

## **THE SYMBIO CITY DEVELOPMENT: REGARDING OPEN SPACE**

15 February 2016

### **Background**

The City of Tshwane Metropolitan Municipality closed park erf 53 Verwoerdburg Stad in terms of Ordinance 17 of 1939 in September 2015. This report was drafted by DUBRUTO URBAN PLANNING to add to the background knowledge framework and to aid various decision making processes in the sub committees of the City of Tshwane Metro in regard to the redevelopment of erf 54 Verwoerdburg Stad. This report focus on the aspect of “open space” because erf 53 was indicated as a park on the Surveyor General Plan of Verwoerdburg Stad and is subsequently still zoned for public open space. The report indicates on the one hand the strategic importance for the City of Tshwane of the proposed Symbio City development and on the other the continuing abundance of available open space along the Hennops River for the Centurion Metropolitan Node.

### **Introduction**

The proposed Symbio City development represents a huge paradigm shift in typical municipal planning thought. The concept of redeveloping the Centurion Lake into an ultra-high intensity and density business and residential development is complex and therefore a plethora of different possibilities is being opened to explore.

However, the principle of the idea is in compliance with all positive aspects of theoretical and empirical spatial and land use planning practise of the present era. The detail town planning aspects provide mostly direct solutions to existing problems of erf 53 Verwoerdburg Stad without detriment to the existing built environment or the natural environment. In addition to that, the development will trigger a wave of reinvestment in the area and could actually lead to the implementation of the municipal policy frameworks for the area. The proposed Symbio City development will also provide new insight into existing environmental problems of the area seemingly insurmountable at the moment. Eventually it will provide radical solutions that will be to the benefit of all.

The application to close erf 53 as a park in terms of Ordinance 17 of 1939 is a logical step towards developing the erf as has been decided by the Mayoral Committee and forthwith the Tshwane Metro Council itself. The reasons for the need to redevelop erf 53 Verwoerdburg Stad have already been thoroughly tabled and exposed to the public domain by way of several applications, advertisements and slide presentations to various Councillors. It is also notable that the local Tshwane Metro Councillors of the area of erf 53 Verwoerdburg Stad did not oppose the proposed development. The process of redevelopment of the Centurion Lake has progressed to the stage where the Council has to legally finalise the closure of erf 53 as a park in terms of Ordinance 17 of 1939 after all aspects of such closure has been met.

However this report will indicate on the one hand why erf 53 is of such strategic importance for economic development of the Tshwane Metro and Gauteng Province that it cannot be utilised for open space alone and on the other hand that the Symbio City development will not replace open

space but merely interchange natural open space with many other types of open space as stated by the Tshwane Open Space Plan.

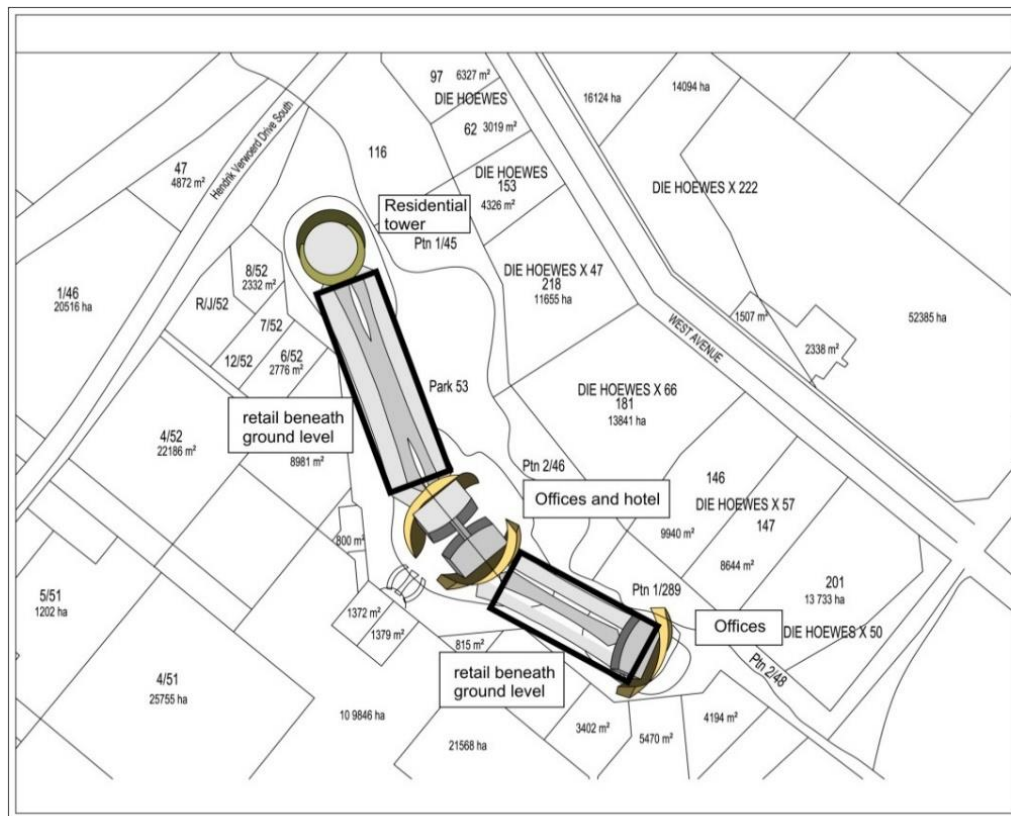
## Proposed Development

Erf 53 Verwoerdburg Stad – the site of the proposed Symbio City development - is presently zoned as public open space and the Centurion Lake is situated on this erf. The proposal is therefore for the municipality to lease a park erf to the applicants. (The park erf is presently being closed in terms of Ordinance 17 of 1939) The proposal is to subdivide erf 53 Verwoerdburg Stad into 2 portions – 1 to accommodate a high rise residential development of 1000 dwelling units and the remaining portion to accommodate 100 000m<sup>2</sup> of retail floor area and 340 000m<sup>2</sup> of office space.

The river is to be contained within the building's lower floor area within a canal that can handle a 1: 150 year flood. This canal can even be lengthened to the east and the west of erf 53 Verwoerdburg Stad to manage the existing flood lines in the area better. Floods bigger than that will be partly canalised to a space alongside Symbio City for that purpose on surface level. In between floods such a space would be designed and used for an open space element and can even be fed by a clean and non-polluted tributary of the Hennops River to maintain ecological integrity through the area. For this purpose the land to be leased that is abutting erf 53 Verwoerdburg Stad can be utilised additionally.

The development is planned to contain 2 types of structures namely:

First the 3 tower block buildings of futuristic design situated on secondly a rectangular structure of 3 levels starting on ground level. The rectangular structure will contain the retail development. Beneath it will be the basement levels containing parking places, vehicle circulation and services. The retail development will be directly connected to the present lake plain of the existing Centurion Mall. The existing development – now facing the lake - will therefore be integrated through public space with the proposed Symbio City development.



Conceptual artist's impression



The retail function would be a rectangular structure of 3 levels. The roof of the top level will be the public movement area on ground level. The footprint of the 3 towers would only be  $\pm 27\%$  of the area of erf 53 Verwoerdburg Stad. The visual impact of the 3 towers on ground level would therefore not be overwhelming at all. (On ground level the difference of the height of building is quickly lost as a major impact on space.) Because of the tower blocks' relative small diameter the shadow it will cast will quickly move over the landscape with the sun.

The basic proposal for Symbio City development is to again provide a body of water and water features to be between the new development and the existing development. The existing development facing the lake will also look upon the landscaping elements of the new development. The existing development will only observe the 3 tower buildings and none of the huge block of retail that would be on a lower level out of sight.

The fact that the visible building footprint of the proposed 3 tower block buildings will only be around 27% will dramatically lessen the dramatic height of the buildings. This would provide a large area of open space to be designed to provide the most benefit for the community. This would either be a large body of water again (cleaned and kept separate from the river) or different smaller lakes combined with other open space features.

It is clear from the above graphics and information that the proposed Symbio City development would provide lots of open space with many choices how best to utilise it for the community and the total Centurion business area as a whole.

### **Town Planning Investigation**

The context of this town planning presentation is therefore focused to illustrate that such a huge development can sustainably work successfully as a land use on the locality and that such a development is essentially a huge opportunity for the whole of the Tshwane Metro, the Gauteng Province and that it will be to the advantage of all stakeholders in the area.



In order to reach clarity and certainty regarding the validity of the proposal it was measured against a discussion framework to address not only the technical town planning matters but also the role and function of municipal leaders, residents and stakeholders in business, etc. to face the global onslaught of social and economic change everywhere. It is critical for the national economic development to elevate the performance levels of the built environment as economic entities to provide a competitive environment to comply with the demands of the future.

As an economically developing country on the southern tip of Africa, South Africa faces many drawbacks against other countries with a first world or third world economy and which is situated much more favourably on the communication highways of the global economy. The global economy can be to a country's benefit but the same country can also be sucked dry of its resources if it cannot compete against the world for its fair share of foreign investment. (Meaning places where the production and commerce of goods and services can take place at a cost low enough to be competitive with others or such activities will move to other places.) It is important to note that the cost of transport to and from such a place is one of the major factors to determine if a geographical place can be economically effective.

The typically South African city - of which the Tshwane metro area is a prime example - has many structural drawbacks and legacies of the apartheid era. Subsequently the cost of transport and land use in our cities will remain generally high until serious changes in the city form and structure can be effected. Places on the movement system that can seriously better city form and structure towards more effective land use and they should be of high priority to utilise. Erf 53 Verwoerdburg Stad is such a place that can make a huge leap to improve the circumstances of the South African city.

It is clear that authorities and leaders in South Africa have been thinking strategically for some time now in this regard. Recently the Tshwane policy for Strategic Investment Attraction, Development Facilitation and Aftercare Plan has indicated that the municipality indeed see urban development as a serious vehicle for economic development.

This report deals with the broad and detail town planning aspects of the proposed development by way of discussing the big picture of urban growth and principles of municipal governance and then moving to more local levels of the relevant urban environment. The discussion is first in general terms and then applied on to the proposal.

### **Providing a Dynamic Vision**

According to a report produced by Price, Waterhouse, Coopers the following can be said about cities in general.

It is most important for the municipality to provide the city with a dynamic vision in which the local economy can flourish by way of its citizens creating wealth and prosperity. The Centurion Lake redevelopment idea is the best way of doing this.

