

KIGALI CITY SUB-AREAS PLANNING



VOLUME 1

Detailed Master Plan Report for Nyarugenge District

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PREFACE

Planning Context

Rwanda, commonly referred to as a land of thousand hills, is witnessing rapid economic growth and development, effectuated by its political stability and progressive policies. “Vision 2020” envisages Rwanda as a modern and economically strong nation and a regional leader of development in Africa¹.

Kigali City, the national capital, which celebrated the 100th year of its founding in 2007, is one of the fastest growing cities in Africa and has the highest rate of urbanisation². Such growth, however, needs to be complemented with comprehensive and long term planning that guides the physical development.

In view of this, Rwanda’s Ministry of Infrastructure undertook the development of the Kigali Conceptual Master Plan (KCMP), which has been recently approved in 2008. The KCMP lays down the long range vision for Kigali City and provides the development framework for its growth in the next 50-100 years.

The KCMP also stipulates the need to develop detailed master plans for each of the three districts as well as the key areas of Kigali City, which, in conjunction with KCMP, would form the Kigali Comprehensive Plan³. Based on this objective, the City of Kigali has initiated several planning projects for various sub-areas in Kigali.

Commissioning and Project Scope

In order to address the need to develop detailed master plans, on 1st September 2008, the City of Kigali engaged the joint team of Singapore Cooperation Enterprise and Surbana International Consultants Pte. Ltd. (SCE-Surbana) for the development of a Detailed Master Plan for the Nyarugenge District, Detailed Master Plan and Urban Design for the Central Business District (CBD) areas and Detailed Master Plan for the Residential Township in Kinyinya – collectively referred to as the ‘Kigali City Sub-areas Planning Project’.

As part of this planning project, SCE-Surbana will also provide additional services such as capacity building as well as assistance in the tendering and implementation processes.



Figure 1: Signing Ceremony at Kigali City Office, September 2008.
Source: Surbana

Objectives

The key objective of the Kigali City Sub-areas Planning Project is to translate the vision and recommendations set in the KCMP, as well as the aspiration of the City into detailed master plans which would serve as the physical development blueprint for the City’s sub-areas over the next 10-20 years. Nyarugenge is one of the three districts of Kigali City and houses the CBD. As such, the objectives of the Master Plan for Nyarugenge District are:

- To guide short, medium and long term physical development, based on the social and economic needs of the City and the District.
- To ensure adequate allocation of land for residential, commercial, industrial, infrastructure and public facilities in order to create sustainable and high quality working and living environments.
- To create a modern and attractive new image for the planning areas.
- To create state-of-the-art, attractive commercial and office spaces in the CBD which will help launch Kigali City as a regional hub.
- To provide modern and comprehensive housing solutions for all groups of people.
- To support development with efficient transportation and infrastructure facilities.
- To conserve and enhance the natural and built assets.

Approach and Process

The principle approach for the Kigali City Sub-areas Planning Project is to anticipate the future development needs of the City and devise a Master Plan which will ensure adequate reservations of land and timely provision of infrastructure and public facilities; as well as recommend effective implementation strategies.

The process adopted to develop the master plans for the various sub-areas involves several key stages, such as, data collection; existing conditions and future needs analysis; establishment of vision and development concept; development of detailed master plan, transportation and infrastructure plans, and zoning guidelines; preparation of the development phasing plans; and proposing recommendations for implementation and monitoring. The master planning process is supported by the concurrent GIS activities, such as, preparation of base plan, development of the database design and packaging of the master plan in GIS format for the City’s ease of use, control and maintenance in the long term.

Participation Process

In order to ensure that the Master Plan is inclusive and addresses the needs of all concerned, several participatory meetings have been organised at different key stages of the project. These include regular consultations with the City’s Technical Team and the Steering Committee. Public participation is ensured through a series of Focus Group Discussions, Stakeholders’ Meetings and Public Exhibitions.

Project Organisation and Schedule

The total duration of the project was scheduled to be 14 months which include 7 working sessions. The project is divided into 2 phases. Due to the urgency of developing the CBD areas (Muhima, Nyarugenge and Kimicanga), the planning for these areas was prioritised and carried out in the first phase of the project. The detailed planning for the whole Nyarugenge District was carried out in the second phase of the project.

This second phase comprised of two stages - concept stage, which dealt with master plan concept development, and draft stage during which the concept was refined and developed into the final Master Plan.

Deliverables

The Master Plan for Nyarugenge District is presented in the form of three reports, namely, the Detailed Master Plan Report for Nyarugenge District, the Detailed Transportation and Infrastructure Master Plan Report for Nyarugenge District, and the Zoning and Urban Design Guidelines Report for Nyarugenge District

¹ Rwanda Vision 2020, July 2000.

² Kigali Economic Development Strategy, 2001

³ Kigali Conceptual Master Plan, November 2007, pp XIV and XVI

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Ministry of Infrastructure

- Linda Bihire, Minister of Infrastructure (former)

City of Kigali

- Dr. Aisa Kirabo Kacyira, Mayor
- Alphonse Nizeyimana, Vice Mayor - Finance and Economic Development
- Jeanne D' Arc Gakuba, Vice Mayor - Social Affairs
- Albert Mwanafunzi, Director of Planning and Economic Development

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- Kamali Berchmas, Vice Mayor - Finance and Economic Development
- Brigitte Mukarunyana, Vice Mayor - Social Affairs

Gasabo District

- Ndizeye Willy, Acting Mayor, Gasabo District
- Claudine Nyinawagaga, Mayor (former)
- Ndizeye Willy, Vice Mayor - Finance and Economic Development
- Ndagijimana Narcisse, Vice Mayor - Social Affairs

Kicukiro District

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- Rutaisire Georgette, Vice Mayor - Finance and Economic Development
- Florence Kayiraba, Vice Mayor - Social Affairs

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- Catherine A. Leslie, Senior Project Manager

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- John Rukabu, District Land Officer, Gasabo District
- Claude Rwakazina, District Land Officer, Kicukiro District
- Jean Luc Mutagoma, Land Officer, Nyarugenge District
- Desire Ngabonziza, Land Officer Nyarugenge District

EXECUTIVE SUMMARY

Background

Rwanda's progressive government and enterprising population aspire to position the country as the economic and financial hub of Central Africa. They envision their Capital City, Kigali as a global city with a thriving economy, a vibrant social setting and attractive housing options. In light of recent government policies, Kigali is witnessing a rapid commercial growth. Numerous businesses, both local and international are vying for commercial space in the City. Attracted by the economic opportunities, a large number of people are moving to the City. Such growth needs to be supplemented with careful and timely planning to ensure that the City is able to address the increasing real estate demand in an organised and controlled manner.

In view of this, the Ministry of Infrastructure had undertaken the development of the Kigali Conceptual Master Plan (KCMP) which has been approved in 2007. The KCMP stipulates the broad range development vision for the City and at the same time stipulates the need to develop detailed master plans for each of the three districts in Kigali. Based on this the City of Kigali has undertaken the development of a Detailed Master Plan for Nyarugenge District and each of its 10 sectors.

Context

The City of Kigali was established as the capital of Rwanda in 1907 by the German colonists on Nyarugenge Hill as a small outpost. Since gaining independence in 1962, the development around Nyarugenge increased rapidly. While, important civic buildings, commercial establishments and high-end bungalow areas were developed on the top of Nyarugenge hill, densely packed informal housing settlements sprung up on the slopes to the west of the hill, mostly housing people attracted by the employment opportunities in Nyarugenge. In 2005, the City expanded its urban limits, whereby large rural areas came to be included within City boundaries.

Nyarugenge District, with an area of 134.2 km² is the smallest of the three districts and lies to the west of the City. It is located 10 km from the existing Kigali International Airport and 25 km from the future Bugesera Airport in the south. The new City Centre proposed by KCMP lies to the south east of the district. While, the urban areas are well connected to each other and to other important urban centres of the country by way of major roads, the rural parts of District are not well connected and largely inaccessible.

The District is largely characterised by a very undulating topography, with Mount Kigali, the highest point in the City located within Kigali Sector. 69% of the District's land lies in areas of natural constraints, either within steep unbuildable slopes or covered by forests and wetlands.

The Muhima and Nyarugenge Sectors are slated to be redeveloped as Kigali's Central Business District. These sectors which house key government and financial buildings are currently functioning as the country's business centre. The Gitega, Kimisagara, Nyakabanda, Rwezamenyo and parts of Nyamirambo Sectors, which lie close to the CBD constitute the urban fringe area and comprise mostly of informal housing settlements. The Kanyinya, Kigali and Mageragere Sectors are largely underdeveloped with a few scattered houses and farms.

Vision

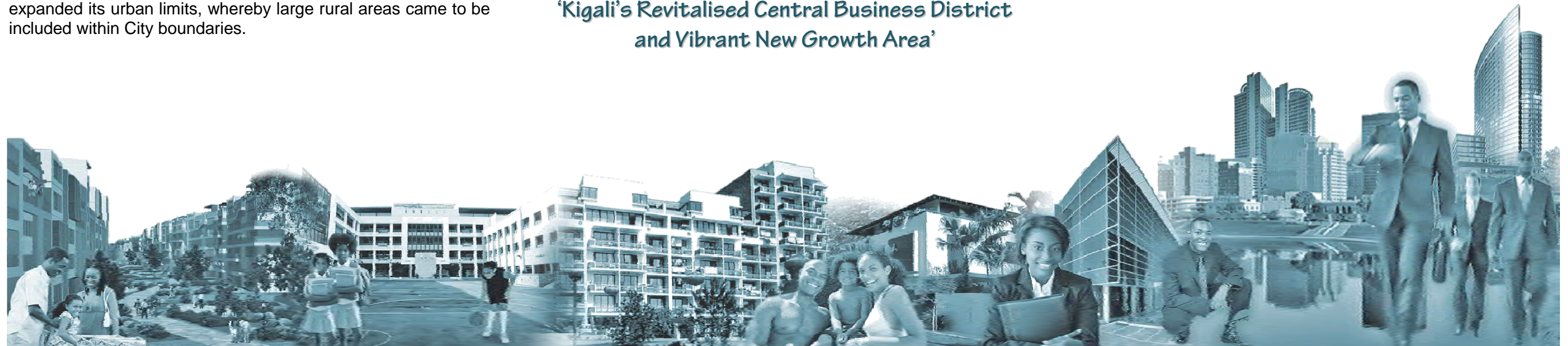
Based on an analysis of the role the District needs to play in the larger context of Kigali City, as well as on the physical opportunities and constraints of the site, a vision is proposed for Nyarugenge District, as follows:

**Nyarugenge District:
'Kigali's Revitalised Central Business District
and Vibrant New Growth Area'**

- Nyarugenge District will house the **revitalised Central Business District**.
- It will have a network of **well-distributed urban nodes** to meet the City as well as District level needs.
- Its **existing urban areas will be rezoned** to preserve the historic character and at the same time offer opportunities for intensified and structured redevelopment.
- Its newly added, sparsely developed areas will be developed into **new well-planned comprehensive townships** for future expansion of the City.
- Leveraging on the wealth of natural features, scenic locations and pleasant climate, Nyarugenge District will offer a **range of attractive recreational and tourism activities and destinations**.
- Provision of **cost-effective, timely and eco-friendly transportation and infrastructure facilities** will be provided in tandem with the growth in the District.
- Most importantly, the **unique and rich natural features will be preserved, managed and revitalised** to ensure their conservation for the future generations.

Concept

Three broad strategies have been adopted for planning the development of Nyarugenge District, based on the existing site conditions. The CBD areas are expected to house large scale commercial - office as well as retail, civic, housing and entertainment related developments. Leveraging on their proximity to the CBD, the urban fringe areas are proposed to be rezoned into high-density housing. The existing public facilities are proposed to be retained or enhanced and a new range of public facilities is proposed to be added to support the development. The sub-urban areas are marked for the development of new comprehensively planned townships.



Proposed Master Plan

Based on the feedback received from the City officials as well as the stakeholders, the concept proposed for Nyarugenge District has been refined into the Detailed Master Plan for the District.

In order to optimise agriculture activities in the immediate future, the government has undertaken a land consolidation programme, as a part of which people are re-housed from their scattered dwelling units into compact public housing clusters called umudugudu. While the CBD and urban fringe areas are expected to cater to the immediate needs of the urban population, these umudugudu sites offer the potential to be redeveloped as new townships to meet the future housing needs of the City. In view of this, two sets of Land Use Plans are proposed for the District - Land Use Plan Year 2020 which captures the development of the umudugudu sites, and Land Use Plan Year X which shows the ultimate development envisioned for the District based on its development potential.

The key features of the proposed Land Use Plan for Nyarugenge District include:

- Redevelopment of Muhima Sector as the new Central Business District of Kigali City.
- Development of a new CBD core extending from the Centre Ville Roundabout down into the wetlands.
- Redevelopment of the civic and commercial developments of Nyarugenge Sector as part of the CBD development.
- Development of a new District Centre at the junction of Nyamirambo and Mageragere Sectors, housing important District level public facilities.

- Reorganisation of the existing sports, commercial and civic developments at the north of Nyamirambo into a Regional Centre for the District.
- Redevelopment of the existing dense and informal housing areas in the urban fringe areas into well planned housing communities.
- Development of the under developed areas in the sub-urban sectors into umudugudu and eventually into comprehensive residential townships complete with retail, public and civic facilities as well as supporting employment generating industrial and commercial activities.
- Utilisation of the wetlands and forests for tourism development as well as integration into the townships as recreational destinations.
- Utilisation of unbuildable areas of the District for farming and commercial forestry activities.

Transportation and Infrastructure

The key strategies adopted for transportation planning in the District include the development of an efficient road network grid, which ensure improved local and regional connectivity in the long term. Besides, green transport initiatives such as the provision of an integrated and extensive public transportation network to support the existing and new growth areas; as well as ensuring seamless and safe pedestrian and bicycle connectivity are also key emphasis.

The key strategies adopted for infrastructure planning proposed for the District include adequate and timely provision of key utilities which are cost effective as well as environment friendly.

Implementation Mechanism

The implementation of the Master Plan for Nyarugenge is expected to take about 15-30 years.

The implementation of the Zoning Plan for the Nyarugenge District is expected to regulate the development in different parts of the District as well as encourage the development or redevelopment of key areas.

A multi-year Capital Improvement Plan (CIP) is proposed for the development of Nyarugenge District, which focuses on the development of the public facilities required to support the proposed Land Use Plans. This CIP is prepared based on a phasing plan which is proposed to guide the systemic development of the District in 2-3 phases over the span of about 30 years.

A few 'special projects' within key development areas have also been identified. These projects need to be initiated by the government and are recommended to be executed through a public private partnership.

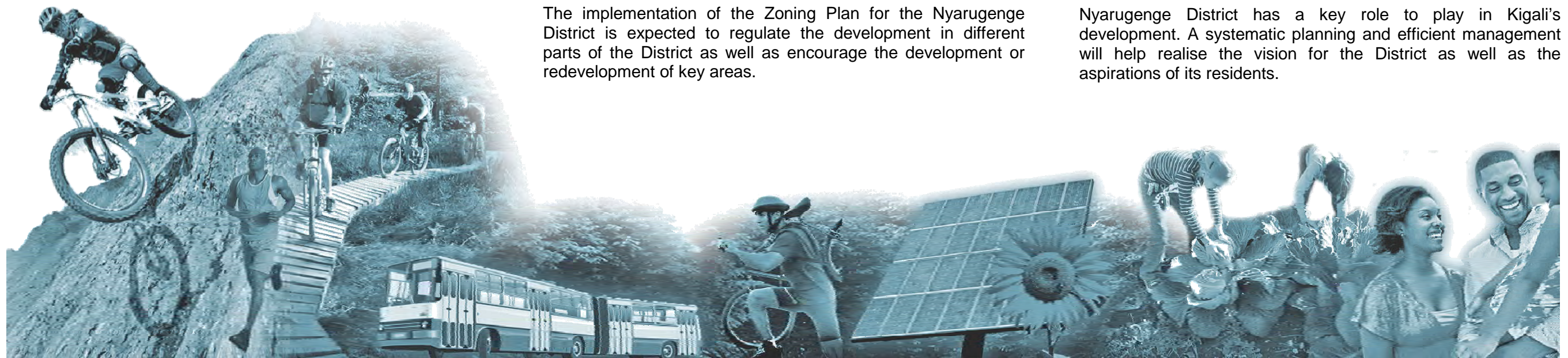
Follow-up Measures

In order to ensure the effective implementation of the proposed Master Plan, the establishment of a legal policy framework, which will govern approval and review of the Master Plan, is proposed. A planning manual which will dictate the approval, assessment and updating procedures is also required. In addition the establishment of a regular monitoring and evaluation process, which will ensure the continual contextual relevance of the Master Plan, is recommended.

Further to the zoning guidelines which have been proposed to guide development in the District, additional special guidelines such as green building guidelines and heritage conservation guidelines, are recommended to be developed and applied at the City level.

The task of developing the District and the City as a whole is humungous, and the project team, though highly motivated, is limited in terms of man power. A comprehensive capacity building and training programme coupled with a staff recruitment programme is highly recommended to take charge of the development processes.

Nyarugenge District has a key role to play in Kigali's development. A systematic planning and efficient management will help realise the vision for the District as well as the aspirations of its residents.



CHAPTER 1:INTRODUCTION

The government of Rwanda aspires to position Kigali City as the regional commercial and financial hub of Africa. Vision 2020 lays down the key principles for guiding the development in Rwanda, which include improved economic vitality, global and regional connectivity, technological innovation, social harmony and environmental sustainability¹. The Kigali Economic Development Strategy aligns with the Vision 2020 and emphasises on three key strategies for the development of Kigali City, namely, global competitiveness, promotion of business and industries and improved quality of life.

In line with the above, the Kigali Conceptual Master Plan (KCMP), which lays the broad development direction for the City, was developed. KCMP recommends the development of detailed Master Plans for each of the districts. As part of the Kigali City Sub-areas Planning Project, a detailed and comprehensive Master Plan for the Nyarugenge District is to be prepared.

1.1 Background and Purpose

The *Detailed Master Plan Report for Nyarugenge District* provides the existing context analysis, the vision, the development concept and structure, land use and public facilities plans, the transport and infrastructure plans, as well as the implementation strategies for Nyarugenge District and its sectors, which is expected to accommodate the City's increasing growth.

1.2 Guiding Principles

The Kigali Conceptual Master Plan (KCMP) postulates three principles of sustainability – equity, economy and ecology for guiding the planning and development of Kigali City. Derived from these principles, the planning of Nyarugenge District is based on the principles of liveability, prosperity and ecological sustainability, as elaborated below:

Liveability

Being close to Kigali CBD, Nyarugenge District needs to offer a range of attractive housing solutions to the City's rapidly increasing population, both in its existing urban areas as well as in its new expansion areas. The redeveloped communities as well as new townships should offer compact, inclusive, vibrant and secure neighbourhoods with integrated supporting public facilities, which include a large component of affordable yet, modern, quality residences.

Prosperity

The expansion of the City's urban limit should occur in tandem with the expansion of its economic base. Nyarugenge District needs to offer attractive employment opportunities which create local jobs and take pressure off from the CBD, and which are well integrated within, or located next to, the residential communities and townships. These economic activities should offer employment to all classes, including the service class, the labour sector as well as those desirous to continue farming practices.

Ecological Sustainability

While promoting urbanisation and densification of the District, it is critical to ensure that its unique environmental features are not compromised. Utmost care needs to be taken to protect ecologically invaluable wetlands and forest areas. Capitalising on these natural assets, venues for leisure and recreation need to be harmoniously integrated within or around the townships, catering to the residents and visitors alike.

1.3 Planning Process

The planning process adopted for the preparation of the Detailed Master Plan Nyarugenge District is as explained below:

- **Urban Context and Site Analysis** - A detailed assessment of the existing conditions on the ground as well as the visions and guidelines set in KCMP is undertaken. The key opportunities, constraints and threats of the site are identified at the District as well as the Sector levels. Research and case studies on planning aspects such as greening strategies, township models, etc. are conducted to draw comparisons and determine the planning strategies.
- **Sustainability Framework and Vision** - Based on the analysis, research as well as the aspirations of the City, a developmental vision is envisaged for the District and Sectors. A set of goals, objective, strategies and recommendations, which will help realise that vision, are formulated. This is translated into a development programme which lists down the development projects to be undertaken for the fulfillment of the vision.
- **Structure and Concept** - To translate the vision into a physical development plan, a structure plan and concept plan. are developed.
- **Public Participation Meeting and Evaluation** - The structure plan and concept are presented to the City's technical team, steering committee and stakeholders for their evaluation and feedback.

- **Detailed Master Planning** - Based on the feedback, the concept is refined and developed to form the Proposed Detailed Master Plan for Nyarugenge District, which include the Master Plan for the entire Nyarugenge District and its sectors as well as urban designs for some of its key areas. These form the basis for infrastructure planning and proposing implementation strategies.
- **Transportation and Infrastructure Planning** - The schematic proposals for transport and infrastructure are further developed to form the detailed Transportation Plan and Infrastructure Plans.
- **Zoning and Development Control** - The Zoning Plan and Zoning Regulations are developed to guide future developments in accordance with the Detailed Master Plan.
- **Implementation Plan** - The Development Phasing Plan, the Capital Improvement Plan and the recommended Follow-up Measures which will ensure the effective implementation of the Master Plan, are proposed.
- **Exhibition and Report** - The Detailed Master Plan for Nyarugenge District is presented in the form of a public exhibition, as a report and in GIS format.

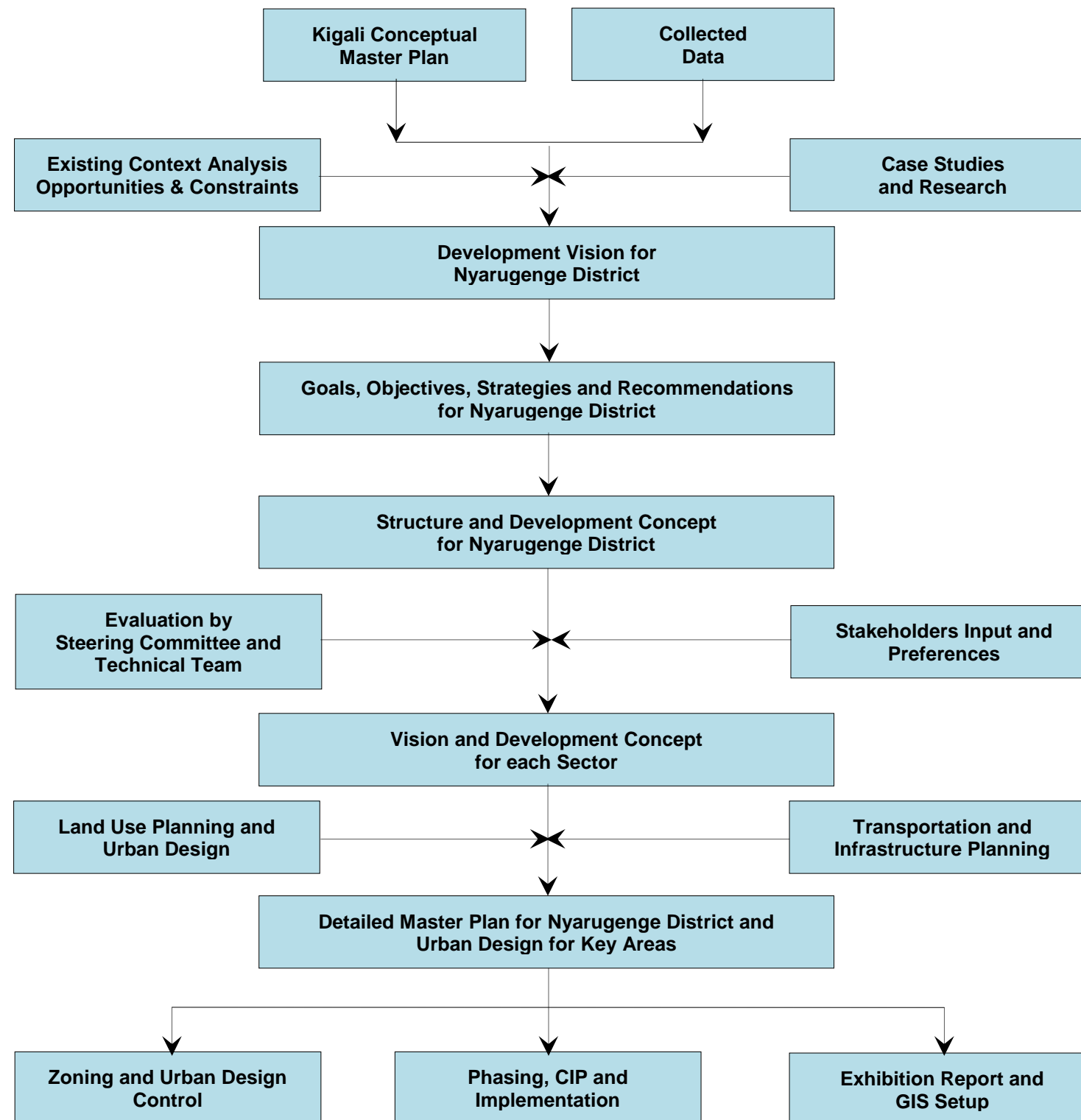
The entire process adopted for the development of the Detailed Master Plan for Nyarugenge District is summarised in Figure 1.1.

1.4 Organisation of the Report

The Detailed Master Plan Report for Nyarugenge District summarises the analysis, the plans and the designs developed as part of the planning process, and has the following chapters:

- Chapter 1: **Introduction**
This chapter provides the background and purpose of the Report, and explains the guiding principles and process adopted to develop the Master Plan.
- Chapter 2: **Context, Opportunities and Constraints**
Chapter 2 analyses the existing context in order to identify the constraints, opportunities and threats which will guide the design.
- Chapter 3: **Vision**
Chapter 3 presents the vision for the District and states the goals, objectives and strategies, which will help realise this vision. Recommendations listing specific projects are also proposed.

¹ Rwanda Vision 2020, July 2000.

Chapter 4: **Proposed Master Plan**

This chapter presents the overall concept and structure proposed for developing the Master Plan for Nyarugenge District. It also presents the Land Use Plan for the District along with the sub-layers of the Land Use Plan, such as residential use, commercial use, green and blue plan, etc. It also presents the proposed environmental mitigation measures.

Chapter 5 - **Detailed Master Plan for the Sectors**

Chapter 5 to 12 presents the context analysis, the opportunities and constraints; as well as proposes the vision, development concept and Detailed Master Plan for Gitega, Kimisagara, Rwezamenyo, Nyakabanda, Nyamirambo, Kanyinya, Kigali and Mageragere Sectors, respectively.

Chapter 13: **Implementation Mechanism**

This chapter presents the implementation mechanism and development phasing proposed for the Master Plan.

Chapter 14: **Follow Up Measures**

This chapter presents the follow-up measures which need to be undertaken by the City of Kigali for the development of the proposed Master Plan.

Supporting information such as the Township Development Model and the public facilities provision standards proposed for Nyarugenge District are presented in the Appendices.

Figure 1.1: The Planning Process for the Detailed Master Plan for Nyarugenge District.
Source: Surbana

CHAPTER 2: NYARUGENGE DISTRICT - CONTEXT, OPPORTUNITIES AND CONSTRAINTS

This chapter presents the context, existing conditions as well as the opportunities, constraints and threats of the Nyarugenge District which forms the basis for the development of the Master Plan. The detailed context, opportunities and constraints for the individual sectors of the District will be discussed in Chapters 5-12.

2.1 Context

2.1.1 Location and Connectivity

Kigali City comprises of 3 districts, namely Gasabo, Kicukiro and Nyarugenge. The Nyarugenge District, located in the West of the City, with an area of 134.2 km² is the smallest of the three districts covering a sixth of the City's land area (refer to Figure 2.1). The District is bounded by the Nyabarongo River which runs along almost the entire western and southern edge of the District. The New City Centre in Gahanga proposed by the Kigali Conceptual Master Plan lies to the east of Mageragere Sector. The existing International Airport lies about 7km to the east and the new International Airport proposed to be developed in Bugesera lies about 15 km to the south of the District.

A national highway connecting the District to the CBD, Kigali International Airport and the eastern parts of the City runs east-west between the Kanyinya and Kigali Sectors. Another national highway connecting the District to the town of Ruhengeri and other northern parts of the country passes through Kanyinya Sector. Another important road runs along the western and southern edge of the District, parallel to the Nyabarongo River, offering connections to western towns such as Butare and the future City Centre in the east. However, this road is unpaved and in bad condition. Major paved roads only occur in the urbanised areas of the District. The rural areas have roads mostly in the form of mud tracks.

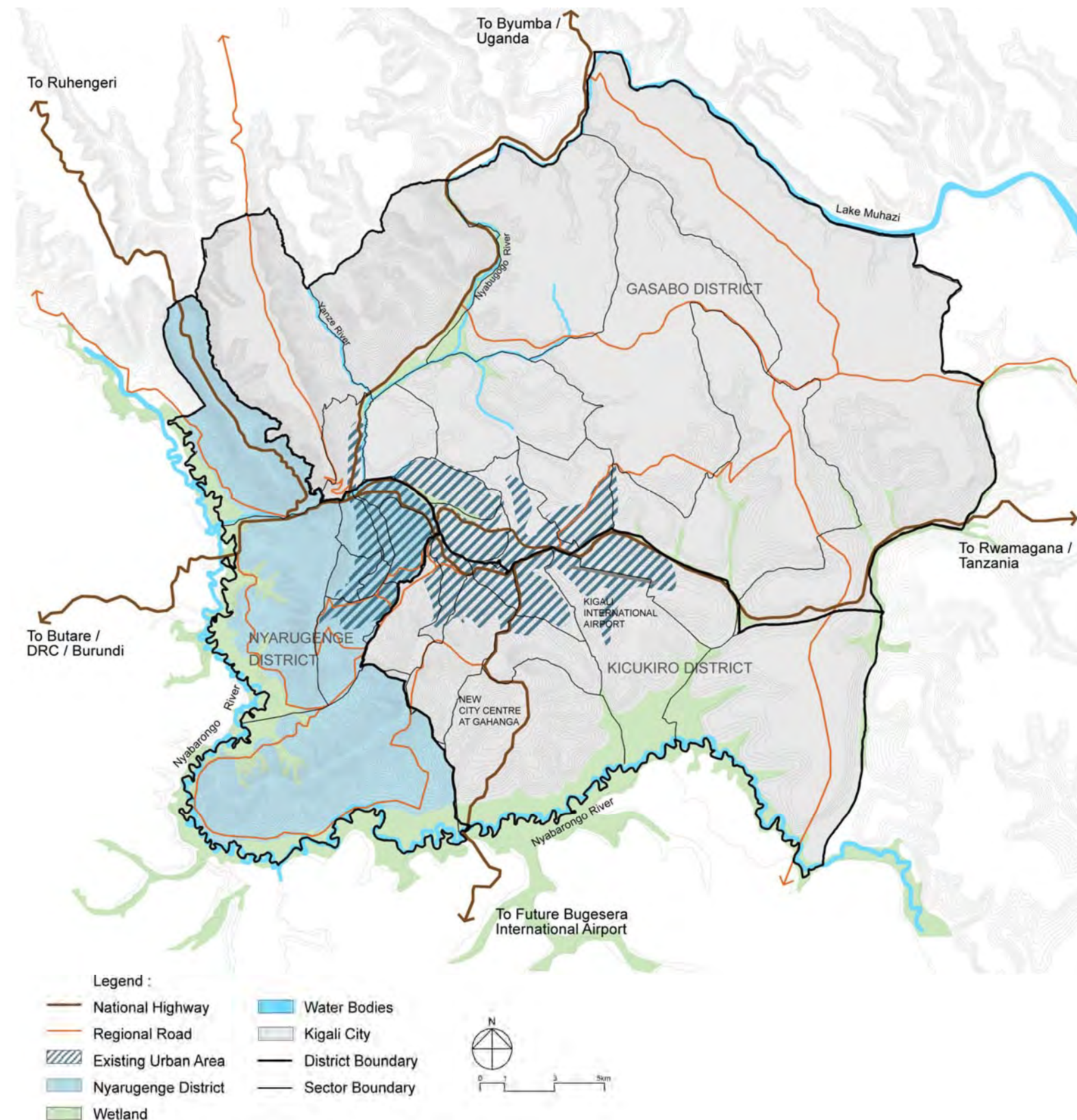


Figure 2.1: Nyarugenge District - Location and Connectivity.
Source: Surbana

2.1.2 Planning Area Boundaries

In 2005 the City of Kigali expanded its municipal limits by about 10 times to 731.24 km² leading to the inclusion of large areas of rural, agrarian land. Nyarugenge District comprises of 10 sectors, as listed in Table 2.1 below and illustrated in Figure 2.2. The two sectors Muhima and Nyarugenge form part of the Detailed Master Plan and Urban Design for Kigali CBD. The planning proposals for these two sectors are discussed in the Detailed Master Plan and Urban Design Report for CBD 1, CBD 2 and Kimicanga, and are hence, excluded from this report. The four sectors - Gitega, Rwezamenyo, Nyakabanda, Kimisagara and a third of Nyamirambo Sector are largely urbanised and comprise of high-density informal housing settlements. The remaining three sectors - Kanyinya, Kigali and Mageragere are largely rural and comprise of scattered rural housing and farms.

