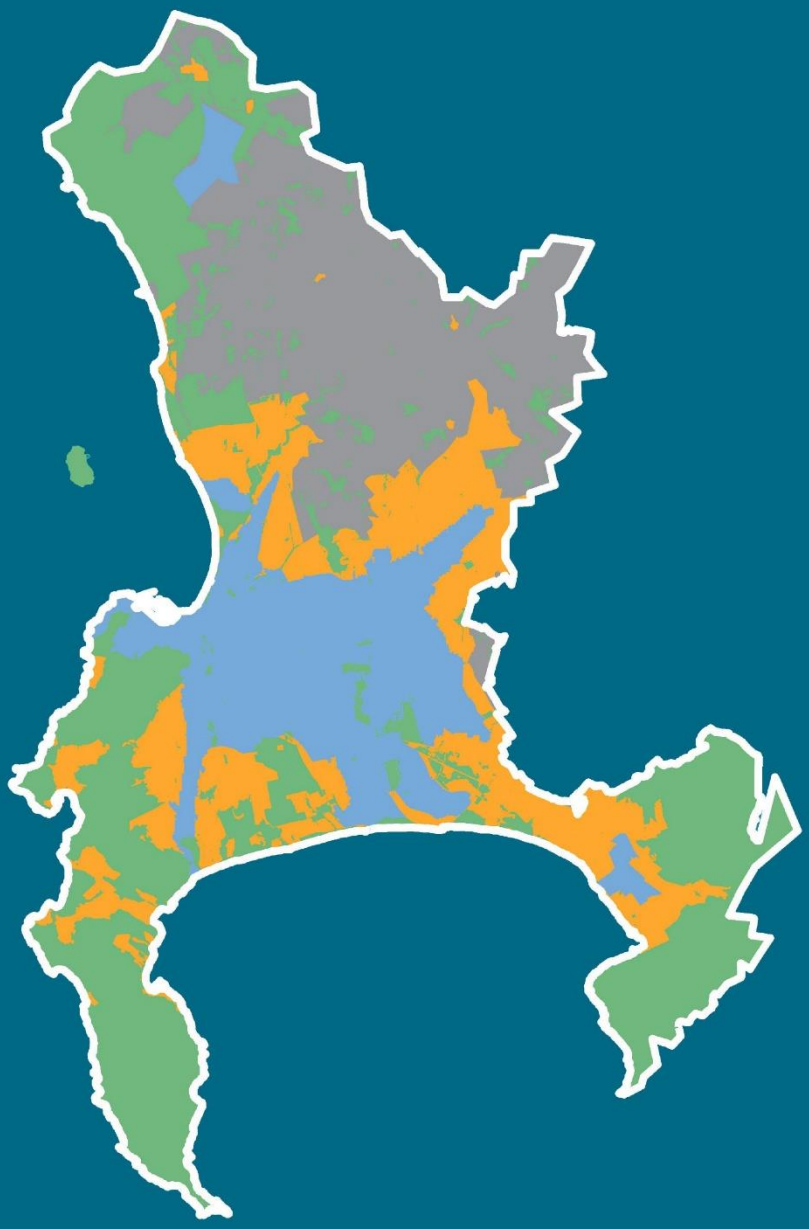
Municipal Spatial Development Framework

As approved by Council



Volume 2: Technical Supplement B to F

26 JANUARY
2023

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

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Technical Supplement B:

Land use intensification

Land is the resource that accommodates the activities of people in geographical space. These activities include living (consume), working (produce, sell, service, etc.) and playing (experience). Travel (interaction) is implied, in order to link these activities and allow interaction.

Land use describes the type of activities that are found on a particular land unit. Buildings, associated amenities, and purpose-made structures or facilities are the physical manifestation of these activities, which occur at fixed locations in space.

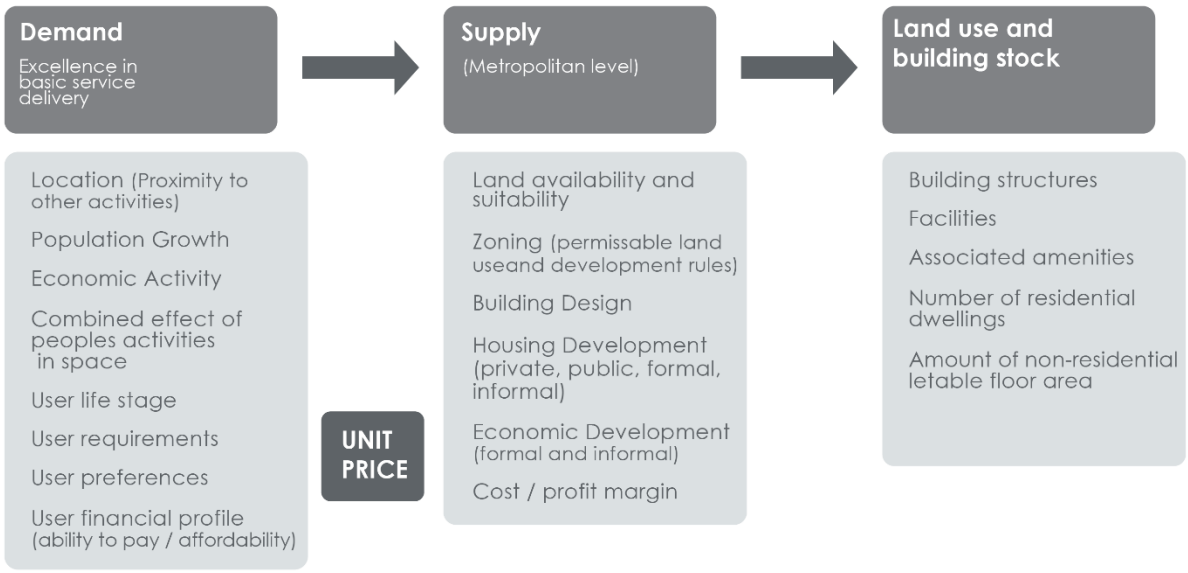
Land location

The location of a particular land unit positions a certain amount of land, used for specific purposes, relative to other pieces of land used for similar, dissimilar or mixed purposes. Relative location, by implication, affects the proximity of a particular land use to other activities and facilities. Such proximity to other land uses can positively or negative affect the use value of the property and, in turn, the market value of the property. The relative location of land use also creates a demand for travel in order for people to participate in the different activities available on that land.

Land development

Complex investment and location decision processes by households and different other actors drive land use in the various property sectors, e.g. residential, commercial, industrial and public sectors. These processes are based on supply and demand of resources (in this case, land) and the allocation of funds to develop (create, enhance, add or extend, and provide infrastructure) and acquire (transfer) its end product (buildings). Some of the aspects that play a role in the land development process are illustrated in Diagram B1.

Diagram B1: Land development concept

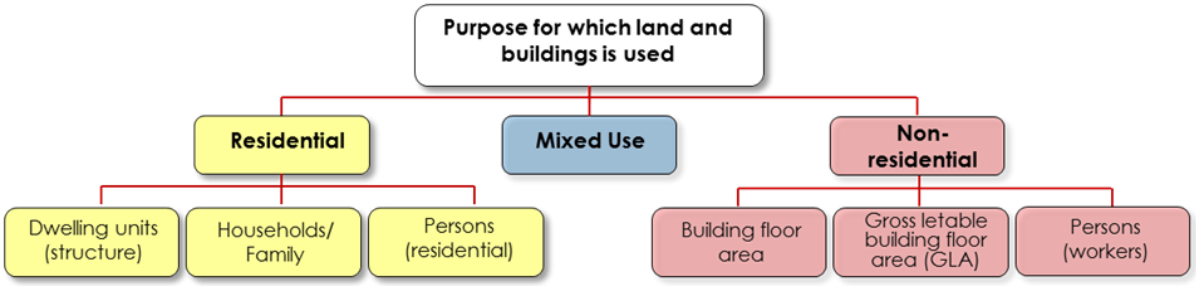


Participants in the development process include end-users, developers, investors and government, all of who have different motives and requirements. The development process itself can be either formal or informal.

Land use

A certain amount of space is allocated to different functions (activities) depending on those factors identified in Diagram B2. Urban land use can broadly be classified as residential or non-residential in nature, although these land use types may also coexist on a land unit. In this case, they would exist in a particular ratio or mix. Diagram B2 illustrates the association between land parcels or buildings and these land use classes, as well as the measurement units used to count and analyse them.

Diagram B2: Units of measure in respect of residential and non-residential land use and building types



The sub-elements of residential and non-residential land use have different characteristics. In the case of residential land use (dwellings), these relate to attributes associated with the dwelling itself, such as:

- location, type, number of bedrooms, price and quality;
- the users' demographic attributes of age, gender, occupation and income; and
- the household (a group of persons), e.g. household size and private vehicle ownership.

In the case of non-residential land use, the attributes relate to the type of economic activity and civic land use for the purpose of public service delivery and social facilities.

Land use can be expressed as a combination of two of its inherent aspects, namely:

- *density* – the number of elements (e.g. dwelling units or gross letable floor area) contained in a defined amount of space; and
- *diversity* – a ratio of the different elements contained in the same defined amount of space (e.g. residential floor area vs non-residential floor area).

Land use: density

Density measures the number of items of a particular type in a defined observation area. As such it can also be interpreted as an occupancy rate. Depending on the variable items and area used, density yields different results. Selecting the most appropriate scale means selecting an appropriate spatial unit of analysis, as illustrated in Diagram B3.

Diagram B3: Urban scale ranges (dot size not representative, but indicative of comparative scale)

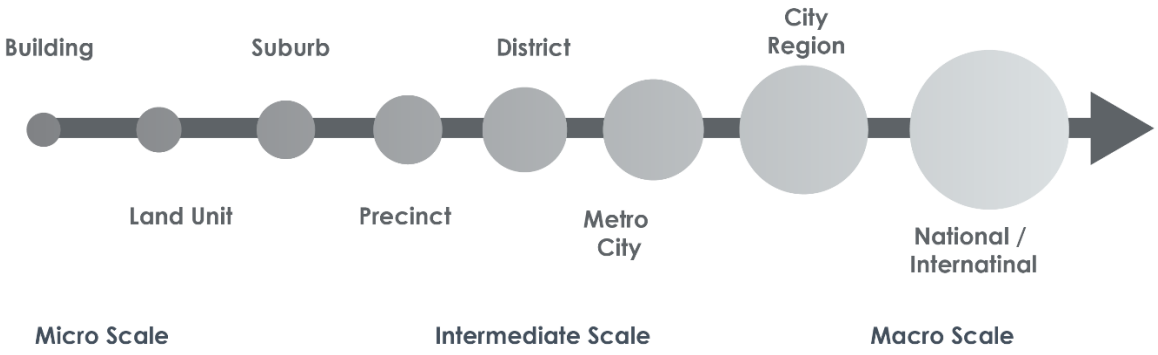


Table B1 below shows the various means of measuring and expressing density, and also indicates for each density type the most appropriate (i.e. smallest) scale at which it would be appropriate.

Table B1: Measurement units and spatial units of analysis used when measuring density

Density measure/ type	**Measurement unit (count item)**	**Spatial unit of analysis (zone/ area)**
Residential density		
• Population density	Number of persons (resident population)	Suburb (census suburb)
		Building (habitable floor area)
• Household density	Number of households	Suburb (census suburb)
• Dwelling unit density (gross)	Number of residential dwellings	Suburb (census suburb) – may exclude certain non-residential land uses, e.g. roads or open space
• Dwelling unit density (net)		Land unit/ suburb/ precinct/ district (includes land used for residential purposes only)
Employment density		
• Worker density	Number of workers	Land unit/ suburb/ precinct/ district
	Number of workers per 100m² GLA	
Building density		
• Floor factor	Building floor area (m²)	Land unit
Specialised density variants		
• Person density	Number of residents plus workers	Suburb
• Gross base density	Number of residential dwellings	Suburb – excludes land extensive land uses as identified in the Cape Town Densification Policy, 2012
• Occupancy density	Number of persons	Building floor area
• Urban agglomeration density	Built-up area (m²/ha/km²)	Metro or city region
Transport-specific		
• Roads density	Kilometres of roads	Various (micro to intermediate)
• Cycle path network density	Kilometres of cycle paths	Various (micro to intermediate)
• Vehicles density	Number of registered vehicles	Various (micro to intermediate)

Densification is actively encouraged through the City's Densification Policy (2012). The following three types of density are implied in this context:

- *Resident population density* - an increase in the number of units or population per spatial unit
- *Employment density* - an increase in the number of job opportunities or workers
- *Building density* - the increased use of space (both horizontally and vertically) within existing areas or properties and new developments.

By implication, in order to achieve greater density, the overall number of workers or residents should increase by virtue of increasing non-residential or residential land uses, in addition to increased building density (i.e. higher floor area ratios) to accommodate the additional (mix of) activities.

Land use: diversity

Land use diversity is commonly referred to as mixed land use. It refers to the horizontal or vertical integration of suitable and compatible residential and non-residential land uses within the same area, or on the same land unit.

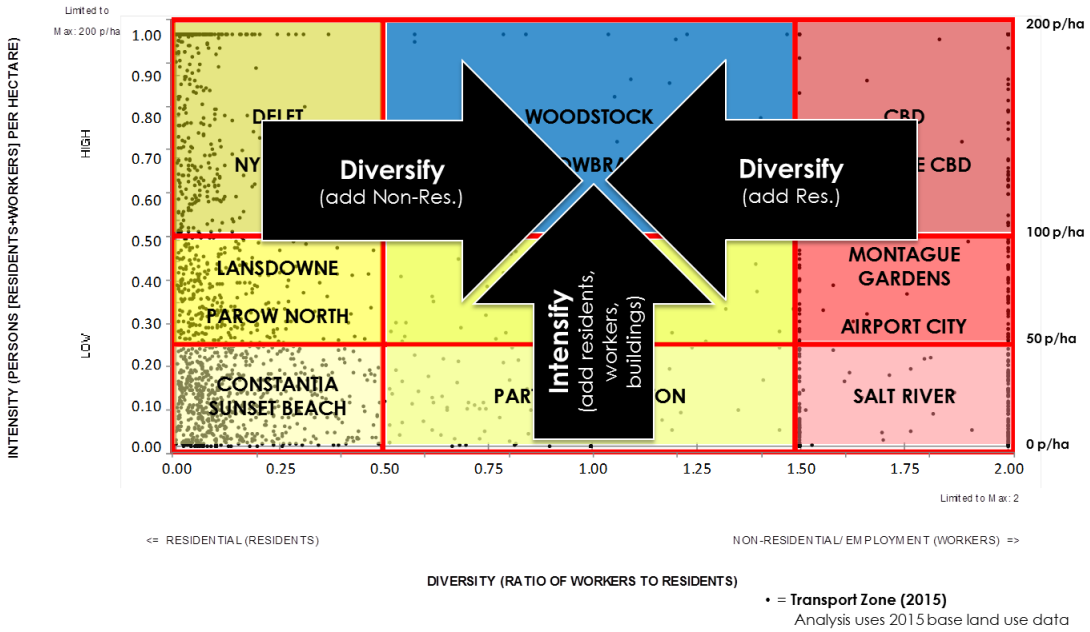
Diversity measures the presence of different land uses in relation to each another. It can be expressed as a ratio (e.g. residential habitable floor area : non-residential gross lettable floor area, or number of residents : number of workers), or as a percentage (residential and non-residential), and can be calculated at different scales.

Density and diversity are interrelated and cannot be described separately from each other. One hundred square metres (100m²) of residential space may have different occupancy rates (household size) depending on a variety of factors, e.g. income, size and type of dwelling. Similarly, the same amount of non-residential space may have different occupancy rates due to, for example, the type of activity (e.g. office, retail or industrial) and the rent per square metre. This illustrates that, depending on how diversity is measured, e.g. ratio of persons or ratio of floor area per land use category – density will influence such diversity.

Increasing diversity in corridors, nodes and other strategic areas within the city implies that dominant residential areas, with high numbers of residents and dwelling units (trip generators), require more non-residential/ employment opportunities or job related land uses (trip attractors) and vice-versa.

Diagram B4 conceptually illustrates land use adjustment to realise land use intensification in spatially targeted and prioritised corridors and nodes, at a metropolitan level, in order to limit the need for travel and improve movement patterns.

Diagram B4: Policy directive to support land use intensification

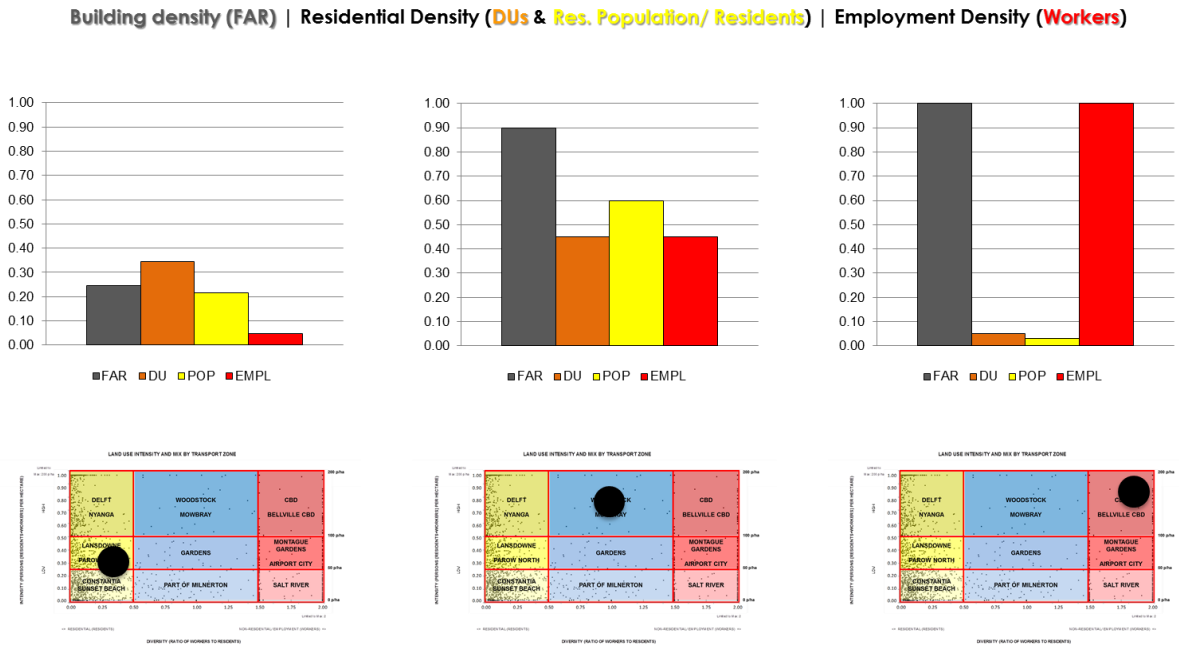


Generally, areas with a predominantly residential or employment character should be encouraged to diversify, and add more of the 'opposite' land use. So, for example, in the case of residential areas, the objective should be to add more non-residential land uses, or change the existing mix, to improve land use diversity.

To improve density, more residential or non-residential land use should be added by increasing the building floor area to accommodate a higher number of workers or residents. Depending on comparative densities (i.e. floor area per resident versus that required for a worker), densification may also be achieved through diversification, without adding additional floor area. This, again, confirms that density and diversity in respect of land use are two sides of the same coin and that changes in the one dimension may bring about beneficial changes in the other.

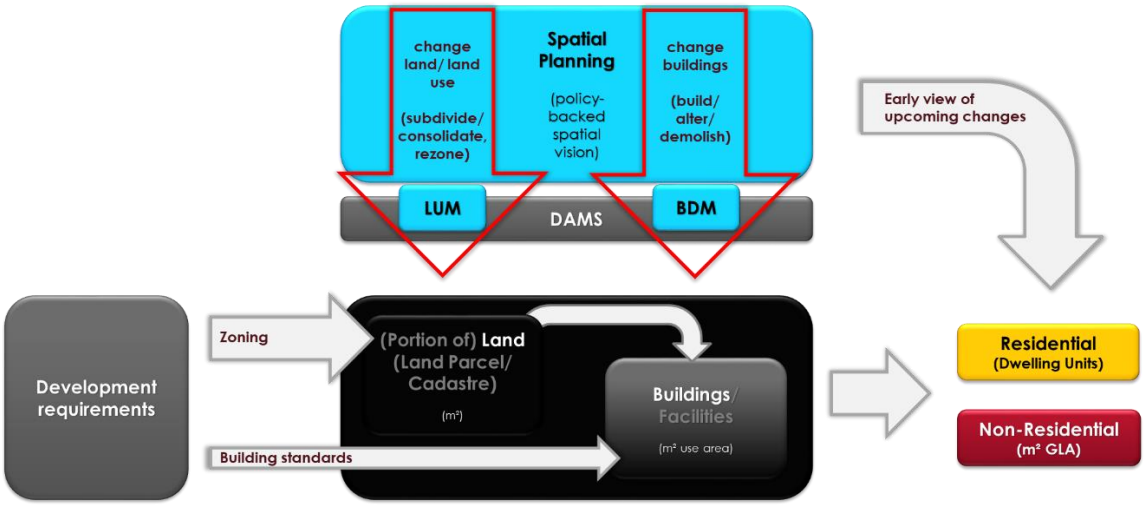
Diagram B5 illustrates the intensity profiles for a number of sample areas reflecting the differentiation in building, worker and resident densities and diversity. These profiles can be generated for any area in the city and used as the basis for detailed land use and infrastructure and transportation planning.

Diagram B5: Examples of land use intensity profiles for different areas in the city



The profile indicates both the density and diversity dimension of land use. By considering different types of density (residential dwelling units, residential population, workers and building density), a more comprehensive profile is constructed of a particular area, which may aid in determining the best method/s to densify or diversify land use in that area, or between different areas.

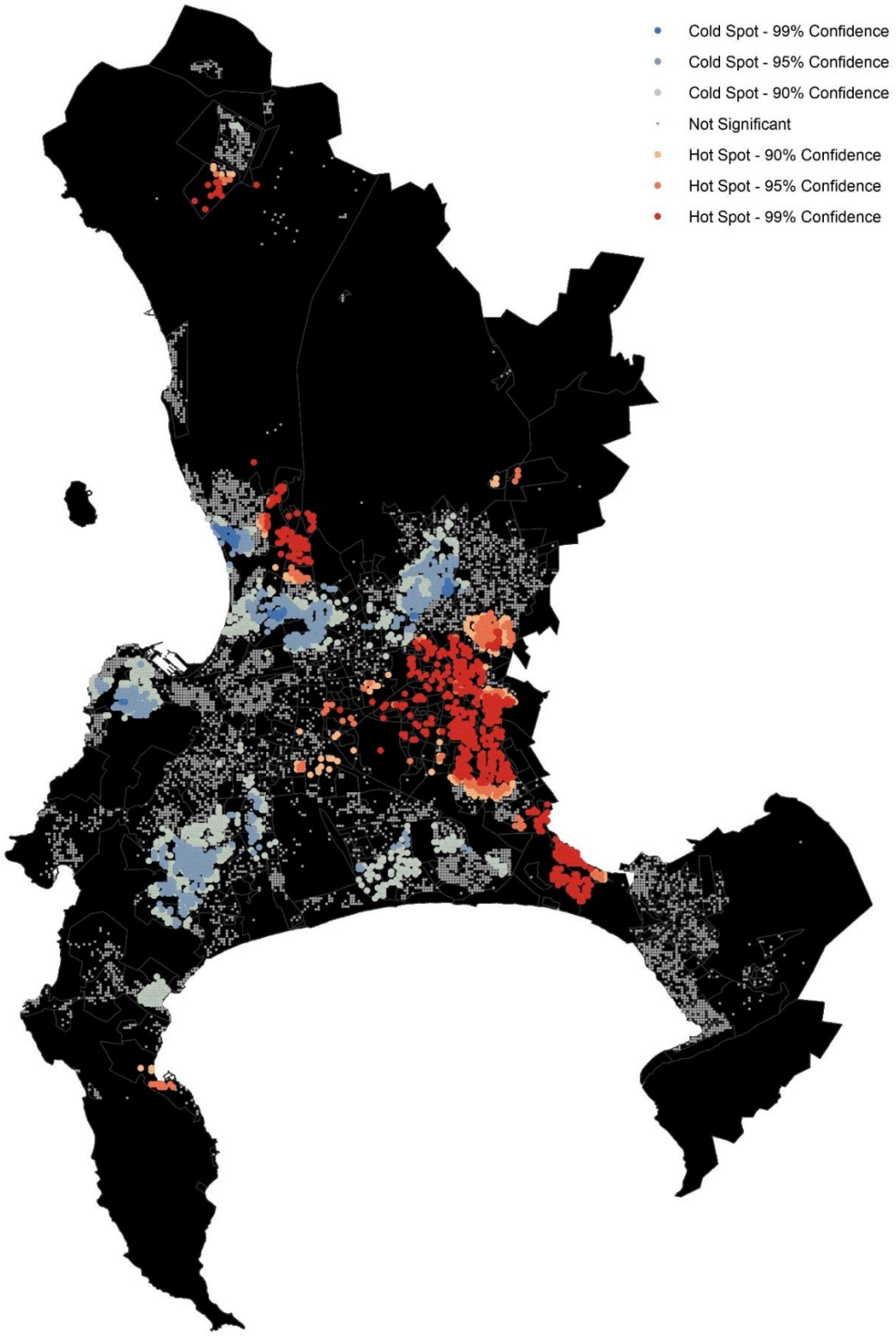
Diagram B6: Land and building development administration process overview



Density and diversity of use change over time depending on circumstances, and will strive towards attaining the highest and best use of land in the particular context (property economy, location, etc.). The City's development application management system (DAMS) receives development applications towards that end, and manages the administration of land use management (LUM) and building plan (BDM) applications. Diagram B6 provides a high-level overview of relevant components in the process of land and building development

management. Map B1 shows the hotspots where building plans were received, processed, approved and building works were completed. Many of these building plans were also preceded by an application for a change of land use or amendment of development rules. Development applications are further explored in Technical Supplement F.

Map B1: Hotspot analysis of all types of building work completed (aggregated) from 2016 to June 2020



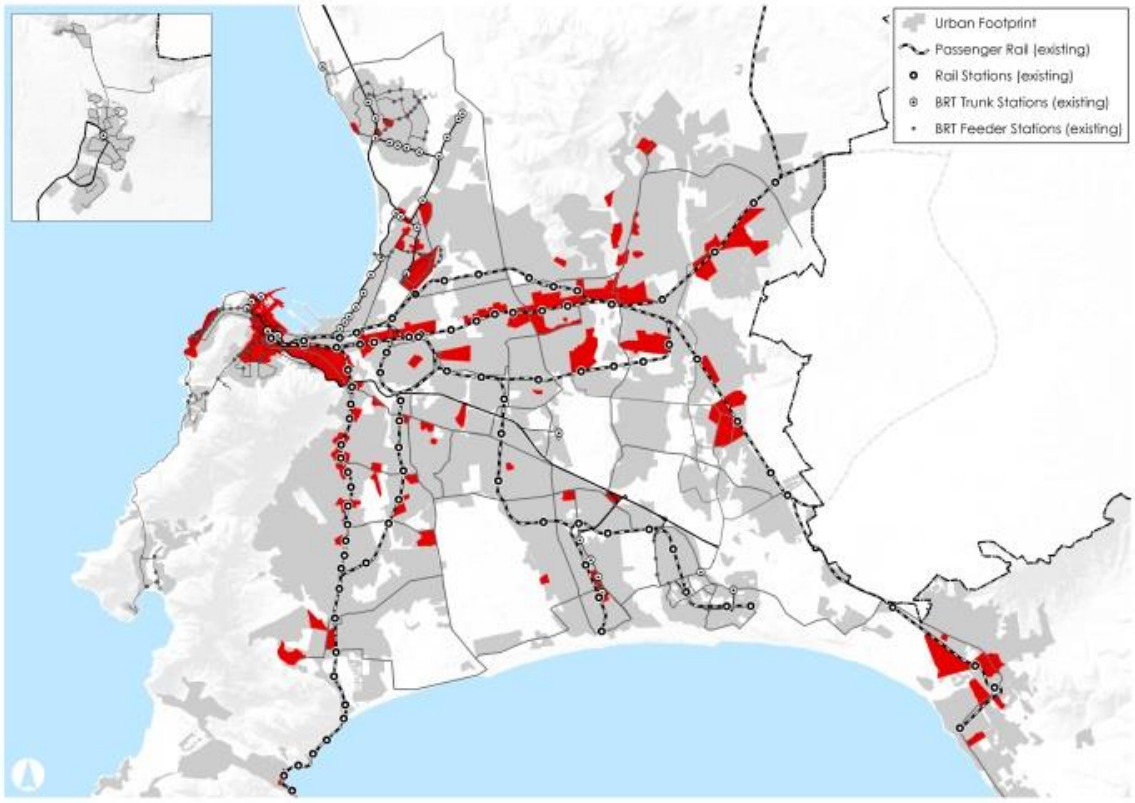
Both density and diversity must be considered when analysing land use. In this document, land use intensity refers to the combined effect of density and diversity as it relates to a land unit used for a combination of purposes.

Land use intensity is analysed to understand the potential for accommodating growth within the existing city footprint and with the aim of promoting a more compact city. The scale of the area analysed has an impact on the density result. For instance, the building density on a single land unit (i.e. net density) will be higher than that of larger areas such as a precinct or development corridor (i.e. gross density). This reiterates the point that density is influenced by the scale at which it is measured, and secondly by the aggregate collection of land parcels included, as well as its land use.

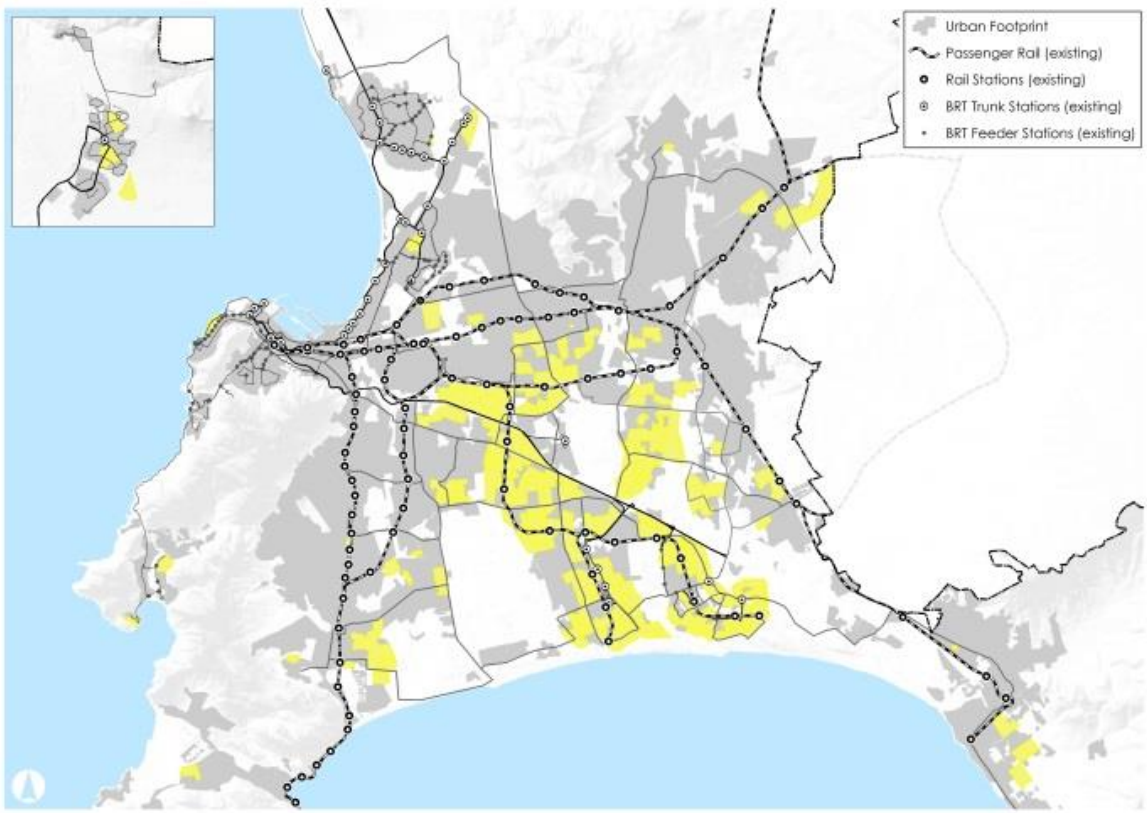
Land use intensity can be directly or indirectly affected by land supply considerations.

Map B2, B3 and B4 show areas of high density by land use class, as well as areas of high intensity (i.e. high density, mixed use).

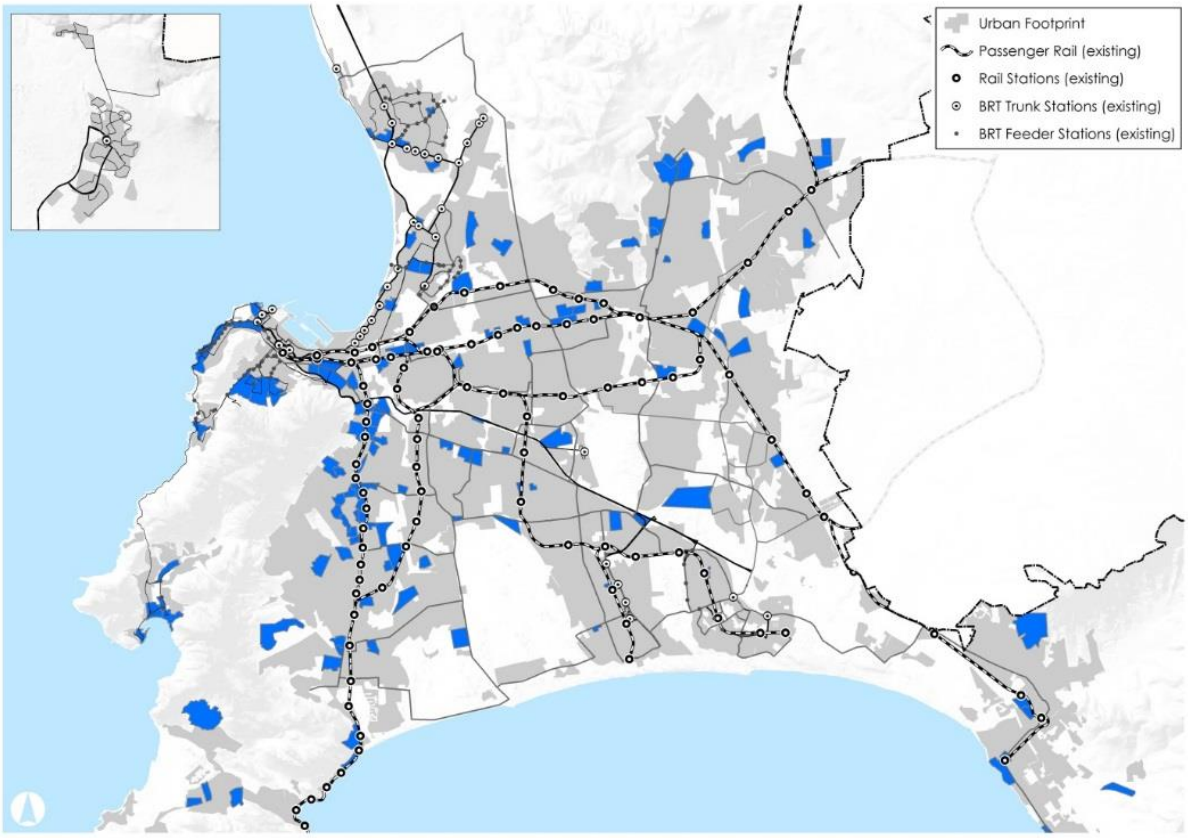
Map B2: Areas with a current non-residential density greater than 100 persons per hectare (2015)



Map B3: Areas with a current residential density greater than 40 persons (workers) per ha (2015)



Map B4: Areas with a current person density greater than 100 persons (residents plus workers) per ha (2015)



A diversity ratio of workers to residents of between 0.5:1.0 and 1.5:1.0 indicates higher density, mixed-use areas (as calculated in the CTOD Land Use Scenario: Base year data, 2015).

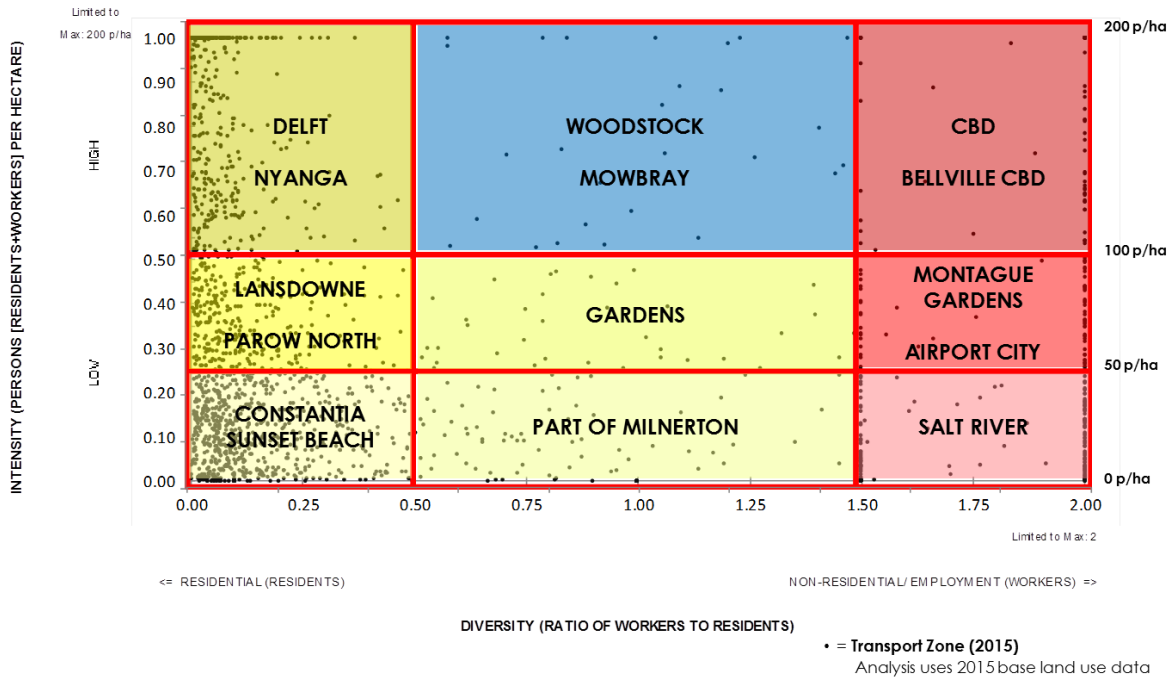
Land use intensity for different areas within the city can also be represented as a scatterplot chart (Diagram B7), where the different areas are indicated as black dots. Density, measured here in number of persons (workers and residents), is indicated on the vertical axis of the chart. The scale has been normalised with the upper value of one representing a person density of more than 200 persons per hectare. Diversity, measured as the ratio of residents to workers, is indicated on the horizontal axis, where a 1:1 ratio is regarded as a good balance between workers and residents.

The chart shows that areas like Constantia and Sunset Beach, located in the yellow zone (indicating a predominately residential land use area), have a low density compared to areas such as Delft and Nyanga, where some of the highest densities occur. In the red zone (indicating areas with a higher ratio of workers to residents), the highest employment density is in the Cape Town and Bellville CBDs at between 100 and 200+ persons per hectare. The lowest employment density is in the Salt River area at below 50 persons per hectare.

The chart further indicates that most areas reflect a low diversity, as areas predominantly appear in the residential range of 0.0 - 0.5, e.g. Delft, Nyanga, Lansdowne, Parow North, Constantia, and Sunset Beach. There are fewer areas in the range 1.5 - 2 workers per resident, which are predominantly employment-generating areas, e.g. Cape Town CBD, Bellville CBD, Montague Gardens, Airport City and Salt River. A limited number of areas are located within the 0.5 - 1.5 range indicative of mixed use. Examples of areas with good diversity include parts of Milnerton, Gardens and Woodstock.

The blue zone indicates areas, e.g. Woodstock and Mowbray, where a good mix of workers and residents is found (i.e. a diversified area with a ratio of between 0.5 and 1.5 workers per resident), as well as densities at the higher end of the range (i.e. 100 to 200+ persons/ha).

Diagram B7: Land use intensity (population density and diversity) reflected by area



Land use intensity: potential

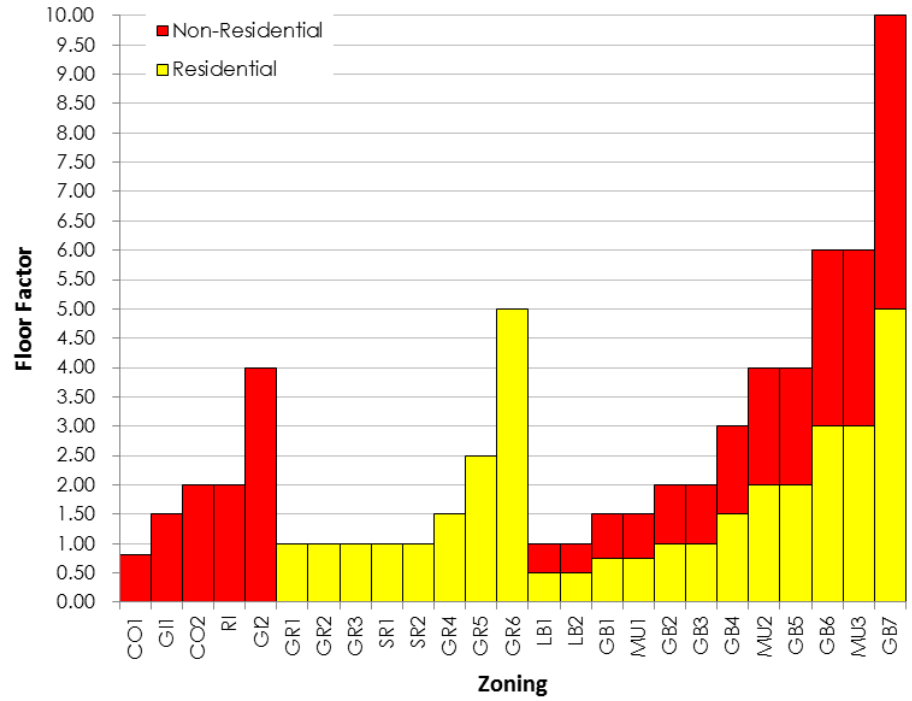
Building density, expressed as a floor factor (FF), is a useful method to compare the permissible density, given the zoning and development rules related to a land unit, to the actual density (measured or estimated). This can be used to roughly estimate the 'residual potential' of a land unit, i.e. its potential to accommodate additional buildings given the rights bestowed upon it by its zoning, and given its current level of development.

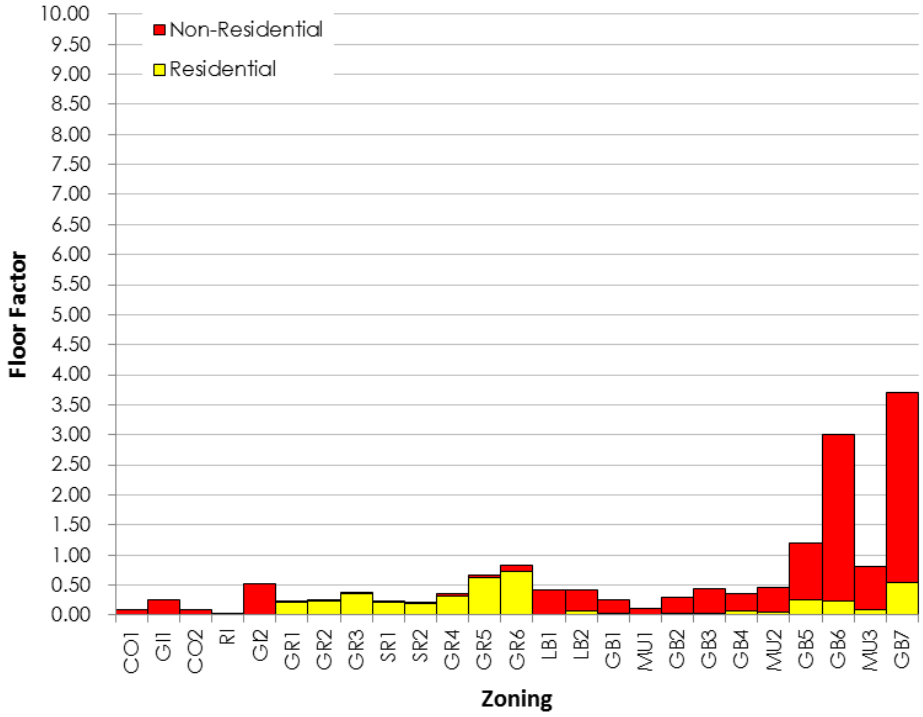
By considering land use potential from a land use intensity perspective (density and diversity), the development potential of undeveloped, partially developed and fully developed land can be assessed and compared.

Given that buildings accommodate people (in their capacity as workers or residents), the residual development potential could be used to accommodate more workers or residents depending on the bundle of land uses permitted under the assigned zoning of the land unit.

Diagram B8 illustrates the permissible development potential that zoning bestows on land. The diagram on the left shows permissible land use intensity (density and diversity) in terms of the Development Management Scheme (DMS). The diagram on the right shows actual land use intensity for selected zonings on a citywide scale, based on measurements.

Diagram B8: Land use diversity (density and diversity)





LB1	Local Business 1	**SR1**	Single Residential Zone 1	**MU1**	Mixed Use SubZone 1
LB2	Local Business 2	**SR2**	Single Residential Zone 2	**MU2**	Mixed Use SubZone 2
GB1	General Business SubZone 1	**GR1**	General Residential SubZone 1	**MU3**	Mixed Use SubZone 3
GB2	General Business SubZone 2	**GR2**	General Residential SubZone 2	**RI**	Risk Industry Zone
GB3	General Business SubZone 3	**GR3**	General Residential SubZone 3	**GI1**	General Industry Zone 1
GB4	General Business SubZone 4	**GR4**	General Residential SubZone 4	**GI2**	General Industry Zone 2
GB5	General Business SubZone 5	**GR5**	General Residential SubZone 5	**CO1**	Community Zone 1
GB6	General Business SubZone 6	**GR6**	General Residential SubZone 6	**CO2**	Community Zone 2
GB7	General Business SubZone 7				

These diagrams indicate that, in Cape Town as a whole, land is developed at lower densities, and that an optimised land use mix is not evident at land unit level. It also illustrates that mixed land use can be achieved under different zonings and not only the ones explicitly called "mixed use". Again, the unit of measurement is of importance, as greater diversity of land use will be present as the spatial area of measurement gets larger. Consider, for example, the land use mix of an individual property versus that of the larger precinct. While the mix at land unit level may be limited, the mix at the precinct level could be far higher.

The difference between the densities (measured in floor factor) on the two graphs in Diagram B8 can be explained in terms of the supply and demand factors outlined earlier.

The possible impact that parking requirements may have on the floor factor that is achieved, has been addressed by means of parking reductions in areas well served by public transport. More areas may be considered in support of the development of an integrated public transport network. As can be seen from these examples, the concepts of density and diversity are fundamental in understanding the interaction between land use and transportation.

The Municipal Planning By-Law incorporating the Development Management Scheme (DMS), is able to facilitate the contemplated improvement of land use intensity. In many cases, the latent or unused land use rights are sufficient, and already allow for further intensification without amending existing land use permissions or deviating from development rules and requirements. The diagram reflects the degree to which higher density or higher diversity within some of the zoning categories are already possible on a metropolitan scale of assessment. Obviously, what can be achieved will differ on a site-specific basis due to specificities at that scale. No regulatory reform is therefore required in respect of land use management in order to facilitate intensification and TOD.

Land use and transportation modelling: future land use in a 20- to 30-year context

In 2012, the City undertook to develop a range of land use and transportation scenarios to illustrate potential spatial patterns and locations for a 20-year period. The objectives of the scenarios ranged from realistic, and considering land use policy impact on long-term urban growth, to more instrumental in restructuring the city. The scenarios accepted the current (historically created) spatial fragmentation of residential and economic land use patterns and combined this reality with calculations on anticipated new growth in land uses.

The eventual scenarios focused on creating a more balanced and efficient city, linked directly to the optimum functioning of the transportation network. Intensified focus on the mandate of the City to restructure for increased efficiency and integration has encouraged it to explore a more thorough approach to TOD development, and led to the development of its most ambitious land use scenario, the TOD Comprehensive (TOD C)[1], which sets targets for development in both vacant land and built up areas.

The development of these future land use scenarios represents a significant contribution to the City's progress in terms of its strategy and policy thinking that informs the re-shaping and re-forming of spatial approaches in set out in the IDP. The spatial location of the anticipated expansion across four broad land use categories, illustrated in Diagram B9, impacts on available re-structuring opportunities.

[1] TOD Comprehensive is described in the TOD Strategic Framework, March 2016.

Diagram B9: Anticipated land use quantum (2020-2040)

Residential		Residential	630 264	Projected dwelling units (DU) growth (all types of units)
Non-Residential		Retail	1 007 727	Projected m² GLA growth
		Office	1 481 951	Projected m² GLA growth
		Industrial	3 650 764	Projected m² GLA growth

These scenarios have evolved into sophisticated approaches, linked to complex data sets and inputs, including travel patterns and modes, infrastructure risks and growth pressure areas. These data-driven land use scenarios have also informed a variety of projects and strategies, including infrastructure master planning and the IPTN.

Table B2: Progress in land use modelling methods and scenarios 2012 - 2020

YEAR	SCENARIO	SPATIAL ALLOCATION/ EMPHASIS	ASSUMPTIONS	PRACTICAL APPLICATION
Pre-2012	Urban growth model (UGM)	Citywide growth	Anticipated development	• Identification of future pressure points (risk identification)
2012	Medium- to long-term Cape Town growth options	NE and NW greenfield growth corridors	Greenfield expansion	• Underpinned the 2012-CTSDF • Infrastructure costing and phasing for the growth corridors
2013	Business as usual (BAU)	Citywide growth	Development trends continue, unencumbered by UDE. Based on continuation of financial and spatial (land ownership) principles in government-subsidised housing policy, and at-trend development densities	
2013	Pragmatic densification (PD)	Citywide growth	Development intensification and urban compaction more constrained within the UDE, with intensified allocation to strategically located vacant parcels	• Basis of all master planning by utilities departments • Development Contribution Policy • Social facility planning (CSIR) for parks, clinics, libraries, fire stations, schools, sports fields, community halls • 15-20 year Medium Term Infrastructure Framework (MTIIF initial assessment)
2013	Pragmatic TOD (PTOD)	Citywide growth with a focus on densification priority zones identified in the Cape Town Densification Policy (2012)	Greater density and intensity in respect of new developments located in relation to the public transportation network (IPTN) and access points. Also included intensification of focus on	• IPTN • MTIIF (second assessment)

YEAR	SCENARIO	SPATIAL ALLOCATION/ EMPHASIS	ASSUMPTIONS	PRACTICAL APPLICATION
			undeveloped and partially-developed land parcels	
2015	TOD Comprehensive (TOD C) – approved by Council	Citywide growth – public transit nodes (transport accessible precincts)	Optimal land use allocation to support a range of transportation-related sustainability and efficiency outcomes	• MTIIF (third assessment)
2020	Pragmatic expectation	Citywide growth with higher densities in public transit nodes and zones	Consolidation, low economic growth, stronger growth in the less-formal residential sector	• Sector Plans • Transport projects • IPTN

Detailed layers of information and assumptions

The base numbers for population, as well as associated household and other non-residential land use growth, were determined by using past growth trends to project future growth. They were informed by the following:

- Verification of dwelling growth projections against population growth estimates.
- Inclusion of informal dwellings, additional dwellings (formal and informal/less-formal), emerging boarding house type development.
- Long-term trend data for non-residential land uses, to minimise the impact of market cycles and reflect structural changes in the economy, such as deindustrialisation.

Each scenario was underpinned by a range of detailed assumptions. For the purposes of this MSDF review, the following high-level assumptions for the latest land use scenario were included:

- Household income and land value has an impact on affordability and, by implication, the spatial distribution/allocation of households. Areas of informality will persist and less-formal/informal development will comprise a greater share of the total supply of residential dwelling units.
- Priority transit areas receive higher density development based on existing, practical, permissible and deliverable land use rights.
- Parking requirements can be adjusted in new development areas with good access to public transport.
- Land use intensity and mix would be allocated pragmatically, based on land use trends and a consolidation approach in respect of non-residential development, i.e. further development in established, dominant commercial and industrial nodes where possible with a number of new development areas dependent on property market conditions. General rules of thumb in respect of non-residential development are that it prefers road network accessibility and visibility; retail follows residential development; industrial development avoids areas at risk of unlawful occupation of land; office follows office and tend to cluster; there will be an adjustment in the mixed use proportions of existing business precincts.

The current baseline established the existing land use mix per valuation neighbourhood (spatial units used in the mass appraisal of property values). The spatial units also contain the anticipated growth (scenario) of the four broad land use categories outlined in diagram F1 above.

In previous scenarios, Transport Analysis Zones (TAZs) were used to illustrate areas of the city that contribute to peak hour flows of traffic from trip origins (residential land uses reflected in yellow) to trip destinations (non-residential land uses reflected in red). They also demonstrated how these trip patterns undermine the efficiency of moving around the city.

The choice of Residential Valuation Neighbourhoods as spatial unit of analysis is based on the approach of employing property values to estimate household income, and allocate households on this basis.

In addition to undeveloped and partially-developed land, latent development rights are employed where it seems viable to do so. A number of development constraints were considered and applied to the modelling of these values, for example the noise contours from the Cape Town International Airport, exclusion zones associated with the Koeberg nuclear facility, floodlines, and environmental or conservation areas. Table B3 illustrates both the 2018 baseline and the 2040 projected totals for residential and non-residential land uses.

Table B3: Land use estimates

Land Use	2018 (est.)	2040 (projected)
Residential (number of dwelling units)	1 312 844	1 962 761
Retail (m² GLA)	8 616 281	9 659 279
Office	7 544 246	9 015 836
Industry	23 353 755	26 743 133

Technical Supplement C:

Regulatory requirements & informants

Legal remit of the MSDF

Section 35 of the Municipal Systems Act, Act 32 of 2000 (MSA) states that a Spatial Development Framework, which is an integral component of a Council-approved IDP, serves as the principal strategic planning instrument to guide and inform long-term planning and development in the municipality.

The MSDF cannot, however, remove or bestow land use or building rights to property, or exempt property owners or residents from their rights and obligations in terms of the Development Management Scheme (DMS)[2] or any other legislation.

The provisions of SPLUMA and the MPB-L have created a regulatory environment within which land development decisions are administered and advice is rendered, and they have strengthened the role of the MSDF in land development decision-making.

In terms of Section 22 of SPLUMA:

"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."

The MPB-L, in Section 99, outlines the criteria for deciding on an application. In terms of the strategy and policy environment, current practice in the assessment of applications, gives consideration to the following:

- The City's Integrated Development Plan (IDP) and supporting development strategies (e.g. Inclusive Economic Growth and Social Development Strategies, Environmental Strategy and Resilience Strategy)
- The Cape Town Municipal Spatial Development Framework (MSDF) as per MPB-L s99(1)(b)
- Relevant District Spatial Development Framework (SDF) or Local SDF as per MPB-L s99(2)(a)
- Approved (planning) policy, if applicable (e.g. Transit-Oriented Development Strategic Framework, Densification Policy, Urban Design Policy) as per s99(2)(c)
- Other impact considerations including, but not limited to, economic and social impact, compatibility of uses and scale, external engineering services and heritage or biophysical environment s99(3) (various)

The MPB-L emphasises the MSDF as the principal policy tool for evaluating applications for new or enhanced land use rights. Section 9 of the MPB-L further states:
"9.(1) … the City may deviate from the provisions of the municipal spatial development framework only if sit- specific circumstances justify the deviation.

(2) In determining whether the site-specific circumstances exist, the City must give regard to the development application that has been submitted and any other relevant considerations."

[2] The City developed and implemented a consolidated zoning scheme - the Development Management Scheme (DMS) - as a component of the Municipal Planning By-law of 2015 (MPB-L). Although it is consistent with SPLUMA principles, it is continually enhanced to give effect to the City's latest development objectives and principles. In this regard, and in line with a resolution from Council, the DMS is reviewed and updated on an annual basis to remain in line with the latest development objectives and principles.

A policy-driven land use system to advance spatial transformation

Municipal planning operates within a legislative framework that provides guidelines and directives to municipalities on how, and what, to consider when developing a land use system (LUS). The Municipal Systems Act 32 of 2000 (MSA) specifically requires that when a municipality is drafting its MSDF it includes basic guidelines for such a land use system.