It is necessary to take cognisance of the following facts because they represent the dynamic background for which the municipality is responsible for the combined physical, social and economic systems of the city to respond in order to solve collective problems and to create new and better urban futures.

As the 21st century unfolds, we move ever faster towards global economic integration and the important role that major cities is playing in driving growth, prosperity and social wellbeing. Cities today are dense networks of interchanging investments, information, goods and people as well as centres of innovation and knowledge management.

The city is among others a place to live, which means somewhere to grow, to develop and to enjoy. But it's also a place to contemplate about the future, to work, to educate, to socialize and to relax. All these trends influence the development of a modern city. Cities aim to provide a warm atmosphere, welcoming people to stay, enjoy themselves and in doing so spend their money. At the same time social disunity, crime and poverty cannot be ignored. These factors motivate the on-going struggle for the city that improves people's lives and meets their needs in all areas of life.

The competition among cities is intense, and a strong city brand is a potent weapon to maximize the visibility of a city's qualities and allow it to differentiate itself from its competitors. Cities are competing at a regional, national and international level with one another to attract visitors, new residents and investment. They need to create and maintain a distinctive and powerful brand.

Cities need both strong and interesting vision and dreams for the future. The problem with good ideas and strong vision is that realising them involves a lot of hard work. Leaders have to turn their vision into reality. Actions are critical. Vision without action is meaningless. The municipality needs to provide the circumstances in which citizens and businesses can fulfil their potential on all walks of life, representing all economic levels.

So the benefits for strong visions in a city could be described as:

- Motivating people by giving hope and belief for the future;
- Giving the organisation direction;
- Giving inspiration for new challenges;
- Agreeing a common description of a desirable future; and
- Providing a strategic position in marketing, communicating and branding the city.

Change is real and the demands of the future are pressing on us all. The City of Tshwane will always need leaders with the vision and the dreams that will empower and inspire people. Rapidly changing modern societies are creating a need for strategic development that offers constant innovation and a renewal of processes and peoples' attitudes. It is important that a city's leaders are able to see things in a new way to timeously prepare for the future.

Leaders must encourage robust dialogue between politicians, administrators, companies, associations, and individuals to create powerful and vibrant visions for the city but in the end the leaders must have the courage to try new ideas. Leadership is a critical quality within cities. Strong, courageous and imaginative leaders are always needed to make sure that the futures that cities have envisioned for themselves can be realized.

An intelligent leadership also needs to understand the extent of the stock of the city's most important resource; the intellectual capital. Mapping intellectual capital enables a city's leadership to allocate its resources more effectively and manage them appropriately. A rating of intellectual capital is also likely to be used by international companies as an important tool for selecting an international destination for investment.

Today, many cities have formulated strategies for transforming themselves into a 'knowledge' or 'creative' city. These concepts are driven by rapid economic and societal change. In these modern cities the citizens' knowledge, creativity and innovation are identified as the driving force of wealth creation.

Creative cities make an effort to provide the stimulation, diversity and richness of experiences for their residents.

Creative people have specific demands of a city. They want action and experience, a dynamic place which offers them the opportunity to be creative, the possibility of expressing themselves and the

chance to develop as individuals. Either called knowledge workers or the creative class, these are the people that the modern city also tries to attract: those that will contribute most to the city's development.

The big cities of today and tomorrow operate in a constant condition of competition. They compete for positioning and attractiveness through strategic city branding. Every city needs to find ways to be unique, and to develop an interesting profile that puts it in pole position. It needs to stand out from the crowd to maximise the attention it receives. To do this it needs to create values that set it apart from its competitors. This requires **strategic thinking** on all levels and in all dimensions.

The encounter between people who seek experiences and cities which want to offer them that creates the 'experience economy'. The experience economy has its origin in an economy where cultural life and industry meet productively. This economy is built on the added value which creativity brings to both new and more traditional goods and services.

The driving force in this economy is the actual experience, independent of where it is created and communicated. City developers should deconstruct the contents of the experience that people seek in their city in order to analyse its characteristics, and then use this knowledge in the strategic process of city development. This understanding plays into the creation and strengthening of a city's brand.

Cities have to examine their own city's unique virtues and base their strategies on the assets they have in order to develop them further. Creativity is not a quality that can be manufactured or 'bought in'. But it can, once identified, be nurtured and helped to flourish.

The concentration of activity within cities places an enormous burden on the local environment. Governments face competing demands to provide:

- **Easy access to the workplace – a high quality infrastructure network for both public and private transport;**
- **A clean, green, safe and attractive living environment; and**
- **High quality recreational space including parks, sports and shopping facilities as well as a vibrant cultural scene.**

Effective spatial planning needs to integrate environmental considerations in its early stages. Good urban planning can lead to sustainable, mixed use, attractive developments.

The above concepts are from a report by Price, Waterhouse, Coopers: Cities of the Future and involve nearly all what this proposal to redevelop erf 53 of Verwoerdburg Stad is all about. The proposal to redevelop the Centurion lake area as proposed can be - in magnitude and impact - everything that is needed to put the southern area of Tshwane Metro in a totally new and dynamic competitive position with all the urban centres of the northern Witwatersrand.

The proposed development represents a fine example of excellent strategic thinking regarding city development by both the municipality as well as the developers of erf 53.

The redevelopment of the lake as proposed will trigger a new wave of development in the southern part of Tshwane by releasing potential through the realizing of enormous economies of scale. The successful development of the proposal will concentrate a critical mass of development and land use at the very heart of the bigger area's new mass transport system. It can be said that the proposed development will be a very imaginative continuance of an area that was once the leading aspect that made the area unique but that has become a major stumbling block since. The proposed development will regenerate the uniqueness and the conditions necessary that once led to spectacular growth and developmental success of the area in the past. It will happen again. Its locality within the bigger surrounding area has already been well proven to be the best.

## **Erf 53 Verwoerdburg Stad – Enormous economic opportunity**

The key to the realisation of the above mentioned aspects for the City of Tshwane Metro is to utilise the enormous economic advantages presented by the locality of the Centurion Metropolitan Urban Node. This place already contains many of the qualities needed to become a major economic hub in the northern Gauteng Province. There already exist a complete and highly developed freeway road system, street system and 2 rail systems that connects the surrounding area with other places in the developing sub region. Further implementation of a modern City wide rapid bus system is taking place. Also the local road and street system is already in the form of a highly accessible street grid that can accommodate a process of urbanisation of the existing surrounding built up area. Already several decades of high technological economic and physical growth has taken place in the area – providing a rich mixture of mixed use development as a land use base. The area is richly saturated with firms specialising in knowledge economies providing high tech services and products on a national and an international level.

The jewel in the crown of economic resources of the area is the close proximity of the Centurion Gautrain Station situated in the heart of the Metro node. The Gautrain station brings a huge advantage in transportation to the area. Presently transport for economic activity mainly takes place by way of the private car on freeways and secondary roads. The freeways in the form of the N1 connects the urban fringe of the Tshwane Metro and Johannesburg with each other. This represents the deconcentrated urban growth of the last 30 years in the sub region. The phenomenon of the Midrand Urban Node is in between this sub region. However the transport communication network within this sub region has reached a level of nearly total saturation by way of private car and the N1 freeway. Total congestion and gridlock is inevitable within seven to ten years. It is not yet clear how this will be addressed by SANRAL. Most informed people know that capacity for growth of private traffic in the form of cars cannot be provided for continuously. It is time that transit facilities becomes a major form of transport in the countries' cities.

The Gautrain is not designed to service the private car dominated development situated in the northern Gauteng urban fringe but to provide modern transit facilities between the urban nodes of Pretoria/Hatfield, Centurion, Midrand, Sandton, OR Tambo, Rosebank, Johannesburg and nodes on the system yet to be further developed. This is obviously a huge advantage to these urban nodes just mentioned. It is clear that the nodes of Centurion, Midrand, Sandton and Rosebank - who have already acquired a critical volume of modern quaternary economic development – have an enormous advantage above other destinations for further investments and growth in the tertiary and quaternary economies over time.

Because the N1 freeway mainly serve traffic moving in between activities in the economic system in the fringe of the urban conurbation as described above as well as for Centurion, Midrand and Sandton the Gautrain system can do much to keep Centurion, Midrand and Sandton nodes alive when the traffic congestion in the development along the urban fringe increases beyond the point where the land use activities cannot be conducted economically anymore. It is especially Midrand and Centurion that represents development in the urban fringe as well as those along the office development axis between Pretoria and Johannesburg.

In the last 20 years the concept of a “new economic geography” has been defined by Krugman and others which now is fully integrated into applicable economic theory. This among others implies that strategic placing of urban elements of economic production can indeed produce disparities in the geographic distribution of economic growth. Places can indeed acquire an advantage above others for investment leading to urban development, etc. by way of strategic planning and well placed and designed infrastructure.

A set of urban infrastructure provides a hierarchy of economic opportunities that must be allowed to be maximised by the planning and land use control process and not equalised and minimised as has been

the land use planning approach in South Africa for most of the time in the recent past. Only by maximising opportunities of good locality can economy of scale and agglomeration economies be achieved by areas located well on the movement system.

A locality on the movement system that is a geographical central place in terms of infrastructure as well as the multiple economic markets it serves from that point (within a model of the cost of distance and time for movement of services and goods) should be regarded as an urban node on the movement system. Such a place should be able to accommodate increased volumes of concentrated job opportunities. The only way this can happen is when the market develops these opportunities with the risks that go with it. Authorities should assist in opening up the development of such localities to enable their citizens to create wealth and prosperity. In the case of erf 53 Verwoerdburg Stad the authority has only to lease the land to the developer and approve the land use applications needed for the development to commence.

As said before - South Africa faces many drawbacks because we are not well located on the highways of the global economy. A country must also – in addition to natural resources - have places of post industrial production where the production and commerce of goods and services can take place at a cost low enough to be competitive with others. If not - such activities will move to other cities in the world that do contain such places and the country will be sucked dry of only its resources - that will also include human capital - without the benefit of increasing job opportunities and general prosperity.

The Tshwane policy for Strategic Investment Attraction, Development Facilitation and Aftercare Plan has indicated that the municipality indeed see new urban development as an effective vehicle for economic development of the city. The locality of erf 53 Verwoerdburg Stad and its proposed development can provide a huge leap in that direction as described above.

### **The Movement System and the well-integrated Street Grid**

It was shown above that within the context of the urban region a well located site for development can be expected to be able to accommodate economic activities in the form of land uses that can generate extremely high agglomeration economies. In general the intensity of a proposed development is a factor of a site's ability to relay the potential economic energy from the high order movement system to a site situated on the local street system.