Table 2.1: Nyarugenge District - Planning Areas.

Planning Area	Size
Muhima (CBD1)	292.4 ha
Nyarugenge (CBD2)	455.5 ha
Gitega	117.3 ha
Rwezamenyo	103.4 ha
Nyakabanda	240.2 ha
Kimisagara	320.0 ha
Nyamirambo	895.4 ha
Kanyinya	2,465.3 ha
Kigali	3,031.4 ha
Mageragere	5,502.4 ha
Total	13,424.0 ha

Source: Surbana

2.2 Historical Context

The City of Kigali was founded by German colonists in 1907. It started as a small urban settlement on the top of Nyarugenge Hill as clusters of housing, government buildings and a military camp. Since gaining independence on 1st July 1962, development on and around Nyarugenge hill has increased rapidly, with the addition of numerous civic buildings, commercial offices, educational institutes, a wholesale market, a high-end bungalow area in upper Kiyovu and medium to low-end housing area on the southern slopes. Currently this area functions as the country's main trading and commercial node.

Due to the increased population, brought about by the gradual economic progress, dense housing areas - mainly in the form of informal settlements - began to develop on the slopes and valleys along the west of the Nyarugenge hill. The developments seen in the sectors Gitega, Kimisagara, Rwezamenyo and Nyakabanda are examples of such housing areas. The other sectors, located away from the CBD, remained largely rural and disconnected.

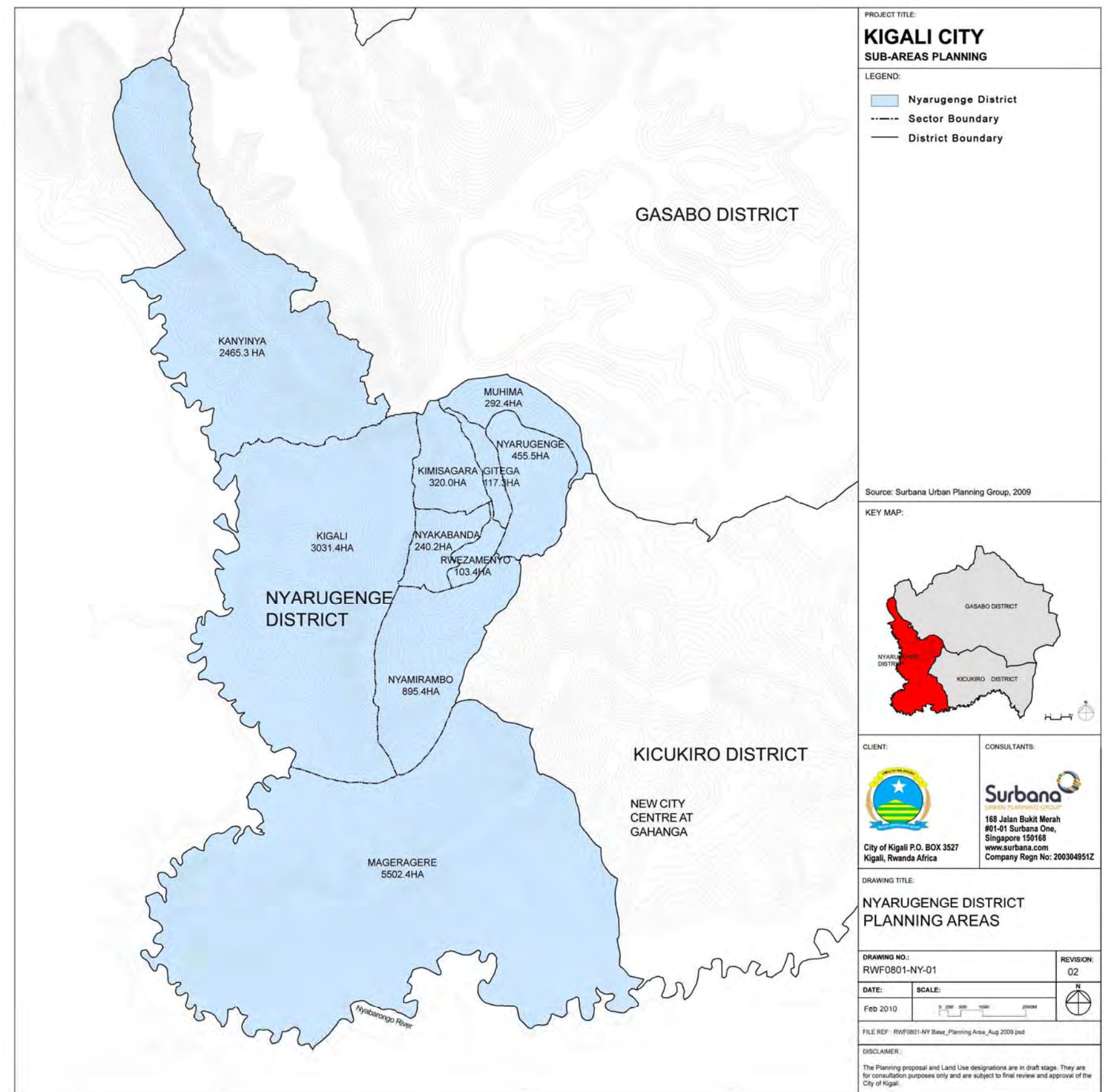


Figure 2.2: Nyarugenge District - Planning Areas.

Source: Surbana

2.2.1 The Role of Nyarugenge District in the Context of Kigali City

The City of Kigali expanded its boundaries in Year 2005 in line with the urbanisation policy of the Kigali Economic Development Strategy and in anticipation of the huge volumes of rural-urban migration. In 2007, the City developed the Kigali Conceptual Master Plan (KCMP) which laid down the broad directions for the City's growth. One of the key proposals of the KCMP includes the development of a new City Centre in Gahanga, located between the existing City Centre and the new International Airport in Bugesera. The key thrust of industrial and trade activities is proposed to be eastwards along the east-west corridor connecting the CBD, the existing Kigali International Airport and beyond. As per the KCMP, Nyarugenge District is largely designated as a medium density residential growth area for the City.

Muhima Sector
(CBD Area)



Gitega Sector
(Informal Housing Area)



Kigali Sector
(Rural Housing & Agriculture Area)



Figure 2.3: The Three Different Characters in Nyarugenge District.
Source: Surbana

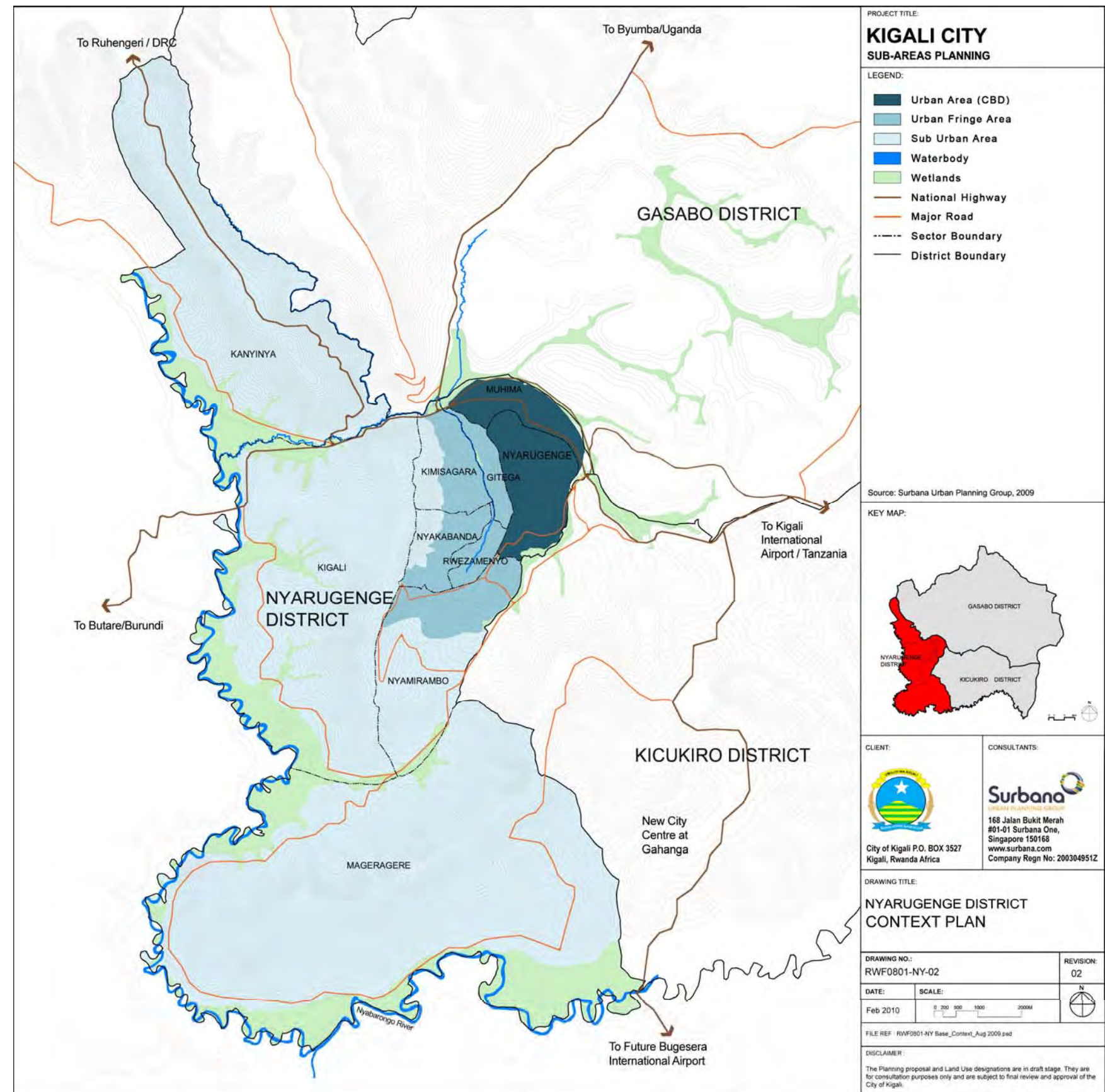


Figure 2.4: Nyarugenge District - Context Plan.
Source: Surbana

2.2.2 Existing Site Conditions

In terms of the existing developments, only the areas within and around the City Centre are urbanised, with the newly included areas of the City being largely rural and agrarian.

Large civic and commercial developments can be seen around the Centre Ville Roundabout and along the ridge in Nyarugenge Sector, the planned urban areas. New high-rise, modern office developments are also coming up along Avenue des Poids Lourdes in Muhima Sector. A 45 ha piece of land in the east of Muhima Sector has recently been acquired and cleared by the City for the development of new commercial and office spaces. The areas around the Nyabugogo Taxi Park comprise of high-density commercial, informal retail and hotel developments, whereas, the areas in and around the Nyarugenge Market comprise of wholesale and industrial developments.

The sectors which comprise the other urbanised areas - Gitega, Kimisagara, Nyakabanda, Rwezamenyo and parts of Nyamirambo are characterised by high-density spontaneous housing settlements, interspersed with numerous civic amenities such as schools, health centres, churches etc. A vibrant commercial and mix use street runs along Avenue de la Justice, from the south of Nyarugenge Sector up to the Kigali Regional Stadium. Another important street runs along Avenue du Mont Kigali, in the valley from Nyabugogo Taxi Park up to the Stadium. A host of important civic and cultural developments are located along these streets and around the stadium. Figure 2.5 presents the existing Land Use Plan for Nyarugenge District.

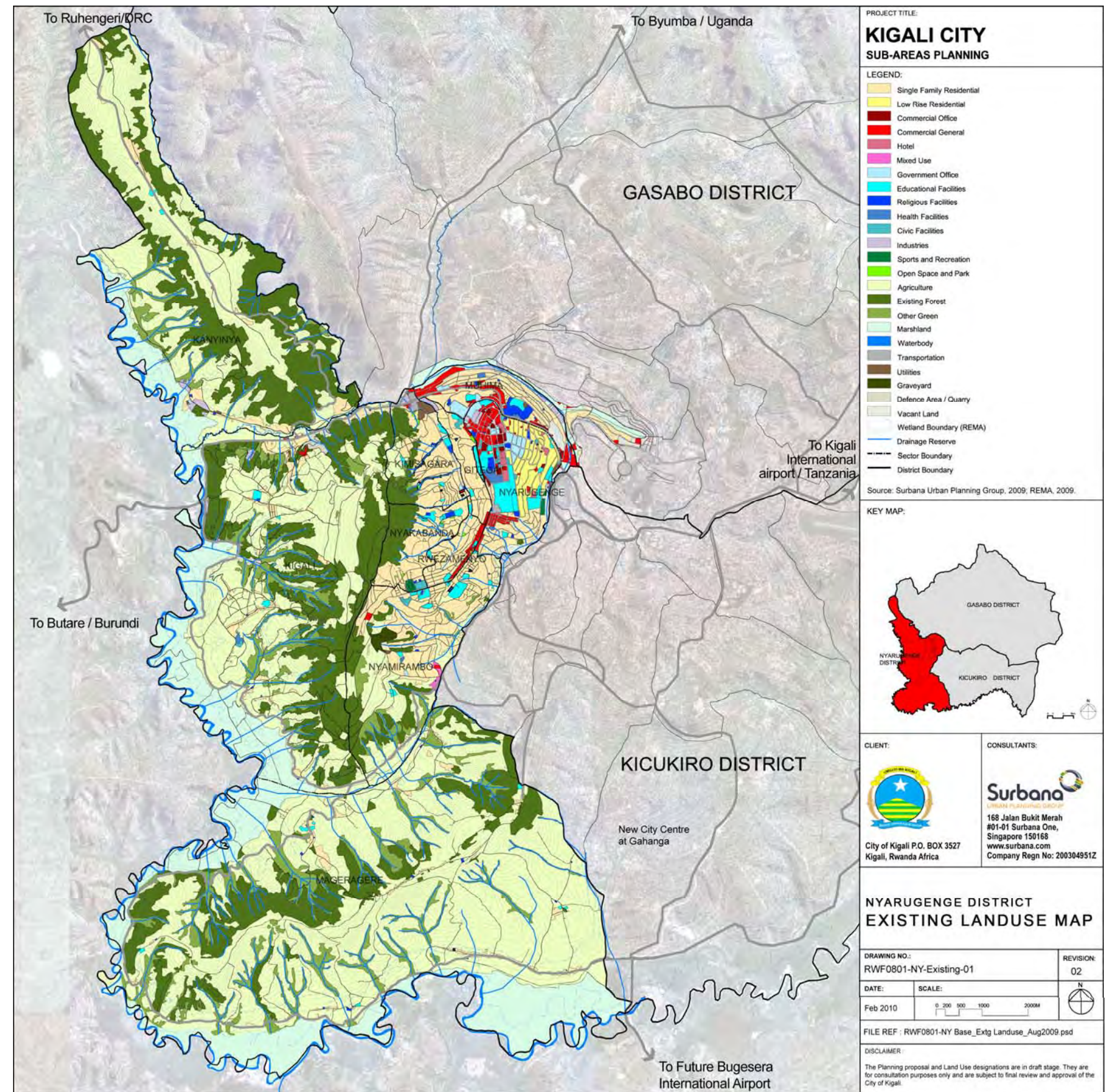


Figure 2.5: Nyarugenge District - Existing Land Use Map.
Source: Surbana

2.2.3 Natural Constraints

Of all the three districts, Nyarugenge has the most undulating terrain, being made up of a series of ridges and valleys. The KCMP stipulates a slope gradient cut-off value of 20%, beyond which no buildings are allowed to be constructed. Based on this, 48% of land within the District lies in areas of steep slope.

15% of land within the District falls within the wetland boundary, as delineated by Rwanda Environmental Management Authority (REMA). However in many areas, especially those abutting Muhima Sector, the wetland has been encroached or built up for industrial, housing or agricultural uses. As such the boundary delineated by REMA does not correspond with the on-ground situation where the actual marshland cover is much smaller than the wetland boundary. Hence, it is critical to reclaim the lost wetlands and restore them, as much as possible, to their natural conditions.

Besides this, due to the undulating topography, there are numerous natural drainage channels and adjoining shrubbery which need to be reserved and managed as part of the City's storm water management system.

Despite the large-scale deforestation, which the City witnessed in the last few decades, there are still many pockets of dense and sparse forests identified within the City limits. 6% of land within Nyarugenge District is in the form of forest, which needs to be preserved and revitalised.

Figure 2.6 and Figure 2.7 illustrate the quantum and location of land area under natural constraints in Nyarugenge District. Based on this, only 31% of land, i.e. about 225 km² is available for development within the District.

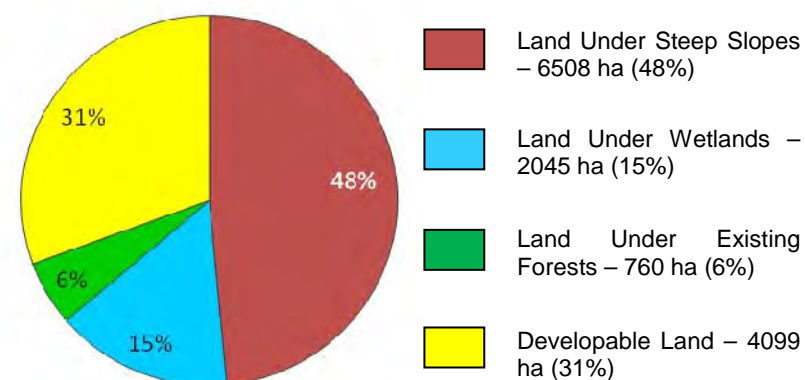


Figure 2.6: Nyarugenge District - Land under Natural Constraints.
Source: Surbana

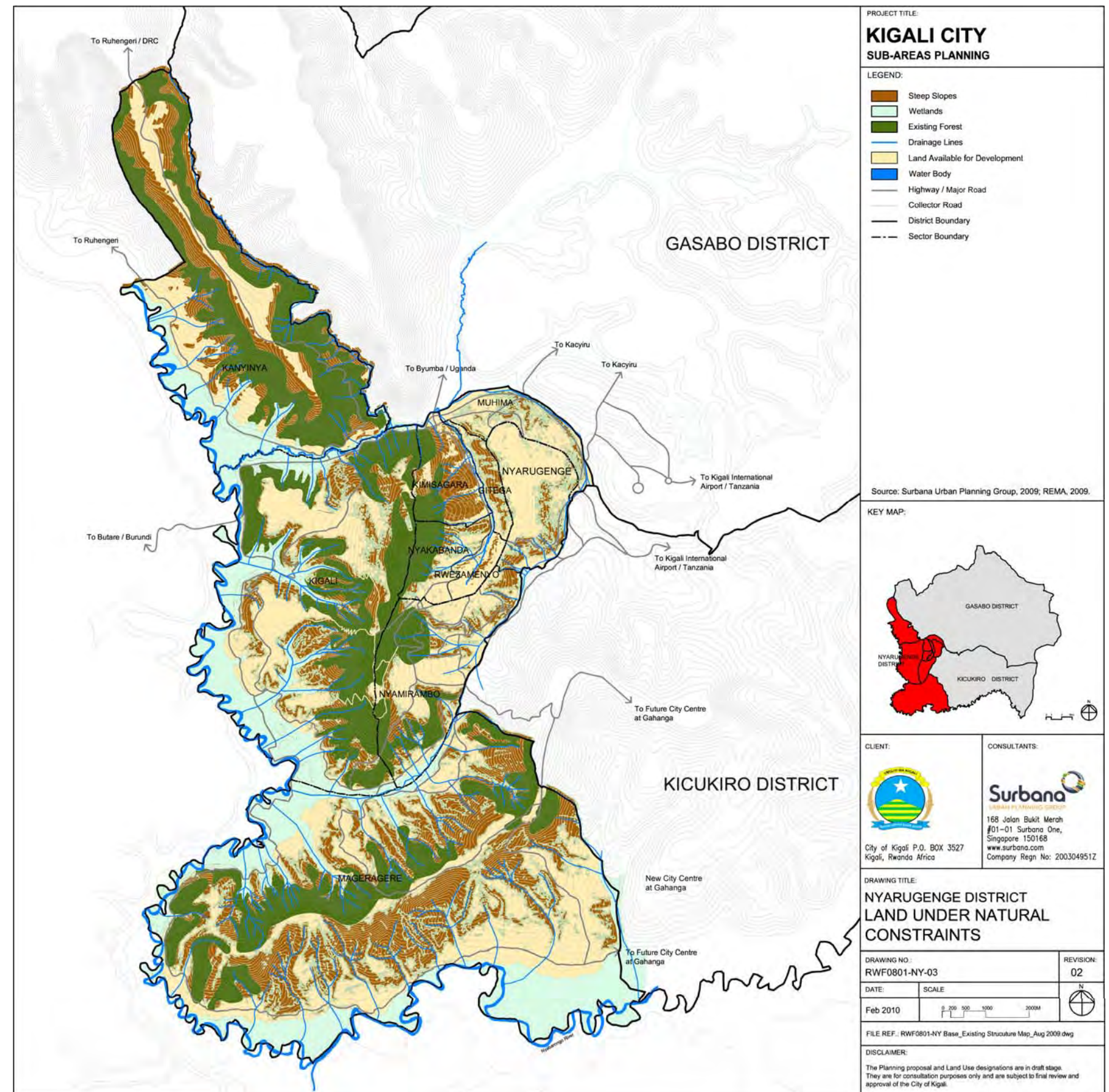


Figure 2.7: Nyarugenge District - Land under Natural Constraints.
Source: Surbana

2.2.4 Socio-economic Context

A. Population

The current population of Nyarugenge District is about 237,000 people. As Nyarugenge has some of the oldest urban areas of the country, it is the most densely populated district of Kigali with an average density of 34 persons/ha. Gitega Sector has the city's highest density of 351 persons/ha. The urban areas within the District cover 13.6% of its land area and house 82% of its population. The District's population is relatively young, with approximately 70% of its population below age 45. The ratio of males is higher than females, which can be credited to the single males migrating to the City in search of employment.

Table 2.2: Nyarugenge District - Population Projection.

Sectors	Existing Population (2006) ⁵	Projected Population (2020) ⁶
Muhima (CBD1)	40,635	20,217
Nyarugenge (CBD2)	31,056	63,647
Gitega	27,018	49,234
Rwezamenyo	18,002	58,612
Nyakabanda	22,432	34,414
Kimisagara	32,699	51,925
Nyamirambo	25,447	40,209
Kanyinya	9,313	102,458
Kigali	16,380	39,685
Mageragere	14,008	39,685
Total	236,990	488,301

Source: Development Plan for the City of Kigali, 2008 and TAMA 2006: Population by Sector, KCMP Existing Conditions Analysis, 2007

The KCMP projects a population of 3 million by 2030 for the City of Kigali⁷. Based on this, and assuming a steady growth, the projected population for the City in 2050 is assumed to grow to 5 million. This is in line with the context of national population projections. The current population of Rwanda is 10 million⁸. At an expected growth rate of 3%⁷, the projected population for Rwanda in 2030 will be 16million. As per KEDS, 50% of the population is expected to live in urban areas. Assuming that 50% of the urban population would live in Kigali City, the City would be required to accommodate a population of 5 million people by 2050. In proportion to the developable land available per sector, Nyarugenge District is expected to house about 1 million of the City's population by 2050. Based on the Detailed Master Plan and Urban Design for CBD1, CBD2 and Kimicanga, the revitalised Kigali CBD shall be able to accommodate 250,000 people, leaving a population of about 750,000 which needs to be housed in the remaining 8 sectors of Nyarugenge District.

⁵ 2008-2012 Development Plan for the City of Kigali, May 2008.

⁶ KCMP Existing Conditions Analysis

⁷ KCMP, 2007.

⁸ Encyclopedia of the Nations.

B. Housing and Real Estate

The City has undertaken a land consolidation programme, with an intention to amalgamate fragmented distribution of land across the City in order to allow for better optimisation of land for more meaningful agriculture and other development activities. Under this programme, the City will rehabilitate these individual land owners into umudugudu - compact, clustered housing settlements, served by comprehensive facilities.

The prevailing housing typologies can be broadly classified into 4 categories:

- The well planned, high-end, good class villa developments in the urban areas (along summits and ridges).
- The informal, closely built settlements in the urban areas (along slopes).
- The consolidated villages (umudugudu) in the newly included rural sectors.
- The scattered housing in farming areas.

Most of the prevalent housing is in the form of low rise, low density settlements. If the City needs to accommodate a population of 1 million in Nyarugenge District, these settlements need to be intensified in order to ensure adequate supply of future housing stock as well as allow for a meaningful and optimised provision of transport and infrastructure facilities. While Batsinda has a development density of 35 DU/ha and the proposed Residential Township in Kinyinya has a proposed density of 115 DU/ha, the townships in Nyarugenge District need to be developed to a density of around 200 DU/ha, in order to accommodate the requisite population.

C. Economy and Employment

The majority of the population in Rwanda are engaged in subsistence agriculture. However, this scene is changing rapidly in the urban areas. With banks and multinational organisations moving their offices to Kigali, a large number of the population in the urban areas is currently engaged in the service sectors, working either with the government, with banks or with research and education institutions.

Majority of the population living in the urban areas are occupied in trade, retail, construction, hospitality, tourism, or small scale manufacturing. Meanwhile, in the newly included sectors, agriculture and life stock farming are the predominant occupations. A small amount of the District's population is also working in industries and in the arts and crafts sectors.

The City envisions Kigali CBD to be the commercial and financial hub of Rwanda as well as of east-central Africa. In line with this, it is preparing for the development of high-end business and retail spaces in Muhima and Nyarugenge Sectors, supported by a range of MICE, entertainment and residential spaces.

Thus, the CBD will be the employment hub for the country and the region. While the residents of Nyarugenge District will largely be employed in the CBD areas, there is also need for decentralisation and creation of local employment opportunities within and around the townships. This will reduce the pressure on the CBD and will also offer easy-to-access integrated facilities within the residential areas.

2.2.5 Environmental Context

A. Topography

The topographic analysis of Nyarugenge District identifies 4 distinct features:

- Areas of gentle slopes (less than 20% gradient) on the ridges and along the wetlands.
- Areas with steep slopes (more than 20% gradient)
- Linear ridge lines running along the length of the sectors.
- Alluvial plains along the rivers Nyabarongo and Nyabugogo Rivers.

The average elevation of Nyarugenge District is 1,000 m AMSL. Mount Kigali, the highest point in Kigali, has an elevation of 1,853m and the highest spot in Mageragere Sector has an elevation of 1,810 m. Due to such a hilly topography coupled with large scale deforestation, soil erosion and land slides in the District are key recurrent problems faced by the City. Adequate soil protection measures need to be ensured to address this issue.

B. Natural Features

The hydrology of the District of Nyarugenge mainly consists of rivers and brooks which belong to the Akagera River basin, the beginning of the Nile River.

The principal rivers of Nyarugenge District are:

- The Nyabarongo River which flows from the north-east and runs along the west and south of Nyarugenge District, eventually emptying into the Akagera River basin.
- The Nyabugogo River which originates from the Lake Muhazi basin and flows into the Nyabarongo River.
- The Agashiha, which takes its source from Gikondo and flows into the Nyabugogo River.
- The Rwampara brook which originates in the Nyarurama hill and flows into the Nyabugogo River.
- The Mpazi brook which originates in Nyamirambo and flows into the Nyabugogo River.



Figure 2.8: The Nyabarongo River near Kigali Sector
Source: Surbana

The wetlands, which cover 15% of area in the Nyarugenge District, occur along these rivers and brooks. They currently support a number of activities such as agriculture and industries. However, the over-exploitation and improper use of the wetlands has led to degradation in quality, especially along the urban areas. Immediate conservation and restoration efforts, especially in the wake of the anticipated urbanisation, are required to ensure that the quality and benefits offered by the wetlands in the long term are not jeopardized. The Organic Law of Rwanda forbids any construction activities within the wetlands and stipulates a mandatory buffer of 20m along the edge of all wetlands.

Figure 2.9 presents the Watershed and Drainage Map of Nyarugenge District.

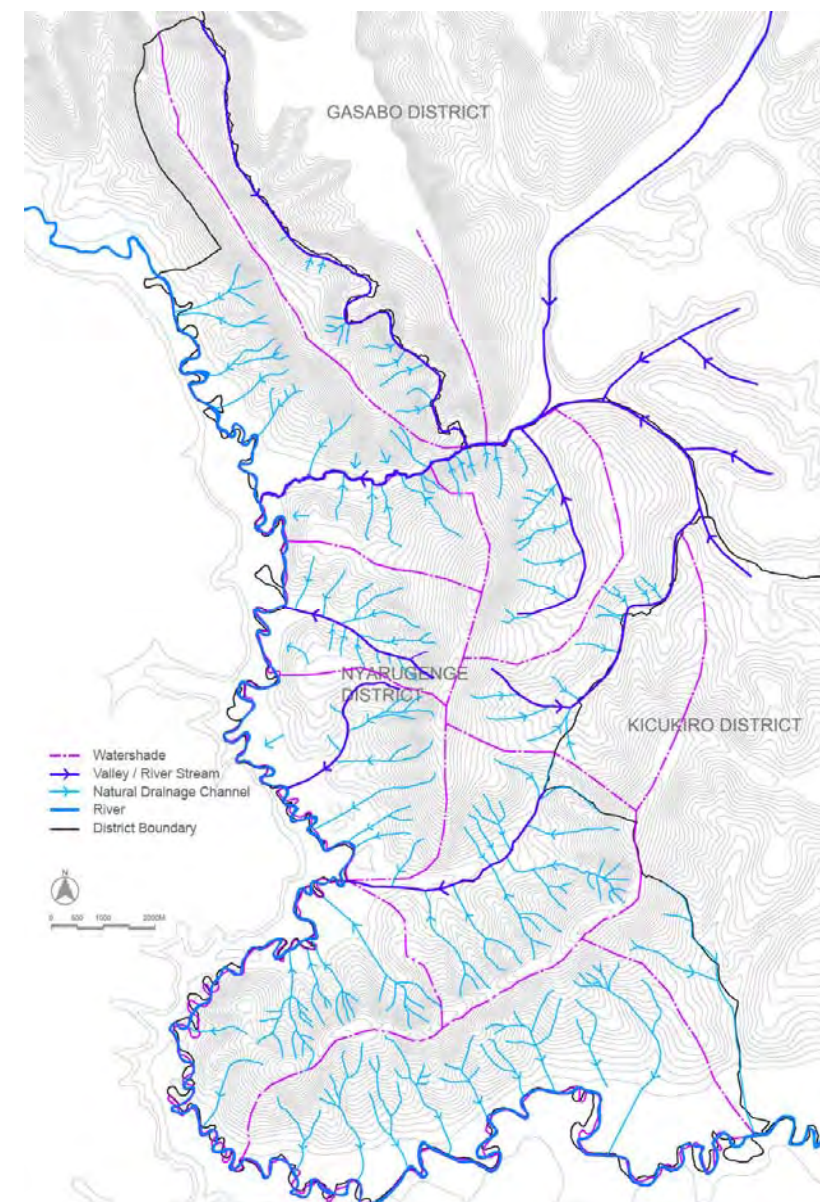


Figure 2.9: Nyarugenge District - Watershed and Drainage Map.
Source: Surbana

Large areas of the district have been cleared of forests, to make way for agriculture. However, pockets of dense and sparse forests still exist, especially along the District's ridges, steep slope areas and along sources of water. Systematic afforestation programmes need to be put in place to balance out the large scale urban developments that is anticipated in the District.

