

A promising future



Joburg 2040 – Growth and Development Strategy



a world class African city

Joburg 2040
Growth and Development Strategy

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Joburg 2040: Growth and Development Strategy

City of Johannesburg Metropolitan Municipality

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Executive Mayor's Foreword

Johannesburg has always been and continues to remain a city of stark contrasts – between those who enjoy the highest standard of living, and those who struggle to make ends meet. It is a city of colliding worlds and visions; a city divided and a city that still bears the spatial scars of the unjust and immoral system of Apartheid. However, this cannot be Johannesburg's only story and it cannot be the story that prevails into the future. Johannesburg needs to change course. Joburg 2040 provides the basis for this change – as we continually strive to become an equitable, non-racial, prosperous, non-sexist and just society. Shifting course will require commitment and dedication from all who make this city their home. Extraordinary effort is demanded of all of us, to work towards building a more equitable society, where everyone is cared for and where none are neglected.

I announced the GDS outreach process precisely because I was aware of the large social, economic and environmental challenges facing this city. I was also aware of the parallel truth: that Johannesburg is a city of immense potential. This city's greatest assets are its people. Through the outreach process, the contributions of thousands of citizens have been heard – with the final Joburg 2040 GDS providing clear evidence of the immense power of collective voices, and the enduring commitment of all those who have contributed.

The GDS outreach process has been of great importance in building a collective and shared vision for the future of Johannesburg. In the process, we have all managed to express our concerns, fears, hopes, dreams and aspirations for the future city of Johannesburg – with these reflected as points of common agreement within this GDS itself. We all want to live in a great city – a city that inspires everyone to achieve more than is immediately possible. These aspirations are expressed in the vision developed from the outreach process – a vision the City chooses to adopt for the path ahead:

"Johannesburg – a World Class African City of the Future – a vibrant, equitable African city, strengthened through its diversity; a city that provides real quality of life; a city that provides sustainability for all its citizens; a resilient and adaptive society."

The GDS outreach process is the first step in creating a city that inspires. We have made a commitment to the citizens of Johannesburg that, as the City, we will not treat citizens as passive recipients of government services, but rather as active agents in shaping their own future. Creating spaces for conversation is our duty as developmental local government, as we collectively seek to tackle the immense changes and opportunities that lay ahead. As part of this process, we have pioneered a new way of doing things. We have in front of us a strategy that not only provides a vision of the future, but importantly, defines clear outcomes against which to measure progress. In keeping with the ethos of the GDS outreach process, the City will develop a roadmap to implement the important outcomes defined in this strategy – and will again turn to you, the people of Johannesburg, to contribute to the development and rollout of this roadmap.

This is a pioneering city. People come to Johannesburg because they know they can make it here – the city continues to attract pioneers. From a dusty mining camp to a bustling global metropolis, the city of Johannesburg is a symbol of this pioneering spirit, of which we are all part. The contribution made by each of you has now become the vision of the City. It is the responsibility of our generation to change the city into a truly great place to live, work and play. Let's do it.

Joburg. My City – Our Future!

Councillor Mpho Franklyn (Parks) Tau

Executive Mayor

October 2011



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Chapter

1

Introduction and overview

The Joburg 2040 GDS is an aspirational strategy that defines the type of society the city aspires to achieve, by 2040.

1.1 GDS 2040 in context

The City of Johannesburg developed its first Growth and Development Strategy (GDS) in 2006, as a long-term strategy – an articulation of Johannesburg’s future development path. At the time, there were numerous strategies, including, amongst others: ‘Joburg 2030’, the Human Development Strategy (HDS), the Integrated Transport Plan and the City Safety Strategy. Each addressed a different angle of the city’s development. The GDS provided the opportunity to consolidate all of these into a single cross-City strategy. It also served as the conceptual foundation for the five-year Integrated Development Plan (IDP).

The 2006-2011 term of office represented the first time that the City developed its long-term GDS in conjunction with its medium-term IDP, through a single process. South African municipalities are legally obligated to develop medium-term IDPs¹ and aligned annual business plans and budgets². The IDP serves as a tool for incremental five-year planning (supported by annual revisions), thereby facilitating achievement of long-term goals through medium-term delivery, while individual departmental business plans support detailed operational planning for the financial year ahead, through the expression of deliverables per department. Establishing either of these without a long-term perspective, such as that expressed within the GDS, could jeopardise delivery against far-reaching developmental goals. The GDS therefore frames the IDP, charting long-term ambitions, strategies and overarching decisions relating to prioritised areas of focus.

¹ As stipulated by the Municipal Systems Act (MSA).

² As stipulated by the Municipal Finance Management Act (MFMA).



The 2006 GDS specified the need for a five-yearly review of the long-term strategy, allowing for evaluation of progress against goals – and reframing of objectives and priorities as necessary – in the context of new challenges and opportunities. The period between 2006 and 2011 has seen significant socio-economic and political changes, both locally and in the global arena. Examples include the 2008 financial downturn, South Africa's incorporation into the BRICS bloc of developing economies, the introduction of the New Growth Path, the establishment of the National Planning Commission (NPC), the formulation of the Gauteng Employment, Growth and Development Strategy (GEGDS) 2009-2014, and the creation of a new Department of Human Settlements (DHS). A review of the 2006 GDS was therefore initiated with the new 2011-2016 term of office, resulting in a refined 'Joburg 2040 GDS' that sets its sights on a desired Johannesburg of the future – a Johannesburg in which all will aspire to live and work.

In undertaking the review, the City of Johannesburg committed itself to an intensive process of engagement with a variety of stakeholders, including, importantly, the citizens who live and work here. This document represents the outcome of the review process. It aims to provide a viable and inspiring future strategy in which all can believe, and in which all must play a part, if we are to fulfil the hopes and dreams contained here-in.

1.2 City strategies in the context of a rapidly changing reality

Successful global cities such as Beijing have been carrying out long-term planning for centuries, with modern planning reflected within defined city strategies. These serve to define a chosen development path, providing a foundation for:

- Pragmatically confronting complex challenges and defining long-term strategic choices;
- Framing medium-term operational plans;
- Allowing for the timeous conceptualisation and initiation of projects that require extensive lead times and long-term development;
- Linking long-term citywide outcomes with operational outputs; and
- Stimulating public interest in and action towards agreed and commonly held future outcomes.

Worldwide, cities are confronted by an ever-increasing complexity of challenges. With the future of cities becoming more unpredictable and uncertain, the development paradigm in relation to cities has changed. In this context, city strategies must navigate the uncomfortable tension between defining a chosen development growth path, and accommodating uncertainty. The current context reinforces the notion that city development is not a linear process – and that change itself is never linear. As such, it is important to develop an open ended and holistic city strategy that provides a 'rough consensus' of strategic choices, to guide future development. Strategies of this nature can then meaningfully inform a range of long-term strategic plans and programmes. As an illustration of the changing paradigm in cities, some of the contributors to uncertainty include:

- *Increasing migration – a shifting population:* While a global phenomenon, South Africa – and Johannesburg in particular – continues to attract migrants seeking economic opportunity, access to services, political asylum and refuge. The pace and scale of migration between and within provinces, rural areas, towns and cities is complex, with significant movement between secondary towns and primary cities, between homes in rural areas and places of work in the city, and between the urban core and its peripheries. Migration brings cultural, political and social plurality, creating opportunities and challenges as migrants articulate diverse ways of being in the city, with more people attempting to access an already-stretched resource pool. As Johannesburg becomes even more multi-cultural, building social cohesion and creating spaces that allow for multiple expressions of this rich diversity is an ongoing priority for urban governance role players.
- *Globalisation:* There are benefits and risks associated with an interconnected world. Cities serve as engine rooms of regional and national economies, while also operating as connective nodes through which global capital circulates. This interconnectedness simultaneously promotes growth and opportunity, while making cities vulnerable to global change. The global financial system connects through multiple and complex credit systems that do not adhere to national and regional boundaries. Financial risk and contagions spread quickly through this interconnected system.



Building an environment for sustained and sustainable economic growth requires resilience, to weather unexpected storms in a global setting that is prone to the rapid onset of recession.

- *Climate change:* Climate change is driving widespread temperature increases across the globe, with shifts in the global weather system creating conditions for high temperature variability and unpredictability. As a direct consequence, extreme weather events have been increasing in scale, frequency and intensity. Globally, weather related disasters claimed 15 000 lives in 2009 and led to economic losses of close to USD 62 billion. Between 1980 and 2004, the global insurance industry paid out roughly USD 374 billion in insured property losses related to natural disasters. Insured weather related losses increased 17-fold between the 1960s and 1990s, outstripping increases in Gross Domestic Product (GDP), population or premiums (Timm 2010). The impact of climate change will challenge the adaptive capacity and resilience of cities especially with respect to city infrastructure systems.
- *Natural resource scarcity:* Increased resource exploitation, pollution and waste production have resulted in multi-dimensional social, political, economic and environmental difficulties. A consequence of this has been amongst others the recent escalation in global food prices. The food price is the clearest indicator of the current natural resource scarcity. Food prices escalated to record high levels in June 2008, prompting massive riots and even death in Haiti and Egypt (BBC 2011). These changes do not bode well for cities whose populations are dependent on a globalised food supply system that is under threat as a direct result of resource exploitation. Furthermore, these food and resource price increments are likely to represent a permanent structural shift upwards in global inflation, serving to further erode incomes worldwide (du Toit 2011). Pollution of the environment has dire consequences for health and new strains of diseases that enter into the food system.
- *Technological innovation:* Technological innovation is driving fast, unexpected and unpredictable changes in society, the economy, politics and nature. Knowledge and information are at the centre

of this change, as new modes of production and consumption transform the old way of doing business. Cities are driving this new revolution in information, communication and technologies, and therefore hold a responsibility to ensure effective technology transfer to the rest of the economy.

- *Inequality*: Inequality often manifests itself within cities. Growing inequality represents a major challenge to the social and economic sustainability of cities. Continued inequalities have led to the establishment of the Millennium Development Goals (MDGs), which focus on a number of objectives: eradicating extreme poverty and hunger; achieving universal primary education; promoting gender equality and empowering women; reducing child mortality; improving maternal health: combatting HIV/AIDS, malaria and other diseases; ensuring environmental sustainability; developing a Global Partnership for Development (UNDP 2011). Despite significant focus, achievement of these MDGs is still out of reach for many cities. The continued global financial downturn will have significant repercussions on the levels of progress made in achieving the MDGs. Inequality in cities tends to be exacerbated further by spatial disparities, whereby individuals residing in less affluent areas have to travel great distances to get to centres of economic activity.

Migration, globalisation, climate change, natural resource scarcity, technological innovation and inequality are just some of the major drivers of uncertainty. These drivers of uncertainty are hard to plan for and equally hard to predict. To add to this uncertainty, ‘Black Swan’ events (Taleb 2007) – large, unexpected events that are difficult to anticipate – and that hold significant impact (e.g. 11 September 2001; the rise of the Internet) – increasingly affect cities worldwide. The changing paradigm means that the City of Johannesburg has no choice but to embrace uncertainty. To cope with these drivers of change, the City must build its adaptive capacity, ensuring it is more resilient to change and more adept at seizing opportunities as they arise.

Amidst the growing future uncertainty, the City must continue to focus on the important 2006 GDS principles that seek to transform the unjust Apartheid City of the past into a just, equitable, multi-cultural, multi-racial city of the future. The City cannot allow current challenges to derail the tremendous progress made in tackling poverty and overcoming the legacy of Apartheid.

1.3 What is the Joburg 2040 GDS?

The Joburg 2040 GDS is an aspirational strategy that defines the type of society the city aspires to achieve, by 2040. The strategy restates the City’s resolve in confronting the past injustices created during Apartheid, working towards a democratic, non-racial, non-sexist and just City while simultaneously confronting present and future challenges as they emerge. Therefore, it contains:

- A vision and mission – which serves as a mental picture of Joburg, the city, by 2040;
- Principles – the values held by the City, as first articulated in the 2006 GDS;
- Outcomes – what the City seeks to achieve by 2040;
- Long-term outputs – the deliverables through which the City plans to achieve the desired outcomes; and
- Indicators – the measures through which the City plans to assess progress against its desired outcomes.

The Joburg 2040 GDS is not a spatial vision or statutory plan. This is an important distinction, as it distinguishes this document from other long-range city plans. Instead, the Joburg 2040 GDS is a prerequisite for medium-term, strategic, spatially-oriented plans for the infrastructure, housing and transportation sectors. Furthermore, this strategy does not describe institutional powers, functions and operational activities. On the contrary, it provides a set of defined strategic directions that frame the five-year IDP and other medium-term plans. In support of long-term delivery, the IDP will contain specific five-year operational activities, targets and financial budgets.

The City has produced a number of important strategies over the past decade, following continuous reflection. Each strategy has built on the last, adjusting to issues of the day and serving as a living document, able to change as necessary. Each has framed both challenges and approaches. These include amongst others the ‘Joburg 2030’ that was developed to gear the city for economic growth and competitiveness, while the HDS aimed to counterbalance economic growth imperatives with a focus on pro-poor interventions, to reduce poverty. The 2006 GDS responded to the need to

consolidate various strategies. However, the objective of integrating all strategies resulted in a single strategy that included too many long-term goals and strategic interventions (62 long-term goals and 181 long-term strategic interventions). While it presented an integrated strategic direction, it lacked overall coherence. The analysis in 2006 did however, provide a valuable high-level view of city trends and dynamics. In using the original GDS as a sound base for the formulation of the Joburg 2040 GDS, the City has gone to greater lengths to analyse Johannesburg-specific data, trends and dynamics that may affect the city in the future.

This revised Joburg 2040 GDS offers a clear vision, mission and framing paradigm and principles, alongside outcomes, outputs and indicators. Four major outcomes define the Joburg 2040 GDS. Each outcome is linked to a corresponding set of outputs (detailed in Chapter Four) and one or more indicators of success. The outcomes originate from the 2040 GDS paradigm, as contained in Chapter Two, and the analysis in Chapter Three. In addition, the outcomes align with the MDGs. They are cross-cutting in nature, demonstrating a move away from the narrow sectoral approach adopted in the past. The proposed outcomes are as follows³:

Outcome 1: Improved quality of life and development-driven resilience for all

The City envisages a future that presents significantly improved human and social development realities, through targeted focus on poverty reduction, food security, development initiatives that enable self-sustainability, improved health and life expectancy, and real social inclusivity. By 2040, the City aims to achieve substantially enhanced quality of life for all, with this outcome supported by the establishment of development-driven resilience.

Outcome 2: Provide a resilient, liveable, sustainable urban environment – underpinned by infrastructure supportive of a low-carbon economy

The City plans to lead in the establishment of sustainable and eco-efficient infrastructure solutions (e.g. housing, eco-mobility, energy, water, waste, sanitation and information and communications technology), to create a landscape that is liveable, environmentally resilient, sustainable, and supportive of low-carbon economy initiatives.

Outcome 3: An inclusive, job-intensive, resilient and competitive economy that harnesses the potential of citizens

The City of Johannesburg will focus on supporting the creation an even more competitive, ‘smart’ and resilient city economy, when measured in relation to national, continent and global performance. The City will promote economic growth and sustainability through the meaningful mobilisation of all who work and live here, and through collaborating with others to build job-intensive long-term growth and prosperity, from which all can benefit.

Outcome 4: A high performing metropolitan government that pro-actively contributes to and builds a sustainable, socially inclusive, locally integrated and globally competitive Gauteng City Region

The City envisages a future where it will focus on driving a caring, responsive, efficient and progressive service delivery and developmental approach within the GCR and within its own metropolitan space, to enable both to reach their full potential as integrated and vibrant spaces.

The shifts reflected in this document, including the development of long-term outcomes, outputs and indicators, are representative of changes nationally and globally, where strategies have shifted to being more outcomes-based in nature. The outcomes-based approach strikes the balance between defining, with relative certainty, a ‘future development path’ – while still accommodating for change. This is particularly relevant in the current paradigm of uncertainty and volatility, within which target-setting is particularly difficult, given the range of unknown variables.

³ Descriptors of the outcomes are included in italics, with further detail on the outputs included in Chapter Four.

1.4 Developing the 2040 GDS: Actions to a consolidated strategy

Another shift in the approach to city strategies relates to the focus placed on developing strategies through a process of public outreach. While a number of technical processes have informed this document, the extensive GDS public outreach process undertaken defines a new era in strategy making for the City of Johannesburg. This outreach process complemented a technical research process, which included numerous in-depth discussions with City line departments, consultation and dialogue with experts across various fields, and further in-depth desktop analysis. Emerging data and research findings from the above were analysed and captured, and together with refinements made to the concepts included within the 2006 GDS, formed the basis for the Joburg 2040 GDS.

The GDS outreach process, a nine-week process of engagement launched on 2 August 2011, provided an opportunity through which to test the ideas included in a draft of the 2040 GDS. The process included a number of elements: weekly thematic discussions with stakeholders – including the community; ward-level engagement and participation; a conference with leading global, regional and local experts; a City Lekgotla; and a final GDS Stakeholders' Summit. It aimed to include all stakeholders, using a wide-ranging stakeholder and community consultation process to drive the development of an inspiring, visionary and implementable local government strategy. The Joburg 2040 GDS therefore serves as a strategy through which all can be galvanised in a shared sense of ownership. It forms a foundation document for the period ahead, against which the City's stakeholders can hold the City to account. Further details of the GDS outreach process are included in Chapter Five.

Through the above process of developing, engaging in and refining the City's original long-term strategy (as articulated in the 2006 GDS), the City aimed to:

- **Build:** On the important work undertaken in 2006, and the strong foundation created during the previous term of office. The 2006 GDS provided not only a vision for a sustainable future Johannesburg, but also defined the City's values in clear terms, through the GDS principles. The 2040 GDS therefore aims to build on this legacy of:
 - Eradicating poverty;
 - Building a diversified and inclusive economy;
 - Building liveable communities;
 - Ensuring resource security and environmental sustainability;
 - Achieving social inclusion;
 - Building social cohesion; and
 - Promoting good governance.
- **Inspire:** With the GDS outreach process serving as a channel through which to benefit and learn from the diversity of views amongst the City's stakeholders, while also providing a platform through which to inspire citizens and grow social cohesion and commitment to a future all can own.
- **Display positive activism:** With the City focusing on serving its citizens as active local government, demonstrating pro-actively its belief in the importance of engagement, the removal of our Apartheid legacy and the divisions that are still strongly evident today, and the need for a revival of our commitment to the poor.
- **Demonstrate boldness:** Displaying no fear in dealing with tough challenges and hard strategic choices – while applying the same boldness in transforming its own institution, building a strong, competent cadre of urban managers able to deliver on the Joburg 2040 GDS vision.
- **Be realistic:** Giving implementation force to the 2006 GDS through ensuring the development of clear, achievable and realistic outcomes.
- **Ensure accessibility:** Acknowledging the importance of an accessible review process and final Joburg 2040 GDS, supported by buy-in from the public – and collective ownership established through stakeholder engagement, widespread consultation and an honest and clear end outcome.

1.5 An outline of Johannesburg's GDS 2040

The structure of this document is as follows:

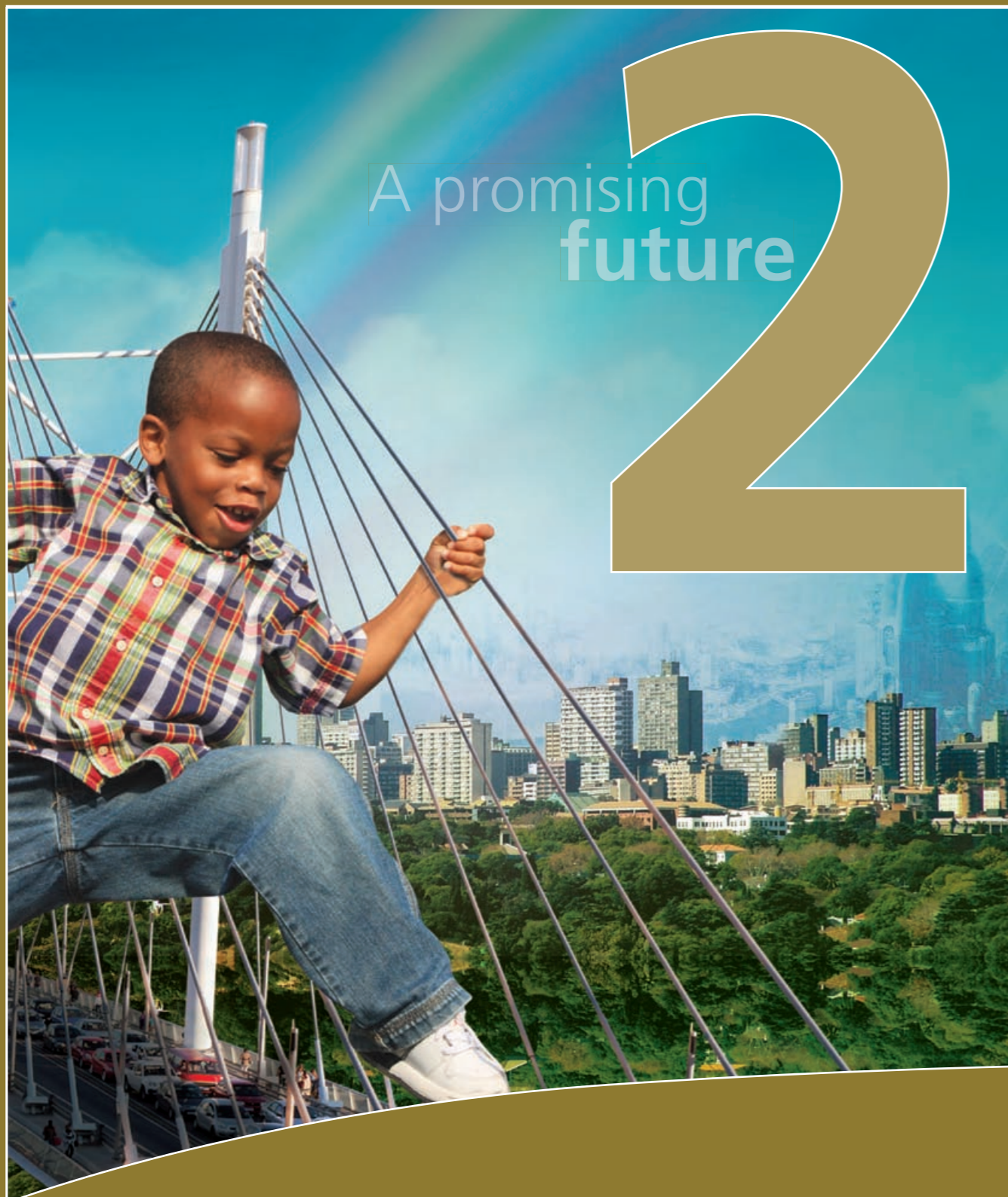
- **Chapter Two** provides an overview of the paradigm, principles and vision underpinning Johannesburg's Growth and Development Strategy, as the city moves towards 2040.

- **Chapter Three** addresses the status quo and current challenges faced by the city – framed within the context of nine themes: liveable communities, resource sustainability, health and poverty, governance, transportation, community safety, the environment, economic growth, and the 'smart city'.
- **Chapter Four** translates the status quo analysis into key outcomes for 2040, identified as priorities for the GDS vision to be realised. These outcomes link to outputs, that are further aligned with defined indicators – to support data gathering, monitoring and evaluation activities in the period ahead. The ideas reflected in these outcomes and outputs will be translated into action through the IDP development process, to ensure the rollout of appropriate activities to support delivery against the vision.
- **Chapter Five** outlines the GDS outreach process itself – providing an account of the GDS outreach process objectives, its importance, activities undertaken, tools used to elicit input, and the process through which input was reviewed, analysed and assimilated into the final 'Joburg 2040 GDS'. Insights gained through the programme itself are also included.
- **Chapter Six** presents final comments and conclusions in respect of the Joburg 2040 GDS. It invites all stakeholders – be they temporary or permanent visitors or citizens of this city – to join the City of Johannesburg as it forges forward to the future vision represented here-in.

1.6 Conclusion

The Joburg 2040 GDS responds to the multiple challenges and uncertain futures faced by the city. To cope with change, the City of Johannesburg aims to strengthen the adaptive capacity of the City and its citizens, so that it may become more resilient to potential and unpredictable futures. Rather than develop a blueprint plan for the future, the Joburg 2040 GDS lays the foundation for multi-level, multi-scalar and integrated responses to the challenges the city faces.

It is hoped that a systemic shift towards a 'business unusual' approach and culture will emanate from the Joburg 2040 GDS – thereby increasing the resilience, liveability and sustainability of the city. This can, however, only be achieved if three conditions are in place. Uncertainties must be addressed as opportunities, through which innovative technological and developmental solutions can be developed and implemented, in support of a more social, equitable, economically just and environmentally sustainable city. All arms of the City – whether responsible for planning, delivery or governance – must play a part in the development of a cross-sectoral strategic response, through which co-ordinated decisions and actions can be facilitated. Ongoing involvement of stakeholders and decision-makers across all sectors within the City (including business, civil society and government) is also necessary, if the process is to lead to truly effective outcomes, while also encouraging personal reflection behaviour change oriented towards 'sustainability', in all. The Joburg 2040 GDS is a step in this direction.



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2

Chapter

2

The GDS paradigm, principles and vision

“Johannesburg – a World Class African City of the Future – a vibrant, equitable African city, strengthened through its diversity; a city that provides real quality of life; a city that provides sustainability for all its citizens; a resilient and adaptive society.”

2.1 Introduction

This chapter outlines the emerging development paradigm – as informed by changes taking place at a global, national and local scale. It is worth describing some of the most powerful forces shaping the development paradigm and the City's 2040 GDS paradigm, included herein, as the latter serves to frame the City's approach to development. The Joburg 2040 GDS paradigm guides the City's thinking in respect of the long-term outcomes and aligned outputs.

The initial GDS drafted in 2006 gathered input from a range of strategies and perspectives. Documents taken into consideration included, amongst others: the National Spatial Development Perspective (NSDP), National Government's Medium-Term Strategic Framework (MTSF), the Accelerated and Shared Growth Initiative of South Africa (ASGISA) and the Gauteng Provincial Government's Growth and Development Strategy. This practice continues here, in respect of new strategies. However, each important strategy and policy document is not discussed individually, but has been considered in the context of major events, policies and theories shaping the Joburg 2040 GDS paradigm.



In discussing the changing development paradigm in this chapter, global, national and local changes and realities are considered. There are various elements shaping any paradigm – with these including, amongst others:

- Political imperatives;
- Government policies and priorities;
- Theories and concepts; and
- Analysis of major trends and dynamics.

In this chapter, comment is provided on the major events, trends and government policies that have emerged at a global, national and local scale, since the drafting of the 2006 GDS – together with a view of the impact these hold for Johannesburg. The key theories and concepts that are included in the City's overall development approach as it moves towards 2040 are explored. Finally, the vision, mission and GDS principles are restated. These principles reflect the City's commitment to overcoming the current and future development challenges facing the city.

2.2 A perspective on the global context

The world's population reached the 7 billion mark in 2011 – and continues to grow at 200 000 people a day. United Nations (UN) projections argue that a total 9.2 billion of people will live on this planet by the middle of this century. It is not possible for this rapid growth to continue without considerable consequences for future economic growth, ecological sustainability and human well-being (UN 2008). Global changes taking place on a daily basis are significant and rapid – with some of these captured below. The need to create a more equal global economic system still remains, but achievement of this objective is compounded by significant challenges. This overview provides a mirror, reflecting the challenges that countries and cities worldwide face today.

Key contributors to the shifting global context include:

- Global financial downturn;
- Shifting geo-politics;
- Climate change;
- Global population growth and natural resource protection; and
- The global network revolution – and the impact of social movements.

Each contributing factor is addressed below.

Global financial downturn

The financial downturn of 2008 and the current threat of a double-dip recession is further indication that the economic difficulties have not ended – and that structural reforms to the global economy need to be made. While some recovery is visible, it is fragile (Gauteng City Region Observatory (GCRO) 2009). The bigger question is whether the financial downturn will result in a restructured global economy that effectively addresses the issues of fairness and equality. Evidence suggests that globally, the focus has been on reform through monetary policy and inflation targeting, but locally, cities are focusing on strategies to build economic resilience in response to financial downturns.

Shifting geo-politics

A great dynamic for the 21st century is the rapid shift of world economic power to emerging economies. As European countries now look to China and India for a financial bail-out, there is clear evidence that global geo-politics is shifting. African economies are growing rapidly off low bases, partly due to increased Foreign Direct Investment (FDI) – and partly due to demographic surges creating growing internal markets. Many African and emerging-market economies are currently growing and will continue to grow their economies at rates of above five percent for much of the next decade: most of their economies will double their current size by the early 2020s (IMF 2011). Global economic power is shifting, but there is as yet no guarantee that this shift will necessarily create more equal and shared growth.



Climate change

11 of the last 12 years (1995 – 2006) rank among the 12 warmest years in the instrumental record of global surface temperature (since 1850), providing new undisputed scientific evidence that climate change is an inevitable part of our present history. The fifth UN Inter-governmental Panel on Climate Change (UNIPCC) Assessment Report is now underway. The focus this time is on understanding risks, vulnerability and adaptation options for regions across the world. Of particular importance is how climate change responses need to reflect a wider transition to sustainable development and the growth of resilience at a national level, for countries around the globe, with this work already initiated as part of the fourth assessment report produced in 2007 (UNIPCC 2011).

At a global scale, conflicts over carbon emission targets and reductions are likely to intensify. The impasse will continue unless resource use is decoupled from economic growth, which in itself is likely to present political and institutional trade-offs. Cities are the economic engines of national economies, and while global compacts around emission targets are being debated, the responsibility for climate change mitigation and adaptation rests here. Du Toit (2011) suggests that a 'bottom-up' approach, i.e. starting at a local level and filtering up to national strategies, is likely to be the most effective means of formalising a culture of 'eco-awareness'.

Global population growth and natural resource protection

Recently, the International Resource Panel (IRP) was mandated to deepen information and knowledge sharing relating to the issue of decoupling – where this focuses on separating economic growth and human well-being from resource use (UNEP 2011). The work of the IRP comes at an important period – despite the slowdown in the global economy, the global footprint continues to grow.

The industrialised, globalised economy is founded on vast reserves of fossil fuels, minerals, metals, ores that are finite and coming to an end (National Geographic 2009). The recent commodity price surge is a stark reminder of the ever-increasing dwindling supply of finite natural resource inputs. Finite fossil fuels are driving up the cost of other commodities – with the commoditisation of food, in itself, an indication of the problems facing the global economy (Roberts 2008). Food price increases reflect scarcity in export supply, with global competition for foodstuffs. Cities are dependent on national and international energy and commodity supply systems – with cities increasingly vulnerable to commodity price shocks and resource scarcities.

The global network revolution – and the impact of social movements

As the world economy shifts to being increasingly driven by trade and communications, the power of networks is increasing. These networks include the 'hard' infrastructural networks that enable the efficient movement of goods, people and ideas, the networks of people and organisations that support trade and communications, and the 'soft' infrastructure of the internet – such as social media sites – with these growing in influence with the rise of social networking and mass collaboration. While connectivity is unequally spread across the globe, cell phones are narrowing the digital divide – but hard infrastructure is still underdeveloped (ITU 2011). Through the bridging of the technology divide via the development of hard and soft infrastructure, tremendous opportunities are arising not only for economic activity, government-to-people-communication, and certain kinds of social mobility and connection – but also for social action and social protest. The radical change in Tunisia and Egypt would simply not have happened without social media.

In summary

The global reality experienced today is shaped by major events – with action to ensure the preservation of the human species and the planet seemingly more urgent than ever before. Regions, countries and cities are inter-related, with a challenge in one region of the world spreading quickly to others. Multiple challenges face the world, as a result of climate change, the financial fallout and other drivers discussed within this chapter. It is difficult to predict the outcomes – and often it is even difficult to define, in clear terms, the reality in itself. Nor can predictions be made in respect of the eventual outcome of these challenges and changes on the structure of the global economy. Cities must balance what they know now, in order to build resilience in preparation for future uncertainties.

2.3 A perspective on the national context

The legacy of Apartheid continues to dominate the national context and conversation – both in terms of daily experience and in terms of the views, fears, hopes and dreams held by South Africans, regardless of background or colour. The inequality and divisions based on race and class continue to affect all sectors of South Africa society. The NPC notes that the work to create an economically just, prosperous, non-racial and democratic society continues (The Presidency 2011a). Some stubborn problems persist – including dismally low levels of education, extreme income inequality, chronic poverty and crippling unemployment, which continue to plague post-Apartheid South Africa. There is evidence that these conditions have not improved substantially over the last decade. To compound matters, the global financial downturn, climate change and energy insecurity are driving multiple hardships worldwide, impacting on South African growth prospects. The dual challenge is to overcome the legacy of Apartheid and tackle global and new national challenges simultaneously. However, amidst global uncertainty, national and provincial policies are profoundly shaping the future development paradigm of South Africa. This section focuses on both the events and the policy responses that shape the national perspective. A number of important institutions and organisations have recently been established (for example, the National Planning Commission), to develop national policy responses to some of the country's most urgent challenges. While not all these institutions are mentioned here, it is acknowledged that they are contributing to a new wave of policy development and thinking. The following contributing factors to the national reality are outlined below – given their

relevance for realities at a city level. While not representing an exhaustive list, these issues are key in terms of their impact on the national perspective:

- Global-local financial downturn;
- The New Growth Path strategy;
- The 'youth question' and the difficulties faced in respect of youth unemployment;
- Addressing the future of energy;
- Integrating policy imperatives – the Presidency Outcomes;
- Integrating policy imperatives – the work of the NPC;
- Political imperatives; and
- The MDGs.

Global-local financial downturn

South Africa was already experiencing a cyclical downturn before the global financial downturn. High interest rates that constrained the property boom and private consumption contributed to the cyclical downturn. The sectors that were hardest hit included manufacturing and mining, with sudden drops in export demand. The country experienced a sharp decline in private investment, employment fell sharply, and the economy contracted from five percent in 2007 to two percent in 2009 (Organisation for Economic Co-operation and Development (OECD) 2010). South Africa's exposure to the financial fallout, however, was not that significant at the time, when compared to the experiences of other OECD member countries and emerging economies. The construction sector held up well, as a result of the 2010 FIFA World Cup, with sizeable public sector investment in stadia, infrastructure and transport. South Africa experienced no bank failures, with this attributable to the strong profitability of banks, the stringent requirements of the National Credit Act which protected both borrowers and lenders from default, loan levels of non-performing loans and the lack of direct exposure by banks to problem assets on Wall Street and in the rest of Europe. South Africa's real experience of the financial fallout was delayed to 2009, when real GDP began falling and output declined by 1,8 percent, with the country experiencing its first negative annual growth since post-Apartheid South Africa. The change in growth rate of real GDP between 2008 and 2009 represented the largest single-year slowdown on record. Output decline was led by manufacturing and mining, with service sectors such as wholesale and retail trade experiencing large output and employment declines (OECD 2010). A unique feature of the global financial downturn is that different countries experienced varying degrees of exposure, recovered differently and responded in unique ways to the downturn. Korea, Brazil and Chile experienced much deeper downturns, but recovered and rebounded faster than South Africa (OECD 2010).

The current context is one in which future economic growth is uncertain and unpredictable – but is also one in which opportunities arise from the presenting difficulties. The fallout exposed the structural weaknesses in the South African economy. As employment fell sharply, attention was drawn to the existing difficulties associated with jobless growth and the urgent project of transforming the national economy.

Moving beyond the challenges, to a new sustainable economic growth – The New Growth Path

The New Growth Path (NGP) was released in November 2010 by the Department of Economic Development (DED), in response to the structural problems in the economy. It focuses on creating growth for jobs – placing emphasis on the importance of ensuring that the South African economy is more 'green'. This represents a significant shift in economic policy, with growth (of both jobs and the economy) linked to the transition of South Africa into a low-carbon economy.

The stated objective is to create 5 million jobs in South Africa, within the next decade. The plan notes the structural barriers that exist in the economy and recognises important trade-offs that need to be made between various macro-economic objectives. Amongst other arguments, it proposes that government must prioritise its own efforts and resources more rigorously to support employment

creation and equity, business must take on the challenge of investing in new areas, and business and labour together must work with government to address inefficiencies and constraints across the economy, collaborating to create new opportunities for decent work (DED 2010).

Some key trade-offs identified in the plan include those between:

- Present consumption and future growth, requiring higher investment and savings in the short term;
- The needs of different industries in respect of infrastructure, skills and other interventions;
- Policies that promise high returns but also entail substantial risks – and policies that are less transformative and dynamic – but are also less likely to have unintended consequences;
- A competitive currency that supports growth in production, employment and the export market – and a stronger Rand, that makes the import of capital and consumer goods more affordable; and
- Present costs and future benefits of a green economy.

The 'youth question' and the difficulties faced in respect of youth unemployment

Unemployment cannot be addressed without focusing on the issue of youth unemployment.

The picture of youth unemployment nationally is dismal, with the Labour Force Survey 2009 reporting a 2008 unemployment rate of youth aged between 15 and 24 years as close to 45 percent. Young people, more broadly defined (i.e. those within the range of 15 to 34 years of age), make up 75 percent of the 4 184 000 unemployed people in South Africa (Statistics South Africa 2009). The 2007 Labour Force Survey noted that 72 percent (1 961 000) of the unemployed between the ages of 15 and 30 had never worked before, and 68 percent of the unemployed who had given up looking for a job (discouraged work-seekers) were under 35 years of age (Statistics South Africa 2007). Youth unemployment is linked to 'jobless growth', low skills development and poor foundational learning. Current thinking is shaped by these hard realities, as well as recent reports such as those commenting on continued low levels of school literacy and numeracy. South Africa's spend on education, when compared to other countries, is large – but educational outcomes remain poor (The Presidency 2011a). Youth unemployment related to poor education is likely to continue into the future.

Addressing the future of energy

South Africa is one of largest CO₂ emitters in the world (The Presidency 2011b). National debates around energy and the need to diversify South Africa's energy sources in light of increasing global energy costs have continued – and have given rise to a number of national policy responses. While South Africa is recognised globally as a slow starter in developing strategies for greening its economy, a number of policies are facilitating South Africa's transition into a low-carbon economy. The revised Industrial Policy Action Plan, the Green Paper (South Africa's national response to climate change), the National Framework for Sustainable Development (NFSD) and global thinking all attempt to link economic growth, human and social development with energy security and sustainability. Thinking at a national level has already begun to filter down to provincial governments⁴. The move nationally is to diversify South Africa's future energy mix. Technologies are available, but legislation and regulation is not sufficiently enabling. The market for uptake of renewable energies can only be developed if the necessary legislation and finance is in place. Larger debates concern the decentralisation of energy production – and a shift in role of players such as Eskom. It is likely that these debates will continue as South Africa begins the difficult, yet necessary transition towards a low-carbon economy.