The following **Graphic: The Geography of Job Opportunities** among other things also clearly shows the qualities of the local movement system and how well connected it is to the surrounding freeway systems as well as the transit facilities in the area.

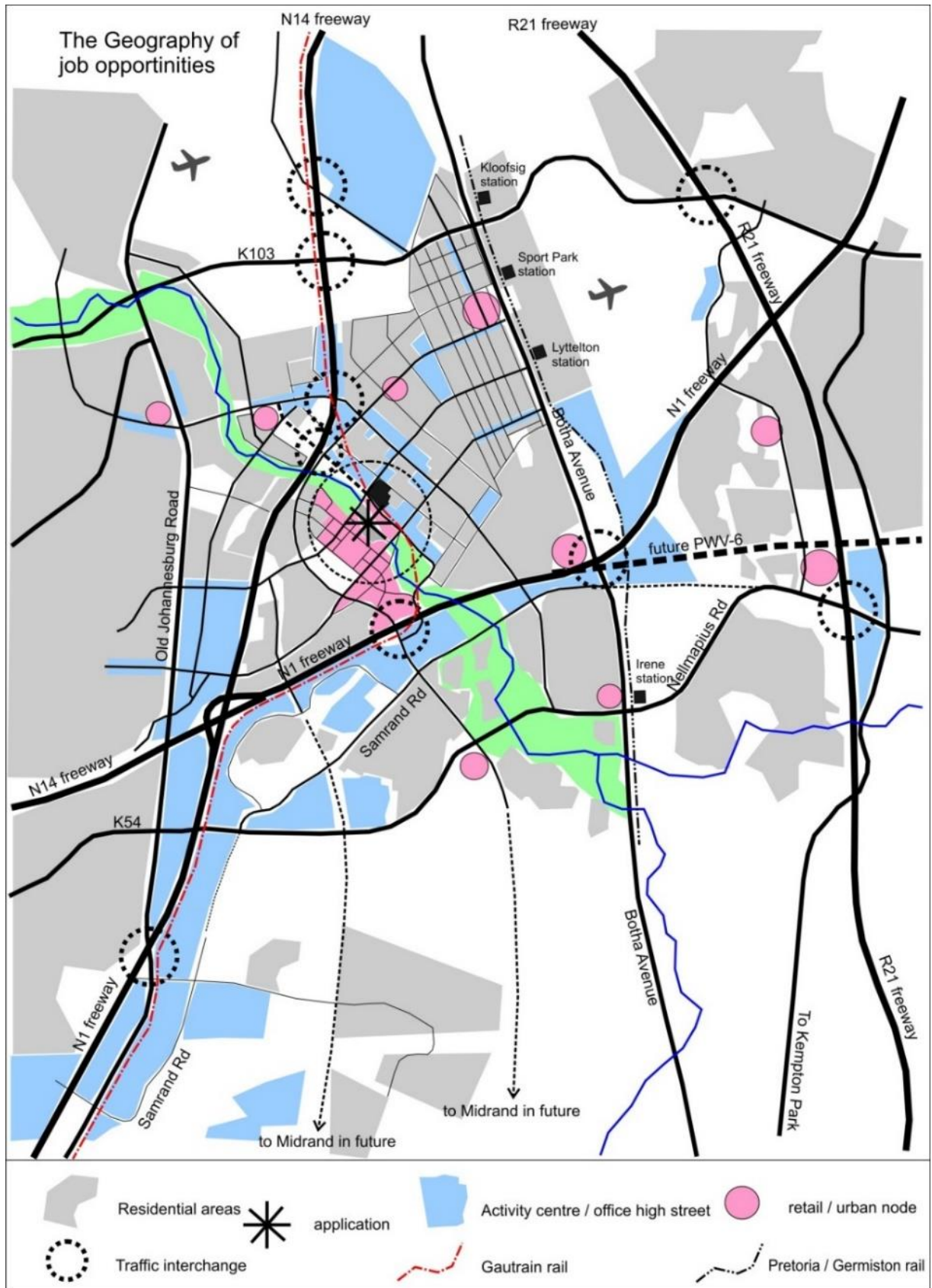
The existing built up urban node around the Centurion Mall area is firstly connected on a local scale to a surrounding traffic box of provincial roads – see roads K103 in the north, the Old Johannesburg Road in the west, Botha Avenue in the east and the K54 / Nellmapius Road in the south. This traffic box connects the site applied for with the surrounding built up areas and activity centres as well as the freeway system. Within this traffic box is a well-developed street grid of lower order municipal roads and arterial streets. The traffic box also connects the area on a lower hierarchy with the Tshwane CBD and other activity centres outside the traffic box. Over the past decades the area inside this traffic box continued to develop a wide range of activities – even during periods of national economic stress.

The traffic box is connected with the freeway system that traverses through it by way of 6 traffic interchange systems. This provides a very high connectivity to the freeway system.

It is clear that the proposed Symbio City development is situated within a high quality movement system that is fully integrated over a wide area. Not alone will the movement system be able to respond positively to the proposed development but the new development will be able to induce new growth and vigour for urban regeneration and new growth.



# Graphic: The Geography of Job Opportunities



## Stimulation of Further Development of Open Areas in Vicinity

It is expected that the proposed Symbio City development would stimulate redevelopment in areas in the vicinity of to the Centurion Gautrain Station. It is known that many of the owners of buildings along West Avenue are also keen to redevelop their sites to much higher land use intensity than were ever thought possible before. These developments were only faced to the lake area. The developers are also keen to provide a streetscape along West Avenue – thereby opening up a new unique business area.

It is also expected that the open ground west of the intersection of West Avenue with Gerhard Street and north of the Hennops River will come under severe pressure to develop. See **Graphic: High Intensity Development Areas in Centurion Metro Node**. This will be another huge advantage for the municipality because such an event would complete the West Avenue Boulevard by extending it. This street seems the obvious route to accommodate the main bulk of new office buildings of considerable bulk to be allowed on the Lyttelton Agricultural Holdings as is part of the municipal spatial policy plans since 2000.

The original plan of the municipality since the early eighties - which was reinforced by various IDP's since 1998 – was that West Avenue should be extended westwards over the N14 freeway and that the Jean Avenue traffic interchange would be extended to also serve the future West Avenue extension over the N14 freeway. This concept is continued in the Spatial Development Framework 2012 for Region 4. Also See **Graphic: High Intensity Development Areas in Centurion Metro Node**.

It is extremely important – just as it was more than 30 years ago – that the West Avenue traffic interchange be kept as was originally planned in order to elevate West Avenue to the important function it has to perform. It is now more important than ever because of the Gautrain station situated within West Avenue. This occurrence created a zone around the station where development should be maximised to take advantage of the situation. However, private transport is the flip side of the land use development coin – transit cannot replace it in total – only hugely support it.

**The graphic: High Intensity Development Areas in Centurion Metro Node** indicates 7 areas of importance that should be considered for development in conjunction with the proposed Symbio City development and the Municipal Gateway developments along John Vorster Boulevard in the Centurion Metro Node.

Area 1 is the land belonging to the municipality situated along John Vorster Road. This land has among others been earmarked for the conference centre and offices for the United Nations as well as the African Union.

Area 2 is the proposed Symbio City development on erf 53 Verwoerdburg Stad as well as part of the abutting land to the north.

Area 3 belongs to the Gautrain and is now being utilised for open parking around the Gautrain Station. It is seriously considered to eventually erect structured parking within buildings that will accommodate substantial floor areas for job opportunities.

AREA 4 is the proposed township application Zwartkop x28 that belongs to the designated developers of Symbio City for a development of a building for 40 storeys.

AREA 5 is land severely affected by the flood lines of the Hennops River but will develop significantly in future as problems with the flood line become addressed.

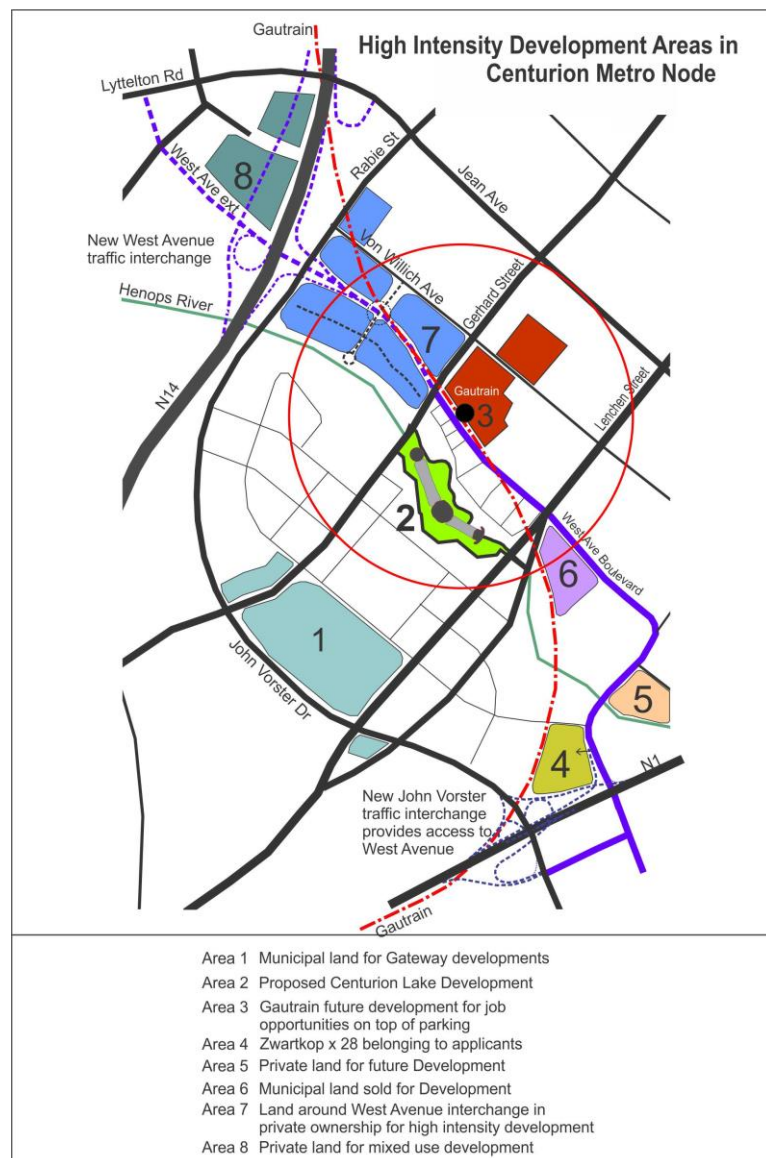
Area 6 is land belonging to the municipality that is now part of the Centurion Rugby Club that is being sold for high intensity development.