2 types of agricultural practices are seen prevalent in the District, based on their location. Large crop fields are seen in the low lying areas along the wetlands, and small fields, some times in the form of terraces, are seen on the higher slopes.

Figure 2.10 illustrates the existing vegetation in Nyarugenge District.

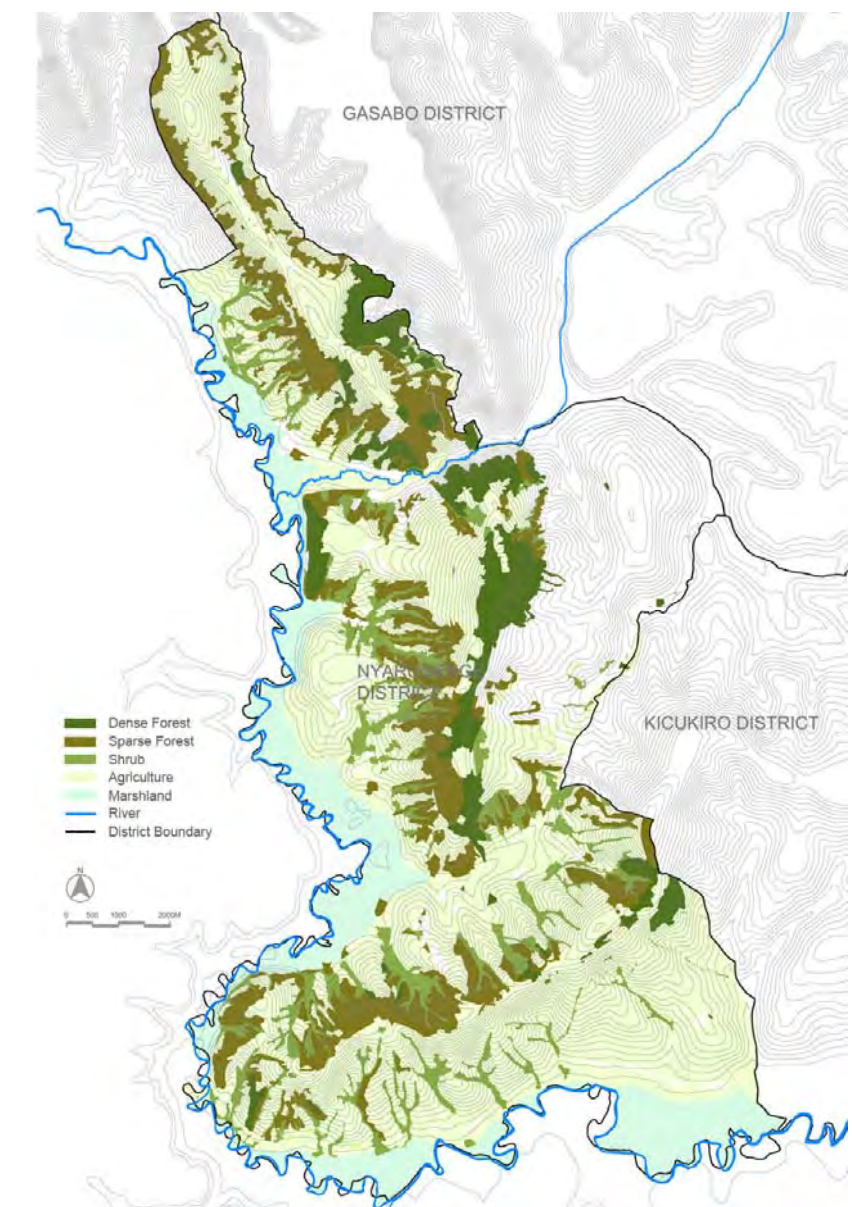


Figure 2.10: Nyarugenge District - Existing Vegetation.
Source: Surbana

C. Climate

Even though it is located in the equatorial region, Kigali enjoys a moderate climate, due to its high altitude.

It has two wet seasons alternating with two dry seasons, with an average annual rainfall of 1,000 mm. Favourable climatic conditions such as mild temperatures, abundant sunshine, gentle winds, coupled with a green, clean and orderly environment make Kigali a pleasant place to live in. The climatic data for the Kigali City is presented in Table 2.3.

Table 2.3: Kigali City Climatic Data.

Seasonal Cycles						
Months	Mar-May	Jun-Sep	Oct-Nov	Dec-Feb	Average Rainfall (mm)	
Season	Wet	Dry	Wet	Dry	1,000	
Temperature						
	Max Temp		Min Temp		Average	
Temperature (°C)	28.69		16.86		21.64	
Humidity						
Months	Oct-May (wet months)				Jun-Sept (dry months)	
Humidity (%)	72				57	
Wind						
Months	Jan - Jun		Jul- Dec		Mean	Predominant Direction
Wind Speed (km/h)	4.5 to 5.5		5.0 to 7.9		5.71	Westerly
Daylight						
	Average Daylight Hours		Average Insolation Incident on Horizontal Surface (kWh/m ² /day)			Average Daylight Cloud Cover (%)
	12.1		4.95			72.08

Source: Kigali Conceptual Master Plan Existing Conditions Analysis

2.3 Opportunities, Constraints and Threats

Table 2.4, Figure 2.11 and Figure 2.12 outline the key opportunities, constraints and threats which form the basis for developing the Master Plan for Nyarugenge District. More site specific opportunities, constraints, and threats for each of the 8 sectors areas will be discussed individually in Chapter 5-12.

Table 2.4: Nyarugenge District - Opportunities, Constraints and Threats.

Issues		Opportunities	Constraints	Threats
Site Context	Location and Connectivity	<ul style="list-style-type: none"> Kigali CBD, proposed to become the commercial core of the country, is located in 2 of the eastern sectors of the District, and offers a large amount of business and employment opportunities. The future City Centre is located adjacent to the District, to its east in Gahanga. The existing international airport is located about 10 km to the east (from the CBD) and the new international airport is located about 25 km to the south in Bugesera. Major national highways pass through Nyarugenge District ensuring connectivity to key national and international urban centres. 	<ul style="list-style-type: none"> The newly added sectors are largely rural and do not have proper connections and access roads to the major urban areas. 	<ul style="list-style-type: none"> Lack of inadequate connectivity to the newly included sectors may hamper their development potential.
	Existing Land Use and Developable Land	<ul style="list-style-type: none"> The redevelopment of the CBD areas will help revitalise the surrounding areas. The existing civic and public facilities in the urban areas can be reutilised and integrated in the redevelopment proposals. The newly included sectors are largely vacant offering land for new developments. The hilly terrain and long flat ridge areas offer scenic settings for tourism and resort developments. 	<ul style="list-style-type: none"> A large portion of land (69%) is under natural constraints. The densely packed informal settlements in urbanised areas are a constraint to redevelopment and infrastructure provision. The umudugudu sites in Kigali and Mageragere Sectors need to be considered while proposing redevelopment on those sites. The existing good class residential area in Nyarugenge Sector needs to be retained. 	<ul style="list-style-type: none"> If left uncontrolled, the areas close to the CBD may redevelop in a haphazard manner, further constraining redevelopment.
Environmental Context	Natural Features	<ul style="list-style-type: none"> The existing forests and wetlands offer attractive venues for recreational and tourism related developments. The Nyabarongo River provides a good source of water for agriculture and industrial activities. 	<ul style="list-style-type: none"> Existing developments in the wetlands need to be relocated and new developments need to be regulated. The existing steep slope areas need to be protected to prevent the threat of land slides and soil erosion. 	<ul style="list-style-type: none"> Lack of management and protection of wetlands can cause large environmental damage. If not properly managed, steep slopes may aggravate the existing problems of land slide and soil erosion. This may also affect the quality of run-off water into the wetland.

Source: Surbana



Flat areas along wetlands available for township development.



Existing public facilities in the urban areas can be reused.



Flat areas along ridges available for resort development.

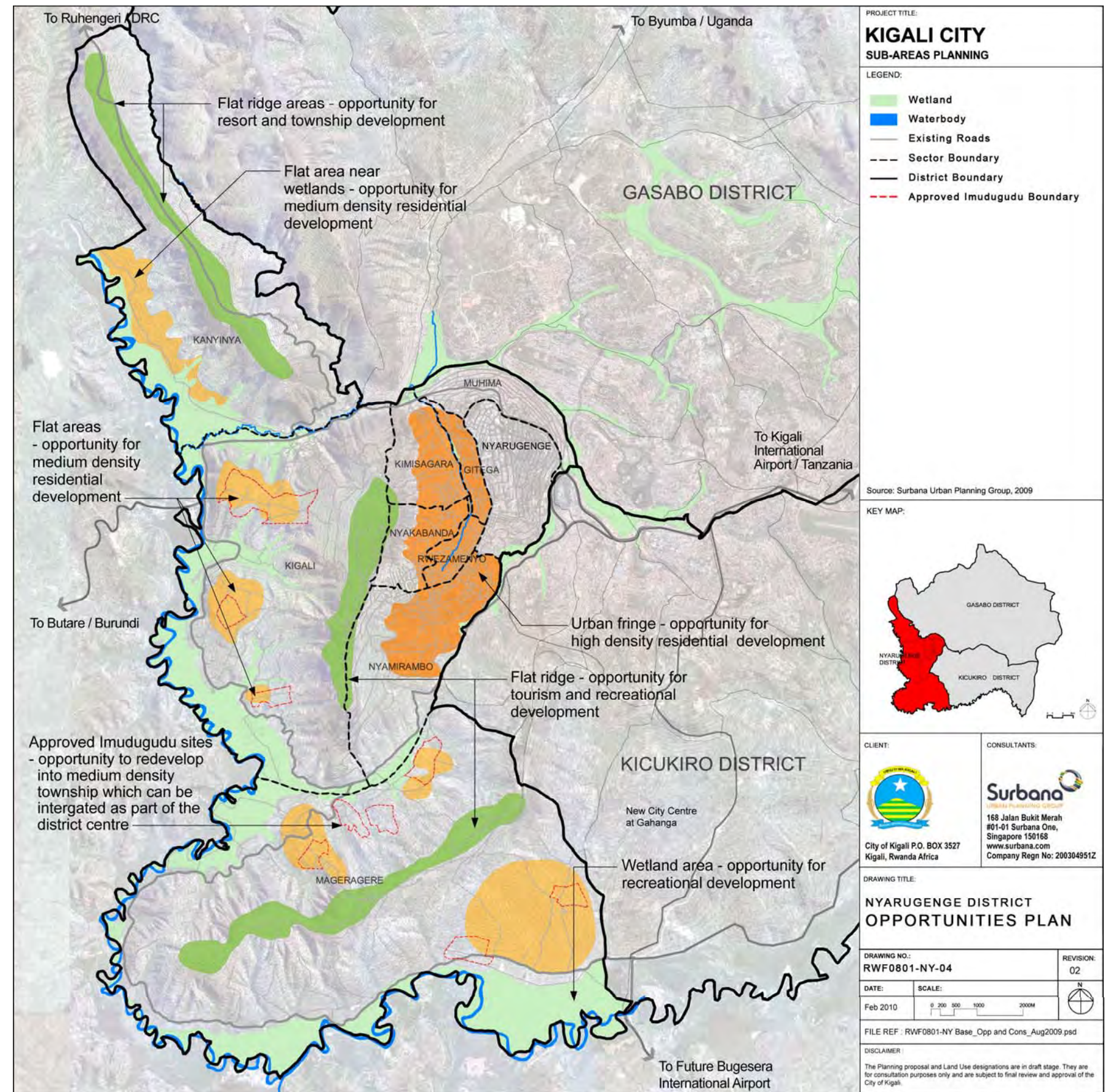


Figure 2.11: Nyarugenge District - Opportunities Plan
Source: Surbana



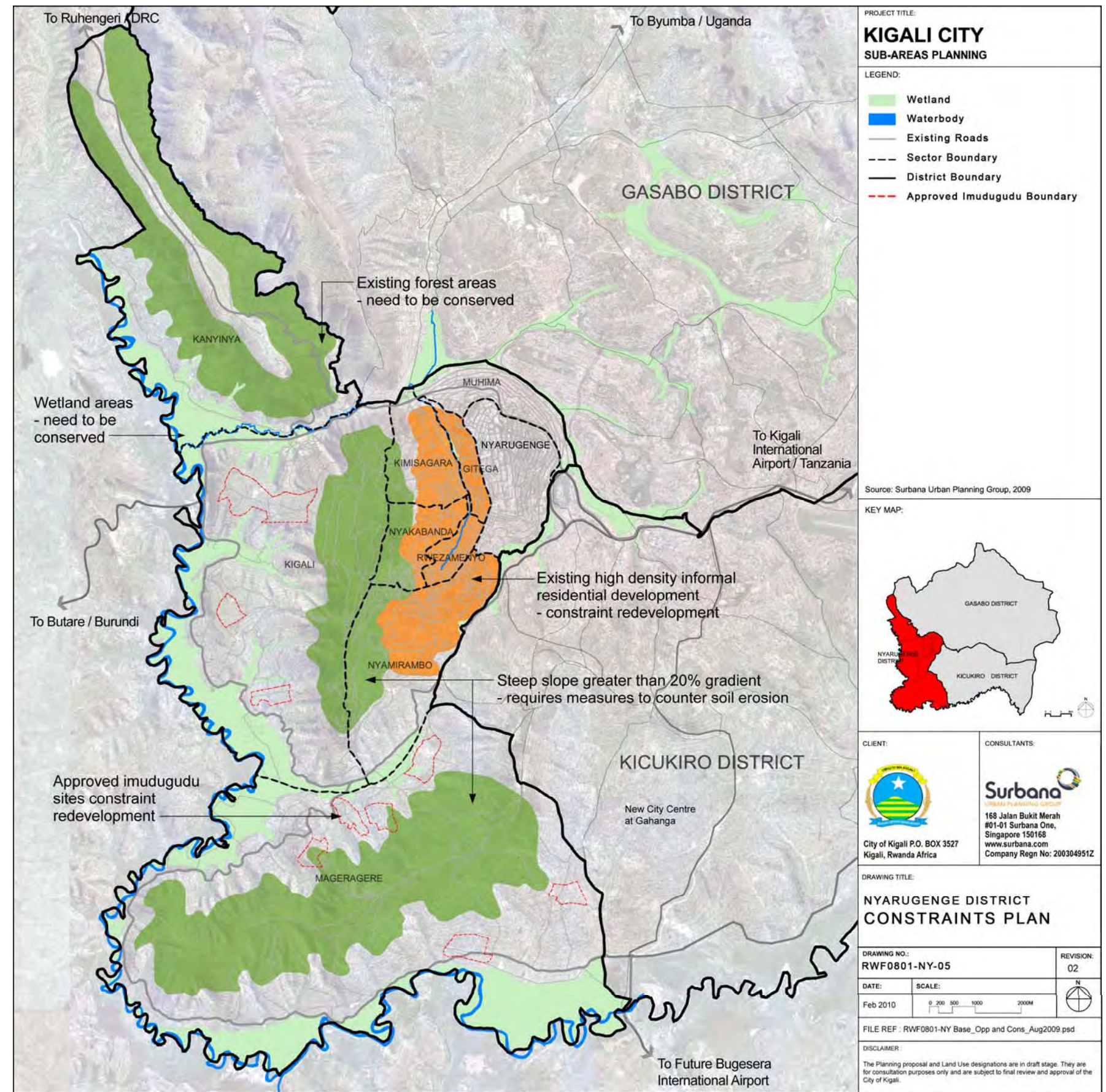
Existing dense informal settlements difficult to redevelop.



Undevelopable areas under steep slopes.



Areas under wetlands need to be conserved.

Figure 2.12: Nyarugenge District - Constraints Plan
Source: Surbana

CHAPTER 3: SUSTAINABILITY FRAMEWORK AND DEVELOPMENT VISION

This chapter presents the urban sustainability framework and development vision for Nyarugenge District.

3.1 The Urban Sustainability Framework 2030

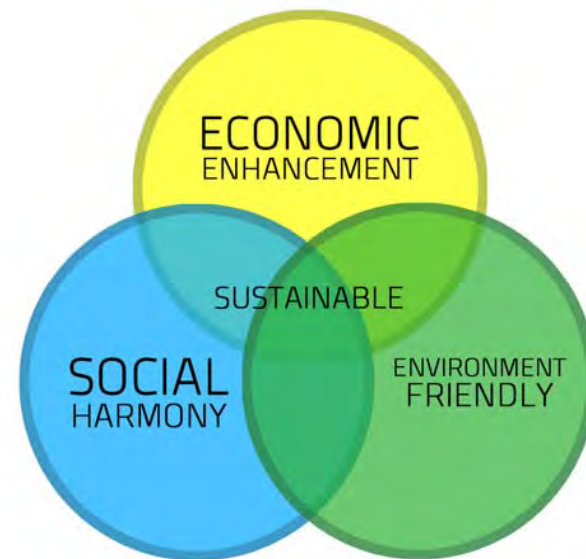


Figure 3.1: Triple Bottom Line Approach to Urban Sustainability.
Source: Surbana

In wake of the environmental crisis facing the planet, it is critical to ensure that development in Kigali is guided by the key principles of sustainability. However, in case of Rwanda, addressing the economic and social issues is as critical as attending to the environmental issues. As such the Master Plan for Nyarugenge District has been developed in line with the 'triple bottom line' approach. An urban sustainability framework has been developed for Nyarugenge District which lists down the key environmental, social and economic issues, and presents key performance indicators and recommendations which need to be achieved to address these critical issues. This framework should be administered by the City and should form the overarching framework for guiding all future planning works in the District.

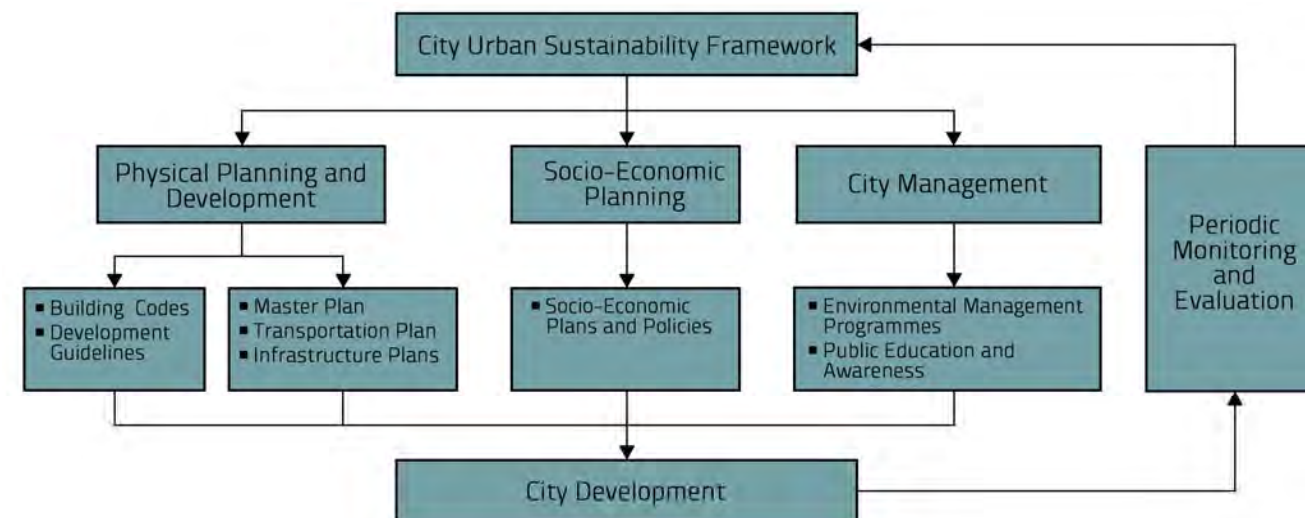


Figure 3.2: The Role of the Urban Sustainability Framework in City Development and Management.
Source: Surbana

Table 3.1: The Urban Sustainability Framework Proposed for Nyarugenge District.

Key Issues	Key Targets and KPIs	Key Strategies
A: Environmental		
<ul style="list-style-type: none"> Increasing urbanisation leading to potential contribution to global warming (increasing carbon footprint) Deforestation and landslides Developments in areas of steep slopes Developments in the wetland areas Surface and ground water pollution 	<ul style="list-style-type: none"> No development in unbuildable areas (slopes > 20%, wetlands and forests) Reforestation of steep slope areas (slopes > 40%) Reclamation and conservation of all wetland areas Transportation modal split of 70-30 30% of total number of trips to be green trips 100% waste water treatment within all developments in the district 	<ul style="list-style-type: none"> Zoning enforcement and land acquisition for forests and wetlands Development of parks in the wetlands along development areas for conservation, educational and recreational purposes Developing tourism and recreational activities Ensuring clean, green and safe development through good governance and City management
B: Socio-demographic		
<ul style="list-style-type: none"> High rate of population growth and urbanisation Substandard infrastructure development (eg roads, water and power supply etc.) 	<ul style="list-style-type: none"> Minimum development density of 100 du/ha in buildable areas To develop additional 100,000 affordable housing units To become a model development for liveability in Africa 	<ul style="list-style-type: none"> Land use intensification through rezoning Developing planned townships and communities with integrated accessible public facilities Developing comprehensive public housing estates in the suburban areas where land cost is affordable Ensuring attractive and pleasant park-like character within the District Developing quality public transport system with an extensive bus / BRT network Ensuring international standards for water, power supply and access roads Development of centralised STP for the CBD and localised STP for the suburban areas
C: Economic and Employment		
<ul style="list-style-type: none"> High unemployment rate Large number of job-seekers expected to enter the job market in near future Limited capacity and human resource 	<ul style="list-style-type: none"> To create 150,000 new jobs within the District To have 30% skilled workers out of the total work force 	<ul style="list-style-type: none"> Developing regional employment in the CBD and local employment in the townships through light industries and commercial centres Developing vocational training institutes and adding capacity in higher education institutions

Source: Surbana

3.2 The Development Vision

This section presents the vision developed for Nyarugenge District and states the goals, objectives, strategies and a set of recommendations, which will help realise this vision. The visions for the individual sectors will be presented in Chapters 5-12 respectively. Figure 3.3 explains the interrelationship of the visions at different planning levels.

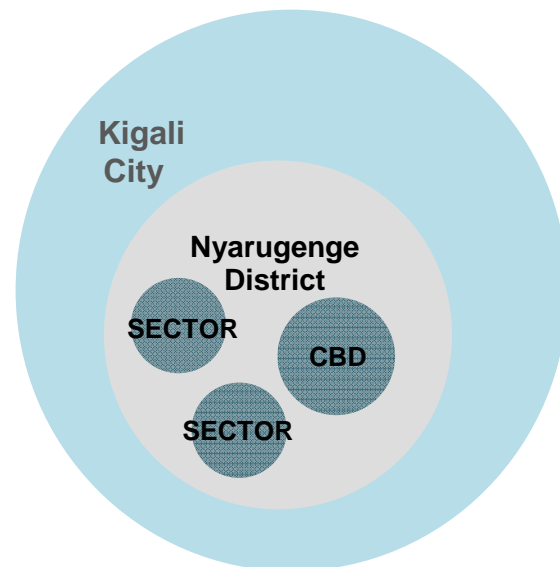


Figure 3.3: Interrelationship of the Visions at Different Planning Levels.
Source: Surbana

3.2.1 The Visioning Process

The vision proposed for Nyarugenge District has been developed through a visioning process which involved discussions and workshops with the Stakeholders - various government agencies, the business community as well as other community representatives.

Many considerations for the setting of the vision were tabled for discussion to guide the Stakeholders and decision makers. Some of these considerations included the future socio-economic development of Rwanda, the positioning of Rwanda in Central African Region, the overall vision of Rwanda and Kigali City and the role Nyarugenge District has in achieving in the development of Kigali City. These issues were debated upon in order to arrive at an understanding and agreement on the future direction for Nyarugenge District.

3.2.2 The Vision Framework

A visioning framework was prepared to help in structuring the stakeholders' aspirations. The visioning framework explains how the vision is translated into measurable and achievable goals, objectives, strategies and recommendations. Various proposals and aspirations from the Stakeholders have been incorporated in the visioning framework, for example, development of comprehensive and attractive living environments, conservation of the natural assets of the District, creation of readily accessible employment opportunities, promotion of tourism, etc.

The Vision Framework for Nyarugenge District is shown in Figure 3.4 and defined as follows:

- **Vision** is a holistic statement that encompasses the overall planning and urban design intent for Nyarugenge District.
- **Goals** are subsets of the vision. Each covers a particular planning and urban design aspect, relevant to the vision.
- **Objectives** are the measurable targets established to achieve the goals. They are physical aspirations that are based on stakeholders' inputs and address the planning and urban design challenges.
- **Strategies** are specific sets of physical planning and urban design actions developed to achieve the objectives.
- **Recommendations** are statements of the planning and urban design principles and intentions, which serve as a guide to the public officials, administrators, and citizens for day-to-day decision-making.

The Development Plan for the City of Kigali, 2008-2012, puts forth the vision for Kigali City as:

"A region which can successfully compete in global economy in terms of business opportunities and industry, prosperity and growth, a region where public and private sectors work in partnership, a region where individuals and families enjoy a better quality of life."

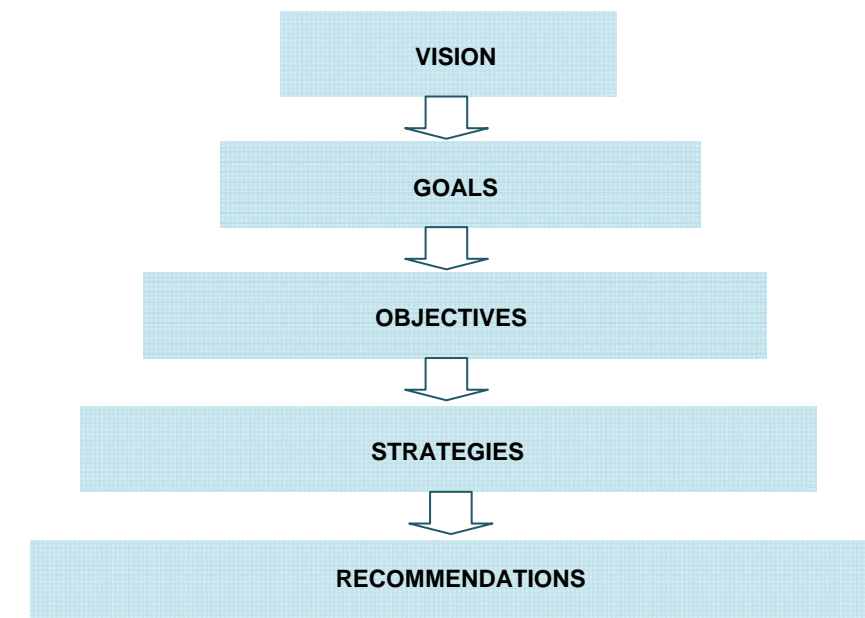


Figure 3.4: Strategic Framework for the Development of the Proposed Kigali CBD.
Source: Surbana

Based on the visioning process and vision framework described above, as well as the broad vision suggested for Nyarugenge District in the Development Plan for the City of Kigali, the vision proposed for Nyarugenge District is presented below.

3.2.4 Proposed Goals, Objectives, Strategies and Recommendations

Goal 1: Revival of the Existing Central Business District and Creation of Well Distributed District Level Urban Nodes



Table 3.2: Goal 1 - Revival of the Existing Central Business District and Creation of Well Distributed District Level Urban Nodes.

Goals	Objectives	Strategies	Recommendations
Revival of the Existing Central Business District and Creation of Well Distributed District Level Urban Nodes.	To redevelop the existing CBD to accommodate 1-2 million sq. m of commercial floor space serving Kigali City and the East-African Region within the next 10-15 years.	Allow for the development of contemporary office spaces for banks and multinational companies, as well as large retail spaces, supported by state-of-the-art infrastructure facilities.	Designate an area of about 50 ha - 80 ha in Muhima (CBD1) to be developed as the CBD core which will have large plot sizes to allow for high-rise, large office developments.
			Designate large plots in CBD1 along Avenue des Poids Lourdes as well as near the Taxi Park, to the west, and near Kimicanga, to the east, for high-density, large commercial developments.
		Ensure the creation of exhibition and convention spaces, dining and entertainment venues, hotels and residential developments, leisure and recreational destinations and other such business support activities.	Develop Kimicanga as a gateway to the CBD as well as the regional centre for MICE (Meeting, Incentive, Convention and Exhibition) activities.
			Create areas for mix use developments in CBD1 with large parcels developed around public plazas and open spaces.
			Create areas for the development of high-rise, high-end residential living within the CBD.
			Provide a 2-3 ha central plaza within the CBD core flanked by iconic civic, cultural, commercial and recreational developments. Encourage the use of local arts and materials in the plaza.
	To create a new district centre in the long term (15-25 years), located in between the existing CBD and the new City Centre and housing district level facilities such as the district office, a regional hospital, a university, a regional library etc.	Find centralised location for the new District Centre with an area to accommodate important public facilities which cater to district level needs.	Develop the wetlands along CBD1 as a recreational regional park and provide a network of green plazas and connectors which link the developments in the CBD to the wetlands.
			Provide 1 vocational / ICT institute and/or 1 higher education institute in the District Centre.
			Provide 1 regional library in the District Centre.
			Allow for the provision of 1 regional hospital in the District Centre.
	To revitalise the existing civic - commercial node at the south of Rwezamenyo Sector as a major urban node within the next 10-15 years.	Revitalise the existing recreational, civic, commercial developments and provide complementary developments.	Provide 1 children's home and 1 old age home in the District Centre.
			Allow for the provision of government or municipal offices.
			Expand the existing sports stadium into a regional sports complex, complete with indoor and outdoor stadia, a swimming complex and a recreational club.
			Redevelop the commercial and mix use developments along Avenue de Nyabarongo to cater to the district level needs.
			Create a cultural node around the existing Islamic Centre and Mosque and a civic node around the existing courts and educational institutes, through the addition of amenities such as a public plaza, overhead pedestrian connectivity, etc.

Source: Surbana

Goal 2: Renewal of Existing Urban Areas



Table 3.3: Goal 2 - Renewal of Existing Urban Areas.

Goals	Objectives	Strategies	Recommendations
Renewal of Existing Urban Areas.	To rezone the existing high-density, low rise, informal housing settlements in Nyarugenge Sector (CBD2) and in the other urban areas into high-density, medium-rise, comprehensive housing estates which accommodate a population of 300,000 to 400,000, to meet the immediate need for public and private housing within the next 10-15 years.	Offer incentives which enhance land value and encourage amalgamation of plots and high density developments.	Rezone Gitega, Kimisagara, Nyakabanda, Rwezamenyo and parts of Nyamirambo Sectors into medium-rise residential areas.
			Rezone the residential and mix use areas in the south of Nyarugenge Sector into medium-rise residential areas.
			Acquire land required for the provision of public as well as transport and infrastructure facilities.
	To ensure the conservation and enhancement of the historic character and all heritage and cultural buildings and landmarks in Nyarugenge Sector (CBD2) and in the other urban areas.	Ensure provision of adequate amenities within residential areas to ensure development of walkable, self-sustaining communities.	Retain or redevelop existing public facilities and provide new facilities as per the proposed public facilities standards.
			Redevelop the Statehouse site and a cultural and recreational centre, and the surrounding parcels for high-end cluster housing.
			Redevelop and enlarge the Natural History Museum at the Kandt House.
			Allow for the retrofitting of the Central Prison, the Saint Famille Church and the Belgian Memorial through allowing recreational and commercial uses.
		Conserve and revitalise the heritage and cultural landmarks.	Revitalise the structures and surrounding public spaces around key churches, mosques and markets along Avenue de la Nyabarongo and Avenue du Mont Kigali.
			Redevelop the Nyarugenge Market and the Nyabugogo Market as vibrant cultural market, targeting tourists and locals.
			Redevelop the commercial streets along Avenue de la Nyabarongo and Avenue du Mont Kigali as vibrant linear shopping and mix use strips for locals.
		Preserve the historic character of key areas and popular developments.	Preserve the single-family residential area in Kiyovu.
			Maintain, with small intensification, the plot sizes and plot ratio of commercial and civic developments along the ridge in Nyarugenge Sector.
		Encourage the application of local "Rwandan" character in all new major public projects.	Encourage the use of local materials, forms and colours in all public buildings.
			Encourage the use of public art, local materials and colours in all public plazas and open spaces.

