CHAPTER 3: HUMAN SETTLEMENTS AND GROWTH MANAGEMENT

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3. HUMAN SETTLEMENTS AND GROWTH MANAGEMENT

Housing is the basic building block of a sustainable human settlements. The sustainable human settlements concept is akin to the concept of nodal development. Both aim to provide a range of services, amenities and residential options in an integrated approach, giving residents the choice to work, live and play in communities with a reduced need for travel (and travel cost) with low-density sprawl (thus responding positively to climate change by reducing the carbon footprint) and consolidating the area in which services and infrastructure are provided.

The sustainable human settlement concept also requires densification, compaction and infill to serve as a foundation for the mixed income, mixed land-use, mixed housing option, also known as transit-oriented development (TOD). Housing is the origin of most trips that originate within Tshwane and often determines the destination points of each trip. Furthermore, as the City of Tshwane is committed to transitioning to a lower-carbon economy, densification provides a concrete opportunity for the City to lower its infrastructure development costs, energy and resource consumption.

The housing process – which up until now led infrastructure development that, in turn, is dictated through provincial government arrangements and the availability of cheap land – has continued to drive urban sprawl. Waiting for these settlements to become better located until mass public transit lines reach the periphery of the city is not the answer. Infrastructure investment decisions can no longer be led by a low-cost housing ownership model that destroys economic mobility and places further pressure on new bulk infrastructure development. Mobility, integration and access are important drivers to effect change.

The most significant challenges that government housing provision faces are finances for infrastructure and (expensive) strategically, often privately, owned land. Another escalating challenge is the rate at which informal settlements are mushrooming around Tshwane in urban areas. Going forward, the city’s housing initiatives should make land banking and the retention of state land for human settlement development a key focus in order to “capture” strategic land at more affordable rates.

This will need to be coupled with meaningful engagements with and incentivising the private sector to support public strategic goals and objectives.

Intergovernmental relations and state funding mechanisms will also have to be strengthened and better aligned in order to ensure that the various actions of the state support and compound the intended strategic human settlements objectives rather than undermine them.

Transformation of spatial settlements to integrated, connected and serviced settlements are direct responses to requirements for spatial justice, sustainability and resilience.

3.1 TRENDS IN THE HOUSING SECTOR

According to Statistics South Africa’s General Household Survey 2017, between 2002 and 2017, the percentage of households that lived in formal dwellings and whose dwellings were fully owned showed a similar percentage, while the percentage of partially owned dwellings declined from 15,3% to 8,8%. About 13,1% of households had “other” forms of tenure arrangements in 2017.

Slightly over eight-tenths (80,1%) of South African households lived in formal dwellings in 2017, followed by 13,6% in informal dwellings, and 5,5% in traditional dwellings. The highest percentages of households that lived in formal dwellings were observed in Limpopo (91,7%), Mpumalanga (86,9%) and the Northern Cape (86,0%). Approximately one-fifth of households lived in informal dwellings in the North West (19,9%) and Gauteng (19,8%).
At the time of the survey, 13.6% of South African households were living in Reconstruction and Development Programme (RDP) or state-subsidised dwellings. (Statistics South Africa, 2017)

As the economic powerhouse of Gauteng, the resident population of the province has grown significantly over the past two decades, as is to be expected. Many that reside in Gauteng are economic migrants. As a developing nation, it is not surprising then that many end up in informal and low-income environments when they first arrive, as they seek out means to find gainful employment. As a result, informal settlements and backyard dwellings are also on the increase.

The Gauteng City-Region Observatory (GCRO) did an assessment of housing trends from 2001 to 2016. The October 2018 GCRO Map of the Month shows that residential buildings in Gauteng increased from just over 2 million in 2001 to just under 3.5 million in 2016 (a 60% increase). On the other side of the spectrum, informal housing increased significantly as well, with informal housing structures increasing from 395 449 structures to 598 406 (an increase of 51%), and backyard units increased from 266 929 structures to 813 224 (an increase of 205%) during the same time period. (Hamann, Mkhize and Götz, 2018b)

The only other residential types that exceeded that of backyard growth in Gauteng are estates and security villages, which increased from 26 573 to 92 696 (an increase of 249%).

The growth rates of informal and backyard structures in Tshwane have closely mirrored those in the province. In 2001, Tshwane had 76 938 informal structures, which increased to 223 225 (an increase of 290%) by 2018. And backyard structures increased from 28 829 to 168 215 (an increase of 76.6%) during the same time period.

The following heatmaps are not an indication of density of structures, but rather illustrate the areas where the percentage changes (increase) of units within those areas.

The majority of backyard units are to be found within urban cores, whereas, informal settlements are largely in areas peripheral to urban cores. Backyard structures are found on formalised and serviced stands and may be built using formal or informal materials, but are considered “informal” in nature as they are not applied for through the building control or land use application processes of the City. This means that additional pressure is being placed on the infrastructure of the city without

<table>
<thead>
<tr>
<th>Building Type</th>
<th>2001</th>
<th>2016</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freehold formal houses</td>
<td>1 880 667</td>
<td>1 647 686</td>
<td>13.6%</td>
</tr>
<tr>
<td>Informal housing structures</td>
<td>395 449</td>
<td>598 406</td>
<td>51.3%</td>
</tr>
<tr>
<td>Backyard structures</td>
<td>266 929</td>
<td>813 224</td>
<td>204.7%</td>
</tr>
<tr>
<td>Difficult to classify as formal or informal</td>
<td>151 953</td>
<td>147 701</td>
<td>-2.2%</td>
</tr>
<tr>
<td>Estate and security village housing</td>
<td>25 573</td>
<td>22 696</td>
<td>-10.4%</td>
</tr>
<tr>
<td>Flats, hostels, townhouses, semi-detached</td>
<td>17 545</td>
<td>17 245</td>
<td>-1.7%</td>
</tr>
<tr>
<td>Smallholdings / agriculture</td>
<td>42 877</td>
<td>47 323</td>
<td>10.1%</td>
</tr>
<tr>
<td>Rural workers housing</td>
<td>13 501</td>
<td>16 945</td>
<td>24.7%</td>
</tr>
<tr>
<td>Total</td>
<td>2 117 721</td>
<td>3 302 178</td>
<td>56.2%</td>
</tr>
</tbody>
</table>
additional input into the fiscus to fund necessary upgrades or maintenance of existing infrastructure.

On the other hand, there is a clear gap in the market that these backyard structures cater to. In this instance, individuals or households have enough income to pay for a small backyard structure behind a formalised unit that has access to services infrastructure, but not enough to pay for the same in a stand-alone unit option. They can afford more than the informal settlement dweller, but not as much as those who have their own homes. It may also be that they qualify for subsidised housing, but the scale of need far supersedes the rate at which the government is able to provide such housing.

There are clearly also homeowners who are willing to accommodate tenants for the purposes of generating additional income from their properties for lower fees than might be expected within the more formal rental market.

So, while backyard structures tend to be more “formal” than informal structures in informal settlements, if the City is not responsive, it runs the risk of seeing backyard structures contribute significantly to the housing burden in the future. There may be some room for innovation and review of housing and land use management policy in this regard.

From a land use management perspective, the City might consider a simpler application process for this category of building that is cheaper than the standard application and with less stringent requirements as is what is currently required to comply with the definition of an “outbuilding” in terms of the Tshwane Town-planning Scheme, 2008 (Revised 2014).

In terms of the Tshwane Town-planning Scheme, an “outbuilding” means a building(s) which has its own door and no interleading door to the main building, but which is attached to or free standing from the main building on the same property. The definition of an outbuilding allows for the use of the outbuilding as residential accommodation, but further requires that the outbuilding is up to a maximum of 20% of the gross floor area of the main building and may not be leased or rented to tenants or occupants.

Considering that lower income stands may have smaller main buildings, the 20% limit may not be practical. Letting of the outbuilding can perhaps be allowed with the permission of the municipality, which can be applied for as part of the building application. The implications of such a shift, though, would need to be carefully considered because there may be unintended consequences that cause challenges additional to what the City is already facing.
Figure 3.1: Informal structures
Figure 3.2: Backyard structures
Figure 3.3: Tshwane human settlements
### 3.2 INFORMAL SETTLEMENTS

An informal settlement, also known as a squatter camp, is a slum settlement (usually illegal or unauthorised) of impoverished people who live in improvised dwellings that are often made from scrap materials. In South Africa, informal settlements are primarily the product of biased spatial planning, which fuelled unequal distribution of wealth and opportunity. Informal settlements develop when the influx and growth of a population of jobseekers outstrips the corresponding available work opportunities. After food, shelter is one of the most basic human needs. Without the finances to provide for a formal housing structure, an individual will likely set up an informal shelter as close as possible to targeted work and/or social opportunities.

While informal settlements used to be found on the periphery of towns and cities, they are now to be found within urban areas themselves, because urban areas are where most economic opportunities exist. Because informal settlements are not guided by spatial planning and related processes, they often do not have proper sanitation, electricity or water services.

A strategy around means of absorbing the homeless before they resort to establishing informal settlements will need to be investigated. This will need to be a cooperative intervention between the housing and social services departments of the City. This strategy will need to incorporate a campaign around educating current or potential informal dwellers about the possible dangers of establishing informal settlements in certain areas that are at risk for certain disasters, such as flooding. This particular intervention will require the support of the community safety teams of the City in monitoring land invasions.

Communities will also be encouraged to build or make a contribution towards building their own houses where means to do so are available, moving away from the dependency syndrome that largely afflicts our nation at present.

Since 1994, the South African government has been chasing an evergrowing housing backlog through various public housing initiatives. Because it is unlikely that the supply will ever meet the demand, alternative interventions are required. These include informal settlement upgrades, and the relocation and formalisation of existing informal settlements.

Rental housing and the in-situ upgrading of informal settlements should progressively be developed in order to diversify the public housing supply and, therefore, integrate the poorest into the conventional market economy by mobilising their “social capital” to serve local development.

When planning for the upgrading or relocation of informal settlements, the key considerations should be –

- growth management;
- economic opportunity; and
- access to social services.

Many of those who reside in informal settlements are the economically disenfranchised and previously disadvantaged. One of the requirements of spatial justice is to focus on the prioritisation of impoverished communities such as these.

#### 3.2.1 LOCATION OF INFORMAL SETTLEMENTS IN TSHWANE

During 2018, the National Department of Human Settlements through the National Upgrading Support Programme (NUSP) embarked on a study on the identification, location, verification and categorisation of informal settlements within the City’s jurisdiction (Tshwane Informal Settlements Upgrading Strategy, 2021)
In line with the National Housing Code, the Department of Human Settlements defines informal settlements based on the following characteristics:

- Illegality and informality
- Inappropriate locations
- Restricted public sector investment
- Poverty and vulnerability
- Social stress

Although it is recognised that the definition of informal settlements is widely contested, the project team employed the above definition in an effort to standardise and align the approach taken in this project with national directives.

Following from the definition, the final list of informal settlements was determined as follows:

- Settlements comprising informal structures, where there is no general plan or where settlement has not taken place according to the approved layout, were included.
- Backyard shacks and occupied or hijacked buildings were explicitly excluded (even where shacks had been built inside of structures).
- Areas with an approved general plan and formal houses, but lacking services, were excluded.
- Settlements with fewer than four shacks were excluded.

In other words, the basis for inclusion was a combination of housing typology, settlement size (minimum) and legal status of the land.

Using the above criteria, the following informal settlement numbers and locations were found in Tshwane at the time:

Table 3.2: Informal structures in Tshwane, 2018

<table>
<thead>
<tr>
<th>Region</th>
<th>No. of informal settlements</th>
<th>Counted structures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region 1</td>
<td>61</td>
<td>40 058</td>
</tr>
<tr>
<td>Region 2</td>
<td>30</td>
<td>49 169</td>
</tr>
<tr>
<td>Region 3</td>
<td>29</td>
<td>34 586</td>
</tr>
<tr>
<td>Region 4</td>
<td>7</td>
<td>24 888</td>
</tr>
<tr>
<td>Region 5</td>
<td>16</td>
<td>19 511</td>
</tr>
<tr>
<td>Region 6</td>
<td>27</td>
<td>45 485</td>
</tr>
<tr>
<td>Region 7</td>
<td>15</td>
<td>6 500</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>185</strong></td>
<td><strong>220 177</strong></td>
</tr>
</tbody>
</table>

The following factors indicated in below were considered as part of the assessment process:
The outcome of the assessment based on factors indicated above informed the categorisation process as described in below:

The study further confirmed that of the 185 informal settlements accessed, only 145 were located on areas that are developable though some are partially developable.

The remaining forty (40) categorized as C require relocations due to their locations informed by mainly physical and environmental factors. These affect approximately 93 768 households. Regions 1 and 6 are mostly affected. Alternative land parcels are currently being identified in partnership with the Group Property Department and Gauteng Human Settlements Department to accommodate the Category C informal settlements.
3.3 HOUSING OPTIONS

Housing needs of the communities differ as per different income groups, hence the need to provide a variety of housing options to respond to the demand. The following housing options informed by the National Department of Human Settlements programmes are implemented by the City and some are currently in the pipeline:

3.4.1. Integrated residential development
3.4.2. In-situ upgrading
3.4.3. Transitional settlements
3.4.4. Sale of serviced stands
3.4.5 Affordable housing

They will be detailed in the subsequent sub-sections below.

3.3.1 INTEGRATED RESIDENTIAL DEVELOPMENTS

Integrated residential developments as stipulated in the Integrated Residential Development Programme (Part 3 of the National Housing Code, 2009) are settlements aimed at integrating housing, social and economic needs of different income groups. This type of the housing options also provides for the substantial economies of scale to be realised. Figure 3.5 indicates projects planned and currently implemented by the Department of Human Settlements. The delivery of this housing type is currently slow due to the unavailability of bulk infrastructure in parts of the city. Partnerships with private sector should be explored to increase the provision of these housing type reduce the existing housing backlog.

Figure 3. 4: Integrated Residential Developments
Source: Tshwane Department of Human Settlements, 2021

3.3.2 INFORMAL SETTLEMENTS UPGRADING

Also known as in-situ upgrading, the basic intent of this intervention is to improve the quality of the living environment for informal settlement dwellers without relocating them. If possible, relocation is avoided in order to avoid disrupting established community life and moving people far away from where they may have already managed to find work.

Informal settlement upgrading process is undertaken through the Upgrading of Informal Settlement Programme (UISP) as part of the
The key objective of this programme is to facilitate the structured \textit{in situ} upgrading of informal settlements as opposed to relocation to achieve the following complex and interrelated policy objectives:

- **Tenure Security:** to enhance the concept of citizenship, incorporating both rights and obligations, by recognising and formalising the tenure rights of residents within informal settlements;

- **Health and Security:** to promote the development of healthy and secure living environments by facilitating the provision of affordable and sustainable basic municipal engineering infrastructure to the residents of informal settlements. This must allow for scaling up in the future; and

- **Empowerment:** to address social and economic exclusion by focusing on community empowerment and the promotion of social and economic integration, building social capital through participative processes and addressing the broader social needs of communities.

The in-situ upgrading process is undertaken in phases i.e. phases 1 to 4 where phases 1 to 3 focusses on community participation, town planning processes, supply of basic services and security for all residents and phase 4 constitutes the housing consolidation stage where the relevant housing programme will be provided.

Funding for the in-situ upgrading is facilitated through the newly approved grant called the Upgrading of Informal Settlement Programme Grant (UISPG). Figure indicates the existing informal settlements located within the city as per the NUSP assessment together with in-situ upgrading projects currently being implemented.

\textbf{Figure 3. 5 In-situ Upgrading Projects}

\textit{Source: Tshwane Department of Human Settlements, 2021}

Through the NUSP, the Department of Human Settlements aims to, among other things, promote incremental upgrading and strengthen capacity of government and professional practitioners to implement community-based upgrading. (Gov.Za, 2019)

In order to ensure spatial justice, informal settlements should only be upgraded to permanent establishments where there are plans for the settlements to be integrated into the greater social and economic fabric of the city. The provision of public transport within these areas is especially critical in order to link to wider economic opportunities within the city. Wherever possible and feasible, and in the interests of spatial sustainability and growth management, multiclipper facilities should be used in order to
maximise the reach of social facilities and amenities. The overall aesthetic and liveability of the environment should also be considered.

Formalising an informal settlement is ideal when the informal settlement is appropriately located in terms of sound spatial planning principles (access to public transport, work opportunities, infill and compaction compliant, etc) and is, thus, capable of becoming a viable human settlement.

The formalisation process is as follows:

- Registration of the township and its inhabitants on a township register
- Town-planning processes, which include environmental and geotechnical surveys, and township establishment (design, layout plan, demarcation of stands, allocation of stand numbers and street names, registration of the township in the Deeds Office, proclamation of the township and allocation of title deeds to residents)

Once a township is approved, services can be provided. Upon completion of services to the satisfaction of the City’s infrastructure services departments, the township can then be proclaimed.

