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City Transformation and Spatial Planning
City of Johannesburg: Development Planning
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COMMENTS ON THE CITY OF JOHANNESBURG'S NODAL REVIEW, 2017

Dear Sir and Madam,

The Johannesburg Urban Forest Alliance was established in July 2017, representing resident, heritage and environmental associations from across the city¹. The purpose of the Alliance is to help preserve and expand the city's urban forest.

While the Alliance acknowledges the importance of reducing spatial inequalities, and of integrating the city as a whole, we also believe that it is important that the natural environment and our green infrastructure be properly incorporated into the Nodal Review. It is the opinion of the Alliance that the proposed densities threaten Johannesburg's urban forest; will degrade the city's water resources; and that a significant re-orientation of the Nodal Review is therefore necessary.

The proposed densities threaten Johannesburg's critical urban forest

The Council's Spatial Development Framework (SDF) rightly emphasises the natural environment - the SDF says that increased droughts are possible in the future. Heat island effects, unguided urbanisation, degradation of freshwater resources, are among the most significant environmental risks. The opening section of the SDF states the following²:

The natural environment is an essential element in the structuring of the future city. It is the environment around which all planning, development and land use decisions should be made. The natural structure should be seen as an irreplaceable city asset that provides valuable ecosystem services and not merely as unused land available for development. Protecting these areas is not done for the sake of conservation alone, but to make surrounding developed parts of the city more sustainable, liveable and valuable (socially, financially and in terms of green infrastructure). As such, the protection of the City's natural assets must be a starting point for all development.

¹ Organisations that are supportive of the Alliance include the Albert's Farm Conservancy; the Atholl Area Residents and Ratepayers Association; the Birdhaven Ratepayers Association; the Craigpark Residents Association; the Endangered Wildlife Trust; the Gardens Conservancy; the Greater Kyalami Conservancy; iHlathi, the Melrose-Birdhaven Conservancy; I love Illovo; the Johannesburg Heritage Foundation; the Kensington Heritage Trust; the Lower Houghton Heritage Trust; the Melrose Ratepayers Association; the Modderfontein Heritage Society; the Norwood Orchards Residents Association; the Rosebank Action Group; the Saxonwold and Parkwood Residents Association and the Zoo Lake Users Committee.

² City of Johannesburg, Spatial Development Framework, June 2016. Section 2.4.1.

Johannesburg has one of the world's largest urban forests. According to a recent survey by Treepedia, an initiative supported by the Massachusetts Institute of Technology (MIT), and the World Economic Forum (WEF), our city ranks sixth in the world in terms of tree coverage, with almost a quarter of the city covered in trees.

Tree coverage in the World's ten greenest cities

Source: Treepedia

- 10. Amsterdam, Netherlands — 20.6%
- 9. Geneva, Switzerland — 21.4%
- 8. Frankfurt, Germany — 21.5%
- 7. Sacramento, California — 23.6%
- 6. **Johannesburg, South Africa — 23.6%**
- 5. Durban, South Africa — 23.7%
- 4. Cambridge, Massachusetts — 25.3%
- 3. Vancouver, Canada — 25.9%
- 2. Sydney, Australia — 25.9%
- 1. Singapore — 29.3%

While the SDF mistakenly almost entirely excludes the city's urban forest from its 'key ecological areas', despite the former's critical contribution to bio-diversity, the document still says the following³:

A key defining characteristic of the City of Johannesburg is its remarkable urban forest, underpinned by an extensive wetland system. There are six million trees in Johannesburg - 1.2 million within the parks and on the pavements, and 4.8 million in private gardens throughout the suburbs. This system provides valuable ecosystem services, including air quality and storm water regulation, and should be protected.

GCRO: Mature Tree Coverage⁴

SDF: Key Ecological Areas

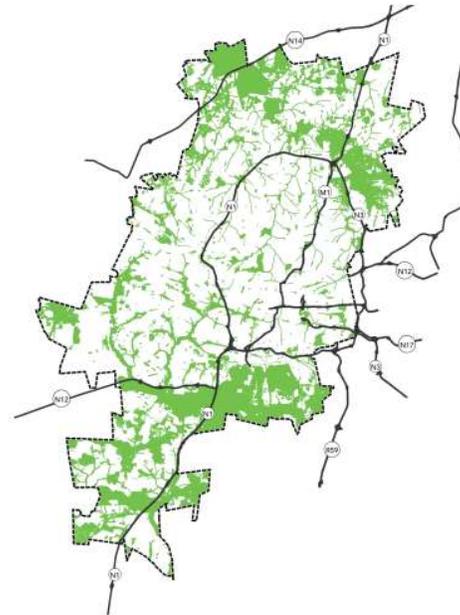


Figure 16: Mature tree coverage (GTI 2,5m Urban Land Cover, 2012) with Johannesburg City Parks tree point data (JCP, 2012)