Source: Surbana

Goal 3: Development of Comprehensive New Townships



Table 3.4: Goal 3 - Development of Comprehensive New Townships.

Goals	Objectives	Strategies	Recommendations
Development of Comprehensive New Townships.	To develop new residential townships in the sparsely developed and newly included sectors to accommodate a population of 200,000 to 300,000 which ensure adequate housing for the future public and private housing needs of the City.	Allow for the development of neighbourhoods which offer a range of housing choices for all income groups.	Ensure that 70% of housing is affordable housing, in the form of medium to high rise apartments.
			Develop new high-density townships along the wetlands in Kanyinya and Mageragere Sectors and on the flatter areas at the top of Kigali Sector.
		Ensure provision of adequate amenities within residential areas to ensure development of walkable, self-sustaining communities.	Ensure the development of walkable neighbourhood centres and public amenities as per the public facilities provision standards.
	To transform all the umudugudu and other public housing project sites into high-density townships.	Rezone the housing project sites into medium-rise residential areas whilst retaining and adding to the planned public facilities and infrastructure.	Maintain the existing major road alignments proposed in the housing projects.
			Maintain the main infrastructure facilities and lines proposed in the housing projects.
			Maintain the public facilities proposed in the housing projects.
	To ensure adequate commercial activities, which offer business and employment opportunities to 30% of the population in each township.	Develop new integrated townships around the housing project sites.	Develop the buildable areas around the housing project sites into medium-rise residential areas with adequate public facilities to collectively form integrated townships.
			Develop one Town Centre for every 120,000 to 150,000 population which houses local firms, bank branches, government offices etc.
			Provide one industrial area per town housing clean industries.
		Create employment generating opportunities within and around the townships, which create local employment and yet, do not undermine the residential developments.	Allow for commercial forestry and agro forestry of high value trees, plants and produce within the unbuildable areas of the district.

Source: Surbana

Goal 4: Creation of Alluring Recreational Features and Tourist Attractions



Table 3.5: Goal 4 - Creation of Alluring Recreational Features and Tourist Attractions.

Goals	Objectives	Strategies	Recommendations
Creation of Alluring Recreational Features and Tourist Attractions.	To integrate within each township a township park. To integrate within each residential community and neighbourhood a neighbourhood park.	Optimise the use of natural features, such as wetlands, steep slopes and forests around the townships to create a variety of recreational venues.	Develop linear parks along wetlands and natural drains in all townships and residential settlements, which not only offer integrated recreational open spaces, but also double up as wetland conservation and surface water management features.
		Ensure the provision of recreational open spaces within each township.	Develop a network of parks and green connectors, along roads, through public parks and residential neighbourhoods, which offer seamless pedestrian connectivity throughout the district and to all its key attractions.
			Reserve land for development of min. 1 town parks per town and 1 estate parks per housing estate.
	To develop resort and adventures facilities within the short term in forested areas along the ridges of Kinyinya and Mount Kigali sectors. To develop one wetland park along all townships abutting the wetlands.	Rejuvenate existing and create new cultural and tourism facilities within the urban areas.	Provide one sports field per township.
			Develop 1 cultural centre / performing arts centre and 1 museum / art gallery each in the CBD core and the District Centre.
			Provide sites for high-end hotels in the CBD and in the District Centre.
			Allocate key tourism facilities, such as visitors' centre, tourism buses etc. within the central plaza in the CBD core as well as in the wetland park abutting Muhima.
		Develop experiential leisure activities leveraging on the unique existing natural features.	Develop high-end active recreation venues such as an equestrian club and golf-course along the flatter areas adjoining the wetland, close to the future City Centre and along the route connecting the future International Airport in Bugesera.
			Develop a nature adventure centre around Mount Kigali. Mountaineering, trekking, hiking, camping, picnic.
			Develop resort facilities along the ridges in Kinyinya, Kigali and Mageragere Sectors leveraging on the exotic location and panoramic views.
	Develop planned rural settlements near agriculture zones to showcase the traditional rural lifestyle as a tourism feature.	Develop eco-villages with farm-stay facilities in Mageragere and Kigali Sectors.	Develop eco-tourism trails along the nature conservation areas in the newly included sectors.

Source: Surbana

Goal 5: Transit Oriented Development supported by an Efficient and Cost-effective Transportation System



Table 3.6: Goal 5 - Transit Oriented Development supported by an Efficient and Cost-effective Transportation System.

Goals	Objectives	Strategies	Recommendations
Transit Oriented Development supported by an Efficient and Cost-effective Transportation System.	To integrate transportation planning with the redevelopment of all existing urban areas and the development of all new townships.	Reserve sufficient road space and establish new links to support the future travel demand arising from the redevelopment of existing urban areas and the new townships.	Widen existing roads within the existing city centre to cater to the anticipated higher traffic volume arising from the future redevelopment.
			Paved important existing dirt tracks within the urban areas to improve riding quality and road carrying capacity.
			Construct new paved roads to link the existing city centre to the new townships and beyond.
		Reduce urban congestion arising from insufficient car parks and illegal kerbside parking within existing urban areas.	Establish a parking provision guideline that maintains a balance between providing sufficient parking space and regulating traffic into the CBD.
			Implement road pricing to restrict car usage within the CBD in the long term.
			Introduce car park charges within the CBD that would discourage traffic coming into the CBD.
	To develop an efficient road network to serve the projected population of 1 million.	Improve mobility and accessibility through road improvements and new road construction.	Develop a network of new highways linking the existing City Centre with the new City Centre and the future airport at Bugesera.
			Establish a road network and a road hierarchy system that suit the existing topography.
			Retain at least 80% of existing road alignments.
			Re-configure existing roundabouts and traffic junctions within the urban areas to improve level of service.
	To ensure public transport linkages for all urban centres, townships and residential communities.	Maintain a modal split of 70:30 for public transport versus private cars.	Develop an integrated and cost effective public transport system offering regional and local connectivity.
		Improve public transport facilities and services to make it as convenient as private cars.	Redevelop the bus interchanges in Nyabugogo and near KIST as well as develop a new bus interchange to the east of CBD1, which will offer connections to regional routes.
			Develop bus interchanges within townships which offer regional and local connectivity.
			Increase the carrying capacity of public buses by phasing out mini-bus taxis and introducing buses with higher capacity such as the long buses or articulated buses.
	To ensure green modes of transport such as walking and cycling in all commercial and residential areas.	Create conducive environment for walking and cycling within the urban areas.	Create dedicated bus lanes along major roads to ensure smooth flowing of buses.
			Develop a green connector network linking all green areas.
			Provide dedicated pedestrian walkways and cycling paths along roads as well as neighbourhoods and housing estates.
			Provide facilities such as bicycle shed adjacent to bus interchanges / terminals.

Source: Surbana

Goal 6: Provision of Integrated, Timely, Cost Effective and Eco-friendly Infrastructure Facilities



Table 3.7: Goal 6 - Provision of Integrated, Timely, Cost Effective and Eco-friendly Infrastructure Facilities.

Goals	Objectives	Strategies	Recommendations
Provision of Integrated, Timely, Cost Effective and Eco-friendly Infrastructure and Utilities	To ensure integrated and timely provision of utility services in all commercial and residential areas.	To coordinate with the relevant authorities and service providers in planning for the future development of Nyarugenge District.	As much as possible, planning of Nyarugenge District to be in line with the various infrastructure/ utility master plans.
	To provide adequate water supply for all existing and new growth areas.	To progressively extent the existing water supply network to the sectors around the existing CBD.	Coordinate with Electrogaz (Water Department) and MININFA (Water & Sanitation) on utility provision.
		To implement decentralised water supply systems in rural sectors which are far from the existing network.	Involve local communities to construct slow sand filter water treatment systems.
		To supplement water supply through rainwater harvesting.	Use of rainwater for irrigation and general cleaning to reduce the demand of potable water.
	To eliminate slope erosion and provide drainage and flood control measures.	To provide slope protection measures while implementing new developments, so as to reduce storm water runoff velocity and minimise soil erosion.	Construct retaining walls for very steep slopes and use geo-reinforcement systems for not-so-steep slopes.
		To introduce water-sensitive urban design features for storm water retention and protection of surrounding water quality.	Construct vegetated swales at suitable green corridors to retain coarse sediments and reduce storm runoff velocity.
			Constructed wetlands to be part of ETZ for storm water retention and treatment.
	To provide sewerage and wastewater treatment in all existing and new developments.	To connect sewers for the sectors around the existing CBD to the proposed sewerage network of the Kigali City Sewerage Master Plan.	Coordinate with MININFRA on the actual implementation schedule of the sewerage network and Gitikinyoni STP.
		To construct decentralised sewage treatment plants in rural sectors which are far from the proposed Kigali City sewerage network.	On-site sewage treatment plants to be part of ETZ, and secondary treated effluent could be further treated though constructed wetland for effluent reuse.
	To provide solid waste management facilities in all existing and new developments.	To encourage 3Rs (reduce, reuse and recycle) of solid waste through public education and provision of facilities for recycling at the sector level.	Recycling bins to be provided for each neighbourhood. Transfer station to be located in the ETZ of each sector to deliver solid waste that cannot be recycled to the city landfill site for treatment and disposal.
		To construct biomass plants for recovery of energy from wastes.	A biomass plant to be constructed in the ETZ of each sector to treat organic and agricultural wastes and sludge from the on-site STP for energy recovery.
	To provide adequate power supply for all existing and new growth areas.	To progressively extent the existing power supply network to the sectors within 5 km corridor of the existing transmission mains.	Coordinate with Electrogaz (Power Department) and MININFRA (Energy).
		To implement independent power supply systems in rural sectors which are far from the existing network.	Possible use of solar energy to supplement power supply.

Source: Surbana

Goal 7: Conservation, Revitalisation and Management of the Unique and Rich Natural Features



Table 3.8: Goal 7 - Conservation, Revitalisation and Management of the Unique and Rich Natural Features.

Goals	Objectives	Strategies	Recommendations
Conservation, Revitalisation and Management of the Unique and Rich Natural Features.	To ensure protection of all wetland systems.	Stipulate upstream measures to control the quantity and quality of discharge into the wetlands.	Provide a 10m - 40m buffer to all natural drainage lines.
			Ensure measure to manage the drainage run-off quality.
		Mandate downstream measure to ensure wetland conservation.	Clear all existing developments within the wetland boundaries.
	To protect existing forest and undertake afforestation in all areas under very steep slopes (>40%).	Encourage the protection of existing forest areas and the creation of new afforestation and agricultural areas.	Conserve all existing natural forest areas.
			Designate areas for afforestation and restricted commercial / agro forestry.
	To mandate slope protection measures in areas of steep slope (>20%).	Ensure application of soil stability measures to prevent landslides.	Mandate appropriate soil protection measures within all built-up areas and commercial/agro forestry areas.

Source: Surbana

CHAPTER 4: NYARUGENGE DISTRICT - PROPOSED MASTER PLAN

Based on the existing site context analysed in the previous chapters, a land utilisation strategy has been proposed, which determines the broad development directions of different areas in the District. This land utilisation strategy is applied to the physical ground conditions of the District to form the Development Structure Plan. The development structure is refined further to form the Proposed Land Use Plans for Nyarugenge District.

4.1 Proposed Land Utilisation Strategy

In order to achieve the proposed vision and goals, three types of land utilisation strategies are proposed for the three different types of areas in the District, as follows:

- **Revitalised Urban Areas and Development of a new CBD core**

The 2 CBD sectors, namely Muhima (CBD1) and Nyarugenge (CBD2) are proposed to be revitalised to form the new regional commercial and financial centre of the nation and of east central Africa. A new CBD core is proposed to be developed stretching from the Centre Ville Roundabout, down into the proposed Wetland Park.

- **Redeveloped Urban Fringe Areas**

The urbanised sectors, namely, Gitega, Kimisagara, Nyakabanda, Rwezamenyo and parts of Nyamirambo are proposed to be developed as urban fringe areas with medium to high density residential areas which support and thrive upon the large scale demand for housing brought about the CBD redevelopment.

- **New Townships in Sub-urban Areas:**

Areas within the newly included and largely undeveloped sectors, namely, Kanyinya, Kigali and Mageragere, are proposed to be developed as sub-urban areas with new comprehensive townships in the long run, which ensure adequate provision for the future needs of the District and the City.

- **Recreation and Tourism Development Areas:**

Areas along the ridges and wetlands are proposed to be developed for purposes of recreation and tourism leveraging on the scenic views and the pleasant climate.

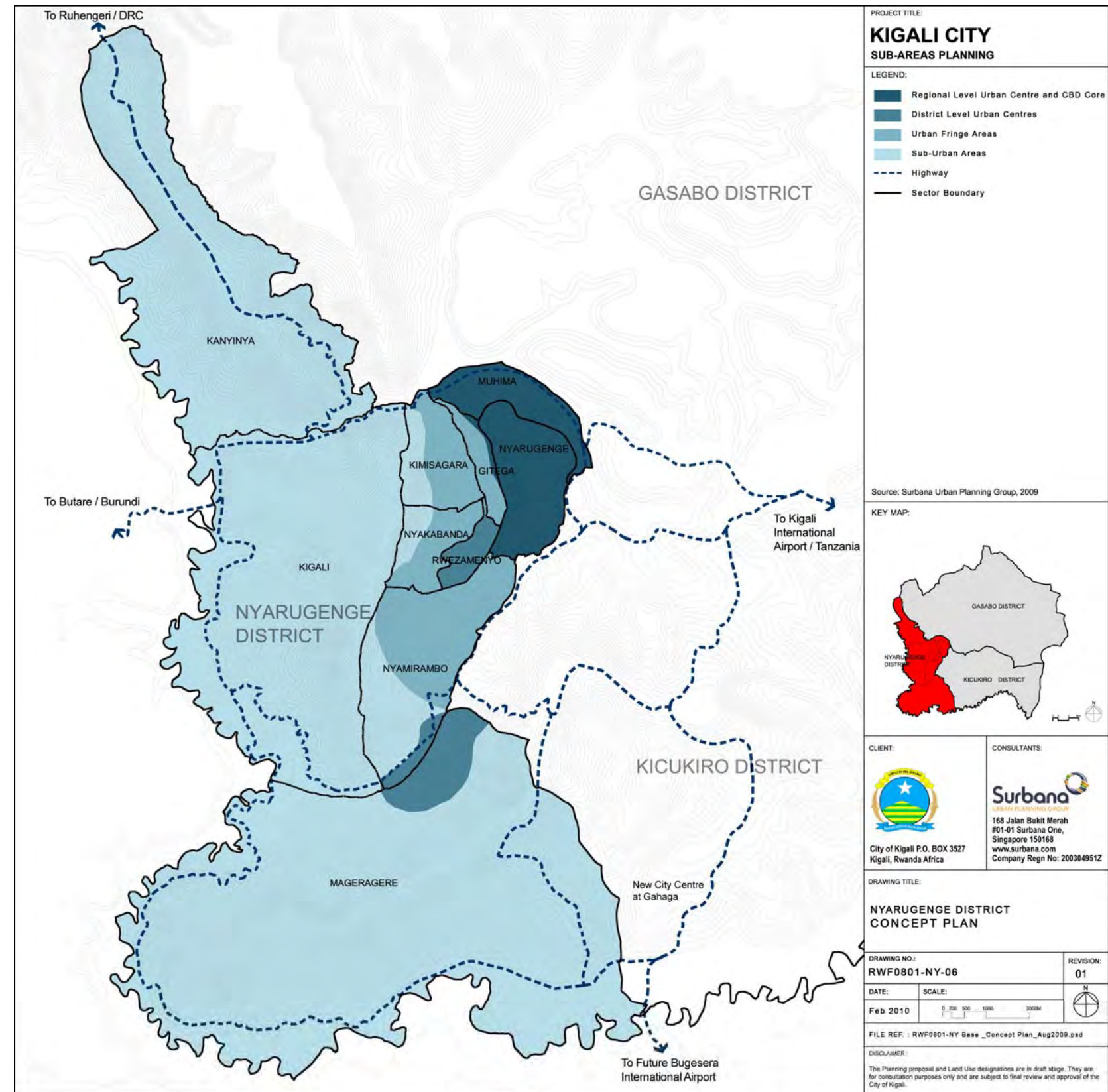


Figure 4.1: Nyarugenge District - Proposed Land Utilisation Strategy.
Source: Surbana

4.2 Proposed Structure Plan

The Proposed Structure Plan for Nyarugenge District establishes the structure of the development areas and location of the key activities within the District. The key proposals of the Structure Plan for Nyarugenge District include:

- Establishment of an efficient highway grid system ensuring the long-term regional connectivity and internal linkages.
- Redevelopment of Muhima Sector as the new Central Business District of Kigali City.
- Development of a CBD core extending from the Centre Ville Roundabout down into the wetlands.
- Development of a new District Centre at the junction of Nyamirambo and Mageragere Sectors.
- Redevelopment of the existing commercial and civic node at the north of Nyamirambo into a Regional Centre for the District.
- Redevelopment of the existing dense and informal housing areas near the CBD into high-density medium rise residential areas.
- Development of the under developed areas in the sub-urban sectors into umudugudu⁹ and eventually into comprehensive residential townships complete with retail, public and civic facilities as well as supporting employment generating industrial and commercial activities.
- Creation of local employment opportunities through development of town centres and industrial estates.
- Utilization of unbuildable areas of the District for agricultural activities.
- Conservation of existing forest and wetlands. Afforestation in very steep areas.
- Utilization of the wetlands and nature areas for tourism development as well as for integration into the townships as recreational destinations.

The Structure Plan will form the basis for the development of the Detailed Master Plan for Nyarugenge District, which would include the proposed Land Use Plans, the proposed Transportation and Infrastructure Plans as well as the urban design for key areas. It would also form the basis for the Master Plan implementation, land acquisition and public facilities provision.

⁹ An Imudugudu (pl=umudugudu) is a public housing project currently undertaken by the City of Kigali as a part of their land consolidation programme. Currently 11 imudugudu projects are being developed by the City in Kigali and Mageragere Sectors.

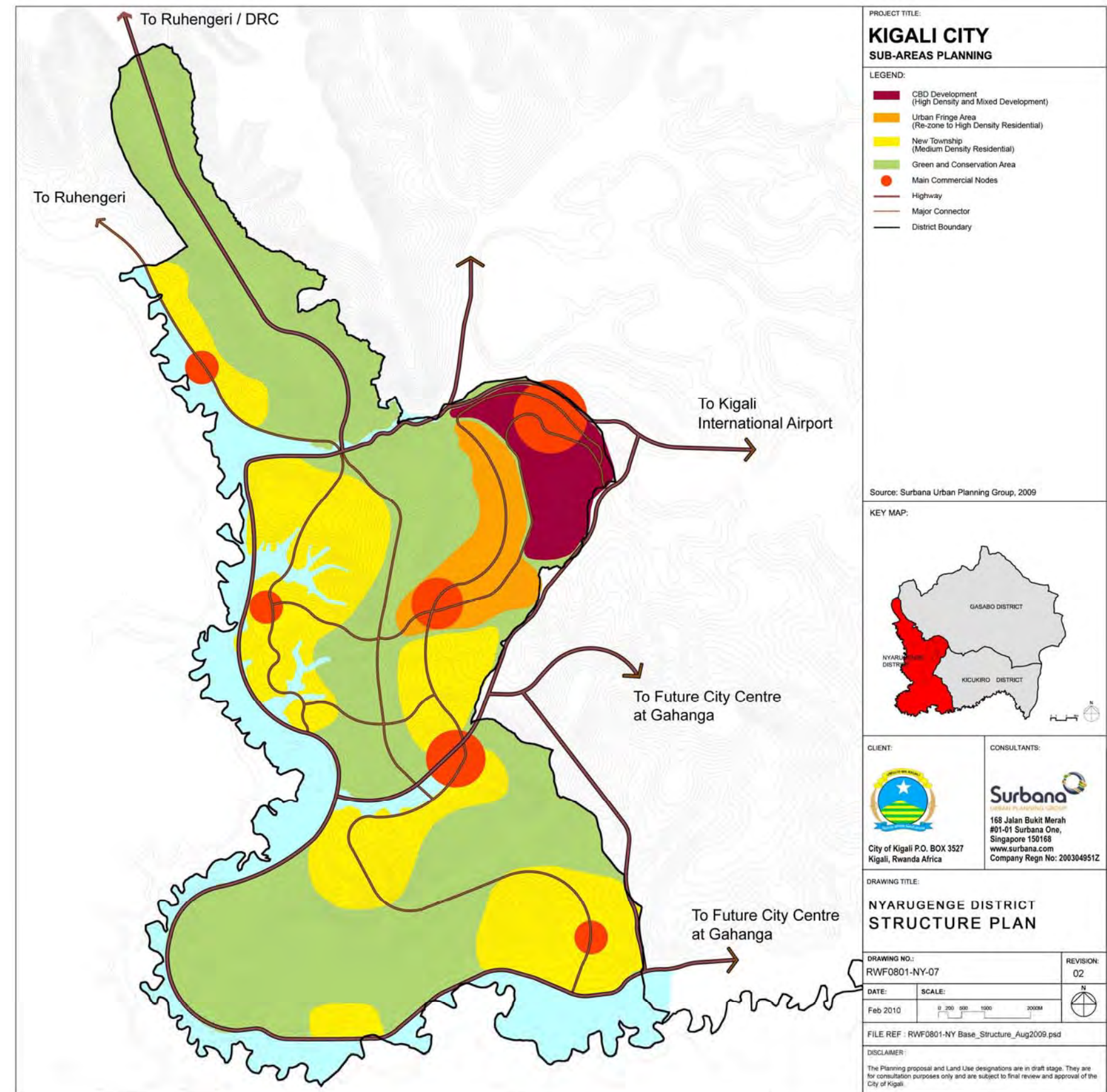


Figure 4.2: Nyarugenge District - Proposed Structure Plan.
Source: Surbana

4.3 Proposed Land Use Plan

In 2005, the City of Kigali expanded its urban limits, due to which large areas of undeveloped agrarian land is now included within the City boundaries. In order to optimise agriculture activities within the City limits the government has undertaken a land consolidation programme under which, dwellers of housing units scattered around the farming areas are rehabilitated into well-planned residential communities called umudugudu. The redevelopment of the urban fringe areas is expected to provide land for meeting the immediate housing needs of the urban population working in the CBD. On the other hand, the development of the umudugudu is expected to provide land for the immediate rehabilitation of the people engaged in farming and life stock rearing activities in the sub-urban areas. However, within the next 10 years, with the increasing urbanisation of the City, when the demand for housing increases, these umudugudu sites could be redeveloped into high-density residential townships. In view of this, the Master Plans for Nyarugenge District is presented in 2 stages - one showing the development up to Year 2020 and other showing the ultimate proposed development of the District.

4.3.1 Proposed Land Use Plan Year X

The Land Use Plan Year X shows the ultimate development envisioned for the District. Its key proposals are:

- To allow for the development of high-rise, high-density mix use zones with large-scale office, retail, hotel and residential developments in Muhima (CBD 1).
- To allow for the development of city and regional level commercial zones with high-rise, premium office blocks and iconic civic developments and entertainment venues in the CBD core and Phase 1 site.
- To conserve the existing single family residential areas as well as important heritage landmarks within CBD2.
- To develop a new district centre with large-scale civic and commercial developments in the new District Centre.
- To redevelop the civic and cultural amenities in the north of Nyamirambo as a regional centre offering sports, cultural and mix use activities.
- To rezone the existing informal dense settlements into medium-rise residential zones in the urban-fringe areas.
- To develop the 5 new medium rise residential townships in sub-urban sectors with supporting public facilities and industrial developments.
- To provide land for farming in the unbuildable areas.
- To conserve nature areas such as forests and wetlands.
- To protect steep slopes through afforestation.
- To develop key infrastructure facilities such as the land-fill site, the new cemetery, the district level fire station, etc.

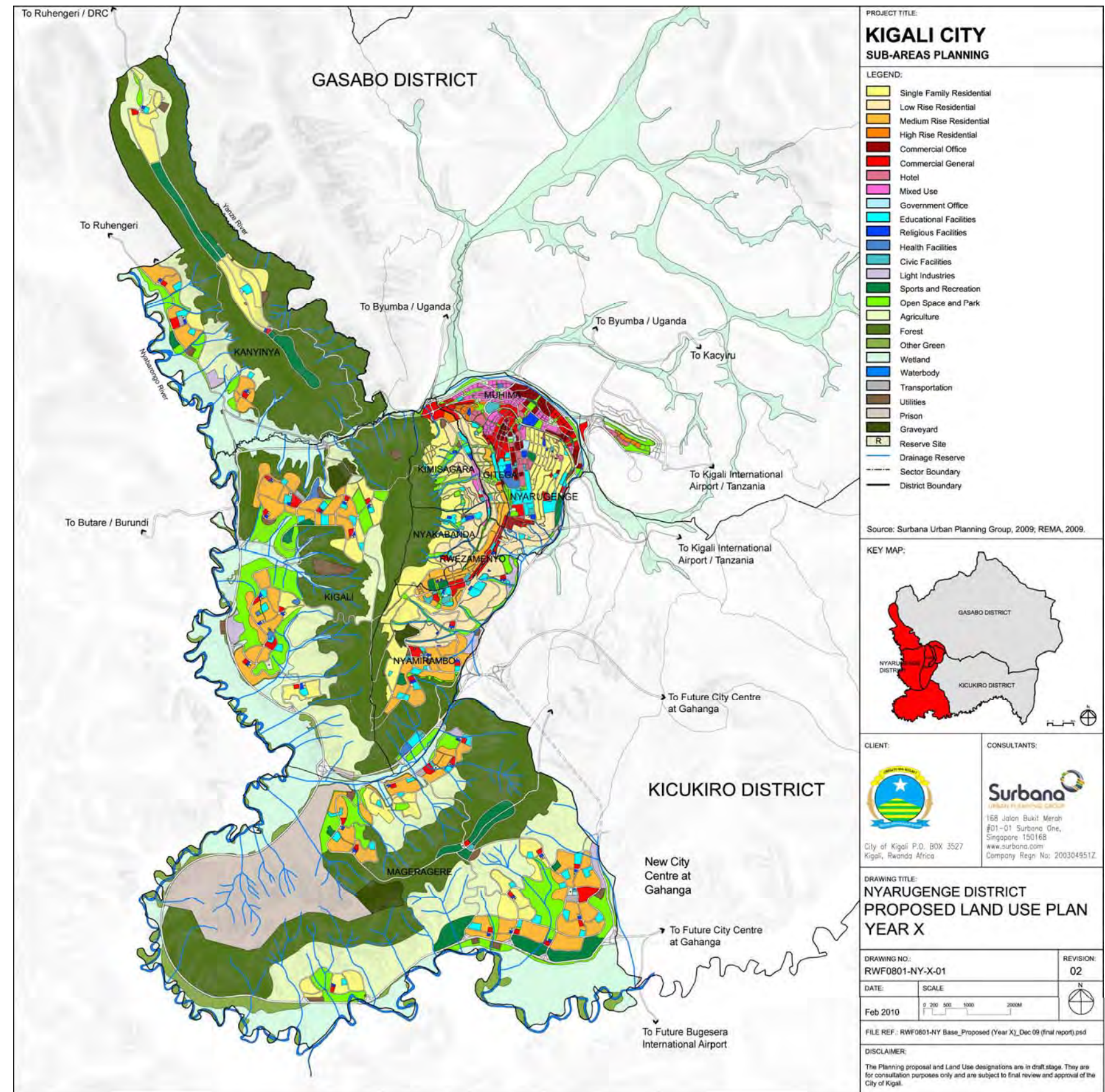


Figure 4.3: Nyarugenge District - Proposed Land Use Plan Year X.
Source: Surbana

4.3.2 Proposed Land Use Plan Year 2020

While the land uses for the CBD and urban fringe areas remains unchanged in Year 2020 Land Use Plan, the key difference in the Land Use Plan Year X are:

- To develop the approved 11 umudugudu projects in Kigali and Mageragere Sectors.
- To allow farming within the buildable areas around the umudugudu and housing project sites. This land along with the land occupied by the housing project would be rezoned as comprehensive residential townships in the future.

The proposed Nyarugenge District Land Use Plan Year X is presented in Figure 4.3 and Land Use Plan Year 2020 is presented in Figure 4.4. While the land use planning for Nyarugenge District is discussed in this report, the zoning plan and regulations for the District are discussed in the Zoning and Urban Design Guidelines Report for Nyarugenge District.

Table 4.1: Nyarugenge District - Land Use Data Year X.

Broad Land Use	Legend	Detailed Land Use	Area (ha)*	(%)
Residential		Single Family Residential	767.58	6%
		Low Rise Residential	359.38	3%
		Medium Rise Residential	806.29	6%
		High Rise Residential	13.23	0%
		Total Residential	1946.48	15%
Commercial		Commercial Office	50.78	0%
		Commercial General	192.92	1%
		Hotel	33.69	1%
		Total Commercial	277.39	1%
Mix Use		Mix Use	68.29	1%
Public Facilities		Government Office	7.87	0%
		Educational Facilities	200.79	1%
		Religious Facilities	42.21	0%
		Health Facilities	28.21	0%
		Civic Facilities	30.73	1%
		Total Public Facilities	309.81	1%
Industries		Light Industries	63.09	1%
Open Space		Sports and Recreation	270.52	2%
		Open Space and Park	735.34	5%
		Total Open Space	1005.86	7%
Agriculture		Agriculture	1509.44	11%
Nature Area		Forest	4077.56	30%
		Other Green	317.80	2%
		Wetland	1803.02	13%
		Total Nature Area	6198.38	45%
Waterbody		Rivers	151.84	1%
Infrastructure		Transport	909.40	7%
		Utilities	82.36	1%
		Prison	787.18	6%
Special Use		Graveyard	85.24	1%
Reserve Site	R	Reserve Site	29.32	0%
Grand Total			13424.07	100%

*All site areas subject to final survey.