Although the MSA does not provide specific direction on what must be considered when drafting basic guidelines, it has to be accepted that the focus should be on giving effect to the development and land use guidelines set out in the MSDF.

SPLUMA sets principles to be considered when developing and reviewing the MSDF and a land use scheme (the complementary components of a LUS). These principles have been incorporated as part of the Policy Statements (Chapter 2 and Technical Supplement A) of the MSDF and will be central in reviews of the City's land use scheme.

Conventional 'single use zoning' land use schemes have not achieved the spatial transformation objectives of City policy and strategy, or the overarching SPLUMA principles. A compliant land use scheme needs to provide for a relevant, responsive, flexible and policy-driven approach to land use management in which a broader range of instruments and policies set the guidelines against which land use decision making takes place.

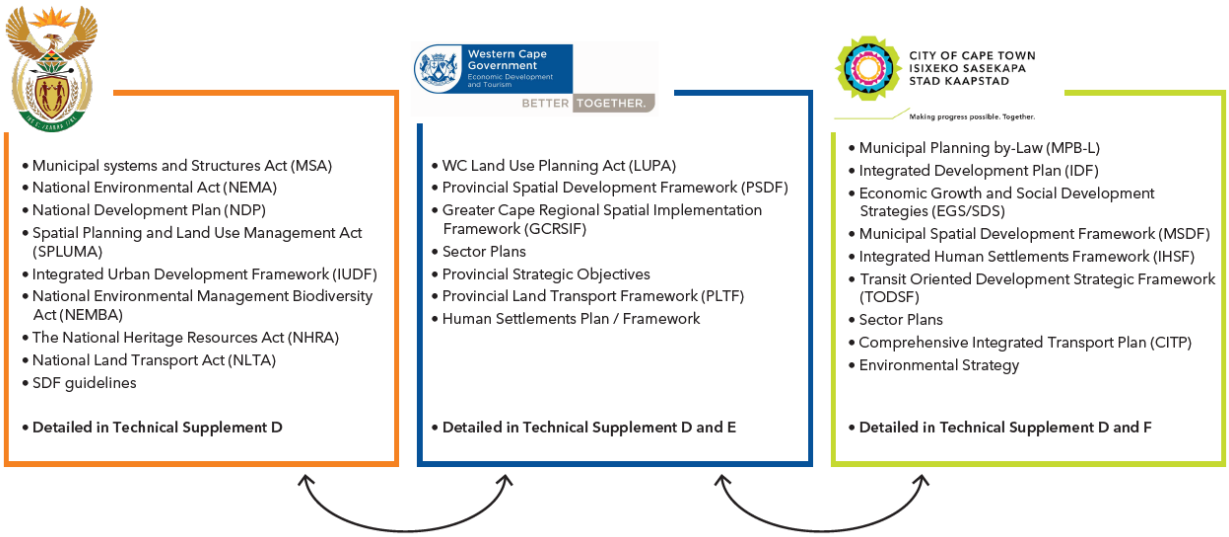
It is necessary to put in place a land use system that is flexible and promotes consistent and predictable decision-making in support of policy and strategic objectives. Accordingly, the City's updated LUS will aim to do the following:

- Integrate existing, separate and diverse land use management systems, tools, policies and approaches into a single, harmonious system with a clear hierarchy of plans
- Achieve a closer link between zoning control, spatial planning and development principles and objectives
- Protect the importance and value of property as an economic asset and opportunity
- Put in place policies and guidelines for predictable and informed discretionary decision-making within the regulatory framework
- Give effect to the principle of spatial transformation as highlighted in SPLUMA
- Enable the City's spatial development objectives and, more specifically, the transit-oriented development principles
- Incorporate standardised and uniform business processes, procedures and systems, to ensure legal compliance and administrative efficiency
- Be user-friendly and easily accessible to City officials and external users
- Include mechanisms to monitor compliance with policies, and the prioritisation of public investment
- Build on the digital application management system to create efficiency and facilitate detailed analysis of spatial and land use trends

Inter-governmental policy context and institutional arrangements

Effective and credible spatial planning and aligned investment of public funding is dependent on cooperative governance between all spheres of government. There are many areas of joint responsibility between these different spheres, and the legislative framework demands coherence, stability and predictability between them, notwithstanding the constitutional competencies of each sphere.
Diagram C1 illustrates the relationship between the different government spheres' spatial planning law and strategy development.

Diagram C1: Policy context across the spheres of government



A composite diagram of the three spheres of government's planning and resource frameworks is illustrated in Diagram C2.

Diagram C2: Conceptual intergovernmental planning and resource framework

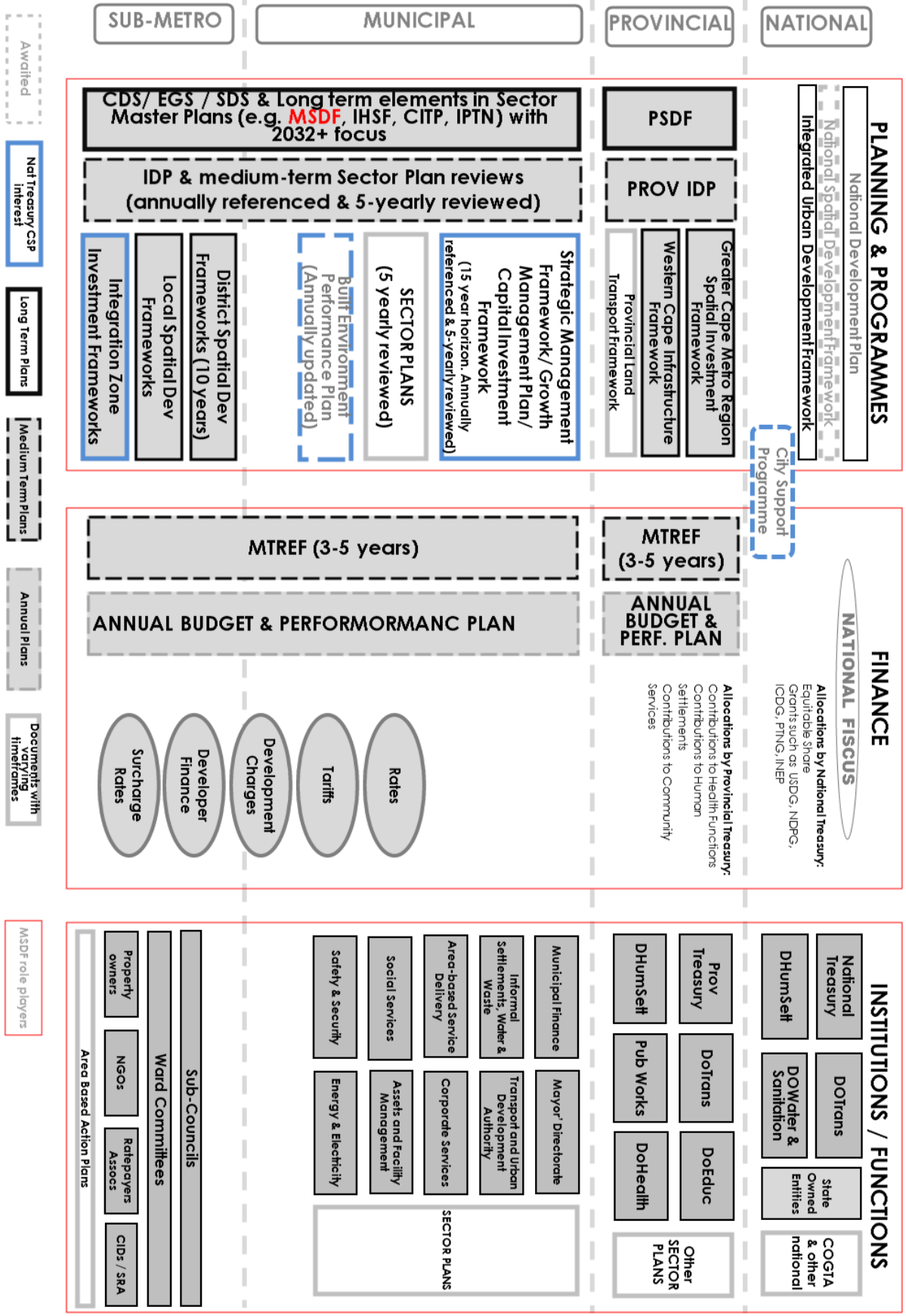


Table C1: Updates to the content of the MSDF based on legislative & policy changes since 2018

CONTENT	REQUIREMENTS	LEGISLATIVE REFERENCES	EXTENT OF CHANGE FROM 2018 DOCUMENT (BY CHAPTER)	POLICIES, STRATEGIES & PLANS ADOPTED (POST-2018) NATIONALLY, PROVINCIALLY, CITY (TO BE INCORPORATED)	CHAPTER
Strategy and policy context Drivers of development Trends Spatial implications	Include: • key drivers of urban growth (urbanisation, natural, cultural & environmental resource capacity, the economy); • spatial growth scenarios and implications; and • spatial structuring elements.	MPB-L sec 10 MSA sec 34 LUPA sec 10(2)(3) SPLUMA sec 21	Update statistics and variables in light of changing circumstances	• Draft National Spatial Development Framework 2020 • National Development Plan, 2030 (2013) • Integrated Urban Development Framework (2016) • Inclusive Economic Growth Strategy (2021)	2
Spatial building blocks	Include policy and strategies for: resilience and adapt • ability; • City within a region; • Biophysical assets; • Transport network; o land use intensification areas; o urban growth management; o special places; and o the Spatial Conceptual Framework.	MSA sec 34 MSA sec 26 SPLUMA sec 21	Update only where new policies and strategies are approved and represent a significant change	• Land use scenarios • 4th Generation Integrated Waste Management Plan/ Waste Sector 2022/23-2026/27 • Water and Sanitation Sector Plan • Energy and Climate Change Sector Plan • Comprehensive Integrated Transport Plan 2013-2018 • Transit-Oriented Development Strategic Framework • TOD comprehensive land-use modelling • Integrated Human Settlements Plan (2013 and 2014) - implementation plan in progress • Economic Growth Strategy • Social Development Strategy • Environmental Strategy (2017) • Bioregional Plan	3, 4 and 5

CONTENT	REQUIREMENTS	LEGISLATIVE REFERENCES	EXTENT OF CHANGE FROM 2018 DOCUMENT (BY CHAPTER)	POLICIES, STRATEGIES & PLANS ADOPTED (POST-2018) NATIONALLY, PROVINCIALLY, CITY (TO BE INCORPORATED)	CHAPTER
				• Human Settlement Strategy 2021 • Inclusionary Housing Policy 2022	
Spatial strategies Policy statements and development guidelines	Include strategies indicative of: 1. Plan for employment and improvement of access to economic opportunities; 2. Plan for management of urban growth, and creation of a balance between urban development and environmental protection; and 3. Plan for building an inclusive, integrated vibrant city.	MSA sec 34 MPB-L sec 3, sec 10	Update only where new relevant policies and strategies are approved and represent a significant change to previous policy statements	As above	4, 5, 6 and Technical Supplement C
Vision Spatial development goals Guiding spatial principles	Include: • spatial planning categories; • transport infrastructure; • major land extensive precautionary areas; • development edges; and • conceptual designations.	MPB-L sec 3, sec 10	Concept maps to include information from new trends and policy directions. Give direction to next five years. Reflect IDP.	As above	3, 4 and 5
Implementation approach Capital Expenditure Framework	Describe: actions for putting the building blocks of policy-driven land use management system into place; tasks arising out of policy and prioritisation thereof; and the 15-year Growth Management Plan.	MPB-L sec 3, sec 10 SPLUMA sec 21(n): Determine a Capital Expenditure Framework for the municipality's development programmes, depicted spatially and include an implementation plan.		As above	1, 4, 5 and 6

Table C2: National legislation informing the 2022 MSDF Review

ACT	PROVISIONS / OVERVIEW
The Constitution of the Republic of South Africa, 1996	The Constitution sets out the rights and duties of the citizens of South Africa and defines the structure and the responsibilities of the various spheres of government, including local government. Section 153(a) and (b) compel municipalities to structure and manage administration, budgeting and planning processes to give priority to the basic needs of the community and to promote social and economic development. Additionally municipalities must participate in national and provincial development programmes.
Division of Revenue Act, Act 9 of 2021	The Act requires the City prepare a three-year capital programme and the 10-year Capital Expenditure Framework (CEF), which must be evaluated by the Department of Cooperative Governance after consultation with the relevant stakeholders.
The National Environmental Management Act, Act 107 of 1998 (NEMA)	NEMA principles are required to be applied by municipalities, and used to guide Environmental Impact Assessments (EIAs) and prepare Environmental Management Frameworks (EMFs). The key principles require: • environmentally, socially and economically sustainable development, • the protection of natural resources and the maintenance of natural systems, and • equitable access to resources and environmental management that puts people and their needs first. NEMA also requires that the City supports international agreements. This is of particular importance as Cape Town has two World Heritage Sites, an extensive coastline and is situated within the Cape Floral Kingdom.
The National Environmental Management Biodiversity Act, Act 10 of 2004	The Biodiversity Act provides for the management and conservation of biological diversity within South Africa. To do this, it offers several new planning tools to assist with the management and conservation of South Africa's biological diversity. These include the declaration of 'bioregions' and the publication of 'bioregional plans'. These are provided for in Chapter 3 of the Biodiversity Act. Section 48(2) of the Biodiversity Act stipulates that any organ of state must prepare an Environmental Implementation Plan or Environmental Management Plan in terms of Section 11 of NEMA. In addition, a municipality must adopt an IDP in terms of the MSA, and must: • align its plan with any applicable bioregional plan; • incorporate into that plan those provisions of a bioregional plan that specifically apply to it; and • demonstrate in its plan how any applicable bioregional plan may be implemented by the organ of state or municipality. The Biodiversity Act also provides other mechanisms for managing and conserving biodiversity. These include the listing of ecosystems that are threatened or in need of protection to ensure the maintenance of their ecological integrity, and the listing of species that are threatened, or in need of protection to ensure their survival in the wild.
The National Heritage Resources Act, Act 25 of 1999 (NHRA)	The NHRA and the Provincial Heritage regulations (PN 336, October 2002; PN 298, August 2003) allow municipalities to formulate by-laws for the management of local heritage resources or other higher-order heritage resources where a responsibility may be delegated. There are numerous Sections in the NHRA that state clearly what a municipality must, or may, do to protect valuable heritage resources. This includes an obligation to: • identify or audit heritage resources and heritage areas across the metropolitan area at the time of preparing a spatial plan, and • have provision in a City by-law or zoning scheme for the protection and management of the heritage sites. The City manages an ongoing Heritage Inventory and has formulated a Heritage Overlay Zone in terms of the proposed Integrated Zoning Scheme.
The Protected Areas Act, Act 57 of 2003 (NEM:PAA)	NEM:PAA provides for the declaration and management of protected areas. It also provides for co-operative governance in the declaration and management of protected areas. This is aimed at establishing a national system of protected areas in support of managed and conserved biodiversity. In Cape Town's context, this affects the management of protected areas, World Heritage Sites (Robben Island and Cape Floral Region Protected Areas) and Marine Protected Areas. Section 41(2)(g) of NEM:PAA which states that a Management Plan for a protected area must contain "… a zoning of the area indicating what activities may take place in different sections of the area and the conservation objectives of those sections…".
The National Land Transport Act, Act 5 of 2009 (NLTA)	The NLTA informs the preparation of the City's annual Comprehensive Integrated Transport Plan (CITP), which in turn provides input, from a transport and roads perspective, into the City's IDP and MSDF. A key focus area of the NLTA is the integration of land development and land use with transport planning (Section 31). The NLTA also provides the institutional structure within which the responsibilities of national, provincial and local government are defined. According to the NLTA, the City, in its capacity as a planning authority, is responsible for a host of functions relating to the preparation of transport policy and plans, financial planning and the implementation and management of intermodal transport networks.

ACT	PROVISIONS / OVERVIEW

Guiding principles

Chapter 8 of the National Development Plan, 2030 (NDP) - Transforming Human Settlement and the National Space Economy - emphasises the importance of coherent and aligned spatial planning across all spheres of government. These plans need to directly respond to the entrenched spatial geographic patterns that continue to exacerbate social inequality and economic inefficiencies in both urban and rural South Africa. They also need to unlock development potential and inform infrastructure investment and prioritisation. They can do this by playing a key role in co-ordinating the efforts and resources of different state agencies and sectors, as well as the private sector.

The NDP states that:

"*planning in South Africa will be guided by normative principles to create spaces that are liveable, equitable, sustainable, resilient and efficient and support economic opportunities and social cohesion*".

These principles for spatial development, articulated in the NDP and the Spatial Planning and Land Use Management Act 16 of 2013, are premised on spatial justice, spatial sustainability, spatial resilience, spatial quality, spatial efficiency and good administration. The NDP defines these as follows:

- *Spatial justice*: The historic policy of confining particular groups to limited space, as in "ghettoisation" and segregation, and the unfair allocation of public resources between areas, must be reversed to ensure that the needs of the poor are addressed first rather than last.
- *Spatial sustainability*: Sustainable patterns of consumption and production should be supported, and ways of living promoted that do not damage the natural environment.
- *Spatial resilience*: Vulnerability to environmental degradation, resource scarcity and climatic shocks must be reduced. Ecological systems should be protected and replenished.
- *Spatial quality*: The aesthetic and functional features of housing and the built environment need to be improved to create liveable, vibrant and valued places that allow for access and inclusion of people with disabilities.
- *Spatial efficiency*: Productive activity and jobs should be supported, and burdens on business minimised. Efficient commuting patterns and circulation of goods and services should be encouraged, with regulatory procedures that do not impose unnecessary costs on development.[3]

These principles are regulated in SPLUMA Chapter 2: Development Principles Sections 7 (a), (b), (c), (d), which also includes a fifth principle - Section 7 (e) which is as follows:

Good Administration: Cooperation amongst state institutions, combined with an integrated and ethical approach to land use management and development that pro-actively uses state assets and resources to advance service delivery, address poverty and progressively realise the constitutional rights of citizens and the above principles.

City-approved policies and strategies, endorsed since 2018

The MSDF is tasked with facilitating the alignment – in spatial terms – of the City's sector strategies to guide the prioritisation of public investment in a coordinated manner and to promote private investment that supports this investment and strategic direction. The City has recently approved a number of strategies and implementation plans that directly and indirectly influence the narrative of the MSDF. These include the following:

[3] National Development Plan – 2030 published by the National Planning Commission 2013.

- *City of Cape Town Climate Change Strategy* - To address the impacts and challenges presented by climate change. It aims to create a city that is resource efficient and carbon neutral.
- *Inclusive Economic Growth Strategy* - Establishes a platform for the city's economic development.
- *Resilience Strategy* - To strengthen the city against sudden potential shocks and stresses in the future.
- *Human Settlement Strategy* – To address the growing housing challenges in the city, by enabling better partnerships and collaboration in the human settlement sphere.
- *The Social Development Strategy* - Articulates the role of the City in promoting and maximising social development by creating an opportunity, safe, caring, inclusive, and well-run city that enables people to reach their full potential.
- *Community Services and Health Infrastructure Plan* - guiding the provision of Community Facilities.
- *Water Strategy* – Provides a programme for effective water management, to ensure a future in which there will be sufficient water for all.

Table C3: City-approved policies and strategies endorsed since 2018

City of Cape Town Climate Change Strategy - Approved 27 May 2021	
Intent And Purpose	The purpose of this strategy is to provide high-level strategic guidance for decision-making, planning, and programme and project development and implementation in respect of climate change. This strategy is an upgrade of the Climate Change Policy (2017) which was reviewed in 2019 and builds on the commitments of the previous policy. The Climate Change Action Plan serves as the implementation roadmap for Cape Town's new Climate Change Strategy, and addresses the urgent need to reduce greenhouse gas emissions and adapt to the impacts of climate change.
Lead Directorate	Energy and Climate Change
MSDF policy statement / mapping	Policy 11: Proactively plan for increased efforts to protect and enhance biodiversity networks at all levels of government.
Summary of Strategic Objectives Or Goals	The Climate Change Strategy has 10 key strategic focus areas, each underpinned by various goals. These SFAs have been identified as critical to ensuring the implementation of the City's climate change vision and principles. SFAs 1 - 5 focus on climate change adaptation, SFAs 7 - 10 are climate change mitigation focussed, and SFA 6 has elements of both adaptation and mitigation. SFA1: Urban cooling and heat responsiveness The goals and actions within this focus area are focussed on adapting to the impact of increased heat and putting in place measures to reduce temperatures where possible. Heat mitigation efforts are mainly focused on urban greening to reduce the heat island effect. SFA 2: Water security and drought-readiness. The Water Strategy commits the City to take bold action to reduce the risk of drought and water scarcity. The goal of this strategy is to ensure Cape Town is a water-sensitive city by 2040, and that it optimises and integrates management of water resources to improve resilience, competitiveness and liveability. Actions in this focus area are focused on adapting to the impacts

of reduced rainfall, drought and increased water scarcity, across various sectors.

SFA 3: Water sensitivity, flood-readiness and storm management
The aim of this SFA is to realise a water sensitive city through appropriate watercourse management as per the City's Floodplain and River Corridor Management Policy (2009). This policy also states that well managed watercourses/wetlands are valuable resources for improving the quality of life and aesthetic nature of urban areas. It also seeks to improve health, recreation and economic growth, which important in the context of changing weather patterns.

SFA 4: Coastal management and resilience
Encroachment on the coastline and subsequent 'coastal squeeze' has interrupted natural sand movement dynamics, had an impact on natural vegetation cover, and put in place fixed infrastructure that is vulnerable to the effects of wave action and windblown sand. The City's Integrated Coastal Management Policy commits to ensuring that coastal development takes place in a way that does not compromise the environment's ability to buffer against issues such as:

climate change-induced risks and hazards, appropriate decision making that takes the coastal environment into account,
implementation of proactive, and
progressive measures to reduce coastal risks and to ensure protection and maintenance of natural systems.

SFA 5: Managing fire risk and responsiveness
Goals and actions within this focus area are focused on reducing the incidence of both wildfires and urban fires, as well as reducing the spread and impact of fires when they do occur.

SFA 6: Spatial and resource inclusivity
The City commits to working towards a globally integrated green economy where the reliance on high carbon intensity coal based electricity from Eskom is no longer the main electricity supply. This SFA seeks to strike a balance between the independent procurement of renewable electricity required to reach carbon neutrality and responsible collaboration in order to support, reform and modernise the sector and assets nationally.

SFA 7: Carbon neutral energy for work creation and economic development
Building energy efficiency is in line with national policy directions, supported by the intentions articulated in the draft National Energy Efficiency and Climate Change Strategies (2015, 2011) and the National Development Plan (2012), which envisages net zero emission building standards by 2030. A multi-pronged approach is required to achieve net zero carbon buildings. This includes:

- developing more stringent building efficiency regulations
- increase awareness and capacity for low carbon developments,
- considering possible incentive packages
- developing financing mechanisms to support access to finance for upfront energy costs; and,
- enabling the purchase of large scale renewable energy from independent power producers (IPPs) to supplement Cape Town's grid.

This SFA aims to achieve this through a set of prescribed goals.

City of Cape Town Climate Change Strategy - Approved 27 May 2021	
	SFA 8: Zero-emission buildings and precincts. As part of the suite of measures aimed at achieving net-zero carbon buildings, the City is looking to promote the adoption of more stringent energy efficiency targets and renewable energy use in new buildings. This can be achieved through integrated passive design, higher performance building envelopes, energy-efficient lighting and HVAC,31 building management systems and appliance specifications, with the remaining energy demand increasingly being met by on-site embedded generation, City-supplied green energy or alternative procurement of renewable energy. SFA 9: Mobility for quality of life and livelihoods To ensure we have a system of mobility in Cape Town that is not only carbon neutral but also enables quality of life and livelihoods, this plan must: • reduce the frequency and distance of trips due to improved spatial planning • fast-track the shift towards an efficient and integrated public transport system • increase active mobility and non-motorised transport • ensure that it is feasible for all vehicles to be powered with clean fuels. There is a strong interdependency between the goals and actions of this SFA and the spatial and resource-inclusivity goals and actions (which will lead to reduced demand for travel). SFA 10: Circular waste economy The goals and actions in this SFA reflect the aspirations of the national and provincial targets, and are currently being assessed for technical and financial feasibility. High levels of cooperation and a definition of roles and responsibilities with stakeholders are necessary to achieve these goals. The progress made by the City to date is part of a transition that has already started in the waste sector (in private, City and informal waste collection), and will exploit several cross-cutting benefits, including the development of waste-to energy systems alongside the stimulation of new waste-oriented economies. The goals in this SFA will increase the understanding of the costs and benefits of – and resources required – for this transition, and strengthen the evidence base and technical capacity with improved data and regular waste characterisation updates.

Inclusive Economic Growth Strategy **- Approved September 2021**	
Intent And Purpose	This strategy is a short-, medium- and long-term plan for addressing the economic crisis facing Cape Town within the greater South African context, and for identifying comparative advantages that can be leveraged. The Covid-19 pandemic has exacerbated pre-existing economic challenges - characterised by inadequate economic growth, entrenched inequality and widespread unemployment - that are prevalent throughout South Africa.
Lead Directorate	Economic Growth
MSDF policy statement / mapping	Policy 18: Introduce land use policies and mechanisms that will support the development and growth of small businesses and township economies (both formal and less-formal).
Summary of Strategic Objectives Or Goals	This strategy rests on the six core principles of inclusivity, competitiveness, accessibility, resilience, sustainability and collaboration. These principles encourage inclusive, sustainable and resilient development that will contribute significantly to reducing vulnerability

Resilience Strategy - Approved August 2019	
Intent And Purpose	*This strategy aims to put in place programmes and projects to address a set of prioritised chronic stresses and acute shocks, and to increase Cape Town's resilience and reduce its vulnerability into the future.*
Lead Directorate	*Future Planning and Resilience*
MSDF policy statement / mapping	*Policy 14: Ensure food sensitive planning that supports the food system from production, processing, and distribution to access, consumption and waste management.*
Summary of Strategic Objectives Or Goals	*Cape Town's Resilience Strategy was adopted after the worst drought that the city and region has had to deal with in recorded history. Three years of dramatically low rainfall, exacerbated by climate change, presented Capetonians with the possibility of running out of water. This episode severely tested the resilience of the city and its people. It is in this context that this strategy offers a road map for a more resilient city that is able to adapt to crises, and 'bounce back' from future shocks and stresses.* *Five strategy pillars form the core of a resilient Cape Town:* *Compassionate and holistically-healthy city - This pillar focuses on a more holistic approach to building a healthier city, including: improving access to mental health services and affordable, nutritious food; strengthening social cohesion; and ensuring that children have the best possible start to life, with the intention of disrupting the intergenerational transfer of trauma.* *Connected, climate-adaptive city - This pillar focuses on overcoming the spatial legacies of our divided past through partnership at all scales – community, city and regional – allowing for the enactment of climate-adaptive measures that simultaneously build urban resilience, with co-benefits that include improved mobility, place-making and social cohesion.* *Capable, job-creating city - This pillar focuses on building resilience for the purpose of sustaining and growing new opportunities in the context of change.* *Collectively shock-ready city - This pillar focuses on preparing capabilities for some new, predictable, shocks that could impact the city in the future. More*

	broadly, it works to build the capacity of individuals, households and communities to respond to any kind of shocks that may occur, with particular focus on vulnerable households and communities *Collaborative, forward-looking City - This pillar focuses on how the City will work with other spheres of government and organisations to improve the functioning of certain key systems.*

Human Settlements Strategy* - *Approved May 2021	
Intent And Purpose	This strategy recognises the extent of the housing demand within Cape Town. It argues that the ever increasing housing demand is partly due to market failure, whereby the cost to produce a house in well-located areas has outstripped the ability of a household to afford it. It also considers the inability of the government's national housing programmes to adequately meet the widespread housing needs of low-income households. The strategy sets out an approach to respond to affordability and informality, interpreting informality as a form of private sector response to the deficit of affordable formal housing provision. The City's response to increasing housing supply is detailed through approaches to: • City as a PROVIDER of state subsidised housing through the following interventions: o Consolidated Land Pipeline to proactively plan for a long term land pipeline for human settlements o Planning and implementing BNG developments o Supporting the Enhanced People's Housing Process o Informal settlements upgrading and tenure security o Emergency housing provision o Response to unlawful land occupation to protect land for human settlements o Implementation of the FLISP to cater to the gap market o Public Rental Stock management and maintenance & the implementation of the Hostel Redevelopment Programme • City as an ENABLER utilizing the following levers within City's ambit to encourage/incentivize/enable affordable housing supply: o Improved urban management, particularly in areas of informality o Attracting investment into precincts (through greenlining, use of data, Land Value Capture) o Programme of City land and building release for affordable housing developed by the private sector o Upscaling and fast tracking the Social Housing programme o Improved project packaging and partnerships with private sector • City as a REGULATOR utilising land use management as a tool for incentivizing housing development, or enabling formalization of housing supply: o Tenure security (enabling households to invest in their houses as an asset) o Piloting Local Planning Support Offices o Providing support for microdevelopers and small scale rental units o Investigating an appropriate inclusionary housing policy for implementation o Reducing non-construction costs (rationalizing land use processes, providing certainty of infrastructure investment) The Social Housing Programme stems from the National Housing Code and is outlined in the Human Settlement Strategy. An Inclusionary Housing Policy, which will incentivize the private sector to develop affordable housing, is currently being developed.

Lead Directorate	*Human Settlements*
MSDF policy statement / mapping	*Policy 1: Support the intensification and diversification of land use in identified areas, supportive of spatial growth, economically, "at-scale" and incrementally.*
Summary of Strategic Objectives Or Goals	*This strategy outlines how the City will provide, regulate and enable housing to achieve the following seven objectives:* *Objective 1 - Human settlements that provides residents with healthy and safe living conditions.* *Objective 2 - Human settlements that are more affordable, accessible, diverse and responsive to the needs of residents.* *Objective 3 - Human settlements that offer residents the opportunity to realise the full value of their homes as a social, financial and economic asset.* *Objective 4 - Human settlements that catalyse spatial transformation by achieving density and improving access to economic and social opportunities for all.* *Objective 5 - Human settlements that support the creation of sustainable, dignified, and integrated human settlements.* *Objective 6 - Human settlements that drive economic opportunities through an active residential construction sector.* *Objective 7 - Human settlements that incorporate principles and approaches related to climate change, resource efficiency, green infrastructure, resilience, and environmental management, in order to improve living conditions and environments for housing recipients.*

Cape Town Water Strategy – Approved 2019	
Intent And Purpose	*This strategy sets out the City's high-level vision and plan for transitioning Cape Town to "a water-sensitive city that optimises and integrates the management of water resources to improve resilience, competitiveness, and liveability for the prosperity of its people". Addressing the impacts of climate change, specifically drought, is a core focus of the strategy.*
Lead Directorate	*Water and Sanitation*
MSDF policy statement / mapping	*Policy 12: Reduce the impact of urban development on water resources and encourage, including through water-sensitive design responses.*
Summary of Strategic Objectives Or Goals	*The following 10 principles inform this strategy:* *Water is life: Water is the basis of all life. It is not only essential for basic human needs, vital for productive* *and resilient natural ecosystems, and central to food, energy and economic security, it is also an important part of the spiritual, cultural and recreational life of communities* *Grow inclusivity and trust: Water will be managed equitably, inclusively and transparently.* *Build capability: The strategy will support the development of the necessary capabilities to manage Cape Town's complex water supply system.* *Work together and across boundaries: A collaborative* *and partnering approach across neighbourhood, catchment, physical, economic and political boundaries is necessary to build a more resilient future and address the water challenges at the appropriate scale, whether local, regional or national.* *Be fluid like water: The strategy will support an adaptive approach to the management of water in order to increase resilience.* *Water is all around us: The strategy will support the rehabilitation of urban waterways and increase their value and use for recreation, flood management and water supply.* *Work with nature: The strategy will support the protection of natural environments, as well as their integration with the built environment, to enhance the function, beauty and resilience of the region's water infrastructure and landscape.* *When it rains, slow, store and repurpose: The strategy will support approaches to increase the permeability of surfaces, reduce pollution and increase local storage.* *The future could shock us. The strategy will develop greater urban resilience by improving the City's preparedness and response to these shock events.* *Water the green economy: The strategy recognises that the decisions we take to secure our water future can enable local design of water-related products and services, and stimulate increased demand for these products across our economy.*

***Cape Town Environmental Strategy*-Approved August 2017**	
Intent And Purpose	*This strategy provides City decision-makers with an effective policy and governance framework to pursue environmental sustainability.*
Lead Directorate	*Spatial Planning and Environment*
MSDF policy statement / mapping	*Policy 11: Proactively plan for increased efforts to protect and enhance biodiversity networks at all levels of government.*
Summary of Strategic Objectives Or Goals	*The following key principles aim to enable the City to achieve its environmental sustainability vision and outcomes.* *Long-Term Approach: the City will work to ensure that its actions and decisions do not undermine the long-term benefits that the natural environment provides, and that the needs and interests of future generations will be considered and respected.* *Equity and Accessibility: Promote equitable access to ecosystem services and natural open spaces.* *Economic and Social Benefits: Promotes green economy and recognise innovation in stimulating green economy, protect and enhance natural assets.* *Resilience: the City will ensure a focus on resilience, enabling the city to withstand and mitigate the negative impacts of environmental hazards, proactively reduce Cape Town's vulnerability, and protect the city's economy.* *Ecosystems Approach: the contribution (and associated value) of ecological infrastructure and ecosystem goods and services will be recognised, protected, and, where possible, proactively restored.* *Preventing, Minimising, and Mitigating Environmental Impacts: Proactively preventing adverse environmental impacts, including the impacts of Pollution and the generation of waste and, where this is not possible, minimising and managing those impacts.* *Resource Efficiency: Ensuring that resource efficiency and low-carbon development are embedded in all aspects of its work.* *Environmentally Sensitive and Low Impact Urban Design: Adopt an urban design methodology that is environmentally sensitive and low impact, in order to ensure the long-term functionality of key ecological infrastructure.* *Educated and Empowered Citizens: Prioritise and promote education and empowerment of all citezens of Cape Town.* *Protected Natural Heritage: ensuring that the value of the City's natural heritage is recognised, protected and promoted, and that the benefits and opportunities it provides to communities are realised.* *Protected Cultural Heritage: the value of the city's cultural heritage is recognised, protected and promoted, and that the benefits and opportunities it provides to communities are realised.*

Community Services and Health Infrastructure Plan (CSHIP) 2019 - 2034	
Intent And Purpose	The purpose of this strategy is to provide strategic guidance for decision-making, planning, and programme and project development in respect of Community Facilities and Health Infrastructure.
Lead Directorate	Community Services and Health
MSDF policy statement / mapping	Policy 2: Ensure that urban development contributes to the safety, health and wellbeing for all. P2.2 Where development proposals necessitate the provision of additional social amenities, these needs are to be factored into the spatial layout of the proposal or application, as well as the operational plans and budgets of the affected departments. P2.3 Encourage the design and implementation of multi-functional use of social facilities, places for cultural practices, recreational spaces and public institutions, and ensure adequate and equitable distribution of these. P2.4 Plan for social infrastructure and amenities to allow for access for all to high-quality public transport and Non-Motorised Transport (NMT), designed with universal access principles to accommodate children, the elderly, and special needs users. P2.5 In pursuance of P2.1 and P2.2, in partnership with the Provincial Departments, other state entities and the private sector, work towards the realisation of the Level 1 – 5 "integrated" and optimised Clustered Service Nodes. These CSNs consider the current and projected needs of the population regarding the provision, distribution and design of social facilities and recreational spaces.
Summary of Strategic Objectives Or Goals	The strategic planning, development and implementation of Community Facilities is guided by the Community Services and Health infrastructure plan which seeks to achieve the following principles: Integrated precinct planning and development Upgrading/expanding existing facilities Co-location and clustering Departmental strategies and programmes Provision of Community Services & Health to Informal Settlements.

Technical Supplement D:

National and Provincial planning informants

This technical supplement provides a view of the main informants of provincial and city spatial planning.

National Spatial Development Framework

Chapter 8 of the National Development Plan (NDP) calls for the preparation of a "national spatial development framework". From a legislative perspective, Section 5(3)(a), 13(1) and (2) of SPLUMA mandate the Minister to, "… after consultation with other organs of state and with the public, compile and publish a national spatial development framework" and review it at least once every five years.

Section 13(3) of SPLUMA specifies that the National Spatial Development Framework (NSDF) must consider:

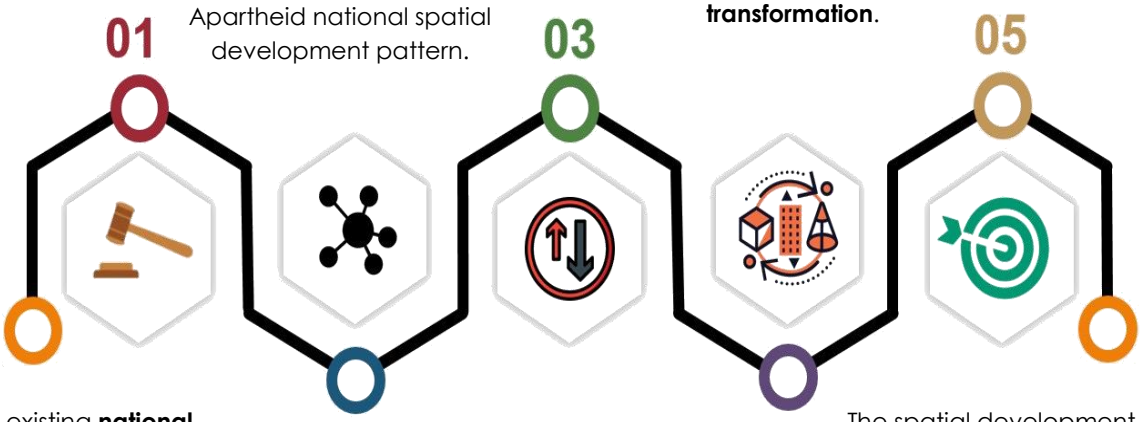
- all policies, plans and programmes of public and private bodies that impact on spatial planning, land development and land use management;
- any matter relevant to the coordination of such policies, plans and programmes that impact on spatial planning, land development and land use management; and
- all representations submitted to the Minister in respect of the framework.

Section 14 sets out the content of the NSDF and indicates that the framework must:

- give effect to the development principles and norms and standards set out in the Act;
- give effect to all relevant national policies, priorities, plans and legislation;
- coordinate and integrate provincial and municipal SDFs;
- enhance spatial coordination and land use management activities at national level;
- indicate desired patterns of land use in the country; and
- take cognisance of any environmental management instrument adopted by the relevant environmental management authority.

The Theory of Change contained in the 2019 NSDF is aimed at moving the country to the desired post-Apartheid future (Diagram D1).

Diagram D1: NSDF: Theory of Change



The existing **national development paradigm**, including the Constitution, the NDP and the legal and policy framework, notably SPLUMA and the IUDF, are used to:

- Articulate a compelling and persuasive post-Apartheid spatial development logic and identify the 'shifts' that this new logic requires; and
- Craft a strong and credible post-Apartheid national spatial development vision.

The new **logic and vision** are used, together with an analysis of the current and unfolding 'national spatial development landscape', to develop a set of national spatial development levers and create a desired post-Apartheid national spatial development pattern.

The post-Apartheid national spatial development pattern is used to indicate what **actions, interventions and priority** actions are required to ensure transition to this desired pattern.

The post-Apartheid national spatial development pattern and interventions and priority actions are used to prepare clear implementation guidance for realising the desired **national spatial transformation**.

The spatial development guidance, tasks and actions - as set out in the NSDF - are implemented, following which:

(1) Movement towards the realisation of the **desired post-Apartheid national spatial development pattern** is monitored and assessed; and

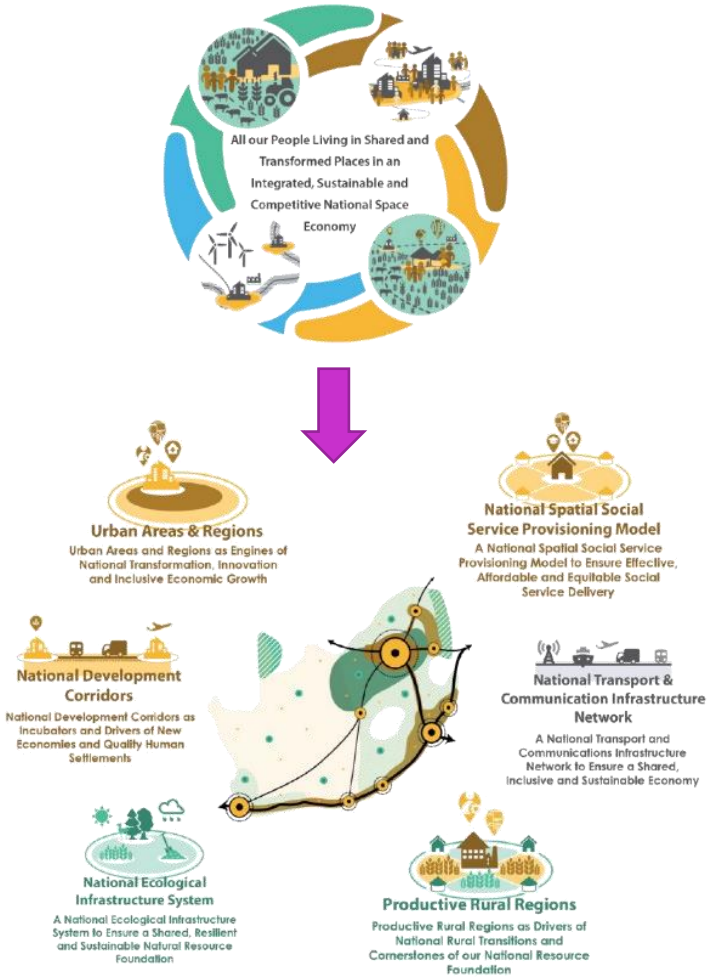
(2) Corrective measures are taken as and where required.

A key driver in the NSDF's theory of change is the move from a National Spatial Development Logic *based on and in service of* the colonial and Apartheid development paradigms, to one *based on and in service of* a post-Apartheid Development Paradigm. In this regard, it is framed and guided by:

- the NDP targets, strategic levers and strategic policy direction; and
- the five normative principles as provided in SPLUMA:
    - spatial justice;
    - spatial sustainability;
    - spatial resilience;
    - spatial efficiency; and
    - good administration.

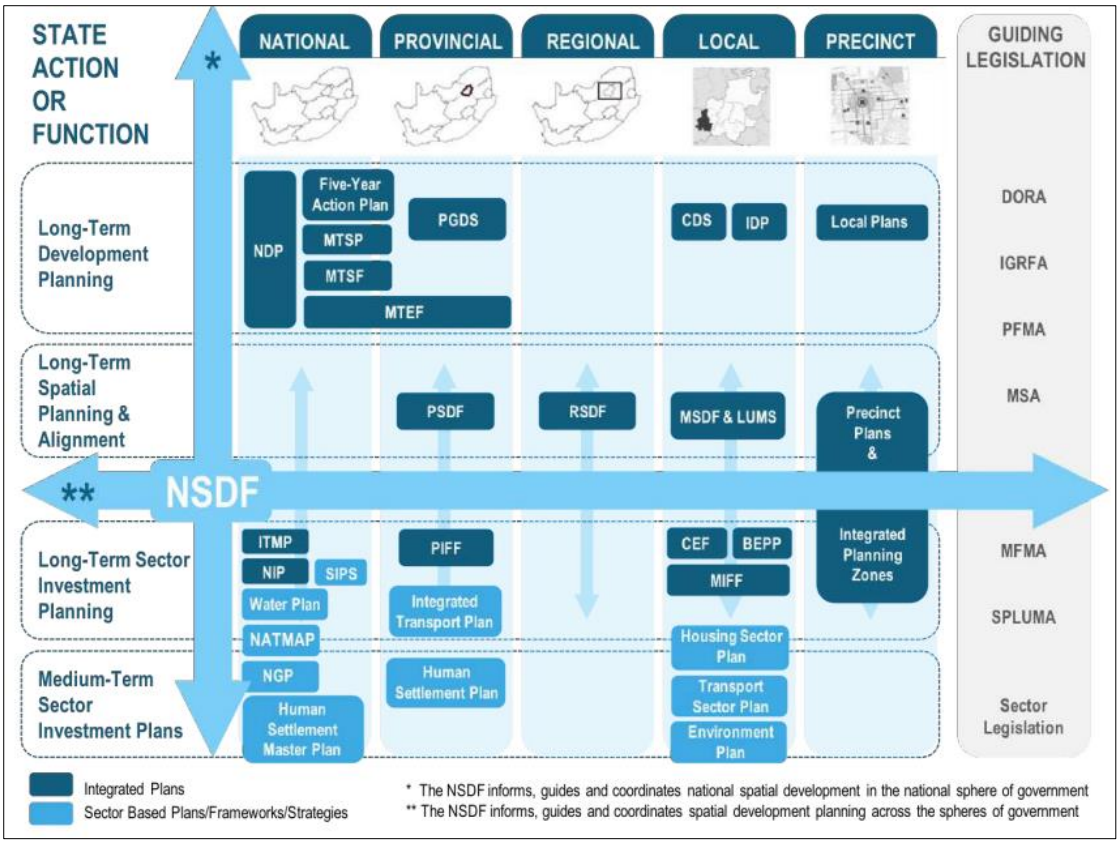
The National Spatial Development Vision is derived from the National Development Paradigm, with its key pillars being; (1) the Constitution and the NDP, (2) the National Spatial Development Logic, and (3) the post-1994 legal and policy framework. Its purpose is to provide a long-term guiding light for realising our desired post-Apartheid Spatial Development Pattern.

Diagram D2: Realising the vision through spatial concepts and levers.

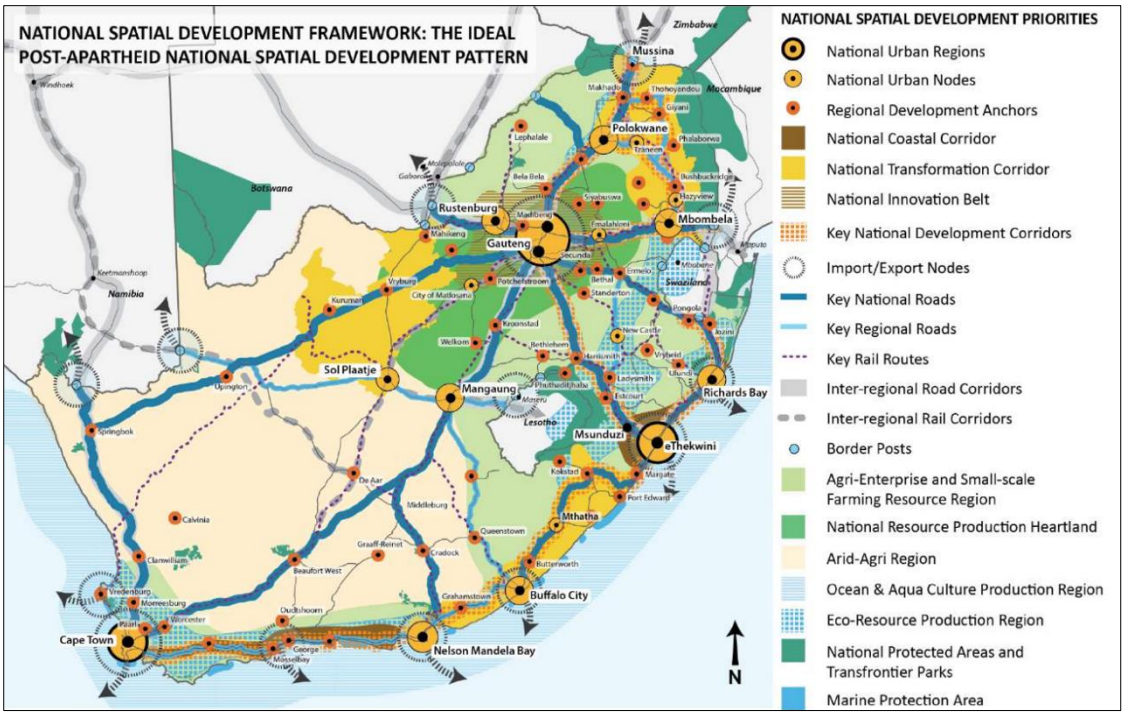


The role and spatial objective of the NSDF, within the 'family' of strategic and Sector Plans across the spheres of government, is illustrated in the diagrams D1 and D2.

Diagram D3: Role of NSDF within Sector Plans across all spheres of government



Map D1: National Spatial Development Framework



Draft National Infrastructure Plan 2050

The 2021 draft National Infrastructure Plan 2050 (NIP 2050) cascades from the NSDF and provides guidance on the following themes required for effective capacity building:

- Knowledge and innovation services for capability in planning, monitoring, budgeting, finance, procurement, project preparation, project management and sector-specific innovation. This enables evidence-based decision-making, improves cost effectiveness, mitigates risk, helps optimise (and can dramatically contribute to) improving infrastructure quality, delivery and sustainability.
- Public-private cooperation and stimulation of competition, where appropriate, in the delivery of public infrastructure.
- Blended project finance and innovative green finance.
- Executive management and technical capability within the state and its entities, to be stable and able to lead and deliver with confidence.
- Economic regulation.
- Capacity and orientation that promotes industries that foster inclusive development and employment.
- An emphasis on industrial development and localisation in the design of, and approach to, implementation. Examples include localisation of supplier industries to infrastructure projects, driving the establishment of Special Economic Zones around intermodal transport linkage nodes, and the stimulation of the civil construction and supplier industries.
- Driving efficient modes of delivery.
- Delivering on an Africa regional infrastructure programme.
- Focusing on the SA civil construction and supplier industries, so that local industry gains from state infrastructure investment.

The above themes inform capacity building primarily in the following four main sectors:

Energy Infrastructure
By 2050, energy supply should be enabling economic growth and development rather than constraining it. As such, the energy mix needs to be bolder on sustainability and in achieving the lowest cost. This will require reduced reliance on coal and increased use of renewable energy, especially solar and wind which are the lowest-cost forms of generation technology. Energy demand is projected to increase by 30% by 2050. Installed capacity will more than double from 53GW in 2018 rising to between 133 GW and 174 GW, depending on the energy mix at that time. By 2030, 25 GW will be added to installed capacity.

Freight Transport Infrastructure
By 2050, freight transport should facilitate domestic- and cross-border movement of goods to enable industrialisation, diversification, trade and development. It must deliver on its three key roles of: supporting economic and industrial progress; enabling rural development; and ensuring environmental objectives are met in respect of reduced emissions, congestion, accidents and waste.

Water Infrastructure
By 2050, there should be universal and reliable access to water of an acceptable quality and quantity, in support of a strong inclusive economy and healthy environment. The institutions involved in managing water resources and services must be effective in achieving this objective.

Digital Communications Infrastructure
Communications, and particularly digital communications, are the lifeblood of a market economy. The increasingly foundational role of digital transformation means that the benefits of becoming a digitally enabled society and economy outweigh the costs. The NDP envisages a seamless information infrastructure that is universally available and accessible, at a cost and quality at least equal to South Africa's peers and competitors. While the country is still far from the goals set out in the NDP, it needs to continue working towards the 2030 goals. There is evidence of sufficient capacity to deliver on these objectives if they are implemented through private-public cooperation.

Provincial imperatives

The Provincial Spatial Development Framework (PSDF) 2014 and the Greater Cape Metropolitan Regional Spatial Implementation Framework (GCMRSIF) are important provincial and regional directives that the MSDF is required to consider. The Provincial Land Transport Framework also informed this MSDF review.

The GCMRSIF conceptually indicates relevant regional spatial and aspatial management concerns that transcend the City boundary including the following:

- Ecosystem services - biodiversity areas, catchments, ecological corridors and buffers, scenic areas and routes, air quality, and coastal resources.
- Utility infrastructure - water, sanitation, energy, waste, information and communication technology (ICT).
- Transport[4] and freight infrastructure - sea, air and inland ports, road and rail networks, public transport, non-motorised transport and intermodal facilities.
- Disaster and risk management - in respect of climate change and risk-of-harm areas.

Coordinated planning, budgeting and management of the region's infrastructure development and water, energy and biodiversity resources, are critical. In addition, greater coordination is required to enhance the region's tourism assets, cultural and natural character, and the economic and functional positioning of cities and towns in relation to each other.

The GCMRSIF has developed a regional spatial perspective, and established the basis of an institutional framework, to assist in managing crucial spatial and aspatial aspects. These are illustrated in Diagrams D1 and D2 (sourced from the GCMRSIF). One of the analyses completed through the process was an assessment of cross-planning issues, which are illustrated in Map D1 and Table D1 (sourced from the GCMRSIF). Subsequent to the approval of the GCMRSIF in March 2019, the Intergovernmental Steering Committee has been re-established to facilitate sharing of information and engagement on planning issues that traverse municipal boundaries, while also ensuring that neighbouring municipalities engage with their respective MSDFs under development.

[4] Note that the GCMRSIF's functional area differs from the functional area of Cape Town's Comprehensive Integrated Transport Plan.