### 3.3.3 RELOCATION OF INFORMAL SETTLEMENT DWELLERS

In some instances, an informal settlement may be located on dolomitic land that may collapse into sinkholes, on toxic mining dumps, alongside much polluted watercourses, or below the flood line in locations prone to flash floods (i.e. category C as per the NUSP assessment). In these cases, relocation is unavoidable. In other instances, an in-situ upgrade of densely packed settlements may require more appropriate demarcation of plots and, therefore, de-densification. This may mean that only a portion of the residents currently living there can continue to be accommodated when the settlement is formalised (City of Johannesburg, 2006).

Informal settlements should only be relocated for permanent residence where the safety of the land has been assessed, ownership has been established and where there is opportunity for social and economic integration with the rest of the urban fabric.

#### 3.3.4 MUNICIPAL TRANSITIONAL SETTLEMENTS AND INCREMENTAL UPGRAADING

An incremental approach to public housing delivery allows enough time for the identification of appropriate sites for upgrading and/or relocation, focussing on the well-being of beneficiaries. This would eliminate or mitigate the possibility of locating or upgrading in areas that are vulnerable (socially, economically and/or environmentally). This approach also eliminates the classic “eviction, destruction and rebuilding” strategy normally used for slum upgrading.

To this end, the City has identified sites for municipal transitional settlements in terms of Clause 16 (consent use application) and Clause 32 (which ensures that nothing in the Tshwane Town-planning Scheme prevents the erection, use or maintenance of any building, works or land by the City on its own property) of the Tshwane Town-planning Scheme.

In terms of the Tshwane Town-planning Scheme, municipal transitional settlement means “land and building used for the settlement of persons in temporary dwelling-units and the provision of ancillary structures and services while permanent dwelling-units are being constructed in terms of the relevant legislation.”

A municipal transitional settlement shall be an area of land acquired to provide temporary (and sometimes permanent) housing for persons,
identified by the City, who are in need of housing. Furthermore, the City will identify which area of land shall be proclaimed in terms of the relevant legislation. It shall consist mainly of housing and streets, but may also contain ancillary structures and services which, in the opinion of the City, are necessary for the provision of a safe, orderly and healthy living environment.

In terms of the provisions of Clause 16 of the Tshwane Town-planning Scheme, municipal transitional settlements can be instituted as a means to bring a level of security to residents within informal settlements or townships other than the formal township establishment processes, which are long and tedious.

The latter is reiterated by Schedule 2 of the Tshwane Town-planning Scheme, which states that “the municipality shall formalise the area of land designated as a municipal transitional settlement at its earliest convenience within a reasonable time in pursuance of its responsibilities and legal obligations”.

A list of properties that have been tentatively identified for the purposes of municipal transitional zones (during 2020) are listed below.
Table 3.3: Tentative municipal transition zones

<table>
<thead>
<tr>
<th>Item</th>
<th>Property description</th>
<th>Size (Ha)</th>
<th>Ownership</th>
<th>Zoning</th>
<th>Clause 16</th>
<th>Clause 32</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mabopane 702 JR Part of Remander</td>
<td>70</td>
<td>City of Tshwane</td>
<td>Undetermined</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2</td>
<td>Klooffontein 208 JR Remainder</td>
<td>65.8</td>
<td>City of Tshwane</td>
<td>Undetermined</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3</td>
<td>Koopicopkop 206 JR Remainder Portion 184</td>
<td>130</td>
<td>City of Tshwane</td>
<td>Undetermined</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>4</td>
<td>Part of Remander Mahopane 702 JR</td>
<td>25</td>
<td>City of Tshwane</td>
<td>Undetermined</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5</td>
<td>Wentehuf 253 JR Remainder</td>
<td>25</td>
<td>City of Tshwane</td>
<td>Undetermined</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>6</td>
<td>Mabopane A Stand 5141</td>
<td>5.3</td>
<td>City of Tshwane</td>
<td>Undetermined</td>
<td>✓</td>
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**Note:** The table above shows the remainder of the RIECTAT 511-JR (N902) area with various land uses and statuses.

---

**Diagram:**

A diagram showing the distribution of land use areas, with specific references to areas like SOSHANGUE SOUTH X14 (Kopano) and Institutional use areas.
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Implementation guidelines will be drafted to clearly elaborate more on the process to formalise these transitional settlements especially on the town planning methods to be utilised.

Where transitional housing is to be permanent, it is important that the settlement is aligned with transport planning and work opportunities, wherever possible, as addressed in Section 3.9 of this chapter.

### 3.3.5 SHORTENED AND INCREMENTAL LAND USE

Sections 21(k) and (l)(i) of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) (SPLUMA) allow for the identification of designated areas where incremental upgrading and shortened land use development procedures may be applicable and land use schemes may be so amended. In view of the expense and timeous processes often associated with land development, informal settlement areas that have been identified for upgrading, or sites that are to receive the residents of a relocated informal settlement, will be eligible for shortened land use development procedures, subject to meeting the requirements of the City of Tshwane. The detailed policy framework and/or processes for the shortened application process(es) – in line with the requirements of the Land Use Management Scheme – will need to be developed and formally adopted by the City, following the approval of the MSDF.

### 3.3.6 SALE OF SERVICED STANDS

The National Housing Code clearly indicates that potential beneficiaries should be afforded a choice in satisfying their housing needs. To provide for all households (only South African citizens) who reside within City of Tshwane’s jurisdiction without incurring an additional cost for the city, consideration has been given to the option of allowing beneficiary households who do not qualify for a housing subsidy or who only qualify for a “partial” subsidy to purchase the serviced stand from the City at the cost of development. The cost to sell such a residential stand will take into consideration the following costs already incurred by the City:

- The land
- Town planning
- Engineering designs
- Installation of services
- Conveyancing fees

Depending on the target market identified for benefiting on the serviced stand, the following options could be considered for allocation from both the housing needs register and informal settlements:

a) Prioritize areas where land has been identified.

b) Identify applicants from the National Needs Housing Register as follows to communicate with the target community:
• who have been on the needs register for a long time e.g., more than 10 years and confirm whether they would be interested in an allocation of serviced sites and recapture as such

• Earning between R3 501 – R22 000

• Persons between ages of 35 – 50 who are deemed to be economically active.

c) Identify people from the municipality migration/relocation plans.

3.4 AFFORDABLE HOUSING

Traditionally, affordable housing refers to housing with prices or values below the overall open market value, which targets below-average incomes. In this MSDF affordable housing includes social, gap and inclusionary housing.

3.4.1 SOCIAL HOUSING

A key model for the delivery of affordable housing is social housing, which provides medium-density, affordable, rental housing to low- and middle-income households. Social housing contributes to transforming urban spatial patterns because it promotes integration and densification in close proximity to economic and social amenities.

Social housing is defined as “A rental or co-operative housing option for low-income persons at a level of scale and built form which requires institutionalised management, and which is provided by accredited social housing institutions or in accredited social housing projects in designated restructuring zones (Social Housing Act 16 of 2008).”

Social housing can be used as a key instrument in this regard, and can contribute strongly toward the achievement of urban restructuring and urban renewal through urban integration and impacting positively on urban economies (National Housing Code, 2009)

These social housing developments can only be developed within Restructuring zones. The Social Housing Act (Act 16 of 2008) defines the Restructuring zones as “Geographic areas which has been (a) identified by the municipality with concurrence of the provincial government for purposes of social housing (b) designated by the Minister in the Gazetted for projects. Restructuring zones contributes to three types of restructuring:

• Spatial restructuring – by bringing lower income people into areas where there are major economic opportunities (both in jobs and consumption) and from which they would otherwise be excluded because of the dynamics of the land market on the one hand and the effects of land-use planning instruments such as large-lot zoning (minimum erf sizes) on the other;

• Social restructuring – by promoting a mix of races and classes

• Economic restructuring – by promoting spatial access to economic opportunity and promoting job creation through the multiplier effect associated with building medium-density housing stock

In 2020, City of Tshwane expanded its 2008 restructuring zones in order to align them with new planning directives and regulatory frameworks. The decision to expand the City’s Restructuring zones was informed by new planning regulatory frameworks, directives and strategies that aims to align public investments with the urban network hierarchy.

The City’s IRPTN Network makes provision for the rollout of a public transport network which aims to link underserved townships with urban
cores – a strategy that aligns with the Urban Network Structure. This concept of linkage is expanded by the City by encouraging development along the IRPTN Network by means of densification and compaction. In essence this approach aims to:

- Enable fruitful spending;
- Discouraging sprawl;
- Secure land value;
- Optimising urban infrastructure usage;
- Stimulate economic activity in areas with economic potential; and
- Conserve valuable agricultural land

Social Housing Programme is largely funded through the restructuring capital grant, which is transferred from the Housing Development Finance Programme to be administered by the Social Housing Regulatory Authority (SHRA).

This type of housing provision is a good restructuring tool to revitalise inner cities. Partnering with private developers and Social Housing Institutions (SHIs) will significantly reduce the existing housing backlog as not all beneficiaries qualify for fully subsidised houses when human settlement projects are implemented.

Plans are currently in place to make the city’s owned land parcels available through partnership with the private sector to increase the delivery of the units currently provided by Housing Company Tshwane, the city’s entity which was established to facilitate the development of social housing units within the city’s jurisdiction.

### 3.4.1.1 RESTRUCTURING ZONES

The Housing Code (2009) defines restructuring zones as “those geographic areas identified by local authorities and supported by provincial government for targeted, focussed investment”. The purpose of restructuring zones is to contribute to the economic, social and spatial restructuring of South African cities in order to correct the dysfunctional ties currently experienced by bringing lower-income people into areas where there are major economic opportunities and from which they would otherwise be excluded. This is achieved by promoting a mix of races and classes, promoting spatial access to economic opportunity and promoting job creation.

Restructuring via social housing seeks to achieve the following three main dimensions of restructuring:

- Spatial restructuring by bringing lower-income people into areas where there are major economic opportunities (with respect to jobs and consumption) and from which they would otherwise be excluded because of the dynamics of the land market, on the one hand, and the effects of land use planning instruments such as minimum erf sizes, on the other hand. What needs to be emphasised here is the primary meaning of spatial restructuring as it is used in social housing policy. Indirectly, social housing, as understood here, contributes to spatial restructuring by increasing densities and compacting growth, thereby, ensuring that the poor are not pushed out to marginal locations at the edge of the city.
- Social restructuring by promoting a mix of different racial groups.
- Economic restructuring by promoting spatial access to economic opportunities and promoting job creation via the multiplier effect associated with building medium-density housing stock. Thus, all Tshwane restructuring zones were identified within a 20-km radius of
the inner city, which has been identified as the area of most work opportunities.

It should be stressed that the primary dimension and meaning of *restructuring, in this context, is economic opportunity and access*. In 2008, the City of Tshwane identified eight provisional restructuring zones. Tshwane has changed significantly since, as have regulatory frameworks, directives and strategies. As such, the initial restructuring zones have been reviewed, updated and expanded to align with the City’s IRPTN. The IRPTN makes provision for the roll-out of a public transport network which aims to link underserved townships with nodal areas—a strategy that aligns with the UNS. This concept of linkage is expanded upon by the City encouraging development along the IRPTN by means of densification and compaction. In essence, this approach aims to—

- enable fruitful spending;
- discourage sprawl;
- secure land value;
- optimise urban infrastructure usage;
- stimulate economic activity in areas with economic potential; and
- conserve valuable agricultural land.

The UNS interprets the concept of activity around the linkages between places of residence to economic nodes by defining the said area as integration zones. Development along the integration zone is ideal from the City’s perspective but also holds various and diverse advantages for the residents and users of Tshwane. The restructuring zones are, thus, aligned with the integration zones, which are in turn aligned with the IRPTN or bus rapid transit (BRT) (see Chapter 2 on integrated public transport).
Figure 3.6: Restructuring zones
3.4.2. OTHER AFFORDABLE HOUSING OPTIONS

Other city’s affordable rental options include hostels and self-sufficient elderly units. There are currently five (5) hostels located within the city’s jurisdiction. Due to their dormitory type designs in the past, they are currently undergoing upgrading processes as mechanisms to improve the living conditions. Urban Development Frameworks have already been developed and approved for the Mamelodi, Saulsville and Refilwe hostels to develop them into integrated residential developments that can accommodate different types of income groups in different housing options. The developments will also accommodate beneficiaries in the neighbouring townships around these hostels.

Another type of affordable rental provided by the city is the self-sufficient elderly units. The provision of housing to self sufficient elderly do not need any care or assistance. The tenants are responsible for their own well being and the city do not provide any medical or social assistance. There are currently seven (7) city owned properties dedicated for this type of rental. The monthly rental for the self- sufficient elderly units ranges from R3500 to R15 000.00.

3.4.3 GAP HOUSING

Housing the poor was an ingredient of the department’s three-part response to the Vision 2030 strategy. “Gap housing” is a term that describes the shortfall or gap in the market between residential units supplied by the state and houses delivered by the private sector.

Gap housing is a policy that addresses the housing aspirations of people, such as nurses, firefighters, teachers and members of the armed forces, who earn between R3 000 and R22 000 per month. Their income is regarded as low for mortgage finance, but too high to qualify for the government ‘free-basic house’ (i.e. fully subsidised) subsidy scheme.

Nationally, the houses are financially assisted by the National Housing Finance Corporation (NHFC), an entity of the National Department of Human Settlements through an intervention/programme called Finance Linked Individual Subsidy Programme (FLISP) which gives all qualifying beneficiaries the certainty of being granted loans, bonds or mortgages by banks and other financial institutions. Qualifying applicants may use FLISP to do one of the following: -

a) Buy an existing, new or old, residential property.
b) Buy a vacant serviced residential stand, linked to an NHBRC registered homebuildercontract; and

c) Build a residential property on a self-owned serviced residential stand, or tribal stand (PTO) through an NHBRC registered homebuilder.

The delivery of these type of housing in the city is very low to respond to current housing demands however plans are currently in place to make the city’s owned land parcels available through partnership with the private sector to increase the delivery of the units.
3.4.4 INCLUSIONARY HOUSING

One of the requirements of SPLUMA is that the MSDF identifies the designated areas where a national or provincial inclusionary housing policy may be applicable. At the time of the preparation of this MSDF, there was neither an approved national nor provincial inclusionary housing policy. The draft Gauteng Inclusionary Housing Bill of 2012 has been noted.

The City of Tshwane has yet to develop an inclusionary housing policy. The development of this policy would require careful consideration and a separate process from the MSDF. This section, therefore, is not intended to provide an inclusionary housing policy for the City, but to highlight some considerations for the policy that the City may develop in future, based on work that has already been done elsewhere.

In 2018, the South African Property Owners Association (SAPOA) commissioned research to look at some of the key issues associated with inclusionary housing policy, with a focus on the Cape Town and Johannesburg contexts. This brief overview comprises extracts from this comprehensive research.

The Gauteng provincial government has developed the third draft Inclusionary Housing Bill as a means of facilitating inclusionary housing development within the province.

Since then, policy on inclusionary housing has led to much debate concerning key definitions, outcomes and mechanisms required for implementation. For instance, the public sector, the initiators of inclusionary housing policy, is motivated by the need to take on the housing challenge and ensure that access to housing is available to all income groups. The private sector, on the other hand, is concerned about the fiscal risks associated with inclusionary housing. The contrasting views and objectives of inclusionary housing policy have brought about an industry debate on the intricacies of inclusionary housing policy.

The crux of inclusionary housing policy is the “inclusion”, either voluntary or mandated through policy, of affordable housing with market-orientated units as part of private-sector housing developments. Affordable units in inclusionary projects are conveyed to low-income households, with the definition and income thresholds varying based on the locational context of implementation.

Inclusionary housing initiatives are perceived to be a cost-effective way to increase the supply of affordable housing while diversifying the housing stock. The concept of inclusionary housing is applied in various jurisdictions around the world, with differing objectives and motives forging unique approaches to the inclusionary concept. These differences can range from the implementation of inclusionary housing through government-offered incentives, which may include tax rebates as applied in Ireland and density bonuses as applied in Brazil. Furthermore, the mandatory approach through inclusionary zoning as implemented in Australia and California is another option, or the government could build affordable housing components within private-sector inclusionary housing projects as in Mississippi.

Although considered an important instrument in overcoming the segregated nature of South Africa’s urban areas, a barrier to the implementation of inclusionary housing in this urban context is the inherent cost associated with delivering affordable housing units in place of or in addition to market-related units in private-sector housing developments. These costs may include additional capital expenditure on the part of private developers, while limiting their return on investment due to price and rental restrictions. Additionally, the opportunity cost inherent in providing affordable housing in lieu of market units may influence the profitability of developments. Consequently, private developers may place increased expenditure at the door of potential owners and tenants of the market units by increasing housing and rental rates. In this regard, the public sector may seek to avail cost-reducing
incentives to private developers to offset profitability concerns and negate the cost of inclusionary housing being placed on housing consumers.

However, offering incentives is not without cost to the public sector and its urban planning and development entities, which places pressure on the public purse and is contrary to the initial objectives of inclusionary housing.

