PP/UDF/RSDF
	Mining Belt		As per approved local SAF/PP/UDF/RSDF
	Randburg- OR Tambo Corridor	Minimum: 60 du/ha	As per approved local SAF/PP/UDF/Urban Performance Measures and guidelines (section 8.3)
2 **Consolidation Zone**	Deprivation Areas/ (Re) Urbanisation Focus	To be determined per proposal - an urban design/typology issue and not a density issue. It will therefore be dealt with by the development control indicators outlined in this SDF. Guide Density: 50 du/ha	As per approved local SAF/PP/UDF/RSDF
	All existing single dwelling and low density residential areas outside of Transformation Zone, nodes, nodal buffers (defined below) and TOD nodes.	To be based, per individual application, on access to: economic activity; public transit; public open space; social infrastructure (health, education, public facilities); the potential to address deprivation area challenges and the surrounding built form. Allowable erf size to be assessed per individual application. Guide density: 20 Du/ha	As per approved local PP/UDF/RSDF

[5] Where mixed uses are present in individual buildings or properties, housing density (du/ha) will be proportionally calculated. For example, if residential use makes up 80% of the development's floor area, the number of residential units should be divided by 80% of the property area to achieve du/ha.

[6] Those listed first should be applied. If the item listed first does not exist or may be overridden by this SDF (as per section **Error! Reference source not found.**1.2) then the next should be applied and so on.

Target Locations/Spatial Elements		Density /Mix Regulations	
		Housing Density (per erf)[5] (du = dwelling units)	Land Use Mix Allowed (in order of preference)[6]
		Height: not more than one story higher than adjacent built form.	
	Mobility Spines/Corridors: The fact that a property abuts a mobility spine or corridor (as defined in current RSDF's) will no longer be supported as a stand-alone (sole) rationale for densification.	To be based, per individual application, on access to: economic activity and jobs; public transit; public open space; and social infrastructure (health, education, public facilities) and on surrounding built form.	As per approved local PP/UDF/RSDF
3 **Nodes**	Within CBD	Minimum: 100 du/ha	As per approved local SAF/PP/UDF/Urban Performance Measures and guidelines (section 8.3)
	Within Metropolitan/ Regional Nodes	Minimum: 80 du/ha	As per approved local SAF/PP/UDF/Urban Performance Measures and guidelines (section 8.3)
	Within 500m walking distance[7] of CBD	Minimum: 80 du/ha	As per approved local SAF/PP/UDF/Urban Performance Measures and guidelines (section 8.3)
	Within 100m walking distance of a Metropolitan/Regional Node	Minimum: 60 du/ha Maximum: 120 du/ha	As per approved local SAF/PP/UDF/Urban Performance Measures and guidelines (section 8.3)
	Within District nodes/Specialist nodes	Minimum: 60 du/ha	As per approved local SAF/PP/UDF/Urban Performance Measures and guidelines (section 8.3)
	Within 100m walking distance of District nodes/ Specialist nodes	Minimum: 50 du/ha Maximum: 100 du/ha	As per approved local SAF/PP/UDF/Urban Performance Measures and guidelines (section 8.3)
	Within Neighbourhood Nodes	Guide Density: 40 du/ha	As per approved local SAF/PP/UDF/Urban Performance Measures and guidelines (section 8.3)
4	Within 500m walking distance of Rea Vaya /BRT bus stations.	Minimum: 60 du/ha (Subject to provisions and guidelines emanating from approved Strategic Area Frameworks that exist)	As per approved local SAF/PP/UDF/Urban Performance Measures and guidelines (section 8.3)

[7] Walking distance is by *public* road or *public* walkway, not 'as the crow flies'.

Target Locations/Spatial Elements		Density /Mix Regulations	
		Housing Density (per erf)[5] (du = dwelling units)	Land Use Mix Allowed (in order of preference)[6]
Transit Oriented Development Nodes	Within 500m walking distance of Gautrain stations, PRASA rail stations	Minimum: 60 du/ha (Subject to provisions and guidelines emanating from approved Strategic Area Frameworks that exist)	As per approved local SAF/PP/UDF/Urban Performance Measures and guidelines (section 8.3)