AREA 7 is land situated between the Hennops River and Von Willich Avenue. The development of this land has always been associated with the development of the West Avenue traffic interchange as shown on the graphic. Access to this land will be from West Avenue and Von Willich Avenue. This development can easily be integrated with the Public Rapid Transport system proposed for the Symbio City development. The proposed Public Rapid Transport system could also be the backbone of the West Avenue Boulevard that could stretch from AREA 8 to AREA 4 along the whole of West Avenue.

AREA 8 is land situated west of the N14 freeway that has not become a priority for residential development. This land – if it receive equal access from the West Avenue traffic interchange will develop significantly into a mixed use node in reaction to a surge in demand for land after the Symbio City development comes into operation. This has also been included in the Spatial Development Framework 2012 for Region 4 for mixed use development.

The development of the AREA 7 land would also add tremendously to the efficiency of the locality of the Gautrain station.

**Graphic: High Intensity Development Areas in Centurion Metro Node.**



It is clear that the proposed Symbio City development can spawn a tremendous investment in property development in the area that could elevate the Centurion Mall area into a completely new era providing opportunities for all residents of the Tshwane Metro.

The proposed Symbio City development can and shall catapult the surrounding area into a new global dimension.

According to the McKinsey Cities Special Initiative a city's performance has to be measured in a way that reflects the strength of the economy, social conditions, and the environment. Various studies have looked at these three measures of performance either separately or together, and ranked cities accordingly. Leaders who make important strides in improving their cities, no matter their starting point, do three things really well: they achieve smart growth, do more with less, and win support for change. The Symbio City project can achieve all 3 these aspects with ease.

Smart growth depends upon a strategic approach that identifies the very best growth opportunities and nurtures them, planning so the city and its surroundings can cope with the demands that growth will place on them, integrating environmental thinking, and ensuring that all citizens enjoy their city's prosperity.

According to the McKinsey Cities Special Initiative cities are increasingly adopting flexible urban plans that serve as frameworks into which they fit projects proposed at a local level. These plans are akin to a set of guiding principles to help planners to assess new proposals, rather than documents that determine the future once and for all. As a result, they evolve along with the city's changing needs while ensuring that the city continues to make progress toward long-term targets.

This kind of flexibility requires a great deal of skill, and cities that excel at urban planning have multidisciplinary planning departments. For example San Francisco's planning department works in this flexible way. The department, which employs some 100 people skilled in areas including urban planning, economics, and transportation, has a "live" plan based on principles that promote the city's vision of "protecting, preserving and enhancing the city's economic, social, cultural and aesthetic values." The plan does not, however, specify precise usages for specific plots. Project proposals are instead assessed case by case with the principles in mind. The previous municipality of Centurion also worked towards a living plan according to a set of principles and to integrate development planning and land use management on a dynamic level.

Land consumption is inevitably a concern when considering a city's growth, as land is becoming a scarce resource, and competition for it intense. (Scarce resource in terms of cost of distance to travel and the concept of the green city's small foot print) This dictates the approach to urban planning of the mayor of Rio de Janeiro, Eduardo Paes. "It's not about extending boundaries," he says. "It's about regaining lost spaces." Singapore approaches the problem methodically, identifying plots that are underutilized with a view to encouraging high-density development wherever possible. New York encourages the refurbishment of existing housing units, sometimes splitting them into smaller units or studios and building on rooftops. High-density communities are a response not only to land constraints but also to concern about the environment, as they tend to use fewer resources—allowing people to walk rather than use cars, for example. They also tend to reduce unit infrastructure costs. However, high-density areas need to be close to good public transportation, so their success usually requires the expansion and upgrading of mass-transit systems.

The releasing of erf 53 Verwoerdburg Stad for developing meets with all the aspects discussed above. It is infill development on land that became preserved for future use in its unique way. By doing very little and spending almost no additional funds the release erf 53 Verwoerdburg Stad and abutting land as proposed will trigger a tremendous injection of growth and prosperity into the whole of the southern areas of the Tshwane Metro – thereby generating enough agglomeration advantages and economies of scale to link up with the heart of South Africa's tertiary and quaternary economic sectors in Sandton



City. By preparing the site administratively for high density development (approving application processes) the City of Tshwane can with ease make a giant leap into the future in regard to enhancing land use effectiveness in general, the considerable greening of the urban environment by increasing job opportunities per area and linking up with mass and transit systems not possible now due to lack of economy of scale.

## **The Urban Region**

Gauteng Province is being pushed by authorities and parastatals as a developing urban region that can compete on the world stage. Global competitiveness will not occur through cities alone but by way of huge urban agglomerations of at least 12 million residents. In South Africa such agglomerations can occur in Gauteng, Cape Town and eThekweni. The southern Tshwane area is therefore but a part of the Gauteng urban region. It is a very important part as many aspects of the area are in line with attractors of the post industrial economy now functioning on an international and the global scale.

A mega-region like Gauteng can be seen on an economic scale that can benefit from the fact that such complex economies need diverse types of agglomeration economies and geographic settings, from extremely high agglomeration economies indicated by the specialized advanced corporate services to the fairly modest economies like suburban office parks and regional labour intensive low-wage manufacturing. It can incorporate this diversity into a single economic mega zone. These types of agglomeration economies today are distributed across diverse economic spaces and geographic scales: central business districts, office parks, science parks, the transportation and housing efficiencies derived from large commuter belts, low-cost manufacturing districts, tourism destinations, specialized branches of agriculture, such as horticulture or organically grown food, and the complex varieties evident in global cities. Each of these spaces shows distinct agglomeration economies and empirically is found in diverse types of geographic settings – from urban to rural, from local to global.

The above described phenomenon provides the *rationale* why a development of such magnitude as is proposed for erf 53 Verwoerdburg Stad is not only feasible but extremely timely and desirable for the Tshwane Metro. The locality of the proposed development within the surrounding transport system and built environment is of such potential that nothing but a global standard of land use intensity can be justified for the site. No other development in the area has responded to the needs of the highest order of agglomeration economy and it is only fitting that land is available in the very centre of a precinct of potential high urban efficiency around the Gautrain station.

## **The Development of a Mixed Use Land Use Typology**

Over the years the area within the traffic box formed by the K103 in the north, the Old Johannesburg Road in the west, Botha Avenue in the east and the K54 / Nellmapius Road in the south developed a sophisticated and mixed use land use typology. Presently it is widely accepted that mixed land use is essential to develop before private transport trips per floor area can be reduced. Mixed land use development is also essential to increase resilience of the city to be able to withstand many economic problems and short term fluctuations of economic growth.

The graphic: **The Geography of Job Opportunities** illustrates the trend of development of job opportunities within the traffic box area mentioned above.

It is clear that a huge amount of job opportunities has been developed in the traffic box area over the decades. A complexity and resilience clearly exist. The area therefore is not vulnerable to change and the proposed Symbio City development will not send a detrimental shock wave through it. The opposite is expected – that the proposed development will hugely increase the investment pattern of new development in the area because of what the new development will represent in the sub region. The proposed Symbio City development will also trigger the further development of open areas in the vicinity.

The graphic indicates that over the decades a clear pattern of urban development and land use has been established - most probably because it was and still is in line with sustained municipal planning policies. The Centurion Central Area that was developed by the municipality 30 years ago started off a huge investment process into urban development that is still going on.

The Samrand / Olievenhoutbosch Road development corridor situated south of the N1 freeway has taken great strides forward to completion during the last 5 years. When Samrand Road's extension is built over the Pretoria – Germiston railway line to the east it will connect with the R21 freeway via a small part of the existing Nellmapius Road near the R21 freeway. This will create a powerful integration of the local movement system with the integration of yet another freeway on street level into the lower order movement system.

The Samrand Road corridor will become very powerful and will behave like a true corridor development with its own retail structure, residential areas, office developments, commercial rights and enormous warehouses.

Eventually – upon completion - the Samrand corridor will have 5 traffic interchanges with the N1 and R21 freeways. This is far above anything comparable within the Gauteng urban conurbation. When it was planned by the municipality around 2000 it was referred to as the Gateway to Africa. The Samrand corridor and its vicinity already are elevating the southern Tshwane area into a property hotspot comparable to Sandton City, Sunning Hill and Rivonia urban node areas. The Samrand corridor is integrated with the street grid of the Centurion Lake Area across the N1. However the above mentioned development is private vehicle based with little potential to escape apart from the development of a Private Rapid Transport system in the future. The Symbio City development has all the potential to create a transit city with its ability to integrate several modes of public and mass transport systems. So clearly the focus for the future greener city can be found around the Gautrain Station and erf 53 Verwoerdburg Stad.

### **The Region 4 Planning Framework**

The present planning framework policy for the Centurion area – that is Spatial Development Framework 2012 for Region 4 – in several instances mentions the Symbio City development as part of the Centurion Lake. It is clear that the policy already acknowledges the redevelopment process of the Centurion Lake as the clear alternative of solving the present problems. The policy also mentions the strategic advantages a project such as Symbio City could have for the city.

The Spatial Development Framework 2012 for Region 4 also strongly indicates the area between John Vorster Boulevard, N14 freeway, Jean Avenue and Leonie / South Streets to be the high density zone which should be developed as a medium – to high rise residential area including a whole range of activities of high intensity. According to the Spatial Development Framework 2012 for Region 4 increased densification is needed to support a meaningful urban structure and more urban typologies should be introduced to the area.

According to the Spatial Development Framework 2012 for Region 4 high residential densities will contribute to reach critical mass in order to make public transportation within this area viable. Maps in the Spatial Development Framework 2012 for Region 4 clearly indicate the Centurion Metropolitan node to accommodate high rise buildings in the Centurion Lake area. The proposed development of the Centurion Lake would create the agglomeration advantages and economies of scale to achieve the goals of the municipal spatial policy of the area.

The planned scale of the Centurion metro node as well as the volume of the development that already took place here identifies the area as a logical locality for Symbio City in addition to be very near the Gautrain station and the fact that erf 53 Verwoerdburg Stad is such a huge resource of scarce land for

this purpose. Land within the green urban context has indeed become very scarce as low density development has indeed tended to occupy the best situated land in the past. Developers bought and develop land that would fair best in the land market at the time. The densities of such development were within the parameters set by the municipal spatial policies of the time. In the beginning of it the Gautrain project was not elevated at the scale that it is now being perceived regarding the green city and the high level it can bring in the increase in effective land use.