Source: Surbana

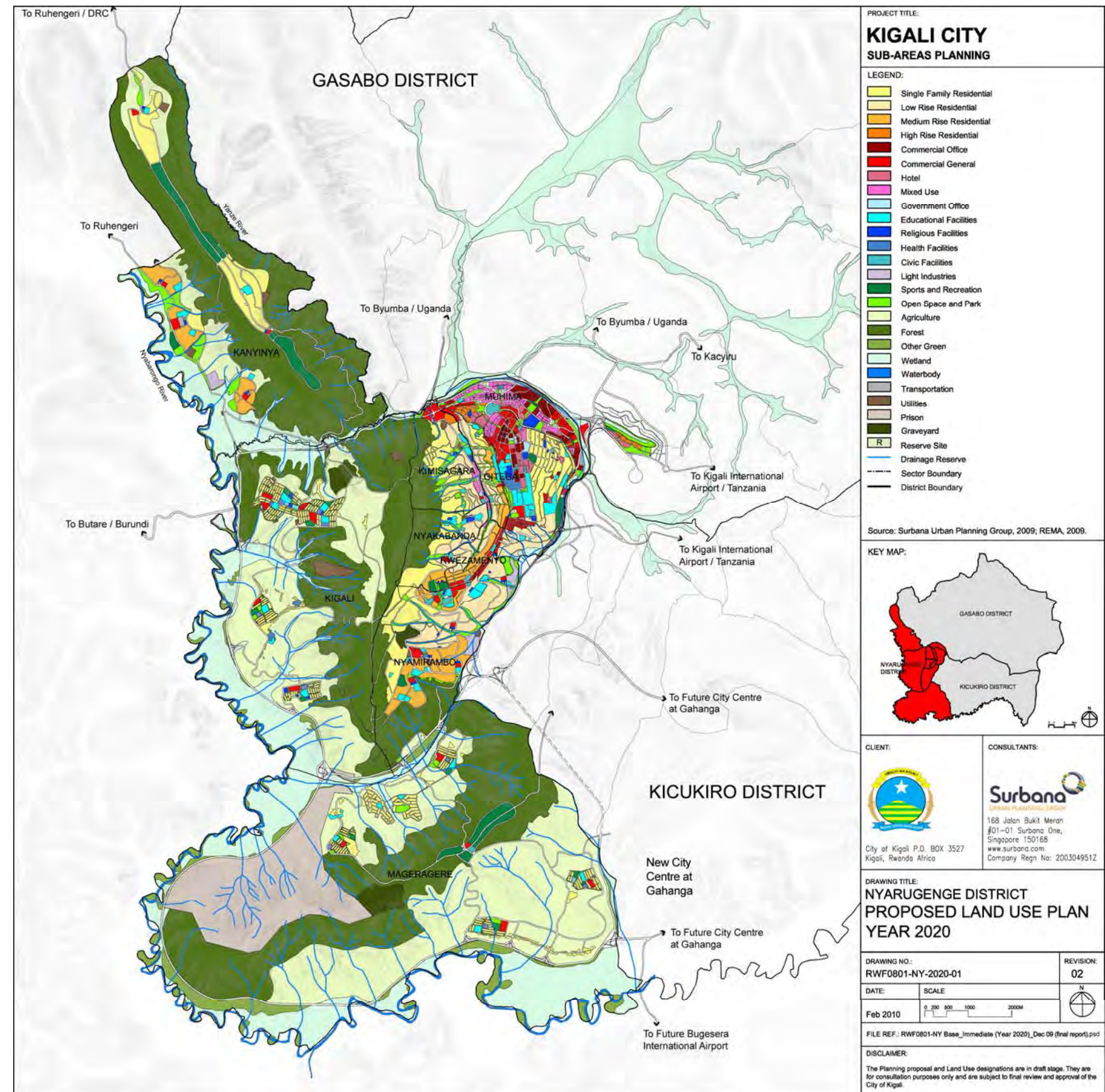


Figure 4.4: Nyarugenge District - Proposed Land Use Plan Year 2020.
Source: Surbana

4.3.3 Proposed Residential Use Plan

3 types of residential developments are proposed in Nyarugenge District:

- **The single family residential areas:**

These include the existing good-class bungalow area in Kiyovu, the low-density single family cluster housing proposed in the urban fringe and sub-urban areas as well as the rural residential developments and the umudugudu and government housing projects proposed in the sub-urban areas.

- **The medium-rise residential areas:**

These include the high density housing proposed in urban-fringe areas as well as the townships proposed in the sub-urban areas. A large part of these residential areas is recommended to be in the form of public housing or as government initiated projects.

- **The high-rise residential areas:**

These include the high-rise high density developments proposed in the CBD areas as apartment blocks or as part of the mix use developments.

The proposed Nyarugenge District Residential Use Plan Year X is presented in Figure 4.5. The proposed Nyarugenge District Residential Use Plan Year 2020 is presented in Figure 4.7. The detailed regulations for each of these residential zones are presented in the Zoning and Urban Design Guidelines Report for Nyarugenge District.

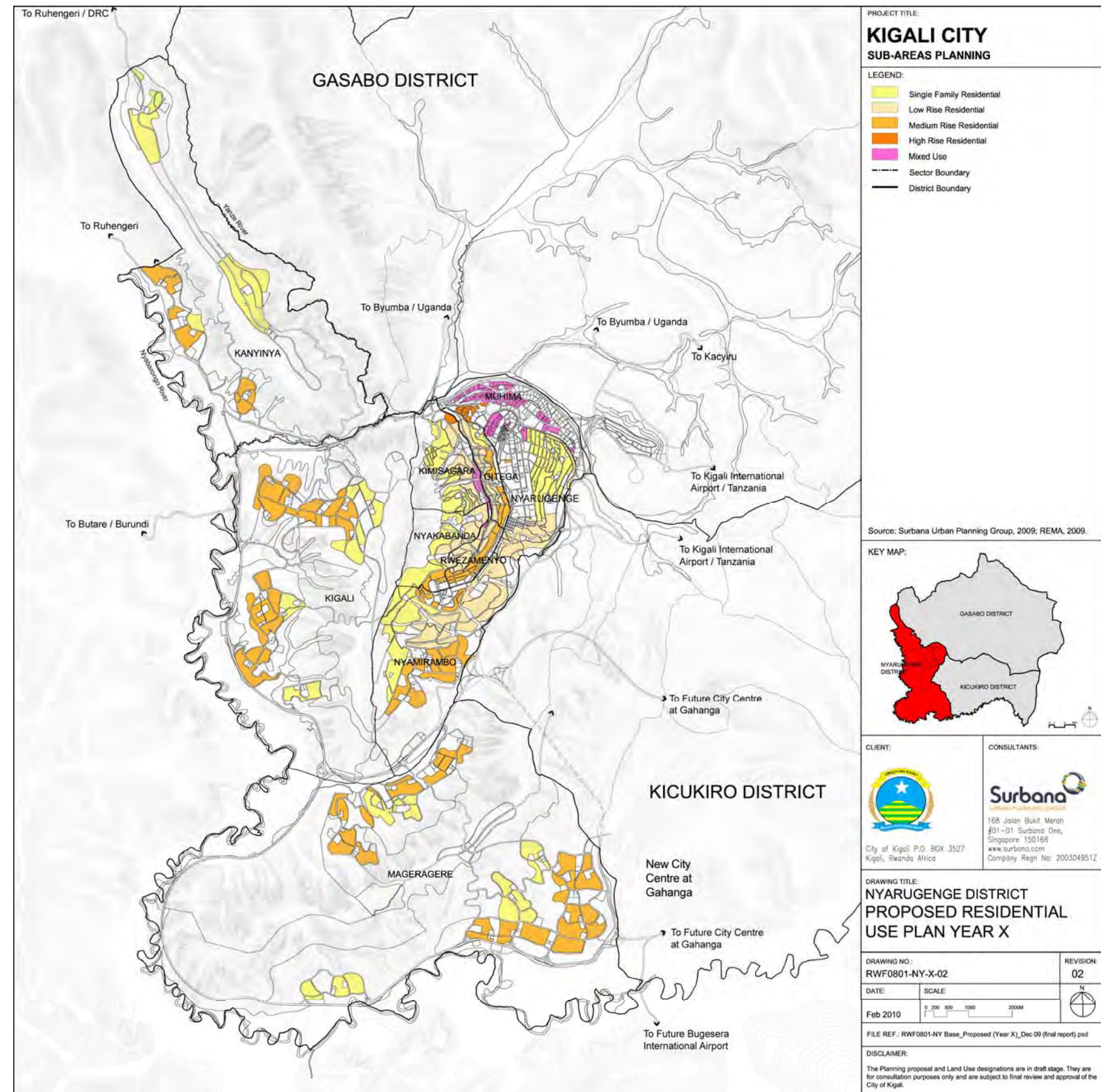


Figure 4.5: Nyarugenge District - Proposed Residential Use Plan Year X.
Source: Surbana



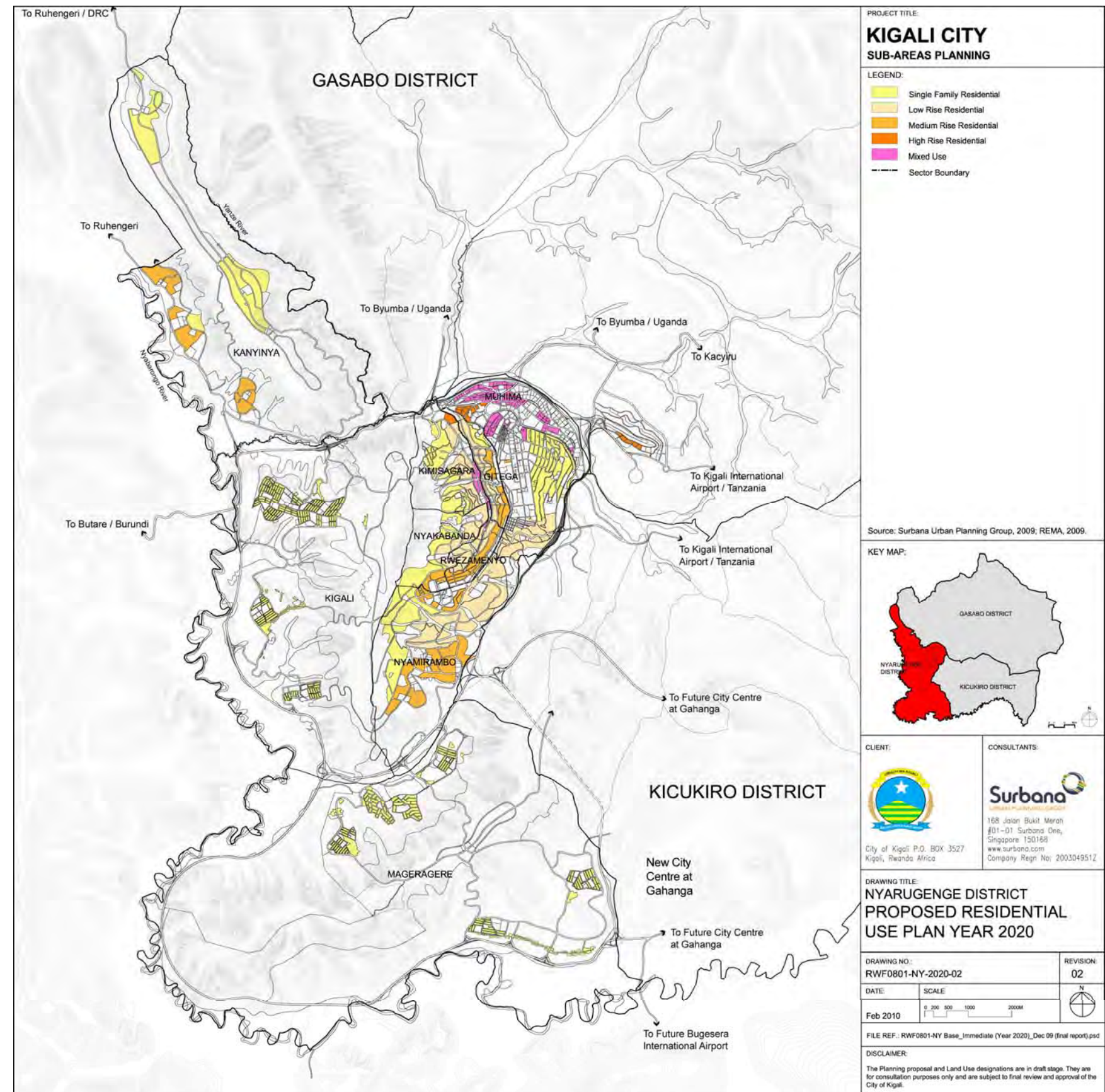
Proposed residential developments in the urban fringe areas.



Proposed residential developments within the new townships in the sub-urban areas.



Proposed eco-villages in the village and farming areas.

Figure 4.6: Nyarugenge District - Proposed Residential Developments.
Source: SurbanaFigure 4.7: Nyarugenge District - Proposed Residential Use Plan Year 2020.
Source: Surbana

4.3.4 Proposed Commercial Use and Employment Plan

Commercial and employment activities in Nyarugenge District are provided at 6 levels:

- **Regional level commercial area:** this includes the large office and related developments in the CBD core areas.
- **City level commercial areas:** these include the office, retail, hotel in the CBD areas, the new District Centre and the Nyamirambo Regional Centre.
- **Town or neighbourhood level commercial areas:** these include the town centres and neighbourhood centres proposed as part of the residential areas and township developments.
- **Mix use areas:** these include the commercial uses proposed as part of the large scale mix use developments proposed in Muhima (CBD1) as well as the smaller mix use developments along the commercial streets in the urban fringe areas.
- **Local industrial estates:** these include small-scale light and clean industrial developments proposed around the residential areas and townships which would offer local and accessible employment to the residents. The majority of the residents are expected to work in the CBD, as part of the large workforce required for the CBD to function. These industrial developments are only expected to offer a smaller quantum of alternative employment options close to housing. Each township would have one industrial estate. Moreover, as Nyarugenge District is a part of the Capital City, it is deemed appropriate to only have non-pollutive light industries. All large and heavy industrial developments are expected to move outside the City limits.
- **Farming and agro-based developments:** these include agriculture and related activities proposed in the sub-urban areas. In the short-term (i.e. upto Year 2020) current low-return agricultural practices are expected to prevail. However, in the long-term, as the District develops and the land prices begin to escalate, high value-add farming and agro-based activities, such as high-tech farming, recreational farming etc. would prevail.

The proposed Nyarugenge District Commercial Use and Employment Plan Year X is presented in Figure 4.8. The proposed Nyarugenge District Commercial Use and Employment Plan Year 2020 is presented in Figure 4.10. The detailed regulations for each of these commercial and employment zones are presented in the Zoning and Urban Design Guidelines Report for Nyarugenge District.

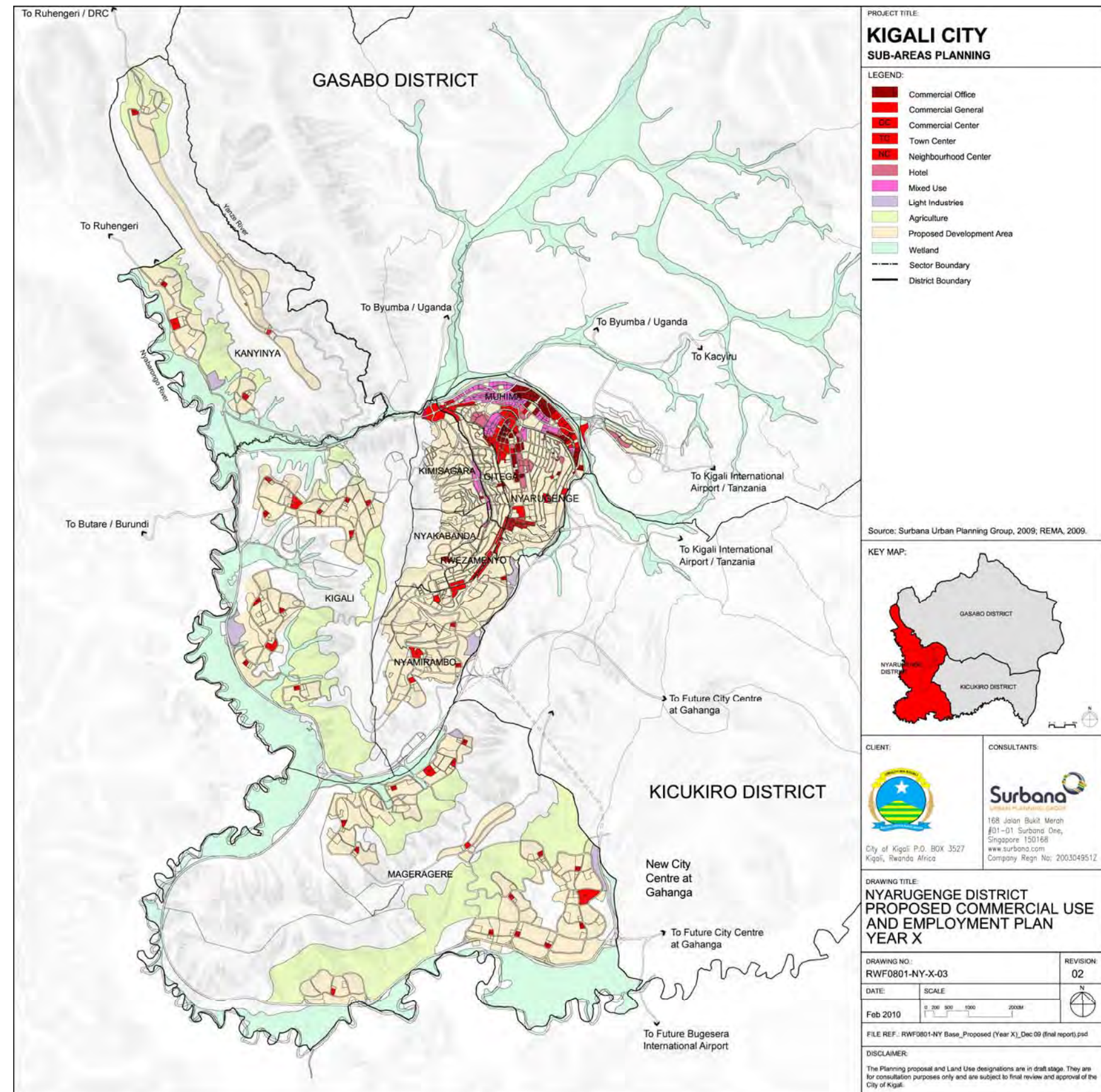
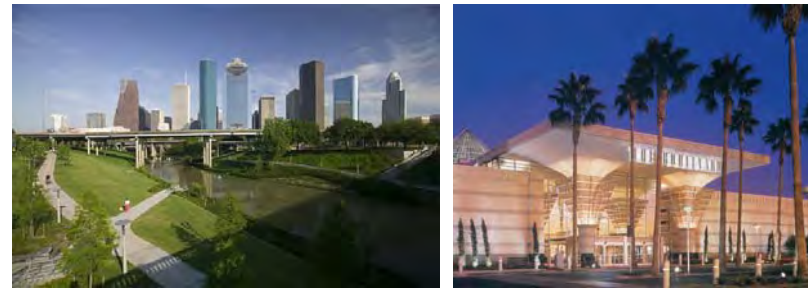


Figure 4.8: Nyarugenge District - Proposed Commercial Use and Employment Plan Year X
Source: Surbana



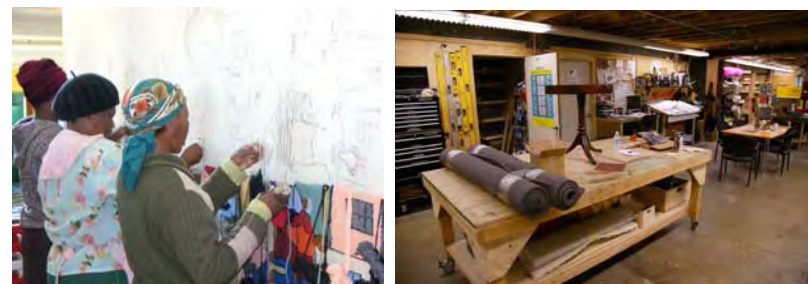
Proposed developments in the Central Business District areas.



Proposed developments in the new District Centre.



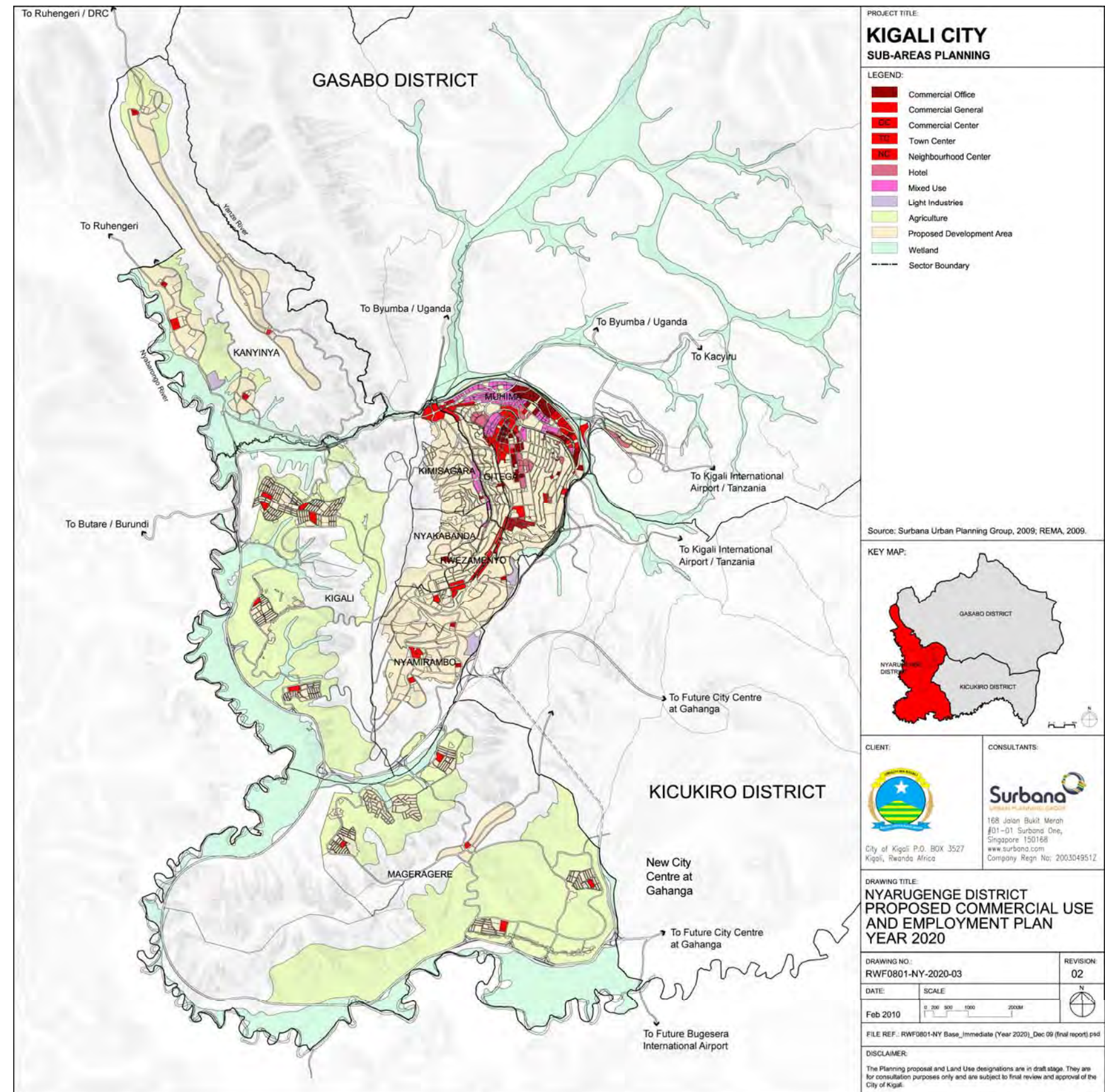
Proposed developments in the town and neighbourhood centres.



Proposed industrial developments



Proposed agriculture related developments.

Figure 4.9: Nyarugenge District - Proposed Business and Employment Related Developments.
Source: SurbanaFigure 4.10: Nyarugenge District - Proposed Commercial Use and Employment Plan Year 2020.
Source: Surbana

4.3.5 Proposed Environmental Management Strategies

The key objective for environmental conservation in Nyarugenge District is to protect the existing nature areas such as the existing forests, the watersheds and the wetlands. Figure 4.12 presents the existing slope analysis map of Nyarugenge District. With only 31% of the land being within the buildable range, the large areas of steep slope need to be managed by using appropriate slope protection methods. The key nature conservation and greening strategies proposed to achieve this are:

- Restrict all development only within areas of gentle slope (<20%).
- Conserve the existing forests and undertake afforestation in other areas under very steep slopes (>40%).
- Eliminate the risk of landslides and improve surface run-off quality by adopting appropriate slope protection measures in areas under moderate slopes (20%-40%).
- Restore and protect the watershed by reclaiming natural drainage courses and wetlands from development. Introduce riparian buffers (min 20m) along wetlands and river streams.
- Allow plantation, agriculture, and agro-based activities in the moderate slopes around the housing areas as an added erosion mitigation measure.
- Conserve water courses within development areas by conversion into town parks for recreation.

The buildable areas (>20% slope) around the umudugudu sites would allow agricultural activities to help sustain the umudugudu dwellers. In the future these areas would be allowed to redevelop into new townships to meet the future residential needs of the District.

The proposed Nyarugenge District Environmental Management Strategies Year X is presented in Figure 4.11.

The proposed Nyarugenge District Environmental Management Strategies Year 2020 is presented In Figure 4.13.

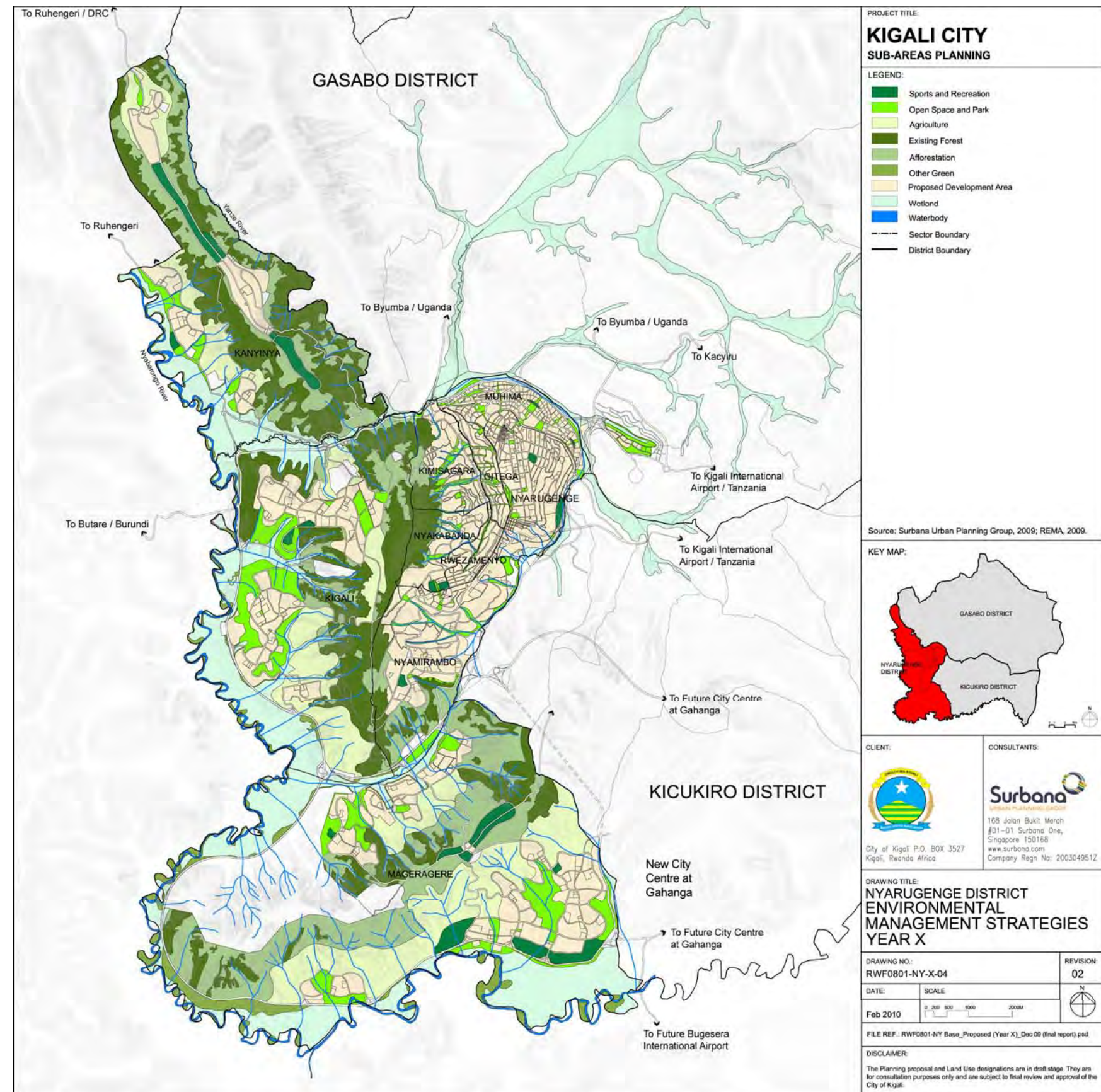


Figure 4.11: Nyarugenge District - Environmental Management Strategies Year X.
Source: Surbana

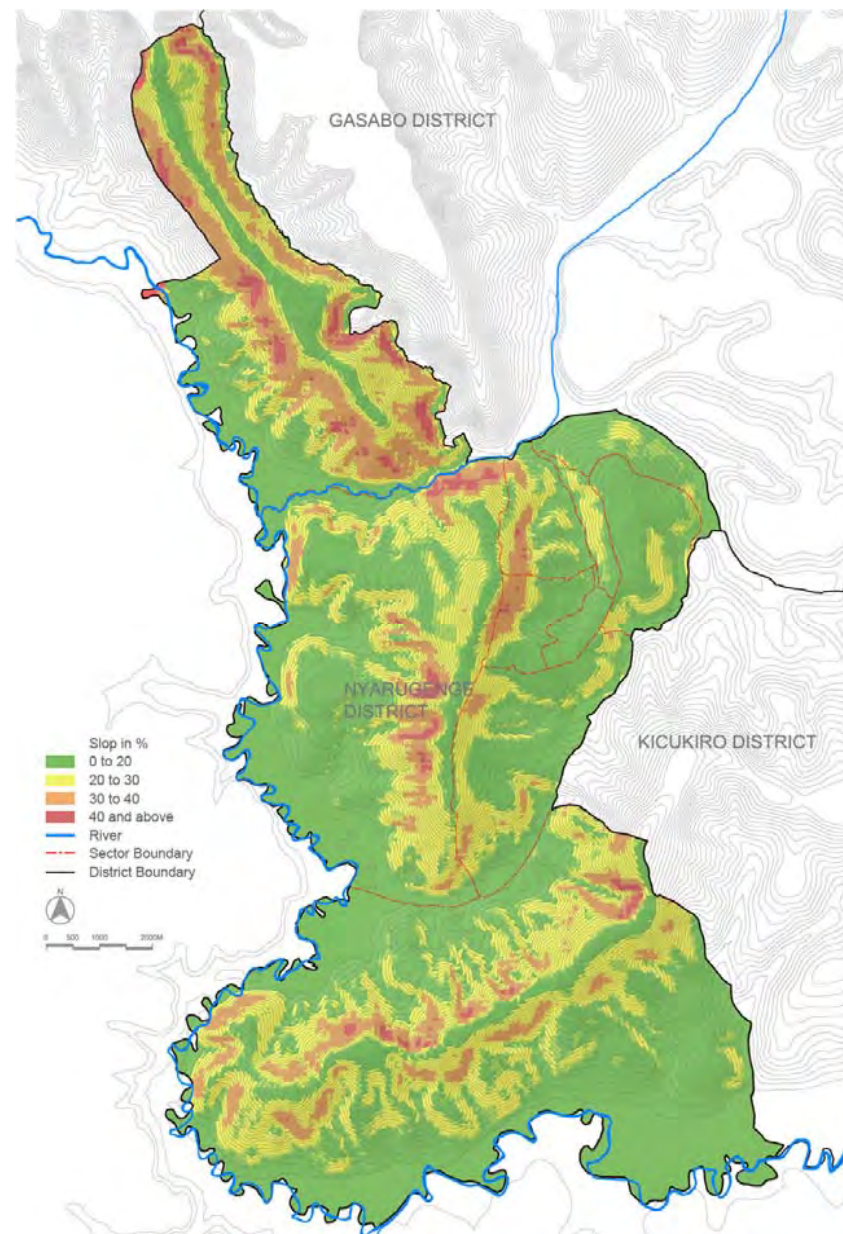


Figure 4.12: Nyarugenge District - Existing Slope Analysis.
Source: Surbana

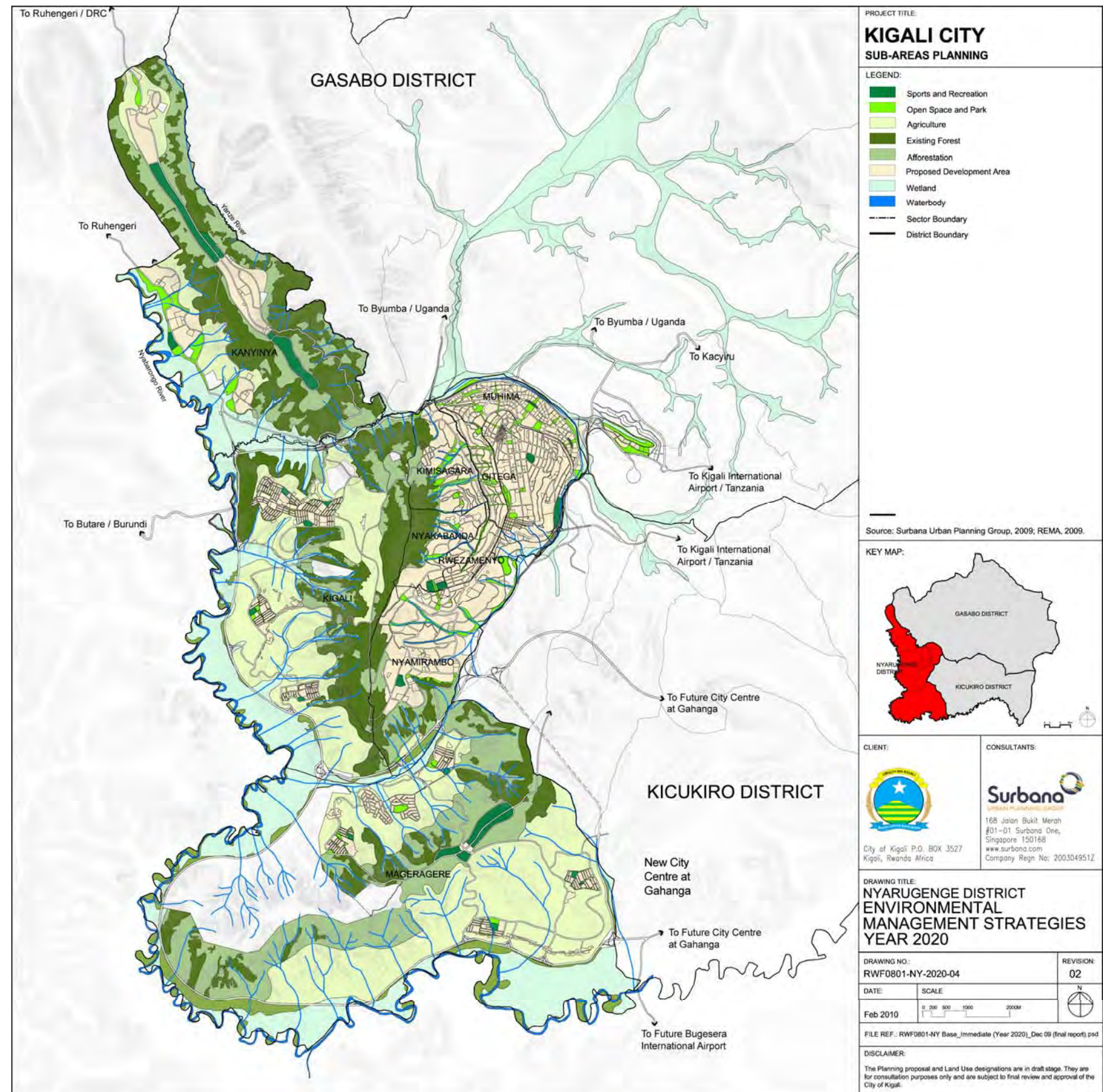


Figure 4.13: Nyarugenge District - Environmental Management Strategies Year 2020.
Source: Surbana

4.3.6 Proposed Green and Blue Plan

For the sake of recreation and tourism the land area within Nyarugenge District is broadly divided into four zones - the urban attractions, the urban parks, the ridges and the wetlands and low lying areas. Figure 4.14 presents the tourism and recreation development strategy for Nyarugenge District.