Some incentives that have been employed by other cities in the past include the following:

- Facilitation of prioritised and fast-tracked land use applications
- Reduced bulk service and/or open space contributions
- Engagement of financial institutions to allow for more favourable lending rates for reduced debt repayments
- Release of publicly owned land by private developers who put forward the best inclusionary housing proposals for that site
- Delineation of additional urban development zones, specifically for the incorporation of inclusionary housing
- A relaxation of parking requirements
- Density bonuses

Inherent to inclusionary housing is the added cost of developing and managing low-income units in addition to market-related units. A central theme in the investigation of inclusionary housing implementation — and an important factor influencing its feasibility — is determining who will carry this extra development cost.

While the envisioned approach from the City of Johannesburg and the City of Cape Town is of a voluntary, negotiation-based nature, the successful implementation of inclusionary housing, either mandatory or voluntary, is fundamentally influenced by the financial feasibility of private developers providing affordable housing units in lieu of certain market-orientated housing. An important consideration in the implementation of inclusionary housing is the feasibility of private developers foregoing potential returns by providing low-income, affordably priced housing units with market-orientated housing. There is an opportunity cost inherent to inclusionary housing: There will be a proportionate revenue loss for private developers substituting some middle-to high-income units with low-income housing.

Although the draft Gauteng Inclusionary Housing Bill (2012) is mandatory in its approach, there are many lessons to be learnt from other countries that have incorporated a voluntary approach to a lesser or greater extent in the execution of inclusionary-type housing. The SAPOA research report outlines a few such examples.

At the time of the development of this MSDF, the City was yet to develop an inclusionary housing policy. The approach that the City will take with regard to inclusionary housing will only be clear once the policy is finalised.

The spatial directives of Chapter 2 have been clear in that affordable housing should be channelled into activity nodes and corridors. Inclusionary housing should be responsive to this, and as such should be channelled towards the nodes identified within the MSDF.

Inclusionary housing shall be provided for in terms of the provisions of SPLUMA, the spatial directives of the Tshwane MSDF and the Tshwane Inclusionary Housing Policy, once approved by Council.

3.5 TOWNSHIPS AND MARGINALISED AREAS

Within this context, townships refer to residential suburbs that were established during the apartheid era. These were located beyond the urban periphery, specifically created to accommodate non-white people. Apartheid legislation enabled the government to forcibly locate non-white people in townships. These particular townships are also referred to as “urban cores” within this document. These are not to be confused with the legal term of township, which refers to a measure of land that has been formalised through town planning and legal processes, including the
approval of a general plan which is approved by the Surveyor General and the recording of land title at the Deeds Registry. “Townships” refer to “urban cores” within the context of this MSDF and the nodal hierarchy of Tshwane.

These areas correlate with the “deprived” or marginalised areas as identified in the Tshwane Built Environment Performance Plan (BEPP) (2019). The City of Tshwane has developed a deprivation index that measures the extent to which Tshwane residents are deprived of basic services and generally impoverished.

The deprivation index serves to elevate projects which impact underserviced areas, that is, the most deprived areas as identified by spatial data analysis. This index serves as an important input towards the prioritisation of resources for marginalised areas.

The Neighbourhood Development Partnership Grant (NDPG) Programme aims to create a quality-built environment within urban cores, while the City’s Economic Development Division is pursuing various initiatives in order to ignite township economies.

### 3.5.1 INTEGRATION AND CONNECTIVITY

Townships and informal settlements in Gauteng are predominantly located on the periphery of the urban city. These include the Ga-Rankuwa-Soshanguve-Mabopane-Winterveld-Temba complex to the northwest, Atteridgeville in the west, Mamelodi in the east and Olievenhoutbosch to the southwest. There is also Refilwe, Ekangala and Zithobeni on the eastern side of Tshwane.

Responsive transport planning can integrate urban cores with the rest of the urban fabric and provide connectivity through safe, efficient, reliable and affordable public transport.

As discussed in Chapter 2, the **Urban Network Strategy** (UNS) is a spatial targeting tool being implemented in order to integrate urban cores with opportunities in the wider city. The marginalised areas (urban cores) are connected to opportunity areas via an integration zone (transit spine or activity corridors). Within the UNS framework, each urban core is anchored by an urban hub (a focal area for high intensity, mixed-use development within the urban core).

In view of the investment that the City of Tshwane has made in its Integrated Rapid Public Transport Network (IRPTN), the IRPTN alignment has been chosen as the transit spine for Tshwane’s integration zone.

To date, the line connecting Rainbow Junction/Wonderboom to the capital core and to Hatfield are the only sections of the IRPTN that have been constructed. As such, Tshwane’s current integration zone is focussed primarily along that line, with an extension to Ga-Rankuwa. Ideally, all urban cores would be encompassed in the integration zone, but cannot be at this time due to limited resources and the sprawled nature of the city.
Figure 3.9: Schematic representation of the Tshwane Integration Zone

Source: Tshwane Built Environment Performance Plan 2020/21

Figure 3.10: Tshwane Integration Zone

Source: Tshwane Built Environment Performance Plan 2020/21
3.5.2 SHORTENED AND INCREMENTAL LAND USE DEVELOPMENT PROCEDURES

One of the key objectives of SPLUMA is to redress spatial imbalances due to development policies of the past. In some instances, this will mean the relaxation of certain stringent development processes and requirements in order to equalise opportunities for disenfranchised, poor and disadvantaged communities. Townships, therefore, will be eligible for **shortened land use development procedures**, subject to meeting the requirements of the City of Tshwane. The detailed policy framework and/or processes for the shortened application process(es) – in line with the requirements of the Land Use Management Scheme – will need to be developed and formally adopted by the City, following the approval of the MSDF.

Shortened and incremental land use development procedures shall apply to other areas that are deemed “marginalised” and these designated areas, as prescribed by SPLUMA, shall include the following:

<table>
<thead>
<tr>
<th>Township Type</th>
<th>Characteristics / Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category A</td>
<td>Characterised by widespread poverty and economic deprivation.</td>
</tr>
<tr>
<td>Proclaimed Townships</td>
<td>In possession of a Title Deed or Deed of Grant.</td>
</tr>
<tr>
<td></td>
<td>Previously excluded persons live in these areas.</td>
</tr>
<tr>
<td>Category B</td>
<td>Characterised by widespread poverty and economic deprivation.</td>
</tr>
<tr>
<td>Un-proclaimed</td>
<td>Not proclaimed, however, in some instances General Plans exist.</td>
</tr>
<tr>
<td>Townships</td>
<td>Serviced with municipal bulk infrastructure.</td>
</tr>
<tr>
<td></td>
<td>Residents are unlikely to be in possession of a Title Deed but are Beneficial Owners, in possession of a Deed of Grant, or use a Permission to Occupy (PTO) usually issued and signed by either a Ward Councillor or the Municipality’s Housing Department official(s) with the municipality’s letter head and stamp, to prove their occupation of the property.</td>
</tr>
<tr>
<td></td>
<td>Previously excluded persons live in these areas.</td>
</tr>
<tr>
<td>Category C</td>
<td>Characterised by widespread poverty, economic and infrastructural deprivation.</td>
</tr>
<tr>
<td>Informal Settlements</td>
<td>Serviced with Electricity and Potable water.</td>
</tr>
<tr>
<td></td>
<td>The land is communally occupied by the community. Stands are not “professionally surveyed” nor are they registered to create “individual stands” for each household who have occupied the land. Therefore, no Zoning Certificate exists for the “individual stands” but only for the mother property.</td>
</tr>
<tr>
<td></td>
<td>Permission to Occupy (PTO) usually issued and signed by either a Ward Councillor or the Municipality’s Housing Department official(s) with the municipality’s letter head and stamp, to prove their occupation of the property. Their residence is identified using a stand or shack number to determine their site.</td>
</tr>
<tr>
<td></td>
<td>Previously excluded persons live in these areas.</td>
</tr>
<tr>
<td>Category D</td>
<td>Characterised by widespread poverty, economic and infrastructural deprivation.</td>
</tr>
<tr>
<td>Traditional Authority</td>
<td>Permission to Occupy (PTO) / Letter from Traditional Authority.</td>
</tr>
<tr>
<td></td>
<td>Serviced with Electricity and Potable water.</td>
</tr>
<tr>
<td></td>
<td>No township layout plan exists.</td>
</tr>
<tr>
<td></td>
<td>The land is communally occupied by the community under traditional leadership. The stands within these settlements are not “professionally surveyed”, nor are they registered to create “individual stands” for each household who have permission from the traditional authority to occupy the land. Therefore, no Zoning Certificate exists for the “individual stands” but only for the mother property which is a big parcel of land.</td>
</tr>
<tr>
<td></td>
<td>Previously excluded persons live in these areas.</td>
</tr>
</tbody>
</table>

### 3.5.3 RETAIL IN URBAN CORES

It is important to look at retail development within urban cores in relation to other parts of Tshwane in context. The retail developments in urban cores are not developed to the same level as in other parts of the city due
to the inequitable development policies of the past. Nonetheless, retail activity serves as an economic activity within urban cores, albeit not to the same extent as in the metropolitan cores, which have a long history of favourable development policies.

Within the current context of the City’s development policies where equal opportunity is promoted, it is also important to note that retail development, as with many other economic activities, is largely a function of the private sector. The private sector is market-driven, which means that it responds to demand and consumer characteristics. At the same time, consumers will seek out very specific retail typologies depending on their specific characteristics as a consumer. This supply–demand relationship between developer and consumer will remain a permanent state of affairs. Previously, due to a lack of private transport and expensive public transport, low-income earners were compelled to source their needs from small, localised township retailers. Lower priced goods available at township shopping centres or establishments offered a variety of goods and provided goods and services at more affordable prices.

But the population profiles throughout Tshwane are changing as it becomes more integrated spatially, socially and economically. These new population dynamics require that access is given to the upwardly mobile of the former township areas so that spending within the retail arena or urban cores can be directed inward to contribute towards further developing the urban cores. Those that move up the social and income ladder that previously preferred to shop outside townships in upmarket malls (known as “outshopping”) may, to a large extent, start redirecting their expenditure to township malls if upmarket retail developments are increasingly brought into the urban cores. The importance of increased, high-quality retail development within urban cores is, thus, two-fold:

- Economic stimulation by redirecting spending that might otherwise leave the urban core back towards the core in order to increase development

While retail development is driven by the private sector, the City has a role to play towards facilitating the ease with which developers invest in the urban cores. This, especially, relates to service infrastructure and supporting development policies. The City should equally consider smaller traders and how a retail development may impact the livelihoods of existing smaller business owners and entrepreneurs.

Retail development will be further informed by economic policy directives emanating from the City.

3.5.4 LIVABLE NEIGHBOURHOODS AND THE NEIGHBOURHOOD DEVELOPMENT PARTPARTNERSHIP GRANT

The Division of Revenue Act (DORA) is published annually in order to document the equitable share and grant allocations to all levels of government. The DORA publication sets out available grant funding to the City. Typical funding sources available to local government emanating from the DORA publication includes, among others, the NDPG.

The NDPG is a nationally funded programme that aims to address the improved quality of environment in urban cores. The social and economic redevelopment of South African townships has been identified as a national priority. The NDPG is an initiative by the National Treasury that seeks to address development issues within townships. It was announced in the budget speech (15 February 2006) by the then Minister of Finance as a conditional grant to municipalities through the DORA. Its intentions are to stimulate and accelerate investment in poor, underserved residential neighbourhoods (townships) by providing technical assistance and capital grants for municipal projects.
The NDPG programme was established with the objective of leveraging private-sector investment, thereby, stimulating social and economic potential within townships. It plays a key role in unlocking resources and initiating the property developments required to transform target areas into vibrant and economically functional neighbourhoods that are pleasant to live in and provide residents with access to shops, markets, and recreational and community facilities, as well as public transport. The overall aim of the NDPG is to support municipalities to design and implement projects within the context of overstretching township regeneration strategies. Municipalities are urged to submit applications for technical assistance and capital grants for projects that meet the set-out criteria stipulated in the programme toolkit.

In Tshwane, the NDPG funding is focussed on creating vibrant, quality spaces, focussing on nodes of economic potential to act as catalysts for development. This includes, but is not limited to, developing squares, trading facilities and intermodal transfer facilities in largely dormitory areas, as well as the clustering of civic and social facilities around areas of potential to increase the economic viability of the areas and, therefore, attract and maintain private-sector investment.

Through the NDPG, the City aims to create places of opportunity through the clustering and integrated design of public facilities in order to unlock economic opportunities within the former township areas.

The five key points of action for which the NDPG funding should be used in Tshwane are as follows:

1. The creation of community activity centres and focal points (including town centres and urban cores)
2. The strengthening of activity linkages (activity spines and streets)
3. The transformation of transport interchanges into civic termini
4. The enhancement of the pedestrian environment
5. The enrichment of the quality of the public environment with public art and green structures (trees)

The implementation of NDPG-related projects is heavily dependent on the approval of business plans submitted by the City to the National Treasury. Since its inception within Tshwane, the NDPG programme has allowed for the upgrading of numerous spaces and pedestrian pathways within former township areas over the years.

3.5.5 TOWNSHIP ECONOMIES

The Gauteng Township Economy Revitalisation Strategy (GTERS) (2014) defines the township economy as “enterprises and markets based in the township operated by township entrepreneurs to meet primarily the needs of township communities”. “Township economy” is both a spatial and economic concept. It is spatial, because it is restricted to specific types of locales (urban cores) within the city and economic because, as with the so-called informal economy, much of the township economy is usually linked to the informal economy, because large parts of it are informal in nature and regulation. As a result, the terms “township economy” and “informal economy” are sometimes used interchangeably because it is difficult to divorce the two.

While the majority of township enterprises operate informally (outside regulatory frameworks), most sell legally manufactured products obtained from the formal economy. Their informality can either be intended, as a result of an implicit cost-benefit analysis, to avoid the various and cumbersome requirements for business registration and/or formalisation, or unintended due to the regulations and policies that deliberately prohibit businesses from operating in certain contexts and localities. Nonetheless, these enterprises are an integral part of the coherence of township life, because the goods and services they provide are of economic and social
importance to the township communities they serve. It is for this reason that the GTERS believes that these township enterprises have a distinct and vital role to play in helping to create a vibrant, sustainable, socially inclusive, labour-absorbing and growing economy.

Moreover, the township economy has potential to draw a great number of previously excluded persons into the mainstream economy, not just as workers but also as business owners, with the potential to create wealth. The GTERS argues that even though township enterprises were originally established to address specific community needs, they have the potential to branch out and successfully deliver their products to wider markets. What is critical is to ensure that the money and benefits of these economic activities flow directly back into the townships in order to create a sustainable economy, which will ultimately contribute to socially inclusive wealth creation for previously excluded persons.

3.5.5.1 THE SCOPE AND SCALE OF TOWNSHIP ECONOMIES

The township economy was birthed from (i) the necessity (for survival purposes) and (ii) opportunity (as a means to meet the needs of their communities). Township enterprises are typically micro in nature with a low skill base and have a high rate of informality. However, they comprise a wide and diverse range of economic activities within different industry sectors involved in the production, distribution, exchange and consumption of goods and services for township communities. Township enterprises are found to be dispersed throughout the township, with the majority of them being home-based, operating from outbuildings or part of the existing house, while others are well located along or around where public transport runs.

The following table indicates the diverse cluster of enterprises and sectors that exist within the township economy:

<table>
<thead>
<tr>
<th>Sector</th>
<th>Enterprises</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail</td>
<td>Spaza shops, General dealers, Butcheries, Fruit and vegetable stalls, Fish and chips, <em>Shisanyamas</em>, pubs, taverns and shebeens</td>
</tr>
<tr>
<td>Service industry</td>
<td>Hair and beauty salons, Sewing and tailoring, Shoemakers or shoe repairs, Key cutting, Dry-cleaners, laundrette, laundry and carpet cleaners, Printing works, Electronics repairs and workshops, Mobile toilets, tents, chairs and tables hire, Catering, Confectionery, Burial society and funeral undertakers, Security companies, Gyms and fitness clubs, Car wash</td>
</tr>
<tr>
<td>Health</td>
<td>Medical centres (medical practitioners and specialists’ consulting rooms), Pharmacy, Traditional healers</td>
</tr>
</tbody>
</table>
### Construction and real estate
- Building warehouses and building yards
- Construction business
- Brick laying and manufacturing
- Property development
- Backyard rooms and shacks for rent

### Tourism
- Bed and breakfast
- Conferencing
- Backpackers
- Restaurants
- *Shisanyamas*, pubs, taverns and shebeens
- Catering, events, concerts and festivals
- Tour operators
- Heritage tourism

### Manufacturing, industrial and commercial
- Micro and mini distribution centres
- Brewing of sorghum beer
- Manufacturing of “essential oils” for skin and hair products
- Manufacturing of household detergents
- Furniture manufacturing and repairing
- Carpentry
- Steel production welding pipes (security gates) and fittings
- Aluminium window production
- Clothing and textile
- Tombstone manufacturing

### Transport
- Taxi business
- Car and trailer rentals
- Auto body repairs, mechanics, and tyre trade and fitments

### Agriculture and agro-processing
- Selling of livestock and poultry (form of weekend “farmers’ market”)

### Source
*Gauteng Township Economy Revitalisation Strategy, 2014*

### Table

<table>
<thead>
<tr>
<th>Category</th>
<th>Examples</th>
</tr>
</thead>
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</tr>
<tr>
<td></td>
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<tr>
<td></td>
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</tr>
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<td></td>
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</tr>
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<td></td>
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</tr>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Tour operators</td>
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<td></td>
<td>Aluminium window production</td>
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<td>Clothing and textile</td>
</tr>
<tr>
<td></td>
<td>Tombstone manufacturing</td>
</tr>
<tr>
<td>Transport</td>
<td>Taxi business</td>
</tr>
<tr>
<td></td>
<td>Car and trailer rentals</td>
</tr>
<tr>
<td></td>
<td>Auto body repairs, mechanics, and tyre trade and fitments</td>
</tr>
<tr>
<td>Agriculture and agro-processing</td>
<td>Selling of livestock and poultry (form of weekend “farmers’ market”)</td>
</tr>
</tbody>
</table>

### Finance
- Stokvels
- Burial societies
- *Mashonisas* (loan sharks)

### Arts and creative industry
- Music and video production
- Jewellery design and manufacturing
- Art, paintings, and craft-making and selling

### Community and social services
- Early childhood development centres
- Welfare and feeding schemes
- Care for the elderly
- Places of public worship

### Information and communication technology (ICT)
- Internet cafes
- Multimedia services (for DSTV installers)

### Green economy
- Waste management and recycling

3.5.5.2 AN APPROPRIATE LEGAL AND REGULATORY FRAMEWORK

The GTERS indicates that one of the major barriers for township entrepreneurs is the current legal and regulatory framework in which they must operate. A significant part of the regulatory framework is inappropriate for township enterprises. One of the government’s key roles, then, is to create a regulatory framework that is enabling.