Presently Erf 53 Verwoerdburg Stad has indeed become the most important available land resource in regard to establishing a new urban reality within the northern Gauteng sub region as discussed above.

### **The Centurion Lake and Planned Open Space**

Erf 53 Verwoerdburg Stad – the site of the proposed Symbio City development - is presently zoned as public open space and the Centurion Lake is situated on this erf. The Symbio City project is therefore for the municipality to lease an erf that is presently (when this report was written) a park in terms of Ordinance 17 of 1939. As a result of the solutions taken by the Tshwane Metro Council to lease this land an application has been lodged by the municipality to close the park in terms of Ordinance 17 of 1939. The process has run its legal cause and has to be finalised by the Council.

Because it is an element of the Hennops River for decades the Centurion Lake is part of the planned open space system of the Centurion Metro Node. Built in the early 1980's the lake has been part of the municipal project of the old Centurion Mall shopping centre and office park. The idea of the lake was to add a special characteristic to the development at the time to compete with other prominent shopping nodes in the vicinity. The lake development coined the idea of a so called "water front" development in South Africa at the time. For many years it was considered to be a huge success. For many years the municipality operated a so called "water organ" on the surface of the lake that provided a spectacle and prominent recreational element. The so called "lake plain" area – where there is a small amphitheatre – were also used for free of charge musical shows and huge promotional events with the lake and water organ as background.

When it was planned the lake was regarded so important to guarantee the success of the Centurion Mall development that its obvious natural life span – about 20 years before it would have silted up - was politically discarded as a future problem. Already after about 4 years since it was put into full service all swimming in the water and rowing with kayaks were banned due to the water quality found to be a risk to human health. In the early and mid-1990's the municipality conducted a small silt dredging process that was discontinued later.

Since the mid-1990's the silting up of the lake accelerated dramatically when huge low cost housing schemes were constructed in the upper course of the Hennops River system by the Johannesburg and Ekurhuleni metros. This increased the storm water drainage system's load factor dramatically with the end result that all the silt produced in this way was captured into the Centurion Lake before long. At the time a civil movement that included support personnel from the municipality tried to address this problem but to no avail.

The accelerated short term silting effect caused by the civil engineering activities in Midrand and Ekurhuleni the mid 1990's could not have been anticipated by the municipality in the 1980's when the lake and shopping centre complex were planned. At the time most of Midrand's planned urban development would have drained away from the Hennops River system to the west. However it was soon realised that the low cost housing schemes will be the end of the lake because of the huge areas of typical permanent urban landscapes that were created as part of the urban development.

All efforts to cooperate different local authorities and government agents to control the management of the construction process' impact on the river's load failed to materialise into something positive. Apparently those municipalities could not see or admit the direct connection between their storm water

management of the construction of their external services and the huge increase in river load. The amount of silt in the lake that collected over certain time periods corresponds favourably with general universal scientific tables of storm water loads formed over different types of landscapes to point directly to the construction of the housing projects as discussed above. Where the accumulated silt in terms of previous 20 years of natural river flow could be dredged the accelerated silt accumulation because of the huge increase cause dredging to become a waste of time and money until such time as the situation could stabilise.

It can now be said that the condition of runoff storm water in the upper course of the river system is so problematic in both the river's silt load as well as the chemical pollution factor of the water that no short term solution could be possible to make the water even safe for human health. Added to that the pollution levels of the river has become so critical that the Hennops River – in the area upstream and downstream of the lake - has become such a huge source of revulsion for people (its direct association with raw sewerage) that the water can in no way whatsoever be used in conjunction with any prestige urban development.

Rivers in general always play a huge sentimental role in regard to the environmental aspects of human settlement and it remains all applicable authorities' obligation to keep on trying to rectify the situation of the Hennops River – although it could take a few decades to reach a point where the water of the Hennops River in this area could be so user-friendly again for residents to be seen as a resource in the enjoyment of the area as an urban settlement. Only if huge intervention and legislation from central agencies and the authority themselves can be mustered and enforced can the river again become acceptable over the medium term. It must be remembered that the river's ecosystem is mostly destroyed by the current situation and will always be further restrained by the continuing urban development in the area.

The origin of the pollution of the storm water runoff that ends up in the river is from the landscapes created by

- 1) the huge urban settlements of all sorts that drain into the river upstream that will either slowly stabilise over decades or even increase its malpractices like servicing of cars in backyards and in open spaces, the hard surfaces of raw concrete increase around houses and small streets and many other pollution sources from residential use increasingly emerge as can be expected from a developing area;
- 2) the storm water runoff flowing directly through the Clayville Industrial area;
- 3) the chemical pollution from the intensive agricultural area situated above the Rietspruit Dam nature reserve that produces pollution in rivers by way of fertilizers and chemicals sprayed on crops.

All elements of the above situation are very difficult to control in South Africa today. Agricultural areas are the bread baskets of the country. Agriculture is a huge agent of chemical pollution in streams and rivers. The Rietvlei Dam Nature reserve was investigated in 2007 by the Freestate University (find the report on the internet) who found serious repercussions of chemical pollution in the nature reserve's ecosystem right through the food chain. Many species have disappeared and some has serious biological deviations according to the report.

Because of the reasons discussed above the Hennops River as it flows through the Centurion Lake has no value for the development and therefore it cannot be reclaimed as a lake or water body without incredible high initial capital costs as well as very high annual operating costs to keep it in some acceptable way. These costs are not in relation to the value of the lake for the area as a human settlement. The Centurion Lake has become redundant under circumstances and can be replaced by other concepts as will be indicated further on. The land can be utilised much better for the huge benefit of the Tshwane Metro, the Gauteng province and subsequently for South Africa. In the process many forms of open space and recreational and landscape beneficial aspects can be created on the land as



part of Symbio City where formerly there was only a body of water that was accessible to no one, being a human health problem and revolutive to even smell or look at.

It is important to note that the present terrible condition of the lake is not because of mismanagement by the Tshwane municipality but a complex situation of many factors and consequences caused by many different actions over the last 20 years that could not be coordinated by anyone due to lack of overhead control mechanisms. The present load of the river and pollution levels of the water are therefore not a consequence of the Centurion Lake or any actions of the Tshwane Metro Council or lack of such actions. The lake had a designed life span of 20 years. Most of the time it was a liability and an embarrassment in some way. The proposal is to convert the land of the Lake into the incredible redevelopment opportunity it can be for all and in the process elevate the Tshwane Metro to become even more a global entity.

### The Land Use Planning for Open Space

Within the concept of land use planning the proposed Symbio City development on erf 53 Verwoerdburg Stad is only infringing marginally on the available land available and designated for natural areas for open space.

On the **Graphic: Open Space Resources** along the Hennops River there is indicated 8 instances of open space areas that can be seen to be relevant to open area resources for the Centurion Metro Node. Areas 7 and 8 are park erven situated in Hennospark but can be seen as a logical extension of the open space along the river from the Metro node. Area 6 is also situated east of the N1 and belongs to private owners but is also situated below the 1:50 year flood line. As such it will remain a substantial open space resource that can be associated with the Centurion Metro Node or be used for a wetland etc.

The areas numbered 1 – 7 on the **Graphic: Open Space Resources along the Hennops River** have an area of available resources measured as follows:

Area no	±Area in m <sup>2</sup>
1	9 2898
2	15 4909
3	10 0413
4	5 2579
5	8 5619
6	9 7969
7	2 7416
Total	61 1803

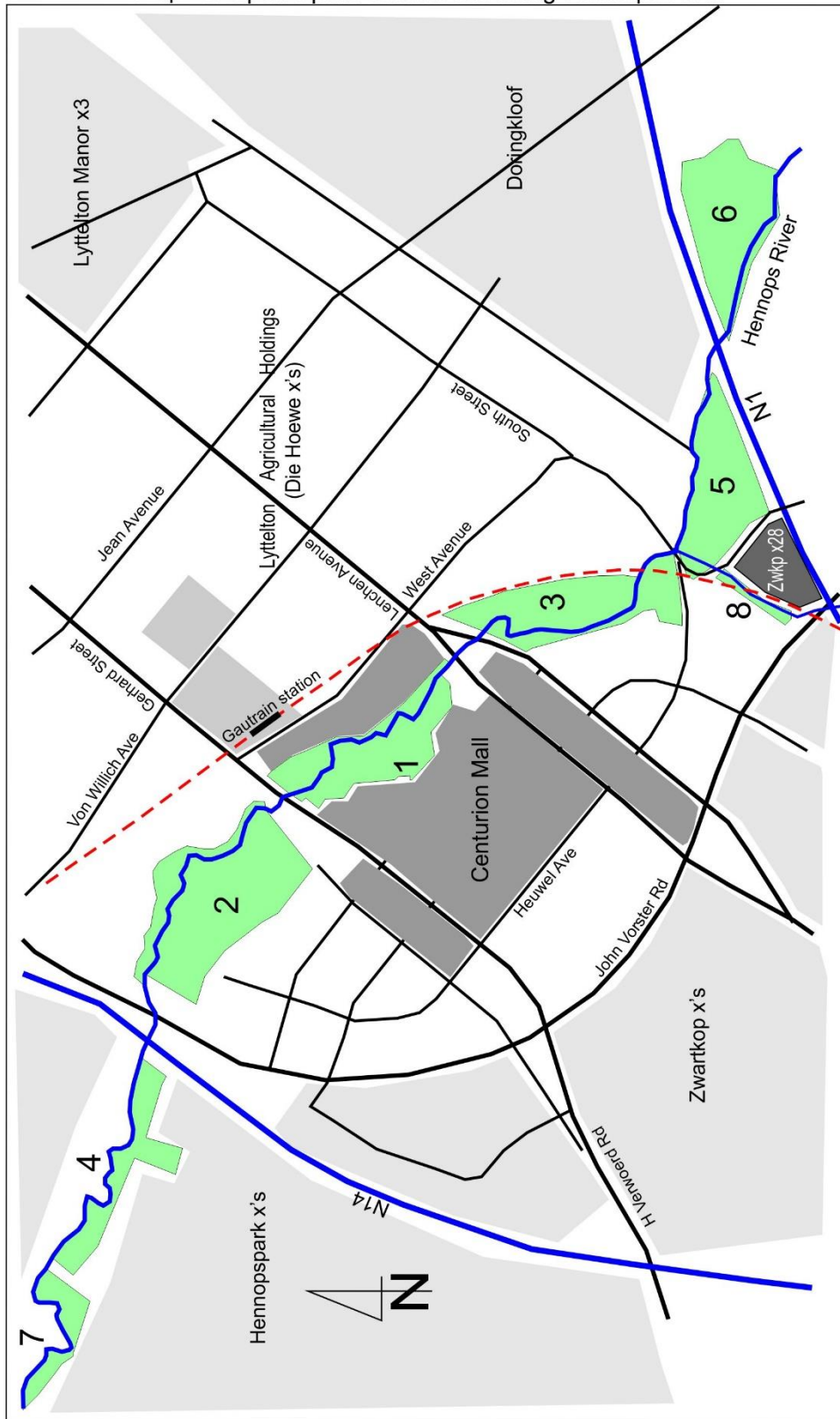
The total area for potential natural open space resource in the Centurion Metro node that is abutting the Hennops River is ±61,1803ha.