Diagram D4: GCMRSIF spatial synthesis

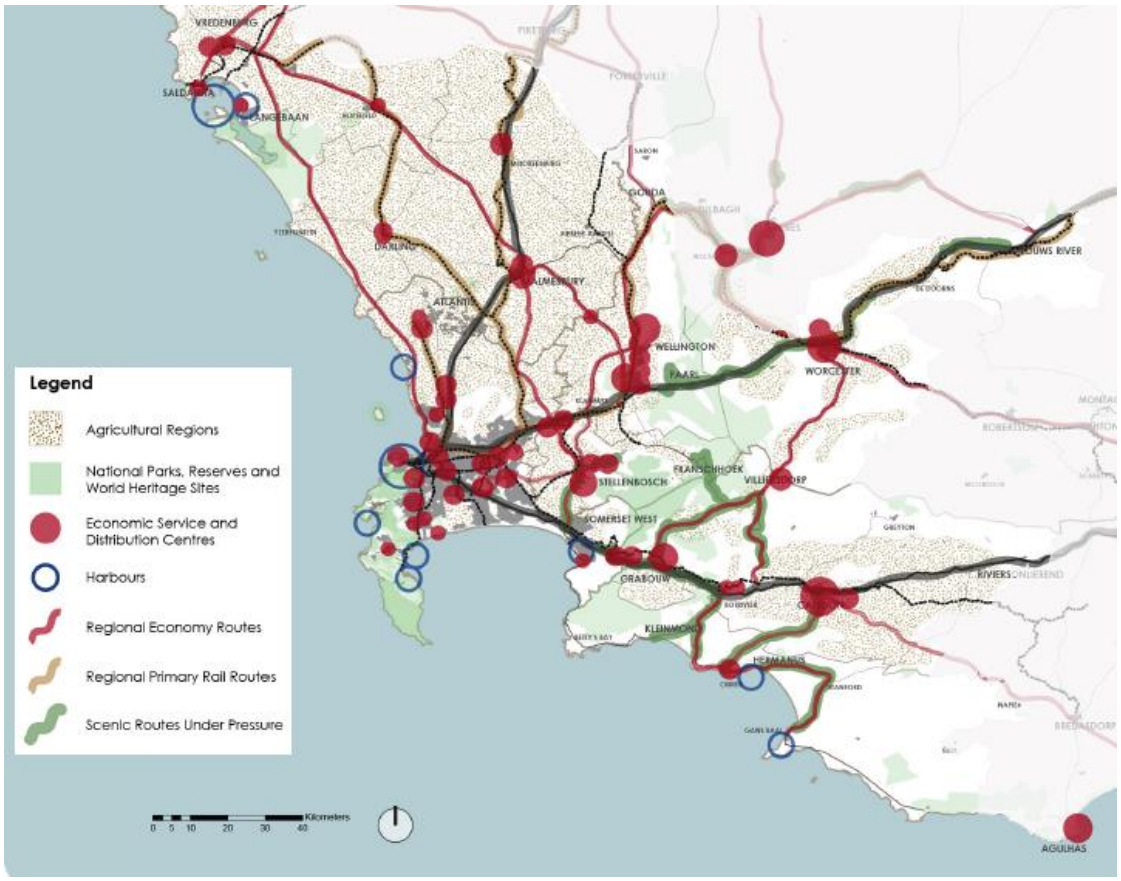
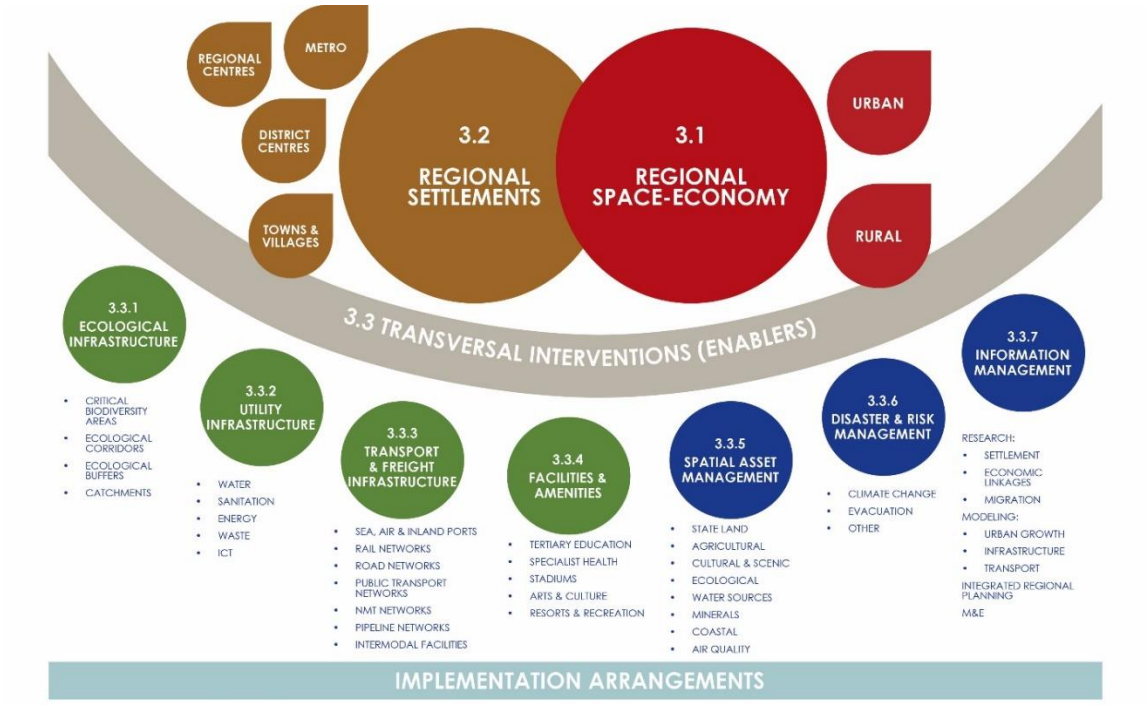


Diagram D5: Transversal regional spatial and aspatial management issues



Map D2: Cross-border spatial planning issues

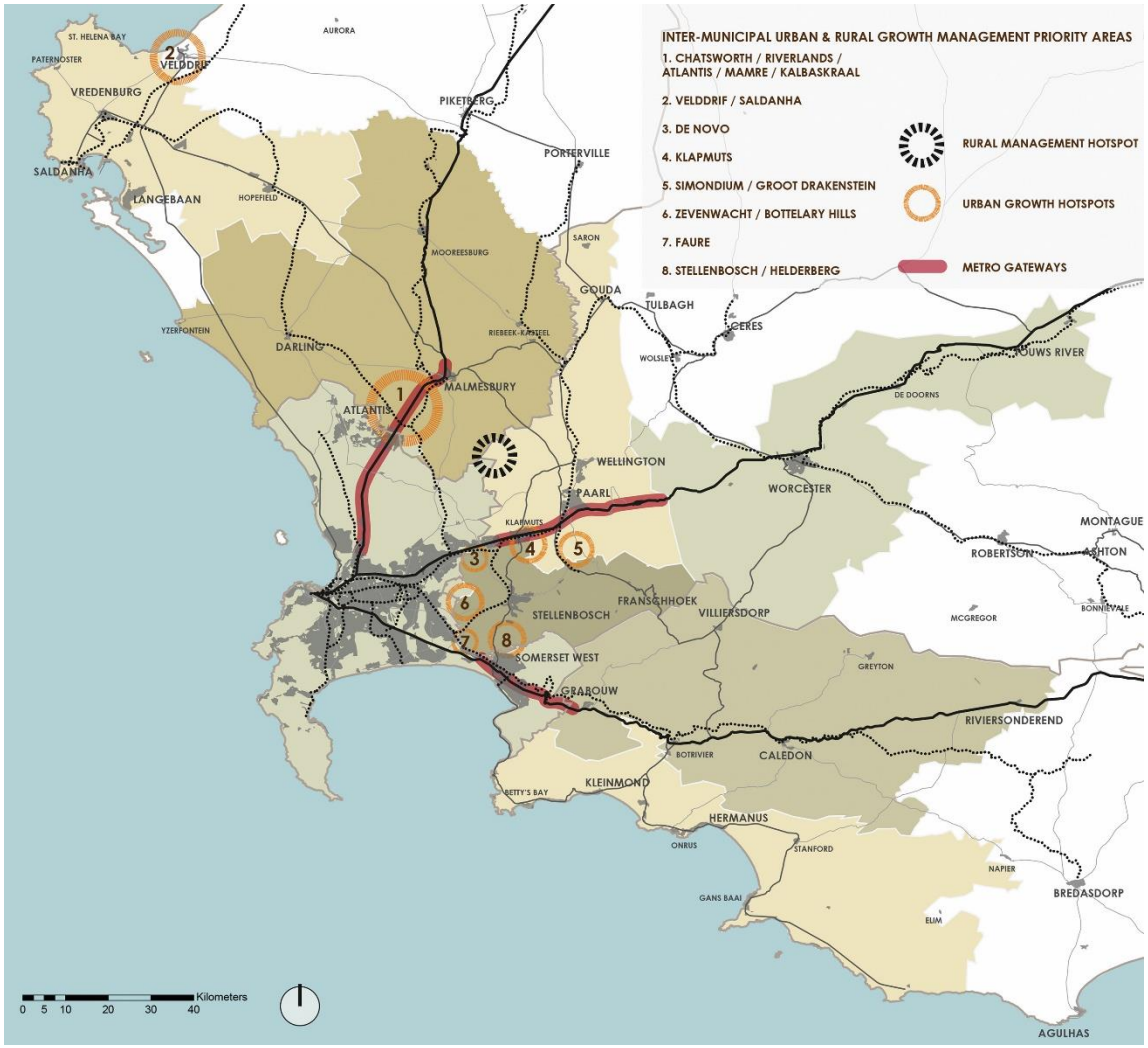


Table D1: Cross-border planning issues

URBAN GROWTH ISSUE	MANAGEMENT REQUIREMENT
Chatsworth-Riverlands-Atlantis-Kalbaskraal	
The rural settlements of Kalkbaskraal, Chatsworth and Riverlands, located on the metro-periphery and in proximity to the regional centres of Atlantis and Malmesbury, are subject to urban growth pressures. Uncontrolled growth of peripheral dormitory settlements detracts from the performance of the region's economic centres as well as its rural areas. The impacts of uncontrolled growth include infrastructure backlogs, leapfrog sprawl and inefficient responses to human settlement demands, which may not be in the long-term interests of the affected communities.	The GCMRSIF proposes concentrating and consolidating urban growth within the regional centres of Malmesbury and Atlantis, retaining the character and functionality of surrounding rural settlements, and protecting their agricultural and natural hinterlands. This is reflected in the identification of the Groenrivier-Malmesbury N7 intensive agricultural corridor in the PSDF. Proactive management of urban growth pressures is required in the sub-region as a collaborative initiative between the City of Cape Town and Swartland Municipalities. The scale of the influx has reportedly reached in excess of 4 000 individuals, who have expressed their need for security of tenure and rudimentary services. Where land invasions have occurred, inter-governmental measures have been put in place to manage these. It is recommended that joint planning for the sub-regional growth management of this area be prepared by both the City of Cape Town and Swartland Municipality. Swartland Municipality has affirmed the importance of maintaining the integrity of their waiting list and continuing to develop housing opportunities in accordance with the municipal priority rankings.
Saldanha	
The upgrading and expansion of the port, and the development of the SBIDZ, will significantly increase urban development pressure on settlements outside of the Saldanha Bay municipal jurisdiction. There is evidence of a new trend towards increased commuter travel between Saldanha and Cape Town. This will impact on the capacity of the current movement routes, which are expected to require upgrading.	The Greater Saldanha RSIF initiative recommends that Saldanha Bay and surrounding Municipalities collaborate in jointly planning for and managing urban growth pressures arising from the development of Saldanha/Vredenburg and the now established SBIDZ. Implications may include the relocation of the oil refinery to this municipality. The municipal SDF sees the expansion of existing transport links (including the rail link) to Cape Town via Atlantis as a means to functionally integrating with the city. The prospect of landing LNG at St Helena Bay is a long-term possibility which will impact the CCT and the region at large as it will precipitate a shift to a gas economy not only in terms of power generation options, but also for domestic reticulation locally and further afield.
De Novo	
Uncertainty regarding the future function and development of provincial land (De Novo) located off Old Paarl Road (R101) in the Stellenbosch municipal area, abutting the Stellenbosch-CCT municipal boundary east of Bloekombos. Historically, the land was farmed, but it is subject to escalating urban development pressures.	The Stellenbosch MSDF identifies De Novo as an emerging farmer incubator, with a residential component. It states that the land should be designed and managed in a way that complements and supports surrounding farming activities for as many beneficiaries as can practically be accommodated. Stellenbosch Municipality is of the view that, over the short- to medium term, farmer development projects should be supported in De Novo, including subdivision to appropriately sized portions as required. Given De Novo's proximity to the City of Cape Town, both the settlement itself and the land between De Novo and the City boundary, face tremendous pressure for development. The implications of any further development in De Novo, such as the provision of housing opportunities or the proposed school, will need to be carefully considered in the light of increased development pressure this would trigger.

URBAN GROWTH ISSUE	MANAGEMENT REQUIREMENT
Klapmuts	
Both Stellenbosch and Drakenstein municipalities have identified Klapmuts as a prospective sub-regional urban node along the N1. Residential and industrial development opportunities have been identified north and south of the N1, and the area has also been identified as having the potential to serve as a regional freight logistics hub. Significant urban expansion is underway in Stellenbosch's jurisdiction of Klapmuts, including substantial residential opportunities that may grow commuter patterns.	To take development proposals forward, the following need to be considered: • Existing infrastructure (i.e. N1, R101, R44 and the Paarl-Bellville railway line and station) which dictates the location of certain transport, modal change or break-of-bulk land uses. • Existing development footprint of Klapmuts, as well as potential development land parcels, including land north of the N1 and the N1-R101-railway line corridor east of Klapmuts, the latter extending up to Paarl South Industria and including a proposed Green Logistics Hub. • Potential for an inland port and agri-processing, packaging and dispatch platform. • Avoiding daily movement across the N1 between places of work, residences and social facilities. • Achieving an appropriate metro gateway. • Collaborative sub-regional growth management for this area is required in order to optimise the positive potential and impact, and mitigate the risk of perpetuating negative development patterns, as well as the equitable sharing of infrastructure costs. It will be necessary to set up a 'Joint Planning Approach' for the Klapmuts node between Stellenbosch, Drakenstein and Cape Town with a focus on implementation. A proposal in this regard has been prepared by the WCG. Covid-19 has had an impact on the timeline for the Distell relocation project. This will mean that the strategic impact, and possible changes to the planning for the northern Klapmuts precinct, will need to be clarified for both Stellenbosch and Drakenstein. Clarity and certainty is needed on the future of the notional Kraaicon inland port.
Paardeberg	
Identified as a rural "hotspot" in the GCMRSIF, Paardeberg covers the municipal footprints of the City of Cape Town, Swartland and Drakenstein municipalities. It is a culturally relevant and productive landscape that derives its significance from a combination of wilderness and rural landscape qualities. The Paardeberg sub-region requires inter-municipal planning and management intervention. It is an area that has experienced significant pressure as a result of competing land uses, including agriculture, sand mining and conservation.	The significance of Paardeberg, and its multifaceted role in the area, is acknowledged by the affected municipalities. There is agreement that a common vision is required and a joint planning approach is needed to achieve aligned land use management, under leadership of the GCMRSIF and applying learnings from best practices developed by the City of Cape Town.
Zevenwacht/Bottelary Hills	
Urban growth is eroding the visual amenity of the Bottelary Hills, impacting on the agricultural working landscape and prompting demand for developments within adjacent areas in the Stellenbosch municipal area enjoying similar locational advantages.	Cross-border urban growth management collaboration is required between the City of Cape Town and the Stellenbosch Municipality. This needs to focus on maintaining the visual, natural and agricultural integrity of the Bottelary Hills. The GCMRSIF Intergovernmental Steering Committee is viewed as the appropriate vehicle for promoting alignment and managing impacts where planning decision-making authorities deviate from the collective vision and plan.

URBAN GROWTH ISSUE	MANAGEMENT REQUIREMENT
Increased demand for residential development can be seen, extending northwards from Polkadraai Road (M12) to Bottelary Road (M23), including Zevendal, Zewenwacht, Klein Zevenwacht and Haasendal, given the following: • Metropolitan access via the Stellenbosch Arterial/ Polkadraai Road (M12), as well as east-west linkages (e.g. Saxdowns Road). • Up-slope localities (e.g. Langverwacht Road) enjoying panoramic views of the Peninsula. • Close proximity to world-renowned vineyards and wineries (Zevenwacht, Hazendal).	
Faure	
Residential development within the Cape Town municipal boundary between Faure and Firgrove, including Croydon Vineyard Estate, Croydon Olive Estate, Kelderhof Country Estate and (the currently under construction) Sitari Fields, is prompting demand for similar residential developments to the north of the CCT municipal boundary and UDE within Faure Hills. The location of such demand within the Stellenbosch municipal area is motivated by the following factors: • Convenient linkages to bulk services within the downslope City of Cape Town developments. • Access to potable water from the nearby Faure water-works and reservoir. • Accessibility, given the proximity of the N2 and R102. • Panoramic views of False Bay and the Peninsula. • Location within a viticulture area, with access to renowned wineries (e.g. Vergenoegd) and within close proximity to Dreamworld.	Such development outside the CCT UDE will impact directly on the 'winelands' within the Stellenbosch municipal area. Accordingly, a collaborative assessment of the UDE and municipal boundary is required with a view to soften the Cape Town UDE (i.e. make edge-appropriate building and design decisions), especially where this edge coincides with the municipal boundary and directly abuts vineyards. This would serve to lessen the threat to the adjacent viticulture areas and address the misperceptions by developers regarding extending the UDE within the Faure Hills to benefit from its locational advantages.
Stellenbosch/Helderberg	
Divergent municipal approaches to settlement typology and density are a possible source of threat to productive agriculture and heritage landscapes between Stellenbosch and Helderberg.	Settlement types, their roll-out and management within the Stellenbosch-Helderberg rural interface area demonstrate settlement policy disparities. For example, a City of Cape Town settlement policy sets out strict settlement growth management (i.e. containment) and limits non-agricultural and new settlement development in the rural area. In contrast, a Stellenbosch Municipality settlement policy focuses on 'inter-connected nodes' with existing rural and urban settlement transformation through densification and extension. The roll-out of this 'inter-connected node settlement model within the Stellenbosch-Helderberg interface rural area raises the following concerns:

URBAN GROWTH ISSUE	MANAGEMENT REQUIREMENT
	• Various urban settlement forms, architectural styles and land use components are not compatible with the existing heritage and agricultural working landscape (e.g. James Town / De Zalze node). • Inappropriate promotion of ribbon development along the R44 (e.g. James Town/ De Zalze node). • Development or extension of inter-connected nodes is in close proximity to the Cape Town UDE (e.g. Raithby, De Wynlanden Estate), with such developments prompting similar development demand outside that UDE. Ensuring the integrity of heritage and agricultural working landscapes that comprise the Stellenbosch-Helderberg rural interface requires a joint City of Cape Town and Stellenbosch Municipality planning forum to achieve synergy between the disparate settlement policies.
Theewaterskloof Grabouw/Siyanyanzela	
Grabouw, which comprises the burgeoning informal area known as Siyanyanzela, is located close to the City of Cape Town administrative border. Uncontrolled growth of peripheral dormitory settlements here has the potential to detract from the performance of the region's economic centres as well as its rural areas. The impacts of uncontrolled growth include infrastructure backlogs, leapfrog sprawl and inefficient responses to human settlement demands, which may not be in the long-term interests of the affected communities. In addition, Siyanyanzela is located 3 km upstream from the intake of the Upper Steenbras Dam. This means that there are potentially significant long-term implications for areas in Cape Town that source their bulk potable water from the Steenbras Dam.	The municipal boundary between Theewaterskloof and the City of Cape Town is under continuous pressure due to the growth of the of Siyanyanzela informal settlement. In the short- to medium term, the City's efforts to prevent the spread of this informal settlement over the municipal boundary will need to be maintained, while more suitable land is found within the settlement of Grabouw to accommodate this growth.

The PSDF logic is underpinned by the following themes (Table D2, Diagram D3):

- Capitalise and build on the Western Cape's comparative strengths (gateway status, knowledge economy, lifestyle offering) and leverage the sustainable use of its unique spatial assets.
- Consolidate existing and emerging regional economic nodes as they offer the best prospect of generating jobs and stimulating innovation.
- Connect urban and rural markets and consumers, fragmented settlements and critical biodiversity areas (freight logistics, public transport, broadband, priority climate change ecological corridors etc.).
- Cluster economic infrastructure and facilities along public transport routes (to maximise the coverage of these public investments) and respond to unique regional identities.

The PSDF acknowledges the economic and spatial primacy of Cape Town in a provincial and regional context. A synthesis of the provincial space economy led to a number of policy directives, including the following:

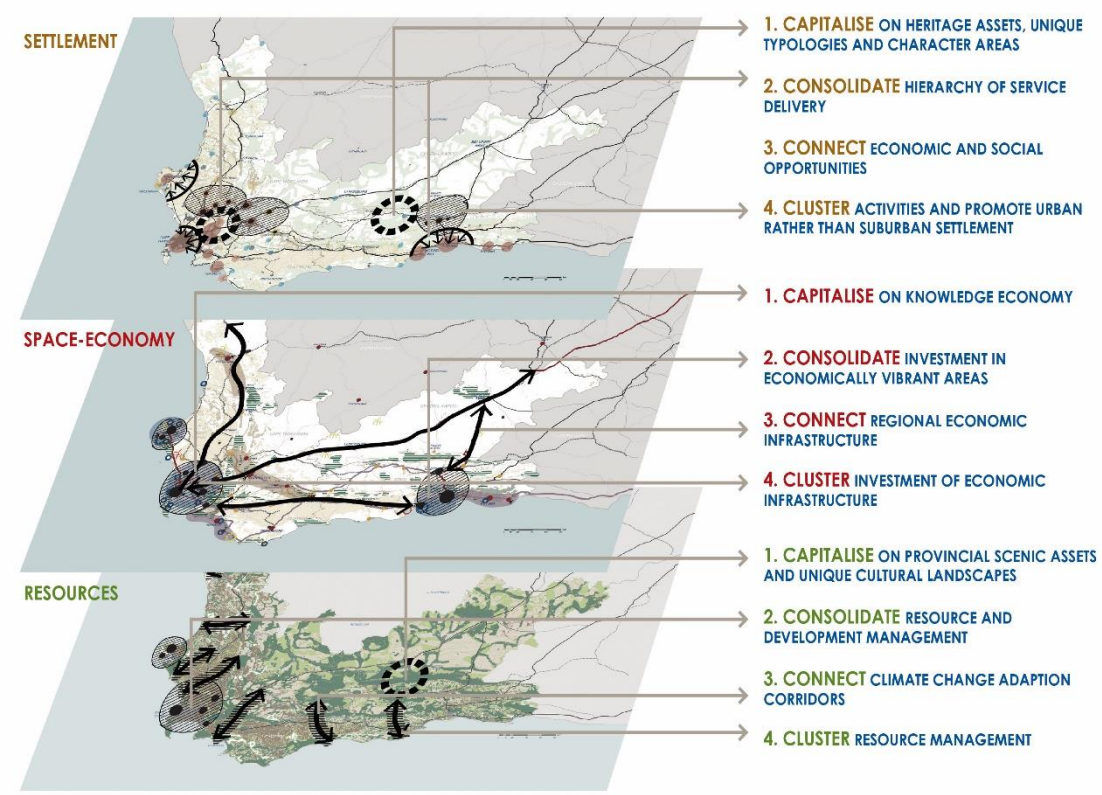
- Reinforce the Cape metro region as the province's economic engine.
- Build 'land assembly' capacity in the urban space-economies and apply new land policy instruments (land banking, land value capture, etc.).
- Incentivise mixed land use and economic diversification in urban and rural land markets.
- Regenerate and revitalise existing economic nodes in the urban space-economy (CBDs, township business centres, modal interchanges, fishing harbours, etc.).
- Prioritise public transport investment and higher order facilities in district centres.
- Stabilise small towns, invest in off-grid infrastructure technologies, and use the roll-out of ICT infrastructure to connect and economically empower across space.

The Provincial Land Transport Framework (2016017) establishes a long-term vision for transport in the Western Cape. The Department of Transport & Public Works are in a process of drafting the 2023/24-2027/28 version.

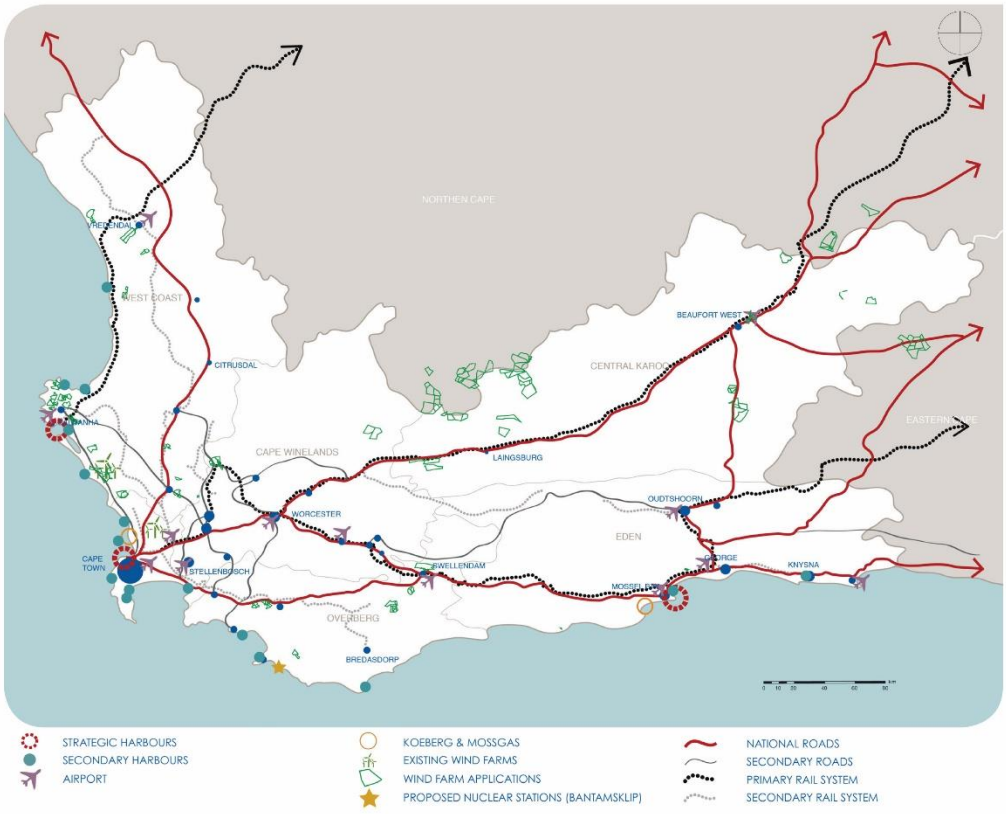
Table D2: Cross-border planning issues

SCALE	DESCRIPTION	PSDF SPATIAL LOGIC			
		1. CAPITALISE	2. CONSOLIDATE	3. CONNECT	4. CLUSTER
REGIONAL GROWTH NODES	*Primary urban concentrations and areas of growth - Cape Town region, George region, Saldanha Bay region*	Capitalise on Provincial assets (Iconic landscapes, rural and coastal lifestyle, knowledge economy, agriculture, events)	Prioritise consolidated investment in economically vibrant areas	Connect regional economic infrastructure (regional transport, freight logistics, energy, broadband)	Align high-level planning and investment prioritisation (BRT Systems, human settlement pilots)
REGIONALISM	*Rural regions defined by agricultural and water system, cultural and landscape character, local conditions and function*	Celebrate unique regional identities and experiences (Karoo, Winelands, West Coast, Garden Route, Agulhas Plain, Overberg)	Balance development and resource protection through close management of natural, cultural landscape and agricultural assets in relation to growth pressures	Strengthen regional ecological connectivity Build economic linkages regionally between rural and urban areas	Coordinate regional planning based on response to local conditions and function
INTER-SETTLEMENT SYSTEM	*Hierarchy and functional linkages between regional centres and smaller surrounding towns*	Capitalise on unique cultural landscapes, heritage assets, character areas and typologies	Promote hierarchical social service delivery patterns based on regional role of settlement (regional centres vs small towns)	Focus on sub-regional public transport systems Ensure for connected rural-urban social service systems and networks	Regionally align clustering of primary health, educational and other social facilities
SETTLEMENT FORM AND STRUCTURE	*Physical and socio-economic manifestation of activity within a town and/or neighbourhood*	Capitalise and preserve unique local built form and natural typologies, character and heritage	Promote urban rather than suburban model: avoid further fragmentation of townships. Consolidate social services, mixed uses, density	Focus on creating connections to economic and social opportunity to promote spatial and socio-economic integration	Cluster all social facilities and complementary activities Promote multipurpose and mixed use activity

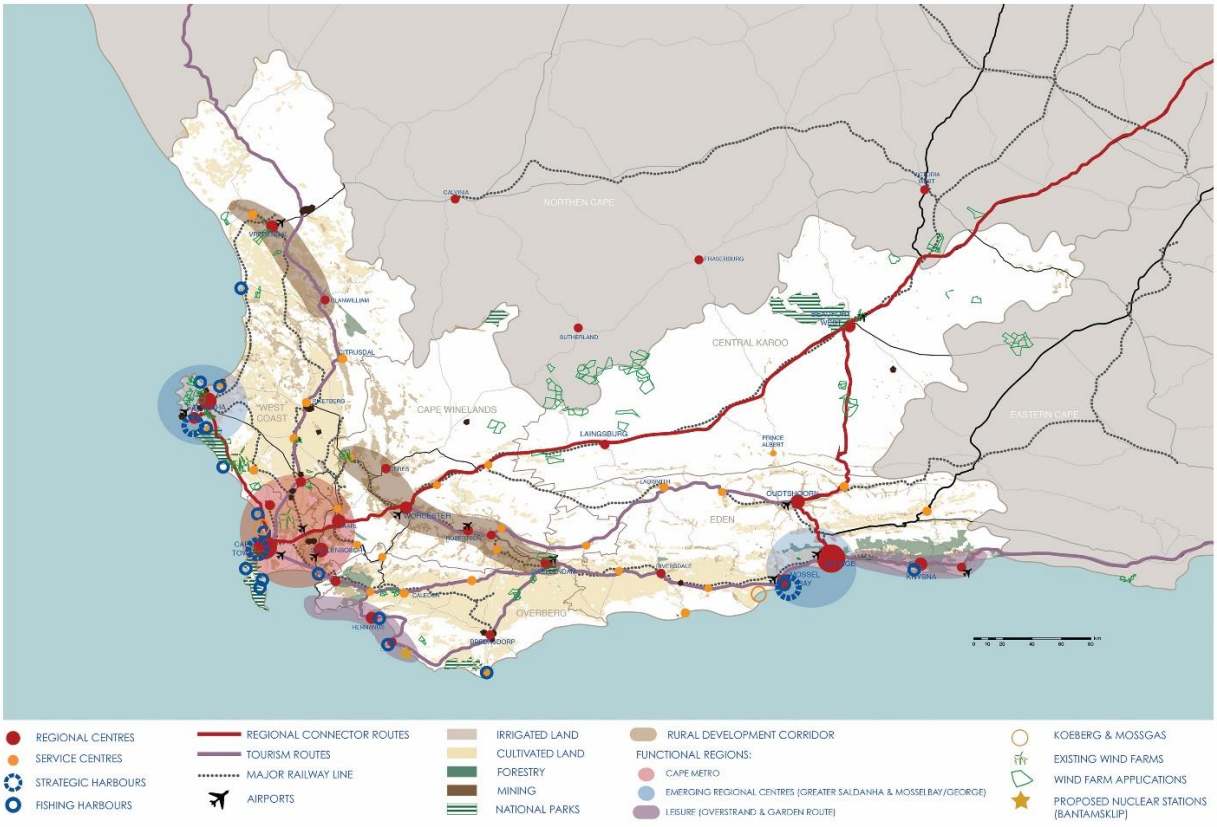
Diagram D6: PSDF conceptual spatial development



Map D3: Provincial economic infrastructure



Map D4: Space-economy synthesised and consolidated framework


NORTHERN CAPE
CENTRAL KAROO
EASTERN CAPE
CAPE WINELANDS
EDEN
OVERBERG
REGIONAL CENTRES
SERVICE CENTRES
STRATEGIC HARBOURS
FISHING HARBOURS
REGIONAL CONNECTOR ROUTES
TOURISM ROUTES
MAJOR RAILWAY LINE
AIRPORTS
IRRIGATED LAND
CULTIVATED LAND
FORESTRY
MINING
NATIONAL PARKS
RURAL DEVELOPMENT CORRIDOR
FUNCTIONAL REGIONS:
CAPE METRO
EMERGING REGIONAL CENTRES (GREATER SALDANHA & MOSSELBAY/GEORGE)
LEISURE (OVERSTRAND & GARDEN ROUTE)
KOEBERG & MOSSGAS
EXISTING WIND FARMS
WIND FARM APPLICATIONS
PROPOSED NUCLEAR STATIONS (BANTAMSKLIP)

Technical Supplement E:

Nodal classification, corridor interventions & integration zones

Description of corridors and linked-nodes

Cape Town's conceptual spatial structure is framed by development corridors that are anchored by a system of metropolitan and district-scaled nodes. These structuring elements are aimed at accommodating a broad spectrum of land uses associated with population and employment density. As such, they include an array of spatially targeted investment areas (including integration zones, economic areas and development focus areas) which are geared towards promoting spatial transformation.
These corridors are in different stages of maturity in relation to their public transport functionality and their associated role of supporting intensification and diversification of land use. Corridors profiled include:

- Voortrekker Road Corridor
- Main Road/Southern Corridor
- Blaauwberg Corridor
- West-East/Southern Corridor (Philippi East to Claremont / Wynberg to Somerset West
- Blue Downs / Symphony Way Corridor

The purpose of this technical supplement is to reflect a series of corridor profiles that can be monitored over time in terms of their progress towards maturing into metropolitan scale development corridors.

Diagram E1: Consolidated conceptual corridors at metropolitan scale

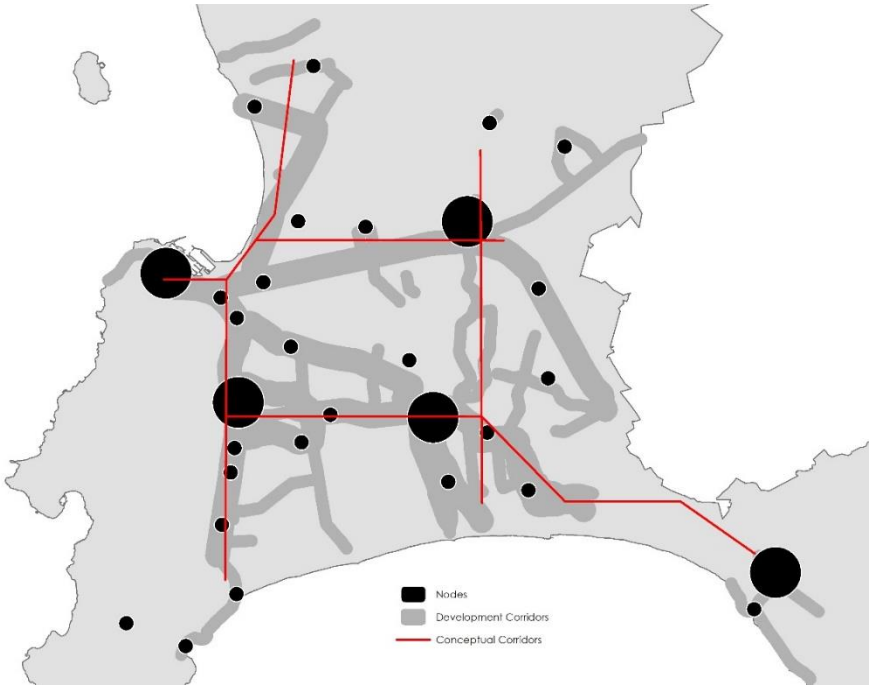
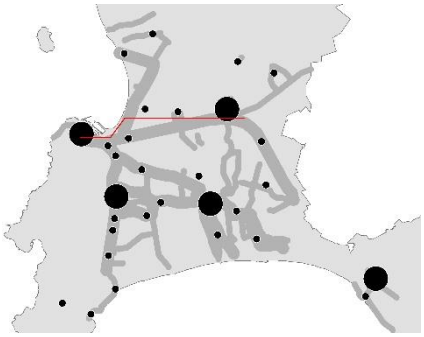
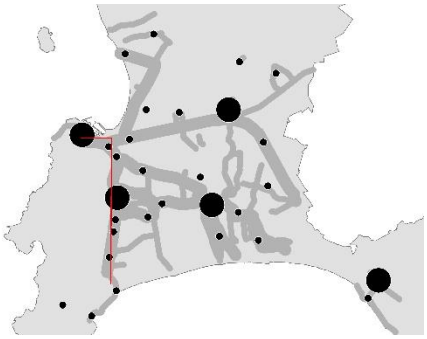
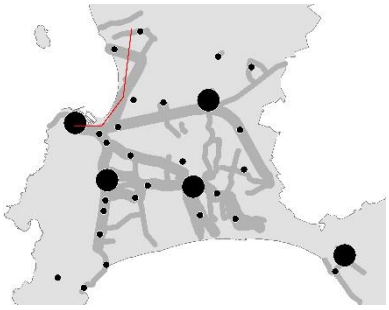


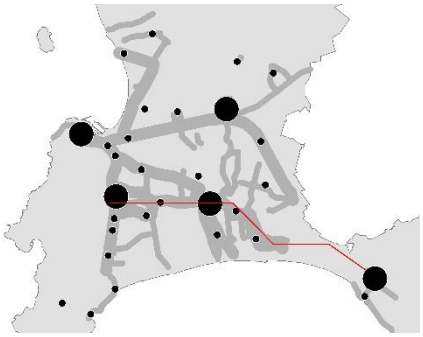
Table E1: Integration zones

Corridor	Characteristics
VOORTREKKER ROAD CORRIDOR (VRC)  **Status** • Metropolitan Development Route • Integration Zone **Description:** • Cape Town CBD via Century City to Bellville CBD **Anchoring nodes:** • Cape Town CBD (metropolitan node) • Bellville CBD (metropolitan node)	The corridor is anchored by the two metropolitan nodes of Cape Town CBD in the west (past the rapidly developing district node at Century City), and Bellville CBD in the east. **Land use aspects** The corridor contains Sections of mixed land use consisting of ground-level retail/business with residential ranging anywhere from two to eight storeys of residential above it (higher in some cases), predominantly along Voortrekker Road. Land use in areas further away from Voortrekker Road, while less diverse, have intensified incrementally over time. Signs of investment in affordable and student residential development are evident in certain nodal clusters, such as Maitland, Elsies River, Parow and Bellville. This is in response to favourable access to economic and social infrastructure. A good balance, and high volumes, of both attractor (employment) and generator (residential) land uses are present. The VRC currently attracts a range of investment and development opportunities along its length, with great potential to grow and intensify further. It includes four of Cape Town's spatially targeted manufacturing investment incentive areas, namely Triangle Farm, Parow Industria, Sacks Circle and Elsies River. **Transport aspects** ***Existing transport infrastructure*** • Railway lines with a number of stations • MyCiTi Service from Koeberg Road through Maitland into Salt River • N1 Freeway • Voortrekker Road ***Planned supporting public transport*** The corridor is to be strengthened by the following future north-south road-based public transport routes depending on inter alia, demand, funding and implementation readiness: Khayelitsha to Century City (T17); Eerste Rivier to Blaauwberg (T16); Symphony Way (T13); Strandfontein to Cape Town CBD (T15); Westlake to Bellville (T14); and the west-east supporting Kraaifontein to Century City (T19). The Northern Corridor Modernisation Study (currently underway), is expected to produce an integrated public transport rollout plan for modernised public transport infrastructure and services. This will serve as the fundamental basis for a corridor development plan that will advance TOD outcomes within the VRC. **Supporting initiatives and priority projects**

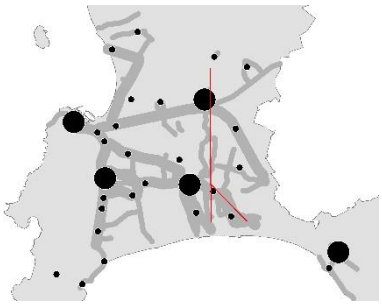
Corridor	Characteristics
	• Priority Human Settlements & Housing Development Area & Provincial Human Settlements Catalytic Project (social housing) • Urban Development Zone (UDZ) • Bellville Opportunity Area catalytic TOD project • Parow Public Investment Plan • Maitland Draft Local Spatial Development Framework • Foreshore Freeways and other CBD sites • Conradie Better Living Model Exemplar Project (BLEMP) • De Grendel Precinct Mixed Use Development Feasibility Study

Corridor	Characteristics
MAIN ROAD CORRIDOR  **Status:** • Metropolitan development route **Description:** • CBD via Main Road to Southern Suburbs **Anchoring nodes:** • Cape Town CBD (metropolitan node) • Wynberg/Kenilworth/Claremont (metropolitan node) • Plumstead - Muizenberg (district nodes)	This corridor is anchored by the Cape Town Central Business District (CBD) metropolitan node and connects the metropolitan node of Wynberg/Kenilworth/Claremont with the developing district nodes along this corridor, extending further south to Muizenberg along the railway line. **Land use aspects** The corridor generally operates well as a mixed-land-use area. Long stretches of mixed-use districts exist, with business and retail operating at ground level and several storeys of office or residential above. This pattern is broken by single-use zones, generally located between mixed-use urban nodes where east-west routes intersect Main Road, or rail stations occur. This north-south corridor is of a mature nature overall, with a fairly good mix of attractor (employment opportunities) and generator (residential) land uses. The land-use intensity decreases south of Tokai and Retreat. The northern portion is well serviced, providing good opportunities for high-density, mixed use development, while the southern portion of the corridor is still developing, but with strong similarities to the north. The future urban restructuring of the Wynberg CBD node is brought about by planned public transport investment projects, and is likely to catalyse several redevelopment opportunities. The northern part of the corridor is supported by Main Road and the M3 freeway. **Transport aspects** ***Existing transport infrastructure*** • Railway lines with a number of stations • Main Road • M3 freeway • Road-based public transport, e.g. along Main Road ***Planned supporting public transport*** The central Section of the corridor will be supported by the planned IPTN trunk route links between generator land uses (residential) located in the Metro South-East of the City (from Khayelitsha and Mitchells Plan) to attractor land uses (employment nodes) at Wynberg and Claremont (T11 and T12). There are also two longer-term IPTN west-east routes planned. The first links Westlake in the south of the corridor to Bellville as metropolitan employment node (T14). The other links Westlake / Retreat to Strand / Gordons Bay (T10). Both are subject to funding availability. **Supporting initiatives and priority projects** • Foreshore Freeway and other CBD sites • Moquet Farm C40 Level 2 Catalytic Project • Wynberg CBD transport restructuring (Main Road couplet) and associated land use intensification incentives.

Corridor	Characteristics
BLAAUWBERG CORRIDOR (Phase 1 of MyCiTi)  **Status:** • Metropolitan development route **Description:** • Cape Town CBD via Century City to Blaauwberg **Anchoring nodes:** • Cape Town CBD (metropolitan node) • Century City (district node) • Rivergate (district node)	Towards the north the Cape Town CBD connects, via the district node at Century City along various industrial and mixed-use areas in Milnerton and along the West Coast and between the coastline and the N7, to a district node in the Rivergate area. To the far north Atlantis remains a fairly isolated district node connected to the Cape Town CBD by road-based public transport.. **Land use aspects** Century City has over the past decade established itself as a mixed use node of sub-metropolitan scale with a good balance between attractor and generator land uses. The establishment of Rivergate/ Frankendale has progressed over the past 5 years particularly along Berkshire Boulevard, the M12 and the railway line (at present still a low-volume goods line). However, that growth is directly impacted by the Koeberg Nuclear Power Station and the impediments it places on high density mixed land use (urban growth/ density limitations) owing to the City's evacuation responsibilities. Closer to the CBD the corridor is mature with high levels of attractor land uses (employment opportunities) balanced with generator land uses (residential). This pattern continues north up to Dunoon and will benefit from attractor uses (job opportunities) planned in the vicinity of Rivergate/ Frankendale. However, such employment-generating development opportunities have been significantly impacted by land invasions in recent years. Segments of the southern part of the corridor north of Paarden Eiland and especially on Blaauwberg Road, are establishing a 'balanced' corridor with high concentrations of single and mixed use development in rapid succession. The rapid land use change experienced can in part be attributed to the proximity to the existing MyCiTi stations with feeder services providing scheduled access to the public transport network. However, the supporting bulk services infrastructure (mainly sanitation) has not kept pace with such urban growth. **Transport aspects** <u>Existing transport infrastructure</u> MyCiTi Phase 1 (CBD - Atlantis); R27 (Otto du Plessis / Marine Drive); N7 Freeway <u>Planned supporting public transport</u> The corridor will be strengthened by planned north-south road-based public transport routes such as Khayelitsha to Century City (T17); Eerste Rivier to Blaauwberg (T16); Symphony Way (T13); Strandfontein to Cape Town CBD (T15); Westlake to Bellville (T14); and the west-east supporting Kraaifontein to Century City (T19). **Supporting initiatives/ priority projects** • Upgrades to the Potsdam WWTW • Potsdam Sustainability Campus • Du Noon / Doornbach Urban Support Area

Corridor	Characteristics
WEST-EAST/SOUTHERN CORRIDOR  **Status:** • Metropolitan development route **Description:** • Mitchells Plan and Khayelitsha to Claremont and Wynberg **Anchoring nodes** • Wynberg/Kenilworth/Claremont (metropolitan node) • Philippi East (metropolitan node) • Somerset West (metropolitan node)	This developing corridor establishes a west-east linkage parallel to Voortrekker Road. The implementation of the Metro South-East MyCiTi Corridor BRT route will formally establish the corridor, connecting the Metro South-East with the Claremont and Wynberg areas. The corridor is characterised by three metropolitan nodes, namely: Wynberg / Kenilworth / Claremont; Philippi East; and Somerset West. The Philippi East node is supported by the district nodes in Khayelitsha and Mitchells Plain. It also promotes the linkages to Somerset-West and Strand and surrounding areas, which will develop further over time. **Land use aspects** Mixed-use districts, as well as segments of single land use, are expected to emerge around the developing MyCiTi Corridor linking the Metro South-East, Claremont and Wynberg areas. Land use patterns at a district level are largely of an origin (residential) nature, but several civic and business districts exist at major intersections. Various urban stabilisation interventions are necessary as a precondition to the formal established of this corridor and private sector investment actively encouraged. This developing corridor is expected to improve connections between attractor land uses (work opportunities) on the Main Road Corridor and predominately generator land uses (residential) in the Metro South-East part of the city. While the corridor functions as an intermediate link, parallel to the Voortrekker Road Corridor, it currently lacks connectivity between the Metro South-East to Strand. This will be realised through the proposed BRT extensions, as Somerset West and surrounding areas develop over time. The corridor is still predominantly characterised by significant volumes of one-directional peak morning movement (such as along the N2 freeway) into the CBD, and a reverse flow during the afternoon peak period. The Metro South-East MyCiTi Corridor BRT route will link residents to concentrations of job opportunities on the Western Corridor, and support movement of current concentrations of informal activity and trading in the Metro South-East area to the west. The R300 and segments of the N2 and Klipfontein Road, support the BRT route, which in turn will support the existing rail connections from Khayelitsha and Mitchells Plain to the Cape Town CBD. **Transport aspects** ***Existing transport infrastructure*** • GABS bus and minibus taxi services • Railway lines with a number of stations • N2 freeway • Metro South-East MyCiTi Corridor ***Planned supporting public transport***

Corridor	Characteristics
	The T10 BRT route (Retreat to Strand and Gordon's Bay) will provide further parallel support to this emerging corridor, as will an extension to the rail service (Chris Hani station to Firgrove station) if warranted. While the Metro South-East Corridor introduces BRT infrastructure and the MyCiTi service, not all of the route is in dedicated right of way, with supply (frequencies) reduced according to service limitations and other public transport modes. **Supporting initiatives and priority projects** • Metro South-East Integration Zone, • Philippi Opportunity Area Catalytic Project • Swartklip/Nolungile missed use development area • Khayelitsha CBD mixed use precinct • Metro South-East MyCiTi Corridor and incentive overlay zone • Paardevlei land use intensification

Corridor	Characteristics
BLUE DOWNS / SYMPHONY WAY CORRIDOR  **Status:** • Metropolitan development route **Description**: • Mitchells Plain/ Khayelitsha to Bellville **Anchoring nodes** • Bellville CBD (metropolitan node) • Mitchells Plain (sub-metropolitan node) • Khayelitsha (sub-metropolitan node) • Philippi East (metropolitan node)	This corridor links the Metro South-East (Mitchells Plain, Khayelitsha and Philippi East) to the Cape Town CBD and Bellville and Tyger Valley via Symphony Way. The planned Blue Downs rail link (Khayelitsha to Bellville) runs parallel to Symphony Way. This rail link is very much dependent on PRASA constructing the Blue Downs rail infrastructure. The Philippi East metropolitan node will, over time, anchor the corridor in the south and also promote multi-directional public transport networks. **Land use aspects** Land use surrounding the potential Blue Downs Rail link is predominately residential. Once realised, the planned station locations, and the overlapping Blue Downs CBD area, will develop as mixed use activity nodes. Across the length of Symphony Way, various intersections of road and rail networks contain areas of mixed-use character which, over time, will develop further and realise greater land use intensities. For most of its length, this corridor functions as trip generator (residential) with only a few concentrations of attractor land uses (work opportunities). The speed at which the corridor develops is dependent on substantial rail infrastructural investment envisaged (proposed Blue Downs rail link). Should this not materialise as anticipated, the corridor is likely to develop along the existing R300 freeway and future Symphony Way BRT route. The corridor will require the planned BRT feeder networks (currently on hold) to support the new rail link once realised, and other service infrastructure to ensure maturity over time. Despite PRASA deprioritising the Blue Downs rail link, the need for a high quality public transport trunk service remains critical to improve access to socio-economic opportunities between Mitchells Plan, Khayelitsha and Bellville. **Transport aspects** ***Existing transport infrastructure*** • Railway lines with a number of stations • Symphony Way ***Planned supporting public transport*** • Blue Downs rail link (dependent on the implementation of the Blue Downs rail infrastructure) with minbus taxis fulfilling the feeder service role • Portions of Metro South-East to Claremont/ Wynberg BRT route (T11/T12) • Portions of Khayelitsha to Century City BRT route (T17) • Portions of Klipfontein Road BRT route (D12) • Symphony Way/ Mitchells Plain to Durbanville BRT route (T13) • Portions of Gordons Bay to Retreat (T10) BRT route **Supporting initiatives and priority projects** • Bellville Opportunity Area • Philippi Opportunity Area • Airport East Opportunity Area / Redevelopment Precinct • Unibell Station mixed use node

Integration Zones

Informed and structured around the City's nodes, the integration zone planning initiatives give effect to the nodal hierarchy, and spatially targeted public investment. The City has commenced detailed planning for three corridor-scale Integration Zones (IZs) namely, the Metro South-East Integration Zone (MSEIZ), the Voortrekker Road Corridor Integration Zone (VRCIZ) and Blue Downs Integration Zone (BDIZ). The IZs represent the City's commitment to plan, fund and implement projects and approaches that are best able to transform Cape Town's spatial structure through effective transport links and spatially-defined mobility and activity corridors.

The IZs are premised on the following:

- opportunities afforded by public transport to restructure urban form along transit-oriented development principles
- capacity to link concentrations of economic opportunity and mono-use settlement patterns
- opportunities to diversify and intensify land uses
- infrastructure improvements and related catalytic urban development projects

Although the IZs share the same potential to assist in the effective restructuring of the city, they are fundamentally different in terms of existing spatial form and structure. By-products of the work stemming from the IZs include the identification and continuous progression of PLAs, which give effect to the restructuring of the City at a localised scale. Priority Human Settlements and Housing Development Areas (PHSHDAs) have also conformed to the boundaries of the IZs in support of addressing spatial inequality within the housing sector. (Incl. Social Housing).

The Metro South-East IZ

This zone represents some of the city's most marginalised communities. Parts of these communities are characterised by some of the highest household and population densities within the city, e.g. Kosovo and Sweet Home informal settlements in Philippi, and Zondi in Gugulethu. The primary spatial restructuring objective of the Metro South-East IZ is to spatially link Mitchells Plain and Khayelitsha with the Cape Town CBD, utilising the existing and proposed public transportation linkages and infrastructure. This will support a more diverse land use pattern and maximise the catalytic benefits of the Athlone Power Station and Philippi priority projects.

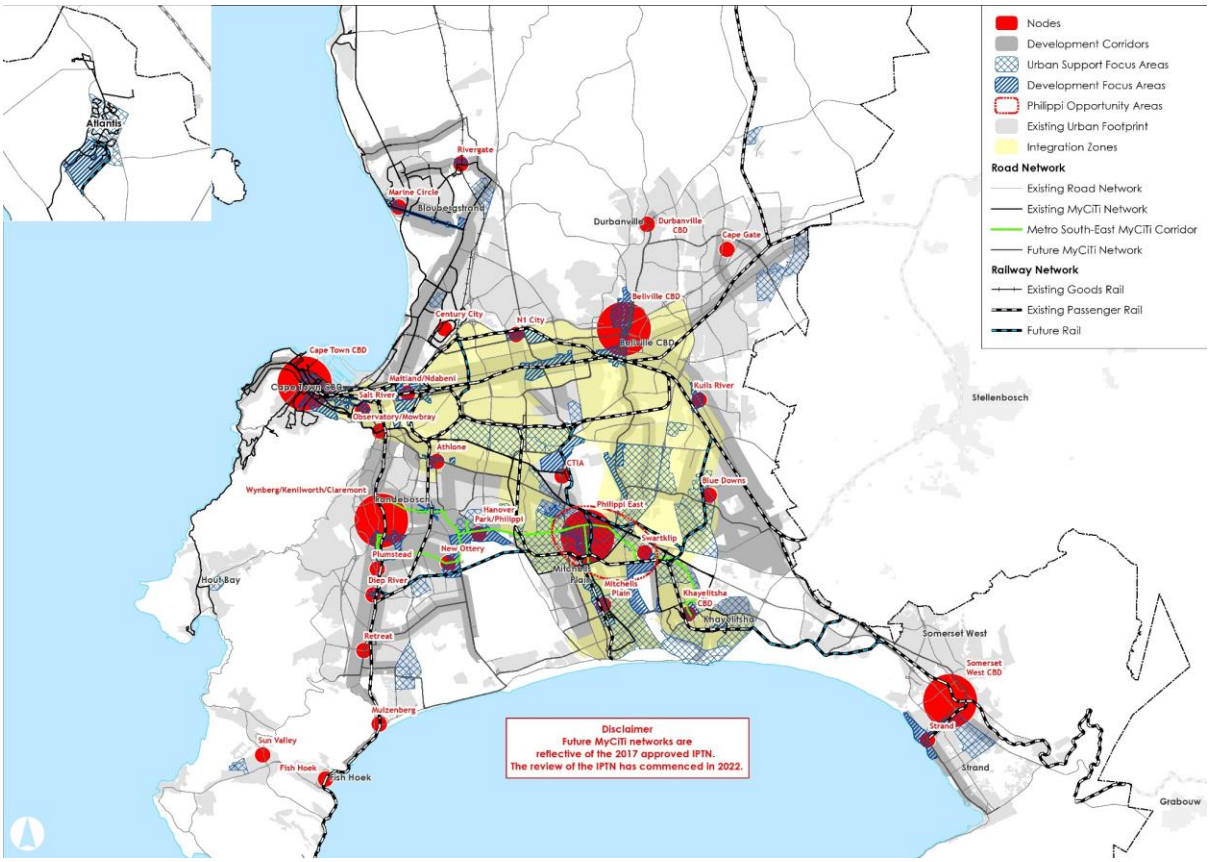
The Voortrekker Road Corridor IZ

The IZ is home to the key business districts of Bellville, Maitland, Parow, Goodwood, and Salt River, and includes diverse regional health and tertiary educational infrastructure. Like the Metro South-East IZ, it is anchored by the city's CBD. It does not, however, reflect the same socio-economic profile of the Metro South-East IZ. It has been negatively impacted by urban decay and is in need of structured management approaches to support and stimulate investment and re-investment in the corridor. There is an abundance of opportunity to optimise land use in support of transit investments and intensify development to serve the diverse community residential and commercial needs. The availability, and increase in supply, of affordable rental stock is recognised as one of the key levers towards integration and renewal of the corridor. The VRC social housing project (including Conradie) was endorsed by the national Department of Human Settlements as one of the City's catalytic human settlement projects.

Blue Downs IZ

This IZ is premised on the potential development opportunities and structural efficiencies that will be created by the proposed multi-billion-rand rail link extension facilitated by the Passenger Rail Agency of South Africa (PRASA) and supported by the future T13 IRT trunk route between Philippi East and Bellville. Other catalysts for integrated planning and development include the partnership with ACSA (in relation to the Symphony Way and Swartklip land developments) and the supportive feeder systems for station precincts along the rail route (Wimbledon, Blue Downs and Nolungile). The southern corridor human settlement project, comprising clusters of informal settlements in proximity to the N2 highway, traverses both the Blue Downs IZ and the Metro-South East IZ.

Diagram E2: Linkages between nodes and corridors at a metropolitan scale



Technical Supplement F:

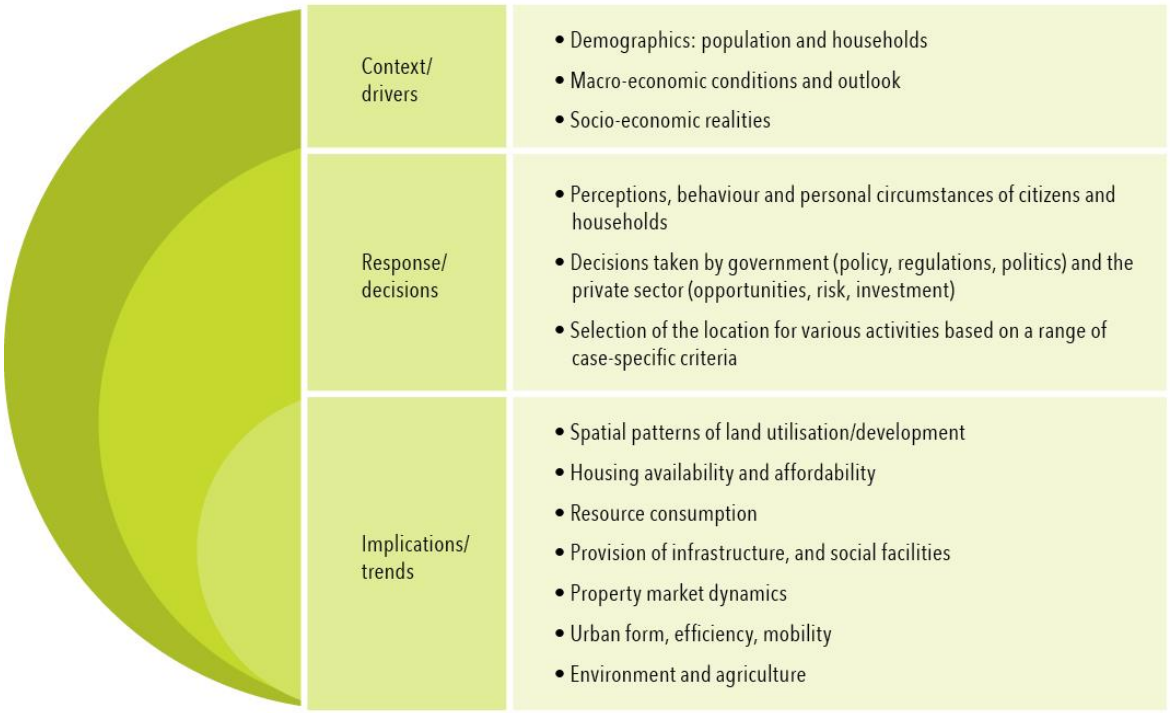
Overview of the dynamics of urban change

This Section overviews and attempts to reveal the dynamics of urban change in a complex interaction between households, government and the private sector in a specific set of conditions and circumstances. This leads to certain decisions, behaviour and actions that manifest in the spatial dimension and, therefore, has implications for spatial planning.