In many townships, enterprises such as spazas and taverns are to be found on residential properties and/or right in the heart of residential neighbourhoods. Street traders also take over pedestrian walkways and paving where transport hubs exit as these localities provide the customers for their businesses. In other instances, you would find a tavern co-existing...
with a church right across the street from it because these two land uses do not “compete” for customers. Much of what is found in township economies is unique and contrary to popular planning theory. As such, a unique approach would need to be considered for townships.

From a land use management perspective, the GTERS recommends –

- removing bias against residential-based retail business, for instance in zoning requirements; and
- allowing for the formalisation process of many township enterprises through education campaigns about the benefits of formality.

Other considerations may be reconsidering the often-prohibitive costs of submitting a land use application and the complexity involved in the process.

At the time of preparing this MSDF, the City was in the process of preparing a policy document on township economies, focussing on matters of land use management. While the detail of this policy is not available to reflect upon, innovative land use approaches will certainly need to be considered. Shortened and incremental land use development procedures, in line with the Land Use Management Scheme, will need to be developed and formally adopted by the City, as indicated earlier in this chapter.

3.6 GATED COMMUNITIES

The two broad categories of gated communities are enclosed neighbourhoods and security estates. Enclosed neighbourhoods refer to existing neighbourhoods that are closed off for security purposes. Security estates are new private developments that range from large estates to townhouse and apartment complexes, and can even include predominantly non-residential gated or security parks such as office or industrial parks.

Most security estates in Gauteng are located in the north of Johannesburg, southeast of Tshwane and west of Ekurhuleni, predominantly on the periphery of the existing urban footprint. Many of the business and office parks are found just outside the built-up area and are often concentrated alongside residential security estates. This creates clusters of private gated communities that are adjacent to major transport routes.

Gated communities affect spatial transformation in several ways, such as the following:

- They contribute to spatial fragmentation and have implications for integration and accessibility.
- They change the urban fabric by displacing the movement of motorised and non-motorised (cyclists and pedestrians) traffic. Because large areas are physically closed off, traffic is forced to use the remaining open roads (mostly arterials), which, in turn, causes traffic congestion and displaces traffic to neighbouring areas.
- They change the normal dynamic urban process of change. Densification and redevelopment over time is impossible because these areas are developed and isolated from surrounding areas.
- They compromise the sustainability of public transport because of a lack of connectivity and permeability between the transport route and the gated community.
- All pedestrians are forced to use a single access point, which often creates longer walking distances and decreases residents’ willingness to use public transport. (In open neighbourhoods, pedestrians generally have several options when choosing the shortest route possible to the public transport stop).

The Gauteng Spatial Development Framework quotes Landman and Badenhorst (2012), when they say that the Human Rights Commission’s report on enclosed neighbourhoods maintains that “they cause social division, contribute to dysfunctional cities and lead to further polarisation.
of the city. [...] closing off existing roads also has an impact on the response rate of emergency services and service delivery as well as road maintenance”. (Gauteng Planning Division, 2016)

One of the directives of the Integrated Urban Development Framework is the elimination of gated communities in order to support social cohesion.

At the time of the preparation of this MSDF, a restriction of access to public places policy (in terms of the Gauteng Rationalisation of Local Government Affairs Act, 1998 (Act 10 of 1998)) dealing with gated communities was being considered. What is clear from the background work that has been done to prepare this policy, is that gated communities have arisen from a need for safety and security. One of the principles, then, of the draft Restriction of Access to Public Places Policy is that gated communities will not be granted as a permanent right but will require renewal after a certain period. After a certain number of renewals, the area may not apply for any further neighbourhood closures. This principle is put forward with the recommendation that, in the interim, the City develops a policy or strategy and implementation plan that will address safety and security in Tshwane in the broadest sense, thus, eliminating the need for gated communities that are set up with the primary need of addressing security.

Should the City be able to deliver on this, the Restriction of Access Policy will be reviewed accordingly. As such, one of the actions that has, thus, been recommended at the conclusion of this chapter is that the Tshwane Metro Police Department, in collaboration with the South African Police Service, develop and implement a safety and security strategy that will negate the need for gated communities that are set up with the purpose of improving security.

At present, until the issues of safety and security on a broader scale are definitively addressed, gated communities within Tshwane will likely remain and so our planning will have to be inclusive of this.

While gated communities remain a part of our city structure, it is important that Tshwane’s system of movement and connectivity – for vehicles and pedestrians – is not compromised.

![Figure 3.11: Importance of movement regarding gated communities](image)

### 3.7 AGRI-VILLAGES

At the time of the development of this MSDF, the Sustainable Human Settlements Plan (SHSP) was being reviewed and updated. Further to the SHSP, a plan that addresses rural housing – with agri-villages being an integral component – is being developed. As much as the urban areas of Tshwane are attracting many people in search of improved work opportunities and living conditions, trends have shown that rural and marginalised settlements have experienced continuous population growth in areas where access to land is possible and transport services are good. Population densities in these places are approaching those of urban areas, but the economic base and the infrastructure to manage the said areas are still undesirable. The City is in the process of developing the Rural Settlement Strategy aimed at retaining existing rural or agricultural areas. Research will also be conducted to investigate the implementation of different subsidies when settlements located in these areas are implemented.
Agri-village establishment is a relatively new human settlements concept in the policy environment, which has a focus on self-sustaining living, specifically in rural areas. The focus on the establishment of specialised centres in the form of agri-villages in appropriate locations will specifically help to facilitate agrarian transformation and land reform as envisioned by the Comprehensive Rural Development Programme (CRDP).

Rural areas constitute spaces where human settlement and infrastructure occupy only small patches of the landscape. The majority of rural poor live in areas that are resource-poor and highly heterogeneous. At the time that this MSDF was being prepared, the City of Tshwane did not have a corporate rural development strategy. Nonetheless, the City of Tshwane Human Settlements Department was in the process of developing a rural settlement strategy, which will incorporate the concept of agri-villages.

The key to the success of agri-village development is rooted in the principle of focussed and deliberate government investment spending to ensure that these centres develop in order to provide an extensive range of community facilities and become the spatial focal points of agriculturally driven local economic development interventions and land reform initiatives. By doing so, an agri-village possesses the inherent potential to act as a spatial point within a larger rural space economy around which the critical mass required to initiate formal and informal local economic development can occur over time (City of Tshwane, 2014).

Areas such as De Wagensdrift, Onverwacht, Sokhulumi, etc with rich rural characteristics will qualify for these types of developments. The Rural Development Strategy is currently being developed by the City in order to guide the development of these areas.

Due to the rich agricultural characteristics of the far eastern regions of the city, the City of Tshwane Human Settlements Department proposes that the agri-village concept be explored there to retain the agricultural nature of these areas.

### 3.8 HOUSING DEMAND ESTIMATES

At the time of the development of this MSDF, the Sustainable Human Settlements Plan (SHSP) of 2014 was being reviewed and updated. As part of the work, feasibility studies will be conducted on various land parcels to confirm the development potential. Further to the SHSP, a plan that addresses rural housing is being developed. As much as the urban areas of Tshwane are attracting many people in search of improved work opportunities and living conditions, trends have shown that rural and marginalised settlements have experienced continuous population growth in areas where access to land is possible and transport services are good. Population densities in these places are approaching those of urban areas, but the economic base and the infrastructure to manage the said areas are still undesirable. The City is in the process of developing the Rural Settlement Strategy aimed at retaining existing rural or agricultural areas. Research will also be conducted to investigate the implementation of different subsidies when settlements located in these areas are implemented.

During the compilation of the 2018 Regional Spatial Development Frameworks (RSDFs) through a trends analysis that looked at a number of factors, it was determined that there will be a demand of approximately 154,000 housing units between 2020 and 2025.

The indications of the SHSP are that there is enough developable land to meet this demand.
Table 3.6: Demand for housing, 2020 to 2025

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>REGION 1</th>
<th>REGION 2</th>
<th>REGION 3</th>
<th>REGION 4</th>
<th>REGION 5</th>
<th>REGION 6</th>
<th>REGION 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>10 ppl/ha in Akasia</td>
<td>10 ppl/ha around Kolonnde</td>
<td>1du/2ha in rural areas up to 60 du/ha in</td>
<td>Generally low density. Precise figure not</td>
<td>6.8 ppl/ha</td>
<td>Low to medium density. Precise figure not</td>
<td></td>
</tr>
<tr>
<td></td>
<td>40 ppl/ha in Klipt-Kruisfontein</td>
<td>14.2 ppl/ha in Hammanskraal/Temba</td>
<td>developed areas</td>
<td>figure not given</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>60 ppl/ha in Mabopane</td>
<td>5.2 ppl/ha in remainder</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>southern part</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Informal units</td>
<td>Approx. 52 000 (19% of total housing in region)</td>
<td>18 000</td>
<td>Not given</td>
<td>Not given</td>
<td>Not given</td>
<td>Approx. 40 000</td>
<td>Approx. 7170 (22% of total housing in region)</td>
</tr>
<tr>
<td>Average population Growth Rate</td>
<td>2.1% in 2018 and declining</td>
<td>1.7% in 2013 and declining</td>
<td>2.2% in 2018 and declining</td>
<td>4.7% in 2013 and declining</td>
<td>2.9% in 2015 and declining</td>
<td>2.6% in 2016 and declining</td>
<td>3.1% and declining</td>
</tr>
<tr>
<td>Annual houses required to meet the need as at 2018</td>
<td>Approx. 5500</td>
<td>Approx. 1300</td>
<td>Approx. 5000</td>
<td>Approx. 4000</td>
<td>Approx. 9000</td>
<td>Approx. 6000</td>
<td>Approx. 1000</td>
</tr>
<tr>
<td>HOUSING TOTALS 2020-2025</td>
<td>27 500</td>
<td>6 500</td>
<td>25 000</td>
<td>20 000</td>
<td>45 000</td>
<td>30 000</td>
<td>154 000</td>
</tr>
</tbody>
</table>

Source: Regional Spatial Development Frameworks, 2018
### 3.8.1 DEMAND FOR LAND IN TSHWANE

The city’s Group Property Department undertook the detailed assessment study of the demand for real estate market demand for land between 2018 and 2030 in order to formulate a detailed understanding of, amongst others, the housing demand and social amenities for the city. The data shows approximate gross land demand in hectares of various uses based on expected demographic and socio-economic trends per the seven (7) regions of Tshwane. The table below indicates the total gross demand per region between 2018 and 2030.

**Table 3. 7: Total gross demand for land per region – 2030 (hectares), as at June 2018**

<table>
<thead>
<tr>
<th>Land use</th>
<th>Region 1</th>
<th>Region 2</th>
<th>Region 3</th>
<th>Region 4</th>
<th>Region 5</th>
<th>Region 6</th>
<th>Region 7</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential (FLISP/GAP)</td>
<td>883,8</td>
<td>316,6</td>
<td>1 182,3</td>
<td>2 167,1</td>
<td>194,6</td>
<td>1 718,6</td>
<td>152,4</td>
<td>6 615,3</td>
</tr>
<tr>
<td>Residential (social housing)</td>
<td>61,7</td>
<td>23,2</td>
<td>48,9</td>
<td>122,7</td>
<td>12,1</td>
<td>98,3</td>
<td>11,9</td>
<td>378,8</td>
</tr>
<tr>
<td>Residential (bonded)</td>
<td>860,9</td>
<td>655,2</td>
<td>3 032,3</td>
<td>12 236,6</td>
<td>343,8</td>
<td>5 028,0</td>
<td>190,1</td>
<td>22 346,9</td>
</tr>
<tr>
<td>Residential (subsidy)</td>
<td>1 665,2</td>
<td>626,8</td>
<td>1 321,1</td>
<td>3 313,6</td>
<td>327,9</td>
<td>2 653,8</td>
<td>320,3</td>
<td>10 228,6</td>
</tr>
<tr>
<td>Social amenities</td>
<td>99,1</td>
<td>47,0</td>
<td>122,6</td>
<td>356,6</td>
<td>18,3</td>
<td>230,9</td>
<td>16,8</td>
<td>891,3</td>
</tr>
</tbody>
</table>

*Source: City of Tshwane, 2021b*
3.9 HUMAN SETTLEMENTS AND CLIMATE RESPONSIVENESS

In terms of national land use and settlement patterns, climate change begs serious questions with regard to future human settlements in the national space, such as the following:

- How will climatic change impact regional development patterns in terms of temperature, liveability, water, food security, and the adaptation to viable agricultural practices and commodities?
- What kind of impacts can be expected in settlements, and where should new cities be built and with what population size in mind?
- What are the disaster-risk reduction interventions, coping capacity and national resource implications, like drought relief, that are required in areas that are set to experience significant and intolerable changes in climate: Should high-risk settlement development, for instance, be curbed? Will the government be able to provide support for the most vulnerable and, if so, of what kind and at what cost?
- What kind of activities and settlement patterns should be allowed in such areas, and should new settlement development in these areas be discouraged or concentrated in alternative, carefully selected suitable locations?
- Is directing or discouraging urban sprawl and settlement in certain regions constitutional, and, if so, what kind of method or measure would be used to regulate settlement in such areas?

(Department of Rural Development and Land Reform, 2019)

Currently, there is a push for climate responsiveness in order to mitigate the effects of climate change. This development is important to consider, especially because it has implications for the way Tshwane’s developments will be designed in terms of infrastructure design, human settlements and housing design, transport system design, etc. A failure to appreciate the environmental implications of planning Tshwane’s development may trap the city in a socio-economically costly development path.

The main considerations within the context of spatial transformation are the following:

1. Land and space: A combination of densification, compaction, mixed land use, mixed-income residential areas, child-centred urban design for maximum safety and visibility, provision for urban agriculture in smaller spaces in the inner areas increasing to larger farms on the peripheries, and TOD. The IRPTN should be aligned with strategic, spatially sound human settlement locations. The organisation and orientation of buildings can also impact the urban heat island effect.

2. Building materials and design: The introduction of new building regulations that link approval of building plans to a sustainability audit based on an assessment of the environmental and social impact of the combination of proposed building materials, and the spatial and architectural design (taking into account matters such as north orientation, passive heating and cooling via roof overhang and window design, insulation and ventilation, interior-exterior relations, etc). The building and streetscaping materials used can also impact the urban heat island effect.

3.9.1 LAND AND SPACE

Urban sprawl is still an urgent problem in Tshwane. The current spatial structure of Tshwane is such that less affluent areas tend to be found on the peripheral areas of the city. The high capital outlay required to provide infrastructure in peripheral areas further compounds the problem. The result is that certain communities do not enjoy access to a full range of services, social amenities and facilities. The manner in which people traverse the city is also important. Those who can afford to do so make use
of private vehicles. The majority of Tshwane residents have no option other than to rely on inadequate public transport, which is also becoming increasingly expensive.

The South African Presidential Infrastructure Coordinating Commission (PICC) believes that “quality, affordable infrastructure raises economic productivity, permits economic expansion and allows marginalised households and communities to take advantage of new opportunities.” To this end, 18 strategic integrated projects (SIPs) have been identified and adopted for implementation as part of the National Infrastructure Plan. Of relevance to the City of Tshwane is the Integrated Urban Space and Public Transport Programme that has been developed to focus on the 12 largest urban centres, including all of the metropolitan municipalities in the country. The SIPs will coordinate the planning and implementation of infrastructure, namely human settlements, economic and social infrastructure, and public transport. A particular principle is that of creating “sustainable urban settlements connected by densified transport corridors.”