³ City of Johannesburg, Spatial Development Framework, June 2016. Section 5.5.5

⁴ Gauteng-City Region Observatory, State of Green Infrastructure in the Gauteng City-Region, July 2013.

Furthermore, the value of the Johannesburg's urban forest is acknowledged in numerous Council documents, such as 'Creating Liveable Green Spaces'⁵:

The trees and woodlands in and around Johannesburg have a vital role in promoting sustainable communities. They can provide numerous environmental, economic and social benefits, contributing enormously to the health and welfare of everyone who lives and works in the urban environment.

The sheltering and shading effect of trees helps reduce the heating and air conditioning costs of buildings This can save as much as 10 per cent of annual energy consumption , and cut down the air pollution caused by burning fossil fuels and particulates.

The canopy of the urban forest plays a major role in moderating rainstorm impact and lessening the likelihood of flash floods, the cooling effect of the canopy reduces wear and degradation of the road surface.

The proposed densities will degrade Johannesburg's water resources

The Gauteng City-Region Observatory has recently highlighted the remarkable geographic positioning of Johannesburg, and its significance for the city's scarce water resources⁶:

The Gauteng City-Region (GCR) sits at the top of an escarpment which functions as a continental drainage divide or watershed. [...] The consequence of Gauteng being positioned on a watershed is that water flows out of Gauteng rather than into it, and the closest significant water source is the Vaal River and dam which sits on the southern provincial boundary. The GCR is one of the largest urban areas in the world without a major water source nearby. Today, water is brought from as far as Lesotho to sustain the GCR. High and growing demands for water to meet urban and economic needs mean that water security is a key strategic consideration.

Furthermore, most of northern Johannesburg, where our urban forest is currently concentrated, lies on a sub-surface strata called the Halfway House Granite Dome - according to available information, about 60% of water flows move underground from the Rosebank watershed (Oxford Road) into various catchment areas. According to the Council⁷:

This area corresponds principally with the Halfway House granites in the northern areas of Greater Johannesburg. These rocks also occur from Ruimsig to Weltevreden Park in the west, and towards Northcliff, covering Fourways, Gardens, Bryanston to Waverly, Parktown and Braamfontein. Smaller patches are also seen in the Houghton, Bedfordview and Rembrandt Park areas to the east. Large, stable Halfway House granites are found beneath the northern suburbs of Greater Johannesburg from the northern boundary towards Randpark Ridge, Emmarentia and Linksfield. Halfway House granites extend beyond the boundaries of the city of Johannesburg, covering a total area of approximately 110,000 ha, of which 70,000 ha fall within the boundary of the City.