Integrating policy imperatives – the Presidency Outcomes

The process of linking various economic and social development imperatives with environmental and resource sustainability has been further enhanced by the creation of the Presidency's twelve key outcomes, based on the Cabinet Lekgotla held from 20 to 22 January 2010. The outcomes-based approach is important for two main reasons: firstly, a clear delivery agenda is defined, against which

⁴ The GCRO published the 'Gauteng Developmental Green Economy Strategy' in 2010, following the request made by the province for the GCRO to assist in developing a 'green economy' strategy, as part of a broader Gauteng Growth, Employment and Development Strategy. Global economic thinking is currently undergoing a paradigm shift – from the current capital-focused resource-intensive development approach, towards a green economy model. In line with this, the Gauteng Developmental Green Economy Strategy sets important 'green economy targets' and also defines the institutional arrangements required to achieve these targets.

clear targets can be measured; secondly, the outcomes are supported by a fiscal system of inter-governmental transfers. The outcomes defined by the Presidency (2010a) are as follows:

- Improved quality of basic education;
- A long and healthy life for all South Africans;
- All people in South Africa are and feel safe;
- Decent employment through inclusive economic growth;
- A skilled and capable workforce to support an inclusive growth path;
- An efficient, competitive and responsive economic infrastructure network;
- Vibrant, equitable and sustainable rural communities with food security for all;
- Sustainable human settlements and improved quality of household life;
- A responsive, accountable, effective and efficient local government system;
- Environmental assets and natural resources that are well protected and continually enhanced;
- The creation of a better South Africa and contribution to a better and safer Africa and World; and
- An efficient, effective and development-oriented public service and an empowered, fair and inclusive citizenship.

These twelve outcomes are further expressed in the performance agreements signed between the President and all Cabinet Ministers at the end of April 2010, with Ministers responsible for the establishment of an Implementation Forum for each outcome. Ministers and all other parties responsible for delivering on each outcome (e.g. all departments, agencies and spheres of government) were required to support this process through developing delivery agreements. It is also important to note that these outcomes address the challenges identified in the NPC's Diagnostic Overview. The basis for effective implementation rests on the delivery agreement and the necessary allocation of budgets.

Integrating policy imperatives – the work of the NPC

The work of the NPC is further evidence of the integration of various imperatives – driven through a strong focus on a vision for a sustainable, inclusive and equitable future. While the NPC's Diagnostic Overview presents a useful and frank analysis of South Africa's current challenges and areas of opportunity, the key planning priorities related to these challenges are to be articulated in a national plan – to be published on 11 November 2011. The NPC was established by the President to "take a broad, cross-cutting, independent and critical view" of South Africa's reality. It was tasked to develop a vision a future South Africa in 2030 – and a plan of how to get there (The Presidency 2011a: 5). While the NPC serves as an advisory body, its role is to support integrated planning and the appropriate prioritisation of actions (and related fiscal expenditure), in the context of many conflicting national perspective and a reality of scarce resources. The Diagnostic Report notes the following key challenges as emerging for prioritised action, from all stakeholders across society and all spheres of government:

- High unemployment – with too few South Africans employed;
- Educational outcomes are poor;
- Infrastructure is poorly located and inadequate – limiting social inclusion and faster economic growth;
- South Africa's resource intensive and carbon dependent economy is unsustainable – necessitating change;
- Spatial challenges continue to marginalise the poor – requiring a holistic response;
- The public health system is ailing – and faces a significant burden of disease;
- Uneven performance in the public service, resulting from factors such as policy instability, organisational volatility, difficulties associated with the administrative-political interface, uneven capacity and eroded governance arrangements;
- High levels of corruption, that undermine service delivery and State legitimacy; and
- The perpetuation of divisions across society, in post-Apartheid South Africa.

Political imperatives

Various political imperatives and responsibilities inform the national context. These have been articulated in a variety of documents, and include the ideas communicated in sources such as, amongst others: the African National Congress' (ANC's) 2005 discussion document on "Building Developmental Local Government in Johannesburg"; the ANC's Polokwane Resolutions following its 52nd national

conference; the ruling party's 2009 election manifesto and its 2011 local government election manifesto. Emphasis emerging from these imperatives includes the need to transform our city into a non-racial, equitable and just society, with better opportunities for all who live and work here.

The MDGs

Much of South Africa's planning has been influenced by the goals articulated within the MDGs, agreed to when 189 nations signed the United Nations Millennium Declaration in 2000 (UN 2000). These goals focus on addressing the extreme poverty and multiple deprivations that exist across the globe, with actions oriented around a range of objectives, further supported by clear indicators to allow for continued monitoring and evaluation. These include: eradicating extreme poverty and hunger; achieving universal primary education; promoting gender equality and empowering women; reducing child mortality; improving maternal health; combatting HIV/AIDS, malaria and other diseases; ensuring environmental sustainability; developing a Global Partnership for Development (UNDP 2011). They are underpinned by a clear set of values: freedom, equality, solidarity, tolerance, respect for nature and shared responsibility (UN 2000). Addressing the values and priorities included within the MDGs remains a priority for the City, as it focuses on moving towards a more equal and deprivation free society.

In summary

The national context has changed significantly since 2006, with considerable changes to the national economic position with the introduction of strategies such as the NGP, policies on energy and climate and the establishment of the National Planning Commission (NPC) and Department of Human Settlements (DHS). Most evident is the introduction of important key national policies, incentives, projects, regulations and standards to reduce greenhouse gas emissions. The green economy is on the national agenda, which goes hand in hand with strategies to reduce unemployment, grow the economy and ensure human and social development. This convergence of thinking is clearly evident. However, the challenge remains at an implementation level – with continued work required to translate important national policy imperatives into action – while also ensuring appropriate translation at a local level.

2.4 The local context – a different reality

The input outlined above reflects some of the factors influencing the global and national reality – with a clear demonstration of a world in flux. The changes, challenges and opportunities and the shifts in realities at a range of levels (e.g. social, community, institutional, policy, legislation) require a concerted local government response. South African cities, with their role in operating on the ground, are at the forefront of accelerated and unpredictable change. Cities will have to assess quickly how to plan for change – and how to keep pace with the massive transformation emerging in their locales and regions. National and provincial policy imperatives are in place, but require effective implementation at a local level, supported by necessary resources – and a demonstration, by local government, of a commitment to improved management of finances, human and technical resources.

The local context is shaped by the South African local government policy and legislative reality, new forms of regional governance, and localised socio-economic and political transformations. This does not exclude other forces that shape the local reality – including factors reflected in respect of the global and national context, insights emerging from international and national organisations that aid in shaping the City's agenda, and new theories and conceptual insights related to the domain of local government.

Key elements highlighted in respect of local realities include:

- Policy and legislative imperatives;
- New forms of governance;
- Satisfying local demand – within the context of resource scarcities; and
- The realities of a multi-cultural Johannesburg – and a very different future constituency.

Policy and legislative imperatives

Legislative requirements from national and provincial governments shape the form, function and mandate of local government in South Africa. The primary mandate for local government is derived from The White Paper on Local Government – which notes that “the central responsibility of



municipalities is to work together with local communities to find sustainable ways to meet their needs and improve the quality of their lives” (1998: 23). Developmental local government in South Africa is understood to include a focus on:

- Maximising social development and economic growth;
- Integrating and co-ordinating;
- Democratising development; and
- Leading and learning.

Local government's mandate is significant; with it essential that implementation is supported by legislation that enables appropriate and timely delivery, of the requisite quality. Where obstacles arise due to legislation, these need to be clearly identified, so that the necessary amendments can be made to fast track service delivery.

New forms of regional and global governance

The emergence of the Gauteng Global City-region (GCR) is but one example of shifting forms of regional governance taking place globally. Internationally, complex flows of people, goods and services define city-regions, with interesting new institutional arrangements developing. City-regions are also connected to a global web of cities. With global geo-politics, a re-alignment of city governments may emerge between cities across the BRICS and G20 countries. These re-aligned alliances are likely to be based on new areas of investment identified as aiding city economic growth, alongside knowledge exchanges, city partnerships to reduce the impact of climate change and social partnerships – as these cities continue to share large numbers of each other's migrant population. The rise of large city-regions in Africa is worth watching – with the potential for Johannesburg, as part of the

GCR, to look to the continent when forging new partnerships as well as threatening Gauteng's status. It must be noted that progress with implementation of the GCR strategy has been slow, as many institutional arrangements are as yet unresolved, but in the future, this is likely to remain a significant governance arrangement, in relation to the continent. Despite institutional issues remaining unresolved, the regional integration and development continues – with a life of its own, however regional integration will be greatly enhanced through improved institutional co-ordination across various spheres of government within the GCR.

Satisfying local demand – within the context of resource scarcities

Cities as called upon by residents to satisfy immediate local demands for goods and services even when they are not part of the City's mandate. In South Africa, metropolitan city government's increasingly have to respond to an expanded mandate beyond that of service delivery only. Yet, in the context of increased resource scarcity, South African metropolitan cities have to use demand side management as well as other mechanisms to address the scarcity challenge – considering different business models and new approaches to address demand. The Joburg 2040 GDS expresses this new focus, but is also part of local government debates that are beginning to define a new role for South African cities. This brings resource sustainability and service delivery closer together, as cities look to create 'green infrastructure systems' that reduce overall demand and deal with some of the difficult supply-side constraints.

Multi-cultural Johannesburg – a very different future constituency

Johannesburg remains the largest metropolitan centre, and continues to attract migrants (both national and cross-border). Notwithstanding the difficulties associated with accurately predicting the number of foreign migrants in the city, Johannesburg has become increasingly diverse and cosmopolitan. Evidence suggests that the total foreign population in Johannesburg is 14,5 percent (CDE 2008). Migrants are making Johannesburg their home, adding to the already culturally diverse and plural city. The metropolitan constituency will continue to change over the decades to come. The changes in demographics cannot remain as a challenge only highlighted by the xenophobic attacks that have taken place. There is already evidence of social integration across organisations and different economic activities, while distinct ethnic neighbourhoods have also emerged in the city. So too is there evidence of increasing self-segregation as gated communities continue to develop. A policy response both at national and local level is not evident. The local development paradigm is profoundly shaped by migration, yet policy responses lag behind these transformations. Migrants – both from within South Africa and beyond – are testing the efficacy of local democratic participatory processes, with intervention into the creation of a different mindset necessary, if Johannesburg is to fully benefit from what the unique blend of its people. This is likely to remain an important dynamic well into the future.

In summary

Both local dynamics and transformation at the national and global level shape the local reality. While faced with a range of challenges, the realities experienced at national, global and local level present Johannesburg with unique opportunities. Johannesburg's response to these realities will be a critical determinant of whether the City can realise the vision and mission articulated within this long-term GDS. The City's approach to its future is represented at a conceptual level in the Joburg 2040 GDS paradigm, as detailed below.

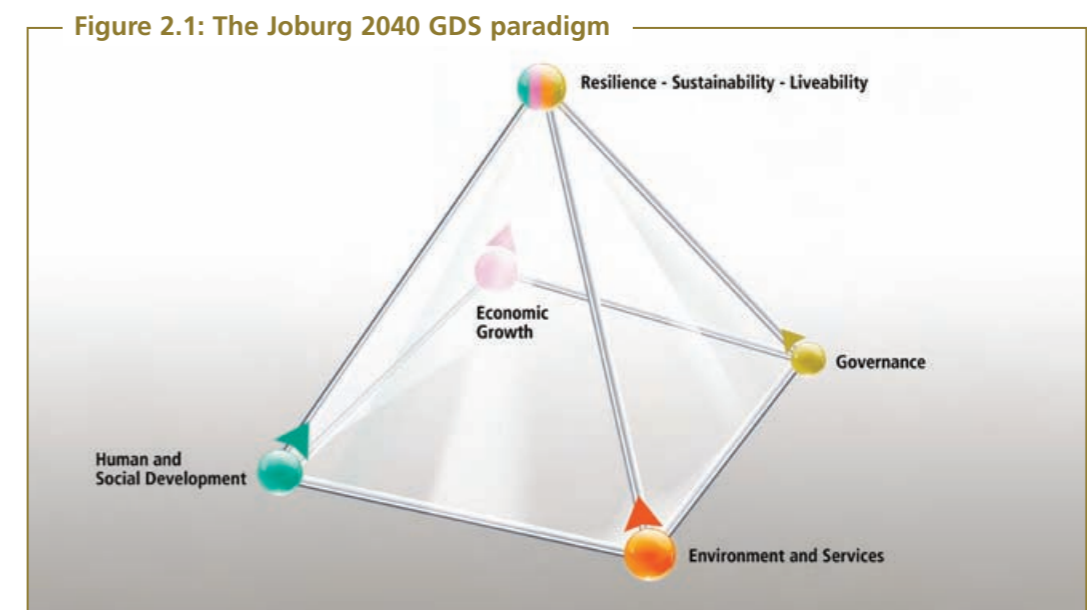
2.5 The Joburg 2040 GDS paradigm

The assessment of various concepts and theories relating to cities, changes in national and provincial priorities, and political imperatives – together with the review of research and analysis undertaken – has resulted in the City's response to the emerging realities, as defined in the GDS paradigm. This then serves as a lens through which the City aims to view, conceptualise and enhance its approach to development issues. Based on the review undertaken, and the realities noted above, including the challenges faced due to migration and urbanisation, globalisation and climate change, a number of key priorities have emerged to frame all actions. These include the concepts of resilience, sustainability and liveability. They are not new concepts – but are embedded in various policy and strategy documents

that have come before. These concepts represent the intended end-state for 2040, rather than the actions through which to get there.

The central challenge for Johannesburg and other cities, worldwide, is to develop the knowledge and skills to adapt and plan for change, in this inter-connected, unpredictable and globalised world. Developing a framework under these conditions is difficult, with planning in the face of uncertainty acknowledged as a paradox itself. To address this paradox, the City has defined four inter-related drivers – in respect of social, environmental, economic and institutional/political change – namely: Human and social development; Inclusive and productive economic growth; Environment and services (including the related infrastructure); and Governance.

The section that follows focuses on the inter-relatedness between all these concepts and the manner in which the drivers reflected above may support achievement of resilience, sustainability and liveability. Figure 2.1 provides a diagrammatical representation of this perspective.



There are tensions between the four main drivers identified above, but these tensions simultaneously provide opportunities for change, innovation, and the introduction of new ways of managing complexity and uncertainty. Where cities of the past planned for efficiency, standardisation, predictability and social control – characteristics that came to typify city government bureaucracies – theories of liveability, resilience and sustainability have created a paradigm shift. To support and realise these objectives, city governments such as the City of Johannesburg will need to develop a new set of strategic capacities and capabilities. In response, resilience, sustainability and liveability are defined within the Johannesburg context, providing a framework through which to engage various institutions, organisations and stakeholders. These are recognised as the characteristics we would like to see in a future city. It is only through strengthening the capacity of Johannesburg's people to manage change that we can build resilience in communities, and effectively pursue sustainable development. This requires a new way of managing the City – and opens up a platform for further engagement.

2.5.1 The importance of resilience, sustainability and liveability for this city

Resilience is the capacity of a system to continually change and adapt, yet remain within critical thresholds – even when confronted with the unexpected. Building resilience is critical, as without it; valuable economic, cultural, knowledge, institutional and ecological networks and systems may be

lost or damaged – necessitating different configurations. The concept of resilience provides a lens for understanding and addressing complex systems.

The relationship between relative stasis and rapid change within a city context is important. In terms of urban history, change is frequently a gradual moving forward in roughly continuous and predictable ways (Vale and Campanella 2005). At times, though, changes to cities have been sudden, turbulent and disruptive. This is certainly the case in terms of Johannesburg – with the city witnessing considerable change – global and local – since the 2006 GDS. For example, 71 percent of the xenophobic attacks since 1994 took place in Johannesburg. The city has also been most prone to service delivery protests. With the financial downturn, Johannesburg lost 90 000 jobs in 2009, contracting the labour supply by six percent and contracting the economy by one percent of GDP (GCRO 2009). Evidence presented in the analysis section that follows (i.e. Chapter Three) points to a future that may be characterised by increasingly abrupt and unprecedented change (both in frequency and magnitude) – given shifts such as climate change, globalisation and the uptake of new information technologies. This will challenge the adaptive capacity of the city – demanding the creation and growth of new strengths, to withstand any shocks that may arise.

Sustainability – the second of the three end states defined – represents an ideal, where human and economic development will not destroy the natural ecological carrying capacity of the cities, regions, nations and interconnected global environment within which it occurs, and will not destroy the wider capacity of all to endure. It represents a future where actions relating to the dimensions of economic growth, social and human development, governance and the environment will not undermine the long-term maintenance of well-being. The relationship between resilience and sustainability is also important – indeed, the city must be resilient to give effect to sustainable development. As Johannesburg seeks to ensure prolonged sustainable development, unexpected shocks must also not deter or derail the city from moving along this pathway. The city must be guarded against negative changes that threaten it – regardless of whether these are political, social, environmental or economic in nature.

The third concept – *liveability* – refers to an array of different issues, underpinned by a common set of guiding principles that give substance to liveability: accessibility; equity; dignity; conviviality; participation and empowerment. The quality of life that citizens experience when living in a city is tied to their ability to access key infrastructure (e.g. transportation, water, sanitation and means of communication), food, clean air, affordable housing, meaningful employment, and green parks and spaces. The experience of differentiated access to infrastructure and amenities by assorted groups of people who live in a city highlights questions of current equity. The liveability of a city is also determined by the access that its residents have to decision-making processes focused on addressing their needs.

Liveability can therefore refer to an urban system that contributes to the physical, social and mental well-being and personal development of all its inhabitants. While different definitions of liveability abound, it is acknowledged to be a mixture of things – including the presence of desirable spaces that offer and reflect cultural and sacred enrichment. Linked to this is the concept of ‘liveable urbanism’, which adapts and defines the broad concept of liveability in relation to the unique realities of the urbanism experienced in many developing countries – and specifically, cities of the global south undergoing rapid urbanisation processes (Swilling and Annecke 2011). Resilience and sustainability are concerned with citywide outcomes, viewed from the macro citywide perspective. Instead, liveable urbanism refocuses our attention on the experience of those who live and work within the city – reflecting the view that urban development should always be about people, and the complex political, social, cultural and institutional interactions that underpin people-centric urban growth and development. Johannesburg has always been a complex city – yet there is an incomplete understanding of the multi-faceted interactions between its diverse citizenry. Liveable urbanism provides a theoretical basis from which to build a Johannesburg that is a true expression of its diverse identities.

2.5.2 Resilience, sustainability and liveability in the context of the four drivers

Further comment on the links between the City’s 2040 goals of resilience, sustainability and liveability – and each of the drivers identified as necessary in contributing to these ideals – is provided below:

i. Resilience, sustainability and liveability: Implications for economic growth

Economic growth is essential for city resilience and sustainability. But this requires focus on a triple challenge: building capacity to respond to and recover quickly from financial downturns; shielding poor households from the adverse effects of unexpected commodity price hikes; working towards an economy that is competitive and innovative – but that is simultaneously able to create job-intensive growth. This idea of job-intensive competitiveness is what underpins the City of Johannesburg’s approach to sustainable economic growth. In terms of this approach to economic resilience and sustainability, it argued that:

- Resilience and sustainability is represented in the ability of a city to recover quickly from financial downturns, using financial downturn, in turn, to learn from existing structural weaknesses in the economy – and to restructure local economies to withstand future shocks.
- Cities that constantly work to understand supply chains within respective economic sectors, identifying where to intervene, where appropriate, to support greater shared growth.
- Cities that have diversified economies. While a diversified economy is not a guarantee of resilience, an over-dependence on one sector for growth may impede sustainability, in the event of economic shocks⁵. Sustainability for all, within the South African context, also requires a focus on diversification that promotes the growth of job-intensive sectors.
- The growth of a competitive city economy supports resilience, although there is a parallel need for competitiveness to be supported by a continuous drive for innovation. Resilient and sustainable city economies are able to create new opportunities for growth, with this ability strengthened through innovativeness within their respective sectors.
- A robust informal sector is essential in supporting economic resilience and sustainability, allowing for a wider range of people to play an active part in the city’s performance, and thereby improving prospects for improved livelihoods. While this sector’s role is often unrecognised, it is an essential contributor, serving often as a base for innovation, creativity, new approaches to delivery, personal ownership, and in times of financial difficulty, serving as a shock absorber for job losses in the formal sector. Regulation and policy that manages informality, without destroying informal economic activities and the opportunities they present, serves as an additional support, growing resilience further within these economies.
- Small businesses are important for growth, with sustained entrepreneurial growth critical for a resilient, sustainable and inclusive economy.
- City economies are more sustainable where the various arms of government work together with other stakeholders to change unfair and unjust modes of production that constrain job growth. This also requires concerted efforts to assist poor communities in building economic assets and wealth over time.

Some of the above perspectives may seem contradictory, at first glance. The inherent tensions evident are resolvable, however, through the establishment of economic resilience and sustainability itself.

ii. Resilience, sustainability and liveability: Implications for environment and services

As Johannesburg continues to develop, it faces the challenge of ensuring growth does not negatively affect the carrying capacity of the natural environment. The concepts of sustainability, resilience and liveable urbanism find greater synergy here. Ideas relating to the environment and services, in the context of sustainability and resilience, are fundamentally about Johannesburg’s ability to manage its resource scarcity, ensuring that decisions and actions hold the least harm for the environment, while delivering on a realistic set of service responsibilities – with the support of appropriate infrastructure networks.

⁵ Resilience is also strengthened in economies that are not dependant on only a few sectors to generate growth and competition. Over-concentration in certain sectors exposes city economies to risk, as a collapse or downturn in these sectors will jeopardise overall economic growth.

In the context of the environment, the green economy also provides opportunities for job growth, poverty alleviation and economic growth. The promise of the green economy serves as an important driver of change, but there is also the need to balance this with priorities such as energy security at a citywide and household level. While a critical end-goal in terms of environment and services – particularly in relation to sustainability – is energy efficiency and a reduction in carbon emissions, the processes undertaken to achieve this goal need to also take cognisance of other important objectives, such as ensuring that the most vulnerable segments of Johannesburg’s population are protected against commodity price shocks.

Sub-themes relating to the linkages between the concepts of environment and services – and those of resilience, sustainability and liveable urbanism – are as follows:

Quality, a compact built form and incremental development builds resilience

An urban form that is compact and improves liveability is also one with greater resilience and sustainability. To achieve sustainability and resilience, focus is needed on upgrading informal settlements, while also addressing tenure security, job creation and resource security.

At a basic level, the City must improve the lives of those who reside within its area of responsibility, by ensuring access to basic infrastructure and education, health, housing and social services. Unfortunately, upgrading often stops here. In contrast, resilience is about building economically vibrant neighbourhoods that are diverse and distinct in urban form, structure, density and cultural identity. It requires a re-orientation of the concepts related to service delivery. The current approach focuses on the establishment and growth of sustainable human settlements. Sustainability, however, is not the only outcome viewed as important. A resilient housing market may incorporate many different approaches. In the context of Johannesburg, however, it must confront the uncomfortable reality of informality. To do this, the city must develop a new housing delivery model that changes the typology of the RDP house. The quality of housing and the design of neighbourhoods are critical. A resilient city values the quality of housing and built form stock over efficient and cheap delivery. The City will only succeed in ensuring the establishment of sustainable and resilient human settlements if the criteria used in decision-making in respect of new neighbourhood development include issues of access, location, mobility, quality and liveability.

Managing resource scarcity as an essential ingredient for resilience

Focus must be placed on resource sustainability (e.g. in terms of resources such as land, water, energy and waste) for ongoing resilience. Water needs to be conserved and recycled; energy generation must become ‘greener’; a mix of cleaner forms of energy must be adopted; waste must be minimised and optimised. Critical to resource sustainability and resilience is the need to decouple economic growth and human well-being from resource use. Decoupling means that the City will need to encourage the development of its ‘green economy’ in line with the New Growth Path strategy – innovating and leading in adopting new technologies, systems and municipal regulations for generating, distributing and consuming energy. To build further resilience, the City will also need to define a future energy mix that is diverse, rather than being predominantly dependant on coal.

In the context of resource scarcity, infrastructure and institutions also serve to strengthen resilience, when designed to cope with environmental change, threats and disasters (including, for example, global warming, flood hazards and water scarcity). By carefully balancing the demand for and cost of infrastructure development with the need for ensuring access and quality, issues of resource scarcity can be addressed further.

Infrastructure as a building block for resilience and sustainability

The vehicle for achieving success in generating participative, productive and income-earning employment towards accelerated and sustainable growth, development and poverty alleviation is an enabling, empowering and supportive environment. The key to this success is infrastructure investment in economic infrastructure, socio-economic infrastructure and technological innovation (du Toit 2011). This infrastructure plays a fundamental role in safeguarding urban citizens. The ability to develop new



infrastructure and extend services to new growth areas is an important aspect of building resilience to increased infrastructure pressures resulting from urbanisation. Infrastructure systems that are resilient have the engineering capacity to withstand large shocks from natural and man-made disasters, and to anticipate risks such as those associated with the climate-related disasters (for example, flooding, heat waves and drought). Infrastructure and urban services that are orientated to ensure resilience, manage demand in multiple ways:

- New infrastructure development includes a focus on reduced carbon emissions.
- Use is made of integrated planning to manage the demand for infrastructure emerging from new economic growth and increases in population.
- In terms of future growth and investment in infrastructure, focus is placed on critical growth pressures and ensuring a phased approach to public infrastructure spends – thereby supporting financial sustainability.

Smart infrastructure is also important in aiding effective management of scarce resources. A city that invests and makes effective use of technology to monitor and integrate its critical infrastructure⁶ is able to optimise its resources, plan for preventive maintenance activities and build resilience. Given that the responsibility for management and monitoring of some components of infrastructure placed within a local government ‘space’ rests with other role-players, the role of local government in collaborating and co-operating (through, for example, ensuring improved communication between role-players) for optimal shared outcomes becomes critical. Through advanced monitoring systems and built-in

⁶ This may include connecting transport infrastructure (e.g. roads, bridges, tunnels, rail/subways, airports and seaports), ICT infrastructure, social infrastructure (e.g. health and education related) and economic infrastructure (e.g. that related to water, power and waste management).

smart sensors, cities are able to collect and evaluate data in real-time, enhancing decision-making, management and use of resources. Armed with this intelligence, resources can be committed prior to infrastructure failures, while cities can reduce their use of inspectors – with the efficiency of inspections increasing due to greater awareness of the condition of all structures.

Mass public transport – a true ‘silver bullet’

Mass public transport really is one of the few ‘silver bullets’ through which to deliver resilience and sustainable development. An efficient mass public transportation system creates significant carbon emission savings, while resulting in a city that is less dependent on private vehicles for mobility, and is less exposed to the risk of fuel price shocks. A car-dominated city such as Johannesburg is unprotected from the ever-increasing risks associated with rising fuel prices, especially where these are increasing at a faster rate than incomes. Scaling up and investing in mass public transport is one of the surest ways in which to also address and manage the legacy of Johannesburg’s Apartheid spatial form, by connecting people and places, and giving those who still remain in disadvantaged township communities access to new opportunities. The gains in terms of liveability, resilience and sustainability outweigh the initial capital costs and ongoing maintenance demands.

Change the behaviour; change the foundation

Johannesburg’s environmental and resource resilience – when considered in relation to services and the daily experience of each and every person who works and lives in this city – is fundamentally dependant on the City’s ability to lead and drive institutional, organisational, business and citizen change, towards a more environmentally sustainable, resilient and liveable city. The following components are critical in driving behaviour change at a city level – and thereby shifting the foundation:

Behavioural change

As noted above, for cities to transition to a more sustainable, resilient and liveable state, they have to change the way in which they produce and consume energy. However, while infrastructure changes are important, they are only sustainable if there is a fundamental change in behaviour. For Johannesburg to grow into a sustainable and resilient centre, the City will need to promote and emphasise the reality that joint responsibility amongst citizens, government, large business consumers and other stakeholders is important, to ensure conservation of energy and collective management of scarce natural resources. Johannesburg’s citizens will have to take responsibility for changing their behaviour in positive ways, with regards patterns of energy and water consumption and management/handling of scarce resources and waste.

Corporate Environmental Responsibility

There are massive saving opportunities in the long-term for organisations that reduce waste and energy usage, even in the face of seemingly high up-front capital costs in the short term. A number of organisations have already started to change operations, achieving large annual savings. Based on shifts already taking place, this may become standard practice. Sustainability must be a corporate priority for companies operating in the city. This requires a shift in thinking about industrial processes, and the role of business in relation to society and the environment – with organisations encouraged to adopt a view of their own Corporate Environmental Responsibility (CER) in respect of daily operations, not as a grudge-purchase, but as a necessity for sustainability. City governments such as Johannesburg must fulfil multiple roles, supporting and partnering with companies and other organisations that operate within their boundaries to make sustainable choices – while also implementing this approach internally.

Working to promote different investment cultures

To build true resilience, behaviour change is necessary at all levels – including the manner in which investments are made. Resilient cities of the future will not only serve as “home” to a large share of commercial and financial service organisations, but will also actively encourage these entities to establish in-company environmental management policies, and to shift their investment portfolios to

companies that are committed to environmentally sustainable business practices. In the future, resilient cities will have stock exchanges that promote ‘greener’ practices, supporting companies with large shares and stocks invested in ‘green business’. It is critical that the City works with key investment partners, to create a more ‘responsible and accountable’ investment culture that drives the importance of ‘green practices’.

Smart infrastructure, co-production and energy resilience

For greater resilience and sustainability, there is a need for bureaucratic and state control over energy production to shift, with greater shared control and responsibility instead resting with citizens, community organisations and businesses. Cities that grow energy resilience focus on co-production of energy, while also adopting and managing smart infrastructure systems and technology solutions, through a different architecture of institutional arrangements.

Food security

Resilient cities have decentralised regional food production systems, with urban agriculture forming an important part of food security provisions. Resilient cities focus on a multi-pronged approach, where they:

- Designate land that for the sole purpose of food production;
- Actively support and provide incentives for small-scale growers to provide steady supplies of fresh produce for the urban food system;
- Work with large food retailers, distributors and manufacturers to create localised systems through which to ensure food security; and
- Work alongside national governments to minimise the negative impact of food cartels and retail oligopolies – and to develop and provide protected food markets and productive supply chains.

Disaster planning and management

Resilient cities respond and recover quickly from environmental shocks, but they also develop institutional capacity to anticipate shocks. Emergency management services are frontline departments when it comes to disaster management – and are therefore central in strengthening environmental resilience. Disaster management and mitigation must be elevated – alongside the profile and capabilities of those departments responsible for these functions within a city government context, as part of the process of strengthening resilience. Resilient cities ensure this focus finds practical implementation through the allocations of suitable budget and human and technical capacity necessary to address potential disasters, and deliver appropriate responses. Anticipating shocks, measuring environmental risks, and developing the necessary research and technical capacity to do so, is also important. Cities that are equipped to address risks do so through sound analysis, supported by the necessary capacity to model risks in respect of environmental realities, juxtaposing this modelling against calculations of potential economic loss, and insurance coverage needed, for sustainability and resilience.

Small things make a difference

Minimising waste is about building a social culture that prioritises protecting the urban environment. This involves ownership and collective responsibility – with all parties working together to jointly protect the urban environment and thereby promote greater standards of public health and safety. Cities can work to change littering, illegal dumping and other activities that negatively affect the urban environment, to develop more positive, pro-city attitudes that protect the natural and built environment. Small changes in behaviour have gone a long way in driving sustainability and resilience, in leading cities around the world.

iii. Resilience, sustainability and liveability: Implications for human and social development

A society that is cohesive and inclusive can withstand change and extreme shocks – with the societal response to Japan’s recent tsunami and earthquakes providing a clear example of the tremendous power of social cohesion and inclusion, in the face of life-threatening disaster. Such events are perhaps the greatest test of social unity, and its role in driving resilience and sustainability. Human and social development is multi-dimensional – and therefore requires a varied set of interventions for resilience

at this level is to be improved. To strengthen either form of development, both 'hard' and 'soft' inputs are necessary. 'Hard' inputs may include access to infrastructure, social services and various amenities – with delivery that is efficient and that promotes the health and well-being of citizens seen as critical. In contrast, 'soft' inputs into human and social development may include social interactions, encouraged through the availability of suitable spaces and the creation of opportunities for community interaction. Cities play a crucial role in delivering on all of these areas. Real resilience within society emerges through targeted actions that encourage holistic development at the level of the individual (expressed through individual freedom, capacity and capability) – and at the level of society (Sen 1999). Such actions may include the following outlined below.

Valuing diversity

A city such as Johannesburg holds strength and resilience in its diversity. But this diversity is also a source of conflict – as witnessed in the recent xenophobic attacks. Johannesburg has its own unique brand of African cosmopolitanism. In many ways, paradoxically, Apartheid planning divided and separated communities according to race and class, while also creating conditions for communities to develop their own distinct cultures and identity of place. Unique cultures and communities have emerged in townships – despite the drab, indistinct and barren landscape created through Apartheid. No township identity and culture is the same – and even within townships today, a myriad of new cultural identities are constantly being shaped and formed.

New waves of migrants from the rest of Africa are adding further to the already diverse and cosmopolitan city of Johannesburg. It is important to consider these dynamics, as they lay the basis for forging an approach to human and social sustainability, resilience and liveability that takes account of Johannesburg's uniqueness. In this context, a built environment that offers a good quality of life for all, irrespective of race, ethnicity, place of origin, gender or class – while also building on the cultural character of neighbourhoods, is central to inclusion and cohesion. For diverse cities such as Johannesburg, clear priorities exist: using the built form to create greater social cohesion and inclusion, by creating shared spaces for interaction amongst diverse members of the nation; working actively to build bridges across diverse communities, while focusing on inclusion and well-being for all. These actions are critical, for diversity to serve as a source of resilience rather than conflict. Diverse cities such as Johannesburg have grown internal resilience, sustainability and liveable urbanism through promoting human and social development – with focus placed on:

- Growing the confidence citizens hold in respect of their own traditions and ways of being – while, at the same time, constructing frameworks that allow people to appreciate and respect the different perspectives and ways of living of others;
- Supporting various means of communication and sharing – across and within diverse communities, and by various actors; and
- Creating mechanisms for addressing and managing conflict – where it emerges – in a way that supports the resilience of the city, as a whole.

Citizens and the city – working together to reduce crime

A city where citizens and business are active participants in community safety and crime prevention is a resilient city. Personal, community and social safety aids optimal social and human development. Social cohesion and collective actions to reduce crime also serve as important ingredients in building resilient and safe cities. Cities that have succeeded in building resilience through safety often decentralise police services, with police working with communities to reduce crime. Lastly, a city's design and its built environment can also reduce or induce crime. A resilient city is one that incorporates enhanced safety in its design – resulting in citizens feeling safe to use public and street space, with spaces designed to reduce opportunistic crimes.

Building resilience in public health: focusing on prevention first

A healthy city is a resilient and sustainable city. The concept of resilience is critical in the domain of urban public health, with systems thinking and theory arguing that the health system is a social determinant of health. A variety of inter-related factors influences the health and well-being of

individuals and the communities in which they live. While some factors are genetic, there are a range of areas in which cities actively intervene, to positively influence health and the prevention of illness at the individual, community and national level. Pro-active interventions at a city-level can be made in a number of domains, to promote health and thereby resilience. These interventions may focus on: individual lifestyle choices (such as smoking, diet, exercise, sexual behaviour); community factors such as crime and unemployment; social conditions such as social inclusion and cohesion; environmental factors such as living and working conditions; and welfare policies that impact on income, food security and education. All these influence both quality of life as well as longevity. Cities such as Johannesburg can build resilience and sustainability through the arena of health, by:

- Improving the conditions of daily life – and the circumstances in which people live;
- Reducing health inequities, by tackling the unequal distribution of power and resources;
- Strengthening the ability to monitor population health: increasing the understanding and measurement of health indicators; evaluating actions; expanding the knowledge base; develop a workforce that is trained in the social determinants of health; raising public awareness about active approaches to health; and
- Improving air quality through reducing private car use and promoting public transport.

It should also be noted that, as health outcomes are the result of a number of complex and inter-related factors, many of which lie outside the domain of the health sector, cross-sectoral collaboration is a prerequisite for success. Such an approach is a non-negotiable, if a city is to increase resilience in relation to health. As such, it is critical that cities focused on resilience and health play a role in defining cross-sectoral policy focus areas. It is the duty of health departments to take on a stewardship role in this respect, shifting from a primary focus of service provision to ensuring policy coherence across sectors and thereby mitigating the negative effects associated with fragmented sectoral planning⁷.

Promoting a culture of lifelong learning

Cities that are resilient and sustainable embed the concept of ongoing learning into the life philosophy held by their citizens. In Johannesburg's case, historical legacies continue to erode improved quality of life, with poor education acknowledged as one of these legacies. Education is a key determinant of social and human development. A learning city is a resilient and sustainable city. Cities that recognise this play a broader role in learning – and thereby in the growth of resilience – through:

- Identifying their own role in driving lifelong learning – and broadening the scope of this role;
- Identifying informal and formal learning resources and institutions;
- Linking learning opportunities for individuals across different ages by, for example, encouraging and enabling different generations to learn together and to learn from each other;
- Developing diverse citywide coalitions that are able to motivate reflection and dialogue among people and key thinkers within all sectors of society (e.g. public, private, formal, informal, urban and rural);
- Interacting with citizens from diverse contexts – in terms of culture, religion, language and tradition – to build a trusting environment that allows for mutual learning and sharing; and
- Ensuring local media participates in driving education – both as a tool for creative learning, and as a platform for raising awareness of learning opportunities.

iv. Resilience, sustainability and liveability: Implications for sound governance

The concepts of resilience, sustainability and liveability, when considered in the context of governance, highlight the importance of city governments dealing with uncertainty and risk, working more closely with stakeholders through active participation, ensuring integrated planning, promoting organisational learning and innovation, and driving inter-governmental learning and partnerships. Some of the mechanisms through which cities drive improved forms of governance that enhance resilience, sustainability and liveability are as follows:

⁷ Informed by sector bi-lateral in December 2010 with the City of Johannesburg's Department of Health

Getting closer to communities – acknowledging the importance of participation and deliberation

Sustained, regular and non-partisan participation in city development – by all types of city stakeholders – is important for building resilient governance, both within city governments, and within the regions that city boundaries frame. Participation builds trust, while deliberation contributes to the shared sense of understanding needed to mobilise and aid self-organisation across ward boundaries. Participation encourages the identification and sharing of diverse views, issues and interests, while deliberation allows for the exploration of different solutions, perceptions and explanations – without forcing consensus. Johannesburg's current systems of participation are insufficiently participative or deliberative. There is a need to make this form participatory governance work more effectively, across all regions in the City, to build long-term sustainability and governance.

Governance is not only relevant within the context of local government. Delivery of services, infrastructure and goods takes place through the actions of players across all three spheres of government, and within the private sector and community organisations. Governance that focuses across these role-players is therefore also critical.