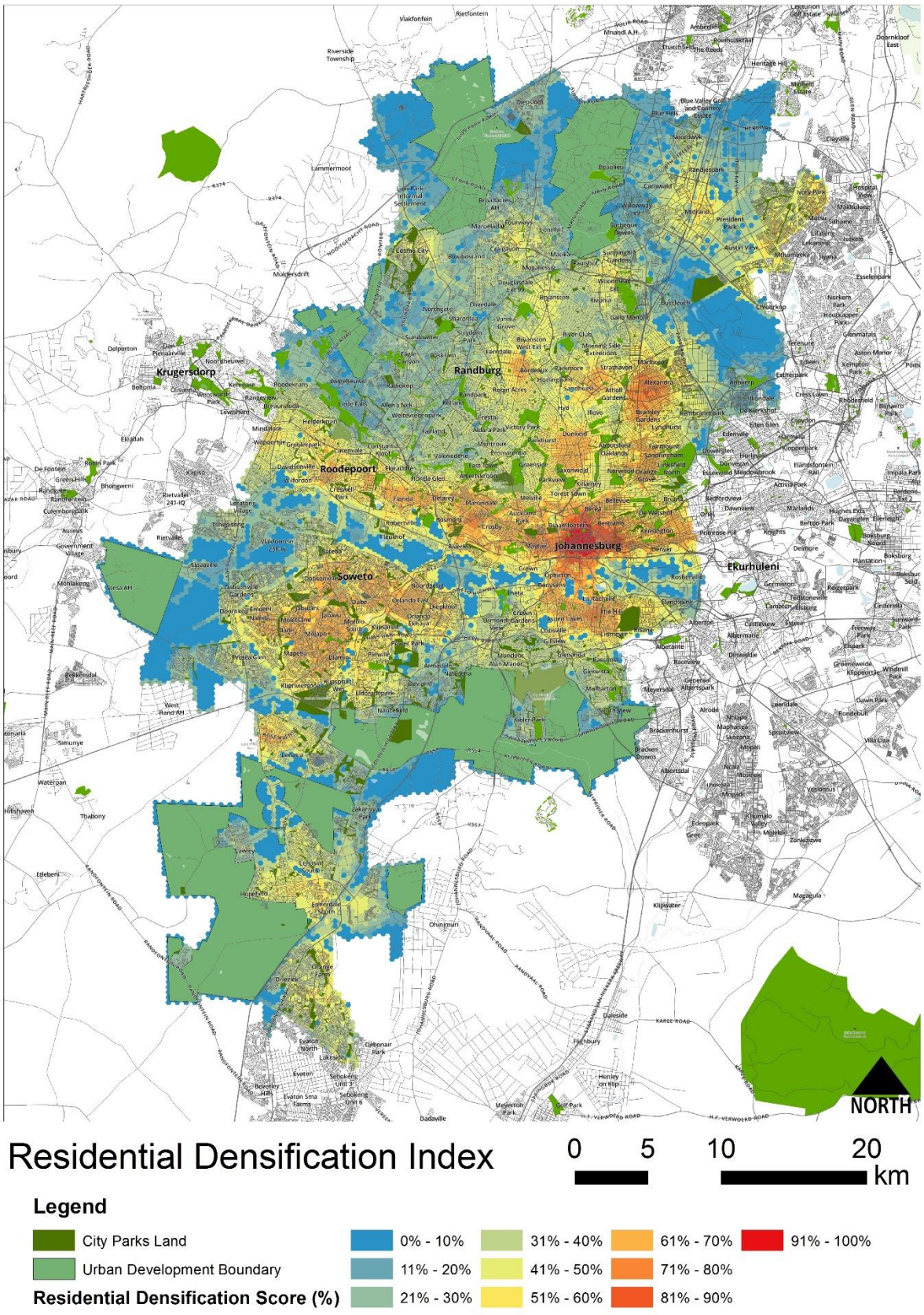

Figure 8: Residential Densification Index for Development zones 4 and 5

5. Reference List

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Annexure 1: Summary of Public Participation

Throughout the process of this nodal review, public participation has taken place. This annexure gives detail of the process to date. It will be updated to include any further public participation as the process continues. The broad components of the public participation are as follows:

Item	Summary	Dates	Proof
1. Call for public input/ideas	A call was publically made to solicit public comments and suggestions for the nodal review	7th of October 2016, with a deadline for submissions on the 11th of December 2016	
2. Online sharing of draft urban potential model, and regional public participation meetings.	The draft model for the nodal review was shared online at http://bit.ly/nodemaps and the presentation made in each meeting is available at http://bit.ly/nodalreview1	Published online: 10 August 2017 Region A: 26 July 2017 Region B: 19 July 2017 Region C: 21 July 2017 Region D: 20 July 2017 Region E: 26 July 2017 Region F: 28 July 2017 Region G: 1 Aug 2017	
3. Collation of public inputs	All of the written inputs received from items 1 and 2 above were mapped (in GIS where applicable) and summarised into a table.	11 December 2016 to 1 December 2017	
4. Internal participation of first draft with Land Use Department	The proposed development zones and nodal delineations were internally workshopped with the Land Use department in the CoJ. Results were summarised into a single document.	Region E: 18 Oct 2017 Northcliff and Surrounds: 18 Oct 2017 C1, Northcliff and Auckland Park: 19 Oct 2017 Region F: 3 Nov 2017 Region A: 17 Oct 2017	

		Region C: 10 Nov 2017	
5. Advertisement of Draft Nodal Review for Public Comment (60 days commenting period)		28 February 2018	
6. Public Participation meetings on Draft Nodal Review		TBC	

Annexure 2: Urban Potential Modelling Method

Available for download at: **http://bit.ly/nodal_rev_files**