Compact, mixed-use, transit-served neighbourhoods have dramatically lower emissions per person – as much as half or less per capita of sprawled developments. Due to the high cost of providing bulk infrastructure in low-density areas, urban sprawl should be discouraged. Growth management is critical.

Thus, land and space should be managed in order to –

- reduce the costs of infrastructure provision;
- support a more efficient space economy;
- better connect communities to work and recreation opportunities; and
- protect natural resources within the city.

### 3.9.2 BUILDING MATERIALS AND DESIGN

Often, innovation and implementation in green and sustainable building design comes from the private sector. One of the areas that has not been thoroughly investigated and translated into policy is the low-cost housing space in Tshwane. One of the stumbling blocks in this area is often said to be the existing legislation that governs housing construction in the country. In 2015, Mark Jackson of urbanAfrica.Net, with a background in environmental sciences and city and regional planning, compiled a list of current building regulation norms and standards as well as some suggested guidelines for efficient and sustainable housing design by government bodies. These constraints and opportunities make up a framework for thinking about positive and innovative housing solutions that offer a step forward in terms of resource use, economic cost, environmental sustainability, socio-economic responsibility as well as liveability.
### Table 3.8: Building materials and designs

<table>
<thead>
<tr>
<th>Constraints</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Form</strong></td>
<td></td>
</tr>
<tr>
<td>Minimum of a 40 m² floor area and two bedrooms</td>
<td>Materials are very loosely defined</td>
</tr>
<tr>
<td>Separate bathroom (toilet, shower and hand basin)</td>
<td>Form is not defined</td>
</tr>
<tr>
<td>Combined living area and kitchen (wash basin and electricity supply)</td>
<td>Construction by certified builders who have warranties for roof leakage (one year), major structural defects (five years) and non-compliance (three months)</td>
</tr>
<tr>
<td>Built on favourable soil conditions</td>
<td></td>
</tr>
<tr>
<td>Maximum of 10 m from a municipal water and sewage connection</td>
<td></td>
</tr>
<tr>
<td>Safe foundation for load and damp resistance</td>
<td></td>
</tr>
<tr>
<td>Water- and weather-resistant façade</td>
<td></td>
</tr>
<tr>
<td>Minimum window footage and controllable ventilation at 5% of the floor area</td>
<td></td>
</tr>
<tr>
<td>One at least every 0,1 m²</td>
<td></td>
</tr>
<tr>
<td>Minimum wall height of 2,4 m and a minimum ceiling height of 2,1 m</td>
<td></td>
</tr>
<tr>
<td><strong>Energy</strong></td>
<td></td>
</tr>
<tr>
<td>Efficiency and safety is the aim</td>
<td>Installation of 110 W to 150 W per day of solar in much of South Africa at R2 500 to R4 000</td>
</tr>
<tr>
<td>Free basic provision to applicable houses on the grid or off (50 kWh per month)</td>
<td>Combined board and meter as electricity control unit</td>
</tr>
<tr>
<td>230 V preferable within 207 V to 253 V flexible range at the point of supply</td>
<td>Efficient lighting, heating and cooking designs</td>
</tr>
<tr>
<td>Water</td>
<td>Bulk supply of liquefied natural gas, cheaper and safer than most sources</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Grid extension cost at R20 000 to R55 000 per kilometre</td>
<td>Renewable source (wind, solar and biofuels)</td>
</tr>
<tr>
<td>50% of water heating should be supplied by means other than electrical resistance</td>
<td>Solar water heating (40% of average household energy consumption), subsidised with four- to five-year payback time</td>
</tr>
</tbody>
</table>

**Water**

- Single standpipe per stand
- Rainwater collection with filters
- Minimum of 25 ℓ per day (realistically, 80 ℓ to 145 ℓ)
- Wind water pumps optimal balance between cost and maintenance
- Contamination protection
- Aesthetic water acceptability (Class 0 to 1)
- Water at 200 kPa or greater, and more than 43 °C

**Drainage**

- Minimise downstream impact, do not damage natural flows
- Promote permeability, maintain vegetation
- Run-off conveyed more than 1,5 m from the structure
- Store and control run-off
- Prevent pollution

**Sanitation**

- Human right
- Should be reliable, acceptable, appropriate, affordable and sustainable in the eyes of the user
- Non-conveyance toilet options (ventilated double toilet, vault toilet or urine diversion toilet)
- Toilet facility for each household
- Low-flow conveyance toilets
- Low-tech and low-maintenance solutions with future upgradability
<table>
<thead>
<tr>
<th>Minimal environmental impact</th>
<th>Possibilities for greywater ponding, permeability, soakaways and gardening (for produce not eaten raw)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate disposal of waste water</td>
<td></td>
</tr>
<tr>
<td>Shared sewage connections</td>
<td></td>
</tr>
<tr>
<td>A 4 to 10-year emptying and maintenance cycle</td>
<td></td>
</tr>
<tr>
<td>Separate greywater conveyance</td>
<td>Generated at 20 € to 60 € per day</td>
</tr>
<tr>
<td><strong>Sustainability</strong></td>
<td></td>
</tr>
<tr>
<td>Appropriate orientation</td>
<td>Encourage long-term investment in houses with improved efficiency</td>
</tr>
<tr>
<td>Long axis east or west</td>
<td>Better material usage reduces economic load on inhabitants</td>
</tr>
<tr>
<td>Energy efficiency through windows, skylights and low-wattage lightbulbs</td>
<td>Environmental quality and sustainability</td>
</tr>
<tr>
<td>Thermal efficiency: Appropriate overhangs (northern side), fenestration (R2,2 or masonry at R0,35 more than 140 mm thick, roofing more than R3,7, and floors more than R1,0 at 300 mm thick)</td>
<td>Improves health and safety of the building</td>
</tr>
<tr>
<td><strong>Safety</strong></td>
<td></td>
</tr>
<tr>
<td>Protection and evacuation of occupants in case of fire</td>
<td>Building materials that are more resistant to fire and, therefore, protect neighbouring properties</td>
</tr>
<tr>
<td>Limit the spread</td>
<td></td>
</tr>
<tr>
<td>Safe air quality through ventilation For damp and smoke</td>
<td>Health improvement and disease reduction through improved air flow</td>
</tr>
<tr>
<td>Humidity compensation</td>
<td>Visibility and connectivity</td>
</tr>
<tr>
<td>Street lighting or communal high-mast lighting</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Funding</strong></td>
<td></td>
</tr>
<tr>
<td>Multiple funding options with constraints</td>
<td></td>
</tr>
<tr>
<td>Multiple subsidy options available around community and self-construction as well as social housing buy-in</td>
<td></td>
</tr>
<tr>
<td>Family earning less than R3 500 per month can qualify for a subsidy of up to R160 573</td>
<td></td>
</tr>
<tr>
<td>In-situ options available for informal areas</td>
<td></td>
</tr>
<tr>
<td>Subsidies linked with down payments (FLISP) can amount to between R20 000 and R87 000</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Jackson, 2015*
At the time of the preparation of this MSDF, the City was reviewing its Green Buildings By-law. Green building (also known as green construction or sustainable building) refers to a built structure and process that is environmentally responsible and resource-efficient throughout a building’s life cycle: From siting to design, construction, operation, maintenance, renovation and demolition. This practice expands and complements the classical building design concerns of economy, utility, durability and comfort.

Although new technologies are constantly being developed to complement current practices in creating greener structures, the common objective is that green buildings are designed to reduce the overall impact of the built environment on human health and the natural environment by –

• efficiently using energy, water and other resources;
• incorporating natural or green elements where feasible;
• incorporating permeable surfaces;
• protecting occupant health and improving employee productivity; and
• reducing waste, pollution and environmental degradation.

Tshwane is one of five South African cities in the C40 Cities network – a network of cities across the globe committed to addressing climate change. In terms of the provisions of the Net Zero Carbon Buildings Declaration, the City has committed itself to ensuring that all new buildings in Tshwane are net zero carbon buildings by 2030 and all buildings are net zero carbon by 2050. The MSDF gives effect to the development principles of SPLUMA, as contained in Chapter 2, and recognises all sectoral policies affecting the spatial vision of the City. Where any mandated decision is taken with regard to the implementation of the MSDF or any component thereof, the principles that are outlined in the City’s adopted Green Buildings Policy or regulatory instruments or frameworks related thereto should be taken into account to achieve its longer-term spatial vision and to ensure that the principle of sustainability is embraced.

Further to the above considerations, the Council for Scientific and Industrial Research (CSIR) Green Book indicates a number of adaptation actions to be considered when planning for or developing human settlements. These relate to the protection and maintenance of engineering and green infrastructure to –

• protect communities from events such as flooding;
• take preventative measures for natural or man-made disasters such as fires;
• ensure suitable locations for various activities and land uses;
• make use of and enforcing planning measures such as buffer zones and flood lines; and
• use simple design measures such as the shading of public spaces, the use of permeable paving and, very importantly, the rehabilitation, reuse and/or recycling of spaces and/or resources where possible.

These adaptation actions cut across all sectors and require actions to be taken by the private and public sector.

With regard to housing, in particular, the matters around location, specifically regarding matters like flood lines and buffer zones, is key. These are matters that are addressed per land use application once received by the City for processing. Design measures that will improve upon the adaptation of housing developments to climate change need to be addressed through the Urban Design Framework (citywide and/or for a particular precinct) and the City’s Green Buildings By-law. The City does not, at present, have a corporate urban design framework. It is a key recommendation of this MSDF that one is developed. At the time of preparing this MSDF, the City’s Green Buildings By-law was being revised and it is expected that these adaptation considerations will be incorporated as far as possible.
The City’s Vulnerability Assessment of 2015 assesses the exposure, sensitivity and adaptive capacity of Tshwane regions and sectors to the potential impacts of climate change, focusing on extreme events.

Many of the adaptation actions addressed here correspond with those addressed in the CSIR Green Book.

### 3.9.3 THE URBAN HEAT ISLAND EFFECT

The Paris Agreement’s central aim is to strengthen the global response to the threat of climate change by keeping the global temperature rise this century well below 2 °C above pre-industrial levels, and to pursue efforts to limit the temperature increase even further to 1.5 °C.

In order to sufficiently identify the spatial implications of climate change for South Africa, several fine-scaled climate change projections were undertaken and incorporated into the draft National Spatial Development Framework (NSDF) of 2018.

The resulting projections generally predict severe temperature increases for southern Africa. It is especially the northern and western parts of South Africa that can expect significantly hotter average temperatures and more very hot days per year by 2050. By the end of the century, temperature increases of between 4 °C and 7°C can be expected over the interior of the country.

In more developed areas, temperatures can generally be expected to be higher than the average should the current development trends continue.

This will largely be due to a phenomenon known as the urban heat island effect.

National Geographic provides a very comprehensive explanation of what an urban heat island is and how it affects our daily lives. An urban heat island is a metropolitan area with higher temperatures than surrounding peri-urban or rural areas. Heat is created by energy from all the people, cars, buses and trains in large cities. These urban heat islands are created mostly in areas that have a high number of people and activity.

Densification of strategic nodes is one of the approaches being employed by this MSDF for the purposes of spatial transformation. Densification inevitably leads to an increase in land use and/or population in a given space and, if not done correctly, may aggravate urban heat islands within Tshwane.

During 2020, an urban heat island study for Tshwane will be completed. The study has been divided into various phases, with Phase 1 already having revealed some preliminary findings. Looking at the diagram (Figure 3.9) and the map on the left below (Figure 3.10), one will see that the areas depicted in a darker maroon colour are the areas that are experiencing urban heat island effects. The map on the right (Figure 3.10) depicts current population densities, having used residential units per suburb as a proxy. The blue areas depict informal settlements, while the yellow, orange and red depict formal development, with yellow being the lower densities and red being the highest.

What one will clearly see is that it is only in some instances where high densities correspond with the urban heat island effect. In some instances, even where densities are lower, the urban heat island effect is still evident.

Therefore, it is important to note that densification in and of itself is not the culprit, but rather the manner in which development within densified areas takes place.

For example, when buildings are constructed close together and placed in such a way that impedes wind flow, this can create an urban heat island. Building materials are usually very good at insulating or holding in heat. This insulation can make the areas around buildings warmer.
Energy emissions from daily modern life, like from cars and factories, for example, are always burning off energy. This energy usually escapes in the form of heat, which also contributes to warmer temperatures.

Hard, impermeable surfaces, such as concrete paving and road surfacing, tend to absorb heat during the day and trap this heat at lower levels, realising it during the cooler evening, which makes the temperature warmer.

All of this, in turn, leads us to make use of cooling mechanisms, such as air conditioners. Urban heat islands contribute to energy demands in the summer, straining energy resources, and are often subject to rolling blackouts (load-shedding) or power outages. Utility companies start rolling blackouts when they do not have enough energy to meet their customers’ demands. The energy used in electric fans and air-conditioning units ends up contributing to an even hotter urban heat island. Therefore, recommendations around the use of green infrastructure over traditional engineering infrastructure (as addressed in Chapter 6: Ecological infrastructure) and the correct use of building material and design (as addressed in this chapter) will minimise the effects of the urban heat island effect.

Development layouts that do not impede wind flow are also important.
Figure 3.13: Urban heat island versus densities
3.10 SPATIAL TARGETING FOR HOUSING

The City’s vision for human settlements is to provide the communities of Tshwane with sustainable and affordable human settlement opportunities and security of tenure. The City’s mission is to ensure access to adequate housing by upgrading informal settlements and providing affordable, sustainable and integrated human settlements with adequate access to basic services.

Though the implementation of these sustainable human settlements is a long process, there are challenges such as land invasions, growth of informal settlements, unavailability of bulk infrastructure, unavailability of well-located land closer to economic opportunities, poor intergovernmental relations, etc that delay implementation. Partnerships between the government and private developers through public–private partnerships seem to be the best solution to fast-track the delivery of these sustainable human settlements in order to balance the demand and supply of these settlements.

As emphasised by the National Planning Commission (2011), settlement patterns should meet the needs and preferences of citizens, taking into account broader social, environmental and economic interests. Travel time or distances need to be shorter and travel itself needs to be more affordable. This means ensuring that a larger proportion of workers live closer to their places of work and that public transport is safe, reliable, affordable and energy-efficient. It means building denser and more liveable cities and towns. Where travel distances cannot be shortened, travel and transport efficiencies should be ensured.

The National Development Plan targets for 2030, that will influence future city planning, include that –

- more people should be living closer to their places of work;
- better quality public transport should be provided; and

(National Planning Commission, 2011)
The City of Tshwane Human Settlements Department has identified strategic locations for further investigation for the purposes of providing affordable housing that supports sustainable human settlements. These areas have been categorised as follows:

- Inner city
- Tshwane West
- Tshwane South
- Tshwane North

### 3.10.1 INNER CITY AND TSHWANE WEST AS PROPOSED BY THE CITY OF TSHWANE HUMAN SETTLEMENTS DEPARTMENT

The inner city is currently characterised by high-density residential areas with few social amenities, and old, dilapidated buildings, etc. The following interventions should, therefore, be implemented in order to address the existing challenges:

a) Inclusionary housing to promote integrated settlements accommodating different income groups and land uses. Incentives to private developers will be explored in order to attract more developers willing to partner with the City

b) Redevelopment of dilapidated buildings, especially along Johannes Ramokhoase Street, in order to increase affordable rental housing

c) High-density, affordable housing (gap and rental) alongside Bosman Station, the Salvokop bus stop and the Capital Park bus stop

d) Densification along major routes, such as WF Nkomo Street towards the western side of the city, and existing and future BRT

e) Student accommodation around Arcadia, Hatfield, Boom Street, Bloed Street, etc

f) Integrated residential developments towards the western side (Kirkney, Andeon, Suiderberg, etc)

g) Development of multipurpose centres (incorporating social amenities such as recreational facilities, clinics, schools, etc)

h) Mixed housing developments in old hostels, such as Saulsville towards the western side, to accommodate the existing hostel dwellers and the demand from the neighbouring townships.

### 3.10.2 TSHWANE EAST AS PROPOSED BY THE CITY OF TSHWANE HUMAN SETTLEMENTS DEPARTMENT

The eastern side of the city comprises Regions 5, 6, and 7. Region 6 still has potential for infill developments and mega human settlements developments around the Willows side. The existing townships need to be revitalised to improve or increase the provision of social amenities, such as clinics, recreational facilities, etc. Infill developments should focus on high-density, affordable rental units along major transport routes. Plans are currently in progress to redevelop the existing Mamelodi hostels into mixed human settlement development accommodating different tenure options.

The main challenge is the unavailability of land to accommodate current and future housing demands within the region, especially the households currently located in informal settlements and backyards. There is currently sufficient land in the far eastern side of the city (Regions 5 and 7). However, the main challenge is the unavailability of bulk infrastructure to supply future developments. Infrastructure unlocks the development potential of rural areas. Appropriate levels, form and location are important, given that infrastructure investment is less cost-effective in lower-density areas with small economies.