The aim is to present the City's information for the period 2005-2020[5] that help ensure that the policy presented in the MSDF is achievable and based on the best available evidence regarding the trends shaping Cape Town's future. While every effort has been made to present the most recent data, the City's data is constantly updated and this may not be reflected here.

Demographics, public transport, housing, the economy, land (availability and use), infrastructure, fiscal health and resource efficiency all have direct implications on shaping the City's spatial future and the degree of sustainability and inclusivity associated with growth and development.

Diagram F1: Approach to understanding the dynamics of urban change



[5] The chosen study period reflects the local impact of the global economic downturn of 2008, the lasting spatial implications of which were not fully understood by 2012. Newer/additional datasets have been added where available.

Context

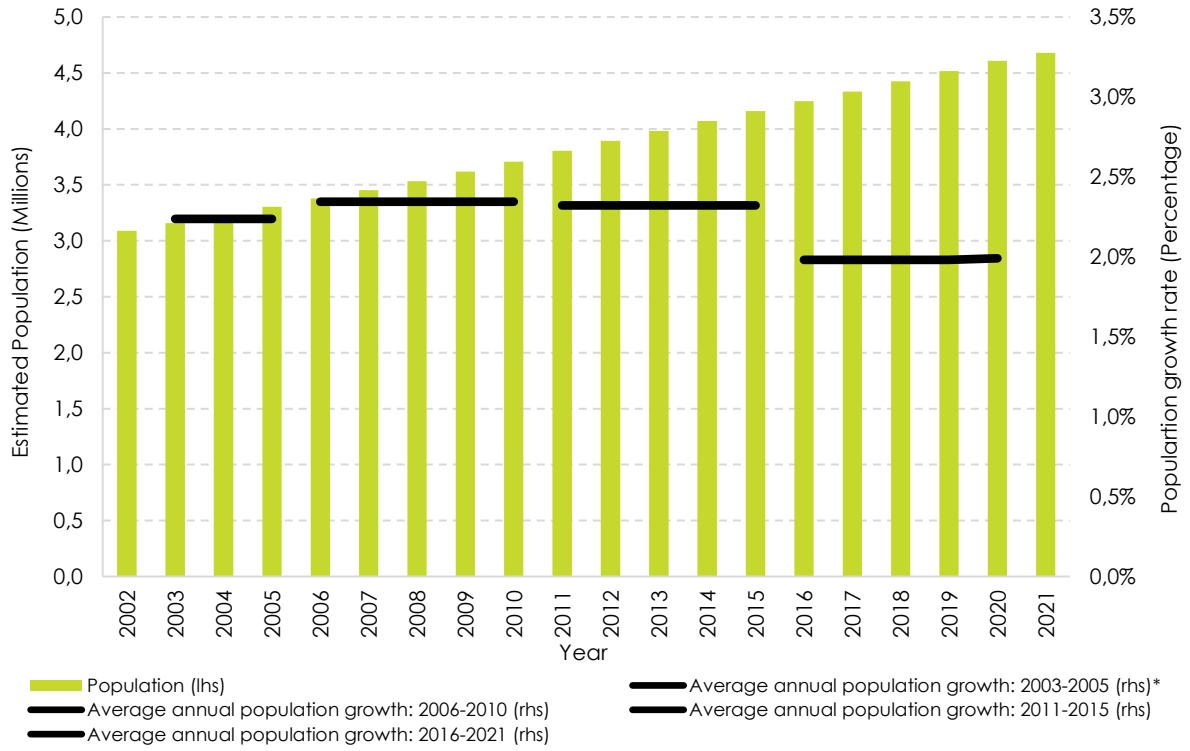
Demographics

- City-region population growth (i.e. including growth in abutting municipalities) places pressure on land and the provision of infrastructure, social facilities and housing.
- Cape Town's population is growing at a decelerating pace towards an estimated >5.8m people by 2040.
- In-migration (from all income categories, and most notably from Gauteng and the Eastern Cape) is expected to continue.
- The three broad age groups, namely children, senior citizens and the working-age population require specific services, facilities or opportunities.
- Decreasing household sizes translate into the formation of new households, which further fuels the demand for housing and household services.
- Possible changes in these trends due to Covid-19 will be monitored with updated data from the 2022 Census and related data releases from 2023 onwards.

Population estimates

The estimated population of Cape Town in 2021 was 4 678 900, and represented 66% of the population of the Western Cape. The city has seen steady population growth at an average annual rate of 2.2% from 2002 to 2021.

Diagram F2: Population estimates and average annual growth rates for Cape Town (2002-2021)



Source: Mid-year population estimates, Statistics South Africa, 2021; 2018 Cape Town Population Projections (2017-2040)

Approximately 51% of Cape Town's population was female, according to 2021 estimates[6]. This demographic has been relatively consistent for the past 15 years. The 2016 Community Survey[7]

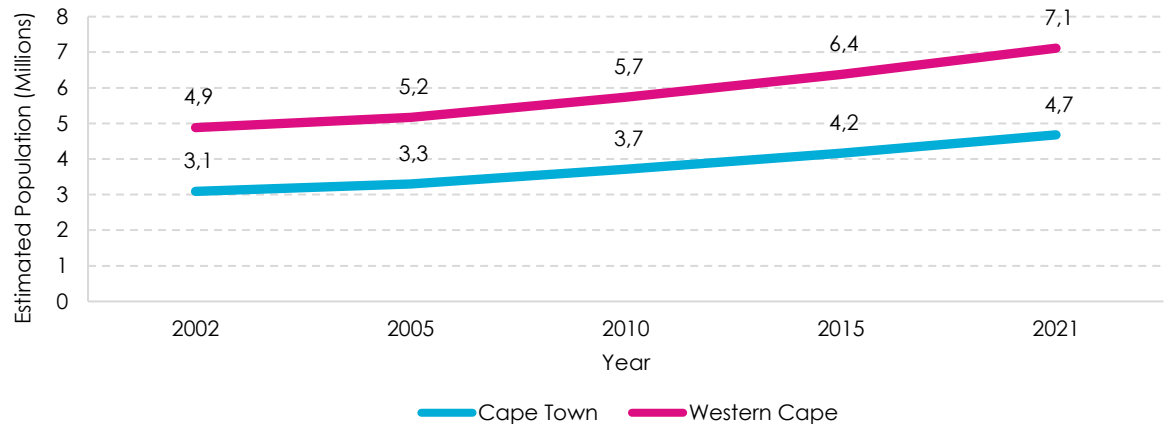
[6] Mid-year population estimates, Statistics South Africa, 2021
[7] Community Survey, Statistics South Africa, 2016

showed that, in terms of population group, 42.5% of the population was Black African, 39.9% Coloured, 16.5% White and 1.1% Asian.

Population projection

The average annual population growth rate of 2.2% between 2002 and 2020 means that the city's population is growing at a slightly faster rate than that of the Western Cape Province (2.0%) as a whole. Moreover, Cape Town's population, as a percentage of the Western Cape's population, increased from 63% in 2002 to 66% in 2021.

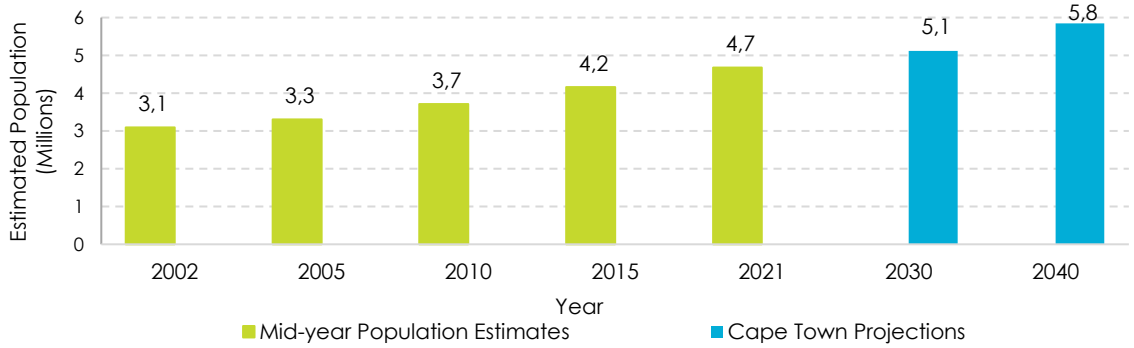
Diagram F3: Population estimates for the Western Cape and Cape Town (2002–2021)



Source: Mid-year population estimates, Statistics South Africa, 2021

The Cape Town population is expected to exceed 5.8 million people by 2040[8] based on the City's base projection[9]. Population growth rates are decelerating, and is expected to continue this trend, from an average annual growth rate of 2.2% between 2002 and 2021 to 1.5% between 2021 and 2040. Possible changes in this trend due to Covid-19 will be closely monitored.

Diagram F4: Historical and projected population estimates for Cape Town (2002–2040) [10]

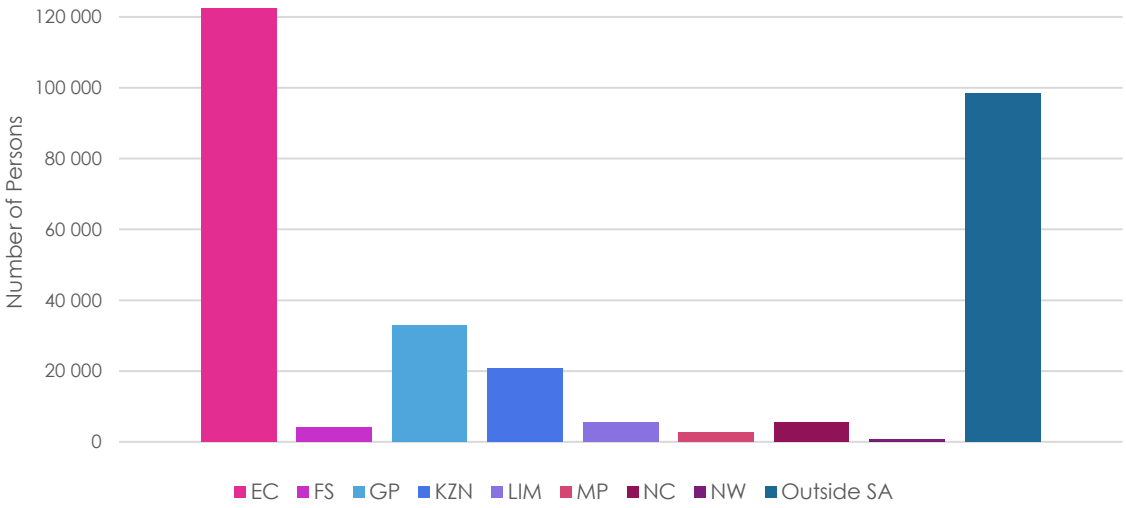


[8] City of Cape Town, Cape Town Population Projections 2017 to 2040 (2018).
[9] The Cape Town Population Projections are based on the 2016 Community Survey, and will be updated with Census 2021/2022 data. The population growth from these projections is aligned, albeit somewhat lower, than the CCT Land Use Model (LUM) 2040, as can be expected with the LUM 2040 using newer (dwelling) data; and does not consider occupancy rates nor the shift from one dwelling type into another.
[10] Statistics South Africa, Mid-Year Population Estimates, 2021; City of Cape Town, Cape Town Population Projections 2017 to 2040 (2018).

Inward migration is an important contributor to the city's population growth. According to the 2016 Community Survey, 253 941 people relocated within Cape Town and 125 528 people moved from elsewhere to Cape Town over a five-year period between March 2016 and October 2011. A total of 58 650 residents migrated out of Cape Town to other parts of South Africa, which implies a net increase of 66 878 over the same period. This figure does not take into account people who left South Africa, i.e. 1.7% of the March 2016 Cape Town population.

Between October 2011 and March 2016 the increase in the total population of Cape Town was estimated at 264 797[11], with just over 25% of this figure due to migration.

Diagram F5: Net migration to the Western Cape, 2016-2021[12]



The in-migration depicted in the graphic above consists of households that settle in different areas and different dwelling types. Historically, the majority of the city's migrant influx have been from lower-income groups, mainly from rural areas and small towns. This trend creates significant pressure on the economy to provide employment opportunities, and on the local municipality to provide infrastructure, services, and access to land and housing.

Population distribution

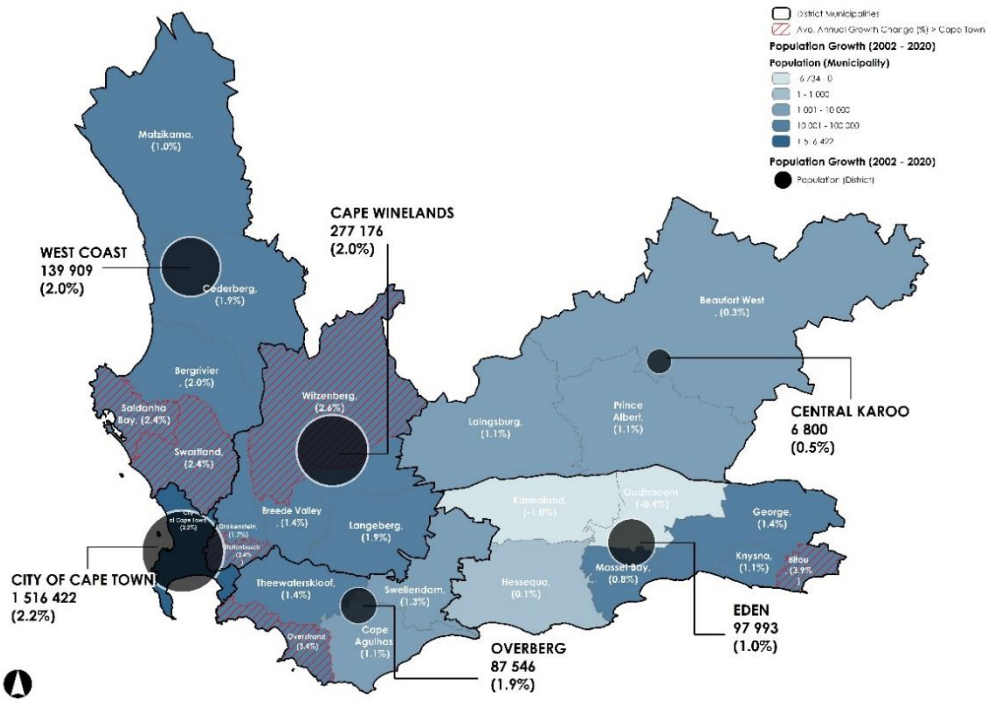
Cape Town currently has the second-largest population of all cities in South Africa. Its average annual growth rate of 2.2% between 2002 and 2020 was, however, not the highest in the Western Cape. Bitou Municipality recorded the highest average annual growth rate (3.9%) over the period, followed by Overstrand (3.4%) and Witzenberg (2.6%). The CCT had the 7th highest average annual growth rate over the period. Map F1a&b shos the district municipalities where the population growth exceeded that of the CCT, predominately in areas adjacent to Cape Town.

Map F1a shows the biggest change in population numbers over the 2002 to 2020 period (1.5 million people or ±84 000 people per year) belonged to the City of Cape Town. Other than the City of Cape Town, the largest population increases were in Drakenstein (213 011 in 2002 growing with an additional 77 367 people) followed by Stellenbosch (increasing by 67 906 people from 124 587 in 2002) and Witzenberg (additional 54 338 people from 93 281 in 2002). It is important to note that both Drakenstein and Stellenbosch abuts the City of Cape Town, which also points to population agglomerate at a city region scale. Kannaland and

[11] Census 2011, Statistics South Africa and 2016 Community Survey, Statistics South Africa
[12] Provincial Economic Review and Outlook, 2021:4. Statistics South Africa, 2021

Oudtshoorn were the only local municipalities that experienced negative average annual growth rates of -1.0% and -0.4% respectively from 2002 to 2020.

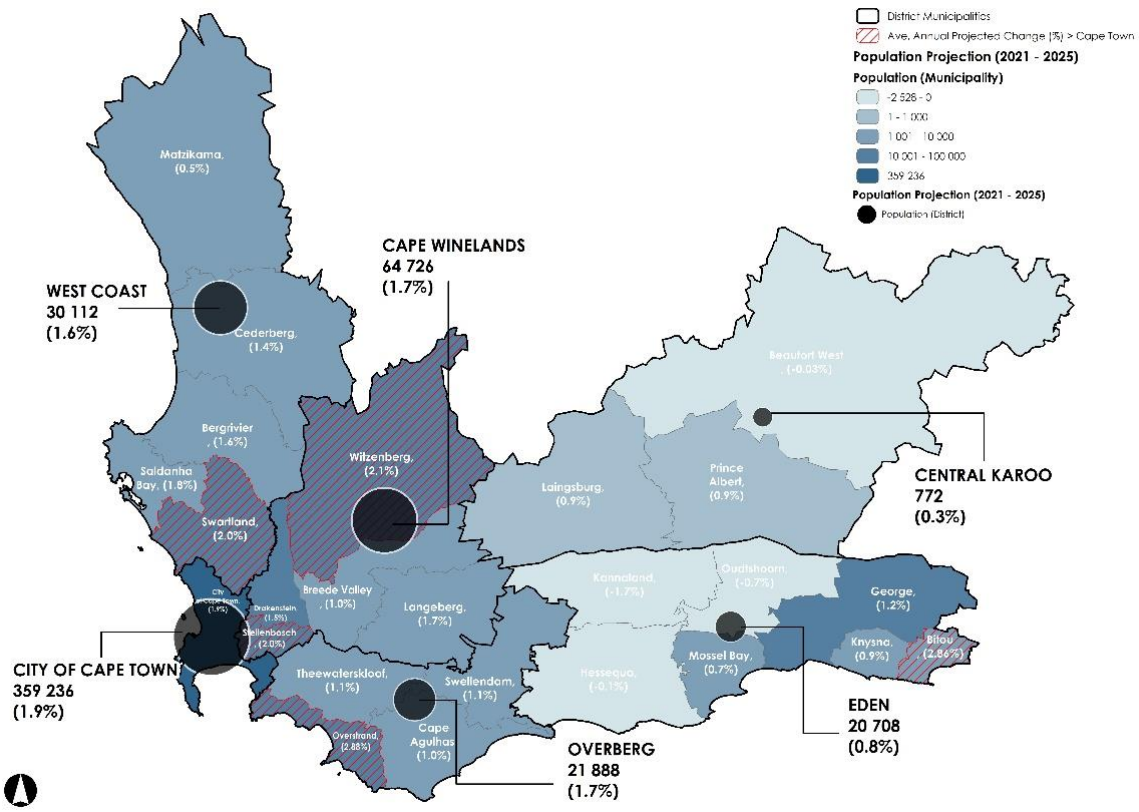
Map F1a: Population distribution and growth rates by local and district municipality within the Western Cape (2002 – 2020) [13]



Map F1b: Projected population distribution and growth rates by local and district municipality within the Western Cape (2021-2025) [14]

[13] Statistics South Africa 2020 Mid-year population projections were used for local municipality comparison. Please see the technical supplement for the CCT 2018 official population projections for Cape Town.

[14] Statistics South Africa 2020 Mid-year population projections were used for local municipality comparison reasons. Please see the technical supplement for the CCT 2018 official population projections for Cape Town.



The total 2025 projected population of Cape Town is 5 041 991, at which time the city will comprise 66% of the projected population of the Western Cape. For Cape Town, the average annual growth rate is expected to decline slightly to 1.9% from 2021 to 2025, making it the 6th highest projected growth rate of all Western Cape local municipalities (refer to Map F1b). The highest projected population growth rate is expected in the Overstrand local municipality, with an average annual growth rate of 2.88% (refer hatched areas on Map G1b). Bitou is expected to record the second highest average annual growth (2.86%) over the period, followed by Witzenberg (2.1%).

The biggest population change is noted within the city over the 2021 to 2025 period, estimated at around 360 000 people. The largest population changes, other than Cape Town, are expected in Drakenstein (increasing by 18 146 people) followed by Stellenbosch (increasing by 16 489 people) and Witzenberg (increasing by 13 214 people).

Hessequa (-0.1%), Beaufort West (-0.03%), Kannaland (-1.7%) and Oudtshoorn (-0.7%) are expected to experience negative average annual growth rates over the period.

Long term population growth in Cape Town estimated by the CSIR (Projected Population Distribution and Growth within Cape Town 2011-2050[15]) projected medium (M) and high (H) projections for 2030 and 2050 at 7.41m (M) to 7.58m (H) people in 2030, and 8.53m (M) to 9.02m people (H), in 2050.

Map F2 provides an indication of the anticipated location and scale of population growth between 2011 and 2050 for the medium projection (+2.7 million people), of which 72% will be attributed to the 'city region'[16] as indicated on the map. Although Cape Town remains the

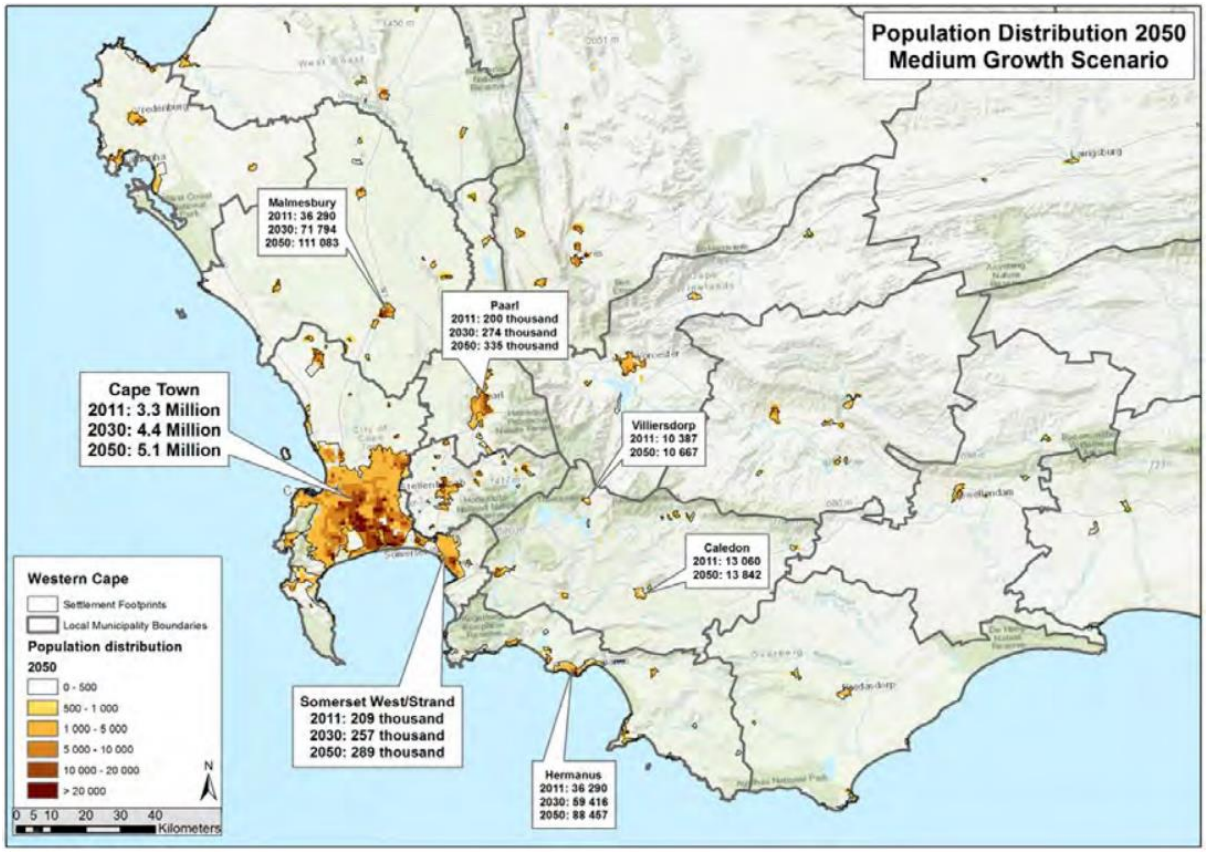
[15] Le Roux, A., Arnold, K., Makhanya, S. & Mans, G. 2019. Green Book. South Africa's urban future: Growth projections for 2050. Pretoria: CSIR

[16] Cape Town functions within a regional spatial structure, where the settlements, transport network, agricultural resources and natural systems interact in a larger system supporting the economy, services and food security.

focal point of the Western Cape in terms of urban scale, transport infrastructure and employment base, it still functions within a broader regional spatial and economic network that includes Stellenbosch, Malmesbury, Paarl, Saldanha and Grabouw.

It is, therefore, important that the diverse identities, functions and growth opportunities within the towns and rural settlements surrounding Cape Town must be preserved, and that the dependencies and structural linkages (natural and transport linkages in particular) be recognised, respected and enhanced.

Map F2: City region population estimate: 2011, 2030, 2050

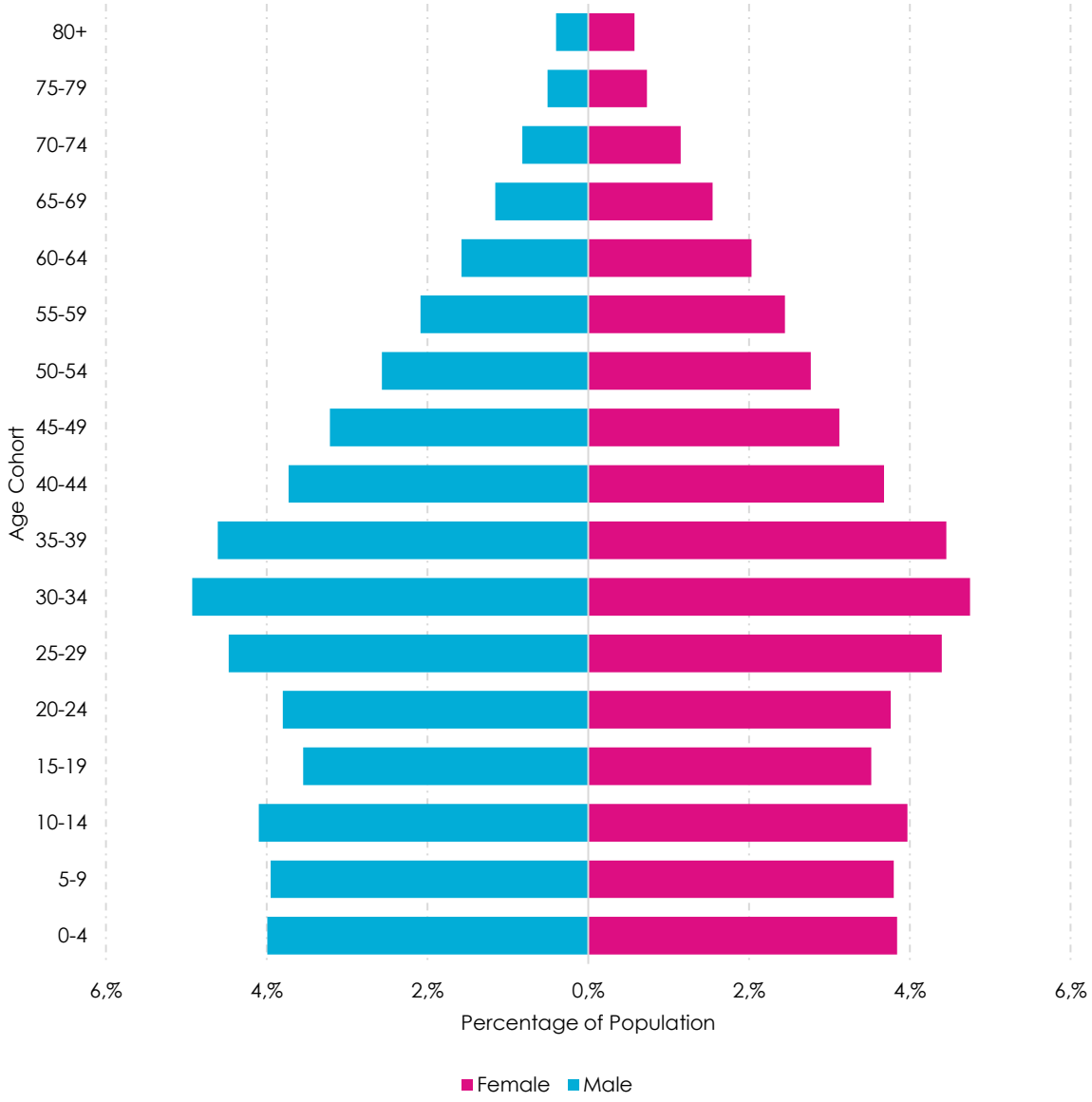


Source: CSIR

Population structure

Cape Town's population is relatively young. In 2011, 24.8% of the population were children (aged 0-14 years), 5.5% were senior citizens (aged 65+ years), and the majority (69.7%) were in the working age population (aged 15-64 years).

Diagram F6: Cape Town's population pyramid, 2021[17]



In 2021, 23.7% of the population were children (0-14 years) and 6.9% were senior citizens (65+ years). A large proportion of the city's inhabitants are young people (20-34 years) of working age who will be looking for employment opportunities. It also suggests that the population is aging, with both the age groups 35-64 years and >65 years expanding over the past census periods.

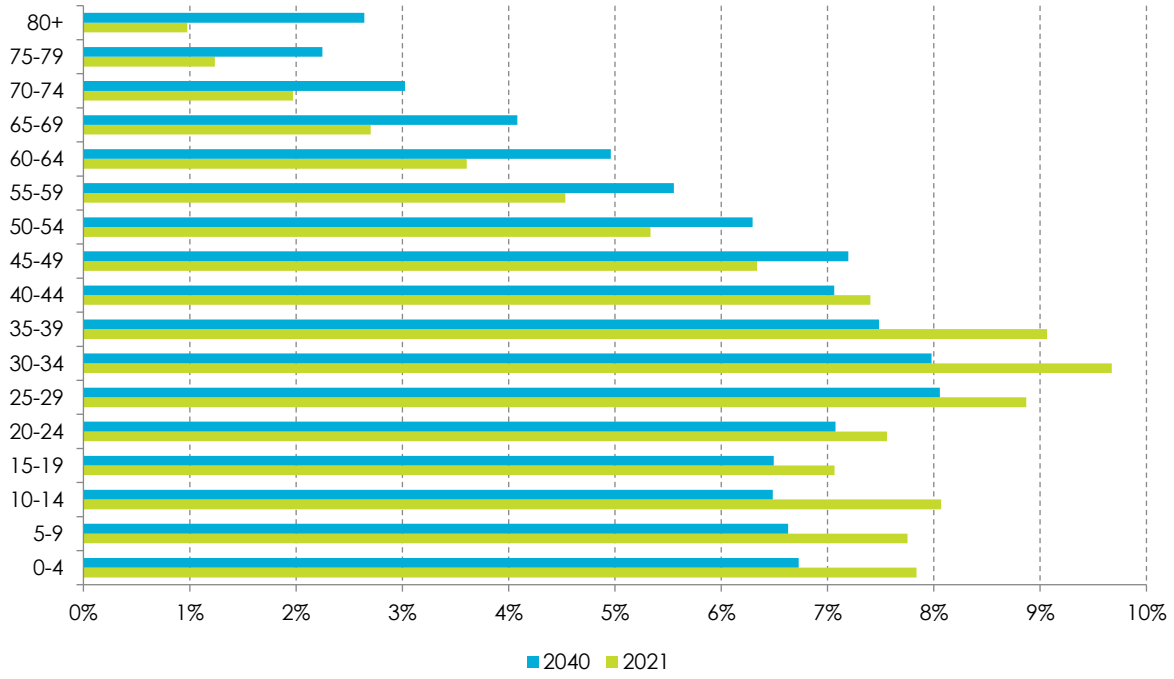
[17] Mid-year population estimates, Statistics South Africa, 2021

Table F1: Age of Cape Town's population in 1996, 2001, 2016 and 2021 (estimate)

Age cohort	1996 Census		2001 Census		2011 Census		2016 Community Survey		2021 Mid-year Population Estimates	
	Persons	%	Persons	%	Persons	%	Persons	%	Persons	%
0 to 4	241 256	9.4	252 826	8.7	370 297	9.9	368 419	9.2	366 663	7.8
5 to 14	481 016	18.8	518 200	17.9	558 033	14.9	673 840	16.8	740 291	15.8
15 to 24	486 637	19.0	578 020	20.0	686 857	18.4	651 856	16.3	684 400	14.6
25 to 34	481 575	18.8	533 785	18.4	727 362	19.4	680 104	17.0	867 712	18.6
35 to 64	717 332	28.0	866 257	29.9	1 189 990	31.8	1 380 824	34.5	1 697 644	36.3
65 and older	128 068	5.0	144 156	5.0	207 486	5.5	249 749	6.2	322 190	6.9
Unknown	27 212	1.1								
Total	**2 563 096**	**100**	**2 893 244**	**100**	**3 740 025**	**100**	**4 004 792**	**100**	**4 678 900**	**100**

Source: Census (1996, 2001, 2011); Statistics South Africa, Community Survey, Statistics South Africa, 2016; and Mid-year population estimates, Statistics South Africa, 2021

Diagram F7: Population pyramid 2021 and 2040



Source: Mid-Year Population Estimates, 2021, Statistics South Africa and Cape Town Population Projections (2017-2040), 2018.

A significantly aging population and a larger working age population, is projected for Cape Town. The 2021 mid-year population estimates indicated that 6.9% of the Cape Town population was aged 65 years and older in 2021. This percentage is expected to increase to 12.0% by 2040. The percentage of the population younger than 15 years is expected to decrease from 23.7% in 2021 to 19.8% in 2040. Although the percentage of the population that is younger than 15 years is decreasing, the number of individuals in this age group is still expected to increase. The percentage of the working age group (15-64 years) is also expected to marginally decline from 69.5% in 2021 to 68.2% in 2040.

Cape Town's ageing population affects the age-dependency ratio (reflects the burden on the economically active portion of the population to care for persons aged 65+). An ageing

population places pressure on economic growth and public finances, driving demand for public health care, long-term care services and state pensions.

Number of households and household size

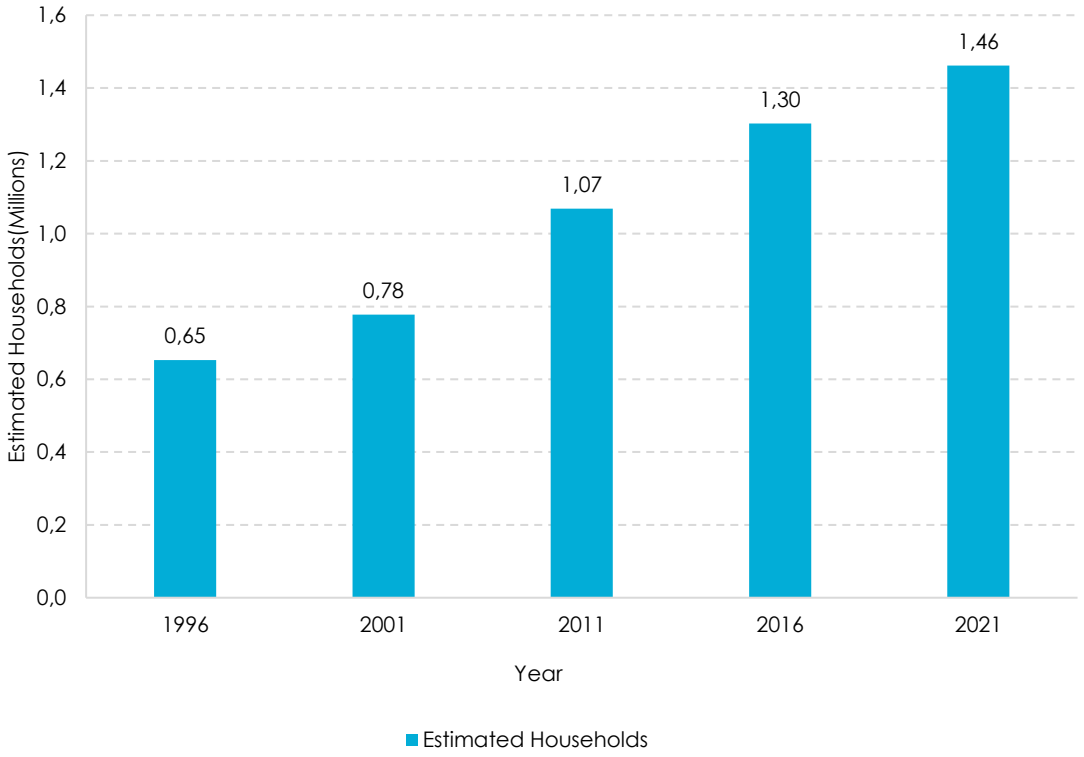
Statistics South Africa defines a household as all individuals who live together under the same roof, or in the same yard, and who share resources such as food or money to maintain the household[18].

The number of households in Cape Town in 2011 was estimated at just over 1 million. This constitutes an increase of 63.6% since Census 1996, and 37.5% since Census 2001. Although the population continues to increase, the average household size has decreased, and is now closer to that of developed countries and cities. In 2021, there were an estimated 1.46 million households in Cape Town[19]. The average household size for all households in Cape Town declined from 3.9 persons per household in 1996 to 3.5 in 2011, and 3.2 in 2016.

While households are getting smaller, the city is experiencing a rapid increase in the number of households, with the rate of new household formation outpacing that of the population growth. For example, from 2011 to 2016[20], the population increased by 7.1%, and the number of households increased by 18.4%.

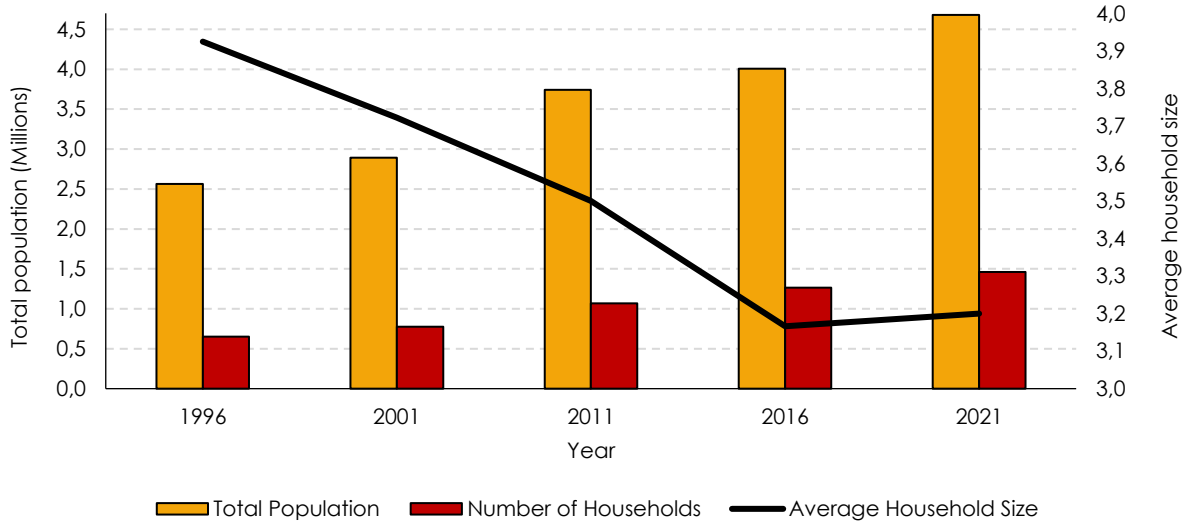
[18] 2019 General Household Survey, Statistical Release P0318, Statistics South Africa
[19] Estimated using 2021 Mid-year population estimates and 2016 Community Survey, Statistics South Africa
[20] 2016 Community Survey, Statistics South Africa and Census 2011, Statistics South Africa

Diagram F8: Estimated number of households in Cape Town in 1996, 2001, 2016 and 2021



Source: Census (1996, 2001, 2011), Statistics South Africa; Community Survey, Statistics South Africa, 2016; and Mid-year population estimates, Statistics South Africa, 2021

Diagram F9: Population, households and household size in Cape Town 1996-2021[21]



The average household size trend shows that the number of two-person households increased from around 20% to almost 24%, and that over 45% of Cape Town households consist of one or two people. The rate of household formation is likely an effect of the increase in the younger, working-age population over that period. An increase in the number of households and

[21] Source: Census (1996-2011), Statistics South Africa; Community Survey, Statistics South Africa, 2016; own calculations

changing population characteristics are of particular relevance to the supply of housing (number and type of housing) in the city. The pandemic has likely also impacted household formation – this is being monitored, with better data expected to be forthcoming with the 2022 Census and related data releases from 2023 onwards.

Socio-economic indicators

- The Human Development Index (index of life expectancy, literacy and income) steadily climbs higher, while the Gini Coefficient (a measure of income equality) heads lower.
- The socio-economic index (comprising a household services index, an education index, a housing Index and an economic index) confirms the existence of widely-varying levels of services, education, dwelling type and income; and reveals the location of vulnerable households and areas
- Safety and security are of concern judging by the higher-than-average crime rate

Human Development Index

The Human Development Index (HDI)[22] is a composite statistical index of life expectancy, literacy/education and income. There has been an improvement of Cape Town's HDI, from 0.719 in 2011 to 0.738 in 2016 and 0.746 in 2020[23]. This is higher than the national HDI of 0.66 in 2020.

Gini Coefficient

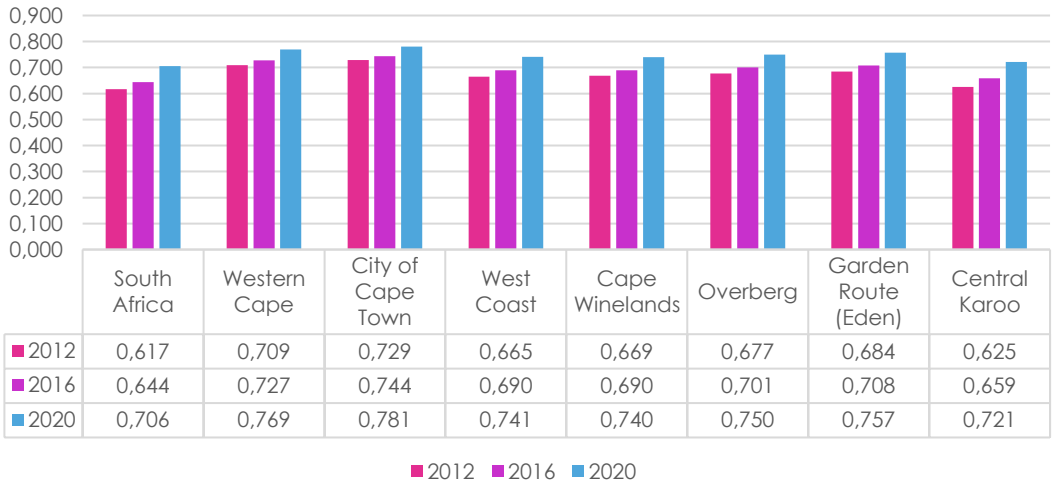
The Gini coefficient[24] is a common measure of income distribution. The South Africa average from 2010 to 2020 was around 0.64, pointing to the country being one of the most unequal countries in the world (World Bank, 2021). It is notable that the Gini coefficient for all districts in the Western Cape is lower than the rest of the country. However, although the Gini is marginally lower in the province, rising inequality is still being experienced, likely due to a lack of employment opportunities due to the struggling, combined with labour market dynamics that are often associated with scarce skills in relation to the major economic driving sectors, i.e. private services. In terms of the 2012 - 2020 differences, it appears that Cape Town's increase in inequality (0.02) is lower than that of the province (0.025) and specifically the surrounding districts like the West Coast (0.053), Overberg (0.06) and Central Karoo (0.05).

[22] A measure of the quality of life including healthcare, freedom, access to education and other measures excluded from the above measures.

[23] IHS Markit, 2022.

[24] The **Gini** Coefficient ranges from 0 to 1, with 0 meaning total income equality where everyone has an equal amount of personal income, to 1, where 1 person has all the income and everyone else has none of the income. Most nations fall **between** 0.12 and 0.75.

Diagram F10: Western Cape Gini coefficient by districts, 2012-2020



	South Africa	Western Cape	City of Cape Town	West Coast	Cape Winelands	Overberg	Garden Route (Eden)	Central Karoo
2012	0,617	0,709	0,729	0,665	0,669	0,677	0,684	0,625
2016	0,644	0,727	0,744	0,690	0,690	0,701	0,708	0,659
2020	0,706	0,769	0,781	0,741	0,740	0,750	0,757	0,721

Source: Provincial Economic Review and Outlook, 2021: 129. WC Department of Economic Development and Tourism. IHS Markit, 2021.

Using the Western Cape Province's life expectancy figures as a proxy for Cape Town, there has been a steady increase in the average life expectancy, from 67 years in the period 2011-2016 to 68 years in 2016-2021[25]. This is likely due, in part, to the Western Cape's and Cape Town's active anti-retroviral treatment programmes. The impact of Covid-19 on average life expectancy is uncertain at this point, and will be monitored as more information becomes available.

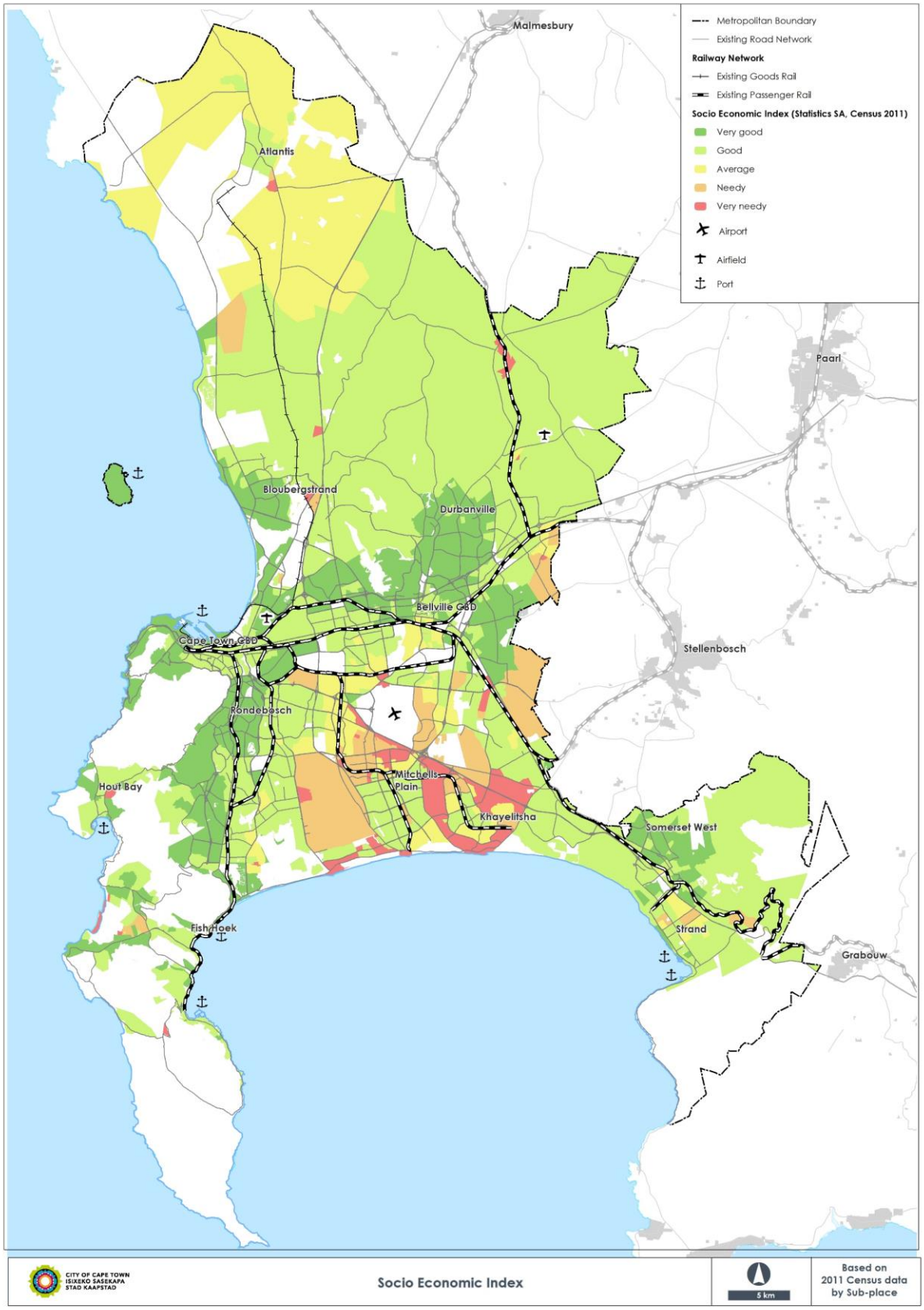
Socio-Economic Index

The Socio-Economic Index for Cape Town[26] assists to objectively identify areas (Census sub-places) of greatest need for development in the city in respect of the aforementioned sub-indexes it is comprised of (i.e. services, education, housing, and economic aspects at the household level), and in the prioritisation of City programmes and projects. The index is comprised of five categories, i.e. "Very good" (score of 0-0.15), "Good" (0.15-0.34), "Average" (0.34-0.46), "Needy" (0.46-0.64) and "Very needy" (0.64-1.00). As can be seen from Map F3, the highest levels of need is concentrated in/linked to informal settlement areas. There are also concentrations of areas of greatest need in the metro south-east, with a number of "pockets of very needy" areas (linked to informal settlements) outside of metro south east. As this is a composite index, needs may differ, and differentiated analysis/targeting within geographic areas is required to address specific needs.

25 2021 Mid-year population estimates, Statistics South Africa

[26] The Socio-Economic Index for Cape Town is based on the 2011 Census, Statistics South Africa. It is the sum of the Census 2011 Household Services Index – the sum of four weighted variables: Energy source for lighting, Main water supply, Refuse disposal, Toilet facility; the Census 2011 Education Index – the sum four weighted variables: Illiteracy, No schooling, Adults without Grade 12, Adults without tertiary qualification; the Census 2011 Housing Index – the sum of two weighted variables: Dwelling type, Room density; the Census 2011 Economic Index – the sum of three weighted variables: Employment, Income, Economic dependency ratio.
Broad trends may still apply, and the index will be updated with Census 2021/22 data to compare the results. The Covid-19 pandemic and the economic recession would also have had an impact on the Socio-Economic index.

Map F3: Socio-Economic Index, 2011



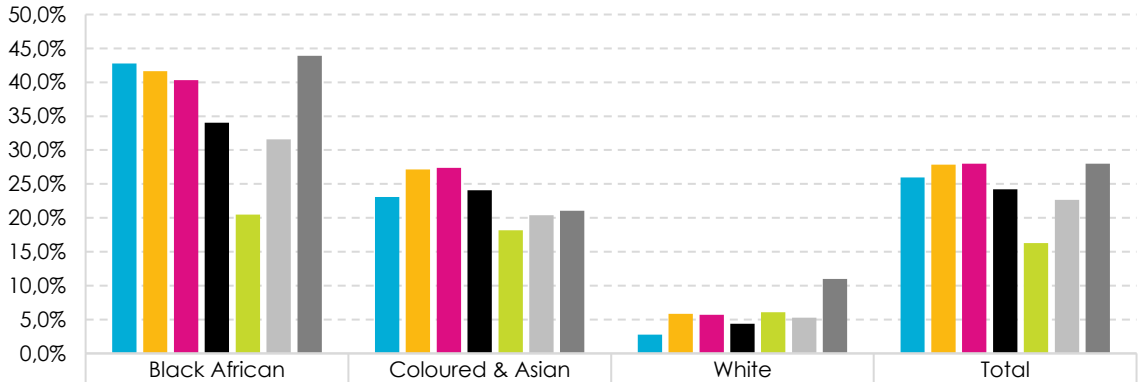
Source: 2011 Census, Statistics South Africa and the City's Development Information and GIS Department, 2014

The following topics highlights and provides further information on certain socio-economic aspects.

Poverty

Total household income up to R3 500 per month (Diagram F11) is used as a proxy measure of poverty, as these households qualify for government-subsidised housing (Breaking New Ground (BNG) houses)[27]. Prior to Covid-19, Cape Town already had high household poverty (monetary) rates. In 2014, 25.9% of Cape Town households earned R3 500 or less. This decreased to 22.6% of households in 2019 before increasing to 28.0% in 2020. The majority of households in this category were Black African.

Diagram F11: Percentage of households in Cape Town earning R3 500 or less per month



	Black African	Coloured & Asian	White	Total
2014	42,8%	23,1%	2,8%	25,9%
2015	41,6%	27,1%	5,9%	27,9%
2016	40,3%	27,4%	5,7%	28,0%
2017	34,0%	24,1%	4,4%	24,2%
2018	20,5%	18,2%	6,1%	16,3%
2019	31,6%	20,4%	5,3%	22,6%
2020	43,9%	21,0%	11,0%	28,0%

Source: General Household Survey, Statistics South Africa, 2014-2020

The pandemic has exacerbated existing socio-economic challenges, with significant negative impacts on vulnerable individuals and households. For example, the 2020 General Household Survey has already shown a decrease in food security.

Education

In 2020, 0.2% of adults (those aged 20 years and older) in Cape Town had no formal education, 7.8% had (some or completed) primary education, while 36.8% had matric (Grade 12) as their highest level of education. This is an improvement from 2011. In 2020, 5.1% of the population aged 15 years and older was functionally illiterate[28] (compared to 9.3% in 2011), while 56.6% of adults achieved Grade 12 or a higher level of education in 2020 (compared to 46.4% in 2011)[29].

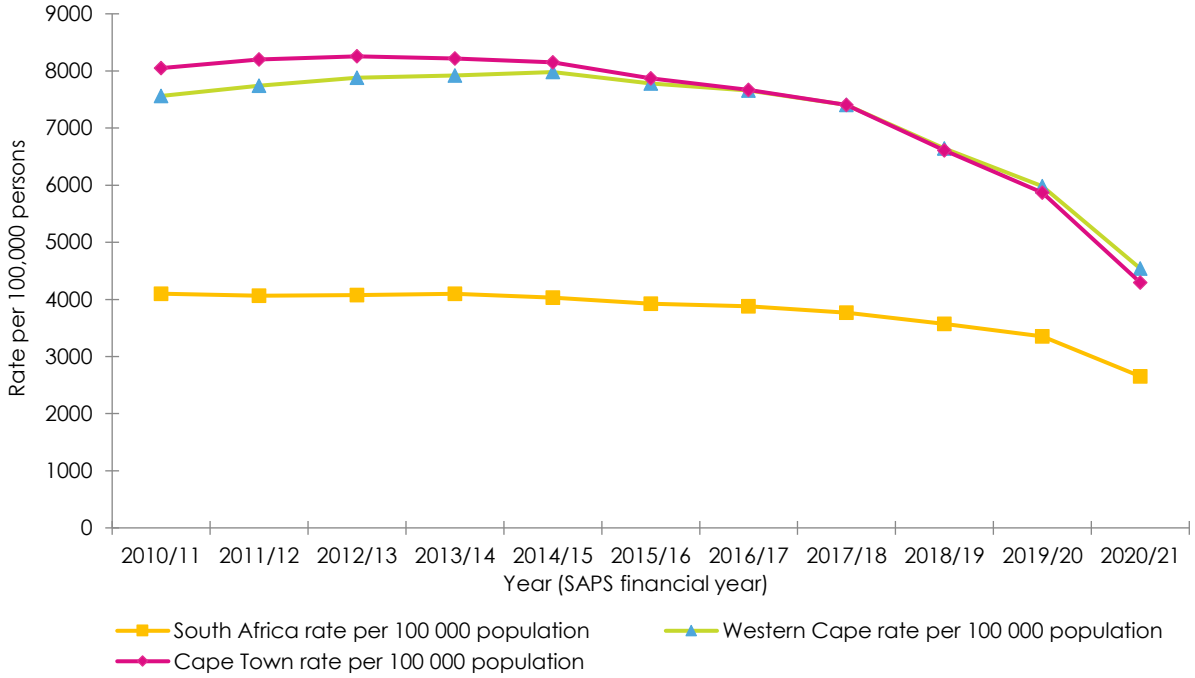
According to the Western Cape Provincial Department of Education (2021), the number of learners enrolled in schools in the Western Cape grew by an average of 1.8% per annum between 2016 and 2021 to approximately 1.1 million.

[27] Housing opportunities, City of Cape Town. https://www.capetown.gov.za/Family and home/Residential-property-and-houses/City-housing-opportunities/Housing-opportunities
[28] 2014-2020 General Household Survey, Statistics South Africa
[29] 2020 General Household Survey, Statistics South Africa and the 2011 Census, Statistics South Africa

Safety and security

While Cape Town's overall crime rate per 100 000 population is decreasing, it remains consistently higher than the national crime rate - in some instances more than double[30]. Cape Town showed an increase in the overall crime rate between 2010/11 and 2012/13, and and a decreasing rate each year thereafter from 2013/14 to 2020/21. The rate dramatically decreased in 2020/21, reaching its lowest level in the past 10 years, but this can mainly be attributed to the positive effect on crime rates of the Covid-19 lockdowns.