The GCR and the importance of polycentric regional governance

Johannesburg is not an island. Instead, it is part of a complex city-region governance arrangement. As a major city within the GCR, there is an opportunity to deepen and drive existing governance arrangements – to ensure co-ordinated planning and public investment. The GCR has emerged with little co-ordination between what are presently relatively independent and autonomous working metropolitan cities. As the GCR economy continues to grow, with complex social and political interactions continually changing, greater co-ordination will be necessary to drive co-ordinated growth and development across the region. Regional governance is critical in ensuring a sustainable and resilient region – with this equally important as multi-level institutional arrangements are forged. Ensuring all role-players work towards an urban environment that promotes urban liveability.

Accountable, trustworthy and responsive governance

Pursuing just distributions of benefits, to improve the adaptive and resilient capacities of vulnerable groups and the citizenry of Johannesburg as a whole, is central to resilience – and to sustainability. The City is obliged to become better at communicating, explaining and informing stakeholders and customers. It must also be willing to accept sanction for poor performance. Accountability, trustworthiness and responsiveness are all essential pillars of governance – in terms of how it relates to delivery.

The pursuit of social justice by the City necessitates effective translation of strategy into implementation. Active protection of the rights and interests of socially vulnerable groups – alongside the pursuit of mechanisms to empower them – is essential for resilience and sustainable governance. There is however, also a tension between urban management, enforcement and the protection of rights. Transparent and open accounting, communication, and a clear governance framework should serve to mediate this tension – with citizens and the City both acknowledging joint accountability for the city in which they live and work.

2.6 The GDS principles

The 2040 GDS paradigm provides a base for analysis, interpretation and action. The City's statement of six clear guiding principles, originally articulated in the 2006 GDS, support this framework further. Despite the time that has passed since the definition of these principles in the 2006, they are still relevant. They provide a view of the City's approach to development, clarifying the path for mediating some of the tensions outlined above. While the essence is largely the same, insights gained through the GDS review have been used to strengthen the original principles, ensuring greater alignment with the changing context and the Joburg 2040 GDS paradigm.



2.6.1 Principle 1: Eradicating poverty

The City of Johannesburg will continually assist the poor to build capacity, thereby supporting them in accessing the city and stepping onto the ladder of prosperity. The City chooses a pro-active approach – helping new households, internal and circular migrants, those in hostels, informal settlements and historical ghettos, the unemployed youth, refugees and others who are vulnerable to access urban services. The aspirations of the poor may present considerable delivery challenges. Despite this, the City remains committed, as developmental local government, to working with the most marginalised communities, to promote social, economic and spatial inclusion.

Defined in the 2006 GDS, this principle revitalises our understanding of our Constitutional duty to look after the 'basic needs' of the community. Over the last few years, the interpretation of this duty has frequently seen it reduced to mean the provision of free basic services. This principle, when defined more tangibly, refers to the City's role in:

- Enabling the poor to access basic livelihoods, inter-alia by helping them to secure social grants, facilitating skills development and basic employment opportunities, and supporting 'self-help' projects, start-up micro-enterprises and community-based co-operatives;
- Ensuring the affordability of municipal services, public transport and social facilities, through progressive tariff structures, creative cross-subsidisation and targeted social packages;
- Accommodating the poor, by working to ensure that they can find and retain decent lowest-cost rental housing opportunities – without needing to resort to a life lived in informal settlements and Inner City slums. A key priority is the assimilation of the poor, ensuring they are not relegated to the margins of the city, but can instead find residency in mixed-income residential spaces;

- Empowering the poor politically through meaningful participatory governance; and enabling them to feel part of the city, through the use of a range of measures – including sports, recreation, arts and culture – to minimise the experience of social exclusion; and
- Making allowances for the poor in terms of the regulation and management of the built environment and the use of public space – e.g. through developing more innovative, supportive regulatory approaches for the management of informal trading, spaza shops and backyard dwellings.

2.6.2 Principle 2: Building and growing an inclusive economy

The City of Johannesburg will continue to support economic growth that is both competitive and job-intensive – thereby ensuring the sharing of economic opportunities. The 2006 GDS recognises that the Apartheid legacy is still reflected in a highly unequal economy that excludes the majority of Johannesburg’s residents – an economy that has created labour market distortions that continue to benefit racial minorities. Facilitating shared growth – and involving more citizens in economically productive activities – will serve to benefit all.

2.6.3 Principle 3: Building sustainable human settlements

The City is committed to building sustainable human settlements – with this commitment aligned to national imperatives. This commitment cannot, however, be addressed without honestly considering how sustainable human settlements can best be established in a city still divided across race and class lines. In building sustainable human environments, the City must therefore address a triple challenge: breaking through the Apartheid City; creating more liveable environments; and confronting the post-Apartheid reality of urban exclusion.

2.6.4 Principle 4: Ensuring resource security and environmental sustainability

The City of Johannesburg is committed to transitioning to a low-carbon economy in pursuit of a healthy urban environment and environmental sustainability – where this is considered a critical step in ensuring the well-being of all Johannesburg’s residents, and those who work and play in the city. In the context of high energy costs, a plan that does not include this transition will result in an energy base and aligned costs that place excessive burdens on the economy, negatively affecting the potential of all economic sectors. Increasing energy costs will also further disadvantage the poor, exacerbating conditions of energy poverty in the city. This City is committed to addressing energy poverty by building an urban form that is energy efficient, and by ensuring that the urban poor are energy-secure. However, the management of all scarce resources is the collective responsibility of every one of the city’s stakeholders. For success, this principle requires the development of compacts between the City, business, individual citizens and communities, with joint action representing the only option for adequately addressing resource security requirements.

2.6.5 Principle 5: Achieving social inclusion through support – and enablement

The City will ensure the promotion of social inclusion at all levels of society, through addressing key obstacles, including those that relate to access to service infrastructure and social safety nets. In addition, the City recognises the reality that social inclusion will only be achieved if all play their part. The City will work to build an enabling environment, through which citizens can support themselves and each other, creating change and greater inclusivity through the direct actions of individuals, communities, organisations, alongside the City. The City will continue to work with marginalised groups such as women, children, people with disabilities, migrants and refugees, while also establishing further partnerships through which to drive social inclusion across civil society and business. Importantly, the City will work closely with communities to minimise urban conflict arising from intolerance, prejudice and discrimination – as evidenced in recent xenophobic attacks and crimes such as ‘corrective rape’. The City will deepen its relationships with marginalised groups and strive to understand new forms of social exclusion that are emerging. Building bridges across diverse communities is an important element in driving inclusivity, and ensuring the restoration of trust within and between communities. The City will assist communities to express their culture through

the character of the built environment, while allowing neighbourhoods to develop their own unique character and cultural identities.

2.6.6 Principle 6: Promoting good governance

Good governance is central to all of the principles outlined above – serving as the foundation upon which all other principles can be realised. The City commits to ensuring financial sustainability – and deepening participation. Financial sustainability is critical if the City is to meet the long-term demands for capital infrastructure. In addition, the City will focus on building more innovative mechanisms through which citizens and communities can participate more effectively and meaningfully. Recognising that communication is critical for deepening participation, the City will transform the manner in which communicates with citizens and stakeholders.

2.7 The Joburg 2040 GDS Vision and Mission

Vision:

“Johannesburg – a World Class African City of the Future – a vibrant, equitable African city, strengthened through its diversity; a city that provides real quality of life; a city that provides sustainability for all its citizens; a resilient and adaptive society.”

Joburg. My City – Our Future!

Mission:

The City of Johannesburg commits itself to pro-active delivery and the creation of a city environment in 2040 that is resilient, sustainable and liveable. It aims to achieve this through long-term 2040 plans, targeted programmes, services and enabling support that drives economic growth, optimal management of natural resources and the environment, the development of society and the individuals within it, and the practice and encouragement of sound governance, in all the City does.

2.8 Concluding remarks

The City has a principled commitment to deepening local democracy through effective participation. While the democratic process – together with active communication – supports more effective, targeted delivery of services to citizens, it also grows a more active, engaged citizenry, alongside a more responsive and pro-active city government. The City will lead in delivery against the principles outlined above, forging and deepening co-operative governance with partners in other spheres of government, finding innovative ways of working in partnerships, managing and overcoming conflict, and engaging honestly with citizens.

The Joburg 2040 GDS is driven by the goal of capable and capacitated communities and individuals. With this realised, the City of Johannesburg will be able to transition to a more sustainable, inclusive future, in which communities and the individuals who live in them hold the potential and the means⁸ to imagine and grow their neighbourhoods, their communities and themselves. A balanced focus on the environment management and services, good governance, economic growth and human and social development will assist in achieving a resilient and sustainable city – and a city in which all aspire to live.

Lastly, to give force to the concept of developmental local government, the City strives to be more pro-active in its approach to partnering with citizens and business. It is only through partnerships that large-scale change will occur, thereby enabling the city to change its development trajectory. Encouraging citizens to become co-producers and co-managers will aid in the establishment of a more just, sustainable and equitable Johannesburg.

⁸ These ‘means’ may include individual incomes, access to social packages, free basic services or a combination of social services that allow citizens to build capabilities over time.

A promising
future

3

Chapter

3

Confronting our reality: Challenges and opportunities

This overview provides a mirror, reflecting the challenges that countries and cities worldwide face today.

3.1 Introduction: Placing the analysis in context

The 2006 GDS included an analysis of the city's status quo, which was used to formulate the GDS' long-term goals and strategic interventions. This analysis was presented within the context of the following themes: economic development; human and community development (including a focus on housing and infrastructure); environmental sustainability; spatial development; transportation; health; safety; financial sustainability; governance and administration. This chapter serves to build on the analysis undertaken in support of the 2006 GDS, presenting an updated perspective of challenges and opportunities faced by the City.

As noted in Chapter One, inputs into this analysis have come from various sources. Following the initial communication of the draft Joburg 2040 GDS through the GDS outreach process, a significant number of stakeholders provided further comment. These stakeholders included, amongst others: citizens, city officials, political representatives, technical specialists, academics, students, business, community organisations, other bodies within government and numerous other participants. Their ideas and recommendations have been reviewed and included here-in, to bolster the original analysis within the draft 2040 GDS – and to augment the outcomes and outputs reflected in Chapter Four. The GDS outreach process and the input it solicited is acknowledged as an invaluable contributor to the strength of the Joburg 2040 GDS. It has provided an opportunity to draw from a far more extensive base of knowledge and experience, and thereby, allowed for improved conceptualisation and planning in respect of the path ahead. As noted in the draft 2040 GDS: "Recent events on the global stage also remind us of the importance of real community and stakeholder engagement and participation when formulating a view of our city's reality. Not only is this important if the City is to ensure it holds an accurate and informed view of the status quo, but it is also a critical step in driving legitimate decision-making. The role and purpose of strategies is not only to capture change,



but to review and confirm various imperatives through a process of dialogue and engagement. For success, the strategic decision-making process must be opened up, to source multiple opinions and divergent views.”

In an extensively networked, integrated global environment, events in one part of the world frequently ripple across other regions, unsettling distant cities. This city is not isolated from these realities and risks, and nor is it immune to its own set of changes, challenges and opportunities – with these frequently mirroring others’ experiences of rapid transformation and widespread volatility. The current context of global instability, typified by uncertainty in financial markets, global commodity constraints, oil price fluctuations, and massive political change and upheaval (both on the continent and in other parts of the world), casts new light on the role and purpose of city strategies – demanding greater depth of understanding and resilience in the planning framework itself. The process undertaken to arrive at this analysis is reflective of this recognition.

3.2 An overview of the analysis chapter

At a macro level, the analysis that follows is framed within nine key clusters that are, in themselves, indicative of the changes emerging since the 2006 GDS. While the previous GDS made use of sectoral clusters of analysis, this document addresses the following themes:

- Health and poverty;
- Economic growth;
- Resource sustainability;
- The environment;
- Transportation;
- Liveable communities;
- Community safety;
- The ‘smart city’; and
- Matters of governance.

These themes steer away from a sectoral approach, in recognition of the need for integrated solutions, to address the many challenges faced – and the opportunities these provide. They reflect a growing focus on challenges such as climate change, the complexities associated with balancing economic development with resource sustainability, the need for integrated human settlements that foster the concept of ‘community’, the prioritisation of good governance, and the benefits to be gained through smart technology.

Input on the city’s population dynamics precedes discussion on the themes noted above, given that demographics and data relating to population realities and changes underpin any city’s status quo assessment. Trends in this regard represent a cross-cutting factor that influences demand for infrastructure, community services, jobs, housing and other citizen needs – and informs planning and prioritisation imperatives. In this context, the City acknowledges the importance of understanding the changing population it aims to serve, using this then as the starting point – of relevance to each of the respective themes identified above.

3.3 Population dynamics

The world’s population reached the 7 billion mark in 2011. With this, the global population is expected to increase to 9,2 billion by the middle of this century. Urban areas account for only three percent to four percent of the world’s land area, but hold half of the world’s population. Urbanisation rates vary across the world, although Sub-Saharan Africa shows the fastest rates of urban population growth. Clusters of smaller cities (with urban populations of 1 to 5 million) are however growing more moderately.

At a national level, Gauteng is the smallest, most densely populated of South Africa’s nine provinces – but is also the province that contributes most sizeably to the nation’s GDP. According to the 2010 mid-year population estimates provided by Statistics South Africa (Stats SA), Gauteng is currently home to a total of 11 191 700 people – 22,4 percent of South Africa’s population. The overall change in population size for Gauteng between the time of the 2001 Census and the 2007 Community



Survey is noted by Stats SA as 13,61 percent, representing a growth rate of just under two percent per year. Gauteng’s population is influenced not only by births and deaths – but by significant in-migration into its three metropolitan municipalities (metros) from surrounding areas such as Rustenburg, Potchefstroom, Sasolburg and Witbank/Middelburg/Secunda. Migration within metros is also a key feature, as people try to access economic opportunity and services by moving from the periphery, closer to the urban centre (NPC 2011b).

Gauteng is also the province within which Johannesburg is located – with the city falling within the GCR, a cluster of cities, towns and urban nodes that together make up the economic heartland of South Africa. The GCR has features of a polycentric city-region (one that has multiple centres), and is anchored by its three large metros: Johannesburg; Tshwane; and Ekurhuleni. Johannesburg’s development is an integral part of the region in which it finds itself. In 2007, these metros, together, were home to a population of 8,9 million people, according to Stats SA’s national Community Survey (Stats SA 2007). Stats SA’s subsequent mid-year population estimates indicate that, by 2009, Gauteng was home to 10 531 300 people (2008). The GCR footprint is even larger than the province of Gauteng, with a further increase in size anticipated – a key point to note; as Johannesburg’s demographic transition is intricately linked to the GCR.

According to UNISA’s Bureau of Market Research (2010) projections, Johannesburg has a population of approximately 3,8 million people, made up primarily of a young population aged between 30 and 39 years. This total population translates into roughly 1,3 million households. The city’s population is projected to increase to about 4,1 million by 2015, implying an annual growth rate of about 1,3 percent per annum. Importantly, it is anticipated that, with a combination of factors such as births, deaths, rising infertility and decreased family sizes, Johannesburg’s population growth – while

increasing – is doing so at a slower rate. In addition, household projections indicate that the number of households in the city is likely to increase from about 1,3 million in 2010, to about 1,5 million in 2015 – with an average household size of about three persons. Of the total number of households projected for Johannesburg by 2015, it is estimated that 33 percent will be headed by females.

A review of population growth would not be complete without comment on the impact of HIV/AIDS. The number of people with HIV has begun to decline since 2004. However, the City acknowledges that South Africa still has one of the largest per capita HIV/AIDS prevalence and infection rates worldwide, and continues to enjoy the unenviable privilege of being home to one of “the fastest growing AIDS epidemics” globally (UNISA 2010).

Based on current trends, it is anticipated that Johannesburg’s population will double within 50 years, shifting from the current 3,8 million people, to an expected 6 to 8 million people by 2040. Understanding both the age and anticipated growth of the city’s population will assist in planning for the future demand for services, job opportunities and other necessities. There can be no doubt that rapid changes to the size of Johannesburg’s population will continue, as will changes in the population size of South Africa as a whole – and the continent – with various factors influencing the count, as reflected in the UN-Habitat’s statement:

“In 2009 Africa’s total population exceeded 1 billion. It took 27 years to reach 1 billion from 500 million... the next 500 million will only take 17 years”(UN-Habitat 2010: 1).

“In 1960 Johannesburg was the sole Sub-Saharan African (SSA) city exceeding 1 million inhabitants, in 1970 there were four (Cape Town, Johannesburg, Kinshasa and Lagos). By the late 1980s, the list also included Abidjan, Accra, Addis Ababa, Dakar, Dar es Salaam, Durban, former East Rand, Harare, Ibadan, Khartoum, Luanda and Nairobi. By 2010, SSA will have at least 33 cities of more than 1 million inhabitants, with two exceeding 5 million and one (Lagos) having more than 13 million inhabitants.” (UN Habitat 2004: 1).

In addition to the influence of births and deaths, migration significantly influences the size of Johannesburg’s population. Johannesburg continues to be an important switchboard for both domestic and international migrants. However, cross-border migration is still small in comparison to domestic migration. This suggests that the annual rate of population growth in the city is driven largely by positive net-migration into Johannesburg, from other places in South Africa. The manner in which the city addresses the reality of migration – of those both from within South Africa and beyond its borders – will influence the daily experience of all the city’s residents, regardless of origin.

3.4 Poverty and health

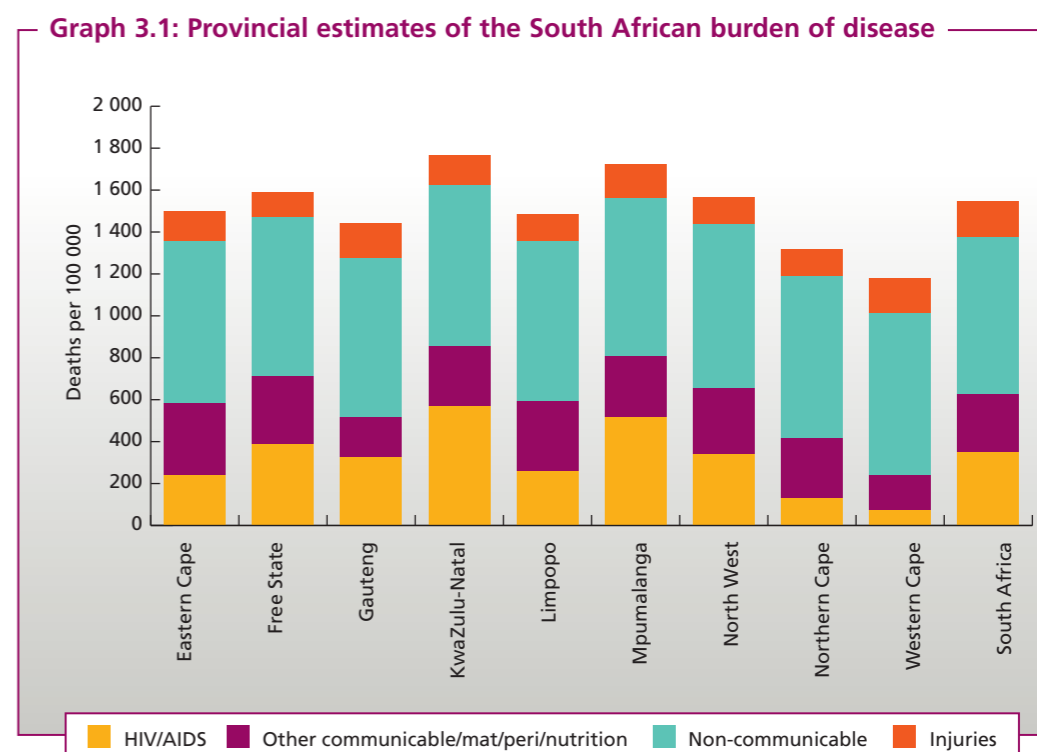
The elements of health and poverty are inextricably linked. In addition, unemployment is a key part of this equation – given its potential in respect of poverty reduction (The Presidency 2011c). Being healthy is dependent on a number of factors, including, for example, where people live, the quality of air they breathe, access to affordable and high quality food, the lifestyle choices they make the access they have to a source of income and the means to meet basic needs. Improving the material conditions experienced at the household level can result in greater health and resilience to disease amongst the broader community. A systems perspective of health, poverty and unemployment demonstrates that no single solution alone will work. In this section, these issues are analysed as inter-related, dynamic forces. The concepts of ‘burden of disease’ and ‘deprivation’ are used below as a frame through which to take a wider view of the issues presenting.

3.4.1 South Africa’s ‘quadruple burden of disease’

The phrase ‘double burden of disease’ is accepted internationally as describing the transitional health in developing countries, where the well-being or lack thereof of a population is displayed through both chronic forms of disease, such as diabetes, obesity and cardiac disease associated with an unhealthy lifestyle (typically seen in the developed world) – and those diseases associated with poverty and underdevelopment. South Africa displayed this ‘double burden of disease’ in the 1980s and early 1990s, but, taken together with a high level of injuries associated with trauma, violence

and the advent of HIV/AIDS, South Africa’s health system has seen a multiplied effect. This has led to a ‘quadruple burden of disease’ that necessitates a dedicated focus, if South Africa is to have a prosperous, healthy, productive citizenry.

The graph below depicts provincial estimates of mortality, based on deaths per 100 000 people. Unfortunately, as with much data in South Africa, the figures are out-dated – although they do provide a clear sense of the various causes of mortality. In addition, with the social stigma many attached to HIV/AIDS, many deaths that may have originated from this immune deficiency related syndrome will have been attributed to alternative causes, decreasing the clarity of perspective. Deaths are categorised according to cause: HIV/AIDS; communicable diseases; non-communicable diseases; and injury.



(Source: Medical Research Council 2006: 4)

3.4.2 Poverty and deprivation

In 2004, the City of Johannesburg invited multi-disciplinary research teams to contribute to the development of view on the human development challenges faced by Johannesburg, as a city. Based on this data, the City developed its HDS, addressing three strategic objectives:

- Safeguarding and providing support to poor and vulnerable households, through widened access to social protection and safety nets;
- Driving a reduction in inequality of a spatial, class, race, gender and generational nature; and
- Ensuring the promotion of social inclusion.

These elements were included within the 2006 GDS, given the GDS’ focus on reducing poverty and fostering human development into the next decade. The above also point to a further reality: poverty and inequality are part of the same story, and require simultaneous redress.

Further understanding of this area, at a Johannesburg-specific level, was generated through collaborative research between the City and academics from the University of Johannesburg (UJ), building on household data gathered across the City’s seven regions in 2005 and 2006 (in respect of poverty, livelihoods and human development indicators). The ‘household’ was identified as the

appropriate level of analysis, given that this represents the primary unit through which the City meets the needs of citizens, promotes access to resources and optimises opportunities for the realisation of social rights. The research resulted in the development of a Multiple Deprivation Index map, depicting major pockets of poverty across the city. Poverty was defined in terms of a lack of resources to meet basic human needs – a “condition of material and social deprivation in which people fall below a socially acceptable minimum standard of living or in which they experience deprivation relative to others in a society” (Hall and Midgley 2004: xii). The Multiple Deprivation Index focuses on five areas of deprivation: income and material deprivation; employment deprivation; health deprivation; education deprivation; and living environment deprivation. It was used further in the qualitative Johannesburg Poverty and Livelihoods Study (UJ 2008), to identify the most deprived wards, through the application of qualitative measures. Key findings provided a view of the realities of Johannesburg’s poorer residents, with insights as follows:

- *Demographic and social profile:* Household size varied across the areas studied. In terms of educational attainment, 77 percent of respondents confirmed their attainment of secondary level qualifications, or matric .
- *Livelihood strategies:* Poor households employed a diversity of coping and adaptation strategies. In 80 percent of the households, at least one person was formally employed. Only 30 percent of households confirmed that they had others beyond the household who they could receive help from, in times of need. Respondents noted that regular income came from grants, welfare organisations, friends and family.
- *Vulnerability:* Poor households attributed extreme vulnerability to life changing events, with events raised here including – from most to least severe: the death of a member of the household; loss of income; severe illness in the household; and a lack of food. In total, 40 percent of households noted that they did not make provision for unexpected events. In addition, household vulnerability was recorded in terms of access to food. Two-thirds of all households were categorised as either moderately or severely food insecure, in terms of the concept of Household Food Insecurity.
- *Health and psychosocial well-being:* Respondent households were affected by high levels of chronic illness, such as high blood pressure, diabetes and tuberculosis. Tobacco and alcohol usage was high, with greater levels recorded in certain areas. The overall incidence of mental disorder symptoms was 40 percent. All of these indicators highlight the significant levels of stress encountered in poor households. There were, however, variations between the respective areas surveyed.
- *Access to services:* Analysis indicated that access to piped water, flush toilets and electricity was high.
- *Household and community trust, support and networks:* A large proportion of households indicated limited access to community support. However, less than half of the participating households indicated that they felt unsafe in their neighbourhoods. While there were low levels of participation in political parties or unions, almost a third of households indicated that they were active in community organisations.
- *Gender:* Almost one-third of the households surveyed were female-headed – although this trend was unevenly distributed across the various neighbourhoods. Female-headed households were also noted, in general, as being acutely affected by food insecurity.

While some of the findings are generalisable across settlements, the analysis noted that the nature of poverty differed from one area to the next. This highlights a truth: the multi-faceted reality of poverty requires an integrated and inter-sectoral approach, for successful redress. Identifying the appropriate and unique set of interventions requires a thorough understanding of each settlement’s needs. In terms of the use of the Multiple Deprivation Index itself within the research undertaken – where measures of deprivation were analysed at a ward-based level – the following is noted: while of immense value, continued tracking of poverty trends at a ward-based level may not allow for a full comparison of ‘like with like’ over time. Wards are primarily an electoral tool, with community engagement and planning taking place within these parameters. Ward boundaries shift at times, with changes informed by voter numbers rather than other factors, such as the unique challenges faced within one community versus the next (where the latter would allow for greater targeting of interventions). Changes to ward boundaries impact on planning, and the ability to successfully address and track geographically-specific community challenges such as those assessed by the Index of Multiple Deprivation, in an optimal manner.

The sections that follow address specific challenges faced by those within the city, in respect of the various forms of deprivation: income and material deprivation; employment deprivation; health deprivation; education deprivation; and living environment deprivation.

i. Income and material deprivation: The broken safety net

With the levels of deprivation noted above, one of the key questions relates to the means that citizens are able to access, to address material needs and poverty realities – whether income or grant related, or some other form of support. With so many unable to access formal employment, the safety net provided by entities like the City, and other spheres and agencies of government, is critical. Despite its importance, this safety net has ‘broken’.

A number of challenges are noted. Firstly, it is argued that service offerings for vulnerable groups are less effective, due to planning that tends to be over-centralized in nature, with ‘one-size-fits-none’ planning jeopardised further on the delivery front, through fragmented and duplicated efforts by the different spheres and agencies of government. Ineffective integration of efforts with a poorly capacitated non-profit sector further complicates the outcome. As such, scarce resources are not being used to maximum effect. In addition, programmes are often too frequently reactive rather than transformative in nature – leading to short-term benefits rather than long-term change and empowerment of those assisted. A further challenge relates to the realities faced by economically inactive adults who are of working-age, with no dependents. Existing government support programmes do not adequately address these individuals’ needs, with old age and child support grants increasingly used to support wider households.

Many of the institutional and programmatic features of this broken safety net, such as the social grant delivery systems, education system and all provincially delivered support and programmes, are technically outside the City’s mandate. Nevertheless, in those areas that are not within the City’s domain, the institution recognises it still has a responsibility and an obligation to raise concerns, share information on progress and challenges and thereby support delivery by others.

ii. Employment deprivation: opportunities and threats in the informal economy

The OECD estimates that only 15 percent of South Africa’s GDP changes hands in the informal economy. By comparison, in major emerging market economies that are characterised by a majority living in poverty and unemployment, such as India and Brazil, that proportion is 50 percent. This suggests that ventures in the informal sector are one of the major opportunity channels through which the poor can empower themselves.

Welfare to work programmes, such as the City’s Job Pathways programme, have promoted the informal sector as an opportunity site for the poor, but this has not necessarily been echoed in the compliance demands and enforcement approaches taken by the wider public sector. The City has the power to set these conditions of trade and must protect the consumer, but must also consider how it can use the informal sector as a lever for social upliftment.

Expert input suggests that present by-law regimes impose an artificial set of values on informal trading, which capture official preferences, rather than preventing harm to consumers. This sets inappropriate barriers to entry and creates the opportunity for corruption on the part of those tasked with enforcement. It is noted, however, that certain segments of the informal economy clearly do present dangers that must be policed. Informal crèches which fail to meet basic safety standards present a clear danger to the well-being of the children who attend them; abandoned buildings managed by slumlords as a form of informal rental may meet market demand for low-cost rental, but do so under extremely hazardous conditions which too often link in with criminal enterprises. The City’s challenge is to police these negative segments while promoting genuine paths of opportunity.

iii. Inequality and its role in furthering deprivation

It is noted that by the Presidency (2011c) that, where high inequality exists, growth is frequently concentrated among sectors that benefit those who are already advantaged, while the poor often

lack the necessary resources to optimally benefit from growth, or, at worst, are excluded from the market opportunities it may offer. High inequality levels also make it more difficult to reduce poverty – even in the context of a growing economy. In highly unequal societies, the poor frequently engage in subsistence living, with this potentially influencing the size of the domestic market, constraining sustained growth. Furthermore, high inequality levels may undermine safety, social cohesion and the realisation of social political and civil rights. Inequality can also manifest in unequal access to infrastructure and services. Interventions that consider the gap between the wealthy and the poor, while growing the economic base from which all can benefit, and individual capabilities to meaningfully engage and contribute, have to be top of mind. Inequality is not only experienced through economic deprivation, but is reflected in various other experiences – e.g. social inequality, inequality of access, and inequitable governance arrangements.

iv. Functional failings in the education system

Education serves as one of the drivers that support people out of poverty, opening doors and increasing opportunity. But these outcomes demand quality education that is also relevant to the needs of the economy. Basic education, though it technically falls outside of the City's competency, is arguably the most significant bottleneck faced by poor youth as they seek to exit poverty. Looking purely through a national results lens, the majority of schools are unable to produce improved educational outcomes. A national 67,8 percent pass rate in 2010 is less cause for optimism when one considers that only 15 out of every 100 learners passing matric achieved marks of 40 percent or higher. Furthermore, 70 percent of all passes are achieved by 11 percent of schools (with the worst performing schools serving the most deprived areas). In Johannesburg, being educationally deprived (not possessing a matric) is highly correlated with all other forms of deprivation. Participants in the Health and Poverty Community listening session series (part of the GDS Outreach) consistently raised social ills such as drug abuse, sexual misconduct (including prostitution and other forms of transactional sex) and unplanned teenage pregnancy as prevalent concerns. Meanwhile, the Early Childhood Development (ECD) system, a major tool through which to close the achievement gap between the very poorest children and their middle-class peers, is acknowledged as being largely informal in nature (60 to 70 percent informal), and is often characterised as an informal commercial, rather than educational, sector.

It is useful to consider the contributory factors to low matric completion and failure rates – given the implication of these for the appropriate course of action. Key aspects noted include:

- Low levels of parental involvement in the school system, in general;
- Poor teacher attendance and ineffective classroom governance, poor availability of physical education programmes, absence of pro-active health programmes within the school environment, drug trafficking and transactional sex in and near schools;
- The reality that wider considerations very often play a significant part in poor outcomes – with international benchmarks from programmes that have addressed educational challenges linked to lifestyle and social factors, strongly advising that both preparatory education (ECD) and after-school programmes can have a significant impact.

v. A city where too many go hungry

Food security constraints are a worldwide reality. Globally, food prices escalated to record highs in June 2008, prompting riots in Haiti and Egypt. More recently, food prices have climbed again to their highest levels since 2008, in the context of escalating world food imports (where these exceeded USD 1 trillion in 2010), dwindling natural water resource inputs, and global competition for foodstuffs. Rising fuel prices, the related increase in transport costs, and increasing cost and scarcity of input factors have contributed. The global commodities crunch has also been devastating for many city economies. Rising prices have made commodities such as soya beans, sugar and cotton more attractive to grow – with increased global demand for non-staple foodstuffs further inflating the international food bill (Business Day 2010). The United Nations Food and Agricultural Organisation (FAO) argues that food prices have been negatively affected as a result of the quantity of supplies not increasing at the required level, to meet global demand. Other factors that have placed pressure on food prices include an increase in the areas dedicated to crops destined for bio-fuels, a growing world



population, increasing migration and urbanisation, exchange rate variability (especially the devaluation of the US Dollar), the impact of climate change events on weather, and the resultant variability of crop production (NEMC 2010).

In South Africa, food insecurity has increased in the context of escalating global food prices. Between 2007 and 2008, South Africa's food inflation outstripped overall inflation by 12.1 percent. To maintain the same food basket in the context of this inflation, the poorest households in South Africa would have to raise their incomes by a minimum of 22 percent. In 2008, estimates indicated that poor households in South Africa would spend 37 percent more on basic food items than in previous years (M&G 2008). In addition, while food poverty in the past was largely associated with rural areas, urban areas in South Africa are starting to face increasing risk, with the effects evident in Johannesburg and other South African cities. This reality is augmented by estimates that set the percentage of the Southern African population that will be urbanised by 2050 at above 80 percent (UN 2007) – with much of this growth, in Johannesburg's case, attributed to factors such as the in-migration of people from other towns, cities and rural areas.

Food prices in Johannesburg are a major factor affecting poor households' food security, with the fact that the city imports around 90 percent of its cereals and a high percentage of its fruits and vegetables further increasing its vulnerability. An underdeveloped public transport system, too few local markets, and the extensive zones of exclusion emerging from the Apartheid planning legacy further hamper access to affordable and nutritious food for many residents. Poor households are particularly at risk, with the food bill taking a higher proportion of their meagre incomes. Within this context, and the local dynamics related to unemployment, poverty and other forms of deprivation,

food security is a citywide challenge, with estimates of the proportion of food insecure residents running as high as 42 percent and above (AFSUN 2008). To determine the extent of a city's 'food insecurity', analysts focus on determining the number of households that have gone without food for between 3 and 10 times in the preceding four weeks. Three cities in South Africa show alarmingly high levels of food insecurity – namely, Cape Town, Msunduzi and Johannesburg. The Urban Food Security Baseline Survey (UFSBS)¹¹ conducted in late 2008 found that levels of food insecurity among the urban poor in these three cities averaged 70 percent, although a lower figure of '42 percent and above' was noted in respect of Johannesburg, when assessed on its own.

With poverty and food insecurity come health complaints, with dietary sufficiency and diversity important for adequate nutrition and the management of communicable diseases such as TB, and HIV/AIDS. The link between HIV/AIDS, and security of food and nutrition, are well established. AIDS also increases calorific nutritional requirements, as does ARV treatment, placing a further burden on affected household members to meet their nutritional needs. A further issue in the link between food and health is the issue of food safety. Food-borne infections and disease are a real risk that many within the city face, in the context of limited or no access to cold storage or exposure to food prepared in unsanitary conditions. It is also noted that disposal methods for food can also drive up rodent and vermin populations, further increasing the risk of disease.

The presence of a large commercial agricultural industry and the dominance of large retail food monopolies that constrain the growth of small medium and micro-enterprise food retailers are also noted as impacting the food economy. Little exploration has taken place into the benefits that may accrue from active promotion of small and/or informal providers of household food, even though such an approach would present an opportunity to link small-scale growers with emerging small to medium size retailers, while also addressing food security constraints. Despite the lack of formalised linkages between informal providers and the formal market, it is noted that the informal economy is playing a major food supply role in deprived areas – with 70 percent of respondents to a recent (2009) area-level survey in Orange Farm reporting food being sourced from street vendors, on a basis of at least once a week. In the face of scarcity, it is also of interest that only three percent of households in Johannesburg grow their own food. Urban agriculture remains necessity-driven, rather than opportunity-driven. This is in spite of the fact that localised food production systems do provide an option through which to reduce exposure to global food price shocks, while also addressing food vulnerability. During the GDS Outreach, residents of the 'deep south', in particular, expressed strong enthusiasm for farming programmes. Experts engaged on this issue reflected that policy co-ordination between spheres of government on this question has been poor, with results mixed, at best. An expert panel recommended three levels of intervention:

- The use of a range of instruments to tackle individual hunger on a day-by-day basis. This includes instruments such as food vouchers, food parcels, backyard gardens and programmes to connect citizens to income generating activity, thereby enabling them to buy food.
- Provision of support to the informal food supply sector, in terms of: local resource co-ordination – to assist growers in accessing basic supplies, finance and farming advice; the establishment of links with properly constituted local trading spaces/linear markets – although it is noted that these are largely non-existent in the most deprived parts of the city.
- Support for urban agriculture at the area level, where feasible, through the packaging of land and the establishment of hub-and-spoke infrastructure to connect networks of local producers to cold-chains, packing houses and wider distribution networks.

vi. Living environment deprivation – and the paradox of informal settlements

The City has a formally constituted list of 180 informal settlements, although a final proposed revision to this list at time of writing expands the number to 189. Every socio-economic challenge the city faces is epitomised by these areas, which nonetheless differ strongly from one to another. The majority of the city's informal settlements do not comply with even the minimum humanitarian

standards set for refugee camps in terms of access to water, shelter and sanitation. There is therefore significant risk to inhabitants in terms of exposure to environmental hazards, communicable diseases and, particularly during the winter months, the risk of fire.

While host to a significant variety of challenges, informal settlements also play a very specific spatial function in the city. They represent the means by which the most socially and economically disconnected queue for access. In this context, interventions such as the RDP housing allocation system only address, at best, part of the problem. Given the scale of the informally housed population, any medium-term shelter response must include very low cost rental. Informal settlements are also places from which residents interact intensively with the formal structures of the city. The proximity of such settlements to the city's labour markets, trade opportunities, social supports, transport systems and clinics serves as an additional driver of increased residency. The nature of settlement proximity to these city services and benefits is reportedly one of the factors considered in the pricing attached by shack farmers to their black market rentals (with these being, principally, self-standing or back yard shacks without direct linkage to services or any corresponding service charge liabilities).

One of the critical strategic questions posed by the expert panel was whether the City was willing to allow citizens to invest in the improvement of their own living conditions – and claim some form of recognised temporary legal occupancy. The City has, to a certain extent, already enabled such an approach – by creating a 'regularisation' category that can be used to give informal settlements certain cornerstones of formality. Arguably, the City needs to recognise the impossibility of eradicating its informal settlements outright, responding instead to the immediate humanitarian/living standards challenges they represent. A medium and long-term approach needs to be adopted, emphasising integration and, where possible, safe and feasible, an approach that provides residents with the legal opportunity to invest in the upliftment of their own living standards.

vii. Integrating migrants: Cohesion and clashes

Tensions between new migrants to the city and various entrenched local interests have been constant and varied. Clashes over both the opportunity to trade, and the market impact of migrant traders, are a major and persistent source of tension. How and where can a State facing substantial local poverty accommodate the needs of new migrants? The City must consider these critical issues. Cross-border migrants, already highly urbanised in their country of origin, are more likely to navigate towards the Inner City, whereas newly arrived internal migrants tend to cluster into the low-cost 'gateway' informal settlements at the urban fringe. But the truth is that Johannesburg will continue to attract migrants as long as it ensures – or provides the potential for – successful poverty alleviation, employment opportunities and access to goods and services.