High-density developments along the Moloto and Zambezi routes due to their advantage to linkages with major transport roads to major economic areas are crucial. Townships like Refilwe, Cullinan and Zithobeni will require revitalisation to increase the provision of social amenities in order for them to fully comply with sustainable human settlement principles.
Due to the rich agricultural characteristics of the far eastern regions, it is proposed that agri-village concepts be explored to retain the agricultural status of these areas. The focus on the establishment of specialised centres in the form of agri-villages in appropriate locations will specifically help to facilitate agrarian transformation and land reform as envisioned by the CRDP. Notably, such villages also aim to promote food security.

The key to the success of agri-village development is rooted in the principle of focussed and deliberate government investment spending to ensure that these centres develop to provide an extensive range of community facilities, and become the spatial focal points of agriculturally driven local economic development interventions and land reform initiatives. By doing so, an agri-village possesses the inherent potential to act as a spatial point within a larger rural space economy around which the critical mass required to initiate formal and informal local economic development can occur over time. Areas such as De Wagensdrift, Onverwacht, Sokhulumi, etc with rich rural characteristics will qualify for these types of developments. The Rural Development Strategy is currently being developed by the City in order to guide the development of these areas.

3.10.3 TSHWANE SOUTH AS PROPOSED BY THE CITY OF TSHWANE HUMAN SETTLEMENTS DEPARTMENT

The southern part of Tshwane is one of the city’s active areas due to the existing economic opportunities and its linkages to the two big metropolitan areas (the City of Johannesburg and the City of Ekurhuleni). The Breaking New Ground Strategy emphasises the need to locate residential areas closer to these economic opportunities. Most of the region’s soil is affected by dolomite, making the privately owned land available too costly to acquire by the government to develop more social amenities and residential areas to accommodate existing and future housing backlogs.

The implementation of public–private partnerships for mixed developments and inclusionary housing will be crucial in order to respond to existing and future human settlements demand in the region. Developments along the M26, R55 and N14, including Knopjeslaagte and Erasmia as future residential expansion areas, are recommended. However, bulk infrastructure provision in partnership with the City of Johannesburg will be required to unblock their potential.

Old townships such as Olievenhoutbosch, Laudium, etc require revitalisation to increase the provision of social amenities and affordable rental units in infill sites or unused government buildings. The existing BRT routes should also be expanded to cater for these areas.
Figure 3.14: PWV9 or R80 provincial route (existing and proposed)
3.10.4 TSHWANE NORTH AS PROPOSED BY THE CITY OF TSHWANE HUMAN SETTLEMENTS DEPARTMENT

The northern part of the city links well with Limpopo and the North West. It is characterised by industrial nodes, semi-rural areas and old townships such as Mabopane, Ga-Rankuwa and Soshanguve. High-density developments along major transport routes and tertiary institutions (student accommodation) will be developed to respond to the demand. Old townships will be revitalised by developing high-density infill developments and increasing the provision of social amenities.

Particular attention must be paid to rural densification in parts of the previous homelands, where rural settlements are growing rapidly in areas where access to land is possible and transport services are good. Population densities in these places are approaching those of urban areas, but the economic base, infrastructure and governance arrangements to manage this change are lacking (National Development Plan). This includes areas such as Hammanskraal in Region 2 and Winterveld in Region 1. Creating more opportunities in these areas will reduce daily travel times for these households to and from the inner city and other regions.

3.10.5 ALIGNMENT OF HOUSING AND TRANSPORT PLANNING

The alignment of the City’s plans with the Gauteng Department of Transport and Public Works (Gautrans) plans is crucial as many of the City’s future strategic developments depend on provincial routes for accessibility. The development of these routes will unlock more opportunities – residential and economic – that will generate more revenue and work opportunities for Tshwane. Examples will be the provincial PWV9 (also known as the R80 or Western Bypass) and K-routes planned around the city. Figure 3.16 indicates some of those routes. Currently, many households must traverse the length and breadth of Tshwane using lower-congested, lower-order and convoluted routes. The same applies to freight transport.

In determining where best to invest in developments that are primarily focused on lower-income and affordable housing, it is critical to consider the movement and connectivity options of potential residents so that they may have equal access to the social and economic opportunities of the city.

At present, in terms of the areas being investigated by the City of Tshwane Human Settlements Department, some of the public housing projects do not benefit directly from the IRPTN. The Tshwane human settlements spatial targeting areas benefit from bus services and taxi services, though. For the kind of projects that are being proposed for Tshwane East and Tshwane West, it is important that the capacity and reliability of those bus services to meet the growth in demand for transport are assessed and improved upon if necessary. Areas such as Refilwe are not provided for at all in terms of the City’s Integrated Public Transport Network (IPTN) and it is important that the key sector departments (Roads and Transport Department and Human Settlements Department) engage on how best to ensure that where high-density developments are to be implemented by the City, there is an option for connectivity by potential residents.

The City has made an investment in world-class infrastructure in order to realise BRT Line 1B (Rainbow Junction/Wonderboom to Pretoria CBD) and BRT Line 2A (Pretoria CBD to Hatfield), which have been built and gazetted.

The BRT, a component of the IRPTN, is being implemented in Tshwane in order to improve movement and connectivity in the city, giving more segments of the population greater access to economic and social opportunities that may be located some distance from their residences. The BRT is also an important spatial restructuring tool as a mechanism for TOD.
In view of constrained financial resources and the investment that the City has already made in the IRPTN, high-density housing and mixed land use investment in support of TOD should, as far as possible, be channelled towards already completed and existing parts of the IRPTN and functional, efficient corridors of the IPTN, which includes rail and taxis.

The highest densities will be supported along the IRPTN, specifically around transit stops, with priority being given to sections of the IRPTN that have already been constructed. This will be done in order to ensure that there is a limit of the unintended consequence of traffic pressure due to increased densities where safe, efficient and affordable public transport options have not been offered. Developments within TOD precincts will be allowed the highest densities.

3.10.6 ALIGNMENT OF HOUSING AND WORK OPPORTUNITIES

As far as what is possible, spatial restructuring encourages the placement of residential developments near areas of economic activity with supporting social facilities, and defines spaces through spatial design, etc. Understanding which of the sectors and economic localities are most “job absorbing” as opposed to only being revenue-generating is important. At the time of preparing this MSDF, such detailed profiling was unfortunately not available, but it is recommended that such economic profiling be done to ensure that affordable housing is directed towards economic nodes that can absorb some appropriately skilled jobseekers.

As a starting point, the diagram below illustrates areas that, from a spatial perspective, should be targeted for affordable housing, such as nodal areas and areas close to work opportunities (specialised and industrial nodes). The exact parameters of catchment areas for the “work opportunity areas” can only be determined once detailed profiling of the economic nodes has been done.
Figure 3.15: Primary economic network
In May 2020, the Minister of Human Settlements, Water and Sanitation declared 136 priority human settlements and housing development areas (PHSHDAs). According to the Gazette Notice, the PHSDAs are intended to advance human settlements spatial transformation and consolidation by ensuring that the delivery of housing is used to restructure and revitalise towns and cities, strengthen the livelihood prospects of households and overcome apartheid spatial patterns by fostering integrated urban forms.

Six of the 139 PHSHDAs have been identified in Tshwane. They are the following:

1. Pretoria West-Central Link
2. Greater Hammanskraal Node
3. Greater Mamelodi-Nellmapius Integration Node
4. Olievenhoutbosch
5. Soshanguve
6. Ekangala

Almost the entire geographical areas of these nodes have been delineated. The identification of particular focus areas for which detailed development plans will be developed within these broader nodes will need to be a process of refinement, informed by the spatial targeting guidelines as highlighted in Chapter 2 of this MSDF, and as per the need to align housing with transport planning and economic opportunities (see Section 3.9).

The plans should also take into consideration that there are already significant service delivery backlogs in these areas and the implementation plan should, therefore, be aligned to funding and implementing service delivery needs. A phased approach will be key. It will not be possible to deliver all housing to all areas at the same time.
PHSHDA name: Pretoria West-Central Link

Main places:
- Andeon, Andeon AH, Arcadia, Asiatic Bazaar Pretoria, Atteridgeville Ext 3 and 7, Booyens, Claremont, Danville, Danville Ext 1, 2, 3, 5, 8, 9, 11, 12, 13 and 15, Kirkney, Kwaggasrand, Fort West, Philip Nel Park, Technikon Rant, Elandspoort, Lotus Gardens, Lotus Gardens Ext 2, Saulsville SP, Matlejoane, Jeffersville, Phumolong, Laudium, Marie-Ville, Muckleneuk, Sunnyside, Trevenna, Wespark, Salvokop, Pretoria Industria and Goede Hoop, Pretoria

Ward numbers:
- 3, 7, 51, 55, 58, 60, 61, 62, 63, 68, 71, 72, 80, 81 and 107

Figure 3.16: PHSHDA Pretoria West-Central Link
<table>
<thead>
<tr>
<th>PHSHDA name</th>
<th>Greater Hammanskraal Node</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main places</td>
<td>Babelegi, Dilopye, Hammanskraal, Hammanskraal West, Kudube, Mandela Village, Marokolong, Ramotse, Stinkwater, Thaba Yabatho AH, Themba View and Babelegi</td>
</tr>
<tr>
<td>Ward numbers</td>
<td>8, 13, 49, 73, 74, 75, 76, 95, and 22</td>
</tr>
</tbody>
</table>

Figure 3.17: PHSHDA Greater Hammanskraal Node
<table>
<thead>
<tr>
<th>PHSHDA name</th>
<th>Greater Mamelodi-Nellmapius Integration Node</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main places</td>
<td>African Renaissance, Despatch, Eersterust, Equestria, Gem Valley, Mahube Valley, Mamelodi, Mamelodi Sun Valley, Moretele View, Nellmapius, Pienaarspoort, Samcor Park, Silvertondale, Willow Park Manor, Willowbrae AH and Willowglen AH</td>
</tr>
<tr>
<td>Ward numbers</td>
<td>6, 10, 15, 16, 17, 18, 23, 28, 38, 40, 43, 67, 85, 86, 93, 97, 100 and 101</td>
</tr>
</tbody>
</table>

Figure 3.18: PHSHDA Mamelodi-Nellmapius Integration Node
Figure 3.19: PHSHDA Olievenhoutbosch
<table>
<thead>
<tr>
<th>PHSHPA name</th>
<th>Soshanguve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward numbers</td>
<td>9, 11, 12, 13, 14, 19, 20, 21, 22, 24, 25, 26, 27, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 88, 89, 90, 94, 95, 96 and 98</td>
</tr>
</tbody>
</table>

Figure 3.20: PHSHPA Soshanguve
<table>
<thead>
<tr>
<th>PHSHDA name</th>
<th>Ekangala</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main places</td>
<td>Bronkhorstspruit, Ekangala A, B, C, D, E, F and G, Kungwini Hills, Rethabiseng, River Walk, Zithobeni and Zithobeni Heights</td>
</tr>
<tr>
<td>Ward number</td>
<td>102, 103, 104 and 105</td>
</tr>
</tbody>
</table>

**Figure 3.21: PHSHDA Ekangala**
### 3.12 GROWTH MANAGEMENT

The 2018 RSDFs serve as a critical input layer to the MSDF. One of the most critical layers is the densification strategy.

The strategy proposes the following four key density zones:

- Concentration zones
- Linear zones
- Suburban densification zones
- Low-density zones

#### 3.12.1 CONCENTRATION ZONES

(Less than a 500-metre walking distance: Density of up to 200 units per hectare)

The concentration zones are the primary focus areas for high-density residential developments and are centred around nodes of metropolitan importance, such as metropolitan nodes and urban cores (high-density zones), transit promotion zones and other strategic locations. Density of up to 200 units per hectare will only be supported on properties adjacent to the trunk routes.

Transit-promotion zones refer to those nodes that are centred on transportation nodes such as stations and large intermodal transfer sites, and where TOD should take place. TOD is defined as a unique mix of high-density and intensity land uses located within an 800-metre walking radius of a railway station or a major public transport node.

The areas around the existing Gautrain, Passenger Rail Agency of South Africa (PRASA) railway stations and the existing and proposed BRT or IRPTN stations have been earmarked as higher-density transit promotion zones. Densification should take place within an 800-metre walking radius of a BRT or IRPTN station. Densities of up to 200 units per hectare in nodes and around rail stations will be applicable for the first 500-metre walking distance and up to 120 units per hectare for the area between 500 metres and 800 metres. The guidelines have been determined by the National Treasury in terms of their urban hub design toolkit. Funding of BRT lines and stations are dependent on these guidelines.

The concentration zones and linear zones call for a drastic change in the built environment in terms of densities, typologies, built form and urban design, moving away from suburban typologies in these areas toward a more urban fabric. Heights of up to eight storeys will only be supported on properties adjacent to and fronting the trunk route. Downscaling of height will be applied relative to the distance away from the trunk.

Densities within concentration zones should not be developed at densities of below 80 units per hectare or less than three storeys.

Existing and planned PRASA railway stations outside the metropolitan nodes and urban cores will be regarded as densification areas. Densification should take place within an 800-metre walking radius from a PRASA station. Densities of up to 200 units per hectare around rail stations will be applicable for the first 500-metre walking distance and up to 120 units per hectare for the area between 500 metres and 800 metres. Only two- to three-storey developments (walk-ups) are envisaged for these areas around rail stations.
3.12.2 LINEAR ZONES (CORRIDORS AND SPINES)

(Up to more or less a 200-metre walking distance from public transport: Density of up to 80 units per hectare)

For the purpose of densification, linear zones refer specifically to high-intensity activity areas that are located along major routes. The routes usually carry high volumes of traffic to areas, such as concentration zones and transit promotion zones and, thus, encourage the feasibility of public transport on strategic routes. The linear zones also connect the urban core areas with one another within the city.

The identification of these linear zones should follow a focussed, selective and phased approach, where only the most important routes are identified in the short term. This is necessary in order to achieve a high level of concentration along each of these routes rather than dispersing development along too many routes, and then the critical mass for public transport viability is never achieved. In terms of the densification strategy, linear zones refer specifically to high-activity areas that are located along major routes. The main aim of the routes should be to encourage public transport. The average density supported around linear zones will be in the order of 80 units per hectare.

3.12.3 SUBURBAN DENSIFICATION ZONES

(Density of 25 units per hectare)

Suburban densification zones are those existing suburban areas where there is potential for moderate densification because of the area’s strategic location within the city (within a 25-km radius of the CBD). This zone makes for good application in areas that are close to places of employment, major retail centres and prominent transport routes, but where it is still desirable and warranted to maintain a suburban character.

The maximum density in these areas will be restricted to 25 dwelling units per hectare. The exceptions will be the nodal or core areas within the suburban areas where densities of up to 200 dwelling units per hectare can be supported, depending on the available public transport and social amenities. The average density supported around suburban nodes will be in the order of 80 units per hectare.

Within suburban densification areas, the core principles of densification are the following:

- Densification must contribute to the provision of lifestyle choices within the specific area. As an example, provision must be made to sustain all the lifestyle phases, from young working people and students to families with young children and elderly people.
- Appropriate higher-density housing opportunities at appropriate locations must be provided for all income groups to promote the aims of social integration.
• Specific areas of opportunity or need for restructuring should be identified.
• Areas that should not be densified for specific reasons should also be identified.
• Areas targeted for densification should be treated as whole environments, that is, densification should not happen in isolation but as part of a larger programme aimed at creating a suitable high-density environment.
• Areas targeted for densification should be well served by public transport or have the potential to be well served by public transport in future.
• Pedestrianisation must be included into the densification process and 1.8-metre walkways must be provided on erf boundaries in these areas by developers.
• Areas targeted for densification should be well served by social facilities such as education, place of public worship, open space, recreation, etc or should have the potential to be well served by social facilities. Public space and, specifically, municipal-owned property should be kept in reserve as the need for social facilities increases. Other related uses such as schools, crèches and places of instruction must be accommodated in these areas as densification takes place.
• Open space, farmland, natural beauty and critical environmental areas must be preserved and enhanced.
• Cultural assets must be retained, enhanced and encouraged.

The various housing and densification typologies must be employed in a structured manner within this zone, with cluster housing and apartments located adjacent to strategic points within the neighbourhood, such as local nodes, public transport facilities on a major public transport route, education facilities and parks. These developments shall be subject to urban design principles and site development plans.

In essence, within this zone, the urban form remains the same as it currently is, only with an increase in general density, and a change in typology and density around strategic points within these areas.

Greenfield development (farm portions and small holdings) will be handled on merit and the general principles of density will apply. The maximum density will be in the order of 80 units per hectare and will be supported within a 25-km radius of the CBD. Previously disadvantaged areas will mostly have densities of more than 25 units per hectare, which would remain applicable.

3.12.4 LOW-DENSITY ZONES
(Up to ten units per hectare)

Low-density zones are so called because those are the areas in the city where lower densities are actually more desirable, either because of location or bona fide special circumstances.