The total area of erf 53 Verwoerdburg Stad and the abutting land to be sold and to be leased is ±9,2898ha. Therefore the open space area being alienated for the Symbio City development is only 15,18% of the total displayed on the **Graphic: Open Space Resources along the Hennops River**.

**However** it is important to note that the open space policy of the City of Tshwane Metro has a diverse open space system using space from many other sources than natural open area like those abutting the Hennops River showed in the **Graphic: Open Space Resources along the Hennops River**. Therefore – when developed as planned - erf 53 in Verwoerdburg Stad and the areas abutting it to be alienated will – when developed - also contain many other forms of open space - outside and inside

the buildings to be constructed. It is only a process of substituting some of the natural open space with other forms of open space.

Graphic: Open Space Resources along Hennops River

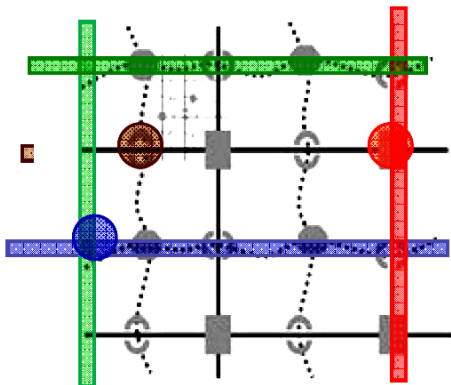


## Tshwane Metro Open Space Policy

According to the Tshwane Metro Open Space Policy (TMOSP) the development of an Open Space network is an integral part of shaping the city. The Open Space network contains not only ecological processes and systems, but also social value and place making opportunity. The Open Space network is concerned with the spatial structure of 'natural' or green areas in the urban landscape and with all planning activities that are essential to create conditions for such areas to perform environmental goods and services and to contribute to the quality of urban life. It is thus used to indicate the position of 'natural' or green areas in the urban landscape. As such it has spatial, social, place making and economic dimensions. The following table is a copy from the TMOSP.

Function	Form	
	Nodal	Linear
Ecological	<b>Green Node</b> (e.g. Protected Area, Conservation Area, GDACE Irreplaceable Site, GDACE Important Site, High Ecological Sensitivity, Hills)	<b>Green Way</b> (e.g. Ridge System)
	<b>Blue Node</b> (e.g. Dam, Wetland, Peatland, an area defined by the presence of a permanent water body or water saturated soils, housing aquatic fauna and flora. Not an area for the outright purpose of stormwater management)	<b>Blue Way</b> (e.g. Watercourse of any order, defined by a natural contour low point. Not a watercourse for the outright purpose of stormwater management). Inclusive of both the Riverine and Riparian Zones within the 1: 50 year floodline.
Socio-economic	<b>Brown Node</b> (e.g. Capital, Urban and Metropolitan Core, Multipurpose Sports Facility, Sports Stadium, Recreational Park, Resort)	<b>Brown Way</b> (e.g. Corridor, Linkage, Activity Street, Collector Street)
	<b>Grey Node</b> (e.g. Landfill Site, Cemetery, Mine, Quarry, Parking Lot)	<b>Grey Way</b> (e.g. Servitude, Railway Line)
Placemaking	<b>Red Node</b> (e.g. Gateway, Landmark, Culture Historical Feature/ Destination, Square)	<b>Red Way</b> (e.g. Ceremonial Street, Boulevard)

The TMOSP eventually includes the above system graphically within the municipality's landscape together with other forms of open space as follows:



The Open Space Network is developed on the basis of a lattice concept of soft (natural, green) and hard (urban, brown) linear spaces crossing each other to form a range of soft and hard nodes. In principle, where two hard Open Space linear spaces intersect, a hard-hard node (e.g. a square) should ideally be created. A similar opportunity exists for a soft-soft node (e.g. nature reserve) to be established where two soft linear Open Spaces meet. Where a soft linear Open Space and a hard linear Open Space intersect, the potential for a hard-soft node (e.g. recreational facility with park area) or a soft-hard node (e.g. inner city park or landscaped square) exists. The system of linear and nodal Open Spaces should establish a simple structure and legible Open Space network, providing continuous accessible routes.

The TMOSP also *inter alia* classifies open spaces as:

**Natural:** An area existing in or produced by nature, not artificial or imitated, where vegetation is usually dominant, where little human intervention has taken place and which is not intensively utilised by humans e.g. a nature reserve.

**Cultivated:** An area which is still perceived as predominantly “green” but that is no longer in its natural state and has been developed by human intervention and care for human use e.g. a park with manicured lawns and shrubs.

**Built-up:** An area that has been completely transformed by human intervention that is predominantly hard and accommodates intense use e.g. a public square.

In regard to the above limited extraction from the TMOSP it can be said that there are many types of resources in an existing, planned and developing urban landscape that can be usable open space available on many different scales and for many different purposes. Open space in the city is not only existing and future parks but a whole spectrum of spaces linked to a spectrum of activities, values and usefulness.

In 2013 the Tshwane Metro appointed the planning consultants Royal Haskoning to initiate a development planning and urban design framework called the: “Centurion CBD Development Framework.” This planning process focussed on the area between the intersection of the N1 freeway with the N14 freeway northwards up to Lyttelton Manor suburban areas. This planning process has included the Tshwane Metro’s technical personnel and has also been put through a public participation process. It is in the final process of being approved. Unfortunately the Symbio City project has not been one of the central strategic issues of the planning process, however it was included in the process as an element.

In terms of open space the “Centurion CBD Development Framework” has tabulated the available resources of the area in terms of the Tshwane Metro Open Space Plan and has also tabulated all interventions of the open space elements to be addressed in terms of the Tshwane Metro Open Space Plan. It is also clear that the use of erf 53 Verwoerdburg Stad for the Symbio City development is being done strictly within a planning framework and not as an *ad hoc* event. Also that erf 53 Verwoerdburg Stad has not been identified as a central or critical element of the open space and landscaping system. The total area’s open space and landscaping system is huge and complex.

The “Centurion CBD Development Framework” has provided an open space plan as well as a landscape and city scape strategy for the study area. On the next 4 pages the tabled open space interventions as well as the proposed open space plan is depicted. The “Centurion CBD Development Framework” also provided a vision for the built up area that illustrates the open space aspects well. This is shown on page 25.

It is clear from the tables and plans that erf 53 Verwoerdburg Stad in the form of a lake or a landscaped park is not central or critical to the success of the open space system for the CBD area. There is huge resources of natural open space available together with the whole range of other open space elements as depicted in the Tshwane Metro Open Space system. Finally it can be said that the development of erf 53 Verwoerdburg Stad will add a whole range of open space elements to the open space system. The development of Symbio City will not replace an element of natural open space presently in use by the public. The lake has not been useable for decades. In its day as a lake it added some urban design elements to a rather small part of the whole CBD area. Its usefulness at the time is debateable within a certain context. For example the water organ did not need a 7 hectare lake to function in and fishing was never allowed. Therefore the lake was never actually a park that was accessible to anybody. The lake was to the advantage of very few people and is a disadvantage to hundreds of thousands.



Consolidation includes:

- Ensuring protection from inappropriate development within the nodes and ways
- Appropriate planting and landscaping treatment within the nodes and ways
- Appropriate development within flood risk areas
- Appropriate management of assets by property owners

Figure 16 and Table 10 indicate the open space system and associated development and use interventions in terms of the Tshwane Open Space Policy.

**Table 10 : Open Space Character and Development Interventions**

TOSF Typology	Open Space Precinct	Character	Development interventions
<b>Blue way</b>	<ul style="list-style-type: none"> <li>Super Sport Park</li> </ul>	<ul style="list-style-type: none"> <li>Regional sport and recreation facilities</li> <li>SuperSport Park</li> <li>Active recreation uses</li> </ul>	<ul style="list-style-type: none"> <li>Ensure direct linkage and interface with the river – no fences and structures to block access and visual connection; aim to enhance the river as a feature and asset</li> <li>Construct appropriate infrastructure – bridges, culverts, gabions – to facilitate access, limit flood risk, and promote ecological functioning as proposed in the Stormwater Development Framework</li> <li>Improve wetland functioning through rehabilitation and ongoing maintenance</li> <li>Remove alien invasive plant species</li> <li>Improve water quality through appropriate upstream interventions as proposed in the Stormwater Development Framework</li> <li>Ensure adequate measures are in place to mitigate flooding risks as proposed in the Stormwater Development Framework</li> </ul>
<b>Brown node</b>	Super Sport Park	<ul style="list-style-type: none"> <li>Regional Sport and recreation facilities</li> <li>SuperSport Park</li> <li>Active recreation uses</li> </ul>	<ul style="list-style-type: none"> <li>Construct pedestrian walkways and cycle tracks linking various sports facilities and surrounding urban precinct</li> <li>Appropriate landscaping, infrastructure and signage as outlined in the Urban Design Development Framework to enhance place making and use of the area (walkways, signage, park furniture – benches, litter bins, fencing, etc)</li> <li>Focus on promoting active activities linked to the broader sporting precinct – an example is to install “trim park” equipment</li> </ul>
<b>Blue node</b>	Central Park	<ul style="list-style-type: none"> <li>High order, high density urban uses (office and retail)</li> <li>Hard open spaces</li> <li>Proposed Symbio City</li> </ul>	<ul style="list-style-type: none"> <li>Improve water quality through appropriate upstream interventions as proposed in the Stormwater Development Framework</li> <li>Ensure adequate measures are in place to mitigate flooding risks as proposed in the Stormwater Development Framework</li> </ul>
<b>Blue way</b>	Central Park	<ul style="list-style-type: none"> <li>High order, high density urban uses (office and retail)</li> <li>Hard open spaces</li> <li>Proposed Symbio City</li> </ul>	<ul style="list-style-type: none"> <li>Ensure direct linkage and interface with the river – no fences and structures to block access and visual connection; enhance the river as a feature and asset</li> <li>Construct appropriate infrastructure – bridges, culverts, gabions – to facilitate access, limit flood risk, and promote ecological functioning</li> <li>Improve wetland conservation and functioning through rehabilitation and ongoing maintenance</li> <li>Improve water quality through appropriate upstream interventions as proposed in the Stormwater Development Framework</li> <li>Ensure adequate measures are in place to mitigate flooding risks as proposed in the Stormwater Development Framework</li> </ul>
<b>Brown node</b>	Central Park	<ul style="list-style-type: none"> <li>High order, high density urban uses (office and retail)</li> <li>Hard open spaces</li> <li>Proposed Symbio City</li> </ul>	<ul style="list-style-type: none"> <li>Construct pedestrian walkways and cycle tracks around the lake linking various parts of the open space system</li> <li>Ensure direct linkage and interface with the lake – buildings to face onto the lake rather than turn back on it and block off with fences and parking lots</li> <li>Appropriate landscaping, infrastructure and signage as outlined in the Urban Design Development Framework to enhance place making and use of the area (walkways, signage, park furniture – benches, litter bins, fencing, etc.)</li> </ul>