The entrepreneurial spirit of migrants is an asset to the city, but diversity also presents challenges. Building social cohesion across diverse communities, with different cultures, ways of being, and ways of living in the city, is a task for all cities. Growing our city is, beyond the bricks and mortar, also about building a shared sense of belonging. As is evident from the experiences of other successful cities, Johannesburg's future success is directly related to the extent to which all believe they belong. The promotion of an environment where everyone holds an equal opportunity to contribute is viewed as critical for long-term sustainability. The City of Johannesburg has a responsibility to help build a new appreciation of the 'identity' of migrants – thereby enabling all to contribute to the city, with a strong sense of their own value and security.

Lastly, one of the paradoxes of diverse cities is the tension between the desire specific communities may have to retain their individual cultures and identity – and the drive for social harmony that may exist at a city or regional level. Understanding this, and navigating the path between these two imperatives, is a hard task – but one the City has an obligation to tackle. A mixed approach will be necessary – with an appropriate focus on education, community engagement, monitoring and regulation to prevent violence, and activities through which to share and celebrate the diversity of

¹¹ The survey was conducted by the African Food Security Urban Network (AFSUN), and managed by the Programme in Urban Food Security (PUFS) at the University of Cape Town.

culture and history represented within the city. Barker (2011) notes that the wide diversity of people living in the city will result in many experiences and responses to the physical environment, that also need to be taken into account in delivering appropriate public environments (with this aspect addressed further below). It is argued that there is a need to invest in understanding diversity relating to variables of time, place, economic status, education and other factors, to deliver spaces that are appropriate for the various communities in the city – as a means of growing cohesiveness and inclusivity. There is also a need for greater collaboration and integrated design, development and management of public environments, given the diversity of role-players who operate in the city – with this also requiring the involvement of the diverse communities that constitute Johannesburg, if these efforts are to be successful.

3.5 Economic growth

The city of Joburg is the commercial and economic hub of South Africa, and a key centre and driver in respect of growth on the African continent. It contributes approximately 47 percent to the provincial economy – serving as a key contributor to the economy of the GCR and the nation. As the country's main economic hub, greater diversification and transformation of the city's economy would have positive ripple effects, not only for the city's population, but also for the economies of South African and other African nations. While the City has made significant efforts towards improving the livelihoods of its communities, a concentrated and skewed economy remains a challenge that needs to be addressed through long-term planning initiatives such as the GDS. Focusing on economic growth alone, however, will not achieve the outcomes the City hopes for. The status quo and specific areas that require attention are commented on below.

3.5.1 Placing the city's economy in context

In any society, the prerequisites for sustained and inclusive economic growth include a healthy socio-economic fibre (characterised, for example, by efficient and effective services in respect of health, transport, safety and education); institutional, operational and political efficiency (governance and policy design); and an empowering, business-friendly environment. Only with these elements in place will the City of Johannesburg be financially sustainable – and able to generate sufficient revenue to meet its political and governance objectives. This philosophy demands an integrated, forward-looking and multi-dimensional planning process, supported by careful target setting (Du Toit 2011).

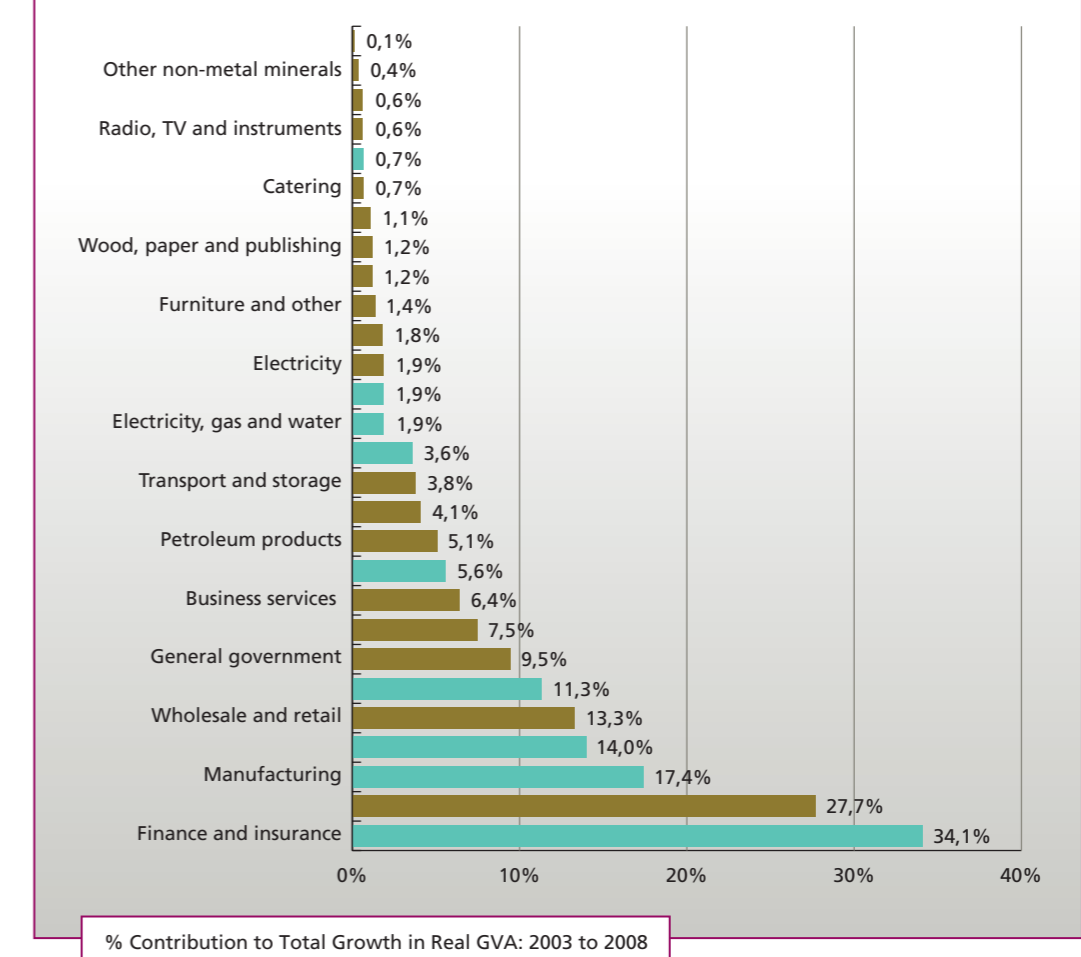
Beyond the financial sustainability of the City itself, focus needs to be placed on the performance of the city's economy, where economic growth is an imperative. Poverty eradication is dependent on sustained, inclusive economic growth. While Johannesburg's economy is competitive, growth is not evenly distributed. With its place as a central driver in the nation's economy, the City of Johannesburg has a duty to ensure it performs and delivers in ways that encourage innovation, entrepreneurship and improved investment, enhancing the city's competitiveness. This role includes delivery and engagement in a manner that supports a citywide environment conducive for business activity – an environment within which firms can compete, access required skills, build capacity and prosper. A competitive economy is viewed as one that can create sustained economic growth and generate decent work for the majority of its residents. While contributing significantly to South Africa's GDP, Johannesburg's economy has featured evidence of 'high and sticky levels of unemployment' (Du Toit 2011), with sub-optimal growth in jobs requiring targeted interventions in the future.

It is acknowledged that the financial services sector contributes significantly to the economic performance of the city. In this context, there is a role for the City to play in promoting and supporting alternative sectors, where these may be suitable for skills absorption and the generation of greater volumes of jobs. Playing a role in driving global competitiveness is also important. The City's challenge is how to drive job intensive competitiveness: creating more productive, decent jobs; supporting industry more effectively; defining new emerging sectors for growth. The vision for economic growth for the Johannesburg of the future is: "An economy that is inclusive, liveable and prosperous for all".

3.5.2 Economic trends

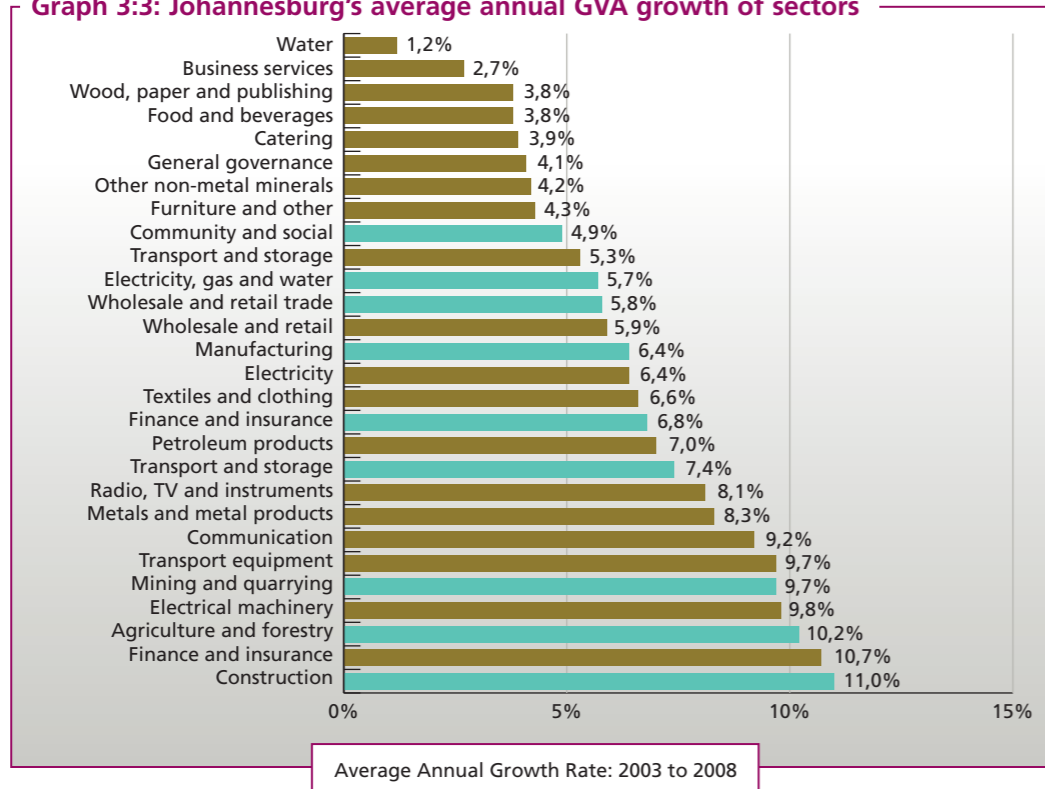
Johannesburg's economic structure is like that of any other large global city: dominated by service sectors. From an economy originally dominated by mining, the city has grown in diversity. However, the sectoral contribution and composition of Johannesburg's economy demonstrates the dominance of finance, insurance, real estate and business services. Combined, these sectors accounted for a third of GVA for the period 2003 to 2008. General government activities accounted for 14 percent of total GVA. Agriculture, forestry, mining and quarrying collectively contributed two percent of the city's GVA. Combining the economy's sectoral composition and the respective growth rates of sectors and sub-sectors makes it possible to measure the weighted contributions of each sector to the total growth in real GVA between 2003 and 2008. About two-thirds of the growth in the metro's economy came from just three major sectors – the aforementioned finance, insurance, real estate and business services, supplemented by manufacturing (17,4 percent) and wholesale and retail trade, catering and accommodation (14 percent). Although the construction sector showed the fastest average annual rate of growth over the period, its relatively small share of value added meant that it contributed less than six percent of the total change in real value added. This analysis highlights the opportunities to support growing sectors. Given the City's statement in terms of the importance of resilience, liveability and sustainability, certain sectors that may support these objectives – such as the green economy, manufacturing, and the wholesale and retail trade – are important for targeted growth. A cross-cutting view of the city's sectoral contribution to GVA is represented in the graphs below.

Graph 3.2: Johannesburg's sectional contribution to GVA 2003 to 2008



(Source: Quantec Data 2010)

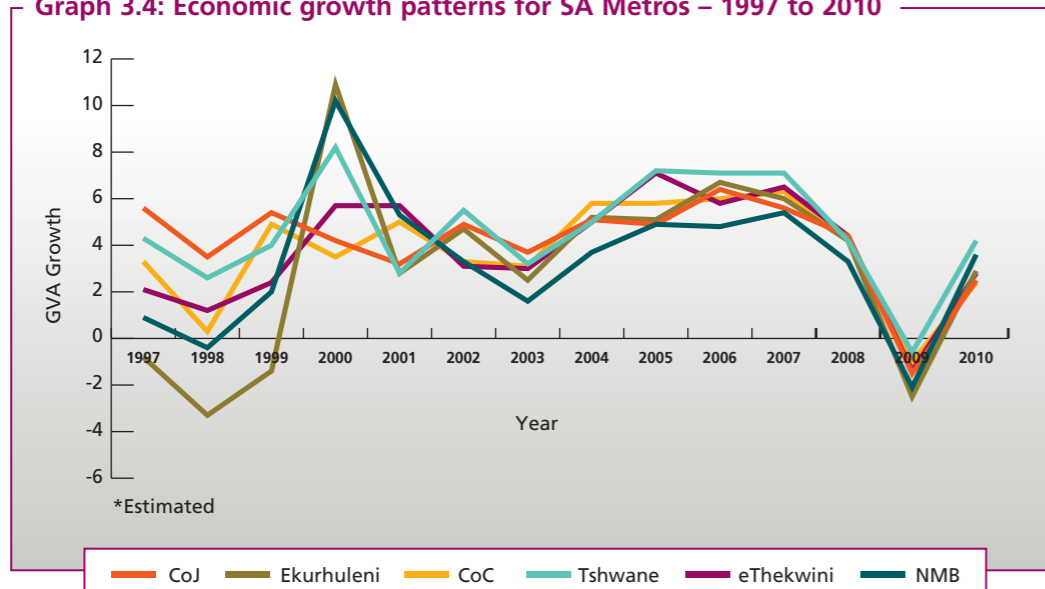
Graph 3.3: Johannesburg's average annual GVA growth of sectors



(Source: Quantec Data 2010)

A further perspective emerges when contrasting the economic growth of the city with that experienced in other metros. The graph below provides an overview of economic growth patterns of the six main metros between 1997 and 2010 (with further projections to 2014). It reflects a view of Johannesburg as a metro that has experienced heightened levels of GVA growth in relation to all other metros (barring Tshwane) over recent years.

Graph 3.4: Economic growth patterns for SA Metros – 1997 to 2010



(CoJ Department of Economic Development 2010)

Across the period from 1997 to 2010, Johannesburg continued to grow – with its financial services sector driving growth. However, the city was not exempt from the financial downturn of 2008, which resulted in the loss of 870 000 jobs in South Africa. Gauteng shed 108 000 jobs, while Johannesburg lost 90 000 jobs. Recovery has been fast, with projections indicating a GVA of 4,5 percent by 2014. But not all areas in the city are growing at the same pace – with regional growth disparities evident. This provides an opportunity for the City to consider mechanisms through which to support emerging sectors in those regions where growth is lagging. Balancing economic activity at a spatial level is critical, if the City is to play its part in addressing poverty – and building sustainable growth.

The economy however does face a number of critical challenges. The formal economy has not been able to create enough jobs. Between 2000 and 2008, the percentage of formally employed people increased by 31 percent, just under four percent year-on-year. Statistics indicate that the unemployment rate (based on a narrow definition¹²) in the city fell marginally, from 19,6 percent in 2006 to 19,2 percent in 2007. In 2009, the unemployment rate was 21,9 percent. Johannesburg has a key role to play in supporting emerging sectors that create jobs. In the context of the current national policy environment, it is an opportune time to build job intensive competitiveness. National and provincial incentives are creating opportunities for South African cities to drive more intensive economic job growth. This includes the establishment of a R9 billion fund job fund through the Industrial Development Corporation (IDC), R20 billion for tax breaks, and allowances for expansion and upgrade in manufacturing. Most recently, incentives are now available for the establishment of Enterprise Zones as part of the country's NGP. These incentives and policies provide a framework for increased growth.

3.5.3 Focusing on an economy with productive and decent employment

Driving productive, decent employment is a priority for a number of reasons. Firstly, there is the risk the city faces without these conditions – with this risk including the serious threat to the attainment of the aspirations contained within the Joburg 2040 GDS itself. Advantages noted in respect of the income associated with productive and decent employment include the potential of this income to contribute towards domestic demand, social insurance, and the ability of job holders to actively improve their own conditions, while addressing their needs (The Presidency 2011c).

In addition, the Presidency, in responding to the draft GDS, notes the role of productive employment in redistributing income from growth. National Treasury suggests that the proportion of working age adults with jobs may be the best measure of social inclusion in a modern society, to a far greater degree than any measure via Gini co-efficient (The Presidency 2011c). With the City's goal of inclusive and sustainable economic growth, productive employment of a greater proportion of the city's people is without doubt the primary route for focus, if the vision we hope to attain is to be achieved. The Presidency notes that on this measure, Brazil rates as a far more inclusive society than South Africa, with close to 70 percent of adults in Brazil holding jobs, in contrast with the approximately 40 percent of adults holding jobs in the South African context (2011c).

In driving a different approach, the following areas of focus are proposed by the Presidency:

- Reintegration of the poor into mainstream approaches;
- Addressing poverty and inequality simultaneously;
- Building solidarity across society – and thereby growing inclusive growth and opportunities;
- Addressing structural changes in society;
- Building a strong administration and bureaucratic capacity, to support growth; and
- Simultaneously focusing on non-economic factors that can enable and facilitate economic development. These include, amongst others: building a common civic culture driven by shared values; promoting tolerance and respect for differences; encouraging inter-group co-operation; building social solidarity; encouraging sound social networks and the growth of social capital; and building a greater degree of citizen attachment and place identity.

3.5.4 Youth unemployment

Youth unemployment is a critical challenge faced by both the nation and the city. Low education levels and slow formal sector growth are but two of the major causes of youth unemployment.

¹² This is official unemployment. According to the narrow definition, people who have given up looking for work after a certain period are excluded from the so-called official unemployment figure.

South Africa loses R550 billion a year on illiteracy (Business Report 2010) and ranks 137th out of 139 countries when it comes to the quality of maths and science education at primary school level (WEF 2010). When considering South Africa's ranking in 2008 in terms of youth unemployment amongst OECD countries (for those between 15 and 24 years), the nation ranks dismally, taking last place. The quality of education and its supporting facilities are blamed, in part, for this ranking. A total of 11 000 primary schools and 7 000 secondary schools are without libraries and computer facilities. In addition, there are more than 3 million people who are 'not in education, employment or training' (NEETs) in South Africa. A report of the ministerial committee on the review of the National Student Financial Aid Scheme indicates that an estimated 72 percent of people between 20 and 25 do not have matric, while 50 percent of those in the age category of '23 to 24' are NEETs. High youth unemployment has also been attributed to a lack of experience. To address this, a youth wage subsidy has been introduced through the Department of Finance, to decrease the cost of hiring young inexperienced workers. This has received mixed responses by organised labour and civil society groups.

3.5.5 Unemployment and education

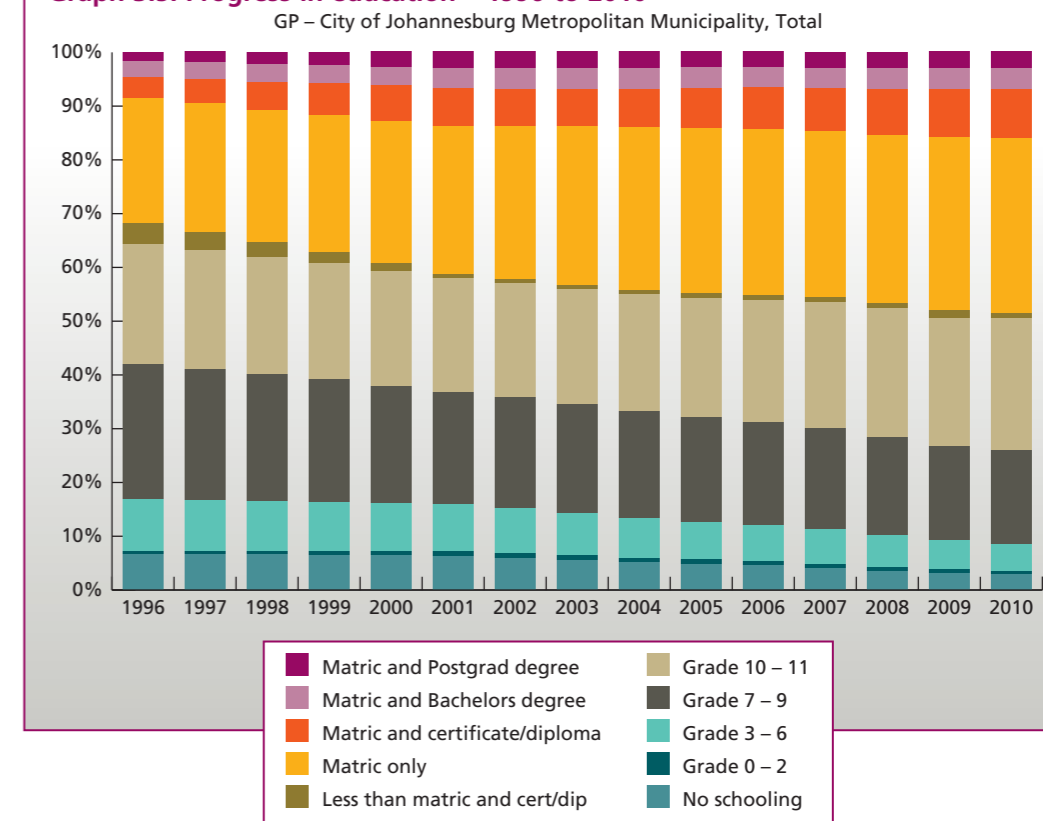
Johannesburg has been a slow starter in developing its knowledge economy, with consequences for its competitiveness. Worldwide, knowledge-creation and innovation are driving new forms of economic competitiveness. Education is a critical driver for these new forms of growth, yet higher education outcomes for the majority of young people in the city are low. A growing youthful population, combined with low job prospects, has created a significant level of youth unemployment.

Education is also a key determinant in improving the quality of life of citizens. Yet in Johannesburg, the vast majority of the youthful population only has a matric certificate and cannot access the labour market. The labour market is not creating enough jobs, and the supply of educated skilled professionals is lagging. The quality of education in many public schools is acknowledged as inadequate, while private education is unavailable to the vast majority of Johannesburg learners. The poor foundation skills provided by many public schools, in respect of maths and science, further debilitate learners when entering university. It is also noted that, of the 500 000 pupils who recently took part in matric exams nationally, only half of those wrote maths and science. In terms of tertiary education rates, and those associated with engineering in particular, South Africa and Johannesburg's engineering graduate rates are extremely low when compared to other large cities in India and China (taking the relative population size of these economies into consideration). China produces 600 000 engineering graduates a year, while India produces 400 000. In contrast, South Africa produces 1 500 – a total of 0,003 percent of the population. Johannesburg's population is small in comparison to the cities within the other countries that constitute the BRICS grouping. Given our low aggregate population, we have to ensure that we have a skilled and educated workforce in the future.

It is acknowledged that there are critical demand side constraints regarding the macro-economy, over which the City has no control. In addition, formal education is not a function of local government. The City of Johannesburg can, however, strengthen its current role in education and learning, by making a number of critical investments in educating and skilling its workforce, but also by opening up the economy to ensure that those who hold lower levels of skill can also access livelihood opportunities.

A further area of analysis when considering education and the link with unemployment relates to the shifts that have taken place, over time, in respect of differing levels of education held by the city's population. The graph opposite provides an overview of this, illustrating the improvements in respect of highest level of education attained. While illiteracy rates have decreased over the last 10 years, and substantial progress has been made with regards to the number of matriculants, the total share of persons with matric and bachelors degrees, and matric and post-graduate degrees, is extremely low when compared with other cities. The schooling system is producing matriculants with low numeracy and reading skills. Johannesburg's literacy level (when measured in terms of 'those above 20 years, who have completed grade seven or higher') is 87,3 percent, compared to the national figure of 73,7 percent. This improved from 86,6 percent in 2005. When considered in terms of race, the greatest proportion of the population with no schooling is among Africans (4,3 percent), while the smallest proportion is among whites (0,4 percent). Analogically, the greatest proportion of the population with a degree or higher is among whites (30,5 percent) and the least among Africans (4,1 percent).

Graph 3:5: Progress in education – 1996 to 2010



(Source: Global Insight Data 2010)

Box 3.1: Jobs, skills, employment and education-related challenges faced by South Africa – and Johannesburg

In South Africa, more adults of working age are unemployed than employed. Labour force participation rates are among the lowest in the world, at 54 percent, while labour absorption rates are currently 40,5 percent (meaning that 60 percent of those between 15 and 64 years of age are not working – some because they are at school or university). But between 7 million to 11 million more adults could be working – or working on a more full-time basis. The formal sector only employs about 10 million of the 31 million people who fall within this age group. The official unemployment rate in South Africa is about 25 percent. By comparison, in Brazil, the unemployment rate (based on the narrow definition) is 6,2 percent; in Russia – 6,6 percent; in India – 10,7 percent; in China – 9,6 percent.

Each year, about 300 000 adults join the pool of South Africans who hold low levels of skill and literacy. This group has few prospects of employment, and join an estimated 3 million South Africans who would like to work, are able to work, but have never had a job. At current rates, by 2020, a total of about 6 million people over the age of 25 will fall into the category of 'never holding a job' (when taking into consideration all those within this category, from 1994 onwards).

3.6 Resource sustainability

Economic growth is strongly inter-related with the demand for water, electricity and liquid fuel. Managing limited natural resources and delinking economic growth from natural resource extraction is important. Johannesburg has the opportunity to move towards a low-carbon economy, benefiting from recent experience of other cities globally. There are considerable challenges, however, but also large opportunities to be gained from such a transition. The largest challenge is the cost of new technologies versus future benefit – and the potential losses (including job-related losses) associated

with a move away from the status quo of the nation's carbon-intensive, mineral dependent economy (NPC 2011a). The following section introduces two discussions on water and electricity – both in the context of the nation, and more specifically, the city. A further element added to the 'resource' debate is that of solid waste, emerging internationally as a further source of income – and as a resource that needs to be managed.

In working to address the challenges currently faced by the city and those who live in it, in relation to the critical resources addressed below, it is important to note that successful outcomes will only emerge with full participation by all, in a real programme of change. To work, education, ongoing communication, brainstorming, monitoring and evaluation of progress, policing, and careful planning – put into action – will be needed. In all the areas outlined below, it is both the small and the big things that make a difference. These are all areas in which citizens and residents can practice behaviour change on a daily basis, and contribute to resource sustainability, one person at a time.

These are also areas in which bold action is needed, for real impact to be felt. Investing appropriately and timeously in the right projects, without locking the City into options that are sub-optimal (and thereby denying the city the right to better outcomes) – will be important. However, action also has to take quickly – without endless deliberation. There is a limited timeframe – for the city's landfills; for the energy inefficient economy that characterises South Africa; and for the water security we need to achieve. Understanding lead times, risks, best options – and looking to technologies that have been put in place elsewhere, while also remaining open to new innovations – is essential.

3.6.1 Water

i. Johannesburg's place in the water network

Johannesburg is one of the few major cities not located on a major water source, with water scarcity and the increasing cost of water presenting a significant challenge. The city has become the motor of South African economy, accounting for more than a third of the GDP. Water is central to economic production and the well-being of our residents, yet most of the city's water is imported from elsewhere. Johannesburg's water comes primarily from the Vaal River System, with the establishment of mechanisms for complex Inter Basin Transfers (IBTs) over time, allowing more water to be introduced into the Vaal Dam. The majority of the water that is supplied to the three metros within the GCR is part of a much larger hydrological system that is connected across international borders, and includes countries in the South African Development Community (SADC) – including South Africa, Botswana, Namibia, Swaziland, Lesotho, Mozambique and Zimbabwe. This means that every river basin in South Africa is now hydrologically connected to every river basin across all these Southern African countries.

Johannesburg straddles a major watershed known as the Witwatersrand (translated literally as 'Ridge of White Waters'), which divides the continent of Africa into rivers that flow into the Indian Ocean to the east, and rivers that flow into the Atlantic Ocean in the west. As a result all of Johannesburg's water is imported, whilst return flows augment downstream river flows. The challenge for Johannesburg is to make the most efficient use of the water imported and ensure that the downstream quality of the rivers is not affected by poor quality effluent from wastewater treatment works, polluted stormwater runoff and overflowing sewage systems. Protecting water quality and ensuring that supply of water meets demand is the challenge for Johannesburg.

ii. Water supply, demand and quality

The Department of Water Affairs through the National Water Resource Strategy is responsible for the allocation of water within the country and through the construction of the major dams and inter-basin transfer schemes responsible for ensuring that sufficient water is stored to supply all consumers during periods of drought.

Rand Water purchases water from the Department at an abstraction point in the Vaal Dam purifies it and then pumps it to Johannesburg. The City of Johannesburg purchases the water and distributes it to the final consumers. It is therefore responsible for managing consumer demand. It purchases



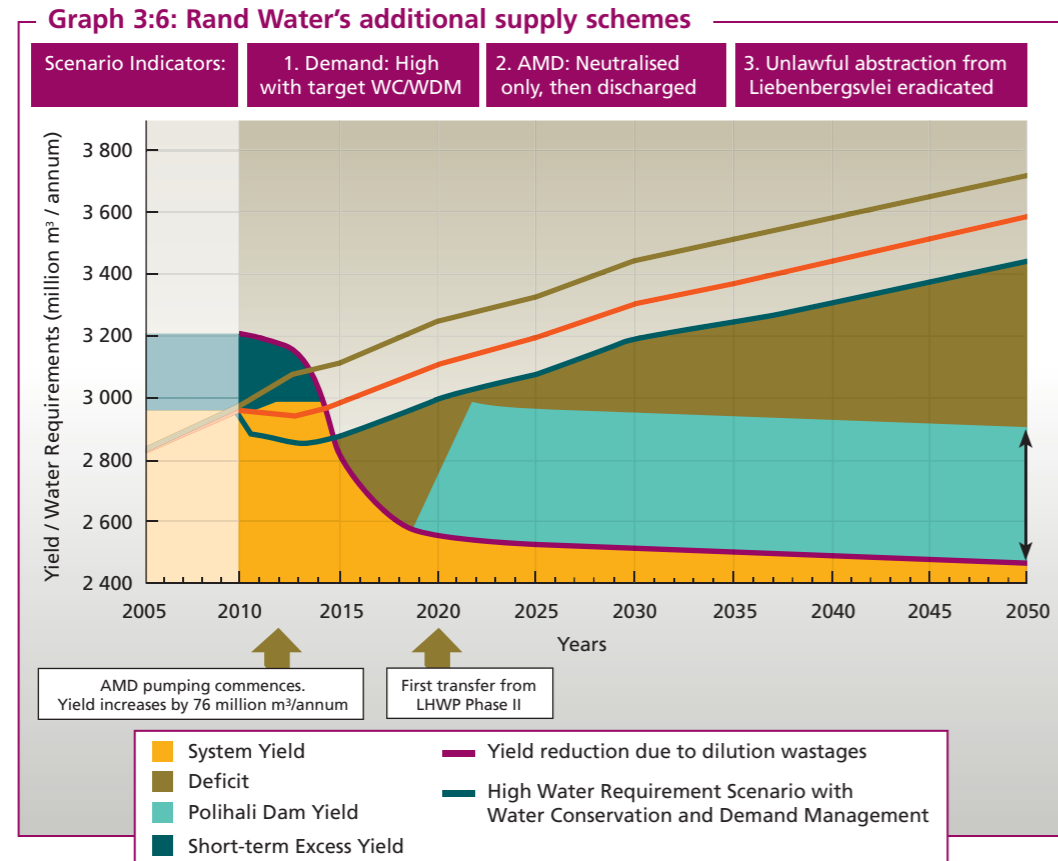
water from Rand Water and sells this water to its residents. It is noted that the first stable bulk water supply co-incided with the establishment of Rand Water Board in 1903. In the intervening 108 years, water demand has grown steadily. In 1920, Rand Water had to accommodate water demand of approximately 90 ML a day; today, demand has grown to approximately 1396 ML a day.

Three strategic issues affect Johannesburg's experience of water: water supply; water demand; and water quality. Managing supply is a complex issue, with droughts and erratic rainfall patterns affecting overall supply in the Vaal River system. Demand and supply are intricately linked. The Department of Water Affairs managed supply whilst Johannesburg manages real growth in consumption. Over time, Department of Water Affairs has established a number of storage and inter-basin transfer schemes from the Thukela River and Lesotho Highlands Project to meet the increasing demand. Since the 1980s, focus has also been placed on the water demand management (WDM), through the implementation of a range of conservation and demand-side management strategies.

The demand for additional water in the Vaal River System is linked to a number of variables, including:

- Losses due to illegal abstraction along the Liebenbergsvlei River;
- Leakage in the system;
- The extent of water conservation by consumers, with this influenced in turn by abolition of flat rate areas in the city;
- Economic growth; and
- The impact of Acid Mine Drainage – where, if the water filling mine voids is discharged in either untreated or only partially treated form into the Vaal River, dilution releases from the Vaal Dam become necessary.

The following graph shows that with high demand, aggressive WDM measures and eradication of unlawful abstraction, the system will remain in deficit even after the completion of the Lesotho Highlands Water Project. In years of drought, this will pose significant economic threat to Johannesburg's economy, due to the imposition of water restrictions.

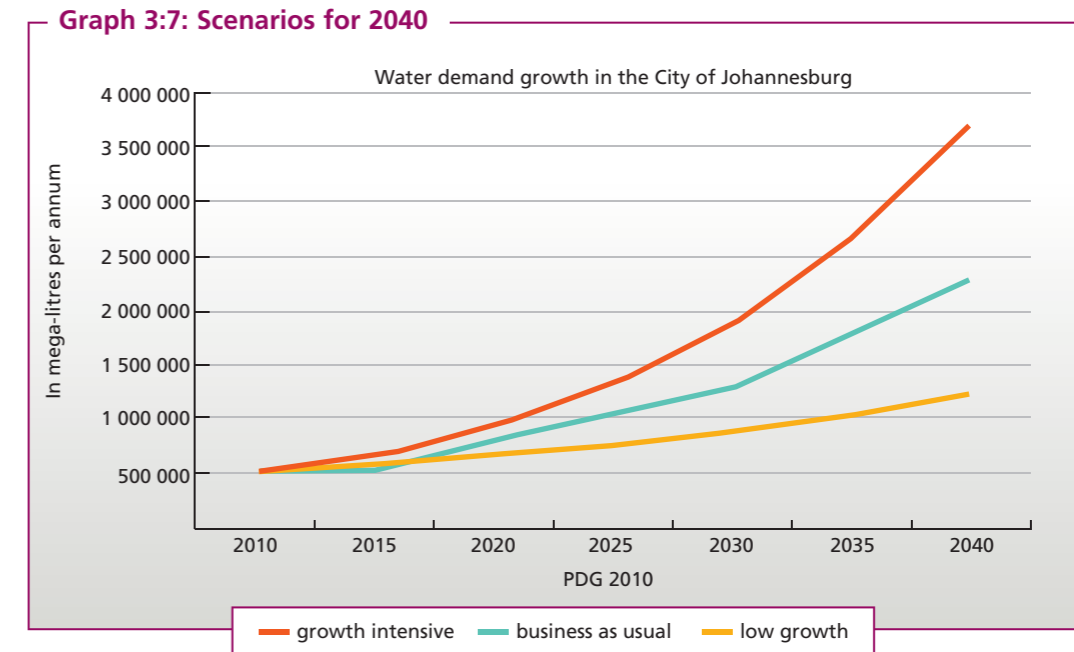


Source: Rand Water

Notwithstanding the complexities of supply and demand, the City of Johannesburg must conserve the Vaal River water resources. Water conservation and demand-side management are strategic imperatives. With Johannesburg's population growth slowing, this provides some relief for managing demand. But demand must be substantially decreased through the City's existing demand-side management program. One of the critical factors that do impact on demand is unaccounted-for water. The figure for unaccounted-for water in the city is high – over 30 percent. This category refers to water that is lost to the infrastructure system, through leaks in the reticulation system or through unbilled, unrecorded consumption. While most cities struggle with unaccounted for water, with London, for example, experiencing approximately 25 percent unaccounted for water (in the context of a city infrastructure that is considerably older than that of the city of Johannesburg), there are cases of success. For example, Tokyo's unaccounted-for water is approximately 3,5 percent (Reddy 2011). There are clearly lessons to be learnt from the rigour implemented in cities such as this. Action here is a priority. Apart from the loss of precious resources, water wastage in the Rand Water region, within which Johannesburg falls, amounts to hundreds of thousands of Rands.

The Municipal Services Financial Model was used to project future water demand in the city, based on economic and population growth estimates. Estimated demand for water is 5,2 percent per annum, in the absence of water conservation and demand-side management strategies. The City currently comprises an estimated 1 297 860 households, with this number projected to grow to 1 548 509 households by 2019 (based on an anticipated growth of an additional 200,000 households every 10 years). Using the current population growth rate, the estimate for Johannesburg's population in

2040 is roughly 6,5 million people. The anticipated impact of these figures on water demand – over the period leading to 2040 – is represented in the graph below.



Source: Rand Water

In this case, three scenarios are presented – representing future demand for water in mega litres (ML) per annum. These scenarios only give possible estimates for future demand – and should not be taken at face value. Based on a 'business as usual' model, which projects a 5,2 percent growth rate per annum, the demand for water by 2040 is anticipated to be over 2 million ML per annum. When this analysis of the estimated growth in Johannesburg's water demand is contrasted with the predicted growth in demand anticipated in respect of the geographic area supported by Rand Water, there is a clear indication that Johannesburg occupies a larger share than the total water demand catered for within the area addressed by Rand Water. Water security in the future is therefore dependent on water supply from the Department of Water Affairs. It must be noted that there is a finite limit to water resources in South Africa and the future economic growth will be dependent on using existing supplies more efficiently.

But water security is also about wide-ranging water management that may extend beyond Department of Water Affairs. Up until 2030 or so, the problem may be less about water scarcity (when taking into consideration the water that exists across the region's varied water sources, systems and rivers) than about water management that includes, beyond supply, water demand management and waste prevention. While water prices may increase significantly in the future, scarcity may be more about governance matters than the resource itself, for this initial period. The City of Johannesburg has a critical role to play in this process, particularly in the context of its location in the GCR, and the need for supply across this area (for a whole host of reasons, including issues of economic importance). Lobbying for improved institutional governance, in the context of all the various water-related role-players, may be part of this. The City of Johannesburg will also have to optimise its water conservation and demand-side management, to reduce overall demand.