The majority of these zones are the peripheral areas that are removed from opportunities such as economic and employment nodes and mass transportation opportunities, and are characterised by long travelling distances to areas of employment. In these areas, higher densities serve no purpose or could actually be detrimental to the functionality of the city, and it is preferable not to encourage population concentrations in these areas. The low-density zone, however, also includes areas that are more centrally placed, but which have special characteristics that need to be preserved, and hence a low density is considered justifiable. These include areas along ridges, where lower densities are more conducive to a built form that is sensitive to the ridge quality from a visual point of view, including issues such as skyline, further spacing of buildings, etc. These low-density areas will also serve to provide visual relief in between adjoining higher-density areas.
Ideally, a low-density zone’s density should not exceed ten dwelling units per hectare. When encouraging low densities in these areas, it is also important to ensure that the higher densities are directed and actually take place where they are desirable and required.

### 3.12.5 RURAL DIVISIONS

The basic principle applicable will be that division of up to one hectare or larger will be allowed in areas with City-approved piped water. Divisions of 5 000 m² will only be accommodated in certain areas as indicated on the map and only with the consent of the Water and Sanitation Department of the City. Divisions of five hectares and larger will be considered in areas without piped water except in cases of high agricultural potential and environmentally sensitive areas. Divisions must take flood lines and water courses into account when applied for.

### 3.12.6 IRPTN AND TOD

Tshwane’s current population is approximately 3 300 000. The population projections for Tshwane that are illustrated in Chapter 1 of this MSDF indicate a population growth of roughly 600 000 to 1 000 000 by 2025. Other sources have shown that Tshwane’s population may have a population as high as 5 967 455 or 8 183 290 by 2055 in a low and high population projection, respectively.

Regardless of the exact numbers, the population is expected to grow. As has already been alluded to, the strategy of Tshwane is to concentrate growth of housing and other suitable developments alongside and/or close to transit-stations and systems, supported by the nodal approach.

This approach will do the following:

- Give high impact to broad-based economic growth
- Reduce the carbon footprint
- Create a resilient and resource-efficient city
- Encourage quality infrastructure provision that will support liveable communities
- Give equitable access to work opportunities citywide
- Provide a wider choice of housing options across income groups within an area of opportunity through densification, consolidation and strategic location

This will allow the highest population concentrations to be closest to transport systems that allow them ease of access to numerous economic and social facilities in other parts of the city. This concentrated development (compaction and densification) simultaneously allows for a more efficient and effective use of green and engineering infrastructure. The success of the transport network is equally dependent on a high density of users to be financially viable and to allow for frequent services along all lines.

The IRPTN is the backbone of this type of development. Tshwane’s current IRPTN comprises the Bus or Tshwane Rapid Transit (BRT/TRT), branded as the A Re Yeng system. The entire network of the planned BRT is to be rolled out over several years, meaning that the spatial targeting for growth will also be rolled out over several years, with densification happening primarily along and/or close to these lines and within strategic nodes.

In the short term (three to five years), the highest densities will be prioritised along or close to (within 800 metres) the current existing lines of the IRPTN, like the BRT lines running from Wonderboom to Pretoria CBD to Hatfield.

In the medium term (five to ten years), the highest densities will be prioritised to further extensions of the line as they are completed. These are Soshangue to Akasia, Akasia to Wonderboom, Hatfield to Menlyn, Lynnwood to Denneboom, Denneboom to Mahube Valley and Pretoria CBD to Atteridgeville.
The longer-term plan (10 to 20 years) for densification is that the highest densities in the city would be directed towards the rest of the BRT line as it is completed.

The spatial restructuring of our city requires a focussed and unwavering application of sound planning principles over the medium- to long term. In addition, other dynamics shaping development include migration, urbanisation, globalisation, capital mobility, climate change and balancing competitiveness with liveability in light of increasingly scarce resources.

A number of enablers will be required, including the following:

- **Policy coherence and integration**

The City of Tshwane has adopted a nodal approach to spatial reconfiguration. Nodes are those parts of the city where development should be focussed. The widest variety of services and opportunities should be provided at nodal points, at degrees relative to their nodal status. The process of increasing land use densities (the building density) in a planned and meaningful way within the existing boundaries of a specific area increases overall efficiency and reduces cost in the use of infrastructure, services and amenities. The City needs to develop policies that are aimed at creating a city that is characterised of high density. The transport system is an important integrator of the city’s nodes and offers further opportunity for densification, specifically around transit stations and along the IRPTN. Our land use management, infrastructure provision (and maintenance), and social facility policies and plans must be supportive of high-density development in areas identified as nodes and corridors, with a special focus on the IRPTN. Our land use management, infrastructure provision (and maintenance), and social facility policies and plans must be supportive of high-density development in areas identified as nodes and corridors, with a special focus on the IRPTN. Similarly, plans and projects emanating from national and provincial government should equally align with the nodal and spatial targeting approach of the City of Tshwane. Coherent policies will lead to sustainable land use that balances the needs of promoting equitable economic development and conserving the city.

- **Acquisition and/or retention of strategic land**

The City should aggressively continue to identify and acquire land to drive its transformation agenda, particularly land situated along corridors and nodes for the purpose of mixed-use housing development or other strategic investment initiatives. This will require the City to do the following, among others:

- Conduct a detailed vacant land ownership audit
- Identify and protect land specifically for the City’s projects aligned to the Spatial Development Framework and RSDFs in support of mixed-use development, densification and compaction
- Create a land banking strategy that will respond to spatial transformation objectives
- Use City-owned and state-owned land to support the spatial transformation outcomes

- **Urban management and safety plan**

The IRPTN will address many of the ills currently caused by urban sprawl. It is imperative that infrastructure is provided within strategically targeted areas (nodes) and that once provided, it is used optimally, giving rise to TOD. TOD will optimise the potential and infrastructure capacity of nodes through economies of scale while combating urban sprawl through movement between and connectivity of focus areas of development. There will also be a reduction in the cost of providing public facilities through the sharing of resources, equipment and land.

While the investment in the initial infrastructure for the IRPTN may be a good start, the system will not be used if it is not efficient, attractive and safe. This means that issues around non-motorised transport (pedestrian pathways and cycle routes), urban management and operational issues affecting the efficiency of the system are also important. Safety is a critical component of the public transport system, not only while on the public
transport system, but also in the distance that must be covered on foot or by other means to reach the final destination. **Safety**, then, becomes a critical component of the urban management strategy. Chapter 4 provides further information pertaining to the importance of safety as a component of public transport.

The BEPP (2020/21) provides a good illustration of a number of considerations required for urban management.

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**Figure 3.23: Urban management**

*Source: Built Environment Performance Plan 2020/21*
3.12.7 URBAN EDGE AND THE 25-KM ZONE

The urban edge (boundary) is a growth management tool that contributes towards the achievement of strategic objectives by conserving valuable environmental areas, which would otherwise be compromised by development, and by promoting the use of existing infrastructure through redevelopment, infill development and densification within the edge, thus, achieving development that is sustainable. The urban edge also encourages the agglomeration of economies within the edge, encouraging scattered secondary or emerging nodes to develop into consolidated primary nodes as opposed to leapfrog development. The edge also ensures the protection of land – an exhaustible resource – by encouraging brownfield developments instead of greenfield developments.

The urban edge encourages the prevention of urban decay by drawing a boundary around the existing urban area, ensuring that development is focussed inward, resulting in all opportunities being explored, especially the regeneration of decaying areas.

This further supports the promotion of opportunities for redevelopment, infill development and densification. The conservative approach to expansion also results in opportunities for infill development being explored. As well-located land is often more expensive and vacant land in the urban area often has high levels of constraints, higher densities are considered because these result in a higher yield.

Using the GeoTerralmage web platform to determine the parameters of the areas that could be reached within a 30-minute drive time within average traffic conditions, a circle was drawn around this area and roughly provided a 25-km radius around the centre of the capital core, taken to be Church Square within the Pretoria CBD.

This area that is found to be within a 30-minute drive time then serves as a further layer of focus for investment and development as these areas are the most “accessible” relative to the best social and economic infrastructure within the city.

Figure 3.24: 25-km radius around the capital core
Figure 3.25: Densification strategy
3.11.8 CROSS-BORDER CONSIDERATIONS

A number of challenges, particularly those pertaining to infrastructure, may impact negatively on the City’s growth management strategy if not carefully managed.

Some of the key pressures that impact the City’s ability to manage growth are from external pressures near or on Tshwane’s boundaries.

In other instances, where land parcels within Tshwane are owned by other spheres of government or parastatals, poor alignment across these different spheres and/or sectors of government result in certain investments being made in parts of the city where, infrastructure, for example, cannot be provided for. This can only be addressed through proper intergovernmental planning, implementation and cooperation.

Other challenges include those of traditional authorities within the city. With no existing process (in Tshwane) to formalise land use processes with individual tenants who reside on land parcels that fall under the ownership of the chief of the community, it is difficult to assist those wanting to acquire amended or additional land use rights or even to submit building plans. Some land use developments sometimes take place in such situations, outside of the processes of the City, which, again, makes it difficult to look at solutions for infrastructure provision. The City is currently looking at the development of a policy framework that will guide land use application processes in such instances.

Illegal developments continue to emerge from time to time. These can only be effectively managed with law enforcement, which, in turn, should be capacitated with the necessary manpower to carry out the responsibilities associated with development control.

Existing or planned developments within adjoining municipalities and near or on the border of Tshwane sometimes inadvertently lead to speculation that nearby areas will possibly be incorporated into the urban edge in the near future, which is not the case. The City is clear on its growth management strategy and only under extenuating circumstances can amendments to the urban edge be supported. Leapfrog development should be prevented at all costs. Spatial targeting, as identified within this document, should guide which areas are encouraged to grow and which areas must maintain the status quo at this time.

On engaging various sectors inside and outside the city, cross-border planning is still not evident within most plans. Many are heavily burdened by challenges within city boundaries to seriously consider planning outside municipal borders. It is very likely that a provincial-level body will need to assist and drive processes to assist various municipalities within (and outside) Gauteng to incorporate cross-border planning. Actions and plans need to be well considered, widely engaged and sector-specific, while also addressing cross-cutting issues.
Figure 3.26: Cross-border considerations
3.12.8.1 LANSERIA INTERNATIONAL AIRPORT

Due to speculation around developments that may take place near or around Lanseria International Airport in Johannesburg in the near future, there have been some questions around how this may impact Tshwane’s urban edge. The RSDFs, MSDF and BEPP are all consistent in that the urban edge of Tshwane will not be amended in the near future. Lanseria International Airport is adjacent to Tshwane’s boundary, outside of Tshwane’s urban edge and alongside areas that have no services. The only developments that are being approved within that vicinity are low-impact developments that meet development requirements within the management zones.

- **Regional Spatial Development Frameworks**

The RSDFs were approved in 2018. The Region 4 RSDF identifies the areas immediately north of Lanseria International Airport as environmentally sensitive areas in line with Tshwane’s Bioregional Plan. In addition to the environmental layer, another layer, regarding what kind of development may be considered and under what circumstances, is the management zone layer.

Management zones are areas not considered suitable for urban development as they are not well located in terms of the larger urban structure and areas of opportunity, and/or are characterised by environmental sensitivities, as indicated by the C-Plan and Open Space Framework, which are important to protect within the context of the metropolitan area. Rural development such as low-density eco and equestrian estates will be supported, depending on the services that can be provided.

Uses supported, in principle, within the management zone would be lodges, wedding venues, mini storage, places of refreshment, children party venues and similar land uses. The availability of services and the ease of access to major roads will play an important role in the evaluation of non-residential applications.

Uses serving the rural population and surrounding urban areas should be concentrated in community service centres, as indicated in the RSDF Region 4 Rural Component Plan.

Blair Athol Residential Estate and other similar developments were approved as low-impact residential estates that meet the requirements of developments within management zones.

- **Metropolitan Spatial Development Framework**

The MSDF remains consistent with planning concepts such as the urban edge, nodal development, compaction, densification, targeted infrastructure development and avoiding leapfrog development.

The MSDF does not depart from the environmental layers of the Bioregional Plan (2018) or the management zones of the RSDF (2018). These have been retained.

The MSDF focusses on the most strategic interventions for the city on a metropolitan scale. Indications are that the city’s population is growing and is projected to jump from around 3.3 million in 2017 to approximately 4 million in 2025. This necessitates that we manage our city in a manner that will optimise service delivery, including housing provision, infrastructure investment and maintenance, and the protection of limited natural resources such as water. Within the context of spatial planning, growth management is an effective response for this.

Growth management is a spatial concept that encompasses all aspects that ensure efficient, optimal and sustainable development of the physical environment. Growth management guides development such that resources and services are provided in such a manner that they meet the
demands of the affected population over the long term. Growth management tools include the following:

- Nodes
- Compaction
- Densification
- The urban edge

The subject area (Lanseria International Airport) falls outside any identified nodes and the urban edge. Compaction, densification and/or high intensity development is, therefore, not supported there at present.

Interesting to note are the trends in informal settlements. Informal settlements are, by and large, located within the urban edge. This is because informal settlements locate close to infrastructure and areas of economic opportunity. There are no informal settlement infringements in the subject area at present, which is very telling.

From a strategic investment perspective, and on a metropolitan scale, the MSDF highlights planning in Regions 1, 6 and 7 as key areas for immediate intervention pertaining to infrastructure investment in direct response to the economic intentions of the City, specifically relating to industrial and agricultural development. Lanseria International Airport is near the border of Region 4 of Tshwane.

- **Built Environment Performance Plan**

The BEPP provides an opportunity to plan for the alignment of the various built environment grants within the municipal space and to enhance the planning process to facilitate improved intergovernmental coordination in the planning and implementation of urban investments in metropolitan areas. In 2014, the BEPP was adapted as an intersectoral plan, processed to arrive at this plan and reintroduced as a tool for change in order to address the weaknesses of the existing planning and budgeting frameworks in producing tangible developmental outcomes.

In terms of the approved 2020/21 approved BEPP and 2020/21 capital project demand list, all infrastructure projects fall within the urban edge. The projects indicated for 2020/21 are still a demand list (wish list) until the draft budget is approved.

- **Development trends, applications and enquirie**s

The development trends and applications in Tshwane indicate that between 2012 and 2018, private investment in high-density development has been significant, with the highest concentration of these applications being in and around Pretoria North, Pretoria CBD, Hatfield and Menlyn, with a few scattered throughout Pretoria East and in parts of the Centurion area. Centurion falls within Region 4.

Only a few applications and queries have been received outside the urban edge in the recent past. These are mapped in Annexure 7 and summarised as follows:
Figure 3.27: Lanseria in relation to Tshwane
3.13 SOCIAL FACILITIES

A sustainable human settlement is more than a housing development. A sustainable human settlement caters for a range of services, amenities and residential options in an integrated location.

Our communities are categorised by low-, middle- to upper-income groups. Due to past policies, these communities have been accommodated in neighbourhoods based on their income group and/or racial classification. Socio-economic integration redresses that imbalance by creating places of residence whereby communities are mixed and integrated through the provision of different housing typologies for various income groups, with supporting social facilities that are essential for livelihoods, such as government institutions, clinics, libraries, shops, transport facilities, places of employment and communal spaces, such as parks and public squares.

The spatial concentration of communities through densification will allow for a more efficient use of social facilities and infrastructure. Spatial targeting and nodal development allow for the clustering of civic and social facilities around areas of potential to increase the economic viability of some areas and, so, attract and maintain private-sector investment.

In other areas, where the increase in residential densities due to spatial policies will result in the reduction of private recreation and entertainment space, special attention should be given to the creation, design and management of public spaces, as well as communal and social facilities.

The basic principle is that areas targeted for densification should be treated as whole environments, with investment in infrastructure, landscaping, open spaces and social facilities ideally preceding higher-density developments.

In 2020, the City, through the CSIR, finalised an analysis on the distribution of basic social facilities in relation to population distribution in a study known as City of Tshwane Accessibility Analysis and Social Facility Planning (2021–2030). This is an update of the same study that was done for the period from 2016 to 2021. In 2016, the areas that were identified as being most affected by backlogs were primarily found to be the urban cores, including the following:

- Atteridgeville
- Centurion
- Ga-Rankuwa
- Mabopane
- Mamelodi
- Soshanguve
- Olievenhoutbosch
- Bronkhorstspruit
- Hammanskraal

Although there appear to be some improvements in the provision of facilities in these areas between 2016 and 2020, these areas still remain the highest in need of social facilities as these remain the areas of highest densities, when compared to much of the rest of the city.

The analysis that was done was based on Christaller’s Central Place Theory Model, which implies some fundamental assumptions which are inaccurate. These assumptions assume, among others, that service provision should be based on proximity and not on travel patterns. The former assumes that the determining factor of facility provision is the place of residence, whereas the latter assumes that the determining factor of facilities is a function of convenience and preference. It has been found that even though various facilities are provided in underserved areas, they are not being used even though they are closest to the population. This
typically implies that facilities of preference should rather be expanded and upgraded, rather than more facilities being provided.