TOSF Typology	Open Space Precinct	Character	Development interventions
<b>Green node</b>	Centurion Park North	<ul style="list-style-type: none"> <li>Local recreation uses</li> <li>Office parks and higher density residential use</li> <li>Miniature train and mashie golf course</li> <li>Natural vegetation and river function</li> </ul>	<ul style="list-style-type: none"> <li>Protect indigenous vegetation and large trees found along section of the river</li> <li>Development should face appropriately onto this green space with permeable visible connection</li> <li>Ensure appropriate landscaping maintenance to encourage ecological functioning and enhanced biodiversity, i.e. plant trees, veld grass, indigenous vegetation, etc.</li> <li>Endemic vegetation only</li> <li>Remove alien invasive plant species</li> <li>Construct pedestrian walkways and cycle tracks around the river and wetlands linking various parts of the open space system i.e. environmentally friendly boardwalks</li> <li>Install green infrastructure to encourage biodiversity i.e. owl boxes, bird feeders, water features, etc.</li> <li>Install eco-tourism infrastructure (i.e. bird hides, wooden boardwalks and viewing decks)</li> <li>Ensure direct linkage and interface with the river – no fences and structures to block access and visual connection; enhance the river as a feature and asset</li> <li>Construct appropriate infrastructure – bridges, culverts, gabions – to facilitate access, limit flood risk, and promote ecological functioning</li> <li>Improve wetland conservation and functioning through rehabilitation and ongoing maintenance</li> <li>Remove alien invasive plant species</li> <li>Rehabilitation of disturbed and eroded sections of the river</li> </ul>
<b>Blue way</b>	Centurion Park North	<ul style="list-style-type: none"> <li>Local recreation uses</li> <li>Office parks and higher density residential use</li> <li>Miniature train and mashie golf course</li> <li>Natural vegetation and river function</li> </ul>	<ul style="list-style-type: none"> <li>New developments to promote direct linkage and interface with the river and water bodies – enhance as a feature and asset</li> <li>Conservation uses along river, wetlands and water bodies – bird hides, boardwalks, etc.</li> <li>Wetland conservation and functioning</li> <li>Remove alien invasive plant species</li> <li>Improve water quality through appropriate upstream interventions as proposed in the Stormwater Development Framework</li> <li>Ensure adequate measures are in place to mitigate flooding risks as proposed in the Stormwater Development Framework</li> </ul>
<b>Blue node</b>	Centurion Park North	<ul style="list-style-type: none"> <li>Local recreation uses</li> <li>Office parks and higher density residential use</li> <li>Miniature train and mashie golf course</li> <li>Natural vegetation and river function</li> </ul>	<ul style="list-style-type: none"> <li>Construct pedestrian walkways and cycle tracks linking various parts of the open space system</li> <li>New developments to promote direct linkage and interface with the river and water bodies – enhance as a feature and asset</li> <li>Install park furniture (picnic sites, play equipment, benches, litter bins, signage)</li> <li>Conservation uses along river, wetlands and water bodies – bird hides, boardwalks, etc.</li> <li>Wetland conservation and functioning</li> <li>Landscaping along red ways and red nodes</li> <li>Urban design interventions to enhance place making – sidewalks, signage, street furniture, etc.</li> </ul>
<b>Brown node</b>	Centurion Park North	<ul style="list-style-type: none"> <li>Local recreation uses</li> <li>Office parks and higher density residential use</li> <li>Miniature train and mashie golf course</li> <li>Natural vegetation and river function</li> </ul>	<ul style="list-style-type: none"> <li>Ensure the sufficient quality open space is provided in terms of the Town Planning Ordinance (rather than the alternative cash endowment)</li> <li>Ensure that the open space is appropriately designed and depicted on the Site Development Plan prior to Council approval</li> </ul>
<b>Brown node</b>	Private Open Spaces (offices/ residential)	<ul style="list-style-type: none"> <li>Private open space in office complexes and residential developments</li> </ul>	<ul style="list-style-type: none"> <li>Negotiate with landowners for the possible multi-use of facilities to meet the need for socio-economic open space (particularly with local schools) - follow the guidelines and provisions outlined in the Tshwane Open Space Framework with reference to the Alternative Service Delivery Strategy (public private partnerships) and Institutional Arrangements</li> <li>Possible acquisition of land in De Hoewes to develop a local play park as insufficient socio-economic open space in this area - follow the guidelines and provisions outlined in the Tshwane Open Space Framework with reference to</li> </ul>
<b>Brown node</b>	Private and state owned vacant land	<ul style="list-style-type: none"> <li>Vacant land that is owned by private and state entities</li> </ul>	