- **Urban Attractions:**

This zone includes the cultural, heritage, recreational and retail developments of the CBD, the new District Centre, the Nyamirambo Regional Centre and the Mageragere New Town. It also includes the proposed sports fields and sport complexes as well as attractions such as the proposed golf course and the equestrian park.

- **Urban Parks:**

This zone includes the urban parks developed within the CBD and town and neighbourhood parks located within the housing areas.

- **Forest / Mountain Ridge Parks:**

This zone includes the resort areas and the active sports related activities along the ridges in Kanyinya, Kigali and Mageragere Sectors.

- **Wetland Parks:**

This zone includes the parks and recreational venues along the wetlands within the townships in Kanyinya, Kigali and Mageragere.

An extensive green connector network in the form of green strips, bridges, green fingers etc. links all the parks and green areas across the District and ensures seamless pedestrian connectivity.

The proposed Nyarugenge District Green and Blue Plan Year X is presented in Figure 4.17. The detailed regulations for each of these parks and open space zones are presented in the Zoning and Urban Design Guidelines Report for Nyarugenge District.

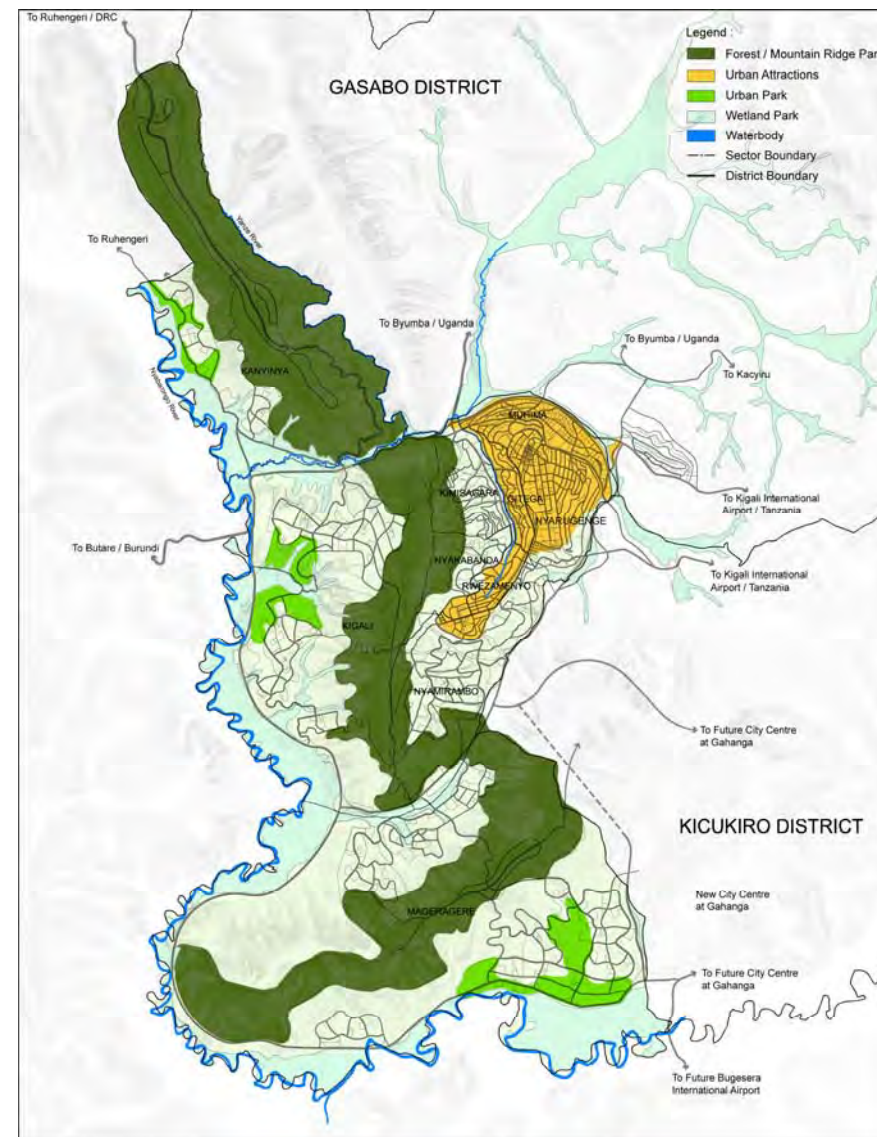


Figure 4.14: Nyarugenge District - Proposed Recreation and Tourism Development Strategy.
Source: Surbana



Proposed attractions in the urban areas.

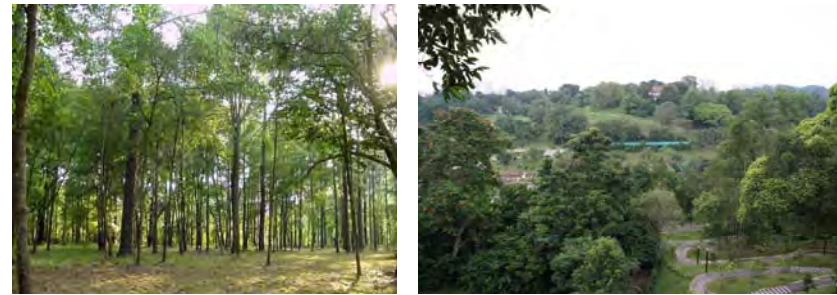


Proposed activities along the ridges.



Proposed activities along the wetlands.

Figure 4.15: Nyarugenge District - Proposed Recreation and Tourism Developments.
Source: Surbana



Proposed forest and afforestation areas along areas of steep slope.



Proposed farming and related activities along areas of steep slope.



Proposed conservation and recreational activities along the wetlands

Figure 4.16: Nyarugenge District - Proposed Activities in the Parks and Open Spaces.

Source: Surbana

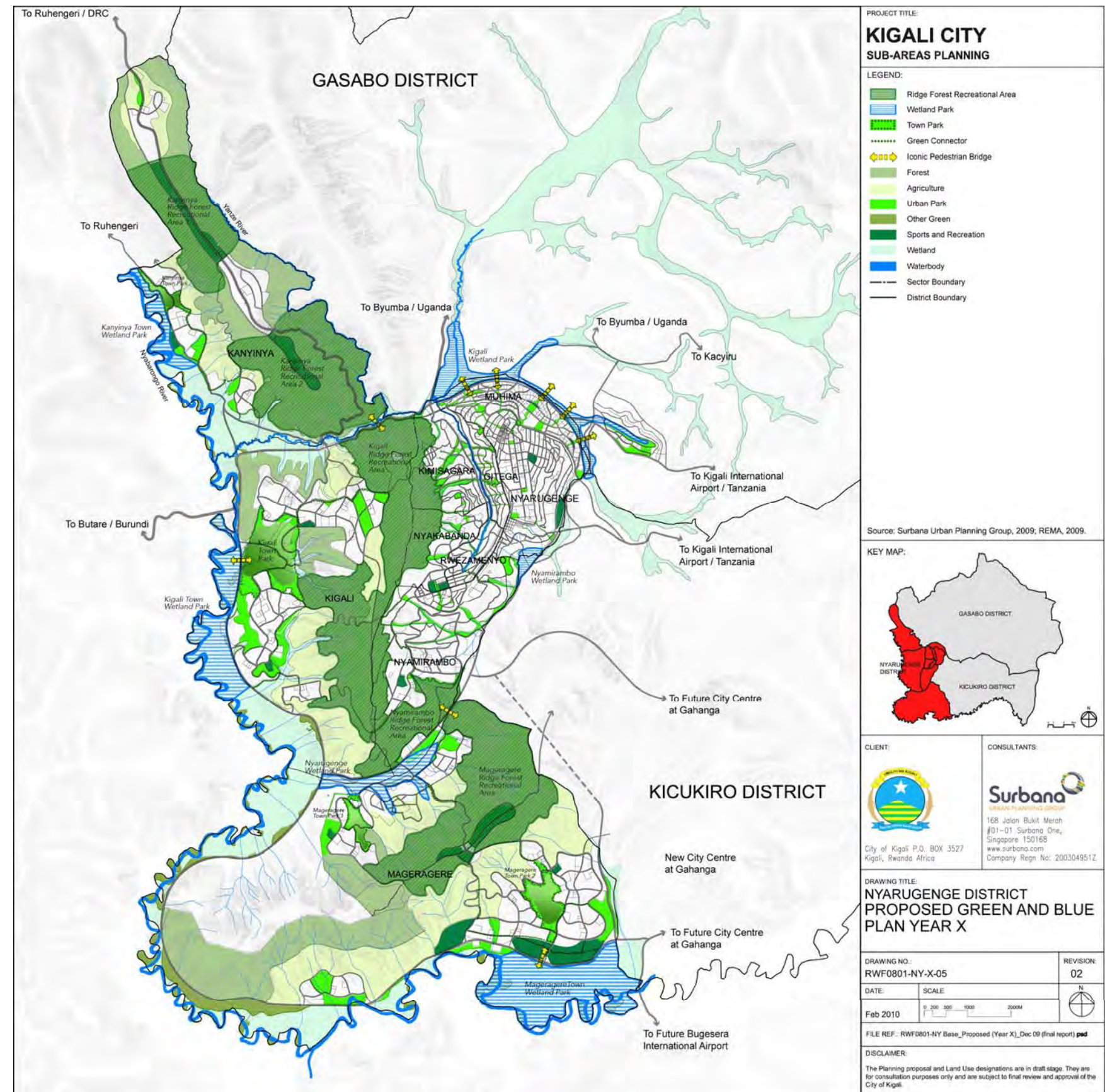


Figure 4.17: Nyarugenge District - Proposed Green and Blue Plan Year X.

Source: Surbana

4.3.7 Proposed Transportation Plan

The main objectives of transportation planning proposed for Nyarugenge District are:

- To ensure an efficient road network system that takes into account the future development in the District, the City and the larger surrounding context.
- To provide a public transport system that supports the optimum growth of the new residential areas and ensures that the majority of the population use public transport.
- To ensure the use of best practices for green transportation planning such as provision of well-designed pedestrian and bicycle network and provision of park connectors.

The proposed Nyarugenge District Road Network Plan is presented in Figure 4.18. The transportation planning proposal is elaborated in the Detailed Transportation and Infrastructure Master Plan Report for Nyarugenge District.

4.3.8 Proposed Infrastructure Plan

The main objectives of infrastructure planning proposed for Nyarugenge District are:

- To provide for an effective water management system.
- To provide for an effective waste management system.
- To provide for an adequate and efficient energy management system.

The infrastructure planning proposal is elaborated in the Detailed Transportation and Infrastructure Master Plan Report for Nyarugenge District. The Proposed Infrastructure Plans for Nyarugenge District address the long term district and sector level needs and support the future proposed developments. Meanwhile, in order to address the current demands of District, the government is currently considering several key infrastructure proposals, such as:

- A centralised STP in Gitikinyoni, Gasabo District, to serve the City.
- A 30 ha new landfill site in Kigali Sector to replace the, soon to be decommissioned, landfill site in Nyanza.
- 2 new cemeteries to serve Nyarugenge District to replace, the soon to be decommissioned, cemetery in Nyamirambo Sector.
- Construction of a 809 ha Central Prison in Mageragere Sector.

The infrastructure proposals incorporate and build upon these projects. Adequate buffers have been provided for these projects to ensure that there is no conflict of interest with the surrounding land uses.

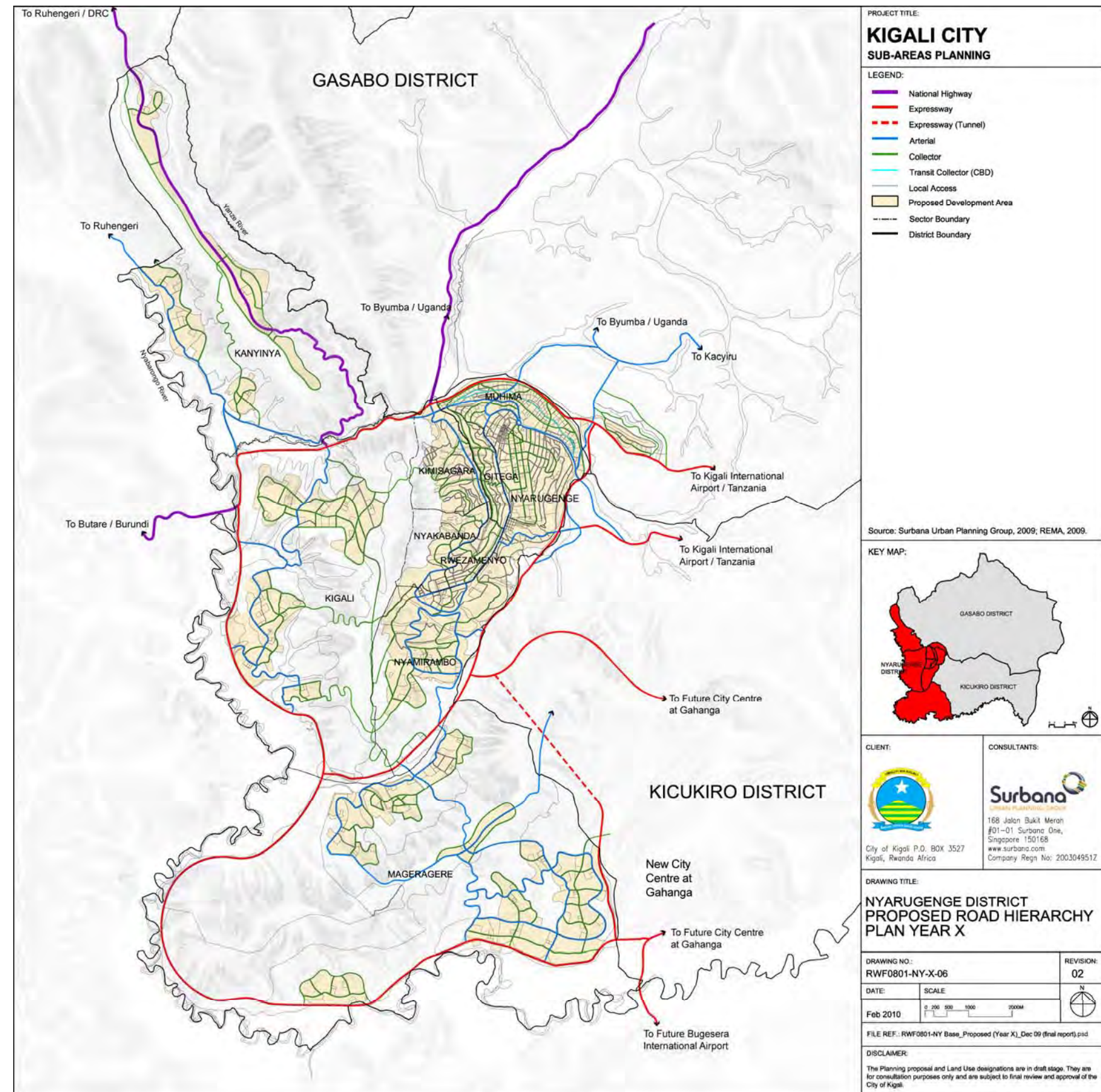


Figure 4.18: Nyarugenge District - Proposed Road Hierarchy Plan Year X.
Source: Surbana

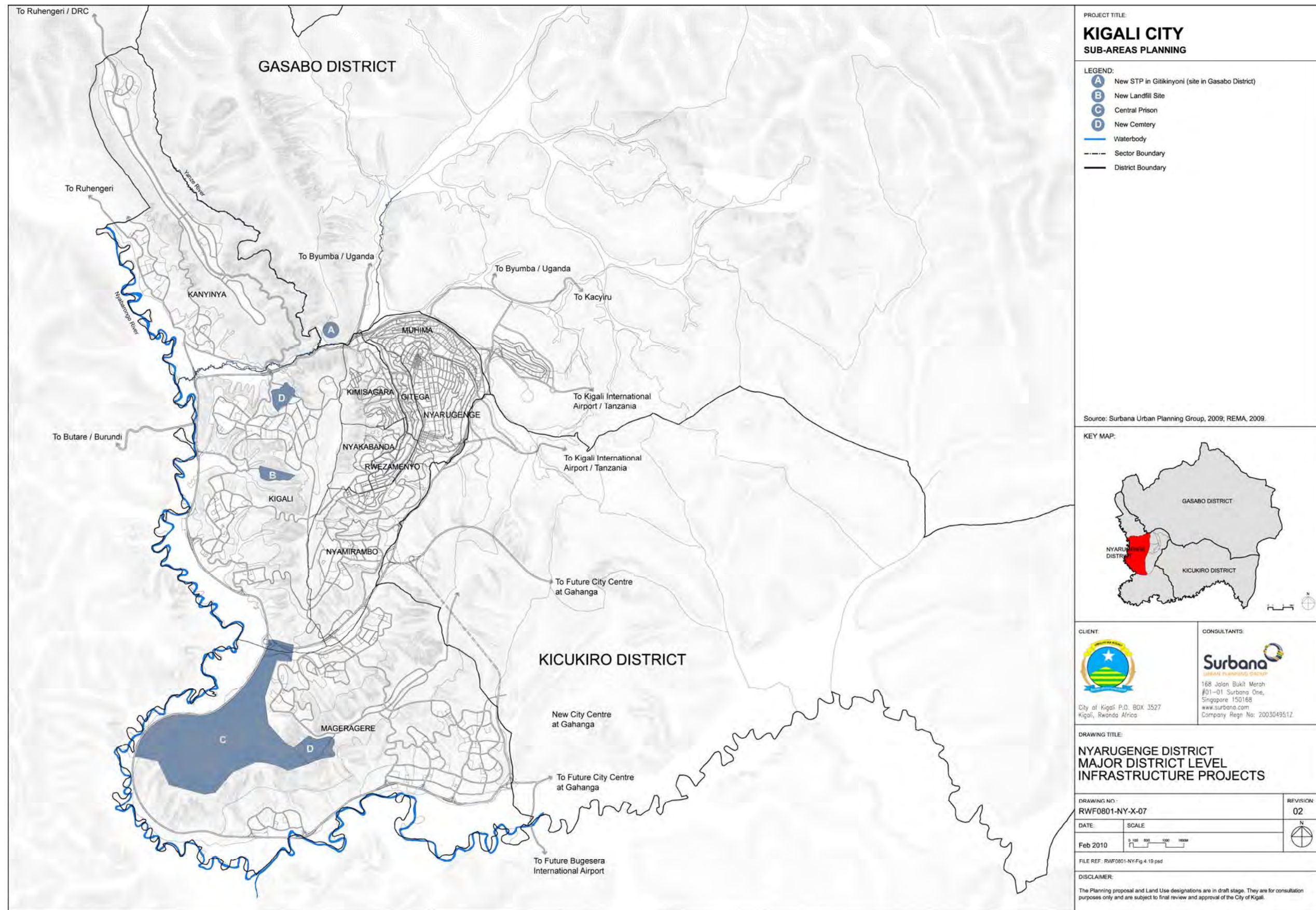


Figure 4.19: Nyarugenge District - Infrastructure Projects Currently in Government Undertaking.
 Source: Surbana

CHAPTER 5: DETAILED MASTER PLAN FOR GITEGA SECTOR

This chapter presents the detailed Master Plan for Gitega Sector. Based on the analysis of the existing context, opportunities and constraints, a vision and concept are derived which guide the development of the Master Plan and the design of the key features within the Sector.

5.1 Gitega Sector - Existing Context

- **Planning Area:** The total area of Gitega Sector is 117.30 ha.



Figure 5.1: Gitega Sector - Location Plan.
Source: Surbana

- **Location and Connectivity:** Gitega Sector is located between 2 major arterial roads, Avenue du Mont Kigali and Avenue de la Justice, and is the sector closest to the CBD. It is well connected to the CDB and the existing Nyabugogo Taxi Park by these arterial roads. It is surrounded by the 2 CBD sectors, Muhima and Nyarugenge to the east, Kimisagara Sector to the west and Rwezamenyo Sector to the south.
- **Existing Site Conditions:** Most parts of Gitega Sector are occupied by high density informal housing. Public facilities are scattered among the housing areas and are generally accessible by dirt roads. The existing population density in Gitega Sector is approximately 351 people per hectare.

Table 5.1: Gitega Sector - Population Projection.

Area	Existing Population (2006)	Projected Population (2020)
Kigali City	1,085,000	1,988,000
Gitega Sector	15,628	20,217

Source: TAMA 2006: Population by Sector, KCMP Existing Conditions Analysis

- **Natural Constraints:** Only 30% of the total land area within the Sector is developable. A large part of the existing development occurs in areas of steep unbuildable slopes (refer to Figure 5.2). The areas of the Sector along Avenue de la Justice are relatively more gentle as compared to the areas running along Avenue du Mont Kigali in the valley.

Figure 5.5 presents the existing Context Plan for Gitega Sector.

5.2 Gitega Sector - Opportunities and Constraints

- **Opportunities:** Due to its close location and connectivity to the CBD, Gitega has the potential to be developed into a high density residential area offering a mix of high-end as well as medium range housing options to support the CBD development. Existing commercial developments along the two major bounding roads - Avenue du Mont Kigali and Avenue de la Justice, could be formalised and expanded into mix use cluster developments, offering local as well as city level commercial services. Adequate number of public facilities such as schools, religious buildings etc. minimise the need to provide new facilities. The existing natural drainage lines can be developed as recreational green spaces. The alignments of the existing mud tracks, which run along the contours, can be redeveloped as new paved roads, in order to minimise land acquisition.
- **Constraints:** The key development constraint in Gitega is the steep slope, which restricts large scale developments and results in incurring higher costs for infrastructure provision. Existing developments such as the water treatment plant, need to be retained and developed around.

Figure 5.6 presents the Opportunities Plan and Figure 5.7 presents the Constraints Plan for Gitega Sector.

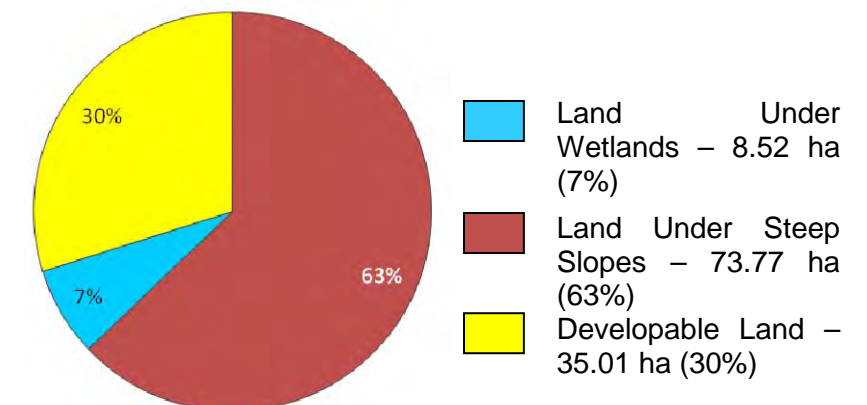


Figure 5.2: Gitega Sector - Land under Natural Constraints.
Source: KCMP Existing Conditions Analysis

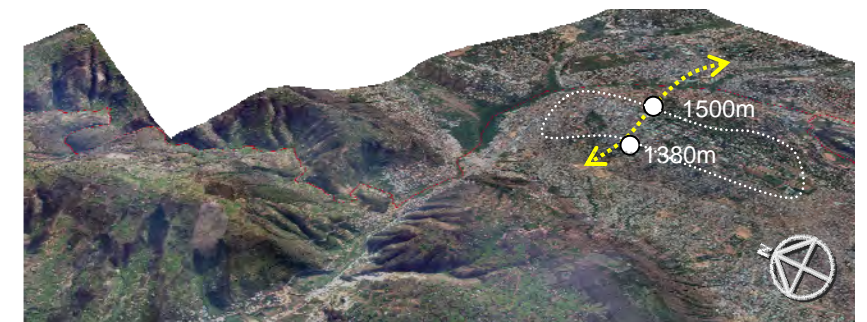


Figure 5.3: Gitega Sector - Existing Topography.
Source: Surbana



Dense Informal Settlements.

Heritage Church.



School under Construction.

Masonry Drain.