It is useful to note that average growth in water demand over the last number of years has been lower than expected – with this being a positive, for demand-side management. The role of demand-side management is to curb water-demand and save water. If the City is able to implement a number of measures, the prospect of sufficient available water for future generations, by 2040, will be a real possibility. Water demand-side management is a complex issue. However, with a combination of both small and big things, considerable financial savings may be gained, alongside

the creation of localised opportunities for water savings. Measures will need to be wide-ranging, and will need to include actions that ensure, for example:

- A reduction in wastage – and a more significant focus on reducing water resource contamination;
- The repair and maintenance of existing infrastructure, and thereby, minimisation of leakages;
- Introduction of water efficiency measures (such as washing machines and toilet cisterns);
- Incorporation of more strategic water recycling, that institutionalises the urban water cycle of waste water, potable water and storm-water, and grey water re-use (particularly for new developments); and
- Water harvesting programmes – with these being implemented worldwide, through well-established mechanisms (although this approach would need to be practiced alongside others, given the obvious dependency of water harvesting practices on rain).

Small improvements in repairs and maintenance of the water infrastructure reticulation systems can achieve considerable savings. Joburg Water's current "Water Demand Management Strategy (Revision 1)" stated that "projections indicate that Gauteng will experience severe water shortages by 2013 which is six years ahead of the 2019 implementation target for Phase 2 of the Lesotho Highlands Water Scheme. As a result the DWA expects the Gauteng Province to achieve a 15 percent reduction in demand by June 2014, which translates into a saving of 22 percent for the City of Johannesburg alone. In light of the above findings, JW had to re-align the WC/WDM interventions to focus at achieving the Project 15 percent targets i.e. 110 Ml per annum. Loss management measures would include pressure management, retrofitting and the removal of wasteful devices" (CoJ 2011). Potential savings emerging from this strategy – in mega-litres per annum – are reflected in the table below. The data provides a clear indication of the average potential savings that may be gained through doing 'the small things first'.

Table 3.1: Average potential water savings in relation to intervention in mega-litres per annum (Source: CoJ 2008)

Type of intervention	Average potential saving/annum (ml/annum)	Percent contribution to potential saving/annum (percent)
Direct measurable interventions		
Pressure management	4 794	4,4
Mains replacement	781	0,7
Active and passive leakage control	3 168	2,9
Retrofitting and removal of wasteful devices	76 405	69,9
Indirect measurable interventions	24 144	22,1
TOTAL SAVINGS/ANNUM	89 010	100,0

Water conservation can be achieved through multiple strategies: technical losses through effective asset management and maintenance can achieve considerable savings – as noted above. Effective billing based on accurate meter readings and precise consumption is vitally important, to ensure water supplied is not unaccounted-for or lost. Improving the billing system and making sure everyone contributes to payments for water will go a long way. This means the City must work to ensure water is valued and priced correctly. Demand can be reduced through changing behaviour, with this necessitating a programme of collaboration and engagement with residents.

There are also significant opportunities for companies to promote water savings, alongside opportunities for a manufacturing and service industry to be established, to support the rollout of water efficiency devices. Developing more green sanitation systems can create opportunities for businesses, while also reducing household consumption. Residents can benefit from a reduction in water consumption at a household level. Water recycling at scale also remains an important strategic imperative for our City – as commented on above. This involves a new way of designing and delivering water and sanitation infrastructure systems, as part of a citywide water recycling system, providing benefits for residents and opportunities for new industries.



Another critical issue of key concern is that of acid mine drainage. This issue is commented on below. The city recognises the need to address this risk, with potential options including the use of acidified water in commercial activities, preventing wasteful use of pure water.

Box 3.2: Protecting our water quality – acid mine drainage

Acid mine drainage has emerged in recent years as one of the many threats to the City's water quality. Pollution is from a number of sources which includes polluted storm water run-off, poor effluent from waste water treatment works and overflowing sewers all affecting downstream users. With Acid Mine Drainage (AMD) the major problem will be the discharge of untreated or partially treated AMD from mine voids that are rapidly filling up. There are 270 tailing dams or 'slime dams' in the Witwatersrand basin, covering an area of 400 km². Acid mine drainage is characterised by low pH and high concentrations of dissolved heavy metals, which exceed drinking water standards up to toxic level. The problem is a result of reclaimed mine dumps for gold residues. An estimated 70 mine dumps have been reclaimed from the Johannesburg area, with the tailings then pumped to disposal sites to the south of the city. Many of the tailings dumps have remained undisturbed in the Johannesburg area for almost a century, during which time they have been exposed to oxygenated rainwater. This has resulted in oxidation of the pyrite and other sulphides in the material, particularly an outer layer of the dumps, several meters thick. Oxidation is a process through which pyrite acidifies the water percolating through the dumps, then enters the ground water regime beneath the dumps. This has resulted in high contamination of the shallow ground water in Johannesburg's mining areas, to depths exceeding 18m below the surface. Where the groundwater table is close to surface, the upper 20cm of soil profiles are severely contaminated by heavy metals, due to capillary rise and evaporation of the groundwater. Acidified water from mine tailing dumps contribute to 20 percent of stream flow in the area.

Water quality management also requires careful attention to the issue of water contamination, beyond just acid mine drainage. Both compliance management and enforcement are key actions that require the City's support.

In conclusion, while there are many strategies through this to address the water issue, this is an area that requires immediate action – in terms of immediate daily behaviour, and the implementation of infrastructure and related changes, over the medium to long-term. Driving a different approach by those parties involved in this domain, while also gathering support from the private sector in delivering new and innovative approaches will be part of the solution. Inputs received from various parties during the GDS consultation process have been considered for inclusion – both in terms of the 2040 GDS strategy document represented here, and in terms of the City's more operational IDP.

3.6.2 Electricity

i. A national reality: Carbon-intensive production – with limited incentives to change

South Africa is the 15th largest emitter of CO₂ in the world, even though this is not reflected in the relative size of our economy (NPC 2011b). When considered in terms of the correlation between national GDP and emissions – a useful converter to assess how much CO₂ is emitted for every dollar produced – South Africa performs poorly, coming in as the eighth worst converter, alongside countries like the Ukraine, China, Iran, Egypt, Russia and India. While South Africa ranks as the 28th largest economy in the world, we produce goods at a high cost to the environment. When measured in terms of the amount of CO₂ emitted for every megawatt hour, our nation is the second worst emitter (Poland is the worst). The NPC notes that coal accounts for more than 90 percent of our nation's electricity (2011b). As our primary energy source – a source that generates three times as much CO₂ as natural gas – each mega-watt of electricity costs us 1,03 tons of CO₂. An over-abundance of coal has kept electricity prices very low and attracted a number of energy intensive industries. Peak coal production in South Africa by 2020 will see an overall reduction in greenhouse gas (GHG) emissions, but will have a catastrophic impact on the economy. South Africa's reliance on coal will compromise sustained economic growth in the future. And yet, historically, there has been no incentive for industry to change or improve its own conversion ratios (van Wyk 2010). Given the above – and Johannesburg's role in the national economy – this is clearly an area in which the City must take the lead.

ii. Energy in the context of Johannesburg

Johannesburg's economy mirrors the national reality in terms of sources of energy – and the extent of carbon intensity. When considering electricity in particular, a 2008 report noted that 66.7 percent of total CO₂ emissions within the city were from electricity - although many other forms of fuel type also contribute to the picture of emissions (please see the table below), with a number of these originating from coal. The two second largest contributors included below are petrol and diesel – with considerations in respect of these fuel types addressed within the transport section below.

Table 3.2: CO₂ emissions by fuel type (City of Johannesburg State of the Environment Report 2008)

Fuel type	CO ₂ emissions (tons)	Percentage of total emissions for CO ₂
Electricity	13 029 077	66,7 percent
Petrol	3 893 095	19,92 percent
Diesel	2 318 334	11,86 percent
Coal	102 425	0,52 percent
Paraffin	95 843	0,49 percent
Natural Gas	93 896	0,48 percent
Furnace Oils	7 976	0,04 percent
LPG	3 325	0,02 percent
TOTAL	1 954 971	100 percent

In terms of electricity source, the City purchases 80 percent of its electricity from Eskom. There are important reasons as to why Johannesburg should look to renewables to diversify its current electricity supply. Energy efficiency is important as a demand-side management strategy, but localised generation provides tremendous opportunities.

iii. Shifting our focus

South Africa, as a nation, lags behind the rest of the world in terms of energy production from renewable resources, but new legislation is set to change this. There are a range of options, with technology updates emerging that hold the promise to shift the way we generate energy. In 2007, South Africa's efforts accounted for just 0,07 percent of the global renewable electricity capacity. This must change – with cities increasingly having to play a role in renewable electricity generation. Government released an Integrated Resource Plan 2 (IRP2) in 2010, defining the country's energy mix to 2030. The proposed energy mix for 2030, as reflected in the plan, is 40 percent contribution from coal, 14 percent from nuclear power, nine percent from open cycle gas turbine, six percent from peaking pump storage, five percent from mid-merit gas and two percent from imported hydro-electricity. 2023 is the envisaged start date for the first 9 600 megawatts of new nuclear power.

But leaving these decisions to other spheres of government would be irresponsible, with Johannesburg presented with an opportunity to really make a difference, locally and nationally, through adopting cleaner and more efficient systems. Amongst others, options include hydropower, wind, solar energy, energy from waste, and bio-mass (NPC 2011b), and, as noted by participants in the Johannesburg GDS Outreach, compressed natural gas and hydrogen. This is an area in which there is much innovation, but also an area in which there are tested technologies that have been operational for decades. For South African cities, the late entry into renewable energies may provide important 'leap frogging' lessons, building on what has and has not worked in other cities. There is a tangible prospect of redefining our energy mix by 2040 – with it being important that consideration is given to a combination approach, to ensure economic growth powered in a sustainable manner. While the role of the City as a provider of electricity infrastructure has been strengthened over the last decade, it will need to build on previous experience, developing incentives and regulation for renewable energy uptake – while also driving responsible energy usage. In the section below on solid waste, particular focus is placed on the potential waste holds for energy generation, in the context of solid waste challenges faced by the city – and the potential for a dual solution, that is simultaneously able to address job creation and long-term environmental sustainability.

iv. Managing the energy infrastructure

The complexities faced by the City in respect of energy are not just about supply. One of the critical challenges the City faces is the cost and demands of constant maintenance and upgrading of the energy infrastructure within the city, to enable appropriate, secure and reliable distribution – with this challenge worsened by illegal connections, cable theft and vandalism. A pro-active approach is needed, supported by citizen involvement – with clear platforms established and advertised for raising events of theft or vandalism, and education provided in terms of the negative effects of the above on all members of the community.

Approaches need to be identified through which to minimise loss (e.g. securing sub-stations, to prevent easy access to cables; using smart technologies). Incorporating new technologies into future developments may also go some way to address energy management challenges. In addition, the implementation of Smart grids, as a way of managing energy use, is viewed as a critical area for consideration.

v. Education: the key to smart energy management

Many citizens are not aware of energy efficient practices that could be used in their own environments – with this lack of awareness (e.g. in terms of the stepped tariff structure) contributing to increased energy use. Active communication campaigns, education and appropriate engagement with citizens (e.g. via call centre communication or direct outreach processes) is a priority. Educating developers in respect of smart technologies and the use of energy-efficient materials and systems will

also aid in driving a new approach – alongside the encouragement of energy-efficient practices in the building approval process. As with all natural resources and their management, educational inputs must be provided for school-learners, to ensure a citizenry that understands the role of the collective, in driving sound energy management.

3.6.3 Solid waste

i. The national context of waste

Waste is everyone's problem. It impacts on the daily experience all people have of the city. It is a reality in places of work, and places of rest and relaxation. And it is also one of the pressing challenges facing South Africa today – with landfills across the country filling at alarming rates, in a context of spatial pressures and conflicting demands for land. Recognising this reality, the Polokwane Declaration targets a 25 percent reduction in waste to landfill by 2012, and specifies a target of zero waste to landfill by 2030. The Declaration is linked with a range of other pieces of legislation, supporting regulations, strategies and plans. The National Waste Management Strategy also sets clear targets for 2015, serving as a useful framework for alignment, while a host of other strategies have been established within other spheres of government. Amongst others, strategies and policies include Gauteng Provincial Government's "Integrated Waste Management Policy", and the City's "Integrated Waste Management" policy, plan and by-laws – although the latter is still in draft form (CoJ 2011a). Pikitup, the municipal entity through which waste management services are provided within the city, has also developed a Waste Minimisation Plan. With many of these only recently approved, the test will be in implementation.

Johannesburg's resource use intensity is represented here – in the volume of waste it generates. The City collects 1,8 million tons of garbage each year, with approximately 244 200 tons reflected in the form of illegal dumping, and 1 779 tons collected as litter from the streets. With an increasing population and a few primary sites, the city is running out of landfill space. An aggregate of eight years of landfill space remains, but this varies considerably across the City's regions. The City's Strategic Roadmap aims for a 50 percent reduction in waste to landfill by 2012 and zero waste to landfill by 2022 – although there is a long way to go before these targets are met. Current volumes of reclaimed or recycled waste vary by waste form, with Pikitup currently diverting 11 percent of its waste. A part of this 11 percent is represented in the approximately 61 140 tons of green waste that was reclaimed during 2008/09 via garden sites (with 42 such sites operated by Pikitup). Composting facilities at Panorama currently handle 40,000 tons of waste per annum, with capacity exceeded – and plans underway for a second composting facility at Linbro Park. In addition, an estimated 29,580 tons of dry waste was recycled during 2008/09 through private initiatives. In terms of net tonnage disposed of to landfills sites, versus waste disposed of through other forms, the following statistics were recorded for the 2008/9 financial year: total tonnage waste to landfill sites – 1 595 343; total tonnage recycled waste removed – 17 865; total tonnage of composted waste removed – 66 366.

About 91,8 percent of the Joburg households have their refuse removed either on a weekly basis or more occasionally. These refuse removal services include a cost, with the City introducing changes in refuse removal charges, to reflect property values within scaled tariffs. Owners in properties valued at R150 000 or less pay no refuse charges, but do pay a small City cleaning levy. It is noted that the general levels of satisfaction with refuse removal has improved over the years. However, discussions with community members during the GDS outreach process led to the identification of a range of other waste-related concerns. These included concerns relating to illegal dumping which, together with poor sanitation and poor drainage systems, has resulted in a scourge of rats, flies and other pests in parts of the city. A further difficulty noted relates to the lack of awareness many have, in terms of the consequences of their behaviour (e.g. littering). As with the management of all other resource forms, success will in part depend on education.

ii. The cost of waste

The damage caused by the waste we generate is significant, and often unseen. The average amount of waste generated in Johannesburg is approximately 1,2 kg per person per day (DGE 2010). To put

this statistic in context, the global per capita footprint dynamics reflect that the typical daily average is an amount of 2 kg/pp/day, which is three to four times that of many European cities. People in informal settlements generate approximately 0,16 kg/pp/day, while 2 kg/pp/day are not unusual in affluent areas. Consequently, landfill management costs are escalating more, as a result of affluence and wealth. One of the obvious forms through which waste-related costs are represented is in the city's landfills themselves – and the loss of geographic space within the city, through landfill presence.

But an approach of 'out of sight, out of mind' is not appropriate, with landfills generating vast quantities of CO₂ and other toxic gases, in volumes that are difficult to comprehend. Each ton of waste dumped in landfills generates 1,79 tons of CO₂ over its lifespan, as it decomposes. However, within the city, the damage incurred is also not only felt on the landfills and surrounding areas. As the urban edge expands, and the closure of various landfills forces transport of waste further from the point of origin, transport costs go up – as do the costs of damage to the road systems that large heavy waste trucks travel on. In Johannesburg's case, as the landfills at Marie Louise and Ennerdale close, there will be increasing pressure on other landfills such as Robinson Deep and Goudkoppies – with the risks noted above all the more applicable. Concentrated delivery of waste to fewer sites also increases congestion, causes delays. As waste to landfill processes are increasingly concentrated on fewer landfills, it also becomes more challenging to cover these landfills appropriately, resulting in risks of environmental pollution, such as windblown waste, smells and gas emissions (Olivier and Olivier 2011).

The damage from waste is also experienced in other forms and places, as evident in wider ecosystem damage on riparian habitats, wetlands, rivers, topsoil erosion and habitat degradation from dumping. Informal sanitation is a more significant problem in informal settlements, where adequate sanitation and refuse removal services are not always available, or where the City struggles to meet demand.

iii. Solutions with multiple benefits

Engagements during the outreach process confirm a truth recognised worldwide: addressing waste from an integrated perspective is best. Recommendations include the development of integrated waste disposal and treatment systems, and solutions that simultaneously address waste issues and the city's need for reliable, affordable energy (e.g. solutions such as mining of methane, and the use of waste-to-energy plants). Revenue generation benefits are also associated with many of these technologies, with waste being both a hazard, and a commodity with an attached value. The City has already initiated some work in this area, investing approximately R250 million in the development of its landfill sites, for stored methane gas to be tapped, and used in generating renewable power for the City's grid (CoJ 2011b). While a step in the right direction, there is still much more that can be done.

Actions that relate to a focus on waste management through addressing the waste hierarchy (through both reduction and recycling) will go a long way, particularly when supported by education (with emphasis placed on support in respect of separation at source, and similar interventions). Suggestions from the outreach also include the provision of greater support and guidance (with increased control, where needed) to assist the informal recycling industry, and an elevated prioritisation of engagement with various role players in respect of waste (e.g. business, the community and others), to raise the issue and encourage the adoption of different approaches. While the management of hazardous waste is a national competency, it is also been argued that there should be greater involvement in this area by local government, at the least in respect of monitoring and enforcement, given the pollution caused by this form of waste within the local context.

Olivier and Olivier note that the concept of an 'integrated waste management solution' "is frequently misused and seldom incorporates true integration of effective waste management and disposal with the many dimension of a truly world-class city" (2011: 5). They argue that a truly integrated solution should include a focus across the complete waste value chain. Aspects to be addressed include, amongst others: 100 percent waste collection; a move to zero waste to landfill (through appropriate recycling and waste reduction approaches); elimination of landfills through mining of

waste to generate energy; and the appropriate location of waste disposal sites, to contribute to the ideals of liveable urbanism. Solutions that allow the City to work with the private sector in ways that “balance...costs and revenue streams...with substantial CO₂ reductions, pollution control that exceeds all required standards, job creation and community development contributions” would be desirable (2011: 8). These would also allow the City to address waste management through solutions that support the City’s ideals. There are examples of integrated waste management solutions implemented in countries such as Brazil and the United States, that have successfully used innovative approaches and proven technologies, allowing for optimal benefit for all sectors, and the use of learning’s gained through practice.

3.7 The environment

The theme of the environment relates to a range of the daily realities experienced by the citizens, residents and visitors to the City. It also includes a variety of factors that are not fully understood. Because of the uncertainty associated with these factors, they conjure up fear and insecurity. Resilience and sustainability are two concepts that are fundamentally related to the environment. But the elements addressed here go beyond the material realities the city is faced with. Key themes include: environmental sustainability; the importance of building a resilient city in pursuit of a low-carbon economy; mitigating and reducing the potential impact of climate change; natural resource management in an ever changing urban landscape, and the role of citizens, in addressing one of the most significant risks of our time.

3.7.1 Building environmental sustainability

The City of Johannesburg recognises the importance of the concept of sustainable development, with the content of the 2006 GDS, and inputs received during the GDS outreach process, providing evidence of the awareness of this issue, in the context of the developmental agenda of local government. Maintaining the ecological integrity of the city’s natural resources is critical, if the City and its inhabitants are to succeed in sustaining human and economic development. While it is recognised that the City has made progress in its focus on the goal of sustainable development, with a range of policy frameworks developed, and public transportation re-emphasised, more needs to be done. Environmental sustainability is often viewed as an afterthought, but should, in essence, drive the City’s developmental and growth agenda. Changing the mindset of both external stakeholders and those who operate from within the City is essential, if the City is to realise its vision for environmental sustainability – in line with the vision articulated within the Joburg 2040 GDS. The challenges faced demand a reality where this mindset change is supported by a refined strategy, a pro-active programme with clear targets, indicators and funding, and strong political will.

3.7.2 Improved management of our natural resources – and the ‘free services’ they provide

It is suggested that the previous GDS failed to capture the intrinsic value of the ecological goods and services within the city. These services are certainly overlooked in municipal accounts, both on the expenditure and on the revenue side. Together with the investment in people and infrastructure that accompany them, they provide the backbone of the local economy and enhance human well-being in the City. Included here are the services provided by the ecological infrastructure, or natural assets, within the City. They are ‘free services’ from nature, which flow to both residents and visitors in the same way as the services provided by the Utilities. The ‘natural factories’ that produce these services also need appropriate and ongoing maintenance and, in the case of damage, repair.

To optimally manage our natural resources, and to prevent their further decay, it is imperative that the City introduces environmental and health-related priorities into other policies and standards on water, air, waste, and – in respect of urban agriculture – soil. Research on health and the environment must also be increased, to ensure a full understanding of the links – and measures that must be taken in this regard. Consideration of natural resource management should be included in all elements of the City’s delivery plan. Developers should be encouraged, through regulations, to explore ecological sanitation methods. Other innovative mechanisms that could be used to prevent over-use of natural resources could include implementation of a tax on resource-use.



In respect of water, input from the outreach process raised further views on how the quality, quantity and sustainability of water resources are fully dependent on good land management practices within the various catchment areas. The appropriate management of watercourses and reservoirs has a direct impact on both the nature of this natural asset, and other factors – such as the health of citizens. Appropriate management should encourage natural flow, which will help with storm water management and cleaning of the water – reducing the breeding grounds for mosquitoes and other pests. The issue of contaminated ground water in mines is addressed above, under Section 3.6.1 – with the proposal that this could potentially be used as a source of water for industry, with pure water, instead, saved for human and animal consumption. This contaminated water is not only a threat to surface water and soil, but is potentially a huge resource for the city. It is noted that if the City focuses on addressing recovery of this water for consumption, the technology to do so is available, although expensive.

3.7.3 Climate change realities – and Johannesburg’s expected future

11 of the last 12 years (1995 - 2006) rank among the 12 warmest years in the instrumental record of global surface temperature (since 1850), providing now undisputed scientific evidence that climate change is an inevitable part of our present reality. It is recognised that cities and their populations will be disproportionately affected by climate change in the future, and will have to allocate time, human capital and financial resources to develop mitigation and adaptation responses (UNIPCC 2007). Moving to a low-carbon economy means more than just becoming energy-efficient. It means producing goods and services that are not resource intensive. The net impact would reduce carbon emissions. When we reduce carbon emissions, we mitigate climate change, but we also become more resource-secure, as we save scarce natural resources.

Climate change discussions require consideration of how to both mitigate and how to adapt to change. There are no easy answers. Climate change is driving multiple crises across the globe. Environmental refugees now occupy an increasing share of global migration. Coastal flooding, desertification, melting permafrost are the causes of major population movements, with an estimated 25 million people globally acknowledged as climate refugees. These numbers will increase to about 200 million by 2015 (National Geographic 2009). Global temperature increases will give rise to increasing frequency and intensity of extreme weather events. The Mozambican floods of 2000, 2001 and 2007 displaced thousands of people, resulting in approximately 2000 environmental refugees entering South Africa every day. Assessment reports project that, by 2050, approximately 75 to 250 million people in Africa will be exposed to increased water stress, due to climate change. Environmental stresses resulting from climate change have already created the conditions for conflict to emerge. Scarcity of fresh water increases the propensity for conflict and urban instability, but may also be a catalyst for co-operation (UN 2009). Coastal cities, where most of the world's population are located, face extreme vulnerabilities due to significant weather events; flooding and rises in sea levels. Increasing urbanisation also raises vulnerability to disasters, as many mega-cities are located in extremely seismic areas, and on low elevation coastal zones that are prone to flooding.

The fifth UNIPCC Assessment Report is now underway. The focus this time is on understanding risks, vulnerability and adaptation options for regions across the world. Of particular importance is how climate change responses need to reflect a wider transition to sustainable development and the establishment of greater resilience of cities. Climate change will shift weather patterns and affect conditions for agriculture. As such, it will affect (and is already affecting) global food supply, and will impact on food security in urban areas.

While climate change cannot be linked to a single natural disaster event, it is recognised that fluctuations in global temperatures will affect the amount of energy in the climate system, and drive more intense and frequent weather events. Long-term changes over the last 100 years has resulted in widespread temperature increases across the globe, increases in sea-levels and the warmth of the oceans, decreases in snow and glaciers – that has in turn affected precipitation amounts in many regions, and extreme weather events – with these increasing in intensity and frequency over time. Inputs provided in Chapter Two also highlight the impact of weather related disasters – in terms of loss of human life, financial loss, and damage to physical assets.

Johannesburg, itself, has remained largely exempt from natural disasters, given a range of geographic factors. The city is not located on a coastline, nor is it in an area heavily affected by major weather-related natural disasters, such as hurricanes or typhoons. An assessment undertaken in 2008 by MasterCard Worldwide Insight 1 rated Johannesburg as the fourth best placed city out of 21 major cities, from Asia, the Middle East and Africa in terms of exposure to climate change-related risks (CoJ 2009). However, scientific evidence suggests that the country – and Johannesburg specifically – will face increasing changes to weather patterns in the future. Rainfall patterns over Johannesburg have shifted significantly over the last 50 years, with increased risk of flooding.

The climate change science may seem contradictory at times; however extreme fluctuations in weather patterns are, in themselves, an indication of the unpredictability of future weather patterns. Nevertheless, certain trends are anticipated, based on experience and analysis to date. Firstly, it is expected that the future climate of Johannesburg will be hotter and wetter. Temperature increases, based on a downscaled model, show a maximum day temperature of approximately 0,5°C for the Gauteng region. A decrease in the temperature of between 0,27°C and 1,26°C is anticipated for the months of April, May, June, and July. Minimum temperature increases anticipated in respect of the minimum daily temperature range between 0,6°C and 1,16°C, for all months of the year, with it anticipated that no regions will experience temperatures below 0°C. It is also expected that total annual rainfall will increase across all areas. Future annual rainfall is expected to range from 301mm to 758mm per annum. The majority of this rainfall is expected to fall during the summer months (December, January, February). An extension of the rainy season is also expected. The number of rain days per month is also expected to increase by between 1,036 and 2,188 days. This small change

in the number of rain days per month compared with the increase in rainfall demonstrates that the intensity of rain events and the possibly of severe rain events may increase. The lower limit of change shows a decrease in the number of rain days for the majority of the year; this may also be a likely possibility. The City recognises that these changes will impact all of the city's systems, with the risk of increased flooding, for example, impacting on existing storm water drainage systems.

Unlike coastal areas in South Africa that face increasing coastal storms, rising sea-levels and a number of weather related extremities, the primary outcome of climate change expected in Johannesburg will be increased temperature and rainfall. Increased rainfall events may lead to greater risk of urban flooding, but may also provide opportunities for water harvesting. The poor will be disproportionately affected by climate change, and related risks such as flooding in urban slums. The City has recently developed a flood risk assessment, highlighting areas of risk. Disaster management plans for each area are to be developed. Increased flooding will also impact our roads and storm water infrastructure. There are opportunities for developing multi-year budgets, to finance improvements in storm water capacity and to develop new 'natural systems' to minimise the impact of urban flooding.

3.7.4 Mitigating and reducing climate change

Mechanisms to mitigate and reduce climate change (such as, in terms of the latter, a transition to a low-carbon economy), are both key elements of a climate change strategy. Integration of climate change objectives into various policies and plans, in particular the City's energy policy and transport policy, is critical, if we are to play our part in this global effort.

Mechanisms that could be implemented at the level of the City to reduce climate change and to mitigate the risk include the following:

- A focus on the reduction of greenhouse gases, by means of specific measures to improve energy-efficiency, to make increased use of renewable energy sources, to promote agreements with industry in respect of changes in this regard, and to drive energy savings;
- Improving local food self-sufficiency through urban agriculture schemes, that makes use of resource-efficient methods
- The development of a new system for the evaluation and the risk management of climate change;
- The encouragement of non-motorised transport, by providing cycle and footpaths that are safe and shaded, and encouraging low-volume non-motorised public transport;
- The development of emergency strategies for dealing with the aftermath of severe storms (e.g. flooding, structural damage to houses and infrastructure because of wind and hail), while ensuring these strategies are backed up with resources; and
- Introducing local renewable energy networks in new (and where feasible, existing) residential developments, to reduce reliance on electricity from coal.

3.8 Transport

The city's transport system is central to its economy and its people. After years of underinvestment in public transport infrastructure during the Apartheid period – where separate systems were created for black and white commuters – the domain of transport is finally poised for a new future in the city. With the introduction of the country's first Bus Rapid Transit (BRT) system (the Rea Vaya BRT) and the Gautrain high-speed rail link (with a Johannesburg-OR Tambo airport route, and a Johannesburg-Tshwane route), transport holds tremendous potential for integrating a divided city. Public transport serves a number of purposes: Building a mass public transport system will also reduce the risk of global fuel price shocks, while driving the potential of a positive outcome for carbon emission reductions. In the following section, the important role of transport in supporting the city's economy is highlighted. In addition, comment is provided on the role public transport must play in addressing the spatial planning challenges created though the legacy of Apartheid planning. Furthermore, comment is provided on the role of transport in regional integration. Major risks to our transport sector arising from the increasing cost of petrol and diesel are also addressed.

While efficient and wide-ranging public transport systems may support a reduced carbon footprint, increased socio-economic performance and greater citywide inclusivity, they will only work if there is

an appreciation of their benefits, and an uptake in use, by the citizens and residents of Johannesburg. This issue is also addressed below.

3.8.1 Apartheid spatial planning and transport

Apartheid spatial planning created separate systems for commuters, based on race – with black township areas under-served, with inadequate transport infrastructure further compounded by long commuting distances from these areas to places of work. Public transport consisted of commuter rail and subsidised state buses.

In this context, private mini-bus taxis and private bus services emerged to address the gap left by an under-capacitated State service system – with these modes now the predominant transport system in operation. Historical trends provide clear indications of the change in modal use by those who fall within lower income groups, from publicly-owned public transport systems (i.e. bus and rail), to privately-owned public transport, in the form of taxis. The use of mini-bus taxis increased from three percent in 1975, to 41 percent in 2009 – with a similarly significant change in usage patterns (albeit a decline) in other modes over transport over the same period. Bus usage declined from 22 percent to four percent, while train usage declined from 20 percent to eight percent. In contrast with the flexibility associated with taxi routes, travel times and entry and exit points, travels times for bus and train services have remained static, and in some cases, declined.

The Johannesburg metro-rail system connects Soweto with the city centre and other satellite towns. The system transports large volumes of workers, but is recognised as not being safe or reliable. While the City of Johannesburg is not responsible for rail, the daily experience of many of those who live and work in the city is affected in significant ways by this network's underperformance and poor quality. The City does however run its own bus company, Metrobus serving about 90 000 passengers a day, it also faces problems of an ageing fleet.

Two important features characterise Johannesburg's transport system reality, with these features still reflective of our divided past. The majority of residents do not own cars and, left with no other choice, travel by public or private bus, public rail or private mini-bus taxis. In contrast, middle-income residents are resolutely car-oriented – with this truth witnessed through the impact on our roads, with an increase in travel times of nearly 60 percent since 1980 (Harrison 2011). There has however been no viable mass public transport system to facilitate a modal shift change of middle income residents, from private car to public transport. Continued urban sprawl has also created conditions for more intensive private car use (NPC 2011b). This is addressed further below.

3.8.2 Urban sprawl and traffic congestion

Congestion in the city has increased significantly over time, worsened by the predominance of private cars and private mini-bus taxis, with Johannesburg's sprawl contributing to this congestion (as noted above). The decentralisation of business from the city centre, to other locations such as Sandton and Midrand, has further compounded congestion around major business nodes, very often not designed for the current volumes. The movement of freight from rail to road has also had a major impact on our road system, both in terms of congestion and maintenance. In addition, Johannesburg's placement within the GCR means that there is a continual interface with other road networks and cities, with a constant flow of people and goods in and out of the city, as part of a daily commute.

The GCR's road network has to cope with an annual traffic increase rate of seven percent, with 1,8 million drivers and 2,8 million registered vehicles (Chakwizira 2007). This has seen an annual increase of traffic on the M1/N1 corridor of roughly seven percent, with this annual increase witnessed for the past ten years. The average travel time to work in the region has increased from 41,5 minutes in 1995, to 50 minutes in 2003 (i.e. a 17 percent increase over eight years). By 2040, it is anticipated that Johannesburg will have an extra 2,5 million inhabitants. The existing system, with its dominant mode of private vehicle use, is unsustainable. A larger population with more cars means more congestion – with negative effects for the quality of life of residents, let alone the impact on the environment and the sustainability of Johannesburg's infrastructure.

Box 3.3: The high cost of traffic congestion in Johannesburg

According to a recent IBM survey (the Commuter Pain survey – released in 2010 with a focus on the globalisation of traffic congestion), Johannesburg ranks worst in the world when it comes to commuters' experience of long commuter times. The survey focused on adult drivers in twenty major cities around the world, repeating similar surveys done in the United States alone, in May 2008 and August 2009. This survey, intended to gather drivers' opinions about local traffic and related issues, focused on drivers in Amsterdam, Beijing, Berlin, Buenos Aires, Houston, Johannesburg, Los Angeles, London, Madrid, Melbourne, Mexico City, Milan, Moscow, Montreal, New Delhi, New York, Paris, Sao Paulo, Stockholm and Toronto. There were 8 192 responses in the final data set – with at least 400 from each city. While a relatively small sample, the findings from the survey do reflect a sense of the experience of drivers within the city. When it comes to pain, it should be noted that perception is reality, and the commuters in this survey clearly felt that roadway traffic has become worse in the last three years. A total of 67 percent said it had become 'worse' or 'a lot worse'. Conversely, only 20 percent of those surveyed said the situation had improved at all, while only five percent said it had improved substantially. Interestingly, in the category that focused on the experience of 'substantial improvement', New Delhi and Beijing led the way, at 17 percent and 16 percent. This may be attributed to the manner in which new transportation capacity is being aggressively added in both these cities. The cities where it was argued that respondents were most likely to say that the traffic situation had worsened, either 'somewhat' or 'a lot', were Johannesburg (80 percent), Moscow and Toronto (64 percent), Mexico City (62 percent), Sao Paulo (61 percent), Milan (59 percent) and Buenos Aires (57 percent). When considering the traffic viewed to be most frustrating, a total of 66 percent of respondents noted that it was the experience of 'stop-start' traffic that they found the most frustrating.

3.8.3 The increasing costs of transport

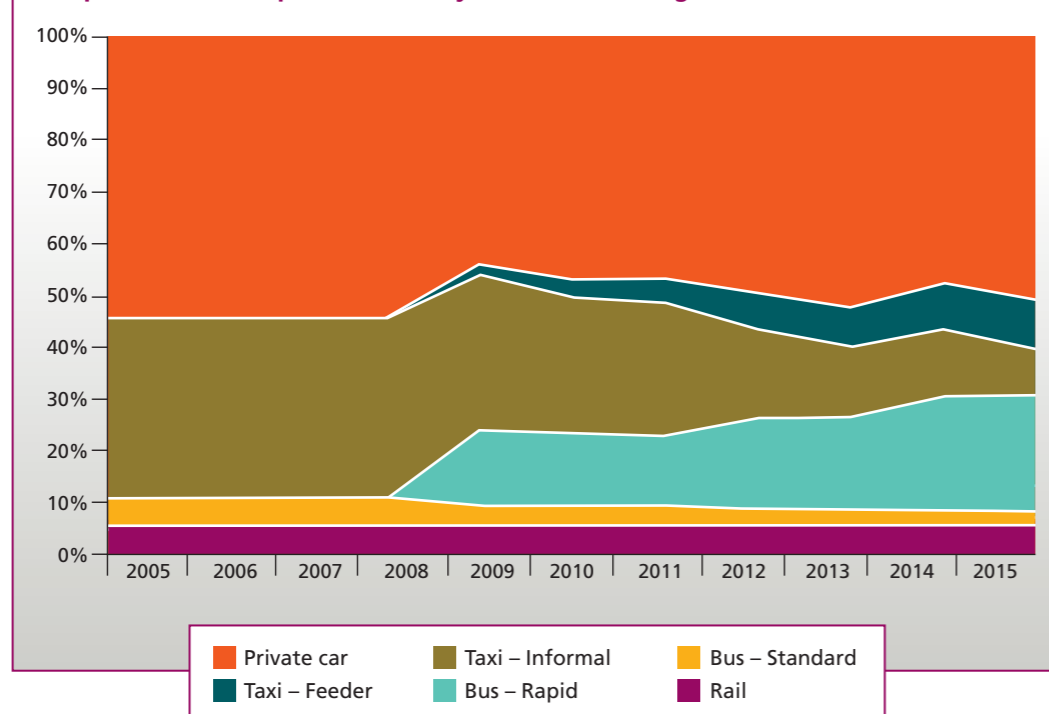
Rising fuel costs pose an ever-increasing challenge to road freight, the mini-bus taxi industry and private car users. Petrol and diesel prices in South Africa have trebled in nominal terms over the past five years. The wholesale price of diesel in Gauteng is now three times more than what it cost in 2002, while the price of fuel in South Africa has seen an increase of 761,8 percent between 1990 and 2009 (NAMC 2009). In terms of diesel and petrol demand in Gauteng, data from the oil industry (for the period 1995 to 2005) indicates an increase in demand for diesel of 88,69 percent, and an increase in the demand for petrol of 13,92 percent. The comparison with growth in national demand for the same products indicates that diesel growth in Gauteng was exceptionally high (Cooper 2007). With the cost of inputs into transport increasing, sectors such as road freight will be adversely affected (with this being both a major economic contributor, and a major cause of harm to our roads). The Gauteng Highway Improvement tolls will increase the cost of transporting goods services and people further, placing those already faced with challenges in addressing the cost of their daily commute, in greater difficulty.

Apart from increased costs, private cars also affect the environment and quality of air. Cars produce large amounts of air pollution, with liquid fuels recognised as major contributors to GHGs. Every litre of petrol burnt adds 2,30 kg of CO₂ into the atmosphere, while every litre of diesel adds a further 2,63 kg CO₂ (BP 2006). If an effort was made to reduce the 2005 consumption volumes of both petrol and diesel by 10 percent, this would result in a reduction in greenhouse gases by 1,48 Mt pa for Gauteng alone. Shifting commuters from private to public transport is therefore a matter of urgency. But this shift will only be achieved in the context of negative and positive incentives. To change from private to public transport, those commuters who have a choice must be able to understand the costs of not changing (i.e. the higher cost of private transport, relative to that associated with public transport). Likewise, they will also need to see and experience a qualitative change in the nature of the public transport system (in terms of its safety, reliability, efficiency, affordability and the extent to which each mode is part of an integrated system), for this shift may become a reality. While the Gautrain and Rea Vaya BRT have gone some way to addressing this, significant work needs to be done to ensure increased rider-ship. Further input on these systems is included below.