It is recommended that departments that are responsible for the delivery of social facilities within Tshwane’s spaces should consider an audit of status and use of various facilities already invested in, understand the reasons for their abandonment or underuse or oversubscription, and determine a way forward that is informed by this insight.

Even though the fundamental approach of Christaller’s theory is inaccurate, the study still offers a good indication to see if the ratio between population and facility provision is acceptable.

The summary of key findings is as follows:

3.13.1 BASIC EDUCATION

- Education facilities are well distributed and 90% of the learners in 2030 will potentially reside within 5 km of a primary school, while 83% of secondary school learners will be within reach of the nearest secondary school when considering only the travel distance standard. However, there is a major shortage of schools in many areas across the city when the number of learners living within reach of a school is considered against school capacity, considering only government schools.

- If not considering private schools, the capacity (at 40 learners per class) of the current government schools will only accommodate 68% of primary school learners within the distance standards. The government-provided secondary schools at a capacity of 35 learners per classroom will only accommodate 54% of secondary school learners within the travel distance standard in 2030. This means that by 2030, there will be a shortfall of 32% for primary school learners and 46% for secondary school learners when capacity and travel distance standards are taken into account, and only government school capacity is used.

- While private schools were largely excluded from the capacity analysis, they were nonetheless evaluated against areas of unserved demand by government schools. Using an assumption that private primary schools can each accommodate 500 learners, the current 143 private primary schools could accommodate 71 000 learners, thus, reducing the 2030 backlog of 32% to 16%. It is, however, important to note that private schools are mostly located in areas where residents are likely to afford private education and not in the key backlog areas mostly located in the less affluent areas, particularly in the former township areas and the growing informal settlements.

- The impact of the availability of private secondary schools was assessed by applying an assumption that each school can accommodate 350 learners. Based on this assumption, the current 121 private secondary schools could accommodate 49 700 learners and could reduce the 2030 secondary school backlog from 46% to 28%.

- If all education is required to be provided by government schools, the identified backlog of 32% or 144 208 learners for government primary schools would require 138 new schools of 1 000 learners each. For secondary schools, 86 new schools, each serving 1 500 learners, would be needed to address the identified backlog of 46% or 130 249 learners. This number excludes any private schools or adjustment for demand based on the number of learners who exit the education system after the age of 16 or earlier without completing Grade 12.

- Finding sufficient land to build the new schools that are required to address the backlog may present a major challenge. Expansion at current schools as well as other options (such as using smaller site sizes for new schools, sharing sport fields between several schools,
platooning or two-session schooling, using campus-style mega schools and advanced use of ICT solutions) may need to be considered to increase capacity.

3.13.2 EMERGENCY SERVICES DEPARTMENT

3.13.2.1 FIRE RESPONSE

- The existing fire stations are fairly distributed across the city, however, selected areas remain in the city without sufficient coverage.

- The analysis, which took into account the average emergency response road speed and Tshwane’s fire risk areas, indicated that the current fire stations could reach 58.7% of the 2030 population and 15.2% of the land area within the required response time of 14 minutes, leaving 41.3% of the population outside reach of a fire truck within the acceptable response time.

- To address the backlog in service coverage, ten fire stations are proposed. The proposed new locations could potentially increase the served population from 58.7% to 86.1% in 2030. However, given the extensive nature of Tshwane with its large rural areas, the service area coverage would only improve from 15.2% to 24%.

3.13.2.2 AMBULANCE SERVICES

- The spatial coverage of ambulance stations in Tshwane is good and most areas are reachable within a response time of 15 minutes. However, based on the analysis considering the number of available ambulances, there is a shortage in ambulance vehicle capacity.

- The existing ambulance stations have ambulance capacity to serve only 49.7% of the 2030 population and, thus, 2 051 669 people (50.3% of the city’s population) will potentially not be served within standards by 2030.

- The ambulance service backlog was identified mainly in former township areas that comprise a high number of residents who most likely do not have medical insurance. The key areas of backlog include Hammanskraal, Ga-Rankuwa, Soshanguve, Mabopane, further east of Mamelodi, Cullinan, Rietvalleirand and Valhalla.

- In order to address the identified 2030 backlog, 67 additional ambulance vehicles would be required to meet the backlog at a provision standard of one vehicle per 30 000 population. This ratio is lower than the national standards.

3.13.2.3 HELICOPTER SERVICE

- The City of Tshwane requested basic assessment of a helicopter service emergency response time coverage. Considering only flying time versus road speed, a helicopter service could potentially provide a faster response time and wider coverage than vehicle-based emergency services. It is, however, noted that the areas best served by the helicopter service, if located at Wonderboom, are already those well served by ambulance and fire stations as the travel time analysis indicated.

- A helicopter could potentially reach all areas of the city in under 25 minutes without a water bucket and within 50 minutes when carrying a water bucket. In contrast, the maximum time it would take an ambulance to reach the furthest point in the city is 85 minutes, and 121 minutes for a fire truck.

- No cost-benefit analysis was undertaken.
3.13.3 ENVIRONMENTAL MANAGEMENT SERVICES

3.13.3.1 SWIMMING POOLS

- The current swimming pools provide sufficient capacity and their distribution is reasonable across the city. However, due to the spatial imbalance of demand versus supply capacity, 46% of the 2030 population will not reach a swimming pool with sufficient capacity within 20 km.

- Areas with the highest backlog include Olievenhoutbosch, Rooihuiskraal, New Eesterus, Mabopane, Ga-Rankuwa and far east of Mamelodi.

- Eight optimal intervention sites were identified where up to ten new facilities are required to address the 46% backlog projected for 2030.

3.13.3.2 PARKS

- Community parks are not well distributed across the city, based on the distance standard, however, district parks are considered well distributed.

- When considering distance and capacity standards, accessibility to community and district parks is low. For the city as a whole, only 18% of the Tshwane population is projected to reach a community park with sufficient capacity within the access distance standard of 1.5 km, while only 43.6% are likely to be able to access a district park with capacity within the 15-km distance standard in 2030.

- Given the high backlog identified for community and district parks, a combined analysis considering both types of parks jointly was undertaken. This analysis focussed on whether or not residents have access to any type of park within a distance of 2 km. No consideration was given to the capacity of the combined parks relative to the population. The results did not provide much improvement regarding access levels, and analysis showed that for 2020, 23.09% of the population will live within 2 km of a park (community or district park). The remaining 76.91% would be out of reach of any park at a 2 km access distance (district or community park) in 2030. This unserved and out-of-reach population formed the base for identifying priority areas, which should be considered for addressing the backlog of parks (refer to Section 3.5.8 in the Environmental Management Services Report for key priority areas).

3.13.4 HEALTH

- The distance-only analysis showed a good distribution of primary healthcare facilities across Tshwane, however, there is a significant backlog of facilities related to facility capacity.

- The analysis indicated a backlog of 2,315,721 visits across the city for 2030. This is an equivalent backlog of seven extra-large, 11 large and 23 small clinic facilities, which will also require staffing. The equivalent shortfall of professional nurses is 292 nurses or an incremental requirement of filling 30 (new) nursing posts per year over ten years to meet the need requirement in 2030.

- Considering the good distribution of facilities, the expansion of existing facilities, including the extension of operational hours, addition of consulting rooms and additional staff, are all options that can potentially, where feasible, be explored to expand the capacity and to avoid new land acquisition for the development of new primary healthcare facilities.
3.13.5 SAFETY AND SECURITY

3.13.5.1 SOUTH AFRICAN POLICE SERVICE STATIONS

- There is a good distribution of South African Police Service (SAPS) stations in Tshwane, with over 80% of the total population having access to a SAPS station within 8 km from their place of residence.

- The analysis showed that the majority of the unserved population are at the periphery of the suburban edge where densification is expected to intensify in the coming years. Only four areas, a relatively small backlog, were identified.

3.13.5.2 TSHWANE METRO POLICE DEPARTMENT

- The weighted travel distance average to the nearest Tshwane Metro Police Department (TMPD) office was found to be 9 km, which is well within the maximum acceptable travel distance standard of 24 km, which is an indication that the distribution of TMPD facilities across the city is good.

- Notwithstanding, the analysis showed that in 2030, 26% of the population will be beyond the 24-km distance standard, which means being out of reach of a TMPD office. Eight key areas are identified for intervention in order to address the backlog.

- The areas of highest backlog include Equestria, Silver Lakes, Tswaing and Louwlardia. City officials confirmed that the eight areas identified are crime hotspots that require further policing.

- It is important to note that this was a distance-only based analysis and no capacity or other needs assessment was conducted. Any new facilities developed will require a local needs assessment before intervention to address the backlogs.

3.13.6 SPORT, RECREATION, ARTS AND CULTURE

3.13.6.1 COMMUNITY HALLS

- The distribution of community halls in Tshwane is good and based on the distance standard of 15 km, only 2% of the city’s population will be out of reach of a facility in 2021 and 2030. The backlog of facilities is mainly related to hall capacity.

- When taking into account the distance standard and hall capacity (as provided by the City), the current 46 community halls will only be sufficient to serve 45,2% and 41,3% of the total population in 2021 and 2030 respectively.

- Areas of potential need for new halls or expansions of existing hall capacity include Mabopane, Mamelodi, Soshanguve, Olievenhoutbosch and Pretoria (inner city) where high-capacity backlogs were identified.

- To reduce the 2030 backlog, 20 sites are identified as optimal sites to either build new halls or expand the capacity at existing halls in close vicinity. These optimal sites, if developed, can potentially reduce the 2030 backlog by 27,7% and increase the served population from 41,3% to 69%.

- Community halls vary in size and quality, and this impacts the frequency of use of different halls. Some people are prepared to travel further to access facilities best suited to their needs. The current analysis did not take people’s preferences and issues, such as quality of the halls, into account. However, it is noted that these factors may, in reality, impact the use of halls and demand for specific facilities or locations.
3.13.6.2 LIBRARIES

- Overall, community libraries across Tshwane are well located as shown by the distance-only analysis. This analysis showed that a large proportion of the city’s population (about 99%) lives within reach of a library at a distance of 8 km within the suburban core and within 15 km in the outlying areas.

- When library capacity and distance standards were jointly taken into account, it was found that the unserved population for 2021 will be 30.5% and if no additional facilities are built, this will increase to 33.9% in 2030. The majority of this backlog was identified in Regions 1 and 6.

- To address the 2030 backlog of 33.9%, 15 optimal sites were identified, which could potentially increase the level of the served population (within standards) from 66.1% to 87.7% in 2030. The proposed 15 sites include nine proposed sites for new library developments and the expansion of six existing libraries.

3.13.6.3 SPORT FACILITIES

- With regard to sport facilities, it was found that the majority of the people across Tshwane live within the distance standard of 3 km in the urban core and 10 km in the outlying areas from a sport facility, and 98% of the total population is projected to be within reach when not considering capacity.

- The proportion of the served population dropped significantly to 44% and 42% in 2021 and 2030 respectively when travel distance and capacity standards were considered. This indicates that capacity, rather than travel distance, is the major contributor towards the high backlog of sport facilities in the city.

- The backlog, in terms of hectares to meet the need, is equivalent to 1 013 hectares. Given this extensive land requirement, it was agreed to identify the 20 most optimal locations and that the City only identifies 550 hectares within these precincts to address 50% of the backlog. Should the 20 locations of various sizes, but totalling 550 hectares be developed, this could potentially raise service levels to 83% in 2030.

- It is noted that many people in Tshwane make use of private and school sport facilities, although this is generally not the case in former township areas. This could, however, reduce the demand for municipal sport facilities, especially in more affluent areas. No data was available on the supply of private and school sport facilities and the supply of these facilities was not assessed. Access to private sport facilities is most likely to be skewed towards the more affluent and inner-city areas.

The following map and table illustrate the entire facility backlog requirements for Tshwane for 2030.
Figure 3.28: Integrated proposed facility intervention points

Source: Tshwane Accessibility Analysis and Social Facility Planning, 2020
Table 3.9: Integrated proposed facility intervention points

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<th>Facility</th>
<th>Region 1</th>
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<th>Region 3</th>
<th>Region 4</th>
<th>Region 5</th>
<th>Region 6</th>
<th>Region 7</th>
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<td>Sports facilities</td>
<td>42 optimal points identified at 4 hectares each</td>
<td>5 optimal points identified at 4 hectares each</td>
<td>9 optimal points identified at 4 hectares each</td>
<td>10 optimal points identified at 4 hectares each</td>
<td>6 optimal points identified at 4 hectares each</td>
<td>67 optimal points identified at 4 hectares each</td>
<td>-</td>
<td>139 optimal points identified at 4 hectares each</td>
</tr>
<tr>
<td>Community and district parks combined</td>
<td>72 parks at 2 hectares each over 10 years</td>
<td>48 parks at 2 hectares each over 10 years</td>
<td>66 parks at 2 hectares each over 10 years</td>
<td>39 parks at 2 hectares each over 10 years</td>
<td>137 parks at 2 hectares each over 10 years</td>
<td>27 parks at 2 hectares each over 10 years</td>
<td>549 parks at 2 hectares each over 10 years</td>
<td>159 parks at 2 hectares each over 10 years</td>
</tr>
</tbody>
</table>

Source: Tshwane Accessibility Analysis and Social Facility Planning, 2020
3.14 LAND BANKING

The “shape” of cities and their sustainability is determined to some extent by the nature of ownership and property rights defining land, the complexity of commodification on land and the effectiveness of the land market. (Urban LandMark, 2015)

The prohibitive costs of strategically located land requires that the government takes a more prudent approach to acquiring (and retaining) land for human settlements. Assessing the full extent of the City’s assets in terms of land and buildings, coupled with underused state-owned land and assets are a practical way of accruing such strategic land.

Land banking, within this context, is the practice of aggregating and/or setting aside parcels of land for future strategic use. The City is currently updating its Asset Register. As part of the process, all City-owned land and buildings that have the potential to contribute towards sustainable human settlements and other strategic objectives of the City should be flagged.

A separate process of engaging provincial and national government pertaining to underused land and property owned by each will also need to be pursued with the possibility of transferring them to the City, or allowing the use of those assets for sustainable human settlements can also be investigated.

Land banking will be one of the most effective mechanisms for improving access by the poor to urban land markets.

In 2019, Tshwane updated and approved a new land release strategy, which is presented in the Council-approved report of 28 March 2019 and titled the Policy Framework: Immovable Property Asset Transfer, Disposal and the Granting of a Right to Use, Manage or Control a Property Asset owned by the Municipality. (City of Tshwane, 2019a)

The report recognises that on the one hand, there are arguments to the effect that public land should be preserved for future generations while, on the other hand, the idea that a municipality should recognise the potential of the transfer of municipal property assets or the granting of land lease rights with a view to inject much-needed revenue and/or investment in targeted areas, is also gaining traction. It is, therefore, important that the City finds and manages the delicate balance between these two competing views and the process to be followed in implementing either of them.

From a spatial planning perspective, whether property is transferred or retained is not so much the issue as much as ensuring that the land is used or developed optimally to achieve the strategic outcomes of the City.

When considering mechanisms such as inclusionary housing, the retention of strategic land by the state is critical, especially in areas where land values are higher. This would allow for the (carefully considered) release of that strategic publicly owned land to private developers at an appropriate time who put forward the best inclusionary housing proposals for that site or those sites. The successful developer could also, through a carefully considered agreement, be given the land without charge in order to offset losses to be incurred thorough the inclusion of inclusionary housing units in that development.

It is important to consider that investors and developers require a sufficient return on investment. If the plans of the City do not benefit them in some way, they are not likely to take up opportunities that are offered up to them. Therefore, where the private sector is to be involved, this will often mean that area(s) selected need to have the real potential to attract large enough development and investment by the private sector that will generate sufficient income to service the developer or investor loan amounts, while at the same time providing the City and the private sector investors with acceptable income or return on investment. Strategic state- and City-owned land is a financial asset that the City should use.
Another factor beyond location and cost when it comes to return on investment is time. Should the agreement between the investor or developer be a lease agreement, a minimum of 30- to 40-year lease agreements would be required in order for the developer or investor to make a reasonable return on investment for larger developments. There are a few such areas in Tshwane which should be identified and flagged.

In terms of the newly approved land release strategy, the following three types of leases are available to investors:

1. Short-term leases not exceeding three years
2. Long-term leases not exceeding nine years, 11 months
3. Notarial leases from ten years to a maximum of 99 years, which must be registered with the Registrar of Deeds

The notarial lease allows for the leasing of real rights without the City selling the property. The property will then revert to the City after this lease period.

In specific circumstances, the City may also allow for a Deed of Sale or Deed of Donation agreement.

One of the best opportunities for land banking in Tshwane exists along BRT Line 2A (Rainbow Junction to Pretoria CBD). Unlike with BRT Line 2A (Pretoria CBD to Hatfield) where developers have submitted a number of land use applications and building plans in line with the spatial plans for the City, there has not been much take-up or interest along Line 1A. There may be numerous reasons for this. However, one option for catalysing development along this line would be for the City to consider the highest and best use of City-owned and surrounding properties, in line with the TRT Spatial Development Policy: Densification and Intensification Guidelines (2014).
3.15 REFERENCES


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