Diagram F12: Overall crime rate: Cape Town, Western Cape and South Africa, 2010/11- 2020/21



The economy[31]

- Economic recovery from a pre-existing general decline, coupled with the economic consequences of the pandemic which led to the worst decline in economic output ever recorded, is expected to be slow and to grow gradually over the medium term.
- As such, the economy is expected to struggle to meaningfully address unemployment, poverty and inequality. Informal employment can absorb a limited number of workers following recent significant job losses in the labour market.
- The job market appears unable to absorb semi-skilled and unskilled workers in light of the changing nature of work and the reliance on technology
- Unreliable services (load shedding) and infrastructure capacity constraints will hamper economic growth and recovery, which is expected to be driven by the finance, trade, tourism and technology sectors.
- The Metropolitan Spatial Development Framework is influenced by a number of external factors, but it can also influence certain aspects to support local and regional economic growth

[30] South African Police Service, 2020 and Mid-Year Population Estimates, Statistics South Africa, 2021

[31] The EPIC (Economic Performance Indicators for Cape Town) publication presents and analyses economic (and related) trends in Cape Town on a quarterly basis. See https://tinyurl.com/2jz7cfv6.

"The economy is expected to grow by 5.1% in 2021 after experiencing a 6.4% decrease in 2020… The economy is expected to grow by an average of 1.7% over the next three years, reflecting structural weaknesses such as insufficient electricity supply." – Finance Minister Enoch Godongwana, Budget Speech, 11 November 2021.

"South Africa was already on a rocky path, one on which economic growth was declining and inequality was rising. The key challenges in our country: unemployment and inequality, which have now become considerably more severe through the pandemic, can no longer be approached in the traditional way." – PwC

Macro context

After a period of slower productivity growth, the world economy faced an unprecedented recession due to the Covid-19 'great lockdown' in 2020, with global growth declining by 3.1% (IMF, 2021). Recovery is forecast to be more gradual than originally thought, with global growth projected to be 6% in 2021 and 4.9% in 2022. Vaccine access and government spending capacity have emerged as major dividing lines along which the global recovery splits into higher and lower growth trajectories. Recoveries in emerging markets and developing economies are expected to lag those in advanced economies. Recent price pressures also reflect the unusual pandemic-related developments and transitory supply and demand mismatches.

Nationally, the 2020 recession was much steeper than the global decline (-7% for South Africa according to StatsSA, 2021). The unprecedented output losses of 2020 were made worse by entrenched inequality, increasing government debt and unreliable electricity supply. However, the economic recovery in 2021 has been better than expected and the SA Reserve Bank has revised upward forecasts of economic growth to 5.3%. Contributing factors include the commodities boom, a healthy trade balance and high agricultural yields. Other less-positive considerations, however, such as policy uncertainty, low business confidence and declining household demand, will continue to compound an already weakened economic situation and a low growth trend is expected after the bounce-back of 2021. The July riots (though largely confined to KwaZulu-Natal and Gauteng) and the pandemic are likely to have lasting effects on investor confidence and job creation, impeding recovery in the labour-intensive sectors hardest hit by the lockdowns. National GDP is expected to grow by 1.7% in 2022 and by 1.8% in 2023.

Credit ratings downgrades by several credit institutions further dampen the poor short-term outlook for South Africa's economy. Weak financial and capacity positions of several major public entities, upon which the City is dependent, will complicate achievement of coordinated infrastructure roll-out and investment, which are important for recovery mandates. A much stronger effort is required to overcome domestic constraints, improve competitiveness and speed up the pace of structural change, to allow South Africa to substantially reduce unemployment, poverty and inequality.

Diagram F13: Macro Economic performance and outlook (Global, SA and Western Cape)

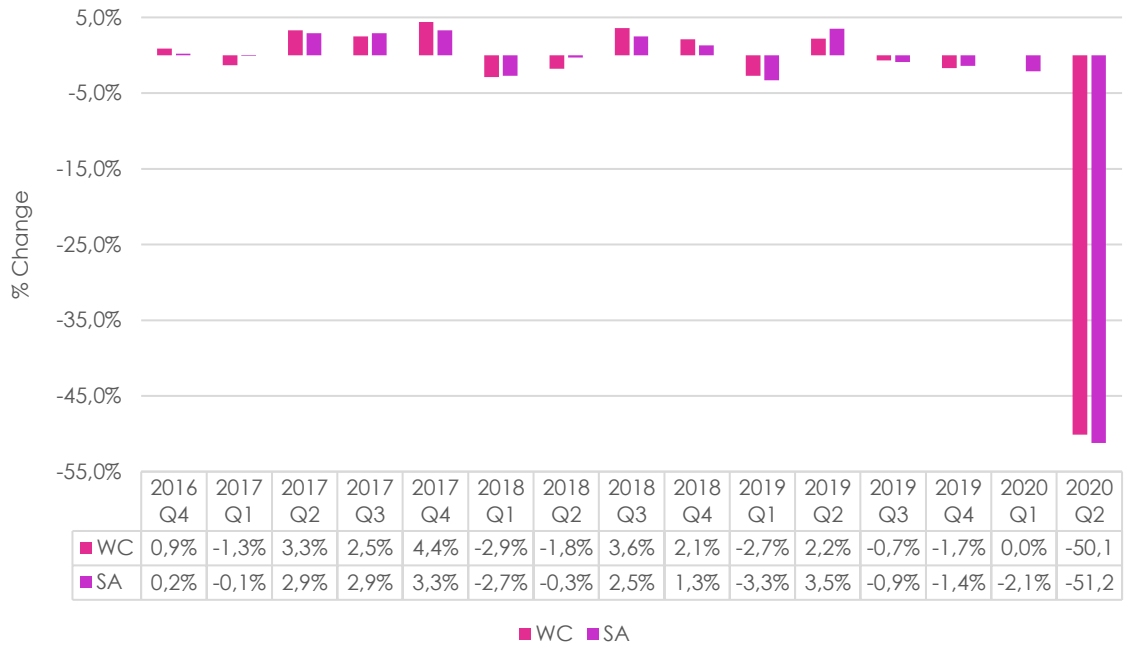
Source: Provincial Economic Review and Outlook , 2021:14

Local context

The Western Cape averaged a growth rate of 4.7% between 2001 and 2005, which slowed to an average of 2.4% between 2006 and 2010, and slowed further to 2.6% between 2011 and 2015. The Province was in the grip of severe drought from 2015-2019, which had significant economic, health and environmental impacts, and is estimated to have cost the Western Cape a number of employment opportunities. Growth in the Western Cape was further constrained by the rolling electricity outages and the lacklustre performance of the national economy. The unprecedented contraction in 2020 meant that the Province's economy averaged a contraction of 0.7% for the period 2016-2020.[32]

Diagram F14: GDP growth: Western Cape and rest of SA, 2016-2020

[32] Provincial Economic Review and Outlook (PERO), 2021:37



	2016 Q4	2017 Q1	2017 Q2	2017 Q3	2017 Q4	2018 Q1	2018 Q2	2018 Q3	2018 Q4	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2020 Q1	2020 Q2
WC	0,9%	-1,3%	3,3%	2,5%	4,4%	-2,9%	-1,8%	3,6%	2,1%	-2,7%	2,2%	-0,7%	-1,7%	0,0%	-50,1
SA	0,2%	-0,1%	2,9%	2,9%	3,3%	-2,7%	-0,3%	2,5%	1,3%	-3,3%	3,5%	-0,9%	-1,4%	-2,1%	-51,2

Source: PERO 2021: 24

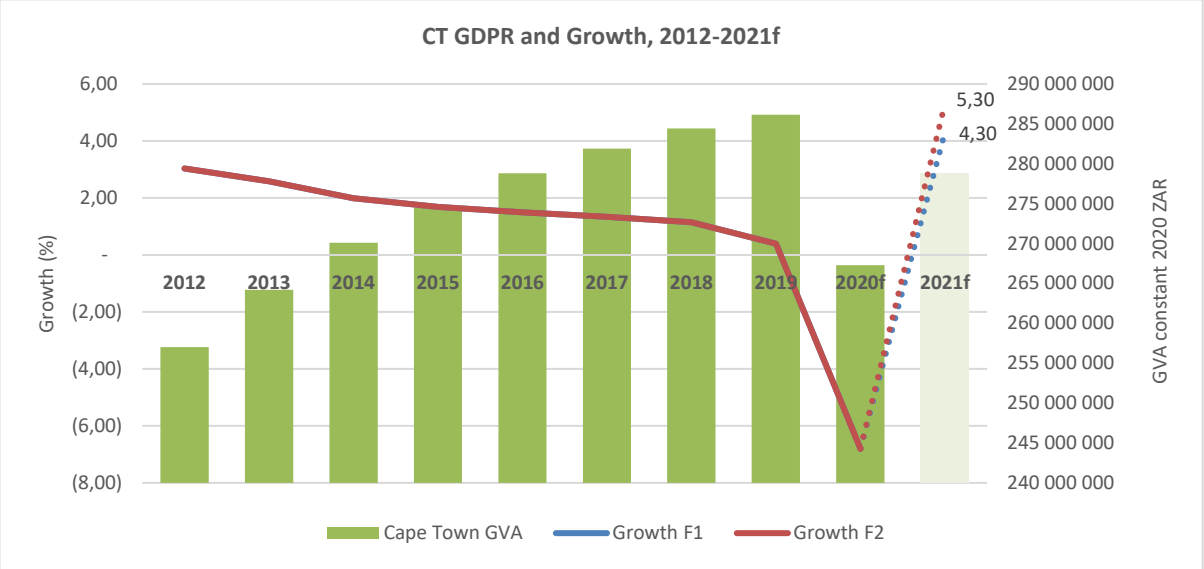
Cape Town plays a significant role in the regional economy and is strongly impacted by developments in the global economy. The city generates a gross geographic product of over R300 billion and is the second largest urban economy in southern Africa. A dominant services sector constitutes 79% of the economy.[33]

The Provincial economy's[34] expected recovery will be driven by the finance, trade and tourism sectors. However, the recovery is expected to be slower than previously anticipated, due to the resurgence in Covid-19 cases and subsequent waves forcing further lockdown restrictions. Agriculture experienced a strong growth in 2020, but has a more modest forecast. Mining is expected to make a recovery, but this will likely remain quite muted. Manufacturing is only expected to recover if international trade increases and the reopening of industries continues. The Western Cape government expects a further contraction in the utilities sector in years beyond 2021, attributed to electricity supply challenges. Construction is also expected to remain under pressure. The strong recovery in the tertiary and trade sectors is expected to continue, especially if the tourism industry can reopen to international visitors. The main sources of positivity are the growing Business Processing Outsourcing (BPO) industry and the thriving technology ecosystem. Government, as a sector, is expected to contract due to fiscal constraints at a national level.

In 2020, due to the pandemic and its associated restrictions, the Cape Town economy contracted by 6.8%, the worst decline in economic output ever recorded. Economic output in quarter two of 2021 remained 1.3% below 2019 levels; however, 2019 output levels are likely to be reached by the first half of 2022 if current trajectories continue. The South African Reserve Bank (SARB) forecast South African growth of 5.3% for 2021, with Cape Town likely to come in slightly below this figure (4.3%) due to the depressed tourism industry. Finance, real estate and other business services – the largest contributor to Cape Town GDP – was still 4% below 2019 levels in the first quarter of 2021. Diverging trends have also occurred within certain sub-sectors, for example between non-residential and residential real estate.

[33] IHS Global Insight ReX regional data 2021.
[34] PERO, 2021:40

Diagram F15: Cape Town's Gross Domestic Product, 2012 - 2021f [35]

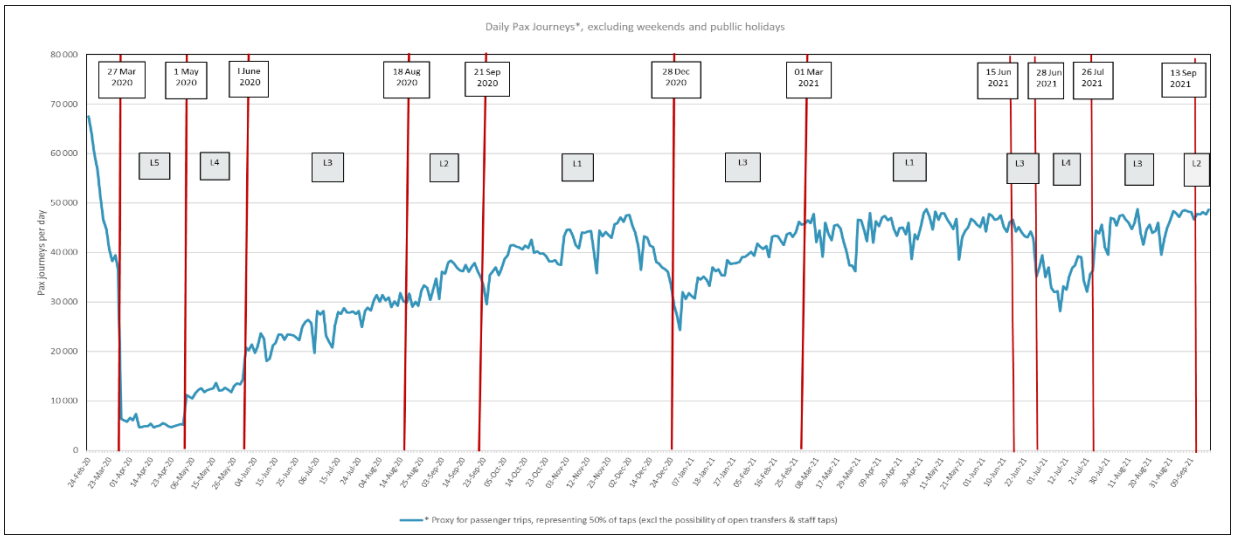


Approximately 552 000 residents are unemployed (Q2 2021) and the 'strict' rate of unemployment within the City is estimated to be 27.6%, the highest level on record. On a year-on-year basis, the city's employment increased by 54 000, from the levels seen in the hard lockdown. This is still about 137 000 jobs short of where it was in the second quarter of 2019, which illustrates how deep the Covid-19-induced recession was, and how long it will take for the city to return to pre-Covid-19 employment levels. Economic growth forecasts over the medium term will not be sufficient to absorb Covid-19-induced unemployment as well as new entrants into the labour force, without larger labour reforms in play.

In addition to triggering a steep recession and high unemployment rates, Covid-19 has fast-tracked other trends that will spatially impact the city. One of the most prominent of these is the increase in technology enabled remote work. MyCiTi passenger demand (a proxy for people at work) is a good illustration of this trend. Passenger demand was still only at 72% of normal load on the 13th September 2021, a full 17 months after South Africa's hard lockdown (Diagram F16). This has a knock-on effect on other economic components. For instance, as a result of increasing remote work, rising unemployment and declines in tourism, non-residential spaces in the central business district (CBD) have been facing lower levels of demand, with office vacancies up 4% in 2020.

[35] IHS Global Insight ReX regional data 2021. Note the SARB SA forecast has been included as an upper limit

Diagram F16: Usage levels of MyCiTi BRT



The spatial implication of the growth trends of the different economic sectors was incorporated in the Land Use Model 2020 vs 2040 project (refer to Technical Supplement B). There will be a strong focus on retaining the land uses of existing industrial areas, with a rise in the conversion of industrial land uses to retail. At the same time the massive changes and large number of employees working from home, had a significant impact on the office sector with large increases in vacancies. Retail activities are closely related to high-income residential trends and will follow the ebb and flows of the residential growth patterns.

Workforce

About 1.46 million of the 3.01 million who made up the working age population in 2020 are employed, with about 83% employed in the formal sector and 10% in the informal sector, compared to 2016 figures of 81% employed in the formal and 11% in the informal sector.

Similar to 2016, the remainder in 2020 were employed in the agricultural sector and private households (Diagrams F17 and F18). One exceptional characteristic of Cape Town's labour market is that it has the second fewest discouraged work seekers (as a proportion of the broad labour force) of all South African cities, even though the number has increased significantly over the last five years. However, the total number of Cape Town's discouraged work seekers (i.e. non-searching, unemployed) have increased from 9 147 in 2016 to 29 241 in 2020.

Diagram F17: Cape Town's labour force (employed vs unemployed) [36]

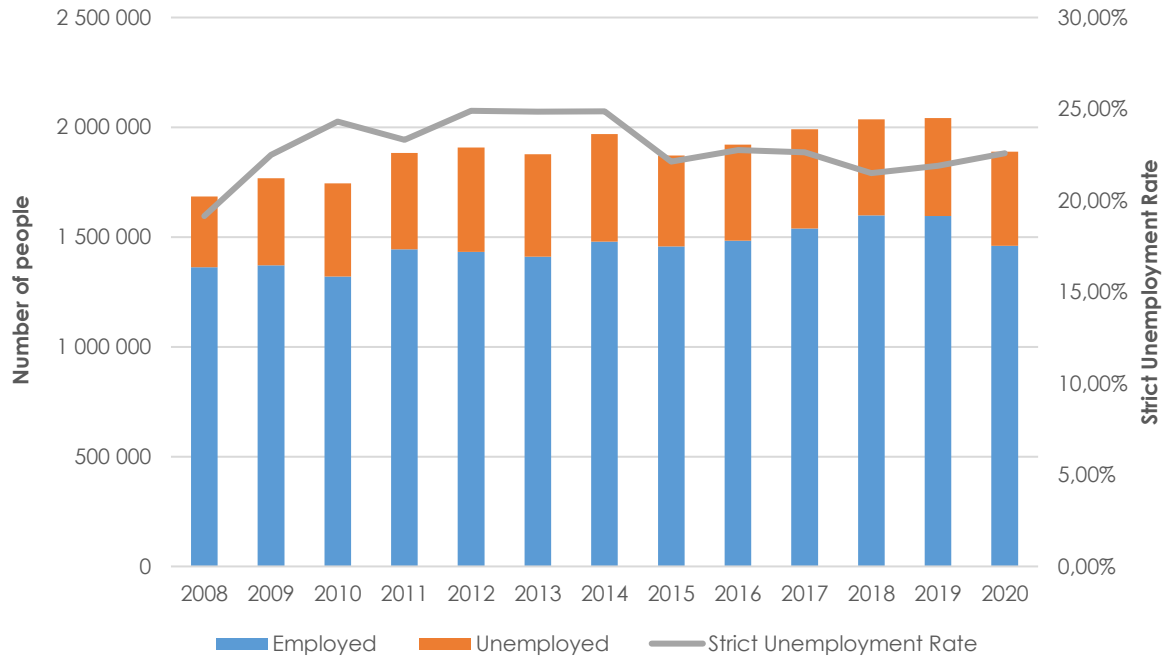
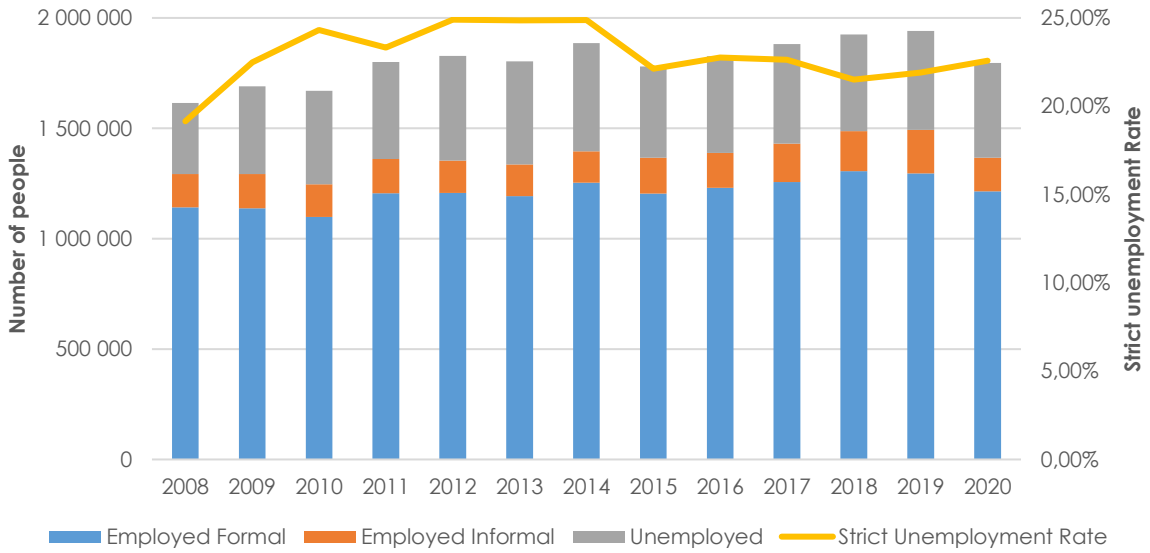


Diagram F18: Cape Town's labour force (formal vs informal)[37]



From April 2020, the labour market was severely impacted by Covid-19, which saw employment drop by nearly 135 000 individuals compared with 2019 figures. The number of searching unemployed also decreased by 18 200 from 2019. This was as a result of the loss in employment, as well as the hard lockdown restrictions that limited the movement of individuals searching for employment opportunities. These changes resulted in the official unemployment rate increasing by 0.5 of a percentage point from 34.4% in the second quarter of 2021 to 34.9% in the third quarter of 2021 - the highest since the start of the QLFS in 2008. The unemployment

[36] Quarterly Labour Force Survey 2008-2020
[37] Quarterly Labour Force Survey 2008-2020

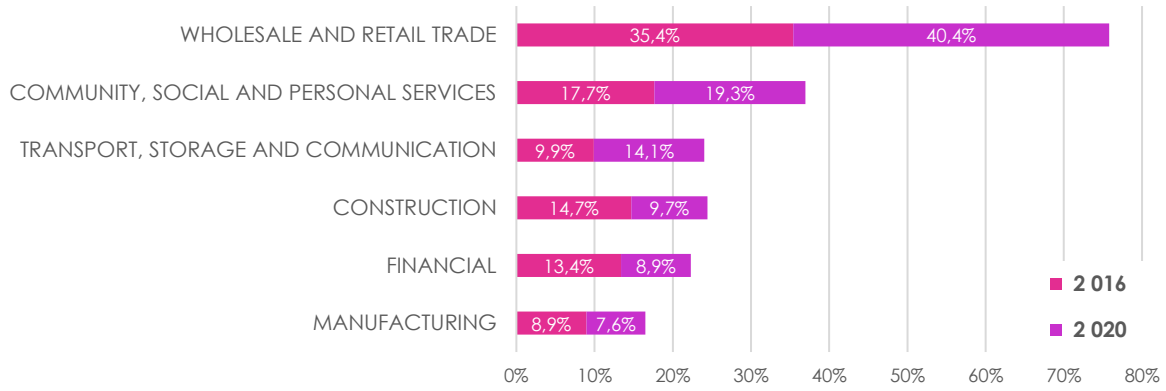
rate according to the expanded definition of unemployment increased by 2.2 percentage points to 46.6% in quarter three of 2021 compared to the second quarter of 2021.

Despite an increase in literacy rates, youth unemployment remains high at 47.3% in 2020 (compared to 45.2% in 2019)[38]. While this remains below the national level, it is nonetheless notably high by average developing country standards, and continues to pose a key challenge for the city. This also suggests that alternative skills should be considered to increase the employability of young people.

Informal employment

Informal employment has, on average, contributed to 11% of total employment in Cape Town over the last 10 years. The wholesale and retail trade sector constitutes the largest share of total informal employment and its share has increased from 35% in 2016 to 40% in 2020. The community, social and personal services share has increased from 17.7% in 2016 to 19.3% in 2020 and remains the second largest contributor to total informal employment. The construction (14.7% down to 9.7%), financial (13.4% down to 8.9%) and manufacturing (8.9% down to 7.6%) sectors share of total informal employment all decreased compared to 2016.

Diagram F19: Informal sectoral breakdown (Quarterly Labour Force Survey 2008-2020, StatsSA)



Cape Town in the regional (space) economy[39]

Cape Town remains the focal point in the Western Cape in terms of urban scale, transport infrastructure and employment base. However, the city functions within a regional spatial structure that includes Stellenbosch, Malmesbury, Paarl, Saldanha and Grabouw. The settlements, transport network, agricultural resources and natural systems all interact within a system that supports the economy, services and food security. The diverse identities, functions and growth opportunities within the towns and rural settlements surrounding Cape Town must be preserved, and the dependencies and structural linkages (the natural and transport linkages in particular) recognised, respected and enhanced.

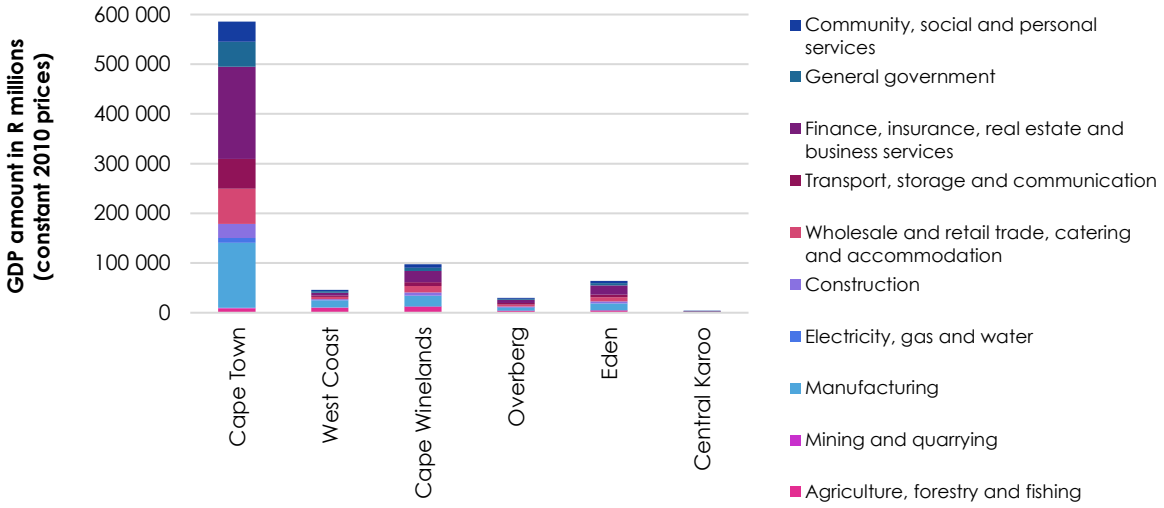
In recent years, the Provincial Spatial Development Framework (PSDF) and Greater Cape Metro Regional Spatial Implementation Framework (GCMRSIF) have increasingly considered these complex interrelationships and spatial dynamics especially on inter-regional pressures regarding urbanisation. This has highlighted a number of underlying cross-border hotspots that need to be monitored and addressed via institutional arrangements and co-ordinating forums. Further information is provided in Technical Supplement D.

[38] 2021 Quarterly Labour Force Survey, Statistics South Africa

[39] Where appropriate, diagrams have been included throughout this MSDF to express the fit and alignment of the planning within the broader regional and provincial context.

Diagrams F20 and F21 illustrate the dominant position of Cape Town in relation to other districts in the province in respect of key economic and socio-economic variables.

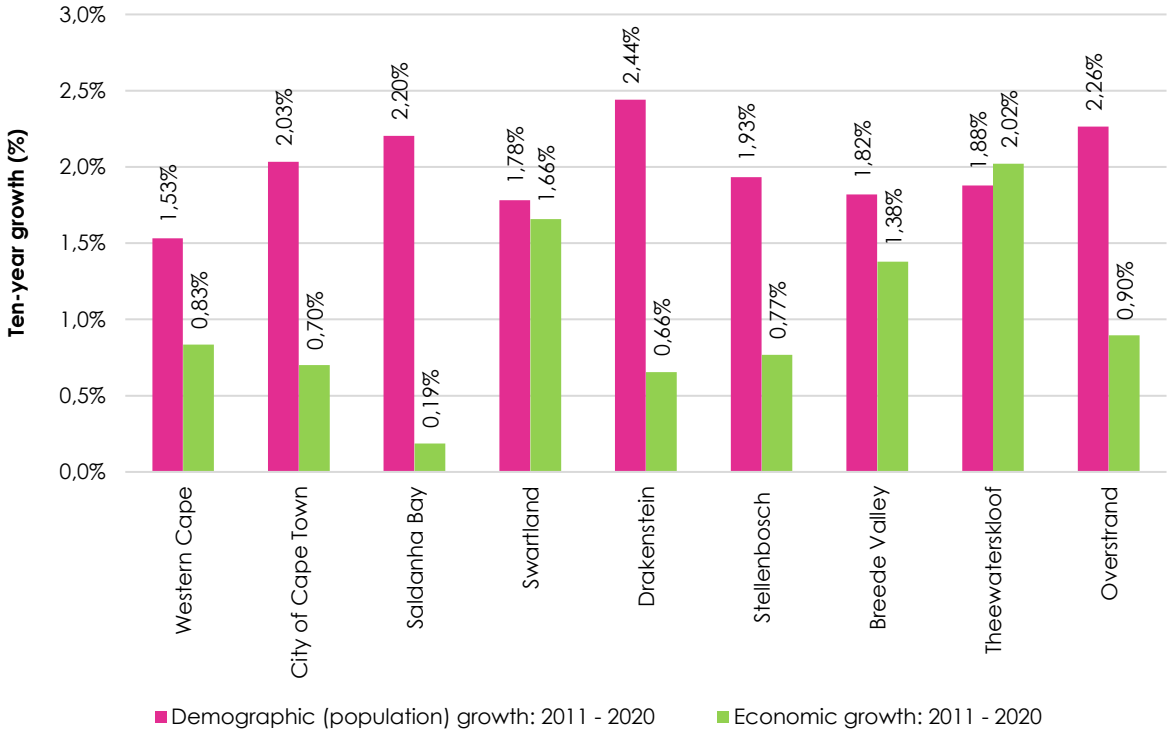
Diagram F20: Western Cape Gross Domestic Product (GDP) contribution per sector and district



Source: Quantec, 2021

Cape Town's GDP comprise more than 70% of the Western Cape GDP and is dominated by tertiary activities, more so than surrounding municipalities.

Diagram F21: Average annual Gross Domestic Product (GDP) vs population growth: 2001-2020



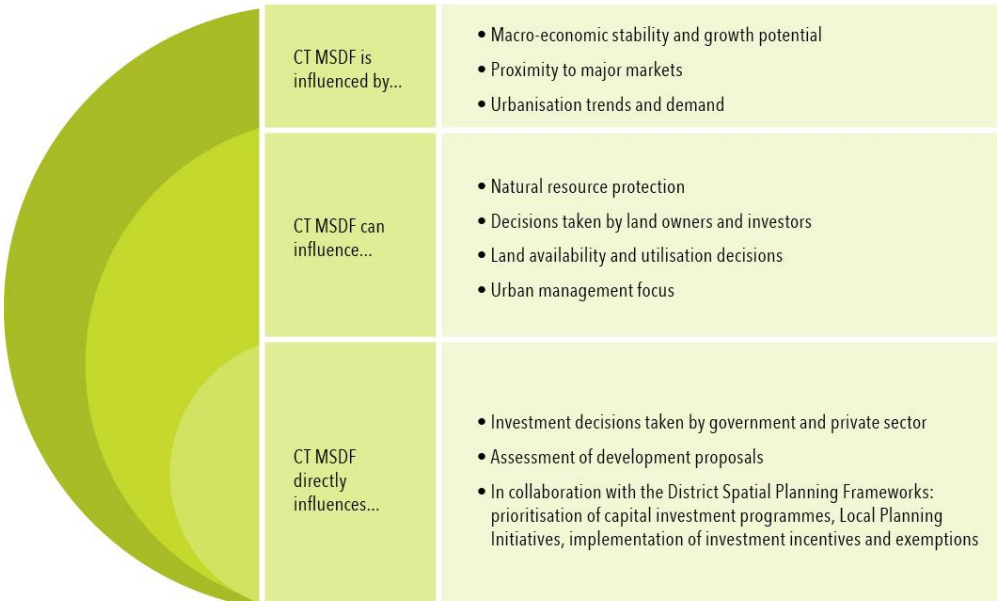
Source: Quantec, 2021

Cape Town needs to ensure the efficiency and enterprise of markets to drive job-generating economic growth, making the city a more attractive place for business start-ups, investment, innovation and employment. Cape Town's economic and employment prospects are affected by, but not beholden to, the national economy[40]. The MSDF can influence economic growth via the levers illustrated in Diagram F23, and the fundamental economic performance of the city is in symbiotic relationship with the built environment.

Response

Current conditions and individual circumstances affect the perceptions, actions and behaviour of people in their various capacities (as citizen, head/member of a household, employer/ employee, etc.). The aggregate decisions and actions of households, private sector business and government in a particular context (set of conditions, circumstances, realities) lead to change – change in priorities, pressure areas, preference, lifestyle, etc. This Section does not consider the motivation for choices and behaviour by the City's inhabitants. It seeks to understand the context that drives decisions and behaviour; and analyses the impact it has on the spatial arrangement or spatial outcome of this complex process in order to inform appropriate responses by the City to facilitate the creation and improvement of conditions and spaces that supports its inhabitants in their various activities in daily urban life.

Diagram F22: How spatial policy can support local and regional economic growth



Cape Town's space economy comprises a network of inter-connected and inter-dependent productive urban nodes where the vast majority of the city's firms and formal jobs are clustered (Map F4). Urban nodes are typically characterised by concentrations of higher intensity land uses and the clustering and mixing of activities or land uses (including commercial and business development and associated employment opportunities and higher-order services). This takes place at points of maximum accessibility, exposure, convenience and urban opportunity. The informal economy on the other hand is more adaptable in terms of spatial location, but requires a high footfall of potential customers and is generally symbiotic to the formal economy.

[40] World Bank.

The Economic Areas Management Programme (ECAMP, 2015) mapped performance and potential of nodes and was used as analytical and diagnostic tool to guide the spatial targeting and prioritisation of area-based interventions across each urban node, tailored to local business opportunities and constraints. Map F4 and Diagram F23 illustrate the nodes considered by ECAMP. They also show the diagnostic classification according to market performance[41] and location potential[42] into one of four quadrants, namely growth, consolidation, transition and opportunity. This is get an understanding of the dynamics of property market forces in different business precincts.

Technical Supplement E provides a description of the nodal structure underpinning Cape Town's metropolitan corridors. At a metropolitan level, Cape Town CBD, Bellville and the agglomeration of growing smaller nodes making up the Philippi node, function as commercial, civic and a diverse range of other service roles. The nodal character and function incorporates a broad spectrum of intense and diverse land uses serving a wide spectrum of residents and businesses via formal and informal means. District, community and local nodes support the metropolitan concentrations.

Chapter 3 illustrates the full network which generally anchors employment concentrations and the nodal points connected through large mobility corridors in the form of road, rail or both. Emerging nodes, potentially of metropolitan significance, are developing at Philippi (supported by the Cape Town International Airport and future investment at Swartklip) and Somerset West.

The City also hosts a range of civic clusters which forms the nodal anchor points of certain key social facilities such as primary health care clinics, libraries and community halls.

The performance and marketability of each node translates to revenue for the City in the form of rates and tariffs. In turn, this revenue directly contributes to infrastructure, investment and social programmes. The extent to which the City realises its transformation priorities is therefore bound to its ability to sustain job-generating economic growth over the medium term. The informal economy plays a significant role in terms of job creation, circular economies and livelihood generation and will be supported. The spatial manifestation of this informal economy is not limited to nodes and the formal space economy.

[41] Market performance is a composite, weighted indicator that includes non-residential rentals and rental growth, vacancy, building development and property sales.
[42] Location potential is a composite, weighted indicator that includes the scale, intensity and complexity of economic activity, room for growth, proximity to markets, skills, disposable household income and regional economic gateways, congestion, infrastructure constraints and the incidence of crime affecting businesses.

Map F4: Economic nodes (business, retail, office and industrial areas) [43]

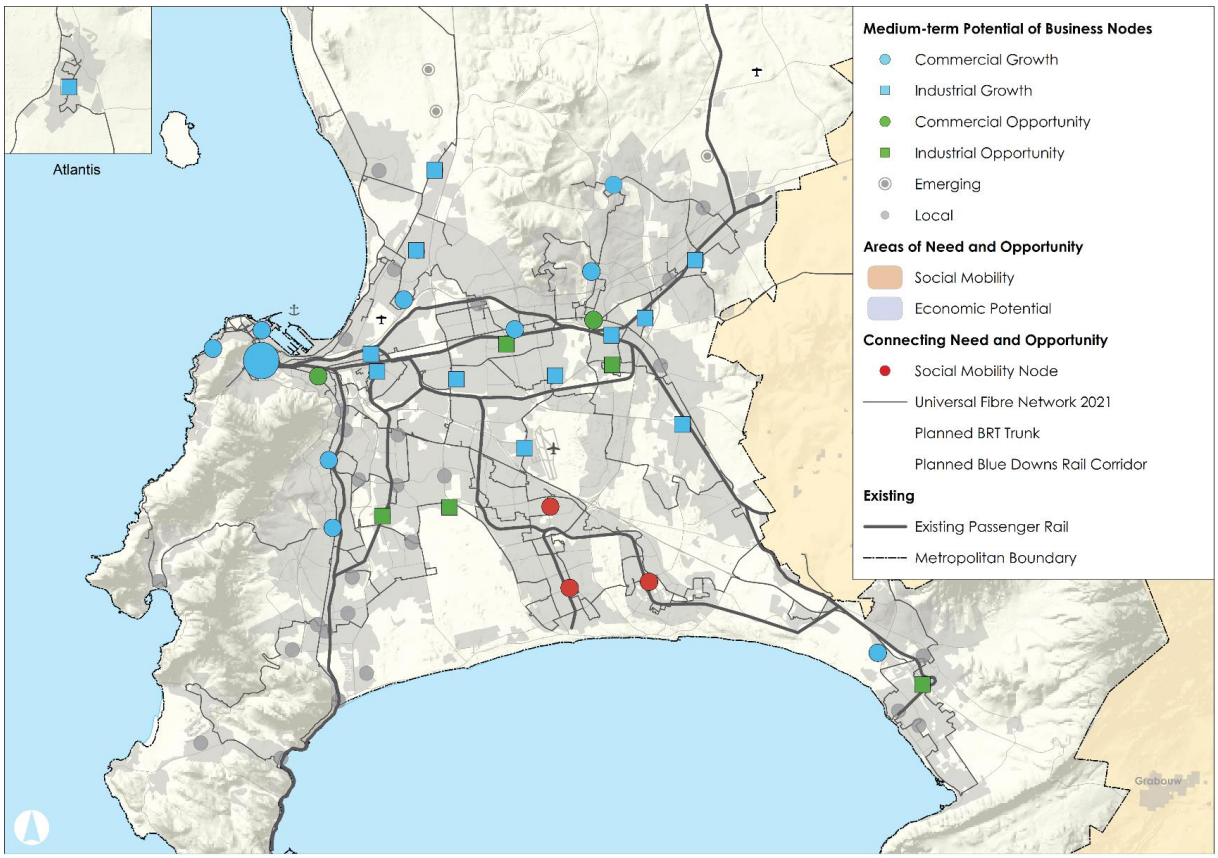
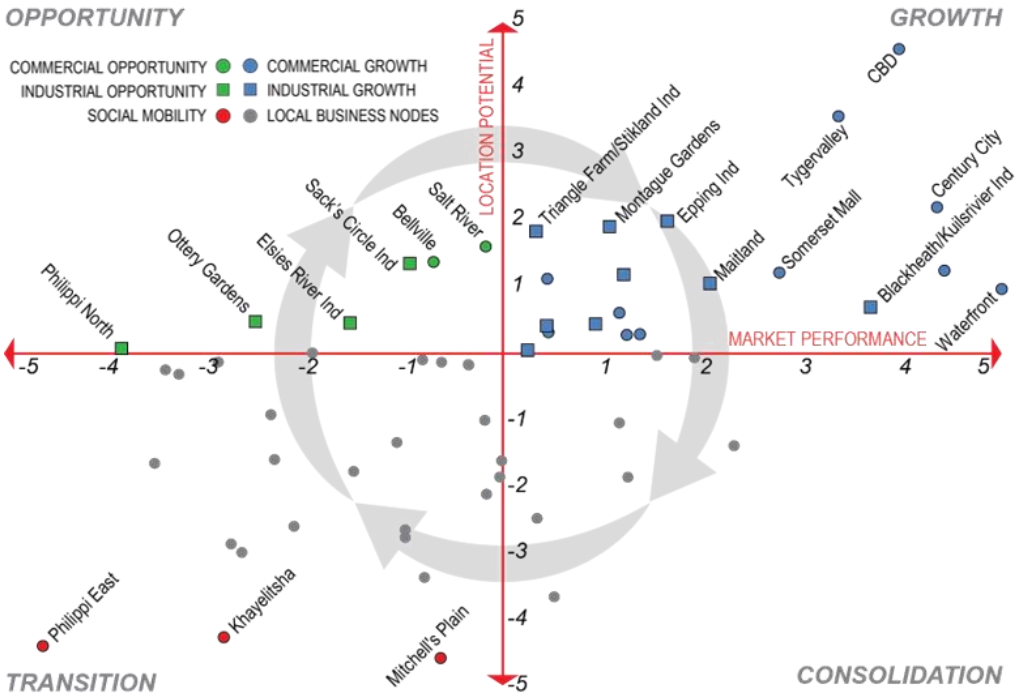


Diagram F23: Diagnostic classification of business nodes[44]



[43] City of Cape Town, ECAMP Business Location Platform, 2016
[44] City of Cape Town, ECAMP Business Location Platform, 2016

Implications

Spatial Implications

The historic form, function and spatial characteristics of the city are the result of a combination of complex variables relating to:

- the topography, coastal location and abundant natural assets;
- global, regional and localised development, economic trends and politics;
- inequitable socio-economic conditions;
- market forces and investment decisions by the private and public sector; and
- transportation networks for the movement of people and goods.

In contemporary Cape Town, population growth and human and economic activity are driving the demand for urban space. Affordability is a primary determinant of location and informs the interaction between people, activities and land uses. Household composition (household size) and characteristics, including education, income, age, and gender affect the demand for housing (to buy or rent) in different price ranges. The same applies to non-residential property markets. Such location choices also impact on the structure and efficiency of the city. Technical Supplement B provides a detailed assessment of current land use patterns spatially depicted as land use density of residential and non-residential land uses. Affordability plays a significant role in the location of people and land uses in space and resulting patterns of urban segregation, decentralisation and sprawl. Technical Supplement E reflects on the population trends and the impact on housing supply and demand and various other variables and drivers of urban change.

For the MSDF to direct development and investment, in order to restructure and spatially transform the city, a clear understanding of the implications of this on future spatial planning is required. Technical Supplement F further considers the impact of current trends on demands for connective infrastructure such as public and private transport, bulk services and digital connectivity. Financial implications include fiscal sustainability pressures, renewal of municipal assets, requirements for enhanced urban management, essential resource efficiency and climate change.

The dynamics of urban change in the city have shifted profoundly in recent years. Cape Town has entered a development phase, characterised by demographic and spatial consolidation within the context of a low-growth global economic forecast. There is likely to be limited future economic growth through which to address the city's historical spatial challenges.

In addition to the socio-economic context outlined above, emerging trends in other aspects of urban life may also have a greater or lesser impact on shaping the future of the city; and may have significant, lasting spatial implications.

The following potential have been identified at a high level:

Socio-economic factors

- Economy: low growth outlook
- Population: growing, with large working age component; ageing
- Households: Decreasing household size (more households); homes transform into places that support economic activity
- Workforce: influx of unskilled population in lower income bands; also an influx of highly skilled population (semigration)

- Housing: significant backlog in housing supply; housing affordability; informality; low densities unsupportive of efficient service delivery (e.g. public transport); proximity of residential dwellings to employment areas affects accessibility and imply transport cost/time; anticipated rapid increase in less-formal/informal dwelling types
- Property market: subject to structural shifts; consolidating; diversifying; emerging proptech

Environmental factors

- Climate change
- Resource scarcity (water, energy)
- Environmental awareness (green buildings, manufacturing and processes, circular economy, "going off the grid", carbon neutrality)

Technological factors

- Rapid technological advancement and automation in many sectors, coupled with the rise of artificial intelligence (AI) and growing use of the Internet of Things (IoT).
- A sharing economy with open data, emergence of co-working spaces
- Peer-to-peer communication and transactions, music and video streaming services
- Increased online sales (e-tailing) and associated facilities (logistics, delivery)
- Blockchain, smart contracts and decentralised finance via cryptocurrencies
- Breakthroughs in the storage of energy
- Entrenchment of a remote working culture, combined with its potential to drive competition for the best talent/skills, while enabling cost-cutting through online staffing solutions.

Regulatory factors

- Greater flexibility or greater control (also in respect of land use management)
- Policy, incentives and the availability of grants/subsidies that serve to support or discourage certain activities and practices
- Urban Management practices
- Quality and efficiency of financial management
- Service reliability
- Stability of the political environment

Spatial implications relate to the following general urban elements/aspects/functions among other, most of which can be measured to some extent, and potentially be used as indicators depicted in time and in space:

- Property market: conditions/performance, and by implication the impact on rates and tariffs
- Housing-related aspects, e.g. provision of government-subsidised housing / rental units; enabling inclusionary/affordable housing
- Addressing the unlawful occupation of land
- Resource consumption: demand for water, electricity, sewerage; and waste production
- Infrastructure provision
- Demand for travel and public transport provision
- Provision of community facilities
- Pressure on areas of agricultural and environmental significance, and on public spaces
- Urban form and efficiency
- Urban development extent and the extent of the built environment
- Land use diversity (mix of different land uses)
- Land use intensity (population density, residential density, employment density, building density)
- Urban land consumption rate

By regularly measuring core spatial planning indicators, the "what?" and "where" and even the "how?" questions are investigated, and can perhaps offer better insight into the reason/s behind symptoms of change, growth and decline (the "why" question).

Core spatial planning aspects

The identification of core spatial planning indicators, allows a focussed approach to unveiling the key elements of urban dynamics that cause urban change. The following core spatial

elements are identified towards the implementation of a monitoring and evaluation framework for spatial planning (see diagram F42), subject to data availability:

Land (city scale)

- **Availability/status**
  - Change in the extent of land inside the Urban Development Edge (urban extent) and outside the built environment (urban footprint)
  - Change in the extent of "Areas of Agricultural Significance"
  - Change in the extent of "Areas of Environmental Significance"
- **Consumption**
  - Extent of the built environment
  - Extent of land converted to urban development
- **Development interest**
  - Extent and location of land investigated for future development that require the amendment of the urban development edge

Land Use (precinct scale)

- **Residential/Housing**
  - **Formal**
    - Number of formal units: existing and new
    - Number of government-subsidised housing opportunities provided
    - Number of dwelling units in council rental units and hostels
    - Number and location of inclusionary housing opportunities
  - **Informal**
    - Number and location of informal settlements/units (IMDs)
      - Incidence of unlawful occupation of land
    - Number of additional informal dwellings (backyard dwellings)
    - Number of boarding houses / residential micro developments
  - **Total** number of residential dwelling units

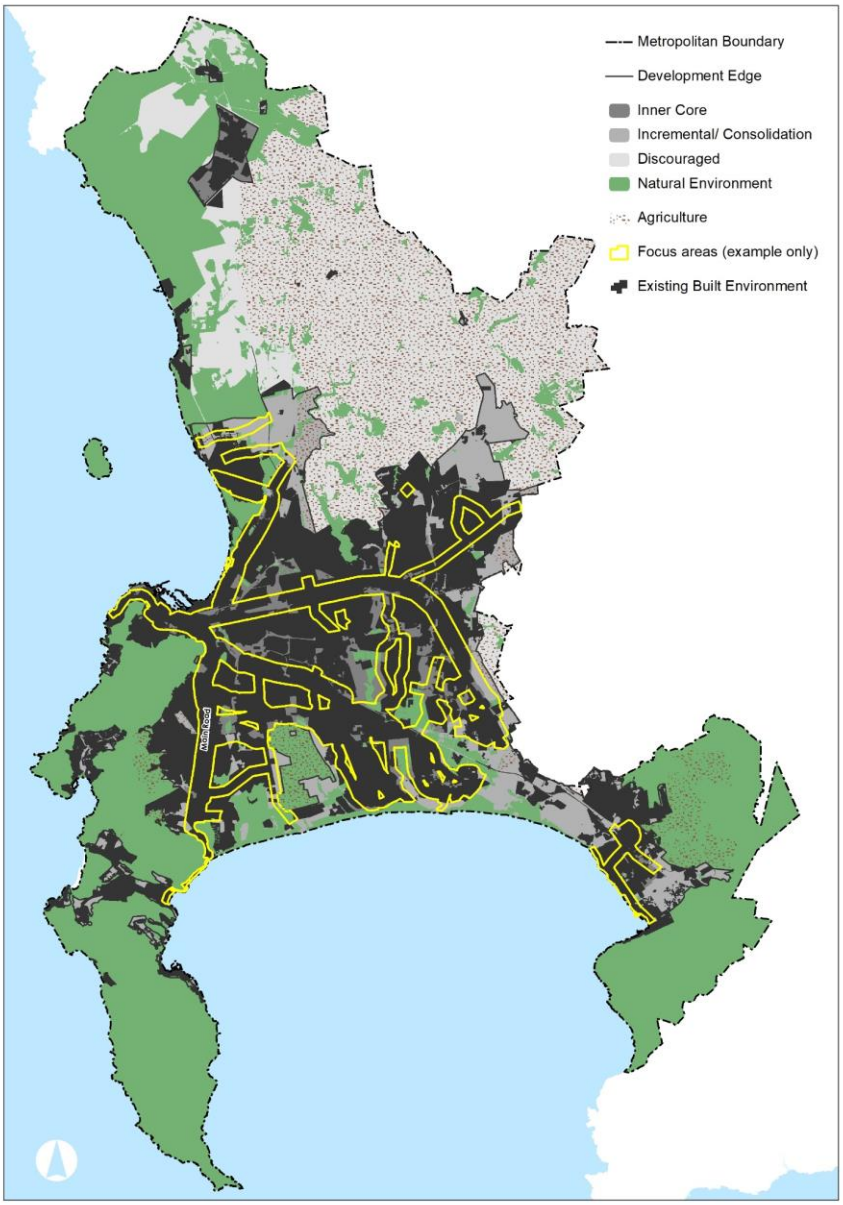
- **Non-Residential** (by main property sector: retail, office, industrial)
  - **Formal** (main business precincts)
    - Average rental (R/m²)
    - Average vacancy rates (%)
    - Average capitalisation rates (%)
    - Sales activity (number and total Rand value of sales)
    - Municipal valuation
    - Developed, zoned public spaces (open space and community facilities)
  - **Informal**
    - Location and extent of informal trading areas
  - **Total** non-residential space (m² GLA by main property sector)

Spatial distribution/allocation (city scale)

- **Spatial Targeting** (measuring change within specific focus areas, e.g. urban inner core, development corridors, vulnerable areas, etc.) – see diagram F42
  - **Intensification**
    - Number of dwelling units by type
    - Residential density (dwelling units per hectare)
  - **Diversification**
    - Relative change in the ratio of residential to non-residential land use
    - Trends (e.g. comparative diversity in new developments)
  - **City's capital investment** (in infrastructure and social facilities)

In addition to the above, certain supporting indicators (not discussed here) can further assist to explain trends.

Diagram F24: Core spatial elements for spatial monitoring purposes



The remainder of this Section explore spatial implications (growth, form, structure) and relevant aspects using the above framework and available data in a stride towards implementing a monitoring framework.

Land Development

Land Availability

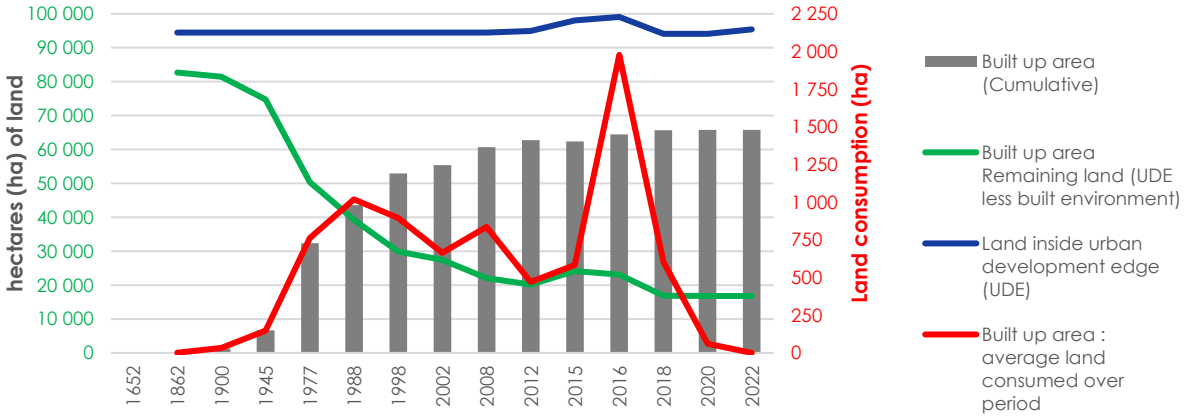
Land availability is measured relative to the urban development edge and the boundary of existing urban development. City analysis in 2020 suggested that, of the ±988km² of land inside the 2015/16 urban development edge, approximately 645km² (±66.4%) has been developed and allocated for urban land use.

Land Consumption

The revision of the urban development edge as part of this MSDF review, is anticipated to expand the urban development edge by ±13km² to absorb land development proposals, mostly for residential development.

The land consumption rate (rate of conversion of developable land into developed land) varies based on the number and scale of land use applications for new urban development approved in preceding years, and the rate of completion of construction in respect of urban land uses. The property market is also influenced by economic conditions and forecasts. A significant slowdown in the growth of the built-up area persists with an associated stabilisation of the remaining built-up area. A significant decrease in the growth of built-up space occurred since 2016 due to the catastrophic drought and the sequential Covid-19 pandemic in 2020/2021 which impacted property investment and development in light of low economic growth and reduced purchasing power of consumers.

Diagram F25: UDE vs built up area growth – in the context of land consumption rate



Source: Metropolitan Spatial Planning

Not all land available within the built-up area is developable. It is estimated that approximately 19% of land inside the 2015/2016 urban development edge is constrained due to its location or relevant regulations and encumbrances (e.g. areas of environmental or agricultural significance, public infrastructure/servitudes, below the 1:100 year flood line, inside noise contours, inside risk of harm contours (hazardous installations), land use buffers (waste water treatment, landfill), etc.).