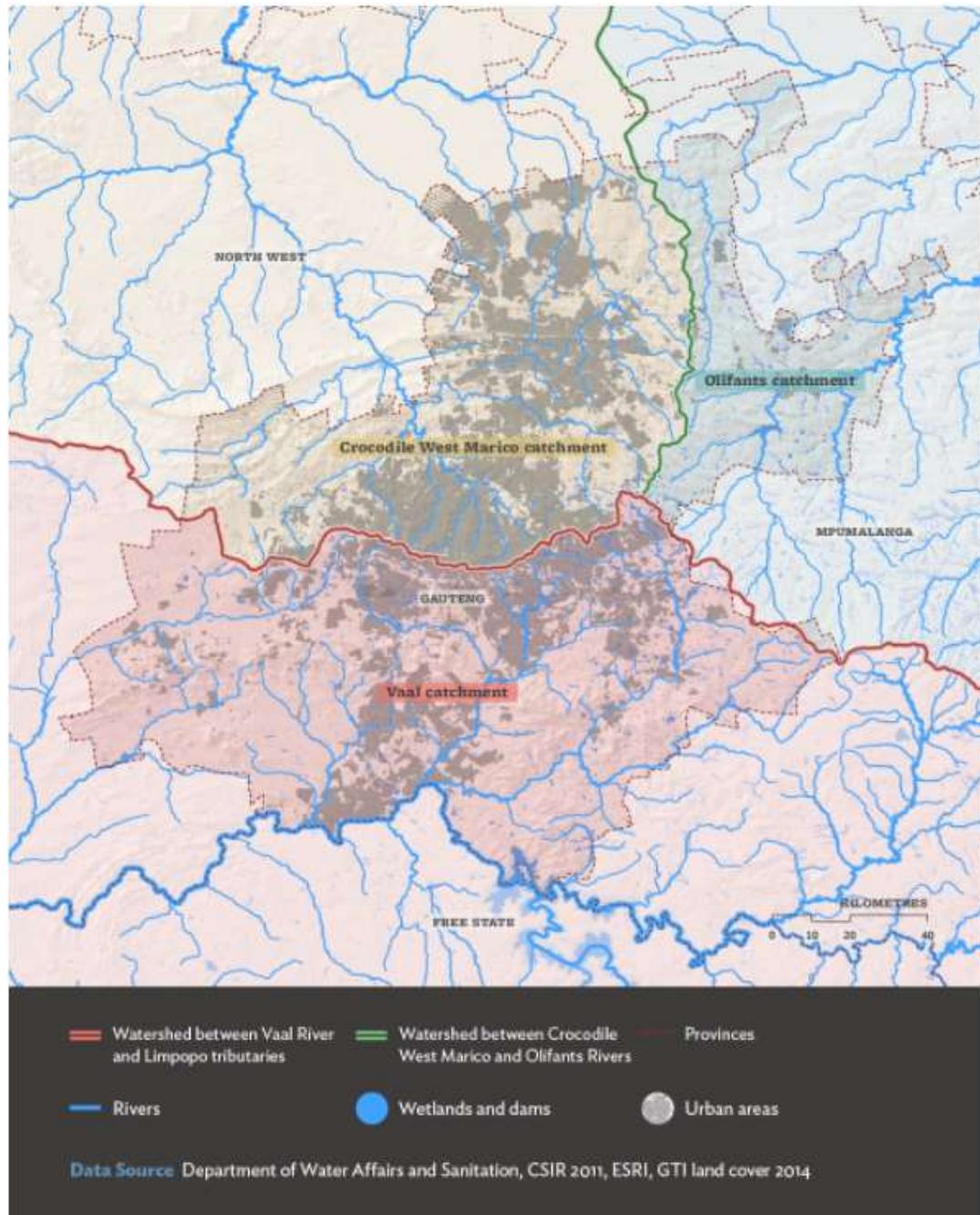
⁵ City of Johannesburg, Creating Liveable Green Spaces, date unknown.

⁶ <http://www.gcro.ac.za/outputs/map-of-the-month/detail/watershed-boundaries-of-the-gcr/>

⁷ City of Johannesburg, Wetland Protection and Management Plan, 2009.

Watershed boundaries of the Gauteng City-Region

Source: GCRO



In this regard, it should be highlighted again how important the existing urban forest is in managing flooding, drought, and more generally in mitigating climate change. According to the Council's Wetland Protection and Management Plan⁸:

Johannesburg is experiencing an increase in problems relating to flooding and drainage, causing risks to human safety, damage to infrastructure, and environmental degradation.

⁸ City of Johannesburg, Wetland Protection and Management Plan, 2009.

The causes of flooding and increasing storm water management challenges should be seen in the context of changes to the whole natural drainage system resulting from urban development.

Loss of natural open spaces through development or sale further reduces the ability of the city's natural environment to reduce and manage flooding as recharge, seepage and infiltration capacity is lost, and ultimately loading the city with increased costs for hard engineering responses.

A paradigm shift is required in terms of the way the City manages storm water and urban drainage, in order to promote more sustainable practices which not only minimise risks to human life and infrastructure, but also ensure greater protection for the environment and scarce water resources, and which will also help build greater resilience in the face of changing weather patterns and climatic conditions.

Under the National Water Act of 1998, the City of Johannesburg also 'has a specific obligation in terms of the Act to ensure the protection of water resources, and the reduction and prevention of pollution and degradation of water resources and the protection of aquatic ecosystems', while the National Environmental Management Act of 1998 stipulates that 'sensitive, vulnerable, highly dynamic or stressed ecosystems, such as [...] wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resources usage and development pressure.'