3.8.4 The future of public transport in Johannesburg

The city faces a number of transport challenges, although recent, key public transport interventions such as the Gautrain (a provincially led project) and the Rea Vaya BRT system (a City-led initiative) have laid the foundation for a new era of mass public transport. To mitigate against increasing petrol prices, the cost of maintaining road infrastructure and increasing air pollution, a modal shift change from private to public transport is the only answer for the future city of Johannesburg. The potential of modal shifts present a number of opportunities for economic development and improved city living. The graph below provides a representation of the assumed figures for passenger ridership (assuming that Phase 1 of the Rea Vaya BRT would carry 430 000 passengers a day). This assumption is modelled, reflecting the impact such a move would have on private vehicle use, and the use of other modes of transport. Even if this assumption was to be realised, the graph demonstrates that by 2015, private cars will still dominate. There are some indications from the rollout to date that further reductions in private cars could be achieved through the Rea Vaya BRT implementation. However, when projecting to 2040, it is argued that significant increases in the use of bus and rail should also be targeted.

Graph 3:8: Modal split for the City of Johannesburg – 2015



Much work that is still necessary for the Rea Vaya BRT objectives are to be realised. The goal of Rea Vaya BRT is to place 85 percent of the City's population within a 500 metre radius of a Rea Vaya BRT feeder or trunk route. Passenger numbers average 30 000 a day, and with better fuel standards, considerable reduction in carbons emissions may be achieved. Achieving the Rea Vaya BRT goals of increased ridership and decreased carbon emissions by 2040 will result in significant positive returns – both in terms of transport investments and social benefits accrued. Success is not a negotiable, given the cost of investments to date, and the future realities facing our city – although this will require a range of actions, including increased education and greater integration with other systems of transport.

Lobbying for a prioritised focus on improved safety and reliability of the metro-rail services will also need to form a core part of a wider public transport programme, as noted above. While not a City competence, this forms an integral part of a transport network, supported by other forms such as the Rea Vaya BRT, the Metrobus system and the Gautrain.



In terms of the Gautrain, it is useful to note that the system was not conceptualised as a panacea for mass public transit. Instead, it was developed as a high-speed corridor route to connect major cities with the GCR, with a system now emerging that involves high-speed modern rail, with linkages with major infrastructure systems and centres, supported by corridor bus services such as the Rea Vaya BRT, and smaller bus and mini-taxi feeder routes. Both the Rea Vaya BRT and Gautrain provide opportunities for corridor development and transit-oriented development, with these developments already underway in areas like Rosebank, Braamfontein and a number of other nodes in the city.

There are also opportunities for improving freight rail into the city. Where, historically, freight has shifted from rail to road due to an unreliable rail system and cheaper costs associated with road freight, new investments are improving the national rail infrastructure. In particular, it is critical to note the intended strategic freight corridor envisaged between Gauteng and Durban, with significant investment in research and planning already undertaken. This envisages the investment in strategic intermodal hubs (infrastructure to support the movement of goods and people from one mode of transport to another – with such shifts based on the suitability of each mode of transport for the next leg of the envisaged journey). Other factors noted as essential for optimal delivery include the need for integrated planning and implementation of plans through a partnership approach, with focus on both road and rail along the corridor, and alignment with urban planning considerations. Key partners already on board and championing this corridor include Transnet, the national Department of Transport, the Gauteng Provincial Government, National Treasury, SANRAL, eThekweni, and the Kwa-Zulu Natal Provincial Department of Transport (Transnet 2011). It is critical the City, as the prime driver and owner of spatial planning within the urban context of Johannesburg, engages critically with these plans, to ensure optimal outcomes aligned to other modes of transport – and the needs of the city.

Shifting transport patterns will also require a focus on opportunities for diversifying existing modes of travel, to include bicycling, walking, rail and bus, as noted above. Further issues relating to the linkages between transport planning and the urban form are addressed in the section on liveable communities, below.

It should be noted that the linkages between transport and city priorities such as inclusive economic growth and development should be highlighted. Large-scale transport improvement programmes offer an ideal opportunity through which to create employment opportunities, through which to promote scarce skills development and through which to provide experiential training opportunities (e.g. for young engineers) as well as empowering mini-bus taxi operators to become prosperous public transport operators. They also present opportunities for the empowerment of vulnerable groups (e.g. women and the youth) – through involvement in activities across the transport value chain. Careful consideration of how these opportunities should best be used must be part of the planning process, in the move towards building an improved transport system that supports our vision of the City in 2040.

Lastly, it should be noted that many valuable contributions emerged during the GDS outreach process. Not all of them are included here, as many are more operational in nature – to be incorporated in the City's IDP. However, the issue of driving a new set of values and culture in relation to transport is certainly a long-term project, and one of strategic importance.

3.8.5 Creating a new culture – shifting Johannesburg's mindset

Getting people to change their mode of transport – shifting from the convenience of private to public transport – is not just about logistics. As noted above, this is about driving a new transport culture. But citizen activism, in terms of voicing and supporting the transport system all desire, is also key. Proposals emerging from the Outreach process in this regard included the establishment of effective forums through which to collaborate with various partners, including citizens, the private sector and others, to promote road safety and drive a change in culture. A further proposal related to a long-term priority of building active engagement and involvement by all employees and employers within the city in shifting transport patterns – allowing for flexible travel arrangements and a focus on a change in work practices, to support a transport infrastructure that is under strain. Driving community ownership and partnerships, as mechanisms through which to understand localised transport needs and ensure maintenance and optimal upkeep, would also be key. But the need to establish a value-based culture – focused on the concepts of Batho Pele ('people first') – must be priority, given that this is needed to underpin the success of all other plans. The City recognises that the transport network must support the creation of social cohesion, allowing all to play their part in contributing to a system that is less environmentally harmful, and that connects the city and its people in an inclusive way. To achieve this, the City needs to ensure that all transport role players (government and private), especially those on the frontline, are well trained, knowledgeable, helpful and respectful to passengers – reflecting their role as service providers. In concentrating on culture change, it should be noted that this is not just about service providers within the transport sector. Participants in the outreach programme noted the need for the City to focus on building a core of transport activists across Johannesburg, prioritising, lobbying and actively engaging in building relationships, consulting, setting up forums and coalitions and planning for the transport system all acknowledge as necessary – through a focus on optimal empowerment and community ownership.

3.9 Liveable communities

In addressing issues relating to 'liveable communities', the starting point must be about definitions. While the initial research underpinning the Joburg 2040 GDS focused on broader definitions of liveability, the Outreach process resulted in specific questions being raised regarding liveability, in a Johannesburg – and more specifically – in an African context. What defines liveability for those who live in Johannesburg, and those who live in this region, and on the African continent? Arguments have already been that liveability as a concept is values and principles-based (with the following aspects raised: accessibility; equity; dignity; conviviality; participation and empowerment). On a practical level, liveability is considered to also be about other elements: the ability to access key infrastructure (e.g. transportation, water, sanitation and means of communication), food, clean air,

affordable housing, meaningful employment, and green parks and spaces – and the opportunity to be an active participant in democratic processes that address one's needs.

While all this is viewed as valid, what then is African liveability? In the context of Ubuntu, perhaps the input provided during the outreach process on 'humane settlements' is most useful, with the key elements presented (South African Institute of Architects et al. 2011) including the following suggested points of focus:

- *Change the zoning to allow mixed-use.* This will allow people to operate home-based enterprises
- *Allow for different scales of opportunity.* Recognise the need for small, medium and large-scale projects, with inclusionary housing and inclusionary retail, and a process of combining different and complementary uses within single areas.
- *Create one-hour walking neighbourhood.* The neighbourhood should be the unit of design – with most social amenities accessible within an hour's walk.
- *Activate the street edges.* This should be a condition of development approvals – with planning preventing long walls along which people are expected to walk.
- *All developments should be designed in ways that allow for phasing and adaptation.* With most developments facing a reality of insufficient money to build all at once, this will allow for prioritisation in allocating the defined spend.
- *Distribute decision-making.* With a different approach to decision-making that is more inclusive, this will lead to more public-private partnerships and stronger community engagement and involvement, with the neighbourhood serving as the locus for participation.
- *Encourage technological innovation.* While there is evidence of the potential of build 'greener' units, little has changed at the scale of the neighbourhood – with this needing focus.
- *Promote mixed incomes in our neighbourhood.* While the inclusionary housing policy encourages this, implementation is needed. This will involve a range of options in each neighbourhood. At present, each neighbourhood is dominated by one particular type of housing. The lack of a wider range of housing options undermines social inclusivity. A full range of housing options – freehold and rental, flats and houses, formalised back yard rooms, the insertion of social housing, the creation of neighbourhoods in informal settlements is argued as necessary, for this principle to be met.
- *Promote connectivity across the city.* Shift connectivity from being radial. Consider east-west connectivity, and explore public transport gaps.
- *Encourage greater linkages across green spaces in the city.*

Underpinning the above are principles of equity, access, integration, connection, democratic engagement, ownership, humanity and environmental awareness. These points find emphasis in a range of urban planning issues noted above: access to key infrastructure, access to food, clean air, affordable housing, meaningful employment, and green parks and spaces. Access to decision-making processes is also a key feature. Some of these issues are addressed below, in the context of 'liveable communities', and the necessary areas of focus for the City in moving towards a desirable 2040. Particular emphasis is placed on issues of the urban form, human settlements (including issues of cultural identity, the built environment and the green environment that may or may not surround these settlements), transportation in relation to city planning, access to key urban infrastructure and location of the city within the GCR.

Lastly, in the context of an African city, it is hard to imagine a view of liveability that does not take culture and cultural diversity into account. While the energy and fast pace of Johannesburg draws many to the city, this may not epitomise the concept of liveability for all – although it certainly reflects the characteristics many associate with Johannesburg, given its role as the economic powerhouse of South Africa. Consideration of culture and identity in the context of liveability – and the ways in which the urban context promotes a feeling of 'home' – is however important.

3.9.1 The urban form – a city characterised by urban sprawl

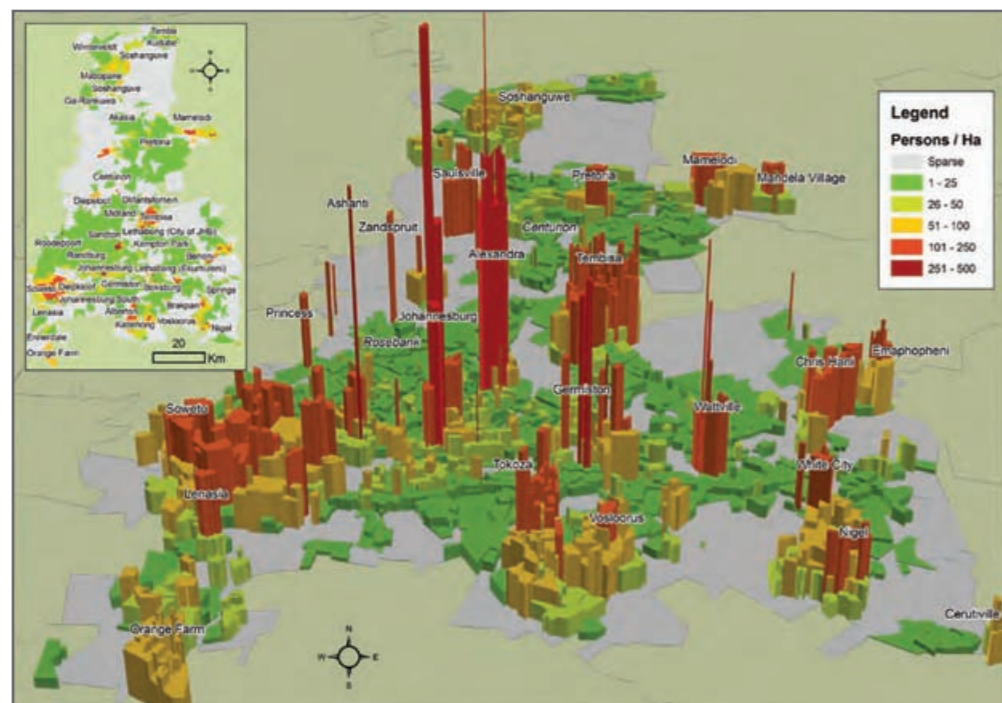
Johannesburg's urban form is a consequence of its history. The city grew with the automobile, extending its edges with the new found joys of motorised mobility. Apartheid planning contributed further to the urban sprawl, with race-based townships deliberately developed on the periphery

of the city, away from opportunity and resources. The legacy of Apartheid planning, the era of the automobile and capital flight to suburban neighbourhoods in the 1970s are all historical conditions that, over-time, have given rise to a sprawling city. Our sprawling city is also a divided city, with places of work that are far from where the vast majority of our population lives. The historical north-south divide has contributed considerably to increased travel times – given the reality where a large number of people live in the south of the city, commuting to jobs that are located predominantly in the north. The Inner City is centrally located, closer to economic activity in the north, with demand for housing steadily increasing and now outpacing supply.

Using urban density as a proxy for compactness, Johannesburg has some of the lowest urban densities – when compared to global cities. Average densities within the metropolitan region indicate 521 persons per square kilometre. There are large volumes of people within the Inner City with considerable overcrowding in particular neighbourhoods. Average densities in the Inner City are estimated to be 2 270 within a 10 kilometre radius, but this is likely to be an underestimation. With overcrowding comes a range of other stresses – related to safety, resources, livelihoods, and other factors that are stretched beyond capacity. Decisions relating to densification become key – with it all the more critical that these are managed in the context of a national, regional and local spatial plan, with due consideration of services, infrastructure and other fundamentals. Barker notes that, while municipal and provincial policies and strategies prioritise densification and intensification of urban development within existing urban areas, projects initiated by both of these spheres of government frequently do not uphold these policies and strategies, leading to the creation of new housing development opportunities in peripheral areas and outside urban development boundaries. This further compounds the problems faced by the poor (2011).

The map below provides a depiction of the GCR's population density – clearly demonstrating the focused areas of density, surrounded by large areas of low density. Careful planning is needed to address this reality appropriately, in the context of a growing population and the challenges distance creates when occurring alongside a poor transport network, that would otherwise be able to connect areas and drive accessibility.

Map 3.1 Gauteng City-Region population density – depicted from a south-north perspective



(Source: Mans and Turok, in South African Cities Network [SACN] 2011: 67)

3.9.2 People-centred transport planning?

Improved economic performance, greater human and social development and enhanced services are more difficult to achieve in the context of urban spread. However, in the absence of a changed urban form, one of the mechanisms through which distance can be addressed is transport. Multi-modal transport infrastructure will be critical for the goals of greater inclusivity and access to be realised. If appropriately implemented, the initiatives raised in respect of public transport (please see Section 3.8 above) will provide a sound base for developing a transport system that is more appropriate to the polycentric city of Johannesburg (as depicted in map 3.1). Where previously the city transport system was designed as a 'hub and spoke' system, with the city centre serving as a central station, new transportation plans developed at the level of the Gauteng Provincial Government and at the level of local government (via the City) are laying the basis for a system that appropriately acknowledges Johannesburg's poly-centric nature. Through this new approach, the needs of all those who work and live in this city will be addressed more fully.

But for planning to be more people-centric, the City should strive to reduce the need for transport and travel in the way it plans areas and approves developments. Being more pro-active in the development of mixed-use nodes, appropriately located across the City and the GCR, will also encourage the creation of environments where people can live, work and play – with all activities undertaken in close proximity. Transport nodes should be regarded as key areas for local economic development, with planning taking into consideration economic development factors, and the interests of prospective investors. Planning may include the development of nodes that can address transport needs, while simultaneously promoting reading, learning, access to technology and access to other aspects of the city – including arts, culture, and heritage.

For a truly community oriented and people-centric approach, it is important that transport planning is undertaken through consultation with communities in terms of their needs (both in respect of plans for urban areas, and in terms of integrated transport systems). The prioritisation of mass transit interventions against clear criteria, considered in the context of a national, regional and local spatial vision, is important.

The City will need to address urban planning within the context of a greater focus on alternative modes of non-motorised transport, encouraging a modal shift (e.g. to cycling and walking) through the design of streets and pathways that are pedestrian and bicycle friendly. This will need to be supported with infrastructure and systems such as bicycle storage facilities, and the provision of an active policing and monitoring capacity, to drive greater safety – thereby increasing use. Additional measures in this regard may include dedicated lanes, wide sidewalks and in respect of public transport, the inclusion of lay byes. Furthermore, planning should take into consideration possible shifts to the form of the Inner City and others central business districts. One route may include a process of ensuring that the Inner City is a pedestrian and public transport friendly area, through the implementation of policies that exclude cars at certain times, with parking restricted to the edges, and traders managed in a way that acknowledges their contribution but also enables pedestrian accessibility to the sidewalks.

Sustainable transportation planning interventions for the movement of people and goods requires good and consistent data, community feedback, performance standards and high levels of inter-governmental planning and co-ordination. Transport planning can also benefit from new technologies. In addition, transport planning needs to be holistic, taking issues such as parking management and the need for the provision of Park and Ride facilities into account.

3.9.3 Human settlements

The spatial DNA of a city plays an important role in creating liveability (Urban Age Report 2008). The design of the city – including elements like streets, buildings and spaces of work and play, are powerful determinants of liveability. Liveability is also created through the access citizens have to a range of cultural and social services and facilities. All of these issues require consideration when addressing the concepts incorporated into the national shift towards 'sustainable human settlements'. The policy framework on sustainable human settlements supports the creation of liveable places of work and rest that address spaces in a holistic manner – focusing on issues of accommodation, services, the built environment and the natural environment, alongside issues of cultural identity.

In this area, the City has faced many challenges. The City of Johannesburg has achieved high levels of service infrastructure coverage, with over 90 percent of its residents holding access to basic service infrastructure. The challenge, however, is still how to transform our Apartheid city, to build liveable communities and create a more humane city for all. Effective restructuring of the inefficient urban form of the city will require more than the simple management of city growth. There is a need to define, in clear and unambiguous terms, a series of spatial reconfiguration projects that pay careful attention to the form, morphology and structure of the city. A vision, followed by detailed planning equal to the vision and plan of the Apartheid city, is needed. Mobility, integration and access are important drivers to effect change. Mobility serves to counter distance and divisions, providing the means to access areas otherwise only available to the select few – with issues relating to this addressed in the section above. While a system like the Rea Vaya BRT is an important tool to address mobility, it is only one intervention – and needs to be supplemented in many other ways. The issue of access is about bringing people closer to jobs, markets, social networks and other opportunities that promote an improved life experience. This is both an important and a fundamental right – with equity of access a key driver.

A focus on integration is also critical, not only because the city faces increasing complications as the urban edge spreads, with careful land use management increasingly important in the context of land scarcity. But integration is also essential in a diverse city, where getting to know others is a step towards optimising the creativity and strengths our diversity brings. Integration in the context of housing and human settlements requires a focus on mixed settlements, and the use of other elements of liveability to create spaces and places that encourage interaction and harmonious living.

Many of the realities faced within the city are influenced, however, by the housing process – which up until now has been led by infrastructure development, which is in turn dictated through provincial government arrangements and the availability of cheap land. This has continued the realities of urban sprawl. The alternative option of waiting for some future point, when these settlements will be better supported by mass public transit lines, is not the answer. A low cost housing ownership model that destroys economic mobility can no longer lead infrastructure investment decisions. The damage is felt where this model has been followed, with communities holding home ownership, but with no easy access to livelihoods and the other resources that may be associated with the city. This model also places further pressure on new bulk infrastructure development. Strategic land-banking and release is a critical tool for the restructuring and integration of the city, and must be strategically approached. Addressing new developments and encouraging a shift in urban form there-in, will also be a key part of this – with it anticipated that greater densification in already-existing residential areas will be a slow process, given the city's footprint. Housing planning should also consider different forms of accommodation, including rental and ownership, with delivery close to places of work and transport nodes and corridors. Low-cost rental options are a priority, in the context of the economic conditions accompanying many who enter the city in search of work.

Addressing the Apartheid urban form over the past period has required a focus on two main forms of spatial exclusion. Firstly, exclusion by design, which was based on deliberate underinvestment in township areas and planned township dormitory towns. Secondly, exclusion by decline, with well-located Inner City areas such as Hillbrow, Berea and Yeoville experiencing historical decline as a result of a collapse of the Inner City property market. Inner City regeneration initiatives have done well to address some of the issues of Inner City decline, but cheap, affordable rental supply remains a challenge. Targeted investments in Soweto have broken the cycle of underinvestment in former townships areas – with visible improvement in these property markets. The introduction of the Rea Vaya BRT system has also supported these initiatives, assisting in making areas that were previously viewed as spatially dislocated, somewhat more accessible through transport. However, while we have focused on addressing 'exclusion by decline' and 'exclusion by design', new post-Apartheid exclusion forms have emerged. Urban crime and violence and private developer led housing projects have created islands of exclusion, adding another layer to the already fractured and divided Apartheid City. These have also extended the boundaries of the city, placing greater pressure on service delivery and infrastructure demands – in a context where maintenance of current systems is under pressure. A national survey on gated communities in South Africa indicates that Johannesburg has the highest number of combined road closures and security estates in South Africa, with the GCR municipalities also displaying some of the largest numbers of secure estates across the country (Landman 2003).



3.9.4 Placing the city in context: the GCR

The city is part of the wider GCR, with all the areas within this region attracting increasing numbers of migrants, both from within and beyond South Africa. Very often, these individuals are unable to access the urban centre, given higher costs and greater competition. The GCR has become characterised by a 'ring of fire' that surrounds the metros – where occupants remain at a distance, unable to benefit from the opportunities of the city. This reality has further embedded poverty within the urban context, sowing the seeds for further exclusion. Addressing this must become a priority for the city, to prevent a scenario of the city being viewed as an island of success, surrounded by a sea of poverty and deprivation. This is addressed further under the section focused on governance.

3.10 Community safety

Making Johannesburg a safer city, especially for its more vulnerable residents such as women, children, people with disabilities and those living in informal settlements, is a priority – and one that requires creative thinking and ideas in order to find effective long-term solutions. If Johannesburg is going to fulfil its vision of being the country's leading centre for business and industry, and a truly world-class African city that offers opportunities for prosperity and a better quality of life, then all its residents must be able to live and work in a safe, clean environment that they can be proud of. Community safety is not just about crime. It is about a multitude of factors at the level of the individual and the community that contribute to the well-being of the city's people – for example: traffic safety; hazards such as fire, weather-related, and environmental factors; crowding and conditions of deprivation; family systems; and community networks.

Many valuable inputs were gathered during the interaction between stakeholders and the City (including the Johannesburg Metro Police Department or JMPD, and other departments within the

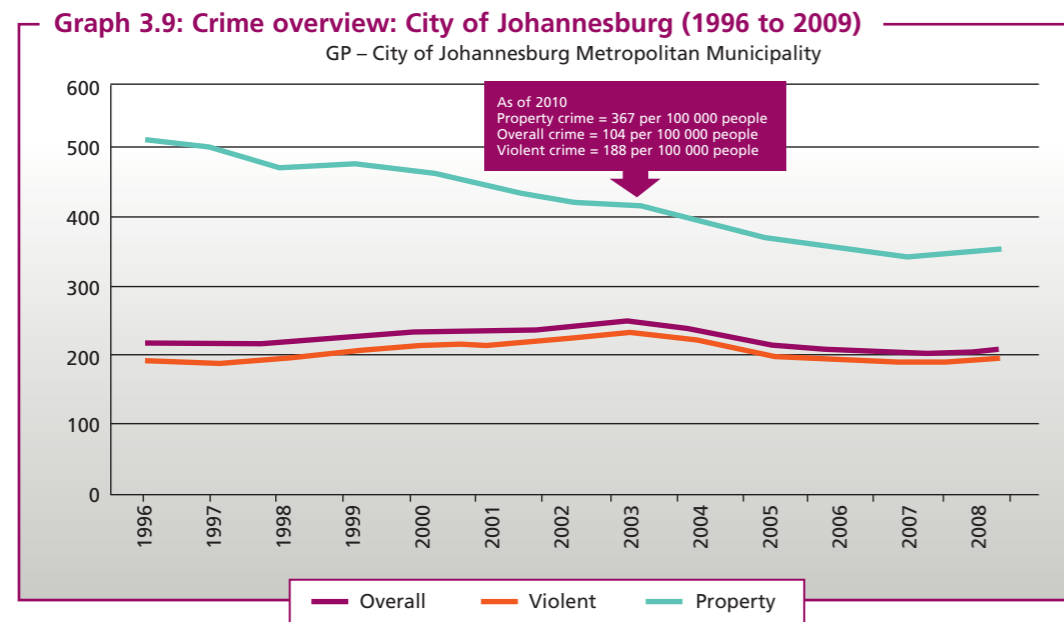
City) – with some of these represented below. Interesting and creative ideas were put forward by local residents during the Outreach process, with ideas raised in support of the reclamation of streets and communities – to make these safer places in which all can live, thrive, raise their families and contribute to society. Importantly, these engagements themselves serve as a tangible outcome of the call to action in respect of community safety, with empowered local residents and community groups and other key stakeholders collectively taking on this issue. Together, the City and its stakeholders can share a wealth of information, knowledge, expertise, and above all pride and passion for our local communities and the city itself – and thereby work towards the creation of a safer, healthier environment that make all proud to live in this great city of Johannesburg.

3.10.1 Placing community safety issues in context

The citizens of Johannesburg suffer from high levels of insecurity, with historical geographical, social and economic engineering and inequities, together with current stresses and poor economic opportunities, impacting significantly on the quality of life experienced – and manifesting in high levels of crime, violence and other forms of harm. The City of Johannesburg's role in community safety is limited, but the City interprets its mandate to include an array of areas: investment in public safety through community development; urban design and management; the protection of vulnerable groups; infrastructure upgrades; improvements to by-law compliance and enforcement; and responding to emergency and disaster situations. Safety issues cannot be separated from other necessary social conditions for community well-being, such as health and poverty alleviation, education and skills development, an economy that is responsive to available skills and capacities, safe and reliable transport, food security and effective management of natural resources. Recent trends in urban safety highlight that systemic challenges, such as those associated with sanitation and waste disposal, are contributing substantially to poor levels of public safety. Conversations about safety cannot ignore the need for trusted and accountable policing and improved respect for the rule of law. Restoration of faith – in the delivery of criminal and social justice – and trust in service providers, such as the City – will only take place through actions and delivery.

3.10.2 A reality of risk

Crime in South Africa in general – and Johannesburg in particular – is a critical factor impacting on community safety. Data over a thirteen year period shows little improvement, with violent crime and the overall crime rate remaining constant, with 200 people in 100 000 affected on an annual basis. However, data provides evidence of a significant decline in property crime over this period – with trends for the 1996/1997 to 2008/2009 period reflected in the graph below.



(Source: Global Insight Data, 2010)

Within these statistics, the element of 'stranger crime' (where the perpetrator and the victim do not know one another) is represented at inordinately high levels. Crimes that fall within this category include theft, burglary, robbery, car hijacking, assault and murder (with these crimes often occurring in combination with one another). Examples of interpersonal crime and violence, where the victim knows the perpetrator, include: assault, murder and/or domestic abuse. Records indicate that young men (between 15 to 29 years of age) are disproportionately involved as victims and as perpetrators, while the homicide rate of women killed by their intimate partners is especially high. The social dynamics that underpin violence include widespread poverty, unemployment and income inequality; patriarchal notions of masculinity that valorise or reward 'toughness', risk-taking and the defence of honour; exposure to abuse in childhood and weak parenting; access to firearms; widespread alcohol misuse; and weaknesses in law enforcement. All of these issues require dedicated focus if the City is to address the community safety issues and challenges it faces.

Safety in Johannesburg is a key challenge, but, as noted above, it is often perceived as only being about crime and violence. Insufficient attention is given to a number of other dimensions of safety, at the level of individuals and the community. These include the hazards associated with road traffic accidents, fire and environmental risks. In recent years, Johannesburg has witnessed an increase in injury or death due to fires, especially in the context of crowded Inner City slums and informal settlements. The city has also witnessed an increase in the number of individuals who have drowned in streams due to flash floods in both suburban and township areas, alongside greater flooding of houses due to inadequate storm water systems. South Africa's injury death rate associated with intentional and unintentional injuries (injuries relating to, for example, motor vehicle accidents) is recorded as 157,8 in 100 000 people – a rate that is almost double the global average. A disproportionate number of victims of road traffic accidents are pedestrians, due to both motorists' negligence and pedestrians' lack of education in respect of road safety, or alternatively, lack of care.

3.10.3 Proposals emerging in respect of community safety

The challenges faced in respect of safety leads to a great sense of insecurity and vulnerability amongst many. The related issues are many – including, for example, issues of resilience, urban management, regulation and law enforcement, justice, fairness and community safety approaches and engagement. The city is not perceived or experienced as safe. Continued focus on the vision of a safe, peaceful and just city critical for the path ahead is critical in the context of current realities. To address the challenges faced, a number of key long-term approaches are necessary, to deliver a different future for the city by 2040. These are addressed below.

i. Build trust and active engagement of all

One of the mechanisms through which community safety may be improved is through active collaboration, engagement and communication between service providers such as the JMPD, and individuals, community members and other interested parties. Building trust and respect held by the public in respect of the Johannesburg Metro Police Division and the Emergency Management Services is pivotal, if these bodies are to deliver effectively. Perhaps the most significant role for the City in delivering sustainable safety is to provide leadership through transparent, service-driven, consistent and respectable policing and support. In promoting Johannesburg as a place where people 'do the right thing', it is critical that these sections serve according to a clear code, with serious consequences for corruption, negligence or poor performance.

There is no doubt that civil society as a whole needs to be engaged in the dialogue and debate around community safety if real, sustainable change is to be achieved for the benefit of all. Active engagement with communities, to create a shared vision of safe and sustainable neighbourhoods, is also critical. One part of this solution should include community and neighbourhood policing, as well as the provision of platforms for local residents' voices to be heard when dealing with community safety and crime prevention issues. Mechanisms through which local residents and other key stakeholders are able to better collaborate on a regular basis to share ideas, information and expertise on implementing community safety initiatives should be implemented. Effective partnerships such as these are critical in ensuring the City and its stakeholders are able to find effective solutions to improve the safety of all our communities.

ii. Creating sound spaces that promote community safety

As part of process of engaging a wider range of community members and stakeholders in addressing community safety, experts in particular specialist fields must be part of the debate, particularly in respect of issues such as how to practically design and manage more innovative urban spaces that can support more effective crime prevention. Architects and urban planners, working together with practitioners, academics and students bringing innovative ideas from both academic institutions and practice, need to collaborate with the city to conceptualise and create safer, cleaner urban communities that stimulate local pride and well-being, while deterring crime. Beyond the design of spaces within the city, focus should also be placed on issues of by-law enforcement and control, to create safer and cleaner communities for residents to live and work in. Improved maintenance of public spaces also instils a greater sense of pride, further acting as a deterrent to acts of vandalism that destroy the value of local community landscapes and amenities. In terms of these issues, all residents, and the communities they constitute, have a role to play in maintaining the quality of their living spaces and the access they have to meaningful, quality services and amenities.

Partnerships have also proven to be a critical mechanism through which community safety and the quality of spaces can be addressed – with examples of successful business, community and government authority and agency partnerships to date including the City Improvement/Management Districts. Related processes of collaboration include the Sojo Business and Tourism initiative, which has enabled improved management and maintenance of urban areas through arrangements between the City, its entities and other parties, and pro-active participation and engagement with business, community and authorities through forums discussions and projects. A further example is represented by KlipSA, which has played a range of roles, including pro-active engagement with investors and developers to ensure sustainable development and a focus on value of bio-diversity, natural and cultural assets (Barker 2011).

iii. Shift alcohol use and abuse patterns – building a different society

During the outreach process, alcohol emerged as a key obstacle to safety in the city. While this is a broader issue relating to alcohol consumption within South African society, it has a direct impact on the city. There are site-specific strategies that could reduce the harm and cost of alcohol abuse for the city and its residents, with programmes to change the culture and actions of citizens viewed as important. During the outreach process, it was argued that the City needs to take a stand against active advertising that promotes a link between alcohol consumption and an enhanced life style – with the City's responsibilities in respect of billboards being one area through which it could play a role. In addition, it was noted that the City could be pro-active in restricting zoning rights for alcohol sales, engaging communities to serve their best interests in this regard while also being rigorous in maintaining the guidelines for where the sale of alcohol should or should not be zoned. In this regard, ensuring alignment with the long-term vision of the Gauteng Provincial Government (GPG) is also critical. While liquor licensing is managed at the level of the GPG, the City must work in a more structured way with the province, to influence the issuing of licenses. It has also been argued that the City must be an active partner in the new liquor licensing process, with clear roles to be defined for the future. In respect of alcohol and other forms of substance abuse, community participants argued that better communication and problem solving should be encouraged at grass roots level between all vulnerable residents and those who are looking to achieve more effective crime prevention in local communities. Where crime is ignited at a community level due to these elements, communities must play a more active role.

iv. Focusing on the youth

The City needs a new strategy to build the asset value of youth, while recognising that they are a high-risk group with special needs. This is partly due to their own tendency to behave, at times, in risky ways, but is also a factor that emerges in response to the sometimes-low expectations held of them, and inadequate opportunities for advancement and for pro-social activity. A multi-pronged approach of data gathering, engagement, skills development initiatives and support provision are necessary. Efforts need to be made to support the creation of public places where young people can safely gather and engage in collective activities.

v. Addressing the needs of the vulnerable

The city is home to many vulnerable groups, with vulnerability exacerbated by poor access to safety services. There is a need to target vulnerable individuals and groups, to address their unique needs and circumstances. Some locations within the city are considered to be of concern from a safety perspective (e.g. the informal settlements), but also from a security perspective (e.g. as a result of the absence of proclaimed land in informal settlements). Immediate responses to the needs of those affected, while also focusing on the prevention of violence, should be ensured – in co-operation with other city departments. There is a fine line here, with the establishment of a shared ethos amongst members of the City's team critical to ensuring sound delivery, without negative or unanticipated consequences. Often, vulnerable groups lack information about where and how to access services. This is a further area in which the City should provide support, through addressing targeted campaigns to enable access and reduce vulnerability.

vi. Addressing other issues of harm – fire, floods, environmental hazards

As noted, community safety goes beyond crime alone. To address safety issues relating to traffic, fire, other environmental factors and those associated with overcrowding, the City will need to actively engage in education campaigns, by-law enforcement, community awareness activities, the implementation of further risk management mechanisms, and the encouragement of active citizenry. It is only with a fully engaged citizenry that the city will become truly safe for all.

3.11 The 'smart city'

3.11.1 The value of the 'smart city'

A 'smart city' can be defined as a city that uses Information and Communication Technology (ICT) as an enabler, to merge dimensions of smart utilities, smart mobility, smart economy, smart environment, smart education, smart people, smart living, smart health, smart planning and smart governance. The City of Johannesburg strives to become a smart city, by providing services that are easy to access and use, while being efficient, responsive – in open and transparent way – and ensuring sustainability and the inclusion of environmental considerations.

The 'smart city' concept brings together all the characteristics associated with organisational change, technological advancement, economic, social development and other dynamics of a modern city. It is predicated on the idea that the optimal deployment of ICT can play a critical role in a city's development; and indeed, it may permit 'leapfrogging', allowing the city to shift to a qualitatively higher state of development. However, in the context of South Africa, only 15,8 percent of households have access to computers and even fewer households (seven percent) have access to the internet (The Gaffney Group and SALGA 2011). This gap is even more significant in respect of access to broadband networks, where broadband has been a driver of growth and development across the globe, improving community development, ensuring access to economic opportunities and knowledge and allowing for greater access of services. In Johannesburg, a significant minority enjoy high-speed access via corporate networks¹⁴, domestic connections and wireless 3G networks. Broadband networks are clustered in the main urban economic nodes, effectively excluding township areas, informal settlements and non-urban/agricultural areas. This 'digital divide' mirrors the broader socio-economic disparities that our Apartheid legacy has bequeathed on contemporary South Africa.

At the same time, there is strong evidence that the majority of households – indeed, the vast majority of adults – have access to cell phones, reflecting a global trend of massive uptake of cell phone usage. Smart phones are increasingly ubiquitous, including among the urban poor, and serve as a useful tool through which people can access the internet. This means that there are important opportunities for bridging the digital divide through the use of wireless broadband networks. These opportunities have as yet not been optimised by the State, to improve its service offerings to the citizenry. There are opportunities for government, across all spheres, to provide seamless support in certain areas to all citizens in a given locality.

Use of ICTs by the City of Johannesburg itself has been quite uneven across the municipality's different departments and functions. In some cases, the City has invested heavily in ICTs, with the billing and revenue collection systems representing one example. Unfortunately, these cases have translated in some cases into significant customer dissatisfaction. At the same time, the rapid development of

¹⁴ A broadband connection is typically one where the connection is in excess of 2 mega bits per second (Mbps).

technology may offer solutions for current challenges, such as intelligent infrastructure – as well as future improvements in areas characterised by failed ICT implementation.

At quite a different level, the economy of the Joburg area is dominated by sectors such as financial services, which are among the most intensive users of ICTs. The headquarters of four of South Africa's largest commercial banks are located in the city centre, with heavy reliance placed by these organisations on their in-house IT departments and the wider software development industry, which provide support in respect of ongoing innovations on their e-services. There are therefore opportunities for strengthening the nascent ICT sector for the overall socio-economic development of the city. The City has a critical role to play in addressing ICT as a strategic matter, not only as an internal system, but as a service to the stakeholders within the city. Where such an approach has been followed elsewhere, this has often been accompanied with a further period of investment, as companies move to areas in which services and systems promote better performance.

3.11.2 Requirements for implementation, actions and further possible areas of delivery

While the benefits are evident – and the importance of a 'smart city' approach is clear – there are challenges and requirements. Challenges to be addressed in initiating smart practices include the need to commit funding – where this is scarce in the context of the City – and the need to address skills shortages in respect of those critical skills required to support the adoption of new technology.

Smart cities make use of a broadband infrastructure – with application of this concept requiring implementation of a widely available and affordable broadband infrastructure for all, in developed and underdeveloped areas. While the resource requirements for delivery in this regard will be significant, Johannesburg has started investing and rolling-out broadband. While there are various solutions available for the City of Johannesburg in respect of the 'smart city' concept, it is critical that the City defines a clear framework and strategy – both in respect of broadband and other areas. The 'smart city' should also have a designated home or co-ordination centre, from which all the City's initiatives and efforts – across all departments and MOEs – are co-ordinated and driven. A clear roadmap must also be completed to craft the journey ahead.