Map F5 : Historic Urban Growth (Source: Metropolitan Spatial Planning & Growth Management)

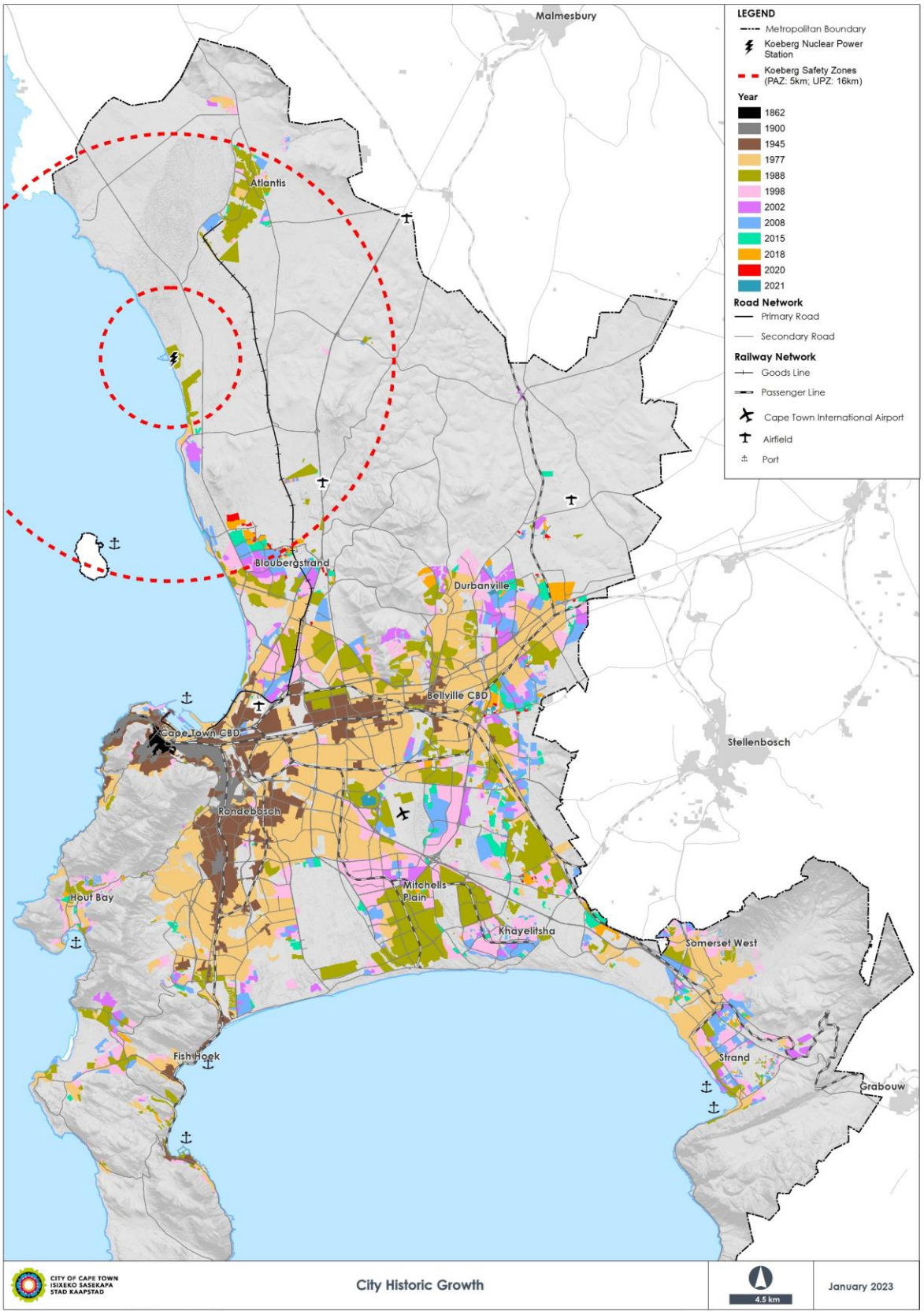


Diagram F26: Recent built environment growth (Source: Metropolitan Spatial Planning)

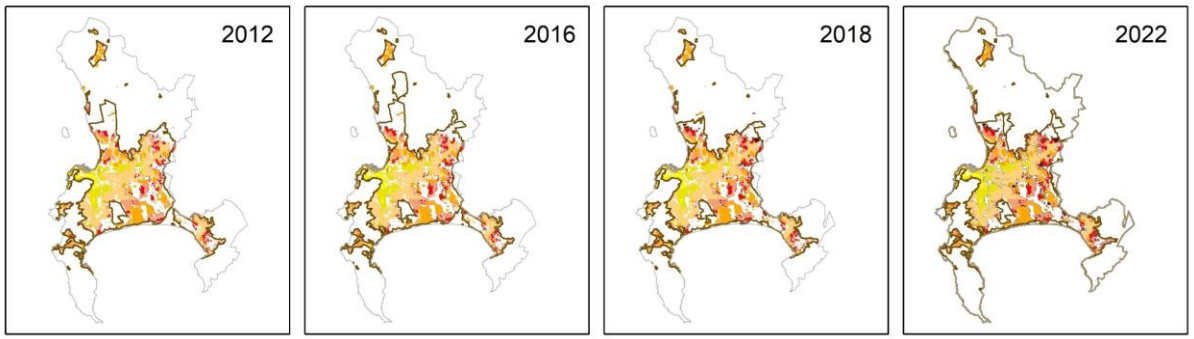
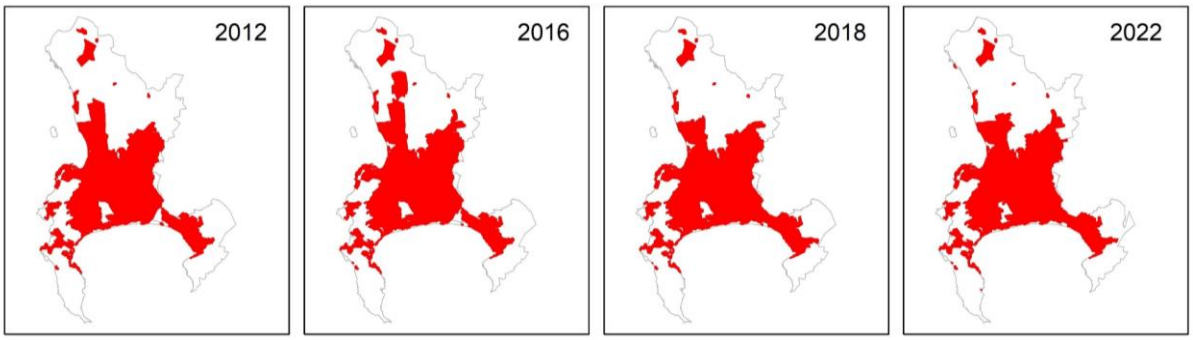


Diagram F27: Recent Urban Development Edges (Source: Metropolitan Spatial Planning)

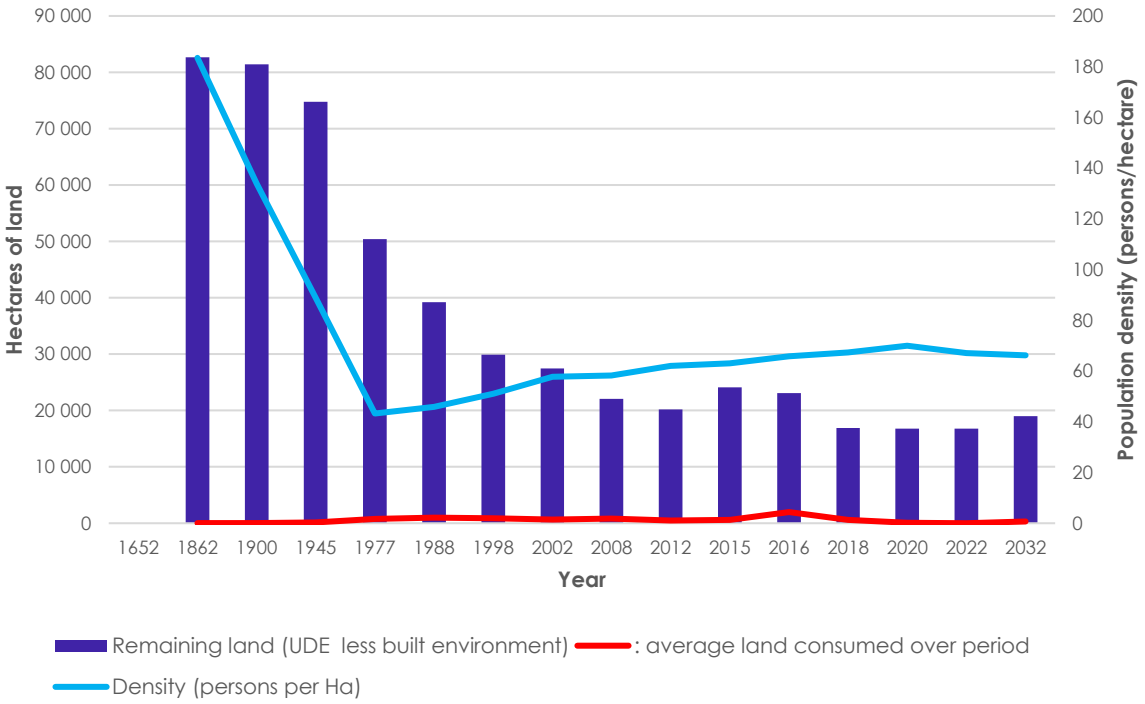


Approximately 18 400 ha of developable land[45] remains within the UDE. While historic amendments to the UDE have increased the extent of developable land by 4 648 ha since 2012, the physical extent of the city's urban footprint has only grown by an estimated 671 ha during the corresponding period. The difference between the pace of urban development edge amendments and the pace of actual physical development is suggestive of land market speculation and not actual development activities that result in economic growth, service delivery or physical expansion. The period 2012-2016/2017 is particularly known for large UDE amendments which did not materialise and convert into physical urban growth.

Although a principle of economic growth-enabling spatial policy is that new development is desirable and investment in development should be facilitated, land speculation goes against this principle by creating inactive areas in the urban fabric, resulting in economic decline and rising service delivery costs. Furthermore, the weight of evidence suggests that rather than being constrained by the lack of developable land, Cape Town has entered a period of spatial consolidation that is confirmed by a slowing rate of land consumption.

[45] Developability is a function of its (1) physical and locational characteristics which gives rise to (2) regulatory constraints. This definition is distinct from 'availability', which is a function of the land market which structures the economic power of the potential developer in relation to the land owner.

Diagram F28: Land consumption, remaining land within the urban development edge, and population density



Source: Metropolitan Spatial Planning

The rate of land consumption has slowed from over 1 000 ha per year during the late 1970s and early 1980s, to an average of less than 600 ha per year since 2008 (Diagram F28). There are still remnants of speculative urban development edge growth that was not realised in the cumulative built-up-area growth. The slowing of urban land absorption is due to a combination of adverse market conditions and the changing locational preferences of households and firms. Both of these trends are unlikely to change significantly in the medium term and will be monitored closely.

The land consumption rates projected in 2017 by the various future land use scenarios developed by the City range from 190[46] to 250 ha[47] per year until 2032, indicating that the probability of urban development being constrained by a shortage of developable land within the next 15 years is low. There is sufficient developable land within the UDE to accommodate new growth until at least 2040.

[46] Comprehensive Transit-Oriented Development scenario.
[47] Pragmatic Densification scenario.

Development Interest

Map F6: 2021/22 UDE amendments from District Spatial Planning process compared to 2016, 2018 and 2022 UDE

This map is now Map 1 in UDE Report.
Please refer to separate Urban Development Edge Report where a record exist of comments received during the consultation process.

Table F2: 2021/2022 UDE amendments from District Spatial Planning process

The above table is now the UDE Table in UDE Report and Annexure A to the report contains the historical deviations from the CTSDF and MSDF as approved.

Please refer to separate Urban Development Edge Report where a record exist of comments received during the consultation process.

Land Use and Building Development

An analysis of the City's DAMS (development application management system) was undertaken in June 2020. Development patterns and concentrations were identified by plotting development applications (building plan applications) from the City's Development Application Management System (DAMS). Maps depict building work completed in square metres for both residential and non-residential land uses from 2016 to mid- 2021. This rich dataset requires closer examination to unpack the results. Data can be visualised by location, time period, land use, building extent, the value of the building work and the number of dwelling units in the case of residential development.

Diagram F29: Residential building works completed by type (single, intermediate, multi), 2016-June 2020

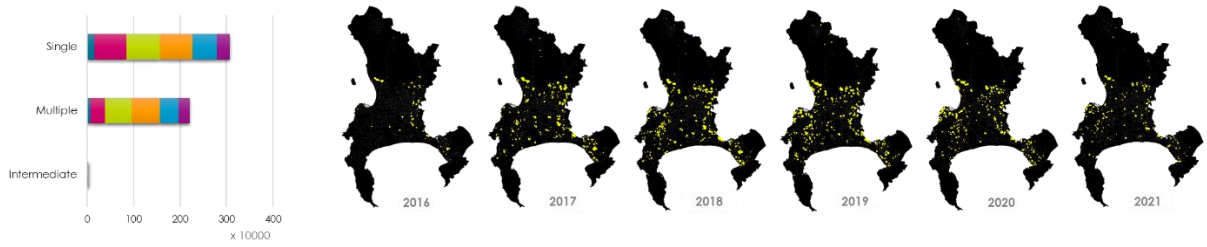
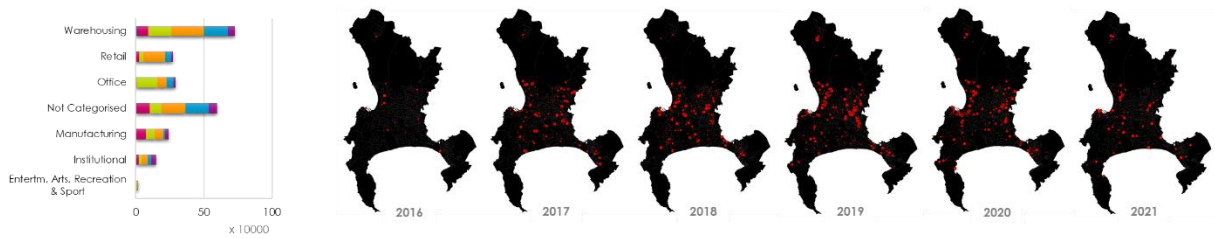


Diagram F30: Non-residential building works completed by main property sector, 2016-June 2020



Changes are planned for the DAMS that will enhance its capability to be used for the intended monitoring purposes. Said changes may take some time before it can be utilised, as it will effectively create a new baseline dataset, and data will not be adjusted retrospectively.

Residential

Housing demand

The overall demand for housing over the medium term is estimated based on current backlogs and new household formation.

Overall demand for housing is a result of inter alia, new household formation, which is a function of population growth, in-migration, changing household size, population growth (of those already residing in Cape Town and new arrivals) and existing housing backlogs.

The housing need in Cape Town is estimated to be around 344 084[48] applicants who are reflected as 'awaiting a housing opportunity'[49]. This number has increased by around 40 000 from the 303 953 in December 2015 (±6 700 new applicants are added to the waiting list per year). Rising levels and types of informality were historically listed as an insignificant addition to the housing need. This was at a time when the belief still existed that informal settlements would be eradicated by the national housing financing system and its objective to provide government-subsidised housing for all qualifying families. Over the past decade, however, with the associated changes in the national housing financing regime, it has become accepted that informal settlements will remain, but that living conditions within these settlements will be upgraded over time.

Between the City's 2013/14 and 2017/18 financial years, there was an average growth in the delivery of housing of 5% per annum. Over the same period, there was an average growth of 13% per annum in the number of people registering on the Housing Needs Register.

It is now anticipated that Cape Town's population will grow more than what was projected in 2018. Two scenarios were therefore developed to estimate the number of households in Cape Town in 2028 based on the population projections. In scenario one, it was assumed that the average household size will remain at 3.232 and the estimated number of new households will be 249 167, by 2028. In scenario two, it was assumed that the average household size will continue to decline[33] and will be 3.1 by 2028, and that the estimated number of new households will be 299 235. Based on these scenarios, by 2028, the total demand for housing will range between 479 200 and 529 300 housing opportunities, taking into account new household growth and households currently living in informal dwellings (the current housing backlog).

Meeting this anticipated demand will require a total of between 47 920 and 52 930 housing opportunities per annum over the next 10 years. This consists of an estimate total demand for new households (i.e. excluding any housing backlog) of between 24 917 and 29 924 per annum for the next 10 years. Then, to address the current backlog of households currently living in informal dwellings, a total of ±23 000 new housing opportunities each year will be needed until 2028.

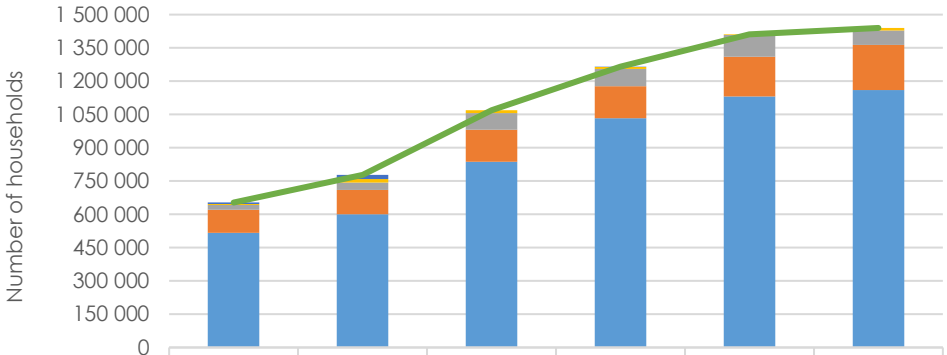
This analysis is supported by residential growth estimates undertaken in 2020, which projects an average annual growth of 29 904 dwelling units from 2020 to 2029. Notably, the bulk of this future dwelling unit growth is expected to be informal and additional dwellings.

[48] City of Cape Town Human Settlements Strategy, June 2021, HS Directorate, 2021

[49] This figure is a reflection of people coming forward to express their housing need and does not necessarily qualify them for a government subsidised housing opportunity.

As there has been a decrease in the average household size (affecting the type and size of housing required) and an increase in population (albeit at a slower growth rate), the number of households has also increased (i.e. there are a larger number of smaller households). The historical trends for household growth are shown in Diagram F31. It indicates that the number of households living in formal housing dwellings more than doubled from ±0.5m to ±1.16 million between 1996 and 2020. The proportion of households living in formal units represents ±80% of all households in 2020. The number of households living in informal dwellings increased from ±125 000 in 1996 to ±270 000 in 2020. This represents ±19% of the total number of households in 2020 in Cape Town.

Diagram F31: Cape Town dwelling type statistics



	1996	2001	2011	2016	2019 estimate	2020 estimate
Unknown	6643	17639		203		
Other (includes traditional, caravan and tent)	4342	17045	12261	9229	4 120	11 582
Informal dwelling in backyard	21775	32747	74958	77634	97 426	64 934
Informal dwelling NOT in backyard	103458	110157	143823	145286	179 500	203 069
Formal dwelling	516867	599803	837536	1032497	1 130 727	1 160 290
Total	653085	777392	1068579	1264849	1 411 774	1 439 875

Source: Compiled by Policy and Strategy Department, 2020 using 1996 Census, 2001 Census, 2011 Census, 2016 Community Survey and, 2019 and 2020 General Household Survey, Statistics South Africa, and own calculations using 2021 Mid-year Population Estimates, Statistics South Africa.

The Human Settlement Strategy posits that, given the current level of demand and government capacity to build supply, it is not possible for the various government housing subsidy programmes to satisfy the housing demand on their own. It is therefore recommended that incentives be created to enable the delivery of affordable homes by the private sector.

The target housing segment for the Human Settlements Strategy are households earning less than R22 000 per month and that are either currently living in inadequate dwelling conditions or are new households. However, affordability varies within different housing contexts, and the needs of residents may vary depending on their housing typology, location and proximity to services. The strategy recognises that the relationship between residents and affordability will change over time, and that there will be amendments to housing conditions and access to services.

Housing supply

Housing supply can be divided into three submarkets, namely: market; government-assisted; and informal. The latter can take the form of either informal settlements or informal additional dwellings – previously referred to as backyard dwellings – and boarding houses or multi-storey

flats. Over recent years, a burgeoning small-scale rental sector has being stimulated by micro-developers leveraging RDP housing or formalising informal structures, to create additional housing units. These units are leased or sold at lower price ranges than those of the 'traditional' private sector.

Over the five years, from 2013/14 to 2021/21, more than 150 000 new housing opportunities were provided in Cape Town, with approximately 50 000 provided by the private sector, and the balance from the City of Cape Town and the Western Cape Provincial Government (PG:WC). This equates to an average of more than 30 000 new housing opportunities per year. On average, the public and private sector together are developing ±10 000 formal new dwellings per year and ±9 000 new serviced sites per year.

Table F3: Total new housing opportunities provided in Cape Town

Year	Private Sector Housing	CCT: Dwellings	CCT Serviced Sites	CCT: Other opportunities (such as rental unit renovation, re-blocking, etc)	City: Total	WCG: Dwellings	WCG: Serviced Sites	WCG: Other opportunities (such as rental unit renovation, re-blocking, etc)	WCG:Total	Total (Priv + CCT + WCG)
2012/13	unknown	4300	6391	1725	12 416	unknown	unknown	unknown	unknown	
2013/14	9 406	3 744	6 632	2 057	12 433	352	0	0	352	22 191
2014/15	8 317	3 366	4 318	2 327	10 011	942	1 761	0	2 703	21 031
2015/16	9 583	3 293	2 261	533	6 087	1 217	815	0	2 032	17 702
2016/17	12 319	5 010	1 018	867	6 895	1 199	1 817	0	3 016	22 230
2017/18	10 320	3 641	5 401	2 146	11 188	1 896	2 810	0	4 706	26 214
2018/19	TBC	8 327	2 161	1 448	11 936	2 098	2 091	0	4 189	16 125
2019/20		4 354	2 637	428	7 419	2 081	1 204	0	3 285	10 704
2020/21		2 292	2 104	357	4 753	0	0	0	0	4 753
Total	**49 945**	**38 327**	**32 923**	**11 888**	**124 703**	**9 785**	**10 498**	**0**	**20 283**	**140 950**

Source: City of Cape Town Human Settlements Strategy 2021. Supplemental sources: historical records CCT Human Settlements Directorate, Provincial Department of Human Settlements, Development Management Scheme extracts of completed units

The average monthly household income in the metro was estimated at R23 306 in (2019), which was slightly higher than the average for SA (R19 491)[50].

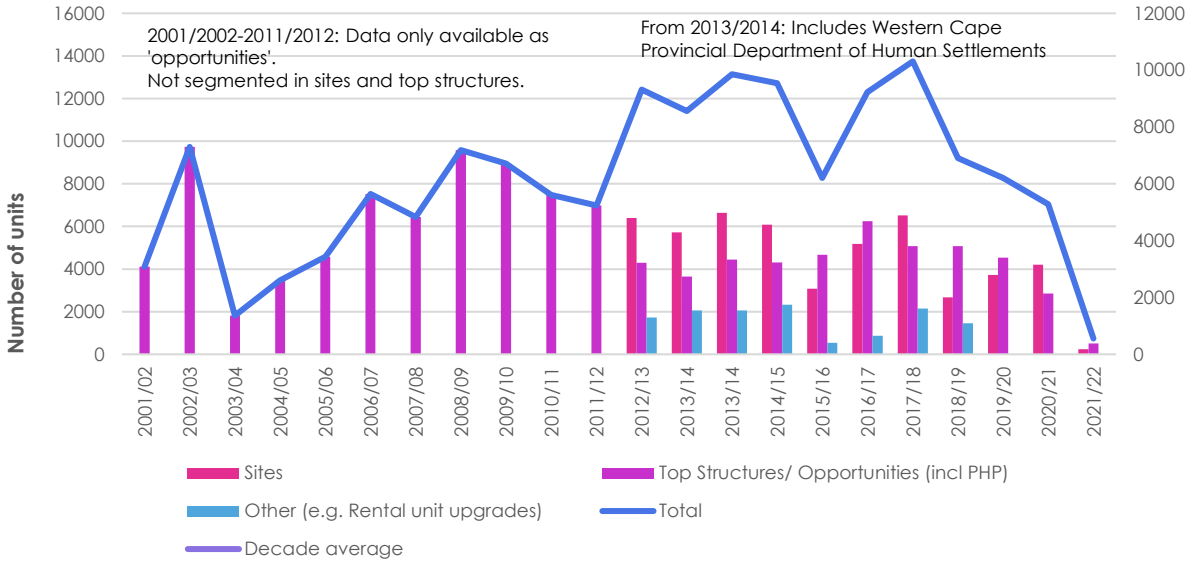
Government-assisted housing supply trends

The rate at which government-assisted top structures are delivered increased from around 5 000 to 6 000 per year for the period 2001/02 to 2011/12 and thereafter around 10 000 to11 000 to 2020/21. This was despite the real contraction of housing subsidies. This trend is, however, not expected to continue or increase due to land shortages, the existence of highly constrained undeveloped and partially-developed land, the significant reduction and changes in the government subsidy regime, and rapid, high-volume increases in unlawfully occupied land, which neutralise land previously earmarked for housing projects.

South Africa's housing policy and corresponding subsidy structure were traditionally focused on delivering as many top structures as possible by minimising the cost of delivering each unit, pushing housing development to where land is the cheapest. The subsidy for building top structures – about R160 000 per unit – did not cover the full cost of delivering houses, which is up to 75% higher, depending on location[51]. Combined, the rate and scale of delivery remains far below what is required to keep up with new household formation and in-migration, let alone addressing the housing backlog and raising the standards of housing for those living in unhealthy conditions, often in densely population informal settlements. Based on 2017/18 resources, and using a conventional housing provision approach, it will take more than 70 years to eradicate Cape Town's current housing backlog[52].

[50] CAHF, 2019:3 referenced from Stats SA 2016 Community Survey and Stats SA CPI adjustment.
[51] CDE Agenda for Growth.
[52] Integrated Human Settlements Five-year Plan 2017.

Diagram F32: Summary of government-subsidised housing, 2001/2002-2021/2022 (last year not complete)



Source: Human Settlements Departments of City and Province

Diagrams F33a&b and Maps F7&8 provide further detail of the proportions of units provided by the City and Province, as well as the types of housing typologies provided by various programmes over time.

A transition from the delivery of top structures to the incremental upgrading of informal settlements and backyard housing was actively pursued over the last five years. This also implies the provision of more serviced sites where people can build their own houses, like the PHP programme (People's Housing Programme) which has experienced growth over the past decade. This incremental approach is challenging, in that overcrowding in many informal settlement areas inhibits the City's ability to provide services, and in-situ upgrading may necessitate de-densification through relocation in order to provide roads between the structures. The City's Department of Human Settlements estimates that resolving Cape Town's housing problem over a 20-year period will cost R99 billion (R5 billion per year). It is therefore critical to partner with residents and the private sector[53] as proposed in the City's recently council-approved Human Settlements Strategy (June 2021).

A review of government-assisted housing development since 2005 (Maps F7 & F8) suggests that newer government-assisted housing is gravitating closer to areas of economic opportunity. However, the spatial consequences of affordability constraints, given Cape Town's urban land market, are demonstrated with new low-income housing concentrated in existing areas characterised by poverty and informality. The realisation of affordable infill opportunities at scale is constrained by the fact that the City has limited control over large portions of undeveloped and partially-developed land that is mostly owned by the National Department of Public Works or used by the Ministry of Defence (Wingfield, Youngsfield, Ysterplaat and Erf 1117). State-owned entities (SOEs), national or provincial departments, or the private sector, own much of the land. Acquisition of the land – if considered for disposal – will, therefore, attract market-related sales prices.

[53] ibid

Map F7: Informal and government-assisted housing[54]

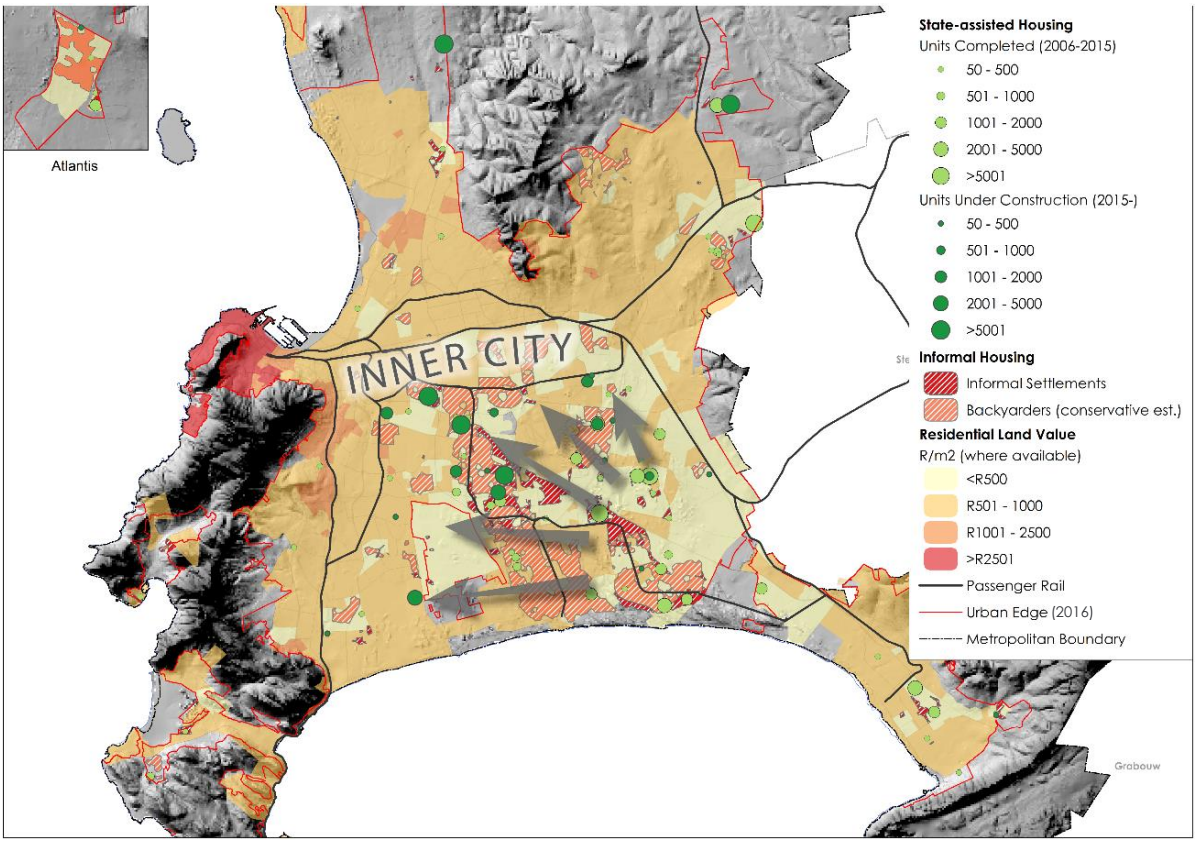


Table F3 indicates that government-subsidised homes accounted for a significant portion of the affordable housing stock in Cape Town. Government-subsidised properties play a critical role in the entry and affordable markets – particularly for resale – and the equity and wealth creation benefit to families.

Multiple constraints, ranging from decreasing government funding, household income and credit limitations, to land shortages and complex housing project roll-out processes, influence the scale and speed of government–subsidised housing. The City's Human Settlements Strategy addresses most of these concerns. Similarly the District Development Frameworks (2021) work towards the identification of all undeveloped or partially-developed private and public land. They classify and depict a selection of those sites as New Development Areas, with an indication of the anticipated density for each of the sites.

[54] City of Cape Town 2016. Diagram generated from multiple sources, including Development Application Management System and roof counts produced by Department of Development Information and GIS.

Informal housing

The majority of households (79% - 80%) in Cape Town live in formal dwellings (Diagram F31). The combined total of residents living in informal conditions (i.e. informal dwellings in backyards and informal dwellings not in backyards) remains unchanged at ±19%.

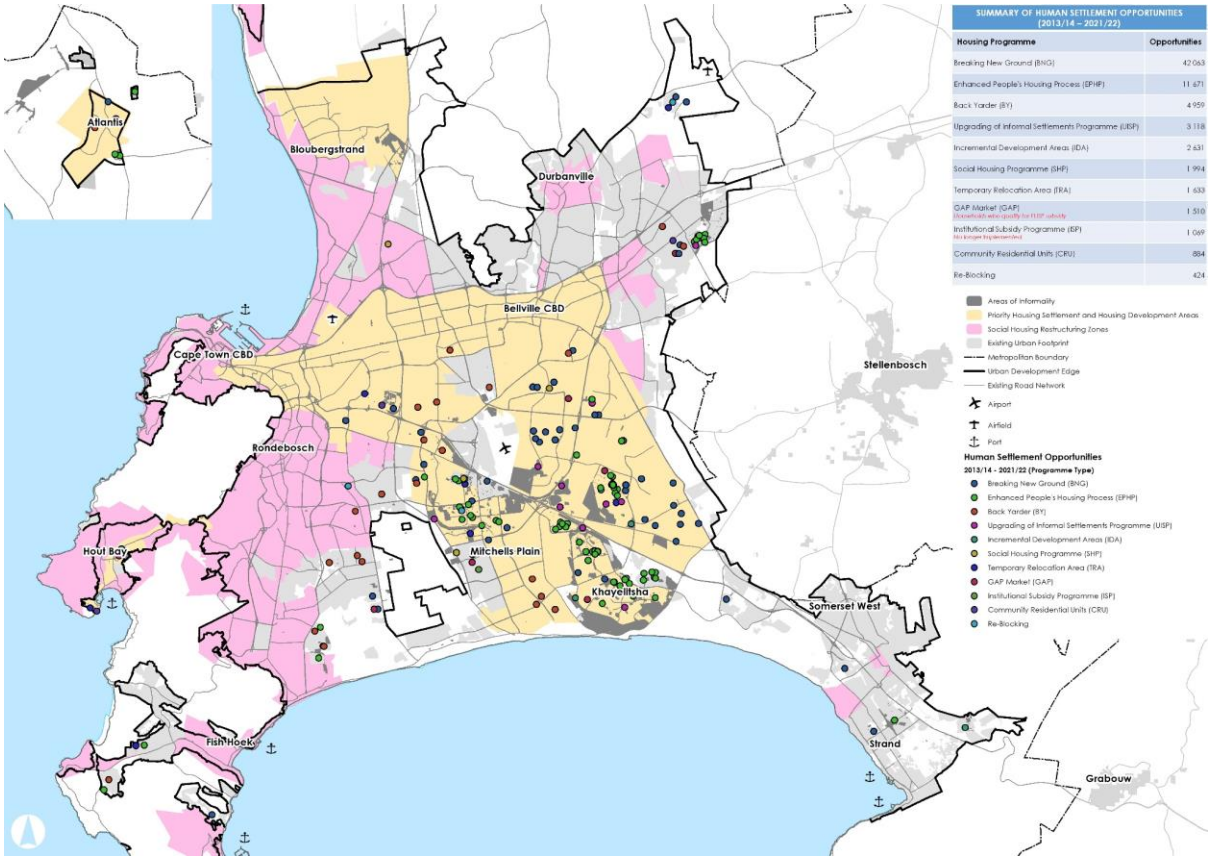
Residents staying in informal living conditions have varied access to basic services depending on the density, access and ownership of the land. The City is committed to providing and maintaining services to informal settlement areas in line with the national guideline levels, which include one water tap per 25 families within a 200m radius, a minimum of one toilet per five families, and weekly refuse removal. In some instances, the City exceeds these national levels.[55]

The 2020 General Household Survey from Statistics South Africa shows an increasing percentage (18.6%) of households reporting that they reside in informal dwellings. The City's own figures estimate higher counts for both informal settlement dwelling units and for additional informal dwellings. Moreover, informality is expected to have increased during the pandemic. Likewise, the City's residential growth estimates projects that the majority of future dwelling-unit growth will be informal and informal additional dwellings. It is expected that approximately 47% of new residential units between 2020 and 2040 will be formal and 53% will be informal/less-formal in nature. This includes dwellings in informal settlements and in backyards/ informal additional dwellings, including multi-residential boarding houses / backyard flats.

This implies that the cumulative impact of supply (described above as government-subsidised), together with the market response (see below), is not enough to reduce informality.

[55] City Human Settlements Sector Plan, Nov 2020:69

Map F8: Location of City and Provincial Human Settlement Projects (2013/14-2021/22 (completed)



Source: Human Settlements Departments of City and Province

The increase in the number of households (Diagram F8) alongside the large numbers of dwelling units in informal settlements and informal additional dwelling structures (backyards), suggests an unabated demand for low-cost housing. To respond to this challenge, the City's Human Settlements Strategy (2021) and five-year Integrated Human Settlements Plan (2017-2022) set out a range of strategies for providing incremental housing and regularising and upgrading informal settlements.

The locations of projects in process under the Informal Settlement Upgrading programme are visible on Map F8.

Informal additional dwellings (backyard dwellings) supply

While the last official Census reported 75 000 (7%) households living in informal additional dwellings in 2011 (Diagrams F31), independent building counts in Cape Town have suggested that the true figure may be closer to double the official estimate[56]. Informal additional dwellings occurs when a backyard dweller sets up dwelling in an unused communal space, yard or forecourt of a main property. This typically occurs in the City's rental stock and at privately owned formal dwellings. Backyarder dwellers (additional informal dwelling occupants), are often relatives of the owner of the property who is responding to overcrowded conditions in the main dwelling. Many backyarder dwellers are employed, earn up to R15 000 per month and fall into a gap left by formal financing, as they fail to qualify for government assistance or for a formal bond from private financial institutions[57].

[56] GeoTerraImage.

[57] Integrated Human Settlements Five Year Plan 2017.

City research[58] revealed that approximately 41 500 (of the above 75 000 backyard structures, are currently attached to City rental stock, in other words informal structures on City owned land and buildings where the City has a portfolio of housing properties such as flats, maisonettes or houses rented by residents. The backyarder dwellers have varying incomes and some are eligible for state-subsidised housing, while others struggle to qualify for a mortgage from a formal financial institution. Backyard dwelling structures range from unsound wood-and-iron constructions to vibracrete and brick-and-mortar structures. In most instances, these structures do not comply with the norms and standards prescribed by the National Building Standards Act, 1977 (Act 103 of 1977) and the Municipal Planning By-law and regulations which address health and safety concerns. Currently there is no national policy or a national subsidy programme intervention to support backyarding, aside from the USDG which allows the funding of these services for people living in such areas of informality. The locations of projects in process are visible on Map F8.

Market housing characteristics and spatial patterns

In 2019, according to the CAHF (2019), there were around 770 000 residential properties registered in the deeds registry in Cape Town.

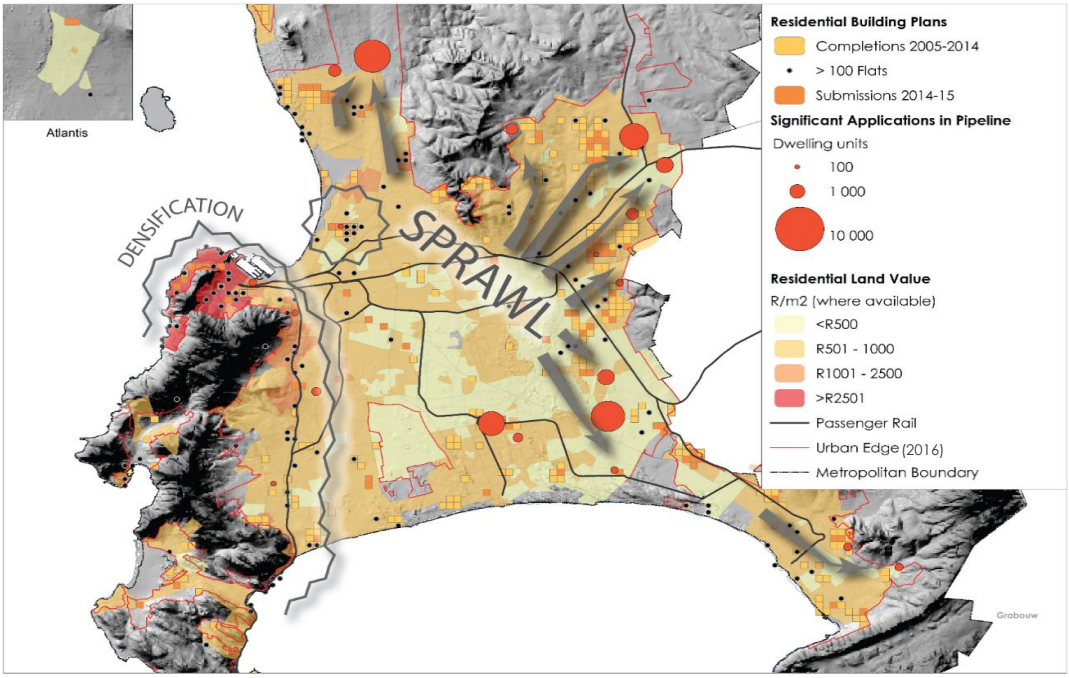
Table F3 illustrates that the formal housing sector delivered between 12 000-15 000 units per year before the 2008 economic downturn, of which approximately 60% was delivered by the market and the remainder through government housing programmes. This is marginally lower than the average annual supply of 16 000 between 1996 and 2007[59]. Given current credit constraints and the near-recessionary economic climate from 2017/18, the delivery rate by the market has decreased to a new normal of between 8 000 and 9 000 units per year – of which around 75% was provided by the private sector in 2019 (as example).

Map F7 indicates the spatial pattern of market housing since 2005. Whereas low density residential developments continue to locate along the urban periphery where land values are low (less than R1 000/m2), market-driven densification (as represented by new blocks of flats) is concentrated in well-managed, accessible areas where land values are very high (more than R2 500/m2).

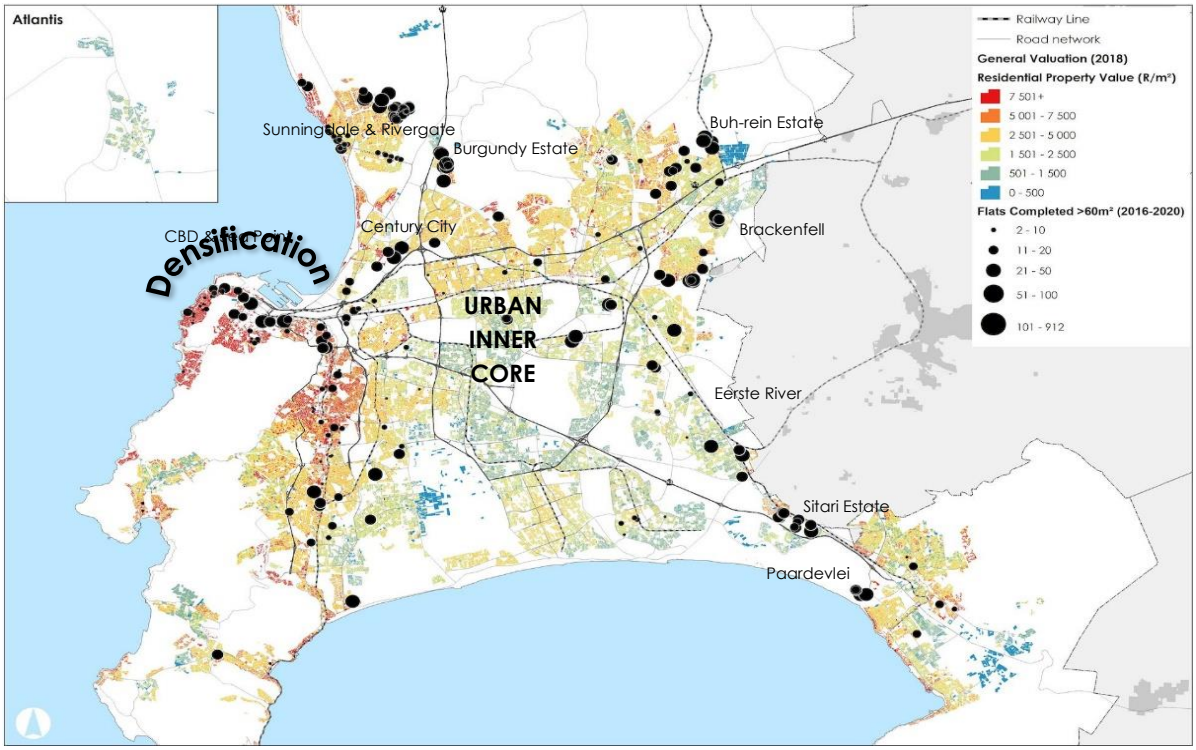
Map F9 shows a significant amount of residential development taking place on the periphery of the city over the period 2005-2014. Map F10 Illustrates building plan approval from 2015 to March 2021. From the first of these maps it is clear that there continues to be sprawling development towards the edge of the city. However, a concentration of residential units (flats) approved within the CBD and Sea Point is also observed. Flats, as a form of higher-density housing is also being constructed more in locations on the fringes of the built-up area like the Blaauwberg District, Brackenfell, Joostenberg Vlakte, Sitari Estate, and Eerste River areas.

[58] City Human Settlement Sector Plan , Nov 2020:73
[59] StatsSA

Map F9: Market housing and land values[60]



Map F10: Residential building plan completions 2015/6-2020/21 (Source: CCT DAMS)



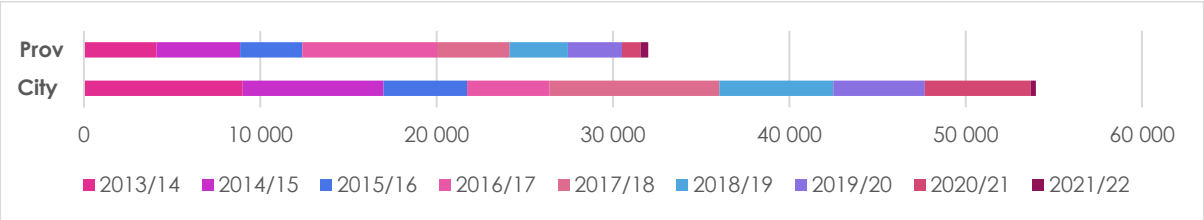
[60] City of Cape Town (2016). Building plan completions and submissions, residential development applications received extracted from Development Application Management System. Land values estimated using regression applied to improved and vacant residential property values per neighbourhood as extracted from General Valuation 2015.

Affordable housing characteristics and spatial patterns

Affordable housing refers to housing units within a neighbourhood where those earning less than the median income of the neighbourhood can afford to live in. These units can be rental units or units for sale.

Diagram F33a gives an indication of number of units completed between 2013/14 and 2021/22 by the City and Province in order to contribute to affordable housing stock. Diagram F33b provides a breakdown of the proportions and types of subsidy units completed over the past decade. The nature and scope of government-subsidised units fundamentally depends on the Housing Code or the financing system employed by the National Treasury through the National Department of Human Settlements, as these housing programmes adjust over time based on the specifications of different housing grants supporting the projects. For example, the USDG (Urban Settlements Development Grant) is predominately used for the engineering and community services infrastructure and the HSDG (Human Settlements Development Grant) is used for top structures.

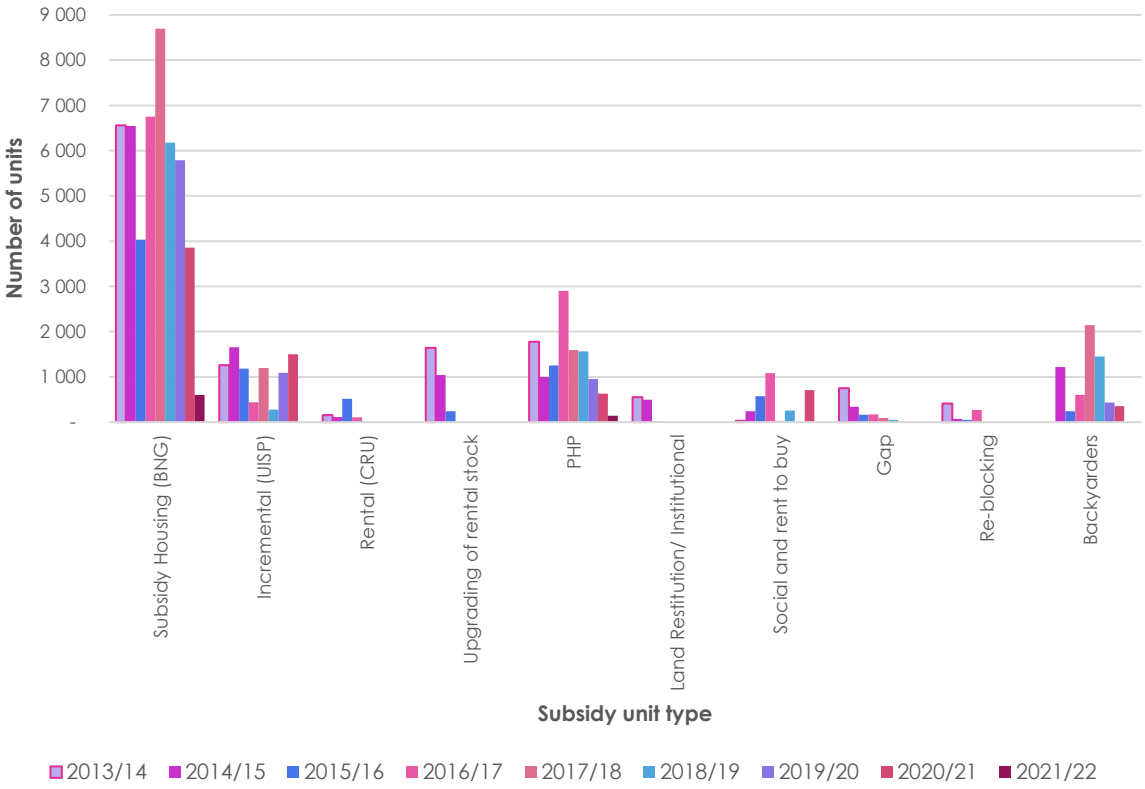
Diagram F33a: Number of subsidy units completed by the City and Province 2013/2014-2021/2022 (last year is incomplete)



Source: City of Cape Town and Provincial Departments of Human Settlements

The types of housing programmes completed over the past decade are illustrated in Diagram F33b and indicate that, historically, BNG houses were the largest group provided, but that the PNP (where people build their own house on a previously received or purchased erf, with the aid of a government subsidy), is gaining popularity. Financial constraints made for a rapid decrease of the BNG housing programme in favour of serviced sites and Upgrading of Informal Settlements Programmes (UISP), and the facilitation of existing backyarder units with engineering services.

Diagram F33b: Types of subsidy units completed by the City and Province 2013/2014-2021/2022 (last year is incomplete)



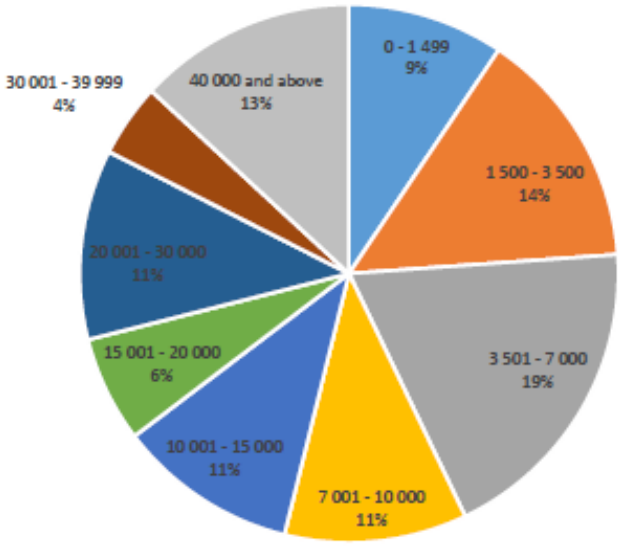
Source: City of Cape Town and Provincial Departments of Human Settlements

Housing Affordability

House price

Households in Cape Town fall into different income categories. On average, over the four-year period from 2015 to 2018, a total of 71% of Cape Town households earned R20 000 or less per month, with 54% of households receiving a monthly income of R10 000 or less and 17% between R10 001 and R20 000. At the other end of the spectrum, 13% of households had a monthly income of R40 000 and above.

Diagram F34: Distribution of Cape Town monthly household income, in Rands (2015 to 2018)[61]



Source: City of Cape Town Human Settlements Strategy (2021). General Household Survey (2015-2018), Stats SA

According to the City's Human Settlements Strategy, considering the income trends in Diagram F34 (prior to the 2020 interest rate reductions), only 28% of households in Cape Town, could afford to purchase a property of around R550 000. These trends indicate a more exclusionary property market in Cape Town than in other cities in South Africa, and suggest that there is an affordability crisis at multiple income thresholds in the city. This also reflects an underlying land cost that is significantly more prohibitive when it comes to increasing the city's affordable housing supply. An entry level formal dwelling provided by the formal Cape Town property market in 2018 cost between R400 000 and R500 000 (CT HSS, 2021).

Assuming that households wanting to purchase an entry level home would be able to secure a loan to cover 90% - 100% of the cost, and that housing finance would be accessible to the level whereby monthly repayments did not exceed 25% of household income (predicated upon a 11.5% interest rate over 20 years), it was estimated that a household would require a minimum gross income of R20 000 a month to be eligible to purchase an entry level formal dwelling. This assumes that the household does not have other housing or other assets that they can sell to raise capital.

In 2021, in the Covid-19 context, an entry level house cost between R500 000 and R600 000, with the prime lending rate having decreased to 7%. This means a minimum gross income of

[61] Cape Town Human Settlements Strategy 2021.Stats SA 2015, 2016, 2017 General Household Surveys. That those households indicating an 'Unknown' income were split evenly among the various income groups.

R15 500 a month would be required to afford a house in this price range. However, it is important to note that we do not yet have a comprehensive picture of post-Covid-19 income levels, and it can be assumed that the economic impact of the pandemic has been increased unemployment, leading to decreased household incomes. These factors contribute to new levels of unpredictability within the housing market, which make affordability very difficult to measure.

Informal housing

Against this backdrop, informality is responding to the challenges and gaps experienced in the formal housing sector. Between 1996 and 2016, households living in informal settlements increased by 40% from around 103 000 to 145 000, while households in informal backyard dwellings increased by 257%, from around 22 000 to 78 000[62].
The City's own figures estimate higher counts for both informal settlement dwelling structures and for additional dwellings informal (informal backyard dwellings). Informal settlement dwellings (structures) increased significantly in 2020 during the pandemic, to much higher levels than the 2016 and 2017 estimates.

New information during the 2020 Land Use Model base process also included the quantification of boarding houses (previous BNG houses, demolished or altered to accommodate a block of flats or boarding house at the back of the erf, or replacing the previous BNG house), predominately located in areas established in terms of the Less Formal Township Establishment Act, 1991 (Act 113 of 1991). The 2020 Land Use Model consolidated the 2020 estimates, and estimated the 2040 households from a very low (post-Covid-19) economic growth scenario, which reflects a possible significantly larger proportion of future households in the informal housing sector compared to the formal housing sector (dwellings associated with formal building plan submissions).

Table F4: Analysis of areas of informality

AREAS OF INFORMALITY: TYPE OF SETTLEMENT	NUMBER OF STRUCTURES
Backyarder Settlement	4 037
Informal Settlement	237 837
IDA/TRA/Re-blocked	12 823
Rental Stock Settlements	10 272
Small Farmers / Rural Settlement	3 214
Unauthorised Informal Settlements (also see map F11 for incidences of unlawful land occupation during lockdown: **March 2020 to October 2021**)	1 477
TOTAL	**269 660**

Source: Directorate Human Settlements, CCT; and Corporate GIS, CCT, 2022. Definitions and methodology available from source.

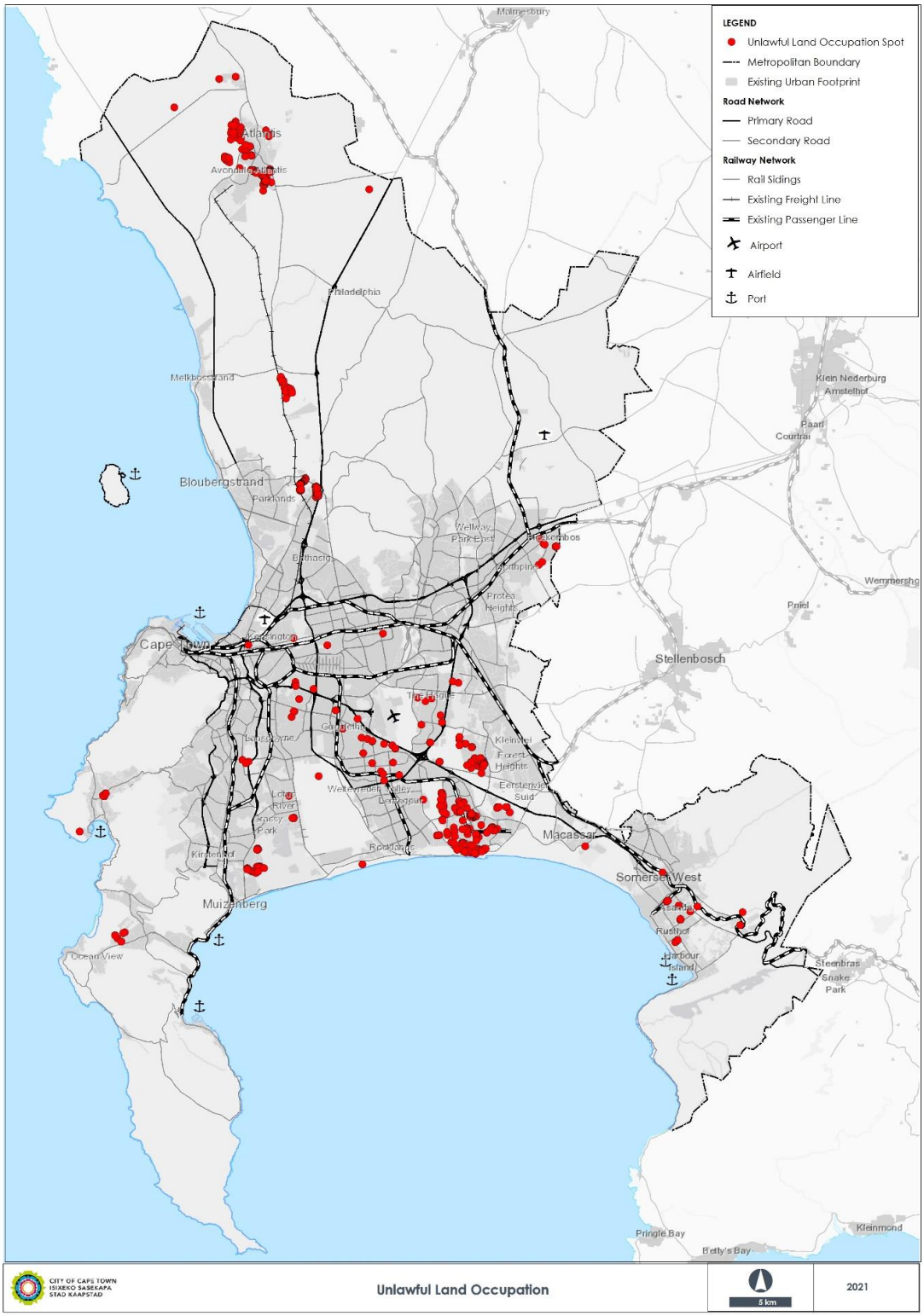
The Human Settlements Sector Plan, indicates that in-migration, as well as internal growth in informality, are both responsible for unlawful land occupation, where people claim tracts of state or private owned land to form new settlements. This presents a critical challenge to the City, as illegal land occupation on City-owned land (and other state land) often happens on land that is already earmarked for mostly residential projects – thus threatening service delivery and diverting time and money away from planned projects to respond to crisis situations.