Figure 5.4: Gitega Sector - Existing Context.
Source: Surbana

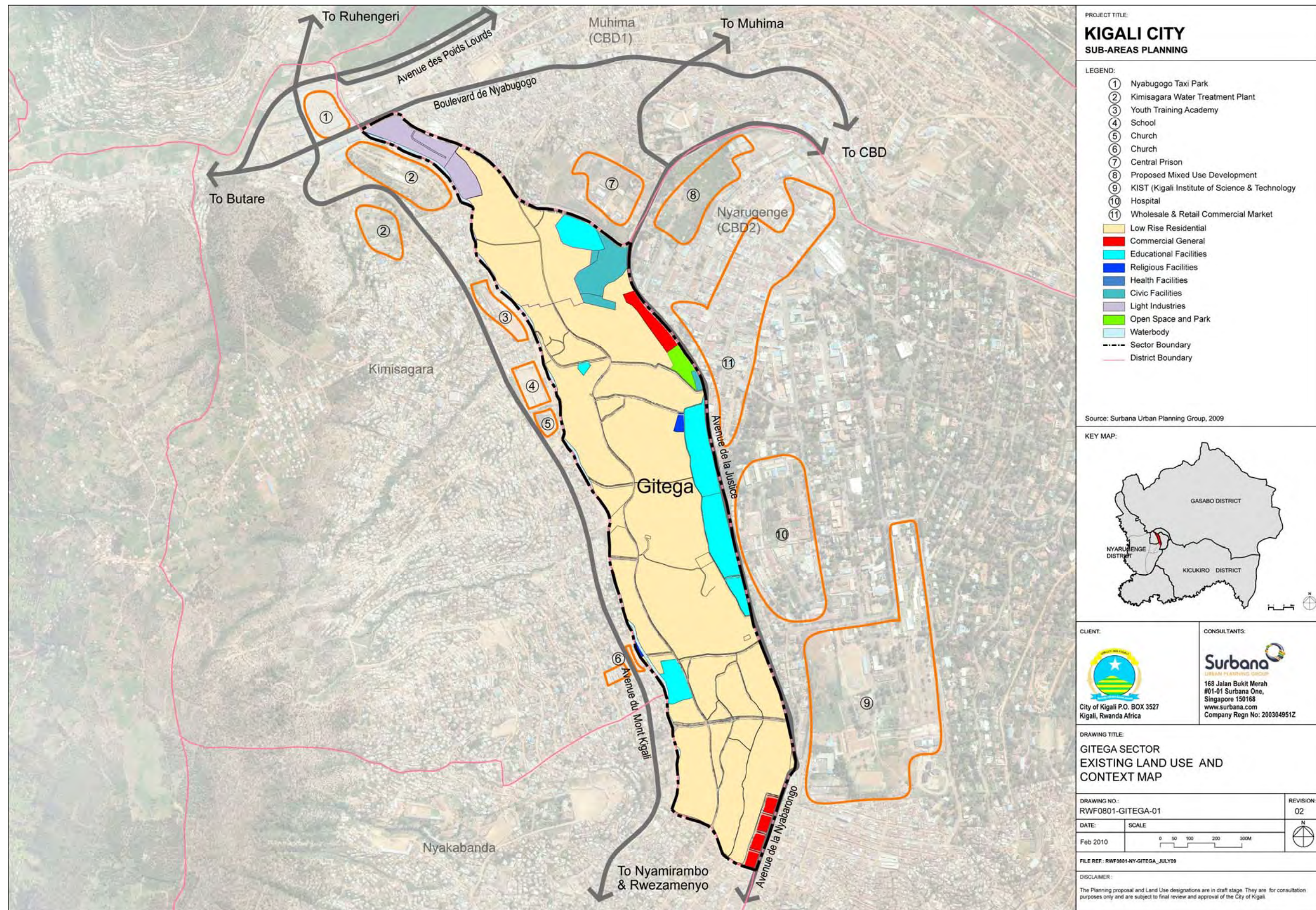


Figure 5.5: Gitega Sector - Existing Land Use and Context Map.
Source: Surbana

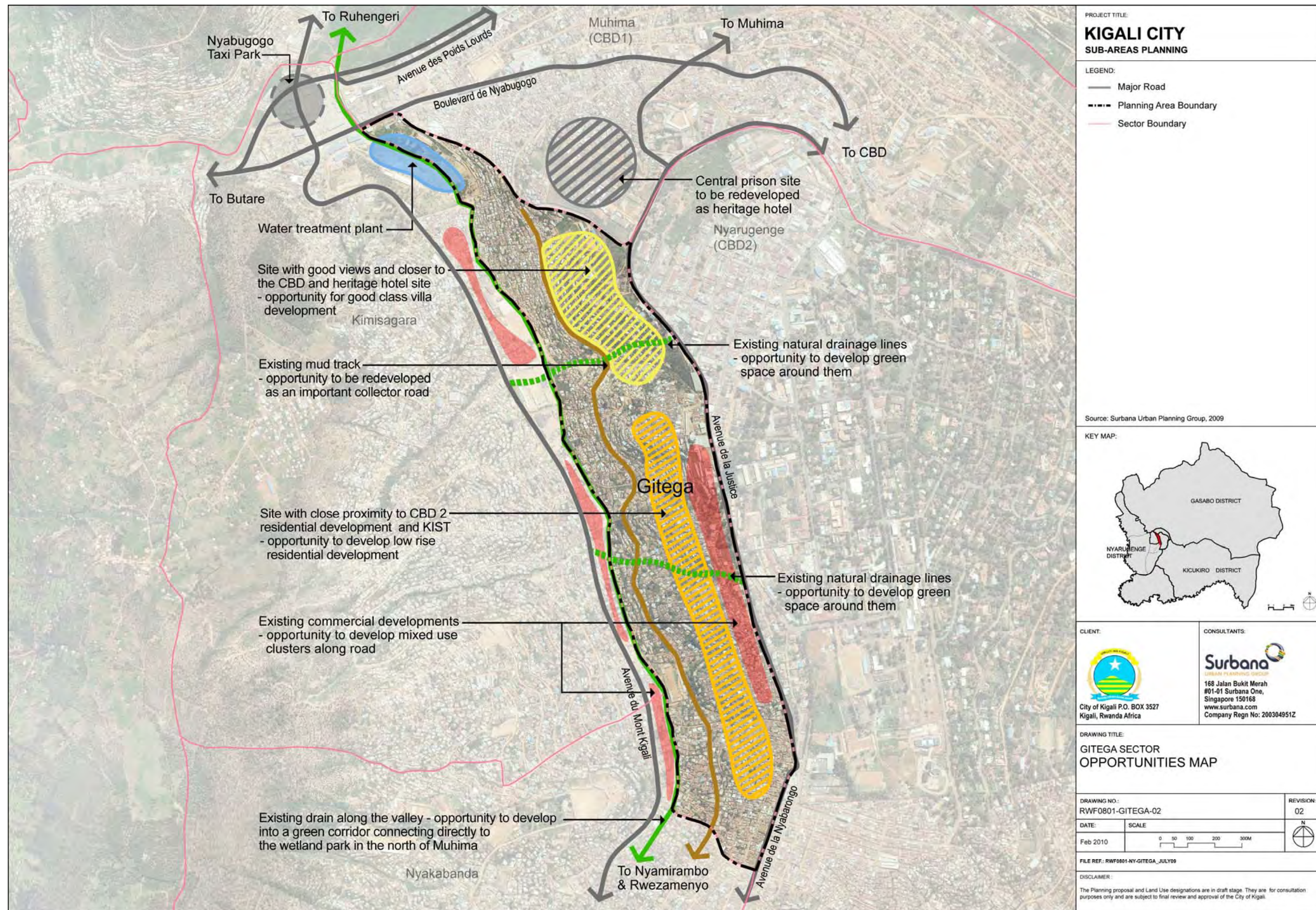


Figure 5.6: Gitega Sector - Opportunities Map.
Source: Surbana

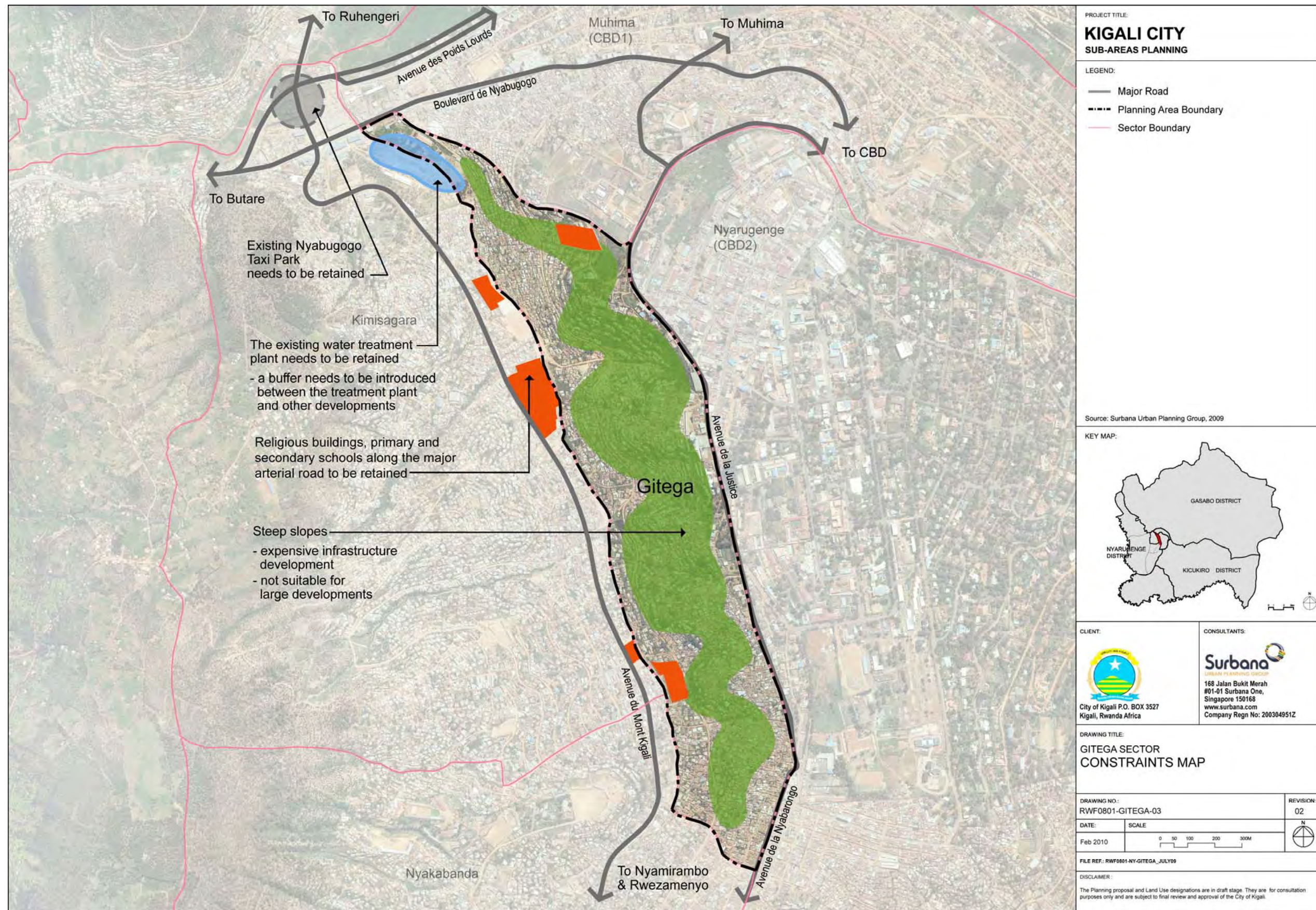
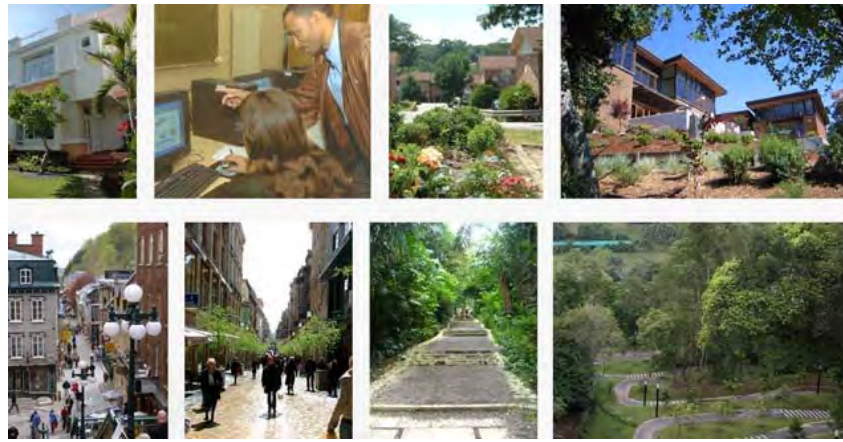


Figure 5.7: Gitega Sector - Constraints Map.
 Source: Surbana

5.3 Gitega Sector - Proposed Vision

'Compact Urban Living at CBD Fringe'



Gitega Sector is envisioned to become a compact residential enclave that offers a high quality of life and a variety of residential choices in close proximity to the CBD. The urban centres proposed in the Sector will offer a range of city level as well as local services and activities.

5.4 Gitega Sector - Proposed Concept

Based on the existing context, the opportunities and constraints as well as the proposed vision, a development concept has been proposed for Gitega Sector, as illustrated in Figure 5.8.

The key proposals of the concept plan are as follows:

- To intensify the existing informal housing areas as compact medium to high density residential neighbourhoods to meet the immediate housing needs of the CBD.
- To redevelop the existing commercial developments along Avenue de la Justice and Avenue du Mont Kigali into commercial nodes serving the surrounding communities as well as the larger region.
- To create a seamless network of pedestrian and park connectors between Gitega and its surrounding sectors.
- To improve transportation and infrastructure systems.

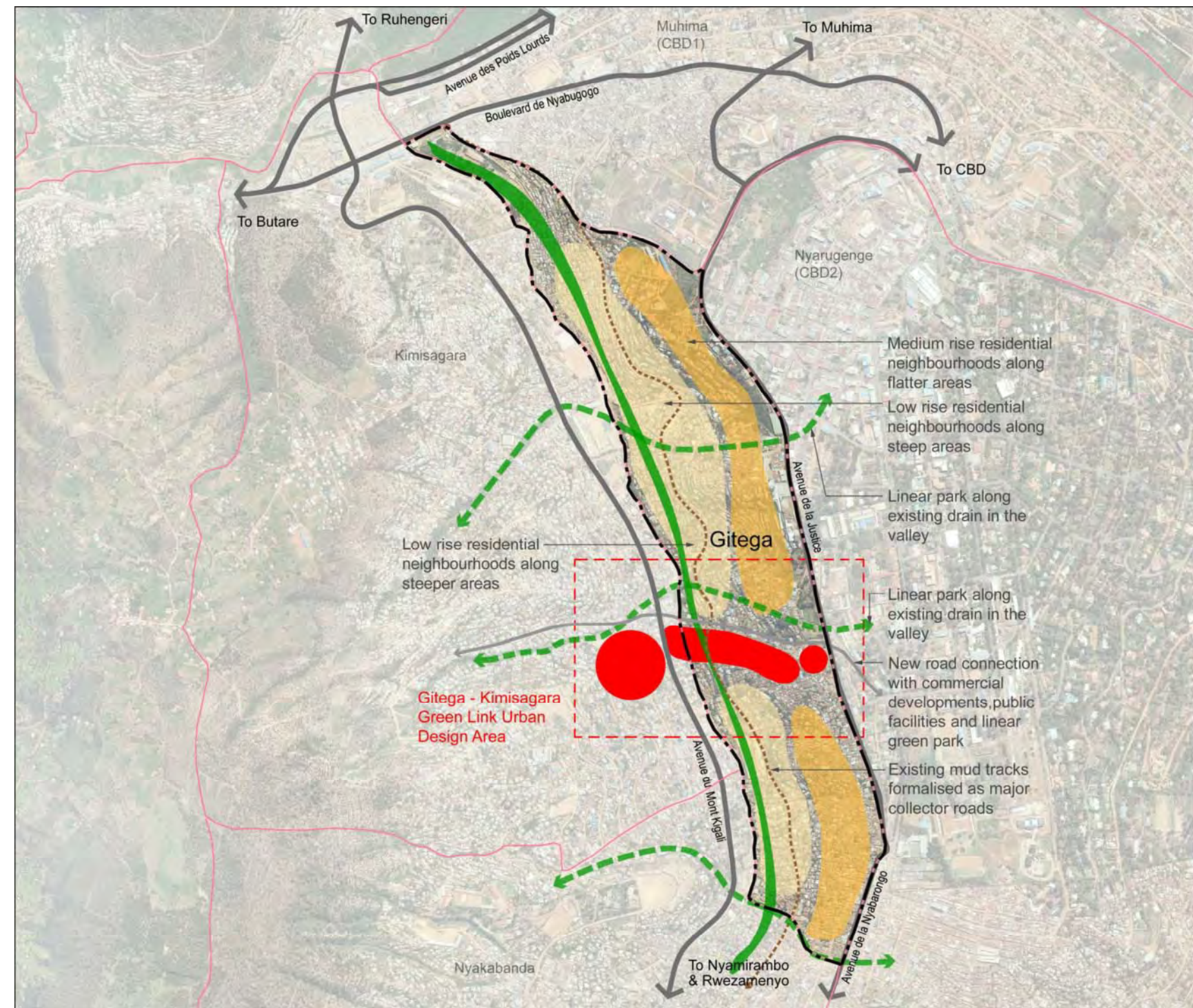


Figure 5.8: Gitega Sector - Concept Plan.
Source: Surbana

5.5 Gitega Sector - Proposed Master Plan

The development concept is further refined and developed into the Detailed Master Plan for Gitega Sector. Presented below is the Land Use Plan proposed for Gitega Sector.

5.5.1 Gitega Sector - Proposed Land Use Plan

A large part of the Sector is under steep unbuildable slope (>20%). However, as the land is fully built out and under private ownership, the Sector is proposed to be redeveloped into well planned housing communities instead of relocating the existing housing stock. Hence, the Land Use Plan for Gitega Sector aims to build upon the existing land use patterns while offering incentives and flexibility for redevelopment into higher density uses. The key proposals of the Land Use Plan are:

- To rezone the existing low rise residential areas into higher density low and medium rise residential areas.
- To concentrate the existing commercial outlets into retail and mix use strips along the two major arterials - Avenue de la Justice and Avenue du Mont Kigali.
- To retain and revitalise the existing public facilities.
- To safeguard the areas of natural drainage courses as parks and green connectors.
- To regularise and widen the key dirt roads into collectors and local access roads.

Table 5.2: Gitega Sector - Land Use Data.

Broad Land Use	Legend	Detailed Land Use	Area (ha)*	(%)
Residential		Single Family Residential	9.17	8%
		Low Rise Residential	34.20	29%
		Medium Rise Residential	21.47	18%
		High Rise Residential	0.09	0%
		Total Residential	64.93	55%
Commercial		Commercial General	5.98	5%
Mix Use		Mix Use	0.02	0%
Public Facilities		Educational Facilities	6.66	5%
		Religious Facilities	0.02	0%
		Health Facilities	0.04	0%
		Civic Facilities	0.85	1%
		Total Public Facilities	7.51	6%
Open Space		Open Space and Park	12.84	11%
Waterbody		River	1.78	2%
Infrastructure		Transport	24.14	21%
Grand Total			117.30	100%

*All site areas subject to final survey.

Source: *Surbana*

Based on the proposed Land Use Plan, Gitega Sector is proposed to accommodate a population of 27,300¹⁰ by Year X. Figure 5.9 presents the Proposed Land Use Plan Year X for Gitega Sector.

5.5.2 Gitega Sector - Proposed Residential Use Plan

The existing informal residential neighbourhoods near the valley, which are characterised by steep slopes, are rezoned for single-family cluster housing. The relatively gentler areas along Avenue de la Justice are marked for low to medium rise apartment developments. The zoning regulations for these areas would encourage developers to provide a range of commercial, public and recreational amenities within their housing developments, thus creating a quality living environment. Figure 5.10 presents the Proposed Residential Use Plan Year X for Gitega Sector.

5.5.3 Gitega Sector - Proposed Commercial Use Plan

Existing commercial developments along Avenue du Mont Kigali and Avenue de la Justice are proposed to be retained and revitalised. They are intended to cater to the needs of the local as well as the surrounding areas. These developments are easily accessible from the housing areas and large enough to meet the needs of the projected Year X population.

Figure 5.11 presents the Proposed Commercial Use Plan Year X for Gitega Sector.

5.5.4 Gitega Sector - Proposed Public Facilities Plan

At present the existing public facilities such as schools, health centres and religious buildings are sufficient to meet the needs of the projected Year X population.

Figure 5.12 presents the Proposed Public Facilities Plan Year X for Gitega Sector.

5.5.5 Gitega Sector - Proposed Green and Open Spaces Plan

Areas around the natural drainage courses are proposed to be conserved and developed into linear parks. This would not only form a part of the storm water management system, but also offer recreational venues for residents and offer pedestrian and bicycle connectivity across the Sector. These parks are proposed as part of the larger green connector network proposed for the District.

Figure 5.13 presents the proposed Green and Open Spaces Plan Year X for Gitega Sector.

While Gitega Sector is well connected to the CBD via the two major roads, there are no direct connections to Kimisagara, the neighbouring sector. In view of this, a green link consisting of a winding road lined with a range of commercial, recreation and public facilities is proposed to connect the two sectors.

¹⁰ This population is similar to the present population. This is because the current density per unit is much higher than the density (4 persons per dwelling unit) proposed for the redevelopment. Hence, though the number of dwelling units proposed is higher than the existing number, the expected population in Gitega Sector will be the same as the existing population.

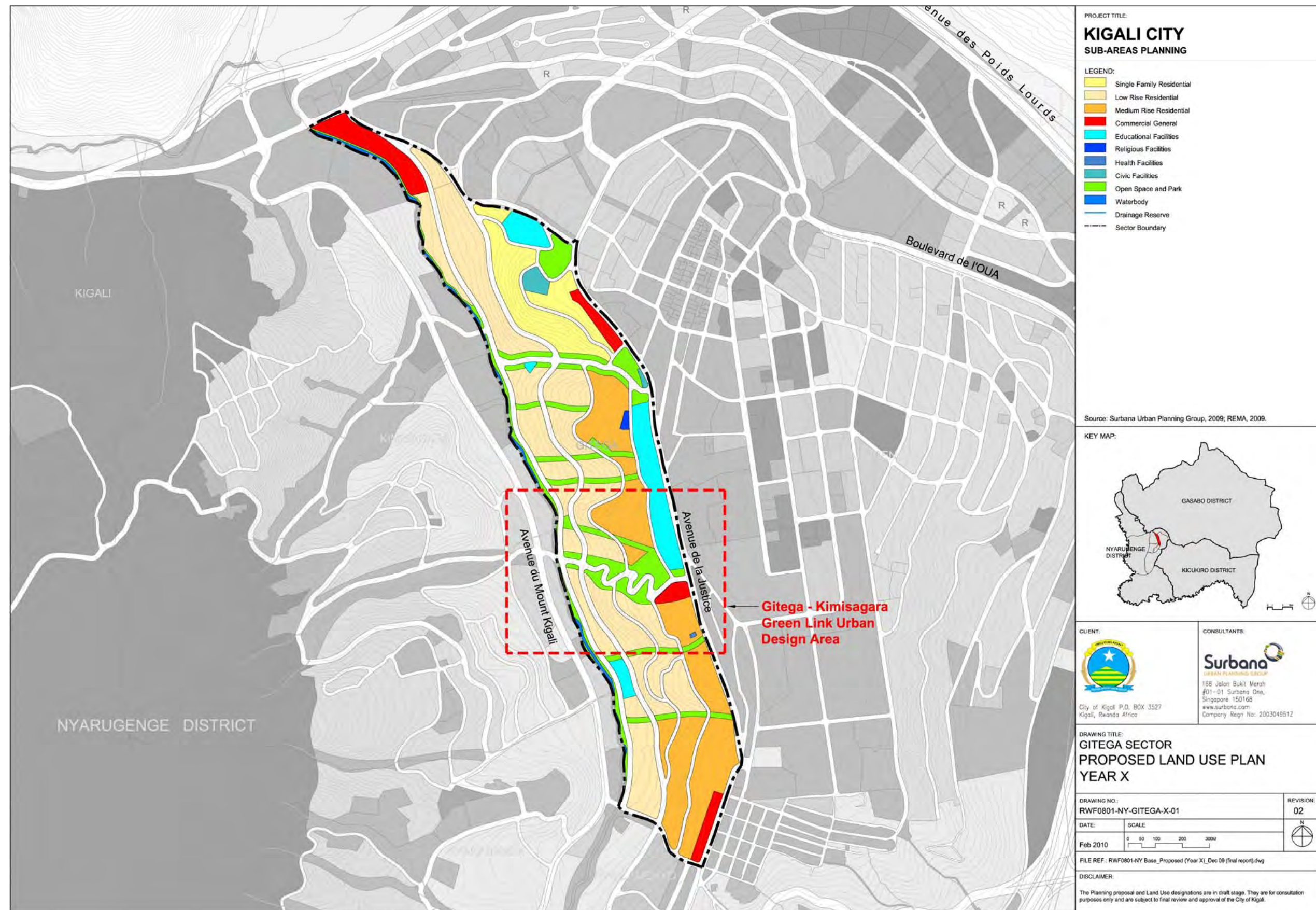


Figure 5.9: Gitega Sector - Proposed Land Use Plan
Source: Surbana

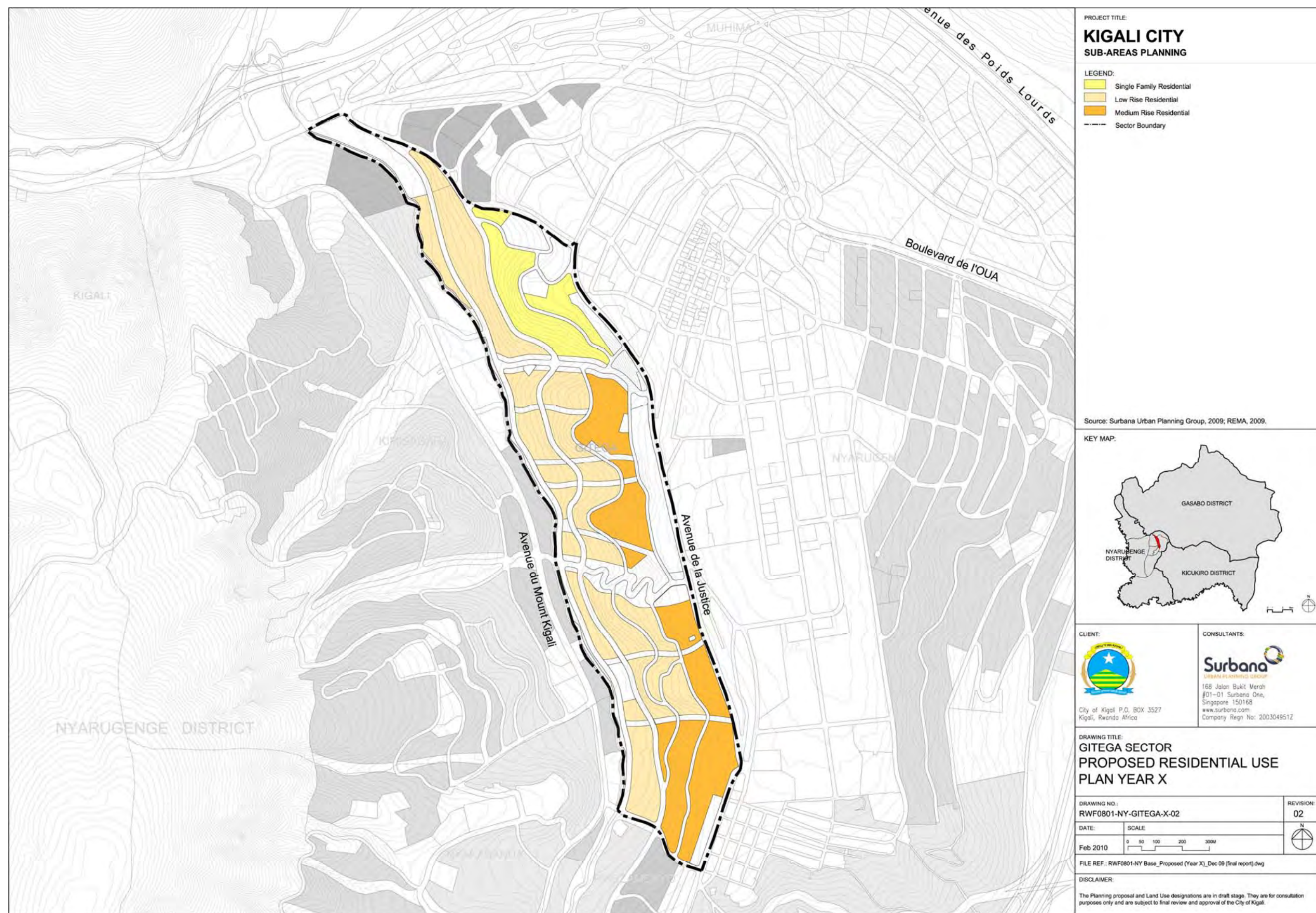


Figure 5.10: Gitega Sector: Proposed Residential Use Plan
 Source: Surbana

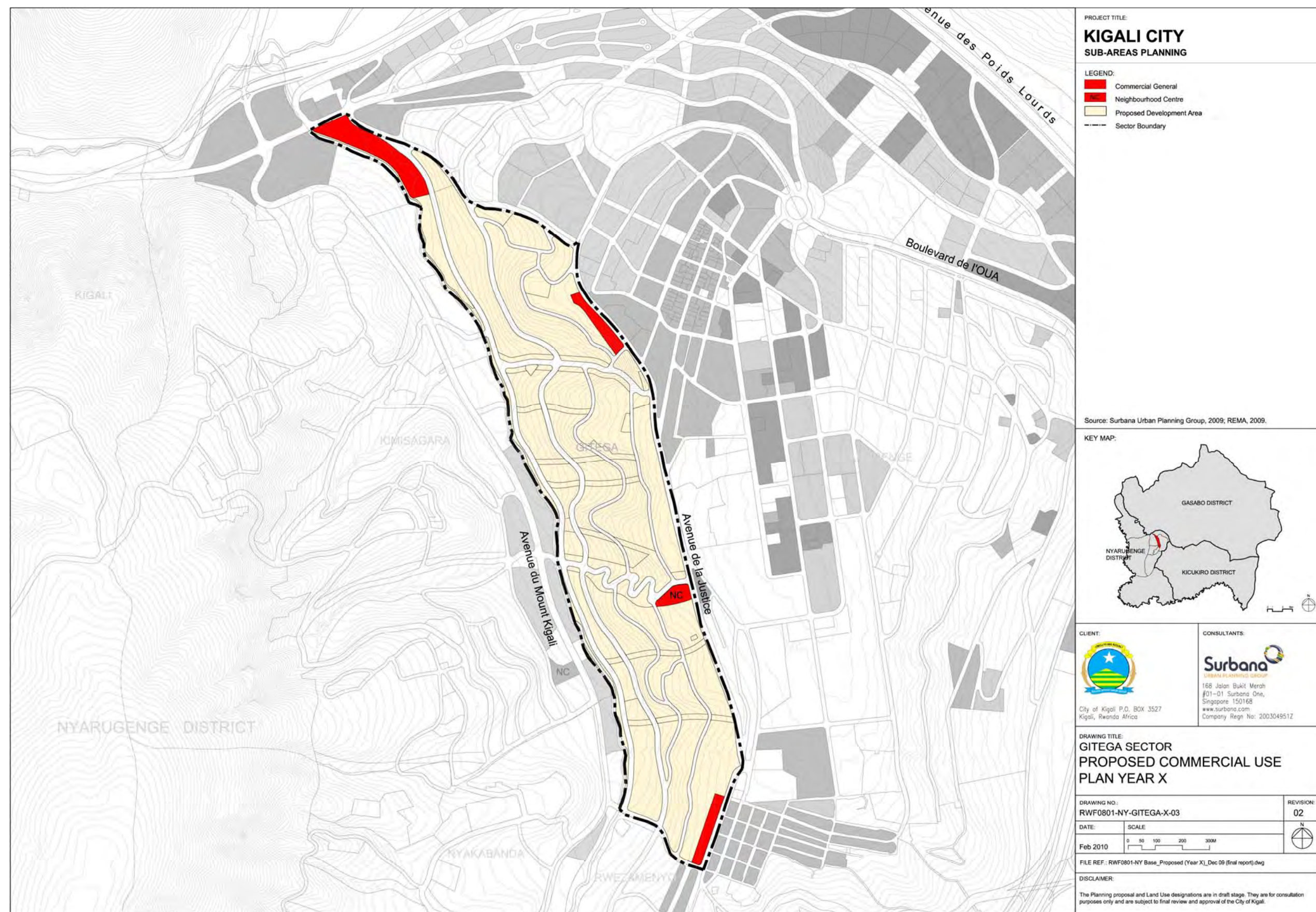


Figure 5.11: Gitega Sector: Proposed Commercial Use Plan
 Source: Surbana

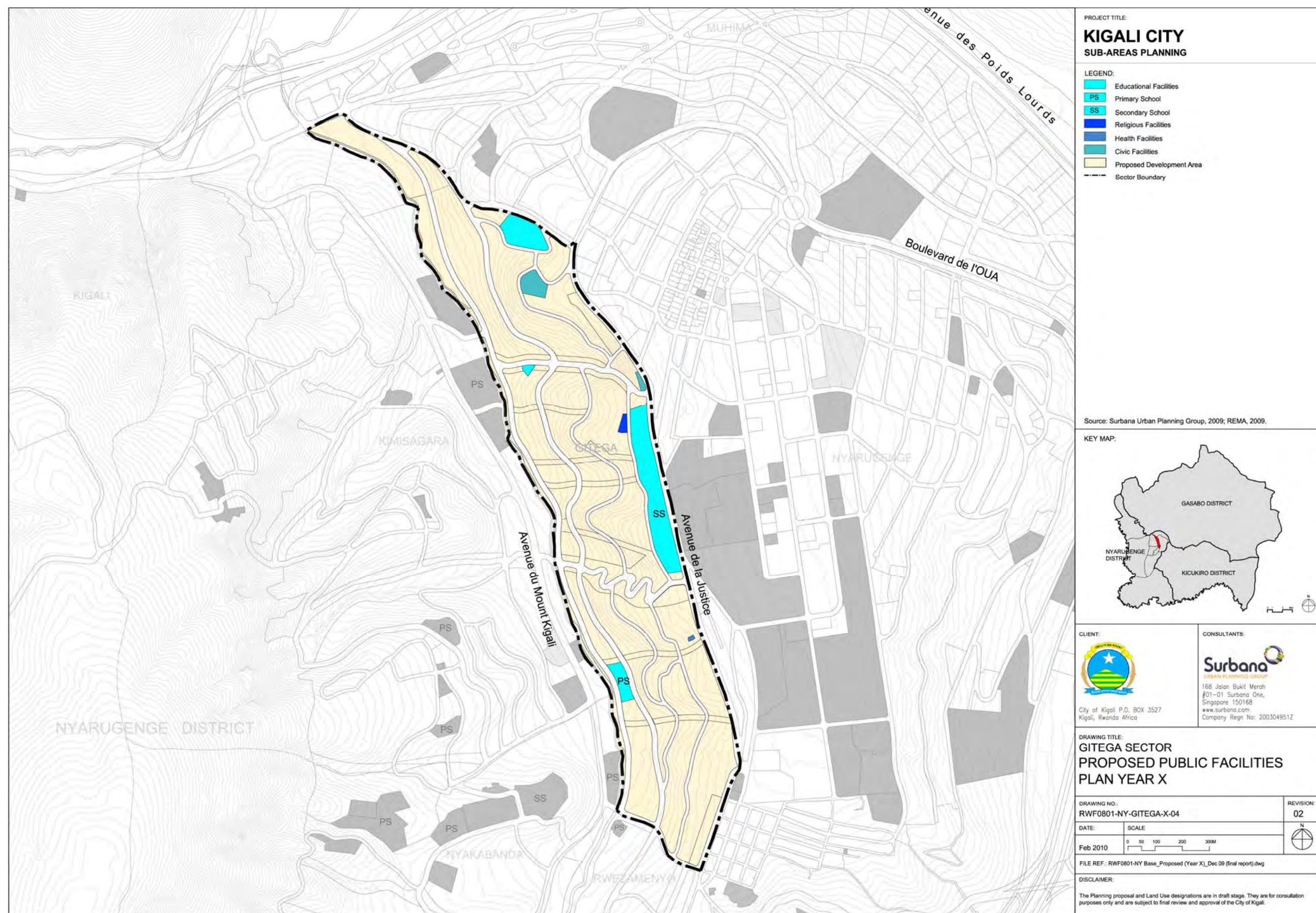


Figure 5.12: Gitega Sector: Proposed Public Facilities Plan
Source: Surbana

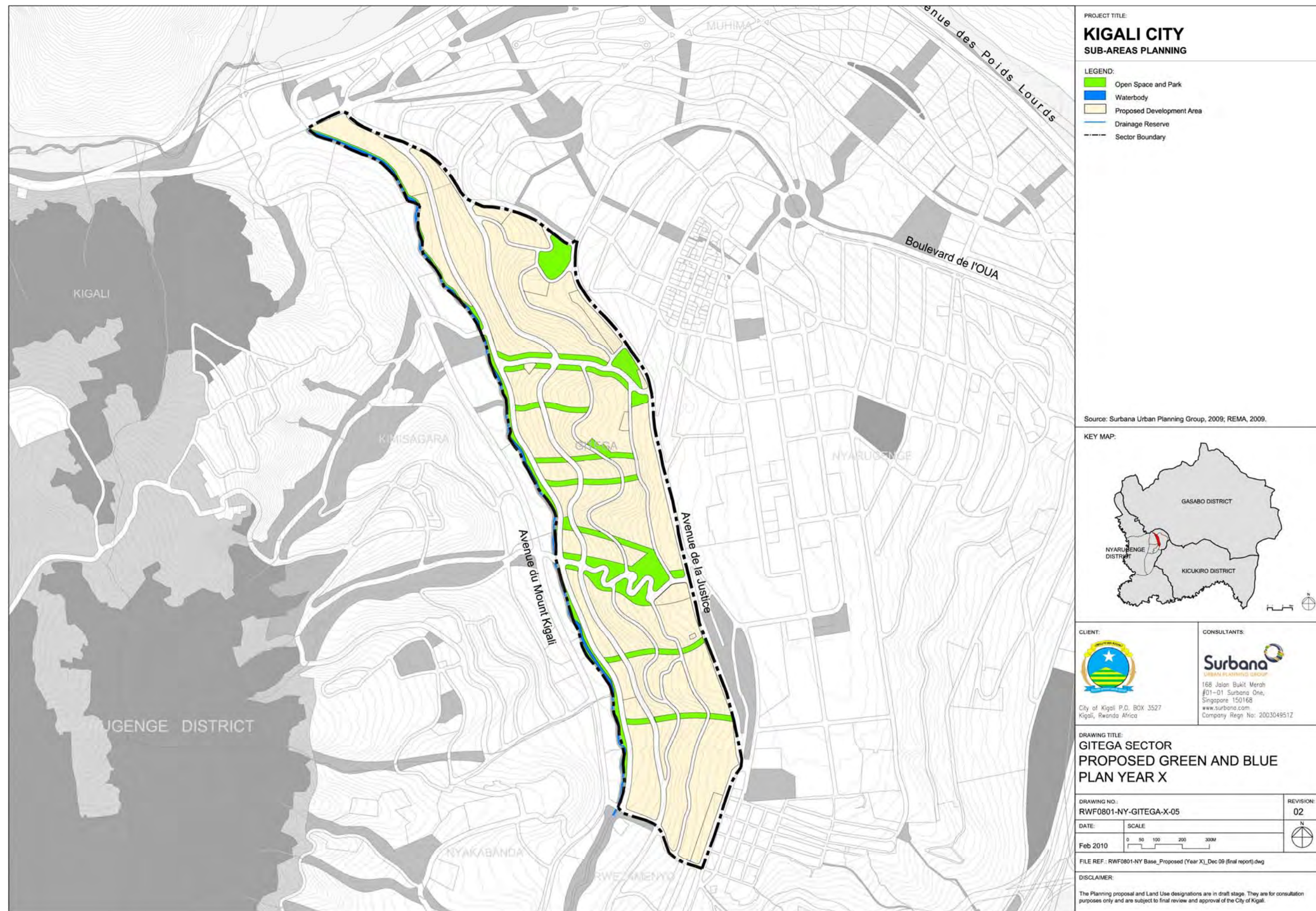


Figure 5.13: Gitega Sector: Proposed Green and Blue Plan
 Source: Surbana

5.5.6 Gitega Sector - Proposed Key Area Development

The Gitega-Kimisagara Green Link is proposed to be developed along a natural drainage valley, located centrally and running across the slopes from Gitega to Kimisagara Sectors towards the valley along Avenue du Mont Kigali. This link consists of a road connection and a linear green park, linking the two sectors. It is proposed to be developed as a key mix use and recreational areas offering communal leisure venues and accessible amenities.