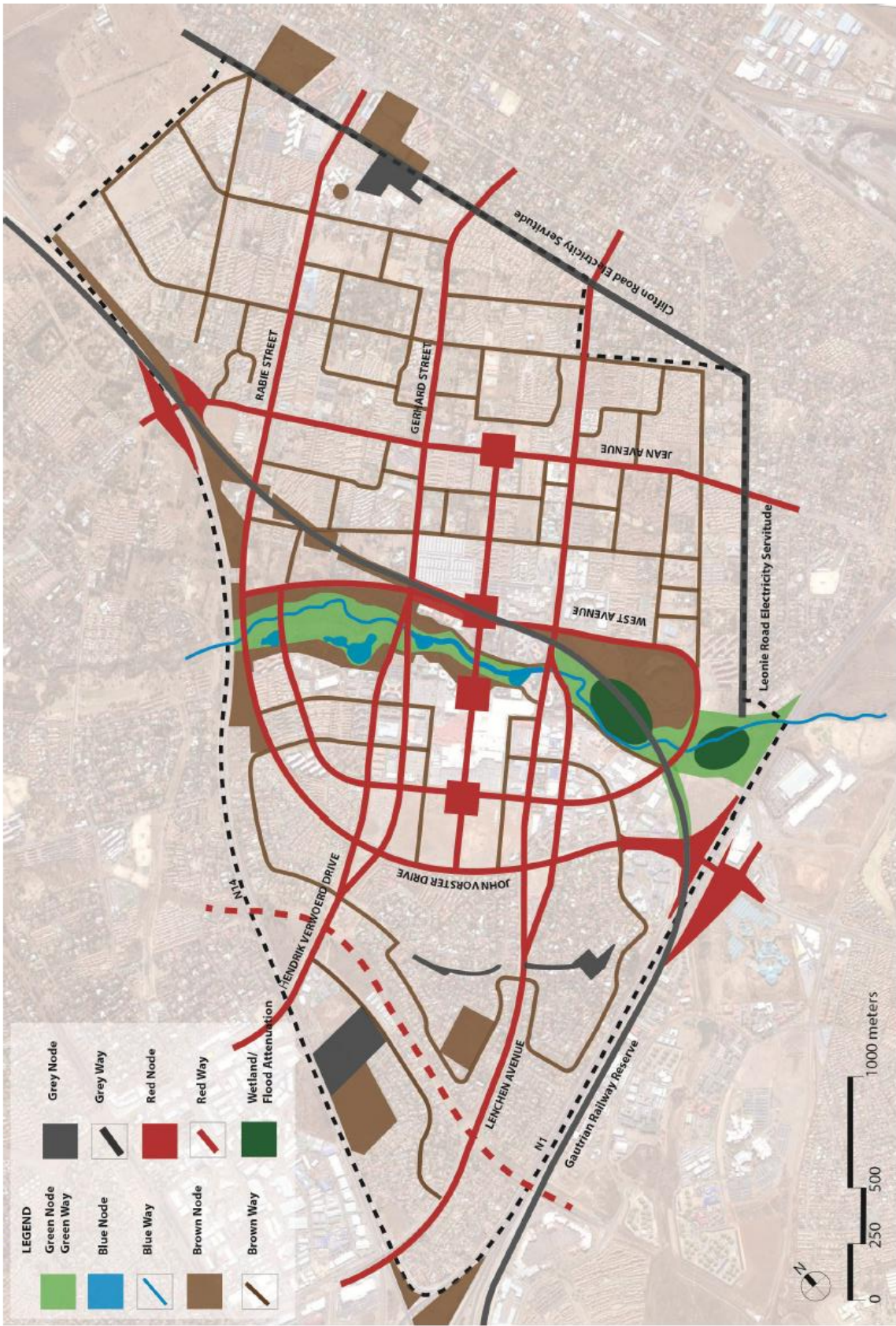
TOSF Typology	Open Space Precinct	Character	Development interventions
<b>Brown way</b>	Local connector and access roads	<ul style="list-style-type: none"> <li>Lower order connector and access roads</li> </ul>	<ul style="list-style-type: none"> <li>the Open Space Development Strategy</li> <li>Develop a local play park at the Council offices to meet the need for socio-economic open space</li> <li>Appropriate landscaping as outlined in the Urban Design Development Framework</li> <li>Implement recommendations as per the Tshwane Open Space Framework Road Reserve Tree Strategy</li> </ul>
<b>Grey node</b>	Centurion Cemetery	<ul style="list-style-type: none"> <li>Large cemetery on the periphery of the study area</li> </ul>	<ul style="list-style-type: none"> <li>Ensure appropriate landscaping maintenance to encourage ecological functioning and enhanced biodiversity, i.e. plant trees, veld grass, indigenous vegetation, etc.</li> <li>Install green infrastructure to encourage biodiversity i.e. owl boxes, bird feeders, water features, etc.</li> <li>Explore potential for rehabilitation and utilisation as recreational open space or to restore ecological and spatial linkages</li> </ul>
<b>Grey node</b>	Zwartkop Reservoir and associated pipeline servitude Reservoirs in De Hoewe	<ul style="list-style-type: none"> <li>Reservoir infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Ensure appropriate landscaping maintenance to encourage ecological functioning and enhanced biodiversity, i.e. plant trees, veld grass, indigenous vegetation etc (where appropriate and possible)</li> <li>Explore potential for rehabilitation and utilisation as recreational open space or to restore ecological and spatial linkages</li> </ul>
<b>Grey node</b>	De Hoewe electrical sub-station	<ul style="list-style-type: none"> <li>Electrical infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Ensure appropriate landscaping maintenance to encourage ecological functioning and enhanced biodiversity, i.e. plant trees, veld grass, indigenous vegetation etc (where appropriate and possible)</li> <li>Explore potential for rehabilitation and utilisation as recreational open space or to restore ecological and spatial linkages</li> </ul>
<b>Grey way</b>	Gautrain railway reserve	<ul style="list-style-type: none"> <li>Undeveloped space under the Gautrain viaduct</li> </ul>	<ul style="list-style-type: none"> <li>Install passive recreational infrastructure i.e. walkways, cycle tracks</li> <li>Ensure appropriate landscaping maintenance to encourage ecological functioning and enhanced biodiversity, i.e. plant trees, veld grass, indigenous vegetation etc (where appropriate and possible)</li> <li>Explore potential for rehabilitation and utilisation as recreational open space or to restore ecological and spatial linkages</li> </ul>
<b>Grey node</b>	Clifton Road electricity servitude Leonie Road electricity servitude	<ul style="list-style-type: none"> <li>Vacant land set aside for future electrical infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Potential to establish passive recreational infrastructure i.e. walkways, cycle tracks</li> <li>Ensure appropriate landscaping maintenance to encourage ecological functioning and enhanced biodiversity, i.e. plant trees, veld grass, indigenous vegetation etc (where appropriate and possible)</li> <li>Explore potential for rehabilitation and utilisation as recreational open space or to restore ecological and spatial linkages</li> </ul>
<b>Red node</b>	Ben Schoeman/ Jean Avenue offramp N1/ John Vorster Drive offramp	<ul style="list-style-type: none"> <li>Important entrances to Centurion from highways</li> </ul>	<ul style="list-style-type: none"> <li>Appropriate landscaping and signage as outlined in the Urban Design Development Framework</li> <li>Use landscaping and natural features to enhance "sense of place"</li> </ul>
<b>Red node</b>	Gautrain station and proposed precinct square	<ul style="list-style-type: none"> <li>Important public space associated with the Gautrain station</li> </ul>	<ul style="list-style-type: none"> <li>Appropriate landscaping and signage as outlined in the Urban Design Development Framework</li> <li>Use landscaping and natural features to enhance "sense of place"</li> </ul>
<b>Red node</b>	Proposed African Gateway Precinct square Proposed Jean Avenue square	<ul style="list-style-type: none"> <li>Important new public square associated with the new African Gateway Precinct, as well as lower order square in Jean Avenue</li> </ul>	<ul style="list-style-type: none"> <li>Appropriate landscaping and signage as outlined in the Urban Design Development Framework</li> <li>Use landscaping and natural features to enhance "sense of place"</li> </ul>
<b>Red node</b>	Proposed local public spaces and squares	<ul style="list-style-type: none"> <li>Local public spaces and squares</li> </ul>	<ul style="list-style-type: none"> <li>Appropriate landscaping and signage as outlined in the Urban Design Development Framework</li> <li>Use landscaping and natural features to enhance "sense of place"</li> </ul>
<b>Red way</b>	Centurion Bazaar	<ul style="list-style-type: none"> <li>Important place-making roads and</li> </ul>	<ul style="list-style-type: none"> <li>Appropriate landscaping and signage as outlined in the Urban Design Development Framework</li> </ul>

**Open Place System of the “Centurion CBD Development Framework”**

TOSF Typology	Open Space Precinct	Character	Development interventions
	Route John Vorster Drive Jean Avenue Lenchen Avenue South Street Hendrik Verwoerd Drive	boulevards	<ul style="list-style-type: none"> <li>• Ensure appropriate landscaping maintenance to encourage ecological functioning and enhanced biodiversity i.e. plant trees, veld grass, indigenous vegetation, etc.</li> <li>• Implement recommendations as per the Tshwane Open Space Framework Road Reserve Tree Strategy</li> <li>• Use landscaping and natural features to enhance “sense of place”</li> </ul>



Figure 16: Open Space System





## Vision of “Centurion CBD Development Framework”



Centurion CBD Master Plan – Development Framework – December 2013

## Open Space Ratio of Built Up Area around the Centurion CBD Area

It can also be taken into consideration that the built up suburban areas in the vicinity of the Centurion CBD area and the Lyttelton Agricultural Holdings are of a very low density with large erven. The



previous town planning scheme (Centurion Town Planning Scheme) allowed only 30% coverage on residential erven. This means that there is generally a huge open area ratio between the area covered by buildings and the surrounding open area not built upon. This means that the low density suburbs also has huge resources in open space within it. It also means that residential erven of these suburbs have large areas of gardens and swimming pools available for private recreation, etc. There is indeed a very high ratio of swimming pools per household in the area.

The same situation is applicable for most of the medium density developments on the Lyttelton Agricultural Holdings where 30% was a norm for many years. Mostly a maximum of 40% coverage was applicable for multi storey residential developments. Only a few single story town house schemes with densities of higher than 40 dwelling units per ha have coverage higher than 40%. Then these housing schemes still have private open space areas attached to the dwellings itself. Many walk up developments have small private open areas for private recreation in addition to a communal swimming pool etc. I cannot be said that there is a huge need for communal open space in the form of parks for the population because of cramped living space.

It is being expected that several high rise or multi story residential developments will realise in the CBD area and other places on the Lyttelton Agricultural Holdings. However, the available space for such development is limited and as can be seen on the pages above there is more than 60 hectares of land available for natural open space development along the river in the CBD area. The Tshwane Town Planning Scheme eventually demands that every complex have its own private recreational space. So even the high rise flats will have private and safe recreational space on its premises.

It can also be taken into consideration that the Hennops River includes still many other open spaces and resources in areas upstream and downstream from the Centurion CBD area. As indicated above in the central area there will be available open space in many forms and typologies. If this will ever be fully developed is an open question while the Symbio City development will definitely add impressive open space elements to the status quo.

## **Conclusion**

This report shows that the proposed Symbio City development can be the ideal development to solve the multiple problems experienced by the existing Centurion Lake and to grasp the incredible opportunity it presents for development as indicated in this report.

The report indicates that:

- The proposal is in line with the responsibility of the municipal leaders to provide their residents with the vision and framework in which they can do their part to prepare for the city for the global onslaught;
- The proposal is of a high quality and reflects true strategic thinking, creating an intelligent approach to create a better future for all;
- The proposal would create enormous economy of scale – creating the ability to pay for many solutions of seemingly insurmountable problems;
- The proposal would elevate the Centurion Lake area as a central place of the highest hierarchy in the Gauteng global sub region and would thereby continue to draw in new property investment reflecting the same innovative approach;
- The proposal shows that the Centurion Lake area can pounce on to opportunity to become a leading element of the emerging Gauteng urban region and in doing so would also increase the Tshwane Metro's global competitiveness;
- The proposal shows that because of the urban region concept the location of the proposed development will be able to respond to the challenge and in doing so would also hurl the surrounding area into a new urban future;

- The proposal also indicates that a interconnected knowledge economy has developed on the periphery of Tshwane and Johannesburg over decades and that a market large enough for the proposed Symbio City development already exists on a regional scale. The proposal can therefore capture leading international companies of the sub region to settle in the Tshwane Metro.
- It has been indicated that development in the northern Witwatersrand is a function of the potential urban energy present in the main development corridors. The proposed development would be situated on a junction formed by different corridors coming together;
- The proposal shows that there is a vast existing and integrated movement system surrounding the site that is of the highest quality. That there is a traffic box formed by provincial roads and that the area within the traffic box experienced sustainable growth over decades and often during times of national economic stress. The area has exceptional access to the freeway system. The area has a strong transit element as the Centurion Gauteng station is only minutes on foot away while there are 3 stations of the old railway system within the traffic box. Several bus services run on the north bound routes of the traffic box.
- The proposal clearly indicates that over the decades a huge amount of job creation has taken place in the area and that a real mixed use land use pattern exists. This will enable the area to become a dominating factor in the northern Gauteng's post-industrial economy.
- The proposal indicated the importance of the West Avenue traffic interchange and the need to implement it as soon as possible.
- The proposal showed 3 tower blocks to be built on erf 53 Verwoerdburg Stad, the total visible coverage of the proposed development on erf 53 Verwoerdburg Stad will only be  $\pm 27\%$ .
- It showed that erf 53 Verwoerdburg Stad is zoned "public open space" at present and therefore it is a park that is being closed by way of procedure before after which it can be rezoned to accommodate the proposed development.
- The proposal implies that erf 53 would be subdivided and that one of the erven will be used for a residential high density development – providing 1000 dwelling units. The 100 000m<sup>2</sup> retail shopping centre that is proposed will be situated below the public level on top of the ground and would not be visible from existing development.
- The proposal will not destroy the open space element of erf 53 Verwoerdburg Stad could give back almost 53000m<sup>2</sup> in the form of various open space or recreational elements. There is huge open space resources upstream and downstream from the Centurion Lake.
- The proposed Symbio City development would include a Personal Rapid Transit (PRT) system that would connect the new development with several other existing developments. The system would be presented as a park and ride system with parking garages situated on the periphery of the Centurion Business area. Several routes of the PRT system will integrate large areas of the greater Centurion Mall development with each other. PRT can evolve from local circulation and distribution systems to a full sub-regional network and is cheaper to maintain than bus systems.