The Sector Plan states that, in 2020, it is undeniable that the impact of the national lockdown during the Covid-19 epidemic had an effect on the incidence of unlawful occupations. As some people lost jobs, or any ability to earn an income, they were evicted by land lords, which spurred a need for new accommodation – leading to unlawful land occupation. Map F11

[62] Stats SA, Census, 1996 and Community Survey, 2016

indicates the location of land that have been unlawfully occupied between March 2020 and August 2021[63].

Map F11: Unlawful occupation of land, 2020



Source: City of Cape Town, Human Settlements Directorate, September 2021

[63] City of Cape Town, Human Settlements Directorate, Anti-Land Invasion Unit, September 2021

Affordable housing

In reaction to the impact of steep land value gradients on well-located affordable housing, this sector has seen renewed interest from investors. The affordable housing segment has, in recent years, outperformed the overall housing market, with house price growth of properties in the bottom quartile (i.e. less than R330 000, excluding RDP houses) nearly double that of the second highest quartile (R700 000-R1,135m), and four times greater than the highest quartile (more than R1,135m) between 2012 and 2015[64]. There was an increase in resale trends of government-subsidised housing between 2012 and 2019, as well as the steep increases in the pricing between 2015 and 2019 for mortgaged properties that were previously government-subsidised.

Rental housing

Given the abovementioned growing affordability gap, and the inability of the private and public sector to adequately cater for the housing need, there is a rising interest in the private sector to provide less-formal rental housing opportunities. It is anticipated that different types of informal dwelling units will grow to comprise 47% of the total supply of dwelling units by 2040. A significant increase in informal dwellings (such as informal settlements) is anticipated, increasing from around 13% to 26.5% of the anticipated demand. The number of additional dwellings (in backyard circumstances or in the form of multi-residential or small flat blocks or boarding houses) is also expected to increase from 11% to 19.7%. This situation lends itself to private sector involvement in the affordable housing market, albeit informal. Because of this, the proportion of informal units is expected to increase significantly. This also poses particular challenges for the financial models, property rates situation and the engineering services provision models and pricing strategies.

Recognising the significant unmet demand for affordable housing, developing further policy and action plans that encourage lending, unlock equity, enlarge the number of role-players involved in accommodation provision, and allow mobility up the housing ladder[65], will add value. This is described in the City's Human Settlements' Strategy.

The District Development Frameworks, proactively identified strategic land parcels for residential development. The City should, in association with key facilitation agencies like the Development Action Group (DAG) and various social housing institutions, seek to facilitate and advance the packaging and release of the land parcels for government-subsidised affordable housing developments. Over the last two years, the City made progress on its Social Housing Programme, Land Release Programme, communication on Priority Human Settlement Development Areas (as declared by the NDHS) that prioritises the development or regeneration of well-located, but underperforming parts of the inner city. This will encourage private sector investors to increase the supply of well-located medium- to high-density housing stock, potentially pushing down rental asking prices.

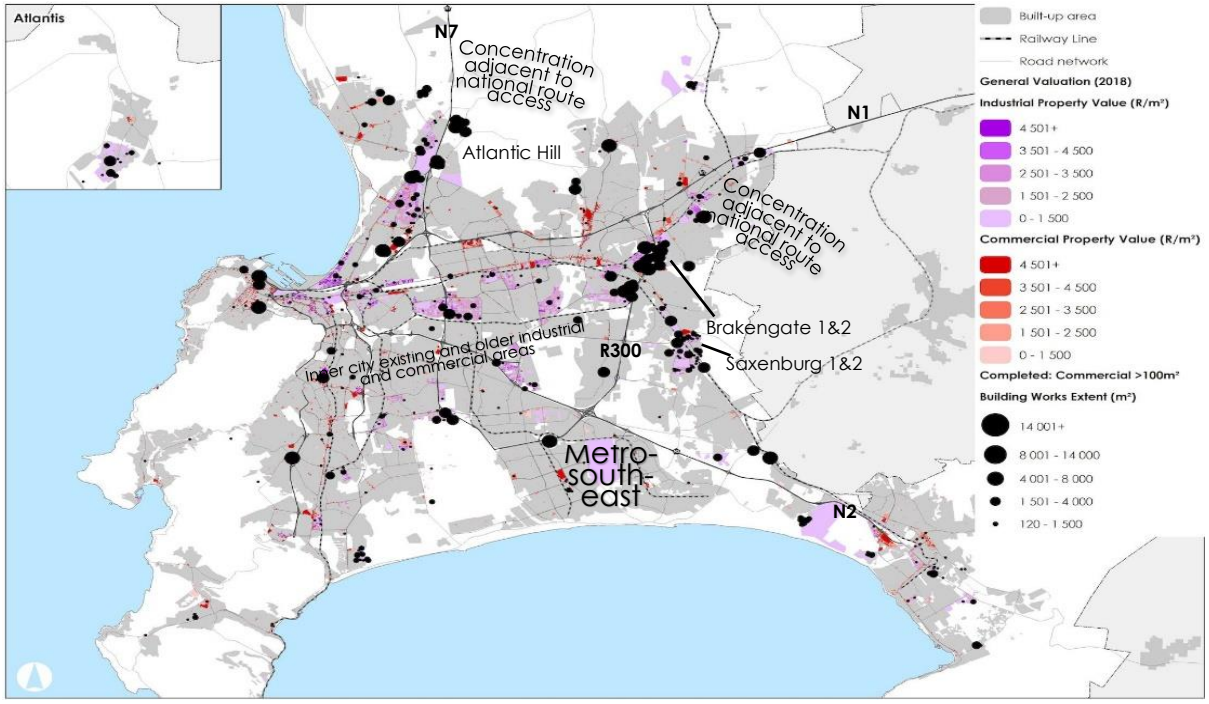
Non-residential (formal)

Cape Town's space economy may be understood as a network of inter-connected and inter-dependent productive centres or business nodes (with either predominately industrial or commercial land use characteristics), where the vast majority of the city's firms and formal jobs are clustered (Map F12a & b). Each of these nodes represents an 'ecosystem' in which businesses are established and, over time, flourish or fail. The performance of these ecosystems has a direct impact on the livelihoods of each of the 1.46 million-strong workforce and their dependents. Indirectly, the attractiveness of these nodes to businesses is capitalised into

[64] Eighty20 (2016) House Price Index: Cape Town.
[65] Housing Finance Afrika , 2016.

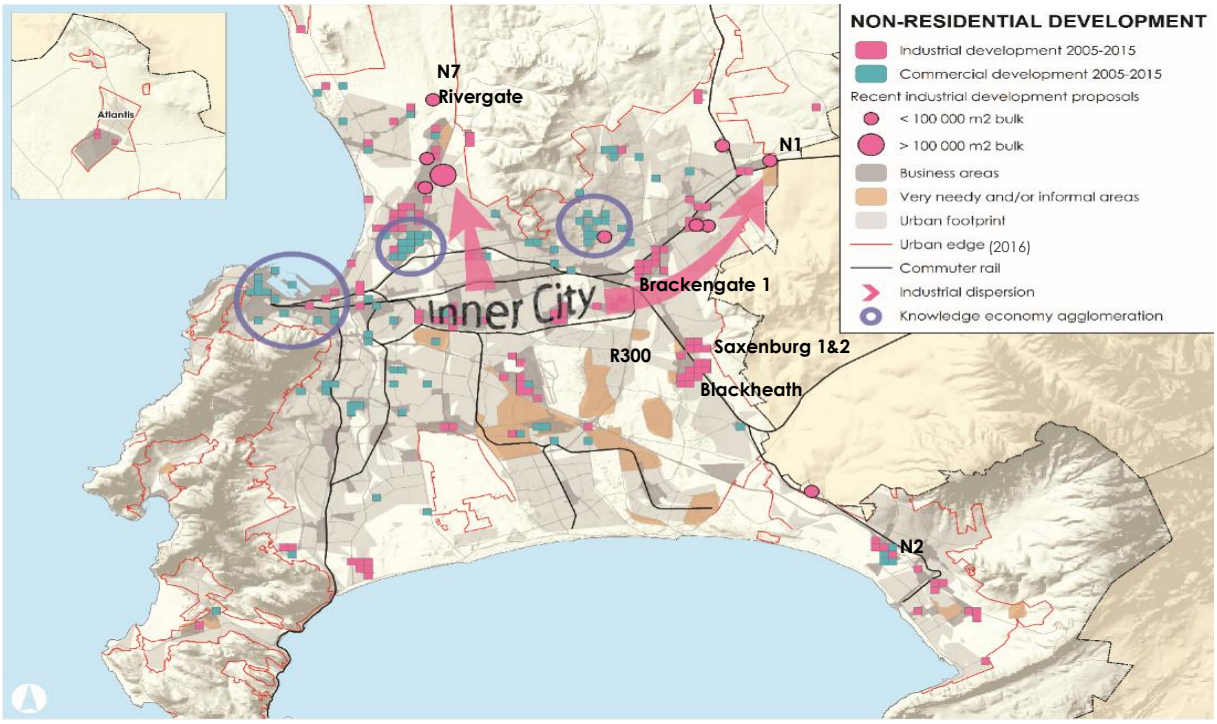
revenue for the City in the form of rates and tariffs, which in turn provide part of the necessary resources for the City to roll-out infrastructure and provide services to poor households.

Map F12a: Non-residential / commercial building works development in relation to industrial and commercial property values in established areas



Sources: Building Plan approvals from Development Management Scheme 2016-2021 and Municipal Valuations Roll 2019

Map F12b: Non-residential building plan approvals 2015-2020



Source: CCT DAMS

Maps F12a &b show the number of non-residential building plan approvals between 2015 and 2020. The location and volume of approvals display the following trends:

- Displacement of 'industrial' jobs to peripheral industrial nodes (e.g. Saxonburg, Rivergate, Brackengate, Atlantic Hill).
- New applications for industrial land uses on the periphery (e.g. N1 and N7 entrances to the City).
- Cape Town's CBD was (prior to Covid-19 lockdowns), the most significant business and employment node in the city and region, despite growing at a slower rate than Tyger Valley and Century City (since 2005).
- The knowledge economy was, prior to Covid-19 lockdowns and work-from-home trends, increasingly concentrated in the four business nodes of: Cape Town Central Business District (CBD); Salt River-Woodstock; Tyger Valley; and Century City. Since 2005, two out of three new office jobs were estimated to be located in these areas.
- Bellville CBD has been affected by the shift of A-grade office accommodation and high-end retail activity to Tyger Valley.
- Despite public investment in infrastructure and facilities, private investors have continued to avoid the metro-south-eastern areas, e.g. Philippi, Khayelitsha and Delft.

The CBD's commercial real estate is under pressure, with mixed-use space increasing. The move to remote working, as employers complied with the work-from-home (WFH) mandate, has taken a major toll on the CBD, drastically reducing footfall and retail demand in the area. Demand for commercial real estate subsequently dropped, with many tenants having to renegotiate rentals to stay in business, and with many others moving their businesses online (with more flexible warehousing space).

Many blue-chip companies are moving towards flexible, co-working spaces or satellite office networks, impacting the spatial distribution of office space.[66] In 2020, the office space available for rent in the CBD increased by 41 208 m², contributing to a jump in vacancy rates from 10.8% in 2019 to 14.6%.[67] The structural shift towards WFH suggests that lower demand for office space will likely persist, making partial or full conversions of office space for alternative uses increasingly likely in the years ahead. This shift to mixed-use spaces was trending pre-Covid-19, primarily with new builds. In the short-term, existing spaces may be repurposed with mixed-use functions in mind.

While the total current value of property in the CBD has grown from R24 billion in 2014 to R43.79 in 2019, the pace of growth in less congested regional nodes such as Tyger Valley and Century City has been higher, albeit off a lower base.

Maps 12a&b show the highest concentrations of commercial and industrial values of buildings and land as per the 2018 Valuations Roll with clear concentrations in retail associated with Regional Shopping centres.

Inner city commercial nodes (e.g. Salt River, Maitland, Goodwood, Parow, Athlone CBD and Bellville), which exhibit significant potential for residential intensification, are constrained by a deteriorating urban environment, particularly in those nodes where local private resources are insufficient to co-fund an effective City Improvement District. Extending effective area-based urban management to these nodes will require the City to work more closely with local stakeholders, and explore differentiated institutional and funding models aimed at harnessing a broad spectrum of local private and social resources to create the conditions necessary for affordable residential intensification.

In terms of economic regeneration, local areas must build on their existing assets and strengths, while understanding and addressing constraints to investment. The use of public funds for place-based economic interventions should be targeted at those areas where there is a

[66] State of Cape Town Central City Report 2020
[67] SAPOA, 2021

chance of building a self-sustaining business node in the short- to medium term. Carefully targeted government investment will only carry the local economy to the tipping point, after which market-led regeneration must take root to continue to attract businesses and generate employment at scale, well after grant funding and incentives have shifted to other priorities[68].

Industrial

Formal business development follows a spatial pattern of new industrial areas being developed over time rather than the redevelopment of existing industrial areas. On Maps 12a&b, Saxenburg 1&2 and the Brackengate 1&2 development patterns feature prominently. This points to the new industrial, retail and office land uses on undeveloped land, rather than redevelopment in established inner city industrial or commercial areas.

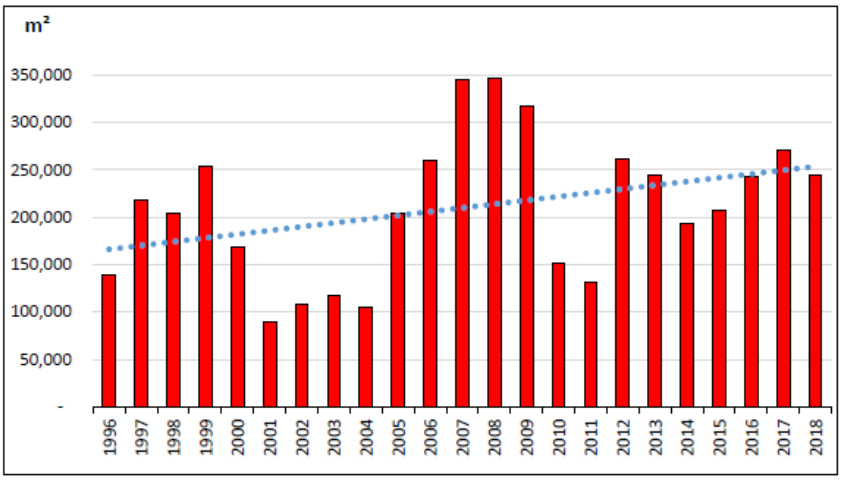
- The 10-year data pertaining to industrial node rental patterns, indicate that areas located close to the CBD or with good access to a national freeway, are considered more advantageous than being located close to residential areas where most of the workforce resides. Security and access seem to trump employment concentrations.
- Market rentals are the best indication of the relative attraction of individual industrial township areas (Map F12a) with the highest rates in new industrial areas such as Northgate, Brackengate / Icon Business Park, Contermanskloof and Rivergate, and the lowest-ranked at Racing Park (next to Du Noon) and other areas associated with risk factors such as crime and grime. Notwithstanding the location of the latter in proximity to large numbers of employees. Good access (especially freeways), age of the industrial township, proximity to other economic nodes (such as a CBD) and the international airport (or harbour) are beneficial, in addition to areas with low crime levels. Rental growth is not related to only the smaller or larger industrial areas. There has also been a definite pattern of industrial land rental prices increasing with locational proximity to the CBD.

Industrial land use approvals[69] are on the increase (comparing annual totals) ranging from just under 100 000 square metre per annum to around 200 000 square metre per annum, as reflected in Diagrams F35a&b. New industrial buildings are typically placed on vacant land adjacent to national freeways. Hence the high concentrations of industrial land in Blaauwberg Northern District and Tygerberg (adjacent to the R300). When comparing industrial growth in Cape Town with other metropolitan areas (for 2010-2018), it appears that Cape Town has absorbed an annual average of 216 000 square metres of industrial buildings (completed), which is the second highest after Ekurhuleni. Rode & Associates (2020:31), confirms the following industrial land use patterns:

[68] Moretti. The New Geography of Jobs.

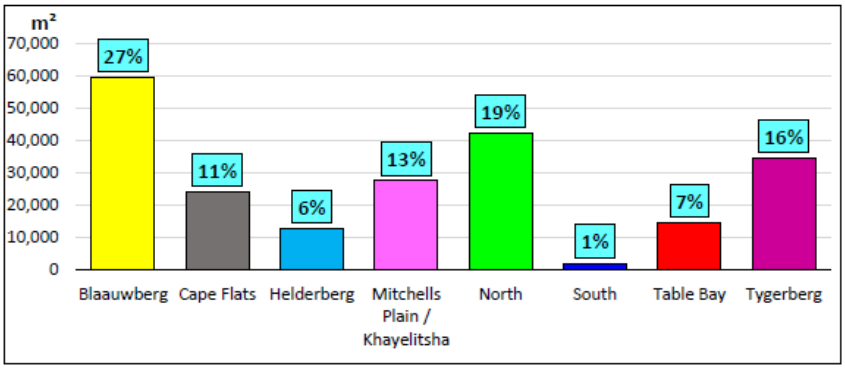
[69] Commercial property trends in Cape Town up to 2040 for Aurecon Group by Rode and Associates, 2020:27.

Diagram F35a&b: Scale and location of industrial buildings completed



Source: Stats SA (2019)

Figure 7.2 Industrial buildings completed (m²) in Cape Town between 1996 and 2018



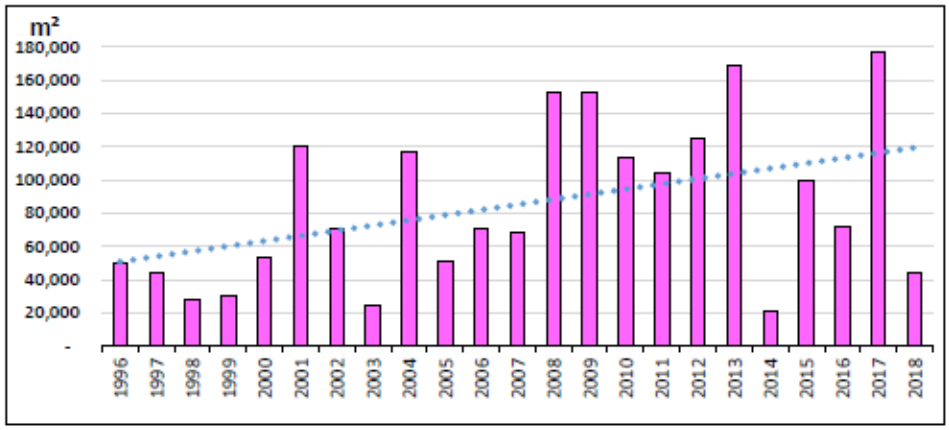
Source: Stats SA (2019)

Figure 7.3 Annual average m² of industrial buildings completed in Cape Town's planning districts (2010-2018)

Source: Rode & Associates, 2020: 34, 39

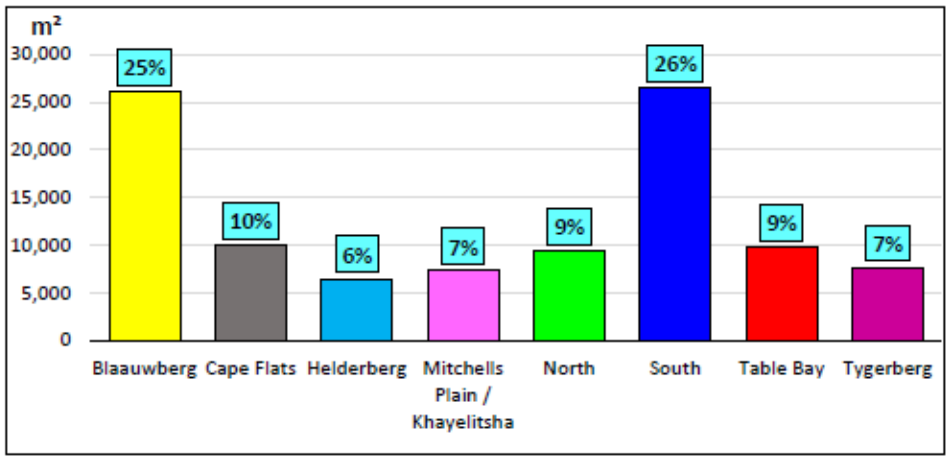
Retail

Diagram F36a&b: Scale and location of retail buildings completed



Source: Stats SA (2019)

Figure 8.2 Retail buildings completed (m²) in Cape Town between 1996 and 2018



Source: Stats SA (2019)

Figure 8.3 Mean annual m² of retail buildings completed in the CoCt's planning districts (2010-2018)

Source: Rode & Associates, 2020: 40- 43

In terms of **retail development**, diagrams F36a, b point to the following trends in retail property growth:

The 23-year period (1996 to 2018) indicates an upward trend in annual absorption of retail space, ranging from under 20 000 m² to as much as 180 000 m² completed retail space.

Retail space has followed greenfield locations such as Blaauwberg and the Southern Region. Cape Town absorbed relatively high proportions of retail space (between 2010 and 2018) compared to other metropolitan areas over the same period.

The almost 140 shopping centres in Cape Town occupy close to 2.4million m² of GLA, of which most (59%) are neighbourhood shopping malls ranging from 5 000 m² - 12 000 m², with regional shopping centres (50 000 m² - 100 000 m²) adding another 31% of the provided space.

Despite South Africa being fifth in the world with respect to the number of shopping centres (0.42 m²/capita), the ratios are still lower than other countries like Australia (1.2 m²/capita), USA (2.4 m²/capita). Cape Town has 0.56 m²/ capita[70].

Retail land uses settle in areas of higher disposable income and the sizes of the buildings lag behind economic movement. Although associated with good road access and exposure (especially for regional shopping centres, of which more or less all are located in close proximity to national freeways, the availability of developable land also plays a role in large concentrated developments, like malls.

High street retail, which was already deteriorating in quality and quantum prior to Covid-19, will continue to struggle to survive if not associated with public transit route alignments.

More recently, the work from home patterns (with significantly reduced long distance travelling between residential and employment concentrations), led to an upswing in the use of neighbourhood shopping centres located in closer proximity to residential areas. These became a closer 'recreational space' than the regional centres, with resulting higher visitor numbers.

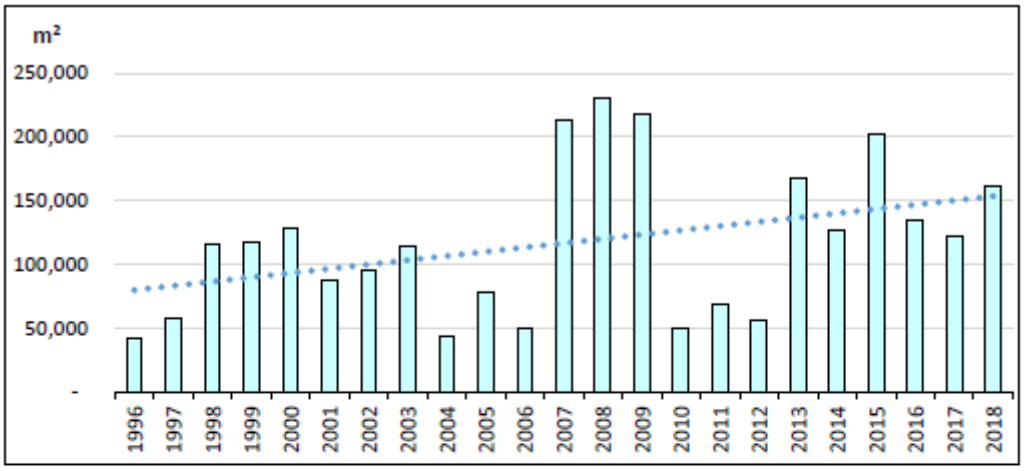
Future retail space demand will locate close to residential suburbs with higher disposable income.

Ecommerce is expected to have an impact on future retail development.

[70] Rode & Associates, 2020: 33-36

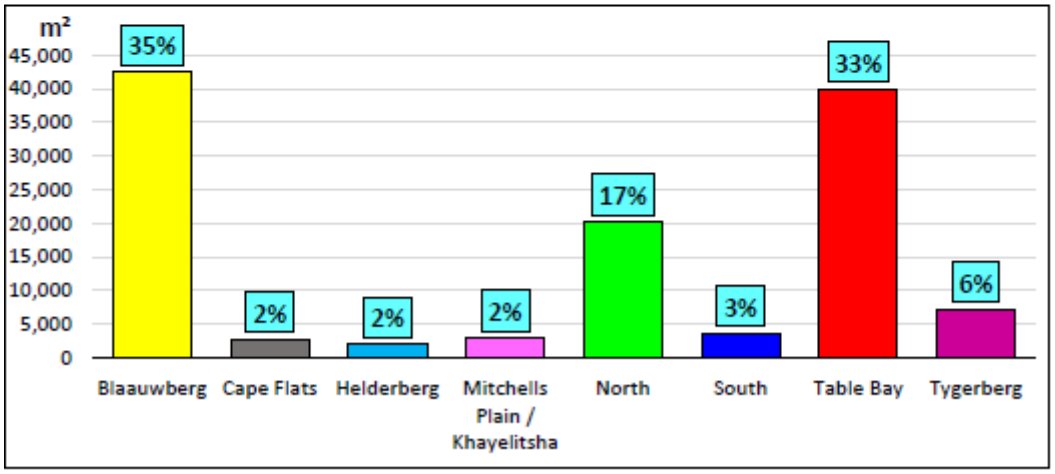
Office

Diagram F37a&b: Scale and location of office buildings completed



Source: Stats SA (2019)

Figure 6.2 Office buildings completed (m²) in the CoCT between 1996 and 2018



Source: Stats SA (2019)

Figure 6.3 Average m² of office buildings completed in the CoCT's planning districts (2010-2018)

Source: Rode & Associates, 2020

For **office land uses**, trends[71] are reflected on Diagrams F37a&b and include the following:

- Over the 23-year period (1996-2018) approvals of office land uses ranged from around 75 000 m² -150 000 m² per annum.
- The highest concentrations were in Blaauwberg (including Century City), Table Bay (CBD & V&A Waterfront) and North (Tyger Valley Waterfront), where most vacant land existed or redevelopment took place.
- Approvals between 2010 and 2018 were just lower than City of Johannesburg and Tshwane, and appear to be in line with the population and economic growth patterns of these metropolitan areas.
- Lower income areas, or areas with historically high patterns of blue collar employees (Cape Flats, Mitchell's Plain & Khayelitsha), who travelled to the CT or Bellville CBDs, received almost no new build offices.

[71] Rode & Associates, 2020:35-45

- The Southern District, likely due to a shortage of vacant land, saw little office decentralisation.
- Century City attracted almost a quarter (22%) of all office building activity between 2014 and 2019, followed by Pinelands / Golf Park (13%), Gardens (7,8%) – noting that the development of the Tyger Valley Waterfront and most of the V&A Waterfront preceded this period.
- Approximately 57% of the new office space was erected in established office nodes and 14% was in nodes better known as industrial nodes, while around 30% was absorbed in areas demarcated as residential or mixed use. This points towards a pattern of more integration or mixed use (for instance around regional shopping centre space or within close proximity to retail or other industrial uses).
- Office rentals at office business parks are available (Rode & Associates, 2020:22), pointing towards the CBD of Cape Town as a premier office node in the city. However, if measured by its 5- and 10-year rentals per square metre growth rate, the node does not fall into the top five office nodes in Cape Town. The best performing nodes tend to be those that have improved from a low base, whereas the CBDs suffer from their own success, in that developers chronically oversupply the area (similar to Sandton CBD in Johannesburg).
- High-rental-growth-rate office parks are generally located relatively close to the CBD or located in close proximity to the homes of the decision takers, crime and grime free areas, with high security levels.
- The highest rentals are associated with older, more established office nodes located close to wealthy suburbs, while nodes with lower rental are less established and located closer to poorer suburbs.
- The work from home trend will reduce the demand for office space, and signs of high vacancies in most corporate office blocks have become evident since the start of the pandemic.
- If decentralised office nodes were to continue, negative agglomeration effects will continue in suburban areas, namely high vehicular congestion and long travel time to traditional CBDs, high rentals, nuisance impacts of long and expensive commutes and the pull factors associated with possible co-location with convenience shopping close to suburban areas.
- Overall it is estimated that the long-term demand for office space will stagnate or reduce, and will create a high likelihood that pre-Covid-19 office nodes will become redundant space, prompting landlords to pursue conversions to other land uses such as residential.

Informal business

The City, as part of the DSDF Review process, undertook a survey in 2020/21 to map the most prevalent informal trading areas in the municipal area, especially those not surveyed before and those not covered by Council-approved trading plans. Combined (currently approved, as well as unmanaged) trading areas are reflected on Map F13 and indicates that informal trade replaces formal trade in especially the metro-south-east of the city, but also has a symbiotic relationship with formal retail areas in established retail and commercial nodes. Spatial patterns of informal activity are dominated by three main typologies: large public transport interchanges; residential high streets; and adjacent to shopping centres. Residential high streets appear to now be more prominent in terms of the intensity of activity, with Bellville PTI being the only node to exceed any high street in the number of enterprises.[72]

The Informal Economy Trading Study (2019-2020) revealed that the reach of informal economic activity can be confirmed to extend far beyond the city's trading bay allocations. At nodes where trading bays are provided, many enterprises occupy space outside of these spaces. However, this does not imply that traders are unwilling to be allocated formal spaces, but rather that compliance is not the fundamental factor when choosing a location for trading. Future permitted areas should be clearly delineated, while taking into account the

[72] The Informal Economy Trading Study commissioned by Urban Management and conducted by Zutari, 2021

fundamental informants for traders, for example proximity to footfall, suitable shelter from the elements, lock-up facilities for goods, water and electricity.

An area-based regulatory regime is needed that fosters faster growth and employment by creating a supportive environment for small business entry, survival and expansion. The interest of residents lies in ensuring the expansion of businesses and jobs in both township nodes and the city as a whole, linked to a safe, efficient and affordable public transport system. Policy should therefore focus on what it will take to get the overall urban economy to grow more rapidly and create employment at scale.

Economic activity remains dominated by non-tradeable personal and household services, notably retail and small numbers of manufacturing activities. The scale of these activities is limited because household incomes in townships are, on average, significantly lower than those in suburban areas and many township businesses are small and operate on very narrow margins.

Map F13: Location of council-approved and formally managed and un-managed informal trading areas

Source: Information from City Growth Management & Enterprise and Investment and Aurecon (2020)

Natural resources

The natural resource base is the foundation of Cape Town's global significance. It is also a foundation for key economic sectors in the city economy, including tourism, commerce and industry. The city's coastline, mountains and surrounding agricultural areas contribute to a significant portion of economic activity, particularly in the service sector. They also represent a positive form of economic diversification, as sectors like tourism can grow in environments where other sectors fail, and can also have a number of spin-offs. The City must ensure the sustainability of, and capitalise on, its natural assets to leverage greater economic benefits. Cape Town's world-renowned biodiversity with its 3 000 plant species (which represents a 6th of South Africa's plants in <0.1% of the country's surface area, and where 190 plant species

are endemic to Cape Town), makes the City 'the most biodiverse in the world' (United Nations, Thomas Elmqvist)[73].

Cape Town is considered one of 35 global biodiversity hotspots recognised by Conservation International and has 20 unique vegetation types. Ten of the 53 critical national vegetation types are critically endangered, and seven are endemic to Cape Town.

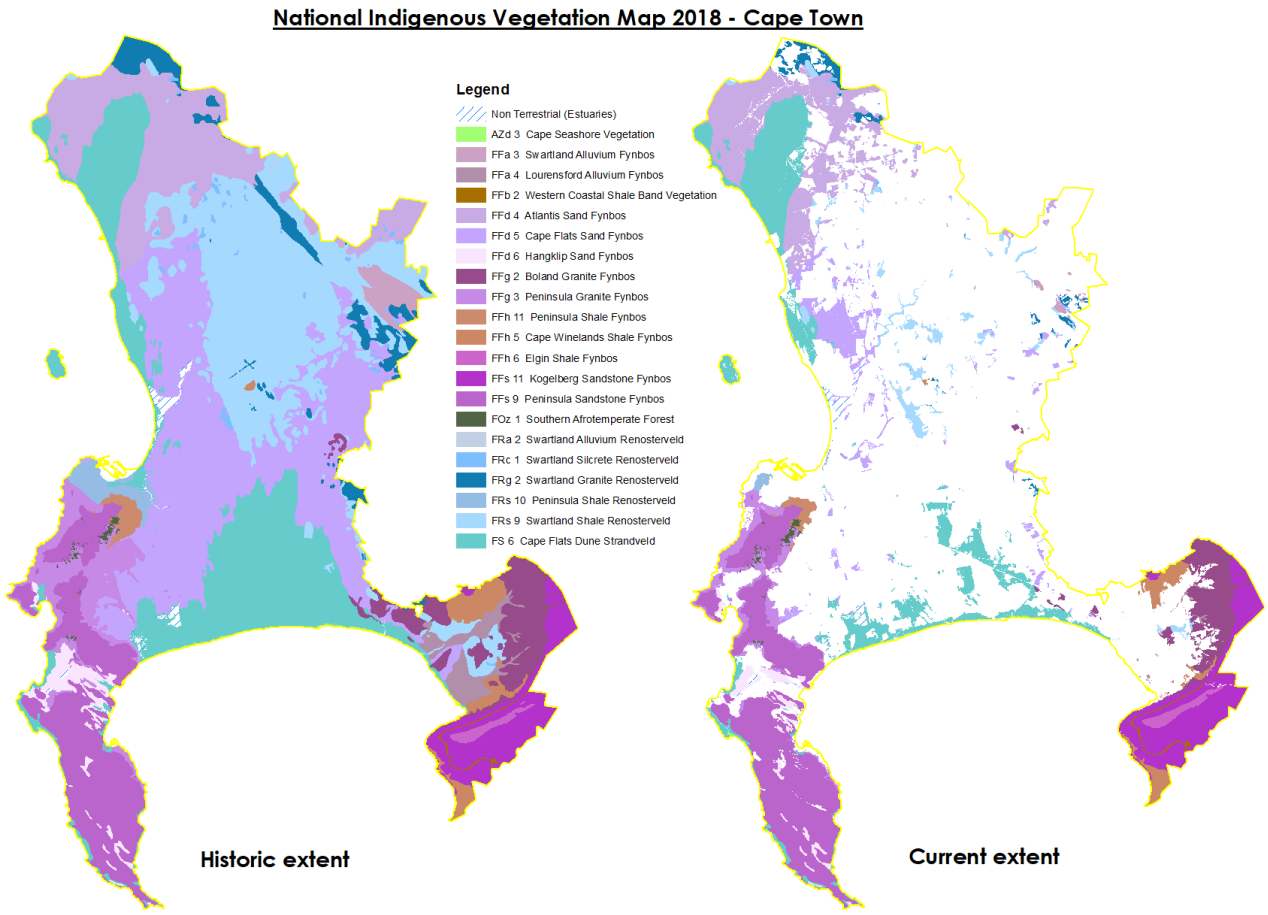
Unfortunately, due to urban development, the city has already lost at least 49 plant species, including 14 which are now extinct. Within the municipal boundary, the City, in association with other partners like Cape Nature, SAN Parks (Table Mountain National Park), Department of Environmental Affairs & Development Planning and SANBI (South African National Botanical Institute), manages one Ramsar Site, three World Heritage Sites and three Biosphere Reserves. The biodiversity supports rich small mammal, frog, reptile and invertebrate faunas.

At present, Cape Town's growth is not considered to be sustainable[74], due to the impacts of unregulated habitat loss of the natural heritage. This includes:

- At least 32 km2 of natural vegetation was lost in ten years (2008-2018). This is equivalent to losing an area larger than Table Mountain National Park. This was before the recent widespread loss to unlawful land invasion.
- A loss of priority biodiversity areas to meet national and international conservation targets;
- Loss of public open space and the opportunities they provide;
- Loss of corridors and connectivity across the landscape (important for faunal movement and ecological processes such as fire in fynbos and pollination);
- Loss of ecosystem services (resulting in financial burden on government to provide these services through artificial means such as flood attenuation, wetland water polishing);
- Threat to water security and aquifer protection zones such as the Cape Flats Aquifer and Atlantis Aquifer; and
- Decreased ability to handle the risk to climate change requiring costly adaptation, especially in coastal protection zones and flood prone areas where sea level rise has already led to very costly beach protection sea walls being erected.

[73] Cape Town's BioNet: Environmental Management Branch Presentation Aug 2021:2
[74] Cape Town's BioNet: Environmental Management Branch Presentation Aug 2021:5

Map F14: Habitat loss largely due to agriculture and urbanisation, 2018



Source: Environmental Management Department, Biodiversity Management Branch, Aug 2021

Formally conserved land is expensive to maintain and, over the past four years has been under immense threat of invasion by illegal occupation of land for residential purposes. The Bionet covers 85 000ha (34,18%) of the municipal area of 248 700ha of which 55 595ha (22.35%) of the municipal area is formally conserved and managed by various entities (Diagram F38). Mountains are well conserved, but lowlands are under-conserved.

Diagram: F38: Proportionate contribution by different management entities to the BioNet management

Management Authority	Area	BioNet*
City of Cape Town	17 584,68 ha	20,69%
SANParks (TMNP)	25 100,00 ha	29,53%
CapeNature	7 822,10 ha	9,21%
Stewardship (CapeNature and CCT sites)	2 261,97 ha	2,66%
Eskom	2 825,87 ha	3,32%
Total	55 594,62 ha	65,41%

*Percentage of the 2009 BioNet, as of June 2021

Source: Biodiversity Management Branch, Aug 2021

The Green Infrastructure Network and destination places

Natural features, including the biodiversity, agricultural, coastal and topographic assets of the city, have historically defined where and how it has developed, and will inform its future development. Despite coming under increasing pressure from development, these assets

continue to play a structuring role that shapes the urban and rural form. They also contribute to the quality of life of residents, mitigate and adapt to climate change, provide food security and support the growing tourism economy.

Cape Town's critical natural assets, biological diversity and destination places are part of what makes it a unique and desirable place in which to live, work and play. These assets form the basis of an interconnected and managed open space network that supports interactions between social, economic and ecological activities. They include natural areas as well as active and passive recreation areas such as sports fields, parks, squares, detention ponds, servitudes, river corridors and road reserves - all contributing to a Green Infrastructure Network.

The optimisation and protection of the functional integrity and connectivity of ecosystems is imperative. Urban development must respect the presence, role and function of natural assets, and develop in a complementary manner, making the most of the benefits for residents and visitors.

In addition to making the city an attractive place, and providing the foundation for a thriving tourism economy, the biophysical environment provides important ecological services including stormwater drainage and the mitigation of coastal risks like storm surges and longer-term sea-level rise. Recreational spaces and non-motorised transport links are also provided by the biophysical environment.

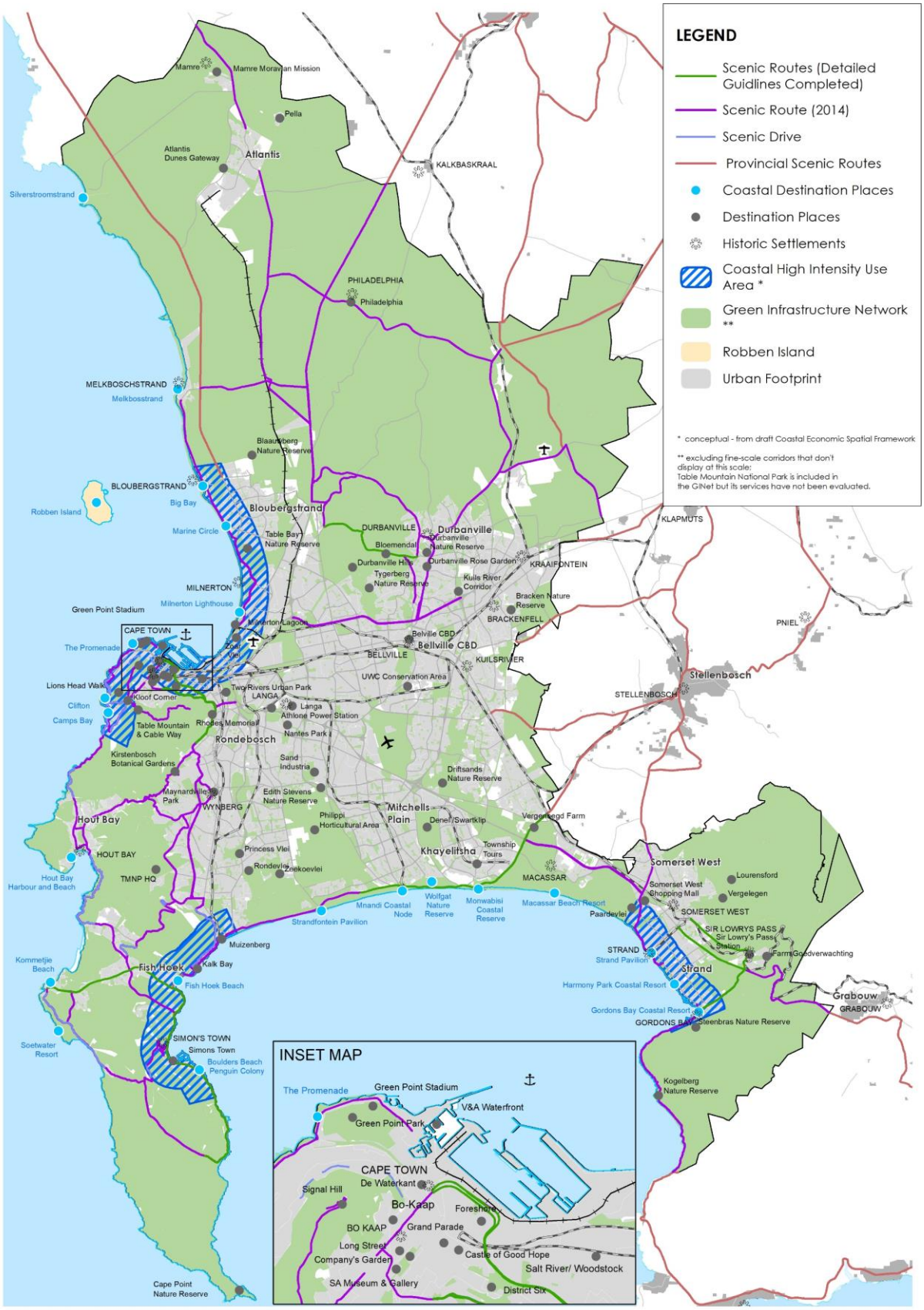
Map F15 identifies the Green Infrastructure Network (GIN), which includes the Biodiversity Areas that merit protection in the longer term, or where the impacts of development needs to be carefully managed.

At a metropolitan level, these biophysical assets include the following:

- Biodiversity conservation areas, critical biodiversity areas, ecological support areas, natural vegetation, terrestrial and freshwater aquatic habitats within the city's network of rivers and wetlands. Note on Map 5b, 5f & 5g the World Heritage Sites elated to Biodiversity Protection.
- Coastal areas and beaches, which are important economic and recreational assets for the city
- Groundwater aquifers (Map 5c)
- Agricultural Areas of Significance (AOAS) (Map 5c) [75]
- Other sites and landscapes with scenic, recreational or place-making qualities (Map 5f&g)

[75] Areas of Agricultural Significance (AAS) includes areas formerly classified as 'high potential' and unique agricultural land' or 'areas of significant agricultural value' by the Department of Agriculture. AAS reflects high potential and unique agricultural land worthy of long-term protection given unique production, cultural and heritage attributes. This includes land that is currently cultivated, has been cultivated within the past 10 years, has the soil potential to be cultivated or be regarded as high-value grazing land, and contributes to food security, irrespective of extent. This can include non-arable land that supports the ecological support system.

Map F15: Green Infrastructure Network



In the MSDF context, the term 'destination places' refers to landmarks or locations that form a significant point or area of attraction that contributes to the unique identity of Cape Town.

These are essential assets in the context of international and national economic development, crucial for the enhancement of the tourism industry. At city-wide level, destination places (Map F16/ 5f&g, Table F5) are well-known public places. At local or district level, they can include public places such as squares, parks and sports facilities.

These attractions (tourism opportunities Map 5f&g/F16) are different to other types of nodal activities in that they are more directly linked to tourism and recreation. The typical morning and peak trip patterns in destination places are not the same as commercial and business nodes. When hosting major seasonal or special (often international) events, they can give rise to significant trip generation and a high level of amenity usage. During weekends, holidays and the tourism seasons, trip patterns to these destination places are significantly elevated. Events tourism, as well as the film and advertising industry, benefit from the wide variety of destination places and scenic routes in and around Cape Town.

Map F16 Tourism opportunities

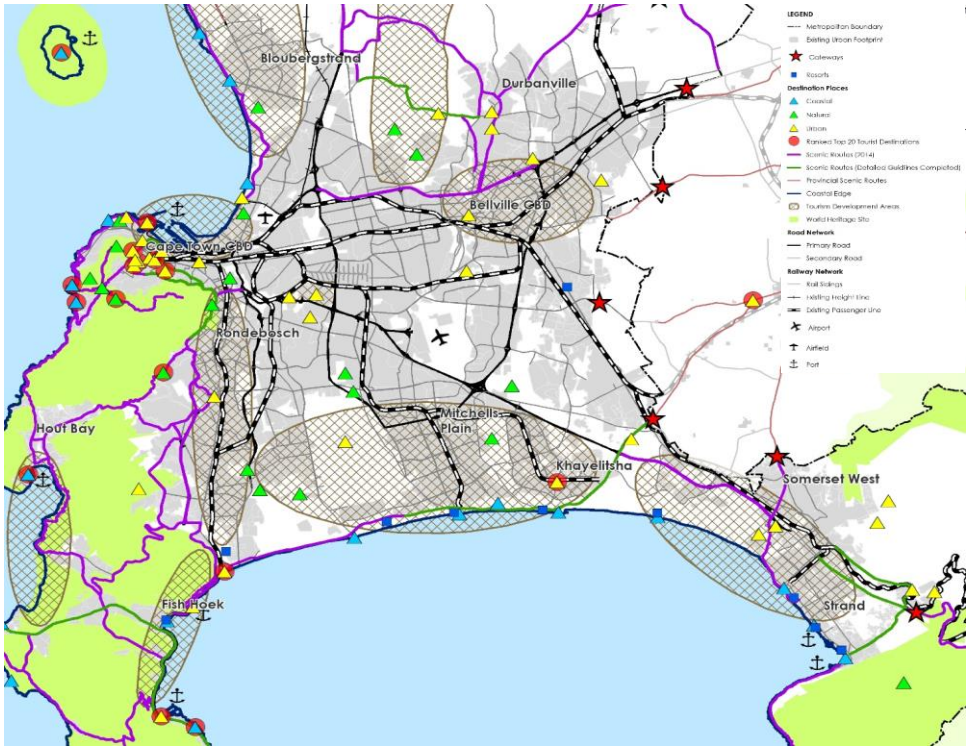


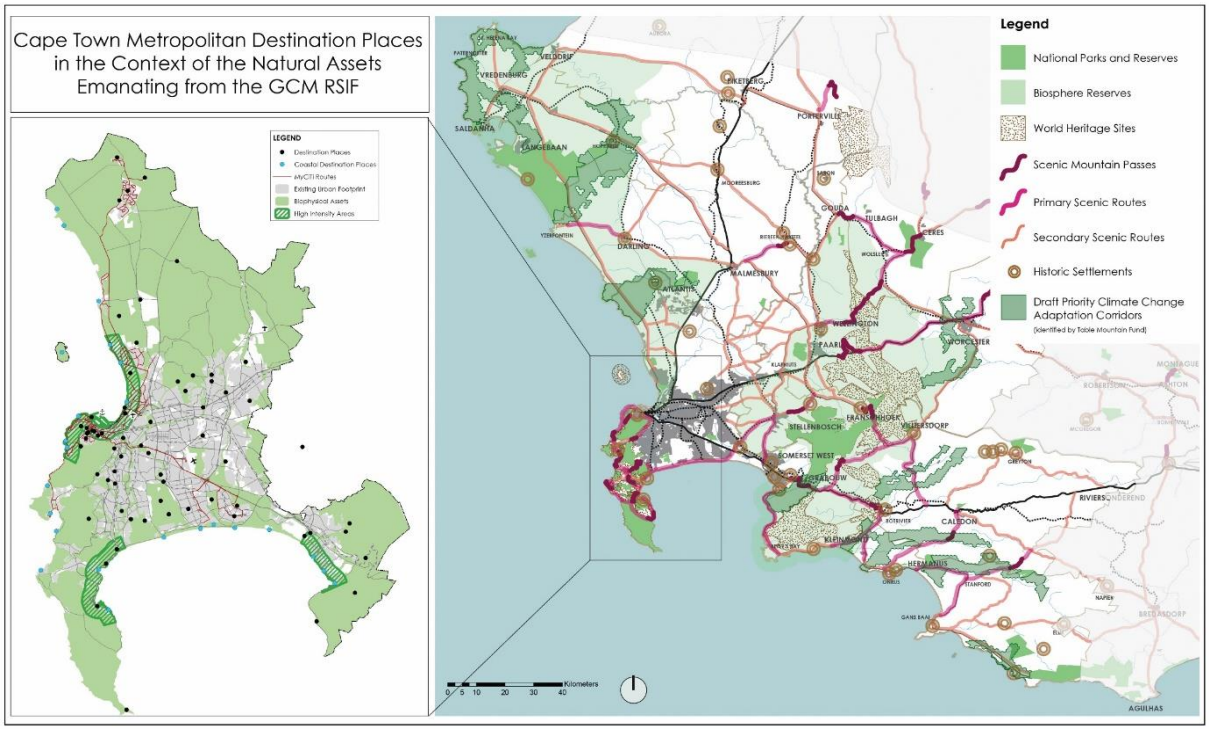
Table F5: High-level summary of types of destination places

Destination place type	Example
Nature-based	Table Mountain, Cape Point, Tygerberg hills, nature reserves, biosphere, botanical gardens
Built/ heritage-based	Kalk Bay harbour, vineyards & winelands, V&A Waterfront
Coastal-based	Strandfontein, Table View, Gordon's Bay, False Bay Coastline
Special cultural landscape	Constantia, Durbanville, Somerset West
Event-based [76]	Cape Point and peninsula, rural hinterland,

[76] Varying sizes of international, national and local sport events, filming venues, and other events like food, gift and craft markets

Scenic & tourist routes of provincial, regional and municipal importance	Scenic routes of local, regional, provincial, national and international importance

Map F17: Destination places in the context of regional natural assets



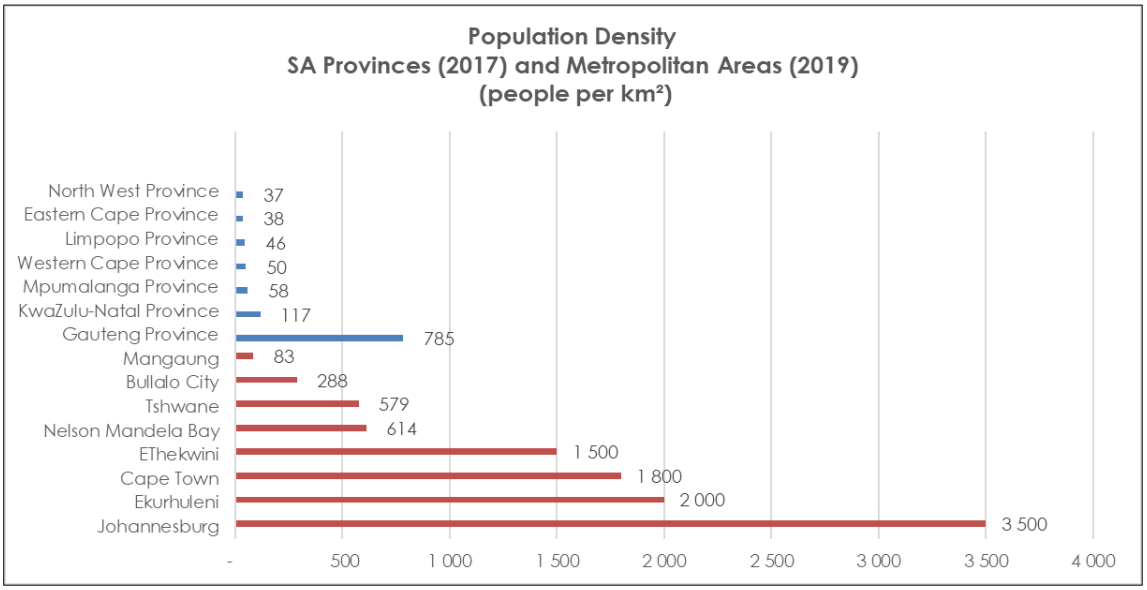
List examples, e.g. Chapman's Peak, Boye's Drive, Victoria Road

Land Use Intensification

In the first half of the 20th century, the city grew incrementally to the east and intensified within a southern corridor. Densities exceeded 70 persons per hectare[77] for both periods and by the mid-20th century, the spatial footprint had quadrupled. From the mid-century, apartheid policies and laws had a fundamental impact on the growth trajectories and spatial development of the city. Consequently, densities decreased while the footprint of the city tripled, with the population estimated at 1,3 million inhabitants in 1970. Urban sprawl, associated with rapid urbanisation can be clearly seen by 2000, with the urban footprint 30 times greater than the initial footprint at the turn of the century. A video reflecting historical urban growth, is available here: Urban growth in Cape Town since 1862. Between 1970 and 2000, this sprawling pattern to the southeast continued, with the population exceeding three million. Citywide density at the end of this period is almost a third of that in 1900, despite concentrated pockets of higher-density informal settlements. Map F19 indicates residential density (in people per square kilometre).

The Western Cape Province in its entirety has a population density of 50 persons per square kilometre compared to other denser provinces such as KwaZulu-Natal (117) and Gauteng (785). The South African average is 47 persons per square kilometre.[78] Comparing metropolitan areas, Diagram F39[79] shows that Johannesburg is the most dense metropolitan municipality, with 3 500 people per square kilometre, compared to Cape Town's 1 800[80]. Although diverse densities and building typologies exist in the city, densities in Cape Town are low by international standards.