It should be noted that a 'Smart City' programme will need to be a cross cutting programme. This is not only about the infrastructure, but also about the solutions available to bring services closer to the community, to positively contribute to the environment and to build a sustainable City. It is imperative that the citizens are part of this change, and understand how the changes will impact their lives. A Smart City programme will bring about changes to how the City communicates with its citizens. In this area, the City must be ready to respond promptly and efficiently – to prevent citizen discomfort or mistrust. With a wide selection of solutions available, a thorough process has to be undertaken to determine the priorities – and how these will assist in fulfilling the objectives set out on the GDS. Examples of some of the solutions include the use of greater public access to internet and libraries, through which to drive the knowledge economy, a focus on 'smart citizenship' approaches through which the City can address, amongst other needs, the increased demand by citizens on government to be flexible and efficient in the manner in which services are provided, and the application of the smart city concept in respect of safety. In terms of the later, the city may choose to adopt some of the following:

- *Smart crime fighting* – preventing crime by enabling law enforcement agencies to better understand criminal activity patterns, while bolstering capacity to detect and prevent fraudulent activity in the City. For this to be optimised, law enforcement agencies must understand the technologies used in perpetrating criminal activity.
- *Emergency management* – providing quick real-time information to relevant authorities, improving situational awareness and enabling geographically dispersed teams to collaborate seamlessly.
- *Criminal intelligence* – collaborating and sharing information between agencies, while allowing for the verification of identities and relationships between entities, through enhanced analytics and trends.

3.12 Governance

The Oxford dictionary speaks of governance as "an act or manner of governing... The system by which a state or community is governed." The fundamental principles of good governance, as reflected in the Constitution of the Republic of South Africa, include the rule of law, accountability, accessibility, transparency, predictability, inclusivity and a focus on equity, participation and

responsiveness to people's needs. The former UN General Secretary noted governance as the most critical factor in eliminating poverty and driving development. Governance underpins everything the City does – and without it, inclusivity and sustainability is not possible – and nor is continued delivery of services and goods. Key themes of critical relevance to the concept of governance include, amongst others: community participation; engagement and consultation; oversight; risk management; and related controls (e.g. in respect of financial matters and delivery); reporting arrangements; and issues of co-operation and engagement – with one of the key aspects of relevance to Johannesburg being that of the GCR. Monitoring delivery and ensuring accountability should be the role of all – officials, political representatives and ward councillors, citizens and residents, non-governmental organisations (NGOs), business, and other stakeholders.

There are certain governance qualities that must be recognised and strategically strengthened, for optimal outcomes. These include, for example, the need for consistent compliance and enforcement of by-laws, policies and other regulatory requirements, and a focus on ensuring stronger and more significant consequences and penalties in cases of non-compliance, to serve as deterrence. Establishing a better understanding of participation opportunities, through developing an improved definition and understanding of the dimensions and nature of public participation, is also key (International Association for Public Participation, cited in Barker 2011).

3.12.1 Why does governance matter?

The establishment of appropriate structures, systems, policies and processes – underpinned by a sound set of values and ethics – is fundamental for successful delivery by local government. Tensions characterise the domain of government, and local government in particular. Governance arrangements provide a more predictable and commonly understood approach through which to mediate these tensions. As noted by the Deputy Minister of Co-operative Governance and Traditional Affairs (CoGTA), Dr Y Carrim, in his address to the Joburg 2040 GDS Conference on 4 October 2011: "governance...even in the most stable of countries in the most prosperous of times, is about managing tensions that flow from the different needs, interests and aims of a variety of groups and constituencies. There are also tensions between now and the future; between what's possible and what's desirable; between ideas and practice. And there are tensions too between government and governance" (2011: 1). Governance forms the mechanism through which to manage the many tensions that challenge cities – with some of the many tensions outlined below.

3.12.2 Tensions in the context of city governance

While there are numerous tensions experienced across all the spheres of government, some of the tangible tensions noted by Y Carrim in respect of local government include those between:

- Ideas and practice in respect of community participation: with the task of ensuring sound and ongoing community participation a challenge for all municipalities. This requires:
 - o Internalisation of the value and importance of community participation by councillors and officials;
 - o Sufficient capacity and resources to ensure rollout of the concept – and delivery on commitments;
 - o Provision of support and resources to adequately capacitate organisations and residents – thereby ensuring that they are skilled and have the necessary tools (including simple summaries of key documents and strategies) to meaningfully engage with the City; and
 - o An appreciation of the fact that many communities cannot be represented by one voice or one representative – with informal settlements, in particular, divided, with "highly contested, complex and multi-layered, with fluctuating leaderships, with different strata or factions constantly competing for hegemony" (Y Carrim 2011: 3). This latter point makes engagement and participation all the more essential.
- Different role-players in the City, each with their interests and areas of responsibility: This includes tensions between proportional and ward representation councillors, between the role of Mayor and that of the Speaker, between full-time versus part-time councillors, and between administrators and councillors. It is argued that these issues will in part be addressed by amendments made through the Municipal Systems Amendment Act.
- The issues and responsibilities residents hold metros accountable for – and the "limited powers, functions and resources" held by metros (Y Carrim 2011: 4). While residents expect delivery by metros on all issues – from housing, to education, health and basic services – many of these

responsibilities do not rest with local government. Where elements of these functions are devolved, a further tension arises in those cases where the necessary capacity and resources have not been provided, to support devolved functions. For residents, it is irrelevant who the delivery agent is. Local government is the most immediate and accessible form of government, in the context of city issues – and is therefore often held to account for delivery on functions not within its ambit of control. Here, there is a responsibility to communicate and engage, even if inputs are then be fed to other spheres of delivery.

- The need to plan and govern in a context of “slow economic growth, high unemployment, significant poverty, constant in-migration and uncertain climate changes” (2011: 4). These are noted as structural issues, largely beyond the control of cities. And yet, given the reality that people migrate to cities in search of opportunity, it is this sphere of government that is responsible for a disproportionate quantum of South Africa’s challenges – with significant stresses experienced in respect of services, infrastructure, and financial and other resources.
- The respective powers and functions of local, provincial and national government – with this tension noted as particularly of relevance to Johannesburg, given its size of population, budget, responsibilities – and the role it must play in respect of the national economy. While legislation has imposed a ‘one-size-fits-all’ approach, it is argued that a differentiated approach to municipalities would be preferable, allowing for municipalities to exercise “different powers and functions from a common menu, according to their capacity, spatial characteristics, economic and revenue base, funding and other resources” (Y Carrim 2011: 4).
- The role of cities in supporting national economic growth and development, and the absence of a supporting policy addressing national urban development.
- Metros and their municipal entities, where these have been established – with the objective of ensuring improved delivery by means of a municipal entity juxtaposed with a new set of governance challenges. These challenges relate to tensions in relationships between councillors and the Boards of entities, between developmental imperatives of councillors and the more commercial imperatives of the Boards of entities, and between the need for cohesion – and the need entities may have for autonomy.

These matters provide a brief view into the challenges that necessitate governance, at all levels and across diverse issues, within the City of Johannesburg. They also highlight the need for an integrated system of co-operative governance between the spheres of government, to facilitate the provision of more effective support for cities and other municipalities by national and provincial government. This requires less focus on attributing non-delivery to local government, and more focus on supporting the best outcomes through the provision of requisite capacity and resources – within the context of co-operative governance.

3.12.3 Building a network of supporting governance arrangements and practices

The tensions raised above highlight the governance complexities faced within the context of local government. For effective delivery that takes account of all stakeholders – while ensuring a constant, unwavering focus on the mandate of the City and those it is bound to serve, there is a need to mediate these tensions. The City has made some significant progress in the area of governance. This area has been supported by the implementation of refined governance and institutional arrangements during last term of office (2006 to 2011), with these arrangements enabling improved oversight (in respect of both municipal entities and City departments), greater scrutiny and increased accountability of the Executive to the Council (where the latter represents the Legislative component of the City). Systems have been implemented or adapted to support these arrangements – including those pertaining to Oversight Committees and their delegations, performance management policies and practices, and reporting requirements. There have also been increased levels and intensity of engagement with citizens through processes of consultation and communication, with the GDS outreach process in itself being representative of this deliberate focus. However, despite high levels of engagement, the city has witnessed a significant volume of service delivery protests, with it acknowledged that further – and different – work must take place in this regard. In addressing some of the challenges and tensions going forward, the following areas have emerged for action:

i. Facilitating meaningful stakeholder collaboration, participation and engagement

The participation of South African citizens in local governance issues is rooted in a range of legislative arrangements, including – amongst others:

- The South African Constitution (Act 108 of 1996);
- The 1998 White Paper on Local Government (which argues for the importance of affording organised civil society the opportunity to enter into partnerships and contracts with local government in order to mobilise additional resources);
- The Municipal Structures Act of 1998, which clarifies the role of the ward committee in enhancing participatory democracy in local government; and
- The Municipal Systems Act (Act 32 of 2000) – which requires local government to develop a culture of governance that supports and complements formal representative government participatory governance systems – allowing for consultation on issues relating to the quality, level, range and impact of municipal services as provided. This is augmented further by amendments, as noted above.

While participation has often been characterised by the involvement of those with political affiliations, it should ideally be characterised by involvement of all – to provide meaningful input for a pro-active and responsive local government. Key recommendations through which to promote enhanced participation include: greater civic education and opportunities for mutual learning; the use of technology to enhance participation; and the provision of support and encouragement of participants – thereby allowing for well-functioning civil society groups, business and other interest groups, as well as ward and regional structures. Community and stakeholder participation in planning and budgeting has been one of the areas of concern for the City – with focus placed on addressing mechanisms for enhanced community engagement through the GDS Outreach itself. As noted above, this is an area requiring ongoing focus, education and commitment from all parties. It also requires ongoing communication with citizens and stakeholders, alongside a recognition that this is not only about the City delivering for citizens. There is an increasing need for greater participation by citizens and residents, in terms of both the resolution of their own problems, and their role in serving as responsible citizens – and understanding and delivering on their rights and duties in this capacity.

Service delivery protests are viewed as one of the ways in which social and economic alienation is expressed, and serves as another reminder of the actions necessary in the realm of governance – as well as the importance thereof. Addressing the root causes of service delivery protests will in part include mechanisms to ensure citizens feel part of decision-making and planning processes. The other elements are more fundamental – and include issues such as access to basic services, livelihood opportunities, homes, safety, education and good health, with accountability for many of these issues not resting with local government. This demands greater co-operative governance – as noted above.

ii. Co-operative governance – across the spheres of government, and within the GCR itself

As reflected above, one of the critical tensions – and challenges – facing the City pertains to the issue of co-operative governance. Citizens do not distinguish between responsibilities at different spheres – instead focusing on whether or not delivery has taken place. It is imperative that greater co-operation is fostered, for the good of the city – and thereby, the nation. This requires a change in terms of language and practice – with national, provincial and local government representatives speaking the same language in terms of deliverables at a local level, so that commitments made in terms of local government mandates match local government capabilities and planning. Promises by other spheres of government, that will then need to be overseen by ward councillors who are responsible for delivery, cannot be made in a vacuum. The dislocation between national and provincial priority and policy setting and local government realities at the site of implementation need to be addressed. Co-operative governance is essential, to ensure seamless service delivery from all spheres of government and other social partners. The City also has an obligation, given its size and role in the national economy and social context, to work alongside other spheres of government and municipalities in influencing legislative reviews and ensuring an enabling legislative framework – where this is not present.

Considerations relating to co-operation demand a focus on the GCR, of which the city is a part. It has already been noted that the GCR is increasingly attracting migrants –with these individuals often unable to access social and economic opportunities. As the GCR economy continues to grow, with

complex social and political interactions continually changing, greater co-ordination will be necessary to promote liveability, co-ordinated growth and development across the region. The Joburg 2040 GDS provides the City with an opportunity to support the creation of a governance model for the GCR – given that, to date, the varied and detailed ideas have not been realised. To address the governance needs of the GCR, the following requirements should be addressed:

- Optimal political and administrative leadership arrangements – to strengthen the city-region and focus on development at a regional level;
- Establishment of a shared, clear strategy and vision for the GCR, to bring various role-players together in working towards achieving common goals;
- An effective institutional frameworks for decision-making and co-operative governance, with a clear delegation of powers between all spheres of government;
- Consideration on those areas of delivery where a regional approach rather than a localised approach will best suit delivery needs, and address financial, capacity and other constraints; and
- A focus across all involved stakeholders on providing citizens with high quality services and access to urban activities (to achieve both social and economic progress), and enabling improved competitiveness of firms, and investment in high-quality technology, skills and knowledge sharing.

While the GCR concept and reality has grown in prominence and strength through the force of momentum, rather than through active structuring, the time has arrived for a more concerted effort in this regard. This will require a more formalised City of Johannesburg position in terms of the GCR (e.g. in respect of governance arrangements). It will also require the establishment of structures for decision-making purposes (as noted above), thereby embedding powers and functions, and through the GCR and the City's place within it, initiating a 'Joburg African' and 'south-south' agenda – enabling the City to serve as a global player. Inter-governmental relationships and structures in the region should be optimised, to enable integrated and efficient service delivery. This may include strengthening of inter-governmental technical forums, programmes and projects – in respect of a range of areas, such as:

- Roads and transport – as represented in the Gauteng Provincial Government's (GPG's) 25-year integrated Transport Plan and the Department of Transport's envisaged transport corridors);
- Inter-regional waste, water, sanitation and electricity forums;
- The green economy; and
- Multi-jurisdictional service utilities.

iii. Supporting and improving oversight within the City – driving delivery and a service orientation

While the City has worked hard in this area, further work is required. The City has made significant strides in its performance management system, oversight and reporting arrangements. However, oversight committees need additional support and capacity to perform their responsibilities effectively, as does the Audit Committee. There is also a more fundamental need to address shortcomings in respect of the sub-optimal functioning of certain departments and municipal entities, and the need for public and customer oriented staffing. It is suggested that the Audit Committee should oversee integrated reporting, with a combined assurance model applied to provide a co-ordinated approach to all assurance activities.

Driving an appropriate service orientation is essential if the City is to deliver appropriately. This requires greater focus on training and mentoring for the delivery agents (both staff and political representatives) – to ensure a customer orientation, and to embed a culture of performance and innovation. It is critical that further mentoring and training is extended to councillors, beyond what is currently provided, to ensure ward counsellors understand the planning and budgeting issues themselves, commitments made there-in, and their accountabilities to the constituencies they represent (thereby separating themselves from party politics). In addition, a critical component of stakeholder oversight, and a sound service orientation, is the establishment of improved systems for filtering and communicating messages and input from the public and other stakeholders to the relevant arms of the City, to drive delivery and ensure responsiveness. Lastly, other mechanisms and structures may support greater oversight – e.g. establishment of a dedicated Oversight Committee for the Mayoral Office and Legislature, through which input from civil society in respect of Legislature performance and delivery against the IDP can be gathered and addressed.

iv. Enabling effective representative governance

Some of the complication noted in respect of ward committee structures have already been noted above. While these structures need greater support so that they are better enabled in their roles relating to development advocacy, communication and reporting, other activities such as education of the public and ensuring accessibility of public engagement platforms (both in terms of time of day and place) will go a long way to drive greater effectiveness in representation.

v. Building financial and delivery sustainability and resilience

Ensuring financial – and thereby service delivery sustainability is a non-negotiable, as witnessed through recent experiences of the City itself. This requires a focus on finances, fraud prevention and the requirements for a clean audit. In terms of focusing on financial matters, it is suggested that the City should learn from other cities – while also considering if the impact of the recession on economic growth of Johannesburg is reflected in the financial sustainability model. With the recession still not over, there are implications for the City's ability to collect revenue (and its approach to tariff setting) – especially in the context where customers are often not able to make ends meet. Mechanisms to address financial sustainability must therefore anticipate the risk of a shrinking tax base. Some of the key considerations in respect of financial sustainability include a focus on:

- Strategic procurement and contract management (to derive better value for money);
- Strategy-aligned budgeting, following a robust process of resource allocation;
- Ethical financial practices for effective and efficient financial management;
- Consideration of long-term funding requirements (and long-term borrowing approach); and
- A focus on alternative funding sources (such as partnerships and new forms of taxation).

In terms of fraud prevention, it is acknowledged that the City's leadership and management must design and implement appropriate, transparent and fair processes to prevent fraud. These should address some of the issues that are perceived as contributing to fraud – e.g. mal-administration; misuse of Council property; and tender irregularities.

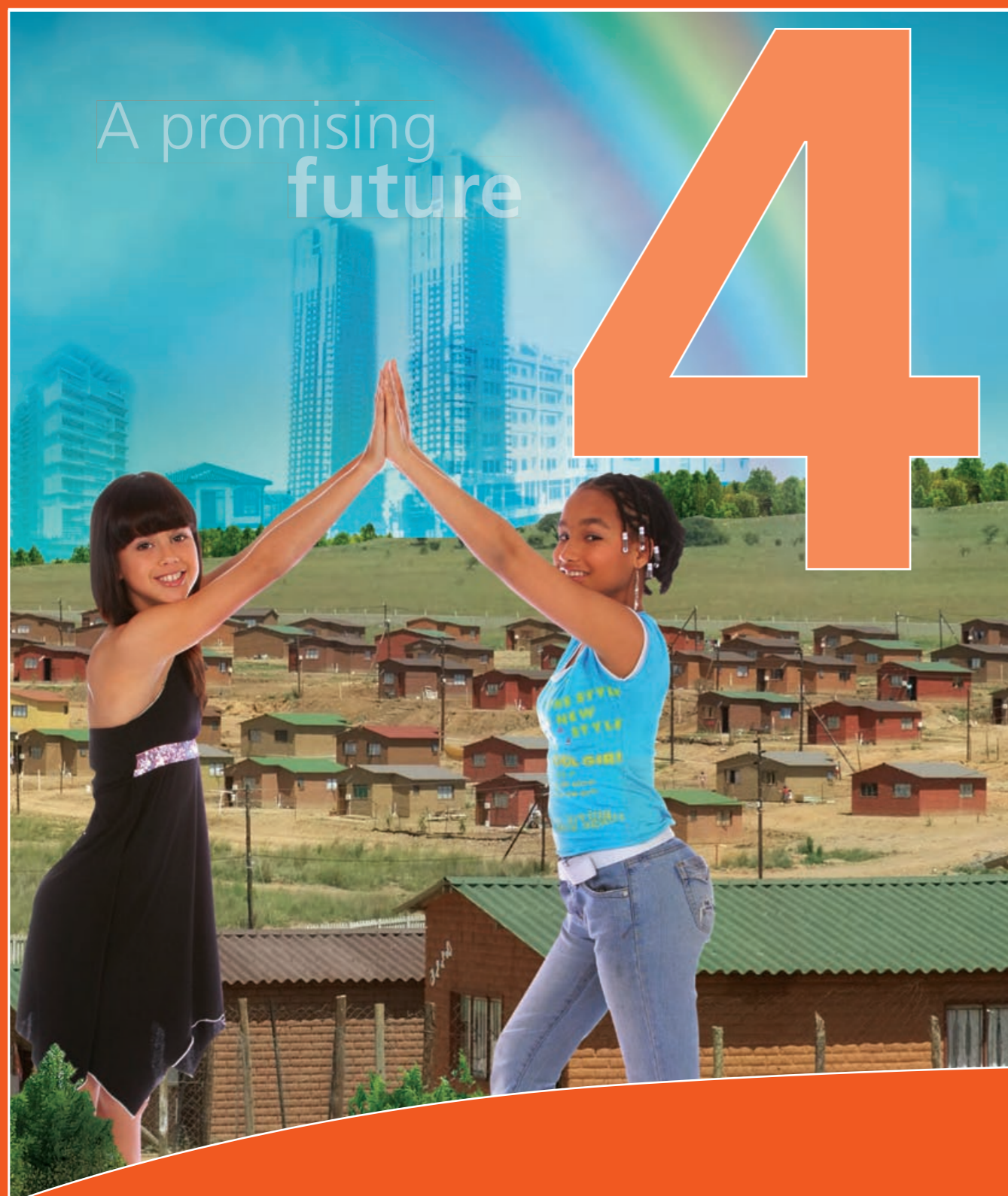
Lastly, in terms of the focus on a clean audit, it is important to note that this is not only about compliance with sound financial management requirements. Clean audits are only possible in the context of sound quality and capacity – across a range of parameters – with delivery on these parameters a good marker for ongoing sustainability of the City. To drive a clean audit, it is noted that risk management mechanisms need to address group-wide strategic risk identification, management and mitigation.

3.12.4 A sound base

The City has a sound base in respect of governance issues – established over years of delivery, practice, development of new and refinement of existing models. With a 63,2 percent poll attained in the most recent May elections, the City also has a significantly better than the average base of active, engaged residents, from which to draw participation. This serves as a sound foundation for the GDS, to be built on further in future governance activities and initiatives.

3.13 Conclusion

The analysis contained here-in provides a holistic perspective of the challenges – and opportunities – that lie ahead. These inputs, while clustered in the context of the nine themes, tie directly into the areas highlighted within the GDS paradigm – with the concepts of resilience, sustainability and liveability cutting across, and providing a focal point towards which all targeted interventions within which the City can aim.



A promising
future

4

Chapter

4

Towards implementation

A conscious decision was taken to position the GDS alongside the five-year IDP, which unpacks and defines the short and medium-term operational activities.

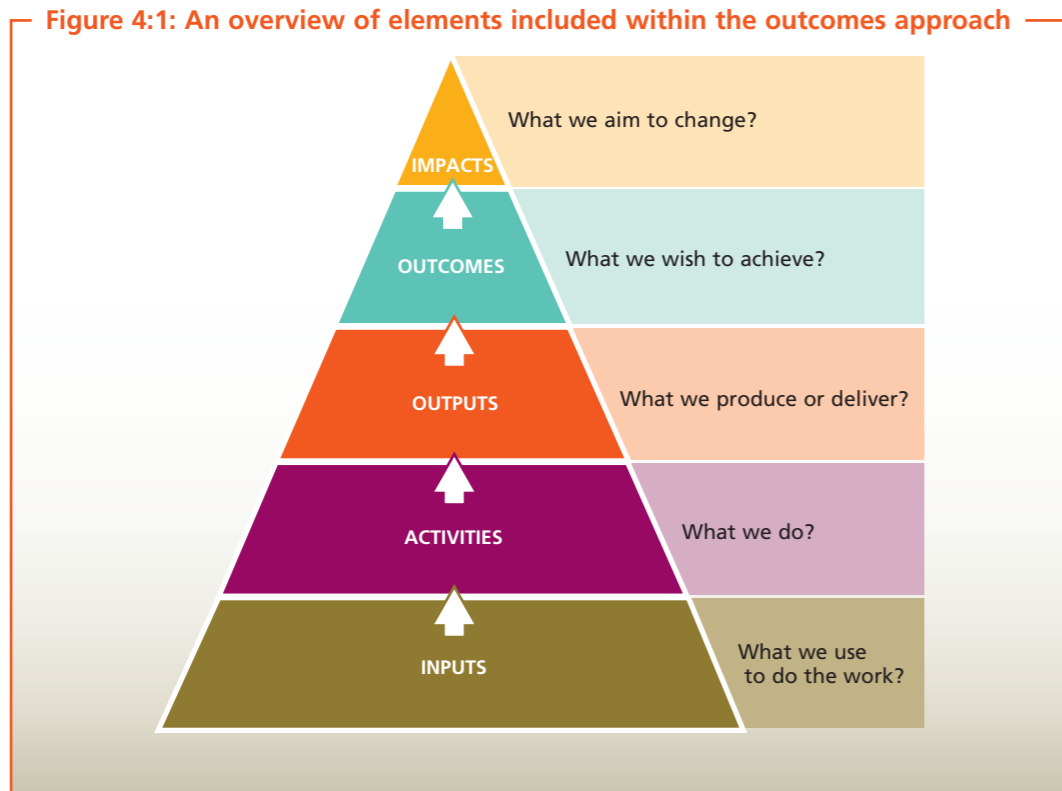
4.1 Introduction

The Joburg 2040 GDS consolidates and refines the 2006 GDS, based on learning, experience, new theory and practice and importantly, the numerous debates with and inputs made by the City's stakeholders. Emerging from the various inputs is a clear view of the future Johannesburg of which all stakeholders would want to be part. This chapter aims to present this future, and the long-term development path the City hopes to follow in order to reach it – articulated in the form of clearly defined outcome statements, outputs and proposed indicators. These outcomes define the type of society – and city – those within this metropolis, and those who work within the municipality itself, hope to see by 2040.

In addition to the perspectives represented in the outcomes included below, the Joburg 2040 GDS anticipates a future city that is more resilient, sustainable and liveable. If the City hopes to create a reality that is more reflective of these ideals, then the Joburg 2040 GDS cannot be a document that will only become relevant at some point in the future, as these concepts imply a living, responsive approach – in line with the demands and imperatives of the time. As such, this document should serve as a base from which to frame implementation, and against which to measure development progress in the medium-term – in the context of the defined outcomes.



In reflecting the City's intended path, use has been made of an outcomes approach, as this allows for clarification of "what we expect to achieve, how we expect to achieve it and how we will know whether we are achieving it" (The Presidency 2010b: 9-10). In introducing this approach, the Presidency noted the following in respect of outcomes: "Outcomes refer to a changed state of being... They describe the effects, benefits or consequences that occur due to the outputs or programs, processes or activities. The realisation of the outcome has a time factor and can be in either the medium or long-term." (2010: 12). This view – and the linkages between inputs, activities, outputs, outcomes and impacts (alongside the questions these elements seek to answer) – is depicted in the figure below.



Source: The Presidency, 2010b:11

A conscious decision was taken to position the GDS alongside the five-year IDP, which unpacks and defines the short and medium-term operational activities necessary to give effect to each of the long-term strategic outcomes and aligned outputs. The IDP therefore effectively operationalises the GDS. This chapter, therefore, forms the basis for alignment with the IDP – and provides the framework for development of detailed business plans. As such, the City's focus on 'GDS – IDP - Business Plan' alignment is reflected appropriately in the model above, where the Joburg 2040 GDS defines the long-term outcomes and associated outputs, while the IDP and business plans address activities and inputs necessary, for the desired impacts to be realised.

The City has identified four outcomes it aims to see by 2040. These outcomes are cross-cutting in nature, and have been developed through consideration of the paradigm, principles and vision reflected in the Joburg 2040 GDS. The formulation of each outcome expressed has taken place in the context of the Joburg 2040 GDS paradigm, which calls for a balanced focus on four primary drivers – good governance, economic growth, human and social development, and environment and services – to achieve resilience, sustainability and liveability. Inputs emerging through research and the GDS Outreach have in some cases shaped, and in other cases, clarified the issues reflected in the outcome statements.

Towards implementation



The four outcomes are as follows:

- Outcome 1:** Improved quality of life and development-driven resilience for all
- Outcome 2:** Provide a resilient, liveable, sustainable urban environment – underpinned by infrastructure supportive of a low-carbon economy
- Outcome 3:** An inclusive, job-intensive, resilient and competitive economy
- Outcome 4:** A leading metropolitan government that pro-actively contributes to and builds a sustainable, socially inclusive, locally integrated and globally competitive GCR

Each outcome is further unpacked into a number of outputs. The indicators the City proposes to use in order to measure progress against outcomes are included below each outcome. The City's preferred approach is to identify and/or develop indicators that allow for gathering of more nuanced information and data, and appropriate monitoring and evaluation of progress. There has therefore been a move away from 'standalone' indicators, with the City preferring to use selected indicators that combine more than one measure, where this is possible. The indicators selected reflect an appropriate alignment with the Joburg 2040 GDS' intent – and provide a platform through which to measure progress.

4.2 Outcomes, outputs and indicators

As specified above, the outcomes and outputs identified through the Joburg 2040 GDS refinement process are included below. Indicators specific to each outcome are included within Annexure One. It should however, be noted that the detail in terms of targets and baselines has, as yet, not been finalised. On completion of the GDS Outreach and engagement process, these will be specified – and refined further during the IDP rollout, and subsequently, through delivery on this strategy.

4.2.1 Outcome 1: Improved quality of life and development-driven resilience for all

The City envisages a future that presents significantly improved human and social development realities, through targeted focus on poverty reduction, food security, development initiatives that enable self-sustainability, improved health and life expectancy, and real social inclusivity. By 2040, the City aims to achieve substantially enhanced quality of life for all, with this outcome supported by the establishment of development-driven resilience.

Outcome 1 related outputs:

The following outputs are critical ingredients for this outcome to be realised:

- Reduced poverty and dependency
- Food security that is both improved and safeguarded
- Increased literacy, skills and lifelong learning amongst all our citizens
- Substantially reduced HIV prevalence and non-communicable diseases – and a society characterised by healthy living for all
- A safe and secure city
- A city characterised by social inclusivity and enhanced social cohesion

Reduced poverty and dependency

The primary focus related to the end vision of improved quality of life, for those who live and work in the city, is to help individuals and communities improve their own quality of life. Supporting individuals and communities to become self-sufficient is a primary outcome envisaged for 2040. This will allow communities to emerge as self-sustaining entities, with decreased reliance and dependence on poverty support. This does not mean that the City will abscond from its poverty alleviation duties, but rather that it will focus on empowering communities, with the objective of achieving decreased dependency, through suitable interventions that drive human and social development – creating new opportunities for self-sustainability. The City will work to prevent deprivation in the short to medium-term, by investing in the most deprived wards in the metropolis. Safety nets will not be viewed as permanent provisions for those targeted, instead being oriented around critical short-term support.

Food security that is both improved and safeguarded

Due to the impact of climate change and increasing production and transportation costs of food supplies, the City will focus on ensuring that future sources for food supply are secured and improved, thereby safeguarding future food security. The City will focus on a range of initiatives in this regard – including the development of a commercially viable and productive urban agriculture sector in Johannesburg, supporting localised food production. This is vital for targeting food security for those communities that are most vulnerable, who face severe food insecurity on a regular basis. This is also critical for promoting more sustainable household supply to the city. A large proportion of the high and low agricultural potential land will be cultivated. This output emerges in the context of wider national debates and discussions – such as the regional collaboration discussions currently underway, focused on optimising natural resource realities through regional food supply arrangements that allow food production suitable to resource constraints and availability – within a view of regional capabilities (The Presidency 2011b).

Increased literacy, skills and lifelong learning among all levels of our citizens

Education is critical for building self-sufficiency and resilience. While formal education is a prerequisite for human and social development, by 2040, the majority of Johannesburg's residents must be able to access information and knowledge for life-long self-learning. This is part of the process of building an active and engaged citizenry by 2040. Learning is an important aspect of human and social development, unlocking true human potential. It is also an increasing part of the knowledge economy. By 2040, Johannesburg will be a high producer and consumer of knowledge that supports competitiveness, economic growth and human and social development. In the short term, Early Childhood Development, Adult Basic Education and support to schools and libraries are important

building blocks to ensure that long-term barriers to education and learning are significantly reduced. In the long-term, new realities are envisaged – including the establishment of world-class libraries and knowledge systems that serve as centres for ongoing learning, igniting the potential of the city and its people.

Substantially reduced HIV/AIDS prevalence and non-communicable diseases – and a society characterised by healthy living for all

Prevention in the context of health is an important aspect of building a healthy city that is resilient to the threat of disease. By 2040, the City envisages dramatically reduced levels of HIV prevalence, with a small proportion of the population at risk. While little progress has been made in terms of substantially reducing HIV prevalence during the last decade, pro-active interventions already in place at the city level will be extended – alongside the introduction of new interventions, to dramatically reduce prevalence. These interventions will include, amongst others, the development of co-ordinated responses with NGOs to scale up ARV delivery. HIV in the short to medium-term will also be addressed through dealing with the often-neglected social and psychological contexts that place vulnerable groups such as women and children at higher risk. Developing a sense of personal empowerment amongst citizens – and networks of social support – will support a reduction of major communicable disease and health risks by 2040.

The risk of non-communicable diseases associated with lifestyle choices will also be minimised by 2040, as the majority of citizens will have access to information and knowledge relating to healthy living – and will live in communities that share a sense of health and well-being, where all work collectively for this vision to be achieved. Localised food production systems, safer streets, the re-engineering of the health industry and promotion of the walkability of the city will become part of the holistic approach aimed at tackling lifestyle diseases.

A safe and secure city

By 2040, formal collaboration – and partnerships established with members who include the beneficiaries themselves, will work in collective ways to achieve safety objectives. The city will work towards a more collaborative and community-based policing approach to safety. This will involve sustained community consultation, education and engagement. By 2040, communities will be mobilised for and engaged in issues relating to their own safety – and that of the community. A mindset of collective responsibility will be engendered. In support of this, the capacity of community members to come together to develop responses to community safety will be enhanced – while collaboration (e.g. working alongside the South African Police Services, to build their own resilience and confidence with regards to tackling crime) will be encouraged. By 2040, the City of Johannesburg will have significantly reduced the crime rate, and everyone in the city will have equal access to quality police services and safety support, irrespective of where they live. A risk management orientation and a focus on overall community safety will also be encouraged, with mechanisms like effective early warning systems significantly reducing the threat and impact of possible disasters.

A city characterised by social inclusivity and enhanced social cohesion

By 2040, communities must trust each other, despite their differences. The City envisages a future where communities will display greater levels of confidence in respect of their abilities to positively influence and control their own urban environments. This sense of belonging – built through the growth of social inclusion and cohesion – is fundamentally important as a pathway out of poverty, and as a poverty support mechanism. The concept of collectivism, working together to improve the lives of everyone in the community, will be an important qualitative outcome by 2040.

Johannesburg has always been a gateway for newcomers from the continent and other parts of the world. The city will become more diverse and culturally plural over the coming decades. Diversity will be both even more evident and acknowledged across the city – with the City acknowledging its role in fostering a sense of excitement about the potential this reality presents, and in improving cohesion and

inclusivity within and between its citizens and the various communities. The City will focus on ensuring all feel a part of this cosmopolitan reality – through active engagement, facilitation of cultural cross-pollination and sharing of experiences, and the establishment of bridges between diverse communities. In addressing this long-term output, the City will:

- Ensure that the places in which communities live are distinctive, and that the built form becomes an expression citizens cultural identity – through designing for inclusion;
- Make participation more meaningful, representative and just, thereby bringing diverse communities closer to planning and decision-making (e.g. by providing platforms and opportunities through which multiple voices can be heard); and
- Provide social infrastructure to support the ‘socially excluded’, ensure awareness and education of their rights and entitlements among all, provide social support – and share in debates on the role and importance of and inclusivity, with all.

Proposed indicators for Outcome 1:

- Indicator 1: Human Development Index
- Indicator 2: Poverty Rate
- Indicator 3: HIV prevalence
- Indicator 4: Food Security Index
- Indicator 5: Public Safety Index

4.2.2 Outcome 2: Provide a resilient, liveable, sustainable urban environment – underpinned by infrastructure supportive of a low-carbon economy

The City plans to lead in the establishment of sustainable and eco-efficient infrastructure solutions (e.g. housing, eco-mobility, energy, water, waste, sanitation and information and communications technology), to create a landscape that is liveable, environmentally resilient, sustainable, and supportive of low-carbon economy initiatives.

Outcome 2 related outputs:

The following outputs are critical ingredients for this outcome to be realised:

- Sustainable and integrated delivery of water, sanitation, energy and waste
- Eco-mobility
- Sustainable human settlements
- Climate change resilience and environmental protection

Sustainable and integrated delivery of water, sanitation, energy and waste

Management of water catchments and sources

By 2040, Johannesburg will be water-secure. An effective demand-side management process, together with investments in smart infrastructure and engagement with stakeholders to ensure sustainable water-catchment management practices, will optimise water security. The City will also achieve a high level of net water savings, by investing in alternative schemes such as water reclamation, rainwater harvesting and appropriate grey water use, to ensure alternative supplies. Protecting the quality of water in Johannesburg is also a critical part of building the city’s resilience. The City will work pro-actively to anticipate emerging threats to water quality, to mitigate these and to maximise those opportunities that arise for potential water quality risks to be averted. The recent acid mine drainage threat is one such example.

Alternative energy adopted and in use

By 2040, more than half of the energy used by Johannesburg will come from alternative renewable energy sources – such as methane gas mining from landfills, energy from waste solutions, and a

number of renewable energy sources (e.g. solar). Optimal energy management solutions, including those that incorporate alternative energy, will be used when undertaking activities such as ‘retrofitting buildings’.

Waste minimisation and optimisation systems in operation

The City chooses to adopt a new approach to waste collection and management. By 2020, zero waste to landfill can be achieved. Until recently, the City focused primarily on efficient collection and disposal, but the City will now target an outcome of advantageous waste minimisation and optimisation, through adopting a strategic approach, supported by appropriate management, systems and technology. The City will aim to:

- Develop an integrated solution to managing energy and waste;
- Ensure that waste optimisation and minimisation in aligned to City objectives of job creation, urban management, public health, sustainability and resilience;
- Turn waste into an economic resource; and
- Work with national and provincial government to create enabling waste management legislation.

Eco-mobility

Eco-mobility refers to environmentally sustainable and socially inclusive ways of local mobility, combining the use of non-motorised transport means such as; walking, cycling and wheeling with the use of public transport and light electric vehicles from renewable energy resources.

As such the City will make continued investments in mass public transport and non-motorised transport, prioritising the pedestrian over the car. By 2040, the City will be pedestrian and public transport oriented. This entails ensuring both a mindset shift and a shift in practice, encouraged by viable and efficient public transport systems and safe walking spaces. 2040 will see the majority of the City’s residents shifting to an efficient, reliable, affordable and accessible mass public transport system – and a parallel, inter-connected pedestrian system. Interventions will aim to:

- Ensure increased use and financial viability of the Rea Vaya BRT system.
- Deliver in the context of valuable, integrated and aligned transport planning, by developing sound plans that improve mobility and access for all. The City is in the process of reviewing and updating its Integrated Transport Plan – which will be refined and finalised alongside the 2040 Spatial Plan, 2040 Sustainable Human Settlements Plan, and national visions of space and mobility.
- Improve pedestrian mobility by focusing in Inner City Distribution.
- Work with other spheres of government, while also taking opportunities for public and private collaboration into account – because transport matters. Johannesburg is not an island, but is part of the GCR, with daily transport flows that extend beyond municipal boundaries. The City must align its transport planning with Gauteng provincial plans and those of surrounding municipalities – and must take the lead in transforming the province into a region where public transport is used – as first choice – by the majority of the population. The City will play a role in supporting regional, national and continental connectivity, and welcomes the concepts included in relation to the Durban-Gauteng Freight Corridor 2050 Vision, and the establishment of a Gauteng-Durban strategic freight corridor, supported by “strategically located logistics Hubs and Terminals”, and underpinned by “supportive local area Land Use plans” (Transnet 2011: 8).
- Invest in research and development. New information with regards to transport planning, transport technologies and systems is becoming available. Research focused on tracking project delivery is also essential. Data and tracking will be used as the basis for sound transport planning and implementation, with prioritisation of proposed projects to be established through the application of clearly defined criteria, in the context of limited resources.