In this regard, it should be highlighted that the Council has already divided the City of Johannesburg into several wetland management zones, as per the map below:

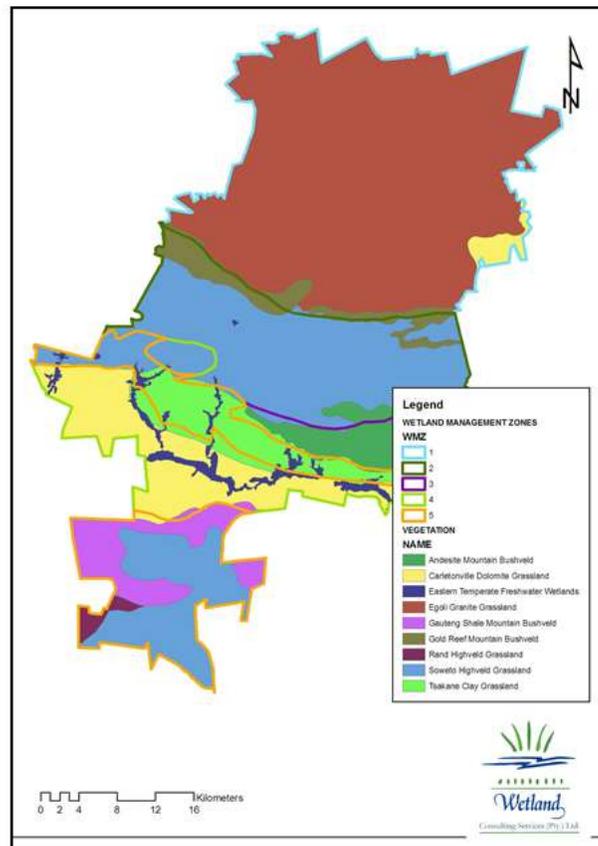


Figure 6-5. The study area showing the relationship between the proposed wetland management zones and broad vegetation types.

A fundamental re-orientation of the Nodal Review is therefore necessary

The Johannesburg Urban Forest Alliance proposes the following actions to underpin the ongoing Nodal Review:

- That the Council undertake a city-wide tree audit (on both public and private grounds) before the Nodal Review is approved;
- That adequate protection for the existing urban forest be introduced in the proposed Land Use Management Scheme;
- That the Nodal Review be premised on the Council's existing wetland zones, and its associated development conditions:

Ensure that peak flow of streams within and leaving the COJ area should mimic pre development flows. Ensure that the water quality in streams within and leaving the COJ complies with generally acceptable standards. Ensure capacity of wetlands to support biodiversity.

In this regard, it should be noted that the City of Cape Town's Municipal Planning By-Law has introduced the Concept of Environmental Management Overlay (EMO) zoning⁹:

which makes provision for the protection and management of the special natural and environmental characteristics of environmentally-sensitive places and areas, or those that are worthy of protection in accordance with the City's environmental management frameworks, in order to ensure that development responds sensitively to these characteristics, that impacts are mitigated, and to promote sustainable development for the benefit of the general public, including tourists. The EMO also enables the designation of such environmentally-sensitive places or areas on the zoning map.

- That the Nodal Review identify 'Green Corridors' in catchment areas, and reduce densities accordingly.
- More generally, that the Council adopt an urban forest policy, underpinned by the Council's Water Sensitive Urban Design Systems¹⁰.

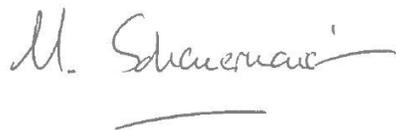
Water Sensitive Urban Design (WSUD) are one component of what is sometimes referred to as 'Green Infrastructure', which recognises the value of environmental goods and services and seeks to deliver services and infrastructure in a manner which promotes energy saving, water conservation, water quality improvement, biodiversity and open space protection, a more attractive environment for investment, the creation of 'green' jobs, and lower maintenance costs going forward.

Our vision for Johannesburg is that of a **World Class Green African City**. We look forward to your response, and remain available for further questions.

⁹ City of Cape Town, Municipal Planning By-Law, 2014, page 149.

¹⁰ City of Johannesburg, Environment and Infrastructure Services Department, Water Sensitive Urban Design Systems, July 2013.

Sincerely,



SIGNATURE

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