Diagram F39: People density of Metropolitan Areas in South Africa (Persons per square kilometre)



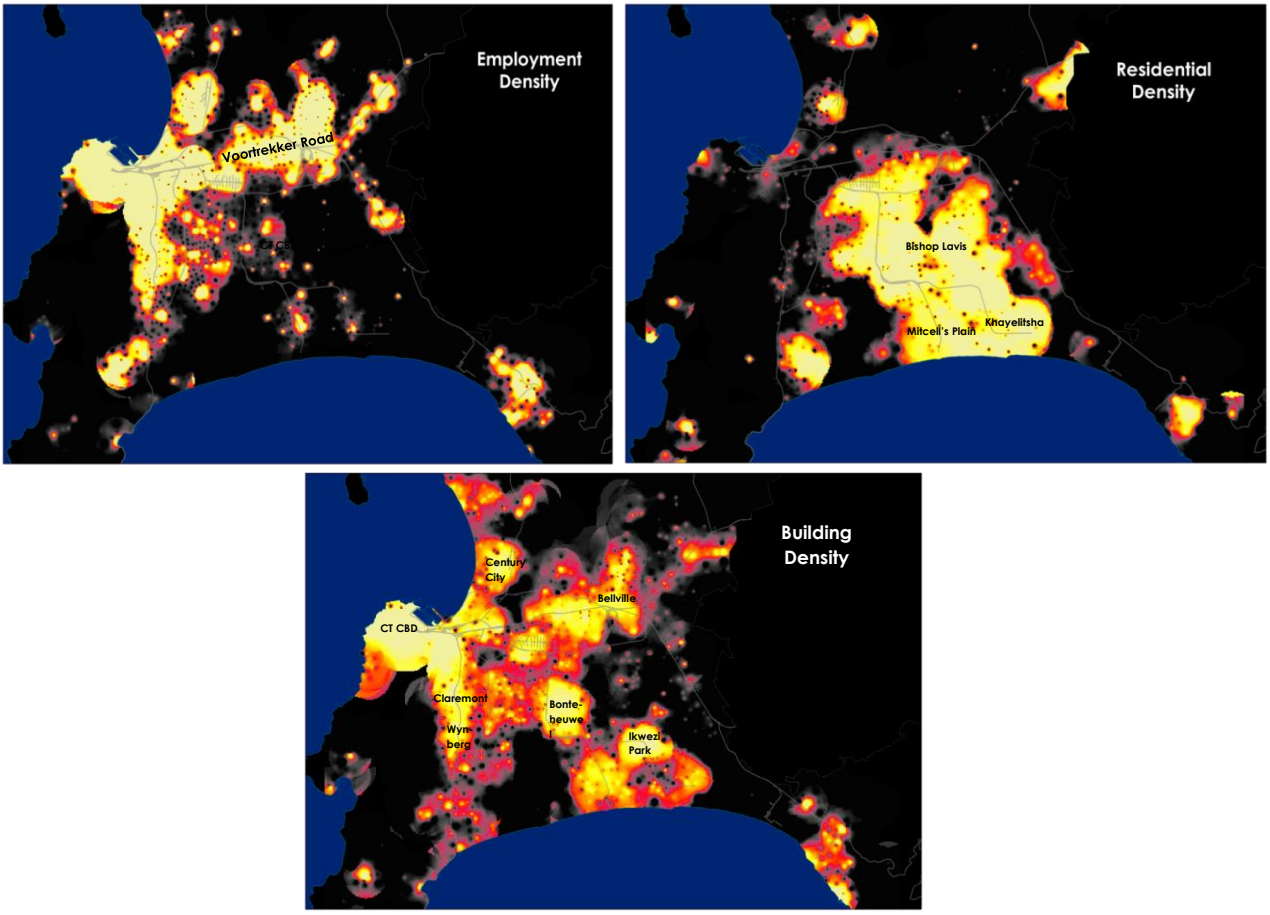
Source: Statistics South Africa 2019

In more recent years, despite a new national political environment, the sprawling trend has continued. However, large disparities between densities in formal and informal 'township' areas remain. Low density, formal, areas remain well located in the south-west and northern parts of the city, with convenient private vehicle access. In contrast, high density, informal, townships are still found on the outskirts and to the south-east of the city, removed from

[77] Dewar D. and F Todeschini F. (2004). Rethinking Urban Transport after Modernism – Lessons from South Africa. United Kingdom: Ashgate Publishing Ltd.
[78] https://www.southafricanmi.com/population-density-map.html
[79] https://storymaps.arcgis.com/stories/ee5b73a24e704c12b475fe0c8827dc09
[80] Calculated as total population divided by total municipal area. Note that Map F19 is normalised for built-up area only.

immediate employment opportunities and reliant on a challenged public transport system (Map F18a, b &c).

Map F18 a, b & c: High-level illustration of employment, residential and building density in Cape Town



"*The most populated areas in Cape Town are in the southern Section of the Municipality. In particular, Khayelitsha Township, which consists of a large share of informal housing, is one of the most densely populated areas. Nyanga, Bonteheuwel and Bishop Lavis are also highly densely populated areas.*"[81]

The city's urban poor are forced to travel – at great cost – from highly dense, under-serviced, predominantly informal areas, to sparsely populated, well-serviced areas of the city, because that is where their employment opportunities are located (Map F18a, b & c). As such, the burden of the city's unsustainable spatial form is most acutely felt by the urban poor, located predominantly in the southeast and peripheral margins of the city.

Employment density is predominantly higher in the city centre and along the Voortrekker Road corridor in the north, while the majority of the city's residential density is located in the Khayelitsha Mitchells Plain part of the city. In-migration puts additional pressure on the current spatial disparities and manifests in both formal and informal forms. Despite having the highest concentration of residential density, the southeast does not have the corresponding formal building density (or economic activity) to match this (Map F18 a, b & c).

Congestion of road and public transport networks, as a result of this spatial configuration, negatively impacts on all income and racial groups, and on the city's economic efficiency.

[81] https://storymaps.arcgis.com/stories/ee5b73a24e704c12b475fe0c8827dc09

The restructured urban form needed to address these historic imbalances, inefficiencies and inequities, and to accommodate future growth projections, underpinned the 2018 MSDF and continues to do so in this iteration. Despite the fact that work-from-home strategies were implemented in 2020 and 2021, and contributed to a significant decrease in daily commuter volumes on roads and public transport, this restructured urban form remains a priority.

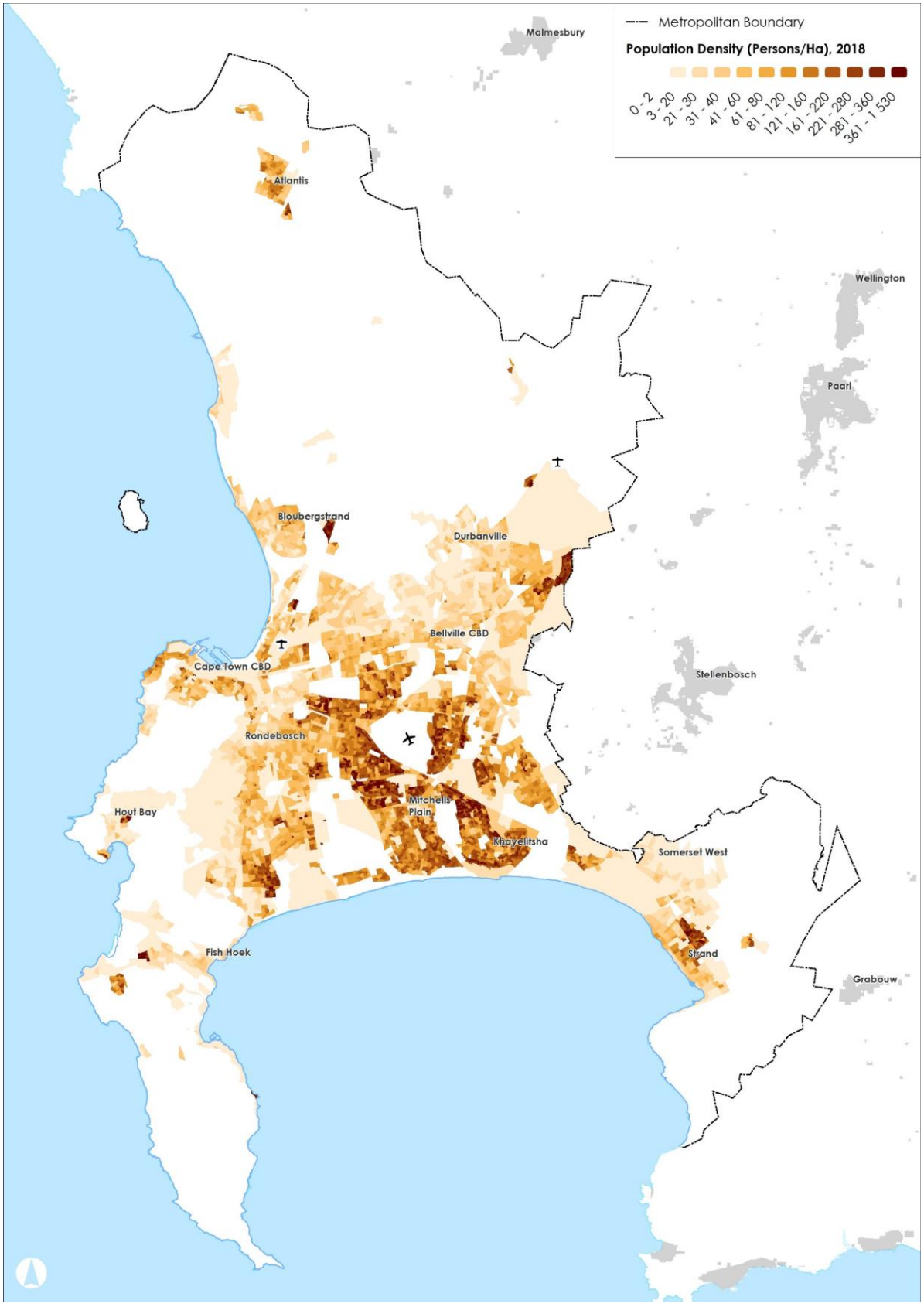
The 2018 confirmed spatial vision was premised on enhancing transit-oriented development: "… land use intensification (namely diversification and densification) in and around the corridors, nodal points and transit precincts, serviced by an existing and future public transportation network and a prioritisation of development and investment to support this approach."

Density and spatial efficiency

Raising citywide densities and reducing average transport costs are long-term City priorities. The City's planning, capital and operational budgets reinforce the existing urban footprint while supporting targeted, spatially-efficient densification in order to progressively achieve better performance. Spatial policy plays a critical role in supporting densification in targeted locations and along priority development corridors. However, the improvements in citywide density are affected by a number of factors and conditions, including: the pace of urban growth, land markets; the housing subsidy regime; household preferences; and the durability of building stock.

Densities associated with suburban residential development (Map F19) are too low to sustain cost-effective public transport. A scheduled bus service, for example, requires a minimum threshold of 100 persons per hectare. The average number of persons per gross hectare declined from 180 to 40 persons per hectare between 1862 and 1977, driven largely by rising income and changes in household preference for car-centric suburban living. Since the 1980s, slower economic growth, accompanied by smaller residential plots and the growth of dense informal settlements, saw gross base densities rise slightly to 60 people per hectare. The density ranged between 60 - 67 people per hectare, from 2002 to 2020, which depicts a very slow increase in overall population density over 20 years.

Map F19: Population density Cape Town (adjusted 2011 census data)- normalised on the built-up area



Given anticipated slower demographic and economic growth, it is unlikely that gross base densities for Cape Town will soon reach the 80 person per hectare threshold required to

support a regularly scheduled bus service, irrespective of land use trajectory. Simply put, given the geographic size of the urban footprint, the amount of new growth expected in the future is insufficient to reach wall-to-wall densities able to sustain universal, frequent and formal public transport. However, if all new growth were concentrated in one third of the existing city footprint (estimated 22 000 hectares), it is possible to reach the necessary density in these priority areas by 2040. Prioritising areas for residential intensification and supporting economic agglomeration is therefore critical to sustain high-quality infrastructure and services.

Raising Cape Town's density remains a key challenge and is fundamental to creating more efficient and dynamic urban economies. While City policy supports density, the land market, coupled with the spatially blind structure of property and development levies, creates a perverse incentive, drawing new development to peripheral, poorly serviced areas. The low land prices that attract development to these locations represent a pricing failure because they do not reflect the underlying capital or life cycle costs of development in peripheral locations. These costs constitute a negative externality transferred to poor households (capitalised into transport costs in the case of government-assisted housing) and to the City and its ratepayers (who share the operational cost burden of maintaining infrastructure and providing services in the forms of rates and tariffs).

The same pricing failure that contributes to urban sprawl also contributes to urban blight. The short-term financial gains arising from outward growth risks 'crowding out' much-needed infrastructure investment in inward growth, thereby accelerating inner city decline. This emphasis on inward growth, which is vital to the city, signals a greater commitment to achieve larger-scale efficiencies across the city. These include (a) the regeneration and intensification of underperforming inner city business nodes; (b) the infill development of large undeveloped and partially-developed pockets of land within the UDE (e.g. Wingfield); and (c) the in-situ residential intensification within well-located, but traditionally low-density, suburbs (e.g. second/third dwellings, cluster housing, and additional formal dwellings.

Land use diversification

Regeneration (mixed use intensification and densification)

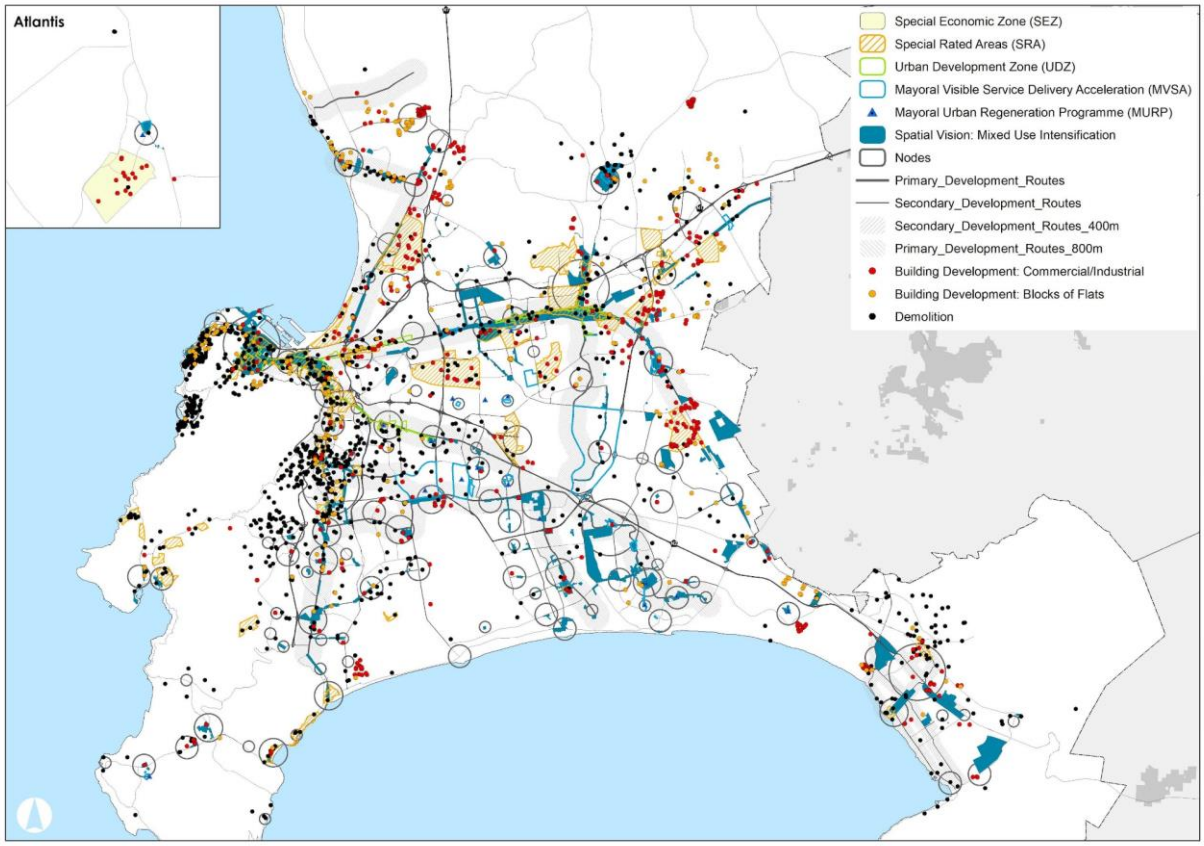
Internationally, there is a growing preference for well-managed, well-located and mixed-use inner-city environments ultimately aiming at sustainable resources optimisation.

The observation of both residential and non-residential patterns of investment since 2005 (Maps F12a&b) implies that that the main driver of formal, market-led residential and non-residential intensification and densification, is the availability of vacant land on the outside boundaries of the city where developers can pay development contributions or provide engineering services networks to facilitate the new urban areas. These areas are not predominantly located in the urban inner core. So, based on perceptions of high land- and unit cost, absence of reliable public transport and fear of crime and grime associated with inner city living, the preference of most higher-income earners is to locate in the suburbs. This pattern is the opposite for public transport-dependent groups and those who need to locate close to employment nodes (cannot work remotely).
Map F20 indicates demolition records (a proxy for urban regeneration?) as well as multi-residential / blocks of flats as completed within the urban area, combined with urban management initiatives. There are generally a few key areas, like the Cape Town CBD, Observatory, Woodstock and Salt River, where old building stocks have been demolished and replaced with new buildings of residential or mixed-use land uses.

Widespread refurbishment of residential stock (apart from the CBD and some areas in Woodstock, Sea Point and Salt River) in mixed-use inner city environments is taking place, but is hampered by a perception of deteriorating urban management conditions outside of

privately or partnership-managed precincts, and deteriorating levels of service for commuter rail.

Map F20: Demolition permits in context of completed buildings against area-based urban management initiatives[82]



Currently, a limited number of the 34 City Improvement Districts (CIDs)/ Special Rating Areas (SRAs) across the city have sufficient resources to sustain effective precinct management (Map F20). Spatial analysis suggests that market-led densification is occurring within these limited, well-performing, high amenity areas around the CBD, Sea Point, City Bowl, Woodstock, and Salt River where residential densification continues in combination with commercial land uses such as office and retail.

Area-based initiatives under the city's Urban Management Directorate, like the Mayor's Urban Renewal Programme (MURP), intended to crowd in private sector investment and offer coordination work to enhance urban management and maintenance of services infrastructure, have so far contributed to sustaining engineering services. The MURP and the Mayoral Visible Services Areas, which function like a government-driven Special Rating Area, bring a strong focus on urban management and engineering infrastructure maintenance. However, there is not yet evidence that the efforts are attracting large-scale mixed-land use intensification and residential densification, as evident in the low numbers of new blocks of flats and commercial / retail buildings completed.

Employment concentrations, congestion and decarbonising initiatives

[82] Department of Urban Management, Nov 2021; CCT DAMS

Cape Town is one of four metropolitan areas that committed to C40's Deadline 2020 programme to develop and ambitious climate change plan that achieves the adaptation and mitigation goals of the Paris Agreement. Such a plan requires Cape Town to consider extending its former Energy2040 mitigation goal to achieve carbon neutrality[83] by 2050. This target can only be reached through significant transitions in urban form, energy source utilisation, transportation and resource efficiency. Greenhouse gas (GHG) are emitted from various sources, but in Cape Town the target is to reduce fossil fuels used for internal combustion engine powered transport, which is the second biggest contributor to GHG after coal-powered electricity (not present in Cape Town). Extended road networks (as exacerbated by the sprawling design of our cities), idling vehicles and trucks on congested road networks and the long distance freight has to travel across our expansive country, are key contributing factors to the GHG emission rise. Carbon neutrality requires the introduction of action plans and new technologies to clean up the fuels and activities that cause the GHG emissions.

City Governments should facilitate carbon-neutrality by:

a) containing urban sprawl (enhancing building density, optimising land and promoting infill development);
b) managing the types of buildings people and businesses inhabit (densification through multi-storey-buildings with solar geysers);
c) how goods and people get around (electric vehicles, more public transport and less vehicles on the road); and
d) managing the environmental impact of goods and services consumed (higher recylcing of (organic) waste).

Prior to the Covid-19 pandemic, Cape Town – which then ranked 73rd out of 85 cities according to the Future of Urban Mobility Index[84] – was the most congested city in South Africa. This imposed a growing constraint on the wellbeing of residents and the economic competitiveness of the city. Long travelling times to workplaces and other urban amenities contributed to low productivity levels and eroded disposable incomes, especially for the poor. The R18 - R21 billion spent annually on fuel[85] and the loss of productivity (productive working time spent in cars on congested roads), amounted to a loss to the economy. The steep increase in transport fuel consumption was driven by the growth in private passenger transport and road congestion, especially since 2017 with the degrading of the passenger rail, which previously transported around 50% of employees to the CBD and other job concentration areas.

Although less than half the city's households own a car, private car ownership is increasing at a rate of 4% per annum (2009-2013)[86]. The urge for car ownership stems from the historical growth of household income, increasing sprawl and distantly located residential suburbs, lack of adequate and safe public transport options, and consumer choice. With 80% of the peak traffic (pre-Covid-19) made up of private car users, and peak travelling hours in the morning ranging from 06:00 to 10:00, the City's Transport Directorate, through its Travel Demand Management Strategy, has been actively advocating for flexible working hours and work from home as key component addressing the rising congestion. The City has also committed to addressing congestion by promoting dense, transit-oriented growth and development (a foundational principle of the recent MSDFs), as well as an efficient, integrated public transport system. Phase 1A & B of the MyCiTi municipally subsidised intergraded rapid bus transport

[83] In simple terms, being carbon neutral means that, after taking into account any potential carbon sinks (vegetation that absorbs carbon), the net greenhouse gas (GHG) emissions from all sources are zero (or as close as possible to zero). We track our progress towards carbon neutrality by measuring our carbon footprint on a regular basis. Carbon_Neutral_2050_Commitment.pdf (capetown.gov.za)

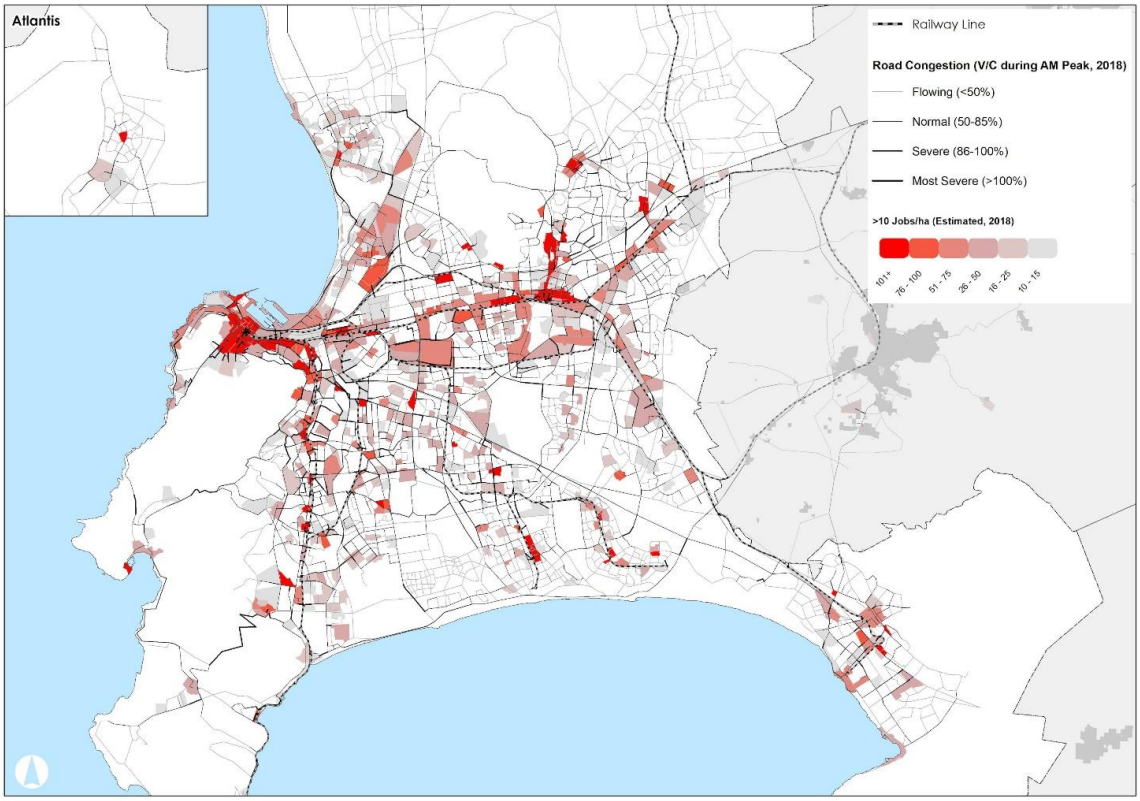
[84] The Future of Urban Mobility Index is used to benchmark Cape Town's current mobility status from a global perspective. Quoted in City of Cape Town 2016 Transport for Cape Town TDI results.

[85] The City of Cape Town's MTIIF Spatial Costing Tool estimates that the annual operating costs for all private transport in Cape Town in 2016 is R43.5 billion.

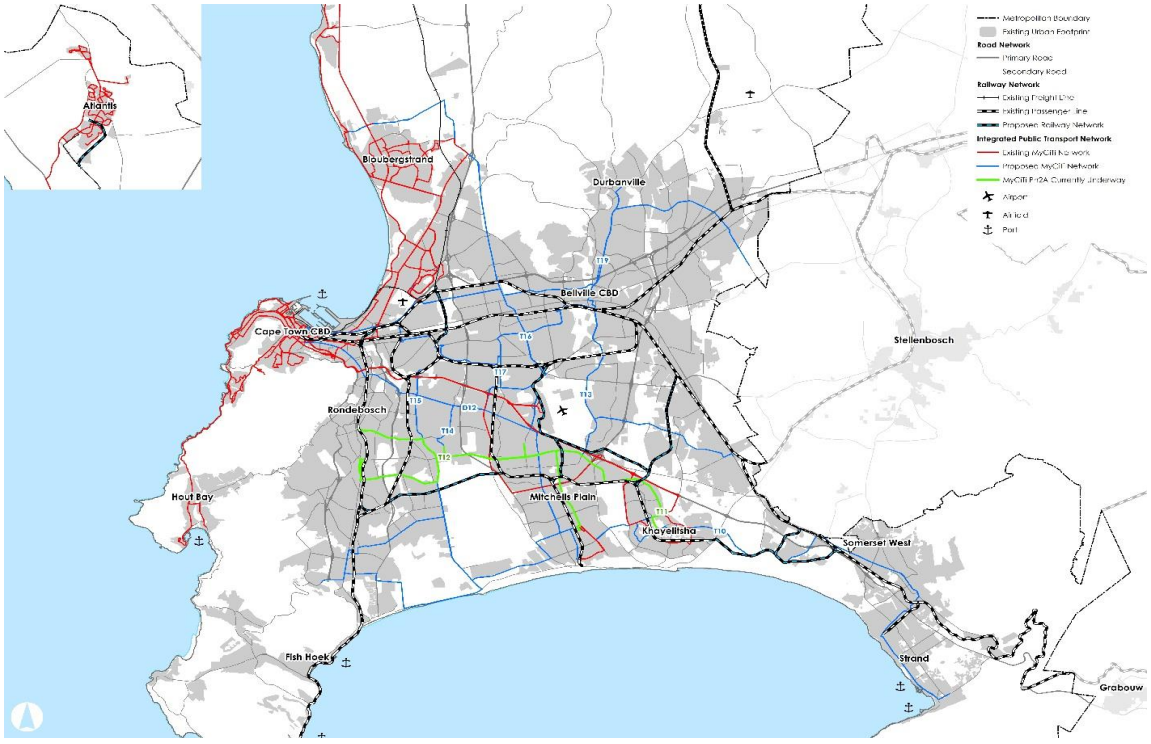
[86] City of Cape Town Cape Town State of Energy Report.

system was implemented in Cape Town in 2011/12, the N2-Express has operated since 2016 (with a termination end of May 2019 and recommencement in Oct 2021) and Phase 2A is to commence in 2022.

Map F21a & b: Road congestion (2018) vs MyCiTi BRT routes



Source: Transport Department, 2018



The unprecedented Covid-19 pandemic lockdowns forced a certain segment of employees to work from home rather than continue to commute to employment locations. This effectively reduced congestion and zeroed demand for public transport (for a period), generating a dispersed pattern of localised congestion rather than system congestion on all the major arterials leading to the CBD and associated employment nodes. The return-to-work policies by employers can help to reduce congestion on the road affecting the commuting patterns, transport mode and scale. Some corporate offices have called for a return to original employment locations while others settled for permanent decentralised offices closer to employees' residential addresses, or partial return (i.e. some employees to original employment locations for some days of a week).

As a result, the City's Integrated Public Transport Network Plan is under review, but this will not detract from essential road construction, commuter rail upgrades and increased investment in MyCiTi BRT services and infrastructure.

Cape Town has an excellent endowment of electric rail infrastructure, which has been the backbone of transport in the city and remains the cornerstone for transport planning. Yet the service, which is operated by Metrorail, a division of the state entity PRASA (Passenger Rail Agency of South Africa), is in abject crisis, with PRASA citing "unprecedented levels of vandalism". While the causes are not well understood in the public domain, the crisis in rail is a stark warning that ambitious plans require a society where all stakeholders collaborate to make things work for the common good. It is expected that these constraints will be addressed through the PRASA modernisation programme.

Through the City's Intermodal Planning Committee (IPC), the City and Provincial Transport Departments hold PRASA and Metrorail accountable for the Capital Investment & Implementation Programme relating the Master Modernisation Programme, the Central Line Recovery Programme, Metrorail Operational Performance and other ongoing projects such as the Northern Corridor Modernisation Study Station Upgrading Programme. Progress is slow and will likely remain as such, as confirmed by the CEO's recent statement that the '… *organisation is in a critical state and its infrastructure is not ready for a modern rail network, despite billions of rand spent on modernisation since 2009.'*[87] The City is actively engaging at national government level to establish workable partnerships. [88]

[87] https://www.businesslive.co.za/bd/national/2021-12-02-prasa-fires-zolani-matthews-after-earlier-failing-to-prove-he-had-not-met-targets/

[88] https://www.sabcnews.com/sabcnews/the-city-of-cape-town-ready-to-help-ensure-reliable-affordable-rail-service-in-the-metro/

Targeted and prioritised spatial distribution/allocation of capital investment

Infrastructure

A clear economic rationale underpins the need for coordinated and sustained investment in infrastructure. The fundamentals of the MSDF depend on increased productivity in the city's current spatially targeted areas and built-up areas, the Urban Inner Core and the Consolidation Areas. Such infrastructure can only be delivered, improved and maintained through sustained, targeted and planned investment. Such investment in connective infrastructure (such as transport, bulk and digital connectivity) is a tool of spatial transformation, as it reduces the economic and social cost of spatial fragmentation and geographic distance.

The City of Cape Town currently responds to this through the commitment to the Council-approved Infrastructure Strategy Planning and Delivery Framework (IPDF) and operational processes of budget planning of the capital and operational project portfolio, which includes project screening, contract management and extensive monitoring and evaluation of project progress and completion.

The Infrastructure Strategy sets out mechanisms for the City leadership to drive a 10-year infrastructure programme. It fulfils the need for a strategy and delivery mechanism that is data driven, adaptive and coordinated across sectors. The 10-year infrastructure programme builds on the infrastructure planning and delivery capabilities put in place over the last 10 years. Multiple specific work packages are envisioned for the different parts of the financial year.

The strategy and programme are directly implemented under the City Manager and the City's Executive Management Team and are fully transversal.

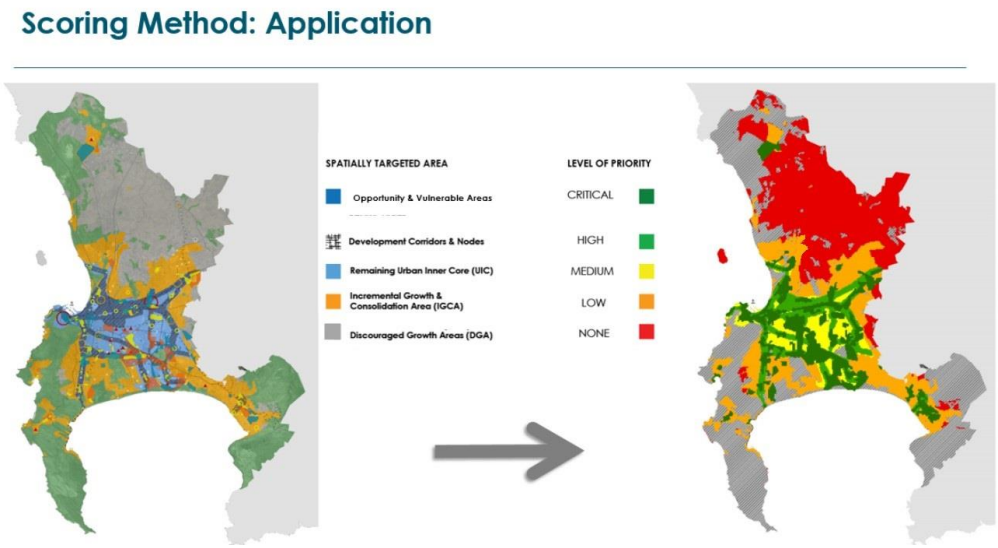
Significant progress has been made since 2019/20 on the prioritisation of infrastructure projects through an approved prioritisation framework, which includes spatial alignment of the MSDF and the DSDFs. The first round of 4 – 10-year capital projects was prioritised in April 2021 (Diagram F41). The projects for the coming financial years are evaluated annually between October and November. Diagram F41 shows this translation of the MSDF and DSDF spatial logic into the capital prioritisation framework.

Diagram F40: Infrastructure prioritisation framework, Spatial prioritisation concept and application

Proposed Prioritisation Criteria and Weights

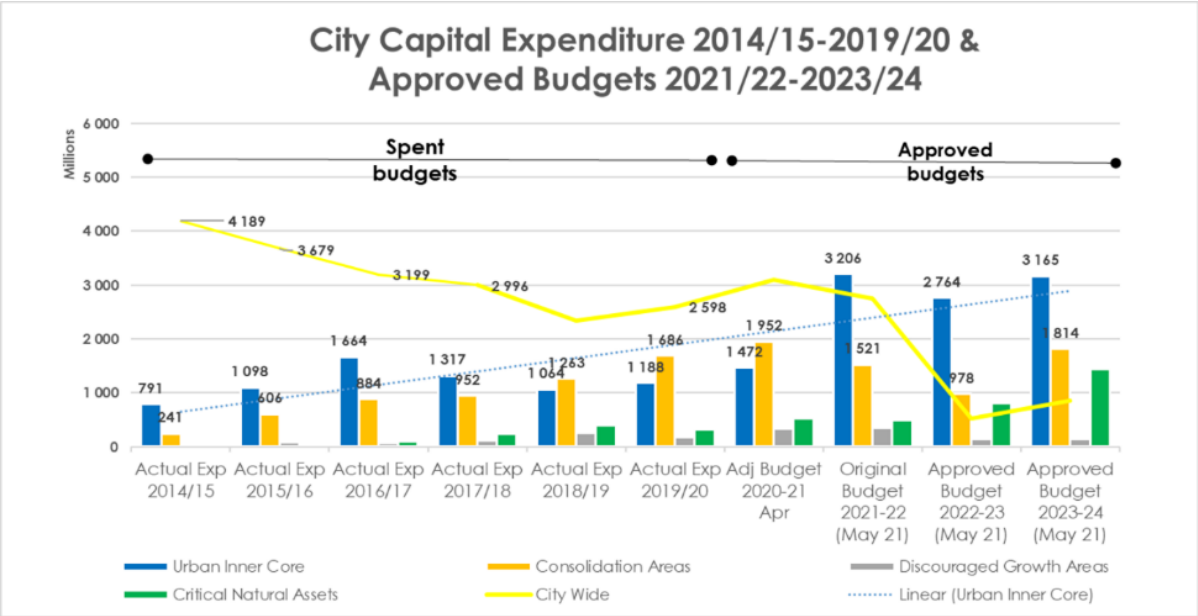
Prioritisation Category/Criteria	Description	Weights
Project Readiness and Preparation	Project readiness assessment for year 1-3 (MTREF) Project preparation assessment for year 4-10	25%
Spatial alignment	DSDF spatial targeting approach	25%
Strategic alignment (non-spatial)	Scoring against two components: 1. Strategic Priority: City's Infrastructure Delivery Strategic Priorities 2. Affinity to Strategic Priority: The extent that the project delivers on the identified priority	25%
Economic Benefit	Economic outputs and multiplier effects (focus on recovery and growth) • Direct investment benefits • Enabled economic activity • Job opportunities created	25%

Diagram F41: Translation of the MSDF and DSDF spatial targeting concept into capital budget prioritisation methodology



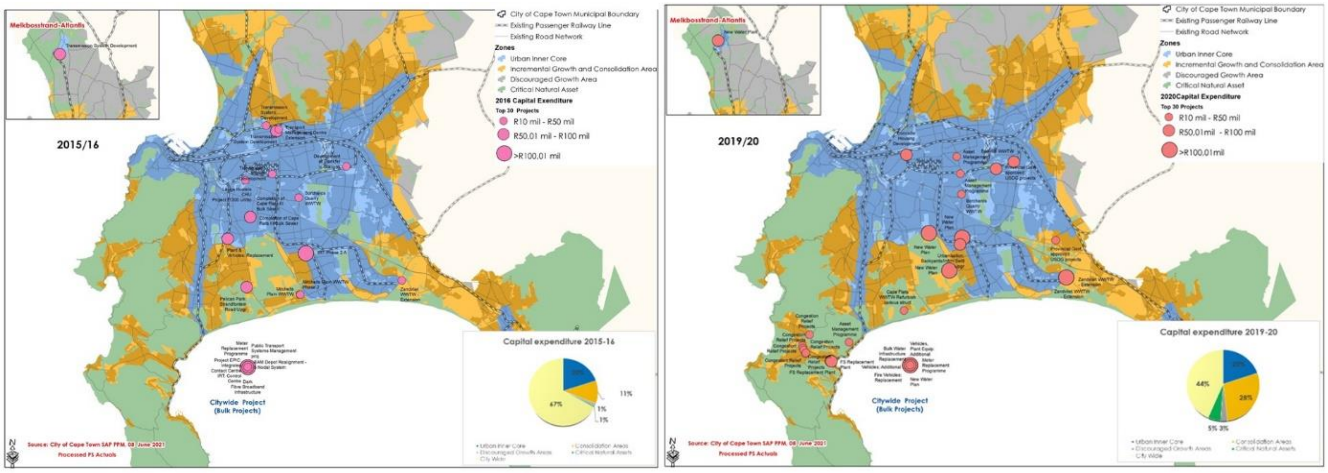
Evidence of progress on spatial targeting of the capital budget is visible in the maps and diagrams below. Diagram F42 reflects the proportionate budgets (spent and planned) of both the Province (in the City's area of jurisdiction) as well as the City. It is reflected against the Spatial Transformation Areas of the MSDF, indicating an increase in spending in the Urban Inner Core. The decreasing trend in the amounts earmarked for 'city wide' development is due to data improvements, where project locations during the early stages of the mapping process were still indicated as 'intended for city-wide benefits'. The mapping to more precise locations of capital projects has improved over the years and now offer a more accurate reflection of the location of the projects. The slight increase in the capital budget spent (or planned) in the Discouraged Growth Areas is a correct reflection of the location of the city's major bulk water and wastewater treatment facilities, which are located on the outskirts of the built-up area, although the beneficiation area is within the built-up area.

Diagram F42: Infrastructure prioritisation framework, spatial prioritisation concept and application



Source: Compiled in June 2021, with information from City's budget office & Provincial Treasury

Diagram F43: Improvements in capital targeting (left); Top 30 projects (and project location data), 2015/16 & 2019/20 (right)



Source: Compiled in June 2021, with information from City's budget office & Provincial Treasury

Fiscal sustainability

"There is a need for greater efficiency in all areas of government expenditure, because the overall envelope is likely to grow relatively slowly over the medium term." National Development Plan

Local government is under acute pressure to mitigate the social impacts of adverse macro-economic conditions. Consequently, many cities have fallen into debt, causing slower service delivery and resulting in fewer resources to dedicate to infrastructure maintenance. There is a growing recognition that fiscal sustainability depends on cities doing more with less, through greater spatial and resource efficiency.

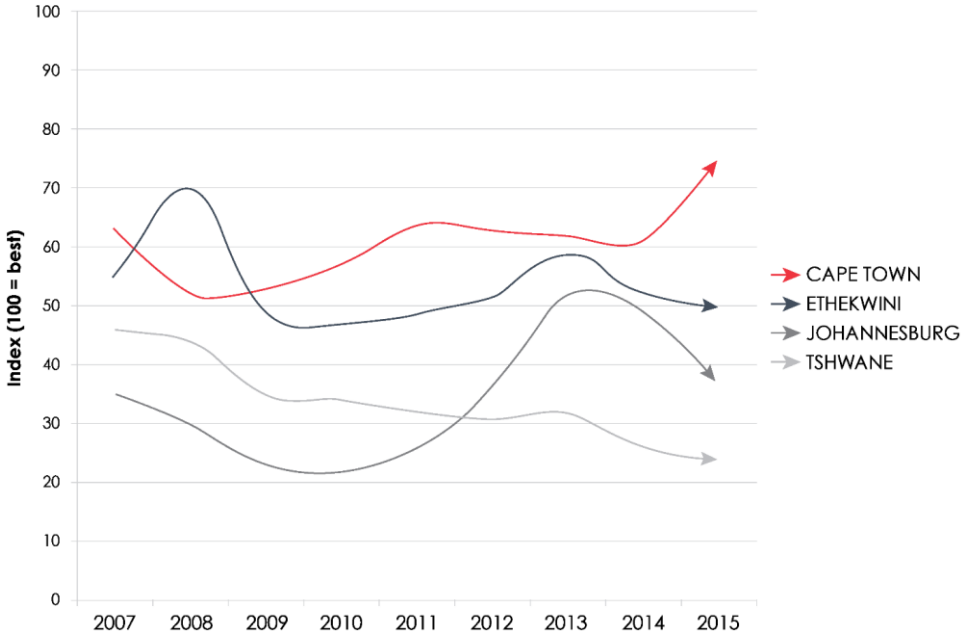
Municipal financial sustainability is defined as "the financial ability to deliver services, develop and maintain the infrastructure required by its residents without unplanned increases in rates and taxes or a reduction in the level of services and the capacity to absorb financial shocks caused by natural, economic and other adversities without external financial assistance"[89].

An independent evaluation of Cape Town's financial stability in terms of its financial position, operating performance, indebtedness and liquidity position is presented in this Section.

Cape Town's performance score is based on it having a R4.4 billion operating surplus in 2014/15 and the fact that is has a revenue collection rate of 96%. The municipality has sufficient cash reserves in spite of the fact that it has increased its infrastructure expenditure. The City's debt burden is moderate and it may be able to increase borrowings to expand infrastructure investment.

[89] Ratings Afrika, 2016.

Diagram F44: Municipal Financial Sustainability Index Source: Ratings Afrika, 2016



Resource efficiency / Consumption

The City of Cape Town's IDP identifies the need for resource efficiency and security. The sustainable utilisation of resources like water, energy and land is essential to the economic wellbeing of the city[90]. A 10-year review of resource consumption confirms that Cape Town's economy and households are becoming resource efficient, using less electricity, water and land relative to the size of the economy or population (Diagram G52). Of concern, however, is the dramatic increase in fuel consumption during this period.

[90] Economic Growth Strategy.

Diagram F45: Cape Town's resource efficiency[91]

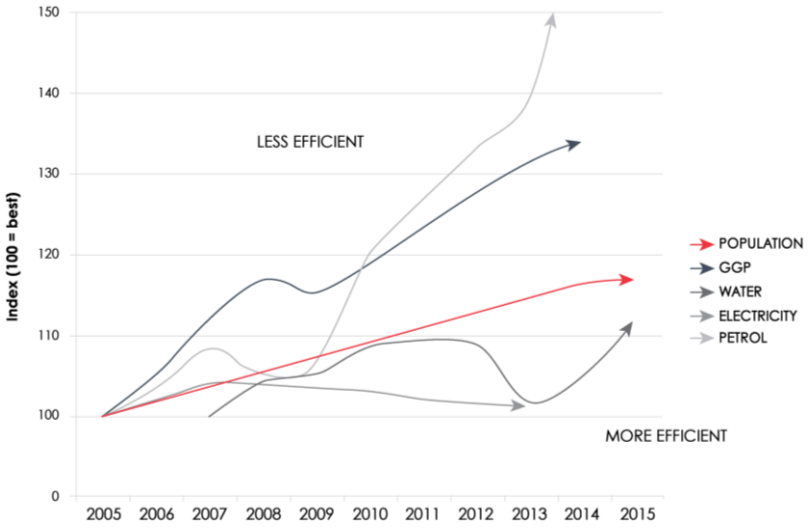
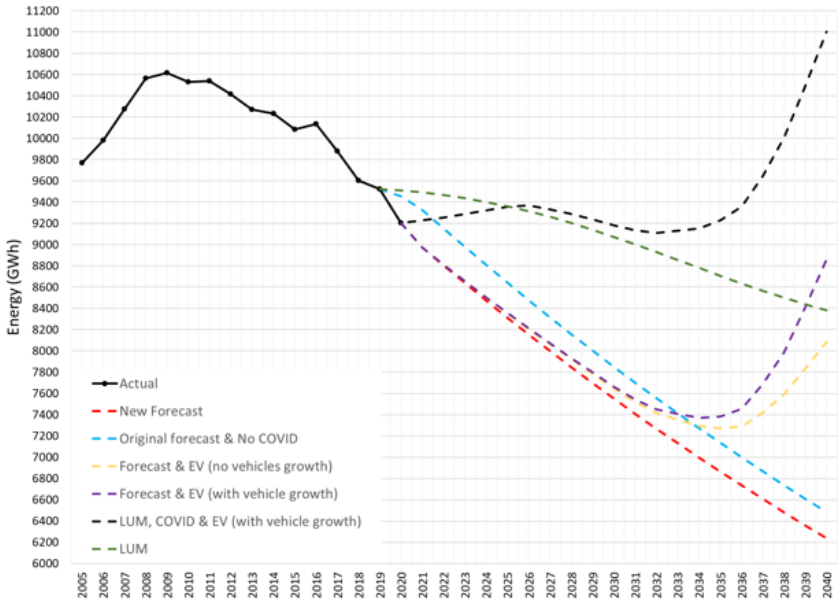


Diagram F46: Cape Town's electricity consumption rates and future estimates[92]



During the recent 2015-2018 unprecedented drought, water sources came under immense pressure, and Cape Town almost became the first metropolitan area in the world to run out of water[93]. A combination of strict water rationing, infrastructure changes related to reticulation pressure management, and above-average rainfall the following year, prevented this crisis and put Cape Town on a new path as a water-scarce City. The subsequent revised Cape Town Water Strategy, determined surface water augmentation schemes, consolidated from the base case with declining water availability and moderate demand, which were then put through three stress tests, namely: business as usual (high demand and gradual climate change); low demand (with gradual climate change); and climate stress (a step change in

[91]City of Cape Town (2016). Population Statistics South Africa, Mid-Year Estimates 2014; GGP, Quantec (2016) Regional output by basic prices; Water, City of Cape Town Water Consumption Data; Petrol, Sustainable Energy Africa; Electricity, Cape Town State of Energy Report 2015.

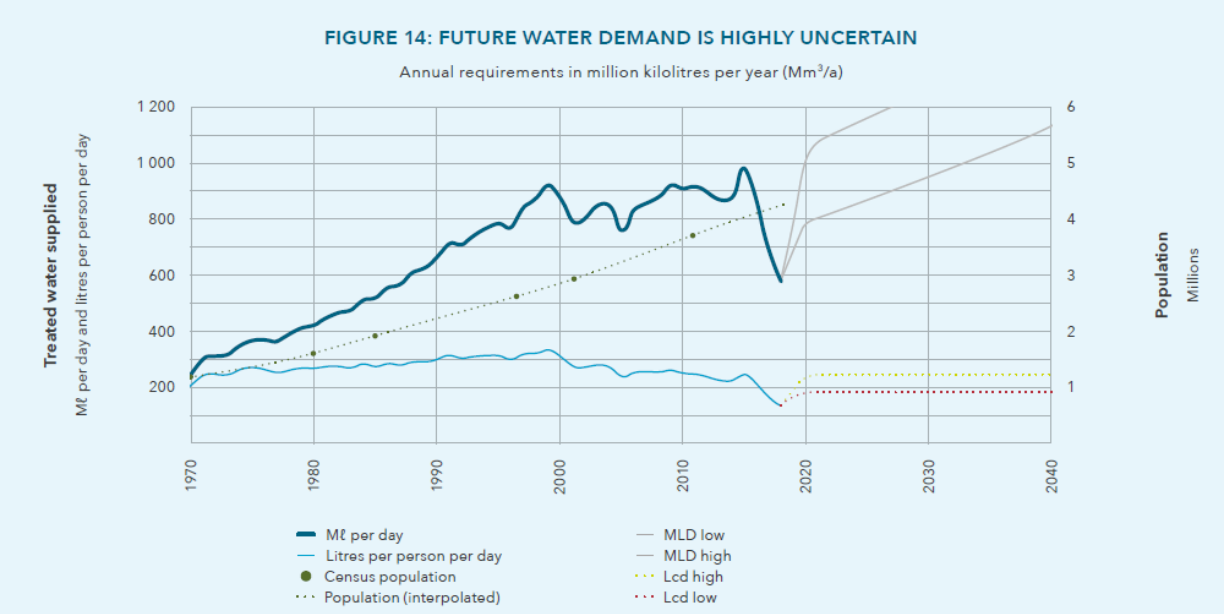
[92]City of Cape Town Energy Sector Plan, Nov 2020

[93] https://www.bbc.com/news/business-42626790

climate with low demand). The Water and Sanitation Directorate closely monitors various indicators to determine which scenario unfolds, and then follows the planned augmentation schemes as consolidated in the strategy.

Diagram F47: Future water demand Cape Town.

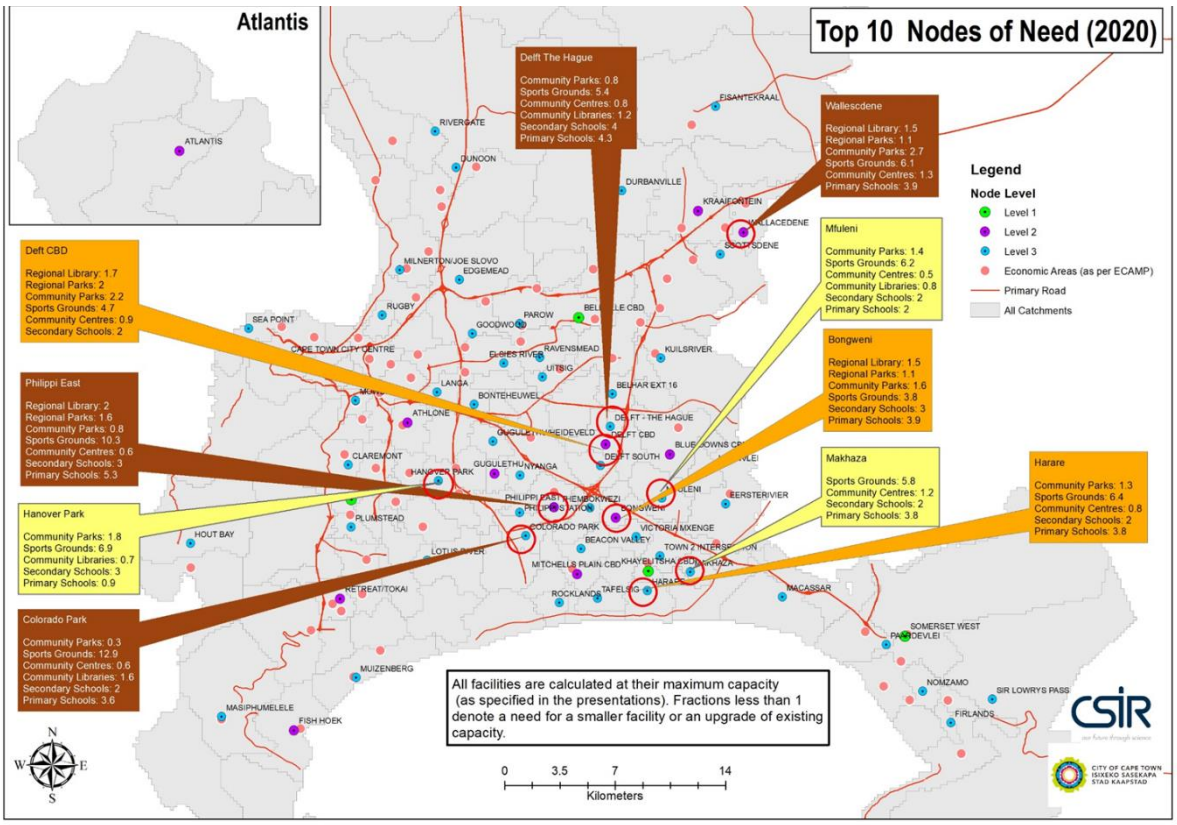
Source: City of Cape Town Water Strategy 2019



Social Facilities infrastructure networks, capacities and functioning

Equally important to a well-serviced and functional urban environment are the social amenities and services that support the livelihoods and quality of life of communities. Education and healthcare facilities, libraries, fire and police services are all fundamental to the sustainability and livelihood of the City. In 2019/20, the City undertook a review of planning standards and assessed the current situation in terms of social facility provision in Cape Town. Map 2.14, identifies the 10 nodes in the City with the largest backlogs measured against current provision standards.

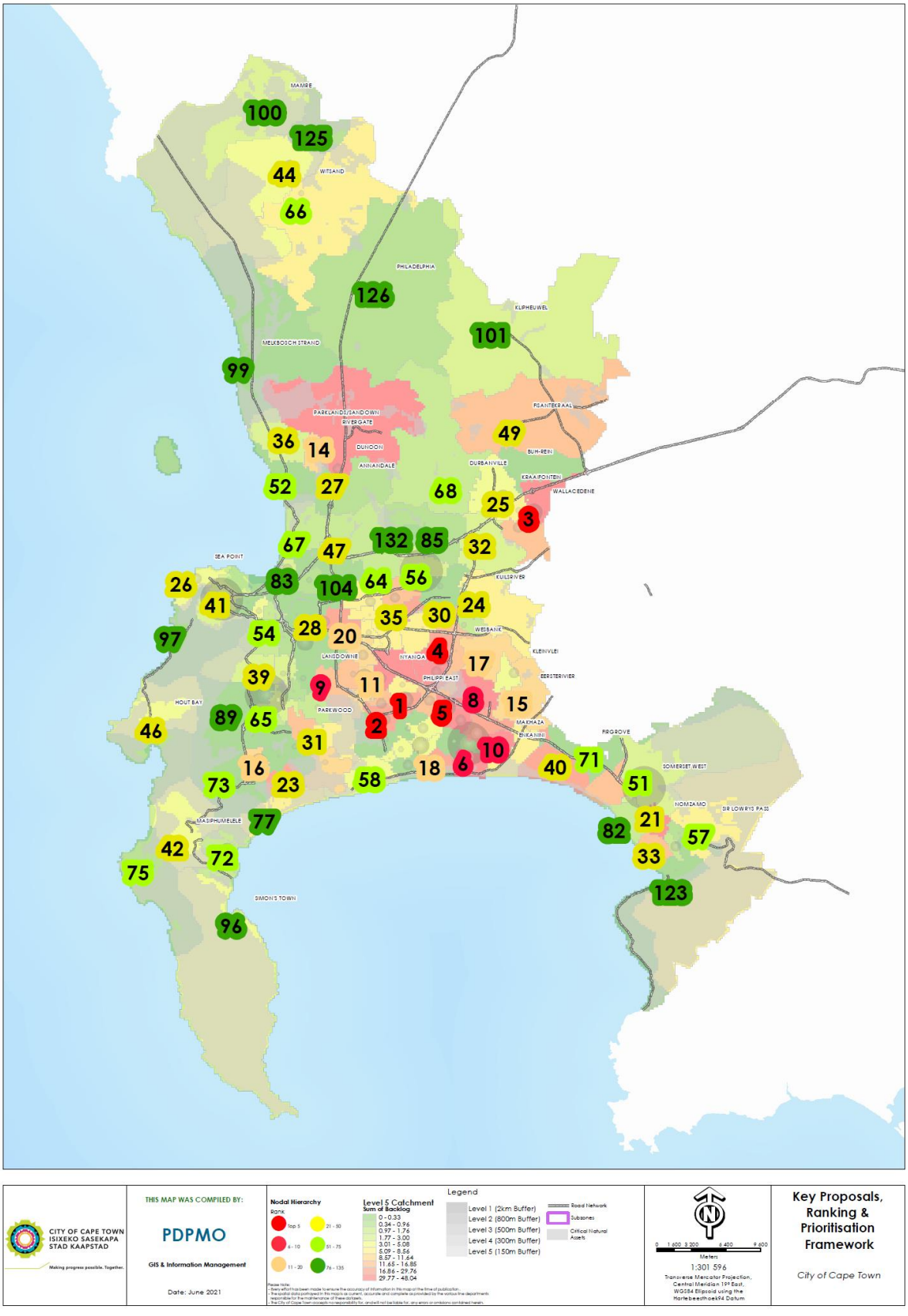
Map 22: Top 10 areas of need Social Facilities (2020) against the 3 level hierarchy of facilities in the City



Source: Community Facilities & Health & Spatial Planning Directorates, CSIR Oct 2020

Map 2.15 provides an indication of existing 2020 backlogs and under-provision for the catchment districts on level 3 of the hierarchy of facilities. The map reflects catchments in ranges of colours with red being the catchment with the largest 2020 backlogs, based on the comparison of the planning standards to a detailed assessment of the availability of various community facilities. The red numbers indicate the locations in those catchments, with their ranked existing needs clearly visible in the metro south-east followed by Wallacedene/ Scottsdene (north-east) and Du Noon (north-west). The suggested policy statements are included in Technical Supplement A and more specific action plans/ project proposals are included in the District Spatial Development Frameworks.

Map 23: Backlog needs on level 3 catchment areas (combining all community facilities)



Source: CSIR 2020 for Community Facilities & Health & Spatial Planning Directorate A3_Portrait_COCT_Hierarchy