Sustainable human settlements

By 2040, the majority of Johannesburg’s settlements will be sustainable and liveable. The City will have established greater capacity to absorb new entrants and existing residents into a functioning housing

system, where all can find a place to live (irrespective of their incomes), that offers good quality of life and is connected to the requisite social amenities. In the short to medium-term, the City will work to put informal settlements onto a path to sustainability. This involves a commitment to a self-build process, and to mixing incomes in existing settlements, while ensuring access to social amenities (e.g. transport, clinics, libraries, public squares, theatres). Will we ever eradicate informal settlements? It is unlikely, given that demand follows supply – and hence the upliftment of these settlements, within the conversation of resource sustainability realities. By 2040, Johannesburg will have significantly changed its Apartheid city landscape, by targeting spatial investment in new areas of growth that provide for better integration of land-use functions and space. Inclusivity will be supported through the implementation of careful planning that allows for flow, interaction, and greater densification in parts.

Climate change resilience and environmental protection

The City will focus on building its resilience to climate change. Interventions that address both climate change adaptation and mitigation will be necessary, and will be implemented. The approach proposed deviates from interventions that focus on a reduction in emissions alone. Emphasis will be placed on building resilience to commodity price shocks, and working to create economic opportunities, savings and potential investments from a move towards a low-carbon economy. This shift will drive new forms of innovation and create a ‘new wave of industrialisation’, with the City of Johannesburg gearing up to ensure it is positioned to capitalise on these changes. Interventions will be based on mix of mitigation and adaptation interventions. Mitigation and adaptation should not be seen in isolation, but must rather be planned for in an integrated manner, with the intention of:

- Making the built environment more energy efficient;
- Investing in more ‘green infrastructure’;
- Making the transport sector more green, by addressing congestion, ensuring a greater public transport modal share – with commuters choosing to move to public transport (through both positive and negative incentives, and public transport system that works), and ensuring improved fuel efficiency and compliance with emissions standards;
- Improving the City’s capacity to manage the threat of urban flooding and urban heat island effects, and building community resilience to and readiness for climate change;
- Ensuring food security at a citywide scale; and
- Working towards bio-diversity and ecological protection, by building a more compact form.

There is a well-recognised deep inter-connectivity between conservation of bio-diversity, poverty alleviation and sustainable development. Johannesburg as part of the Gauteng Metropolitan Bio-region is important for supporting a range of ecological processes which are critical for ensuring long-term persistence of bio-diversity and delivery of ecosystem services, especially in the context of climate change. The City’s overall objective for bio-diversity conservation and management is to enhance humane development and well-being through sustainable use of biological resources and equitable sharing of benefits.

Proposed indicators for Outcome 2:

- Indicator 6: Ecological Footprint
- Indicator 7: Percent share of energy utilised in the city i.e. gas, solar, coal etc.
- Indicator 8: Percent of unaccounted for water
- Indicator 9: Percent of water reclaimed
- Indicator 10: Percent waste to landfill as a proportion of waste generated
- Indicator 11: Percent of energy share utilised from waste
- Indicator 12: Revenue from waste generated
- Indicator 13: Sustainable Human Settlements Index
- Indicator 14: Eco-mobility



4.2.3 Outcome 3: An inclusive, job-intensive, resilient and competitive economy that harnesses the potential of citizens

The City of Johannesburg will focus on supporting the creation of an even more competitive, ‘smart’ and resilient city economy, when measured in relation to national, continent and global performance. The City will promote economic growth and sustainability through the meaningful mobilisation of all who work and live here, and through collaborating with others to build job-intensive long-term growth and prosperity, from which all can benefit.

Outcome 3 related outputs:

The following outputs are critical ingredients for this outcome to be realised:

- Job-intensive economic growth
- Promotion and support to small businesses
- Increased competitiveness of the economy
- A ‘smart’ City of Johannesburg, that is able to deliver quality services to citizens in an efficient and reliable manner

Job-intensive economic growth

The City will focus on the critical ingredient of ‘job-intensive economic growth’, through promoting job-intensive sectors, in line with the objectives defined within the NGP (such as the targeted creation of 5 million jobs by 2020 – and a reduction in the unemployment rate). Efforts that will serve to stimulate the economy and will ultimately give rise to higher GVA growth rates in the city will be

progressively up-scaled. This said, the City acknowledges that there is not always a positive correlation between economic growth and job creation. The City will play its part in countering 'jobless growth', through the creation of an enabling environment that supports job creation. In addition, the City will ensure optimally managed job opportunities within its own institutional framework – with an awareness of additional long-term spin-off prospects of these opportunities, into the wider city environment (e.g. through skills development outcomes).

Promotion and support to small businesses

The City recognises that both the informal sector and entrepreneurs who operate within the city hold significant potential for supporting sustainable, inclusive growth of the city's economy. Supporting entrepreneurial spirit is imperative – given that the obstacles to entrepreneurship success are many. The Global Entrepreneurship Monitor (GEM) argues the case for supporting, in particular, the development of "high-expectation entrepreneurs", noting that research indicates that these entrepreneurs often succeed in employing at least 20 employees within a five-year period (GEM 2005: 4) – and therefore hold great potential for economic growth, innovation and employment prospects. Research findings indicate that just 9,8 percent of entrepreneurs worldwide create almost 75 percent of those jobs generated through new business initiatives. The argument for building high definition entrepreneurship therefore becomes an imperative for 2040. The City will prioritise appropriate support for and the creation of an enabling environment for entrepreneurs, for the realisation of optimal outcomes – with enabling factors including, amongst others, appropriate government policies, regulations and institutions, skills development, transfer of technology, support services and efficient infrastructure (GEM 2005).

In terms of the informal sector, the City envisages that those who operate within this sector will continue to play an important role in the future, with this sector contributing significantly to job creation. By 2040, the City aims to support the growth of the informal economy through providing better support, in a variety of forms – e.g.: innovative incentives; skills development support offered through partnership arrangements; the development of more enabling regulations. The City acknowledges that the informal sector plays both an important and controversial role – bolstering entrepreneurial activity, but at times, to the detriment of compliance measures as defined in various regulations; alleviating poverty, but with a parallel concern noted in respect of pay levels and job security. Despite these characteristics, the informal sector is an essential part of sustainable livelihood creation – and will be supported appropriately by the City. Through targeted intervention, the City hopes for other positive spin-offs, including the further growth of dynamic entrepreneurial spirit, competition, innovation, higher efficiency and increased investment.

Increased competitiveness of the local economy

There are many definitions of city competitiveness. But there is little doubt about its role in attracting crucial investment, which can then be used to encourage further growth. The City plans to grow its competitiveness as it moves to 2040 – to maximise the benefits of the economy for all. Harris quotes a useful definition of city competitiveness, providing a sense of both necessary inputs and possible outcomes – arguing that city competitiveness is:

"The ability to continually upgrade the business environment, skill base, and physical, social and cultural infrastructure so as to attract and retain high growth, innovative and profitable firms and an educated, creative and entrepreneurial workforce, thereby allowing them to achieve high rates of growth, of productivity, high employment, high wages, high gross domestic product *per capita*, and low levels of inequality and social exclusion" (Simmie et al 2006, in Harris 2007: 10)

The above argues that city competitiveness is associated with economic growth, high employment, higher income, and reduced inequality. It is clear that there is no single ticket through which to build competitiveness. A combined approach is necessary and essential – focusing on all the elements

that make for a successful economy, including the mobilisation of the skills base within the City, and possible partnerships through which to drive success.

A smart City of Johannesburg, that is able to deliver quality services to citizens in an efficient and reliable manner

Smart cities improve resource efficiency. Being smart – doing more with fewer resources – requires sensible deployment of resources (technical, human, financial and others). To do this, up to date, real-time information is needed. The City will invest in smart infrastructure, together with information and data gathering mechanisms. Investment in technologies will create important opportunities for skills transfer, job opportunities, and an environment for business confidence. The City has already begun to forge partnerships with knowledge partners, technology companies, research institutes and universities that are at the forefront of research and development. Improving service delivery will take place through real-time monitoring and information management, and optimal management of resources – including those who work within the City structures. By 2040, paper plans without delivery will be a thing of the past. Real-time updates about the state of infrastructure, community complaints, and service delivery breakdowns will serve as meaningful input, with better information, better co-ordination, better planning, and better response times the hallmark of the City's service delivery approach by 2040.

Proposed indicators for Outcome 3:

- Indicator 15: GVA growth rates
- Indicator 16: Unemployment
- Indicator 17: Ratio GDP to jobs
- Indicator 18: Gini-co-efficient
- Indicator 19: City Competitiveness Rankings
- Indicator 20: Entrepreneurship growth (informal and formal economy)

4.2.4 Outcome 4: A high performing metropolitan government that pro-actively contributes to and builds a sustainable, socially inclusive, locally integrated and globally competitive Gauteng City Region

The City envisages a future where it will focus on driving a caring, responsive, efficient and progressive service delivery and developmental approach within the GCR and within its own metropolitan space, to enable both to reach their full potential as integrated and vibrant spaces.

Outcome 4 related outputs:

The following outputs are critical ingredients for this outcome to be realised:

- An active and effective citizen focused GCR
- A responsive, accountable, efficient and productive metropolitan government
- Financially and administratively sustainable and resilient city
- Meaningful citizen participation and empowerment
- Guaranteed customer and citizen care and service

An active and effective citizen focused GCR

The City recognises the importance of the GCR concept – and that it is in the interests of the city, the region and the nation that the benefits associated with the GCR are realised. But engaging with the GCR concept and its realisation cannot be done without ensuring a strong focus, by all participants, on a shared set of values, a culture of service excellence rooted in an appreciation of the importance of inclusive, citizen focused delivery, and a commitment to shared learning and development. Given the significant challenges and drawbacks associated with a silo-based approach to planning and delivery, and the resultant loss of value for those based within the GCR – while the concept is not fully operationalised – the City recognises it has a due to support the activation of this dream.

A responsive, accountable, efficient and productive metropolitan government

By its very mandate, the City has a duty to be responsive, accountable, efficient and productive in the way it carries out its duties as developmental local government. The City will focus on ensuring that refined guiding principles, policies and processes are in place for this form of delivery. More importantly, though, it will focus on communication there-of to all its members and delivery partners, the practical implementation of these frameworks, and management of delivery, within the context of clearly defined values and standards. The City will recognise excellence in those who it employs and delivers through, through positive and negative reinforcement. It will build efficiency and productivity through strong leadership and delivery by example – with demonstration of ‘appropriate leadership and delivery by example’ expected of all who those work within and deliver for the City, regardless of level or institutional base. As a result, the City sees a future reality where all customers and citizens – within the boundaries of the city and beyond – experience true delivery, and regular, pro-active and responsive communication and engagement.

Financially and administratively sustainable and resilient city

By 2040, the City will have developed a sound financial management and revenue management approach, built through extensive experience and supported by leading expertise (both managerial and technical). The City’s finances will be stable, sustainable and resilient. The City will seek innovative mechanisms through which to growing the budget progressively, in line with population growth. Per capita spending will increase consistently, through the growth of a competitive and economically sound city – resulting in greater financial sustainability for all, and a wide revenue base for continued and improved service by the City.

Meaningful citizen participation and empowerment

In 1999, Smock argued that the pursuit of co-operative relationships and partnerships was one of the most defining trends of the time (Smock). This is true to an even greater degree today. Local government cannot function without an informed view of the realities and needs of all the stakeholders it serves – and it cannot be effective in delivering true value without their participation, and the active use of partnerships. As evidenced through the GDS Outreach, hearing, and listening to the voices of stakeholders from all parts of society – be they citizens, customers, members of business and community organisations, delivery agents within other spheres of government, colleagues in local government, academics, researchers or fellow employees – helps build a socially inclusive environment, and services that matter. By 2040, the City will be recognised as a global leader for its pro-active approach to both collaboration and engagement – and the outcomes that result from the participative processes followed.

Guaranteed customer and citizen care and service

The City will ensure customers and citizens feel acknowledged, through the operationalisation of a refined, shared and comprehensive customer care approach that puts people first. Customers will see clear evidence of the care the City takes in responding to queries and delivering quality services. They will experience responsiveness and a pro-active stance from all who work within the City, regardless of the mechanism or platform through which the City is engaged. All customers will feel equally valued – acknowledged as members, contributors and players in the city of Johannesburg – valuable participants of the city, regardless of their origin, background, class, gender, or race.

Proposed indicators for Outcome 4:

- Indicator 21: Participation Index
- Indicator 22: Customer Satisfaction
- Indicator 23: Quality of Life
- Indicator 24: Transparency index



4.3 Conclusion

This chapter has provided a consolidated view of the priorities emerging through the GDS Outreach and development process, with analysis and input refined into a set of four outcomes, further clarified within the context of outcome-specific outputs. As with all strategies, the value rests in implementation – and in monitoring, evaluation and ultimately, realisation of the defined vision. For this to take place, it is imperative that the outcomes and outputs included herein are discussed, debated, tightened and collectively owned by all those who are called on to deliver and play a part in the city’s future, in their own individual ways.

While the formulation of the IDP will assist in driving short and medium-term delivery, the vision of Johannesburg in 2040 must remain a priority, if the city is to attain the standing it hopes for – as a sustainable, resilient and liveable city – a Johannesburg in which all who live and work feel a sense of ownership, responsibility and pride.

A promising
future

5



Chapter

5

Listening to our citizens' voices – The GDS outreach process

The GDS outreach process was rolled out as conceptualised, with implementation including an array of platforms through which the City solicited input, ideas and suggestions

5.1 Introduction

Johannesburg is constituted of unique people and organisations. The manner in which the metropolitan government addresses its mandate and functions is driven through the identification of its stakeholders' needs, and the subsequent implementation and execution of strategies designed to continuously improve the quality of life of all. To assist the city in understanding these needs to a greater degree, the City implemented a feedback and engagement process, called the 'GDS outreach'.

The outreach was launched by the Executive Mayor of Johannesburg on 2 August 2011. The intention was to produce a strategy for local government that would be based on an understanding of the experiences of those within the city, and would address the needs and opinions of the entire city's population. The GDS outreach also aimed to inspire the city's stakeholders with a sense of shared ownership of, and the freedom to participate in, a developmental local government strategy for all.



The GDS outreach process was rolled out as conceptualised, with implementation including an array of platforms through which the City solicited input, ideas and suggestions:

- *Thematic weeks:* with the schedule for weekly events appearing on the City's website. These thematic weeks addressed the nine themes identified within this Joburg 2040 GDS. Thematic weeks included round table discussions and conversations with stakeholders. The themes included: Liveable Cities, Resource Sustainability, Health and Poverty, Governance, Transportation, Community Safety, Environment, Economic Growth and Smart City. The general public was invited to comment on these topics – and be full participants of the process.
- *Ward-level participation:* that incorporated the voices of local communities and which ran parallel to the nine thematic weekly.
- *A GDS Conference:* in which leading global, regional and local experts invited to participate. This provided a platform to discuss critical issues and establish mechanisms through which they could best be addressed.
- *A GDS Launch:* still to take place – with this event, to be attended by the city's key stakeholders, serving as the culmination of the Outreach process.

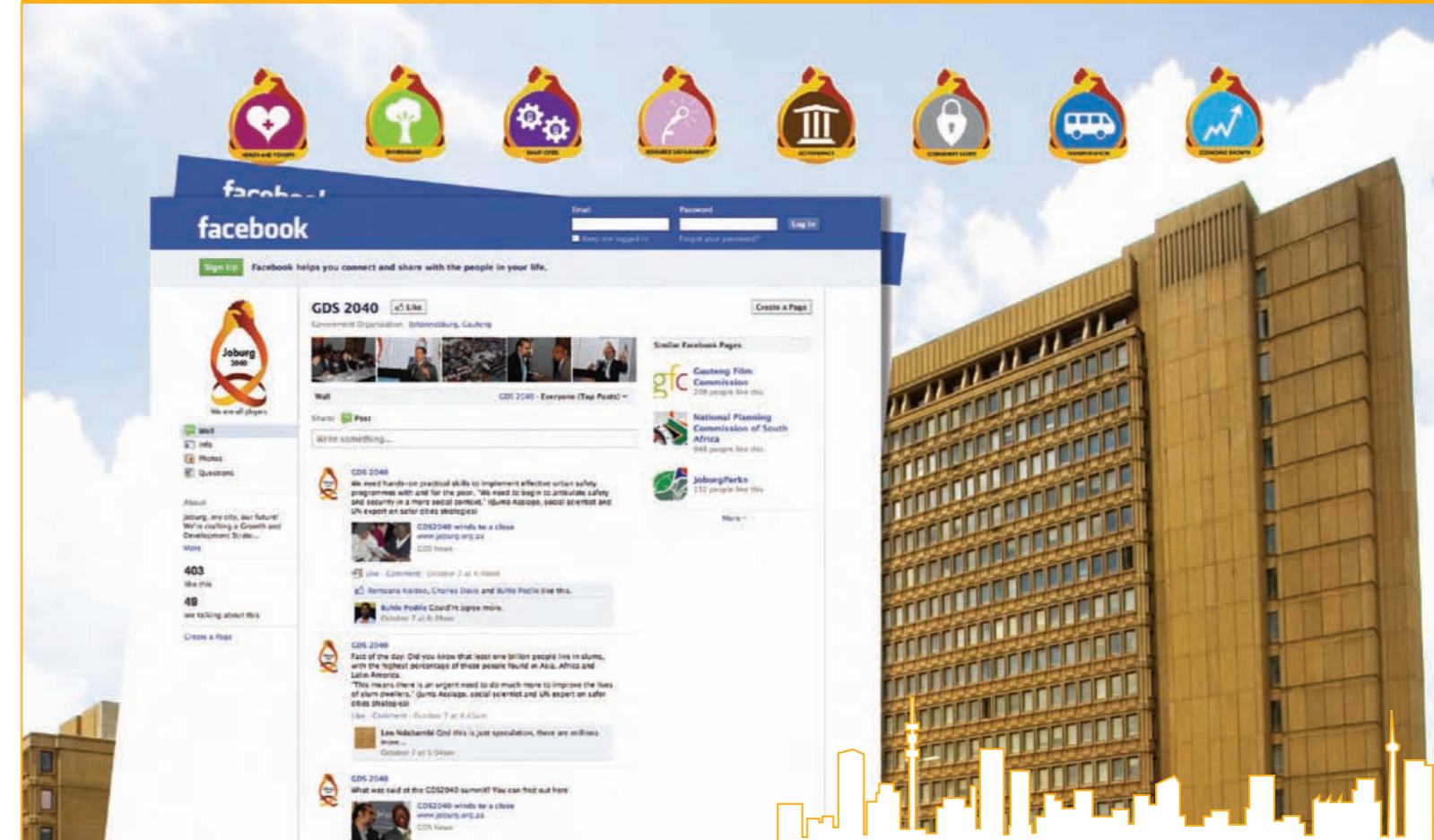
5.2 The process

The first rudimentary paragraphs of the Joburg 2040 GDS document were written during a year of intensive research and inquiry. A completed draft document was launched on 2 August 2011, providing a basis for further discussion and collaboration. During the GDS outreach process, the document was refined and updated, based on the input received from ordinary citizens, experts and thousands of emails, reports, social media updates, printed media and radio reports. A content management process was developed, to process and analyse various comments, queries and all the other inputs received. The City established an internal committee for this purpose, referred to as the 'Content Co-ordinating Committee' (CCC), to sift through thousands of submissions. Information was also obtained from a number of other sources, which included:

- The theme-week reports written after each week's activities, during the nine consecutive weeks of the Outreach. This consisted of inputs from panel discussions, workshops and community-based sessions.
- Inputs received from several of the City's departments.
- Suggestions received from numerous suggestion boxes placed throughout the city.
- Social media sites – Twitter and Facebook
- Comments on the City blog site
- Emails received by the City

The CCC analysed all inputs weekly and then produced a synthesis report of the relevant theme. The reports were shared at the weekly Executive Management Team (EMT) meetings with senior management. Weekly meetings were also held with the Executive Mayor and his team, to discuss recommendations, and to highlight the major weekly content updates of the Joburg 2040 GDS document. Weekly updates reflected key priorities, solutions, and suggestions, as indicated within the various comments received during the thematic weeks. In this way, internal stakeholders in the City were kept abreast of major issues arising.

After an intensive nine-week process and dedicated work done by content writers, who have worked hard to incorporate all the critical points of input, a final draft of the document is now produced.



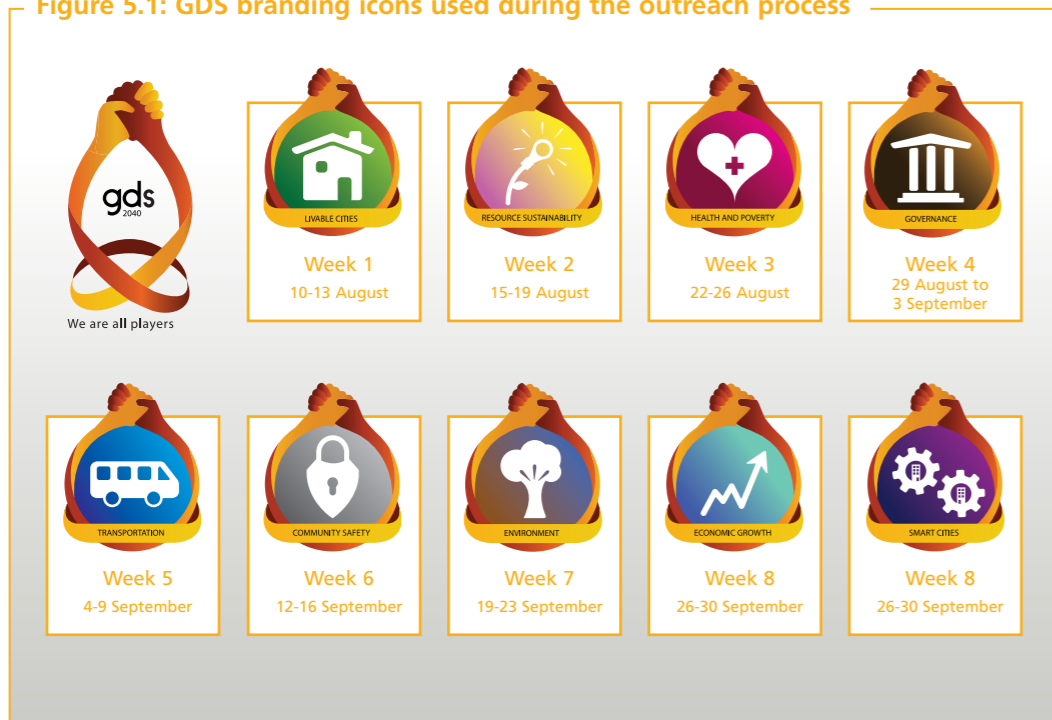
5.3 Using various tools for participation

The GDS outreach used a wide variety of platforms to ensure maximum participation, from people from all walks of life – and all communities – within the City. Keeping up with modern communication, the City used social media to encourage participation in its GDS process. A Facebook citizens' page was created, alongside a City page on Twitter, and a video on YouTube. Picasa photo album sites were also set up. A micro-site was set up through the City's main website (www.joburg.org.za/GDS2040), to provide an online 'landing base' and a central repository for all relevant information pertaining to and emanating from the GDS outreach process.

Printed media and radio content was also mainstreamed through the key platforms, throughout the thematic weeks. The media interviewed key Members of the Mayoral Committee (MMCs) and some Senior Officials, providing coverage through the written platforms and radio.

The 2010 FIFA World Cup gave the City the opportunity to reap useful support advantage. Comparable branding was created by the City for the GDS outreach, using slogans like "We are all players" and "My City – Our Future". Effective visual branding was created via unique icons for each of the theme week topics. This very successfully associated the GDS outreach with the City of Johannesburg, and was further propagated by the various tools, platforms and media used for the GDS outreach process. The icons were designed to provide a simplistic yet easily understood graphic representation of the themes that were discussed.

Figure 5.1: GDS branding icons used during the outreach process



5.4 Managing input and suggestions emerging through the GDS outreach

The four predominant streams through which inputs and suggestions were received throughout the GDS outreach process were as follows:

- Thematic reports that were produced as a comprehensive overview of the weekly events;
- Deep analysis undertaken in respect of comments provided through the online platforms;
- Analyses of facts from various print and radio reports
- Suggestion box inputs – with the GDS team sifting through and noting suggestions placed in these boxes, located at strategic wards across the City.

5.4.1 Analysis of responses to the nine theme weeks:

Drivers for the City of Johannesburg produced week reports in accordance with each theme week, showing not only the key discussion contained, but also lifting out important strategic priorities from these discussions.

Issues were divided according to the various chapters in the Joburg 2040 GDS document, making it easier to revise and update content. These thematic reports were useful as they provided a comprehensive view of the weekly events by providing descriptions of the events, tallying the total number of participants and making the content publicly available through the GDS micro-site.

5.4.2 A deep analysis of the online platforms:

The online GDS community often posted additional links to other websites containing relevant content. These online communities provided important insights, into their own personal visions for the future city of Johannesburg – and often expressed views freely and openly. Social media content moderators ensured that debates and discussions were kept alive, on social media platforms. This was done through constant blog posts, status updates and responses to various discussion threads.

5.4.3 Analyses of facts from various print and radio reports:

Printed media and radio content was also captured and analysed. This included radio talk shows, discussions and various articles published relating to GDS. This information was important, as it gave

the CCC a more nuanced perspective of how the media and public in general were responding to the GDS outreach process. There was considerable positive feedback regarding the process itself, however many expressed doubt as to whether the GDS outreach process would translate into concrete programmes and actions. This prompted the CCC and then the content writers to ensure that key strategic programmes and indicators were developed, in response to the concerns identified by stakeholders.

5.4.4 Suggestion boxes at wards:

Suggestion boxes and discussions in various wards were used as a further complementary approach through which to involve citizens in the GDS process. It was important to reach citizens who do not ordinarily have access to the internet, and to reach those who could not attend various themed week sessions. Through this process, the roles of ward councillors and ward committees were activated. They were empowered to understand the city's long-term future. These tools and live sessions served as an important mechanism through which to engage and hear various voices, across regions and wards – allowing this view to bear on the GDS process and outcome. Collection boxes and reports of the proceedings were gathered and analysed by the CCC. These comments were used to update the Joburg 2040 GDS document.

The information included in the box below is indicative of the key strategic issues that were received and analysed from the GDS outreach process.

Box 5.1: A high-level summary of the key strategic issues extracted from the GDS outreach process

Key strategic issues extracted from the GDS outreach process

Liveable city

- A workable and 'Joburg-specific' definition of liveability is required – a broad vision of what a liveable city or 'ideal' settlement is, going forward
- A regional perspective of Joburg is necessary. The positioning of Joburg is critical in the context of its surrounds and what Joburg continues to offer
- Social facilities and libraries need to be retrofitted into neighbourhoods where most needed – with a focus on designing social facilities first
- Design the city to eliminate poverty by bringing economic opportunities closer to people
- Encourage public spaces that offer diversity and flexibility in both purpose and use
- Better spatial-economic design is needed to stimulate behavioural change and gear in businesses and investment, to allow for greater resilience
- There is a need for people to live, work, learn and play in close proximity

Resource sustainability

- Education and awareness should be improved across all sectors, with the view on responsible public behaviour towards natural resources/public goods
- Increased access to better quality services
- Heightened need for an integrated resource sustainability strategy
- Building regulations need to be revised to accommodate new technologies
- A long-term perspective is required on the future of water in Joburg
- Scale-up water conservation and demand side management
- Continued research and development in the fields of water, energy and waste – employ smart technologies as well
- Diversify energy sources for the city to reduce reliance on fossil fuel power stations
- Scale-up energy demand side management
- Waste generation must be reduced through alternative practices
- Decoupling resource extraction from economic growth is needed

Health and poverty

- Unemployment needs to be considered in the context of poverty and inequality, because the three are intrinsically interlinked
- Prioritise, transform and uplift the most deprived areas of the city first
- Address poverty and inequality simultaneously
- The city needs to become a resilient producer and consumer of affordable, good quality food
- The City needs to reconfigure its tariffs and charges to provide incentives for commercial firms, that will create formal employment and livelihood opportunities to operate in the most deprived areas
- Up-scale information and awareness about HIV/AIDS – especially targeting the youth
- Changing attitudes towards good nutrition and healthy lifestyles
- Ensure access to health food and medical facilities at reasonable prices
- Design cities to promote a healthy lifestyle – green space, ‘walkability’, ‘cyclability’
- Environmental health conditions should be factored into the space economy – integrated urban design

Governance

- Joburg’s position as the leading metro in the country needs to be sustained and managed effectively
- Sustained engagement between the City and its various stakeholders is required, to tackle developmental challenges collectively
- Greater focus is needed on financial stabilisation, alternative funding options, long-term capital planning and competitive tariffs to support sustainability
- Breeding a new cadre of local government leaders through mentoring and mutual learning
- Greater co-ordination between the spheres of government, the city region and the global arena
- Governance structures and processes provide the platform to contribute to social cohesion

Transportation

- The City should strive to reduce the need for transport and travel through land use planning, housing and urban design initiatives
- There needs to be scaling up of mass public transit provision
- Partnerships should be sought to reduce road congestion and promote road safety
- All City fleets (bus, minibus, waste collection and other City owned cars and trucks) to utilise green energy/fuel sources
- Better use of existing infrastructure is needed – storm water management systems must be transformed to be environmentally friendly and respond to climate change including contributing to rain water harvesting
- Streets need to be designed, constructed and maintained so that they are accessible and safe for pedestrians, commuters and motorists
- The raising of dedicated sustainable funding for transportation is critical for the successful implementation of public transport
- The City should create a network of green walking and cycling pathways between all origins and destinations
- Public Transport Empowerment Models to empower operators, to offer quality services and build sustainable businesses, need to be developed and supported by government
- Building a value-based culture and high level of partnerships is critical to achieve transport safety

Community safety

- Community engagement, collaboration and partnerships are critical in the broader context of community safety
- Re-evaluate relevance, practicability and awareness of by-laws, with 2040 focus in mind
- Disaster management should be integrated into all aspects of long-term and short term planning
- Invest in prevention; build a more resilient infrastructure, storm water drains, transport systems, building codes; stress test against disasters. Invest now to save later.

- A long-term communication strategy is needed, incorporating listening, engaging, branding, mobilising, motivating, promoting, acknowledging and informing

Environment

- Protection of water resources is crucial
- Build community resilience and safeguard communities against the unexpected events associated with climate change
- High-priority significant bio-diversity assets identified and protected
- Urban ecological network of open spaces should be maintained
- The city’s urban forest should be strategically managed and enhanced
- Urban agriculture should be promoted – this can be linked to the food security issue

Economic growth

- Economic policy needs to create an enabling environment for investment and promote the ease of doing business in the city
- Strategic land parcel development for industrial use – will assist the City to generate income
- Building city competitiveness by ensuring a conducive environment for doing business in the city
- Support the NGP to “to eradicate unemployment and create at least 5 million jobs in strategic economic areas by 2020”
- Sustainable skills development initiatives promoted through valuable internships
- Improve labour productivity through work security by creating decent working conditions
- Provide adequate pension funding and implement appropriate wage policies to reduce inequality as such, to promote growth in the economy
- Public employment schemes need to be more sustainable and focused towards the acquisition of life-long skills and learning
- Support the informal economy and allow for social entrepreneurship and innovation ventures
- Utilising skills and efficiencies to build the economy of the city
- The City should develop its own incentives: Preferential procurement for investors; Rates and taxes incentive for new investment; Infrastructure offset incentives for new investment; Minimal or no rent incentive

Smart city

- Invest in technologies that ease the service delivery imperatives of the City
- Support learning initiatives by providing access to information through technological means
- Technology should be the enabler to create a better city of Johannesburg
- Facilitate built environment, social and technical linkages through a networked city
- Maximise ICT to catalyse employment and growth

5.5 Impact of the GDS outreach process

The GDS outreach process was a comprehensive public participation programme, that was carefully planned, to specifically focus on the identified themes and draw out a strong cross-section of perspectives and inputs in this regard. The Outreach Process was a first in long-term strategy making processes portrayed in the history of South African local government. Through the GDS outreach, the City was able to carefully update and compile a strategy that can be collectively owned, by all of Johannesburg’s citizens.

Weekly thematic programmes were precisely designed to be all-inclusive. In each thematic week, a series of discussions, consultations, debates and events took place from Mondays to Fridays. Weekends were strategically used to include participation from wards and the city’s seven regions. The target audiences and participants were wide-reaching and varied from ordinary citizens, to thematic experts, business forums and chambers, schools and tertiary institutions, religious groups, NGOs, Non-Profit Organisations and the informal sector.

Through platforms such as the mainstream media, the Joburg micro-site and social media, each and every event was publicised and advertised. Each day, the city invited an expert, whose expertise was related to a particular theme. This specialist set the tone of the conversation in a thoughtful way, to encourage constructive discussion, and to frame the theme with a practical view of what is needed and what is possible. During the course of the thematic weeks, the City's political leadership, MMC's, Heads of Departments and senior officials were all well represented, and were able to facilitate and strengthen discussions. The City was able to effectively mobilise its senior administration, to allow for the GDS outreach process, ideas and experience to filter down to all within its 25 000 staff complement. Overall participation from all platforms was overwhelming, with more than 50 000 interactions made, through the social media platforms alone.

Early on in the process, the draft GDS was also disseminated for comment to national and provincial spheres of government, and to the City's international counterparts. Similarly, it was also given to experts in the fields of City development strategies, for further engagement. The GDS Conference also included renowned international speakers and senior government officials, who were able to relate to the GDS outreach process as it unfolded. More than 1 000 members of the public and interested stakeholders were afforded the opportunity to gain feedback from the outcomes of the thematic weeks.

The impact of the GDS outreach process was to allow an inclusive policy direction to be developed and adopted by the City. The GDS outreach also brought about a greater understanding of the causal relationships between long-term strategy, its implementation, and service delivery imperatives. The Outreach allowed the City to work with citizens and stakeholders in finding sustainable ways to meet their social, economic and material needs – and to improve their quality of life. This in itself is a measure of the GDS outreach's success.

5.6 The importance of the GDS outreach process

The GDS outreach process creates a new precedent, and is the first in its kind for the City of Johannesburg. Never before has an open call by the Mayor been used to “crowd source” Joburg citizens from all walks of life, to participate in a strategy-making process.

The approach has been significant, due to a number of factors:

- It has allowed for significant participation and collaboration in the city strategy-making process – to an extent never before attempted in South Africa.
- This is the first known attempt of using online social media platforms such as Facebook and Twitter to allow citizens to participate in the strategy-making process of a South African city.
- Through a comprehensive process of collaboration, which included not only online platforms, but also suggestion boxes and live participation sessions in neighbourhoods, the City was able to reach out to its diverse citizenry.
- In turn, strategy writers were, for the first time, able to clearly see what citizens really identified as critical issues, problems and solutions.
- The citizens of Johannesburg found the opportunity to share their problems and collective solutions. They found a voice and a platform for expression.
- For the first time, the strategy writing and development process was opened up to a wide range of citizens – with input also coming from ordinary people – representing a shift from the traditional focus on input by academics and technocrats.

This collaborative strategy-making process provides an important lesson for designing strategy-making processes that are more participatory and inclusive in nature. It has also set the basis for the coming term of office (2011-2016) for the City of Johannesburg – a municipality that is making a much greater concerted effort to deepen communications and enhance participation with all citizens who live in the city.

5.7 Concluding insights from the GDS outreach

The GDS outreach process has provided a unique opportunity to engage the citizens of Johannesburg. The process has been both inspiring and challenging, with hard strategic choices needing to be made.

Through a process of collaboration, the Joburg 2040 GDS has emerged from the GDS outreach programme, as a strategy that is actionable and bold, and that sets a new strategic path for the City of Johannesburg for the decades to come.

The GDS outreach process has made great strides in improving the relationship between the citizens of Johannesburg and the City of Johannesburg. This is the first time that a public outreach process of this scale and nature has been developed, specifically, for the participation and involvement of the citizens of the City.

The GDS outreach process has sent a clear message to all citizens that the City of Johannesburg is committed to meaningful public participation, and seeks, most importantly, to bring everyday citizens into the process of planning and participation. Through the GDS outreach, the City has been humbled by the countless stories and submissions received by many. These submissions have been tirelessly documented, and have formed the basis for updating the document and defining the strategic programmes for the next term of office and beyond.

Citizens have expressed their desire to live in a city that inspires, a city that they can be proud of. It was also an opportunity for the City to educate the citizens of Johannesburg about the immense challenges the city faces and in turn, allowed the City the opportunity to employ and harness the intellectual capacity of citizens, in establishing solutions to these challenges. Through this process, the GDS has developed as a document that expresses the collective aspirations of many of the citizens who participated in various thematic weeks. This exercise in collaboration, has only served to strengthen the content in the document, and has created a much-needed platform for further engagement and on-going participation.

No longer is the strategy process merely resigned to technical experts. Through this exercise important lessons about collaborative working, learning and doing have taken place. It served as a challenge to the policy makers, community activists, bureaucrats, business representatives, councillors and citizens, who were all able to deepen their own knowledge and apply their thinking towards tackling some of the most complex city challenges, with vigour and with a sense of optimism. The Joburg 2040 GDS bears testament to this.



A promising
future

Chapter

6

Concluding thoughts

Johannesburg is one of the most cosmopolitan cities of the world.

It is a city that is life supporting:

- A place of hope and potential for many;
- A city with an economy that is the motor for national growth;
- A city that is home to the roughly four million people who live within it;
- A city that reflects the richness of our human heritage in its large concentration of hominid fossils;
- A city that is made up of an ever-increasingly diverse population – originating from many places, both within South Africa and beyond its borders.

The city faces significant challenges – including the spatial and socio-economic legacy left by Apartheid, the deprivations faced by a large number of people who call it 'home', resource scarcities and difficulties in meeting the needs of residents, and challenges associated with shifts such as climate change, technology, economic pressures and migration. However, this city is a place of gold – with immeasurable potential. Johannesburg's greatest assets and its source of hope lies with its people.

The Joburg 2040 GDS serves as an invaluable tool through which to bring this potential to fruition. However, it will only succeed if all the city's participants play a full role in the path ahead, as part of a collective team. Together, the City and its citizens can address poverty and ensure human and social development, create an inclusive economy and a healthy environment, and establish a liveable, resilient and sustainable city for all – supported by a capable, soundly governed metropolitan government.

With this objective in mind, the City has made use of an extensive stakeholder engagement process in the form of the GDS outreach, to include and empower all its key stakeholders – ensuring that the vision of a Johannesburg in 2040 is jointly formulated, and is one in which all want to be a part. Responses were actively solicited, reviewed, analysed and refined for inclusion. Joburg 2040 GDS, includes a full representation of these inputs. The Joburg 2040 GDS is one in which all can feel pride, knowing that participation has led to a more targeted, informed strategy. The GDS emerges with four core outcomes envisaged for 2040 – to serve as guides for short and medium-term planning and implementation. Through the City's future focus on these outcomes, we envisage success in realising the Johannesburg of our dreams.

“Johannesburg – a World Class African City of the Future – a vibrant, equitable African city, strengthened through its diversity; a city that provides real quality of life; a city that provides sustainability for all its citizens; a resilient and adaptive society.”

Joburg. My City – Our Future!



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