In the section of the Green Link, which lies in Gitega Sector, commercial and public facilities, such as a shopping centre, a community centre, parks, a childcare centre, an old age home, health and religious facilities etc. could be developed along this green spine. Clusters of terraced townhouse developments are proposed to be developed abutting this green corridor, taking advantage of the views and amenities proposed therein.

Figure 5.14 to 5.16 present the proposed concept and design for this Green Link as part of the Gitega Sector.

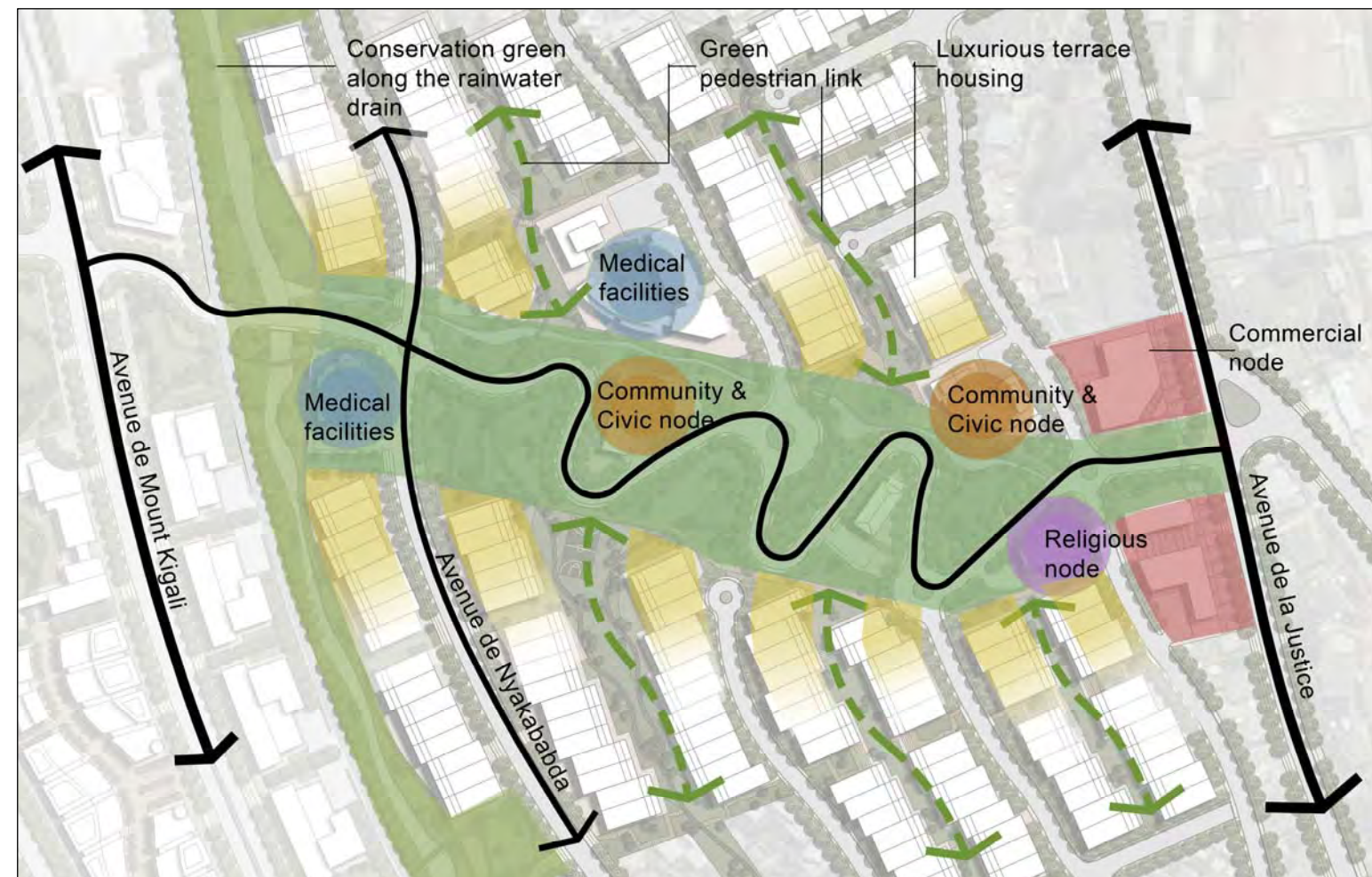


Figure 5.14: Gitega Sector - Concept for Green Link in Gitega.
Source: Surbana



Figure 5.15: Gitega Sector - Illustrative View of the Development in Gitega as part of the Gitega-Kimisagara Green Link.
Source: Surbana





Figure 5.16: Gitega Sector: Illustration of the Development in Gitega as part of the Gitega-Kimisagara Green Link.
Source: Surbana

CHAPTER 6: DETAILED MASTER PLAN FOR KIMISAGARA SECTOR

This chapter presents the detailed Master Plan for Kimisagara Sector. Based on the analysis of the existing context, opportunities and constraints, a vision and concept are derived which will guide the development of the Master Plan and the design of the key features within the Sector.

6.1 Kimisagara Sector - Context

- **Planning Area:** The total area of Kimisagara Sector is 320.00 ha.



Figure 6.1: Kimisagara Sector - Location Plan.
Source: Surbana

- **Location and Connectivity:** The Kimisagara Sector is located along the major arterial road Avenue du Mont Kigali which offers it connectivity to the Nyabugogo Taxi Park and the CDB areas. The Nyabugogo Taxi Park is located to the north, the Gitega Sector to the east, Kigali Sector to the west and Nyakabanda Sector to the south.
- **Existing Site Conditions:** The areas abutting Avenue du Mont Kigali is mostly occupied by high density informal housing. The areas along the steep slopes of Mount Kigali are covered by thick vegetation and low density informal housing areas. A few public facilities are located in between these housing areas and are accessible by dirt roads.

Table 6.1: Kimisagara Sector - Population Projection.

Area	Existing Population (2006)	Projected Population (2020)
Kigali City	1,085,000	1,988,000
Kimisagara Sector	43,387	58,612

Source: TAMA 2006: Population by Sector, KCMP Existing Conditions Analysis

- **Natural Constraints:** Only 18% of the total land area within the Sector is developable. Most of the land is in areas of steep unbuildable slopes, with some parts being covered by forest and vegetation (refer to Figure 6.2). The areas of the Sector along Avenue du Mont Kigali are relatively gentler as compared to the rest of the areas.

Figure 6.5 presents the existing Context Plan for Kimisagara sector.

6.2 Kimisagara Sector - Opportunities and Constraints

- **Opportunities:** Due to its close proximity and connectivity to the CBD, Kimisagara has the potential to be developed into a medium density residential area offering a mix of high-end as well as medium range housing options to support the CBD development. The Nyabugogo Taxi Park is a regional public transport hub and can be redeveloped into an integrated transport and commercial complex. The existing market along Avenue du Mont Kigali could be formalised into a commercial node serving the surrounding communities. Adequate number of public facilities such as schools, religious buildings etc. minimise the need to provide new facilities. The existing natural drainage lines can be developed as recreational green spaces. The alignments of the existing mud tracks, which run along the contours, can be redeveloped as new paved roads, in order to minimise land acquisition.
- **Constraints:** The key development constraint in Kimisagara is the steep slope, which restricts large scale developments and results in incurring higher costs for infrastructure provision. Moreover, a large area under forest cover needs to be conserved. The existing water treatment plant needs to be retained and developed around. Avenue du Mont Kigali, a major thoroughfare passes through Kimisagara and is likely to face congestion problems with increasing developments.

Figure 6.6 presents the Opportunities Plan and Figure 6.7 presents the Constraints Plan for Kimisagara Sector.

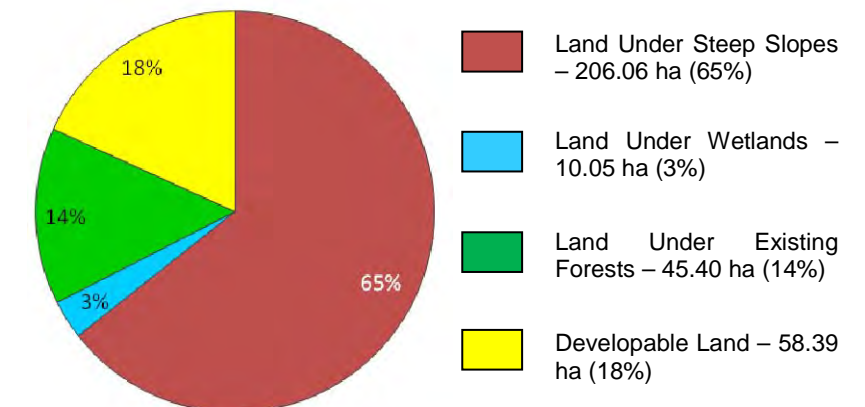


Figure 6.2: Kimisagara Sector - Land under Natural Constraints.
Source: KCMP; 2007.



Figure 6.3: Kimisagara Sector: Existing Topography.
Source: Surbana



Water Treatment Plant.



Community Centre.



Church in the Community Centre.



Market.

Figure 6.4: Kimisagara Sector - Existing Context.
Source: Surbana

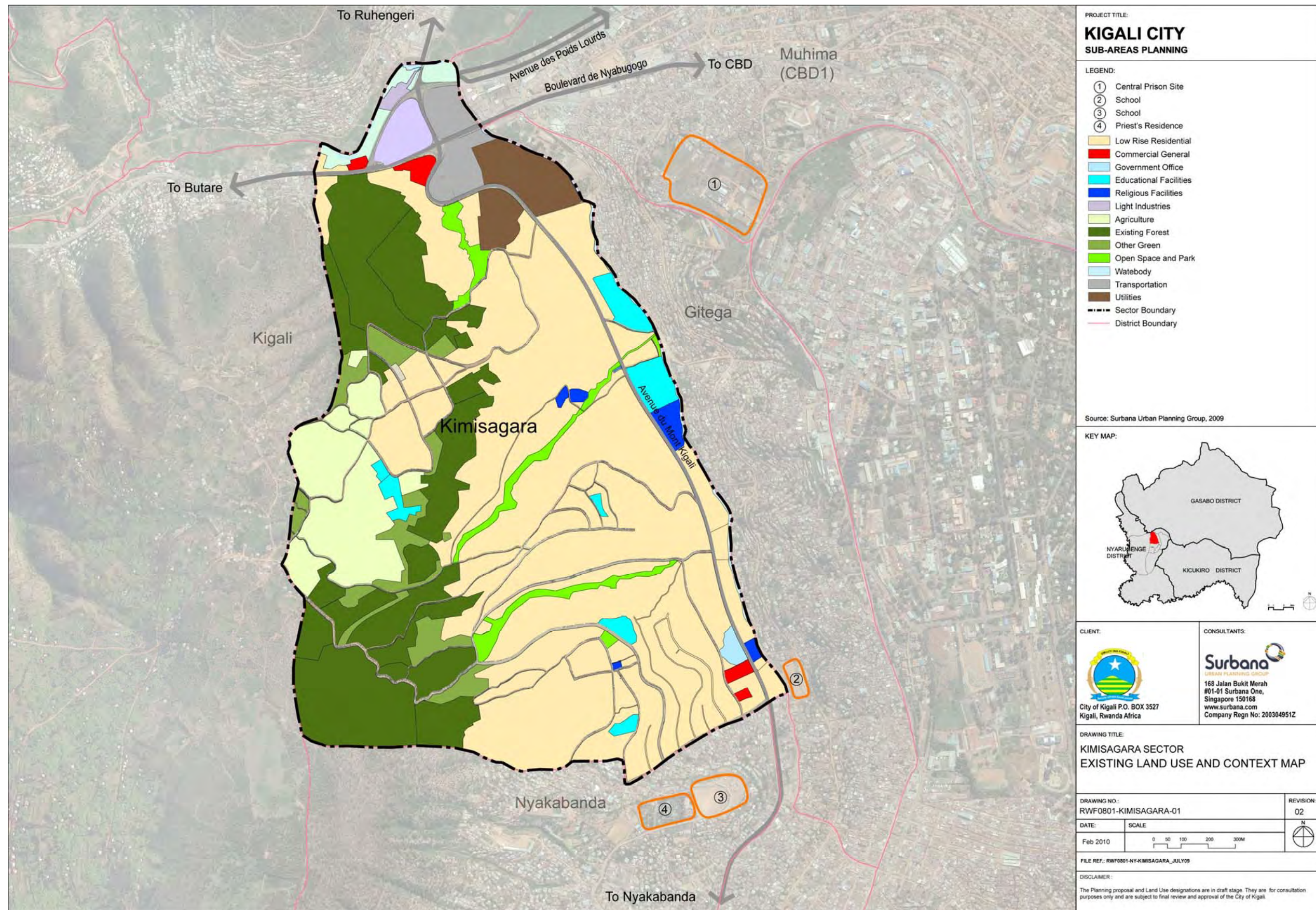


Figure 6.5: Kimisagara Sector - Existing Land Use and Context Map.
Source: Surbana

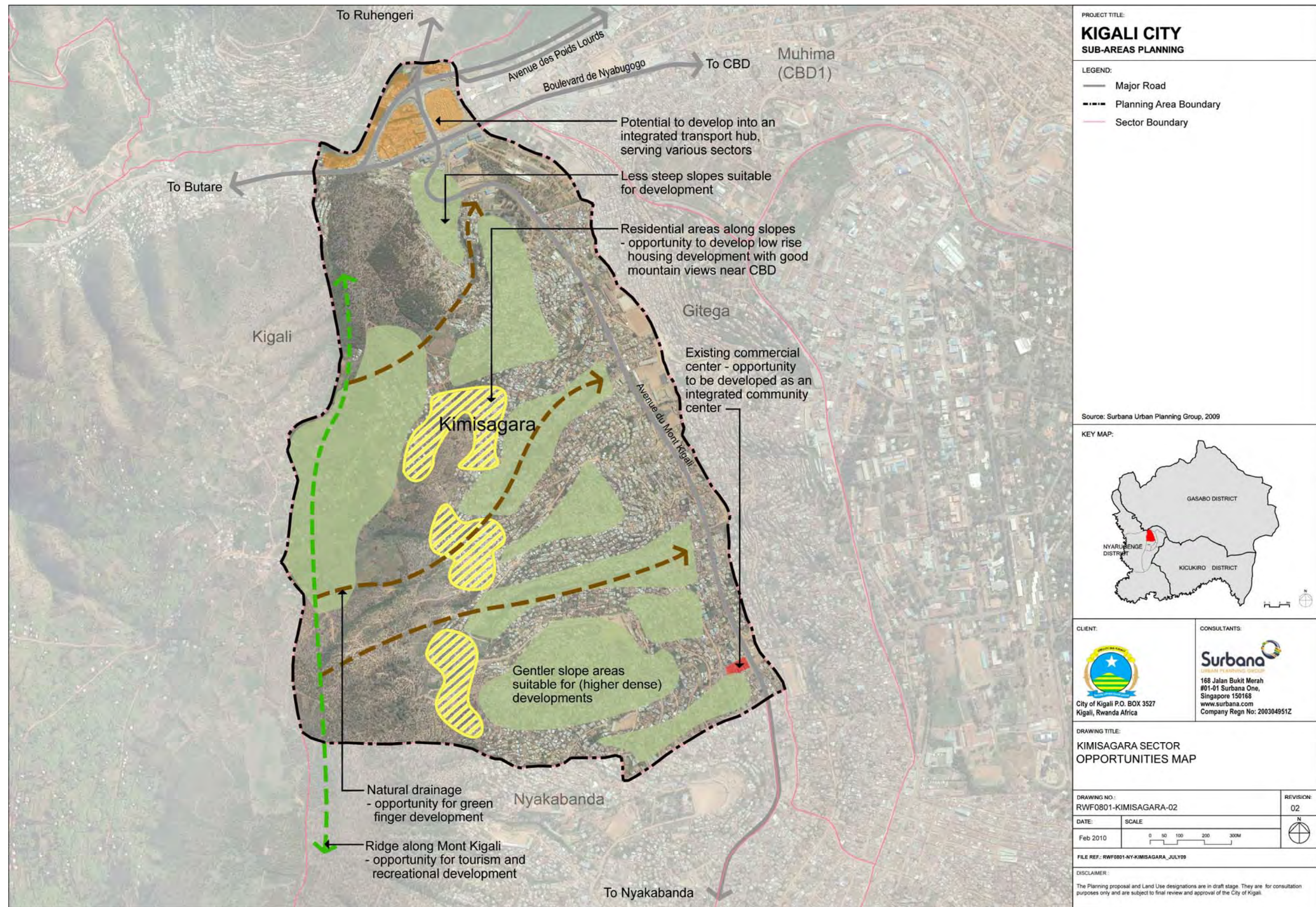


Figure 6.6: Kimisagara Sector - Opportunities Map.
 Source: Surbana

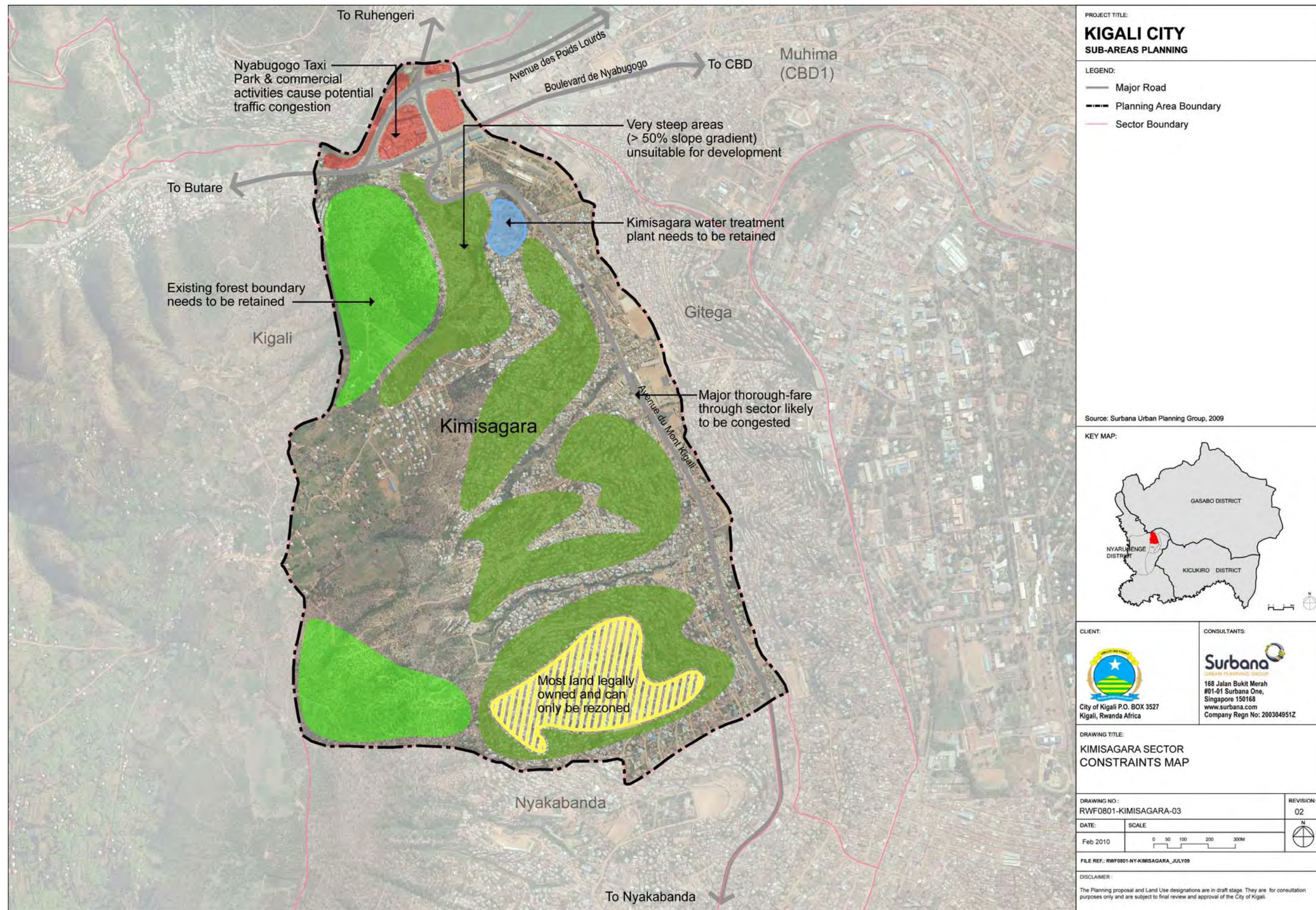


Figure 6.7: Kimisagara Sector - Constraints Map.
 Source: Surbana

6.3 Kimisagara Sector - Proposed Vision

‘Prime Residential Area along the Slopes of Mount Kigali’



Kimisagara Sector is envisioned to offer a mix of residential options with accessible public facilities along the slopes of Mount Kigali and in close proximity to the CBD. The tourism and recreational developments along the upper slopes will offer attractive sports and leisure venues.

6.4 Kimisagara Sector - Proposed Concept

Based on the existing context, opportunities and constraints as well as the proposed vision, a development concept has been proposed for Kimisagara Sector, as illustrated in Figure 6.8

The key proposals of the concept plan are as follows:

- To intensify the existing informal housing areas as compact medium to high density residential neighbourhoods to meet the immediate housing needs of the CBD. To allow low density housing along areas the steep slopes of Mount Kigali.
- To redevelop the existing market and neighbouring public facilities such as the schools and churches, to create a comprehensive neighbourhood centre catering to the residents of Gitega and Kimisagara Sectors.
- Create a seamless network of pedestrian and park connectors between Gitega and Kimisagara Sectors.
- To improve transportation and infrastructure systems.

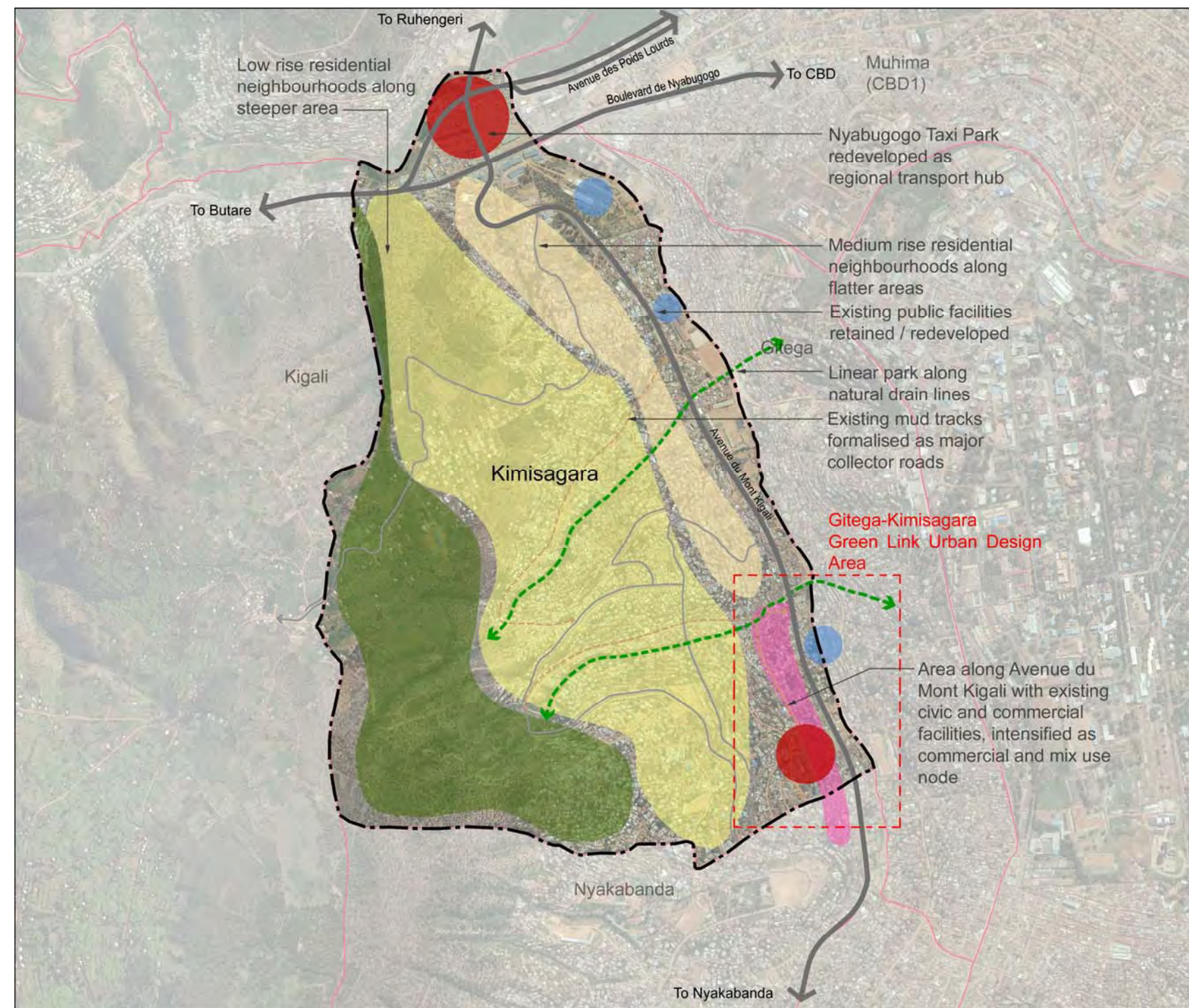


Figure 6.8: Kimisagara Sector - Concept Plan
Source: Surbana

6.5 Kimisagara Sector - Proposed Master Plan

Presented below is the Land Use Plan proposed for Kimisagara Sector.

6.5.1 Kimisagara Sector - Proposed Land Use Plan

A large part of the Sector is under steep unbuildable slope (>20%). However, as the land is fully built out and under private ownership, the Sector is proposed to be redeveloped into well planned housing communities instead of relocating the existing housing stock. The Land Use Plan for Kimisagara Sector aims to build upon the existing land use patterns while offering incentives and flexibility for redevelopment. The key proposals of the Land Use Plan are:

- To rezone the existing low rise residential areas along Avenue du Mont Kigali into new medium to high density medium rise residential areas. To rezone the upper slope areas into low density single family residential areas.
- To concentrate the existing commercial outlets and public facilities into a neighbourhood centre serving the communities in surrounding areas. To introduce a mix use strip along Avenue du Mont Kigali offering city level services.
- To retain and revitalise the existing public facilities.
- To safeguard areas with steep slope and natural drainage courses as parks and green connectors.
- To regularise and widen the key pathways into formal roads.

Table 6.2: Kimisagara Sector - Land Use Data.

Broad Land Use	Legend	Detailed Land Use	Area (ha)*	(%)
Residential		Single Family Residential	74.29	23%
		Low Rise Residential	41.39	13%
		High Rise Residential	4.32	2%
		Total Residential	120.00	38%
Commercial		Commercial General	12.76	4%
Mix Use		Mix Use	8.35	3%
Public Facilities		Government Office	0.74	0%
		Educational Facilities	6.85	2%
		Religious Facilities	1.83	1%
		Health Facilities	0.03	0%
		Civic Facilities	1.03	0%
		Total Public Facilities	10.48	3%
Open Space		Open Space and Park	34.14	11%
Nature Area		Forest	90.07	28%
		Wetland	0.63	0%
		Total Nature Area	90.07	28%
Waterbody		River	1.11	0%
Infrastructure		Transport	38.71	12%
		Utilities	3.91	1%
		Total Infrastructure	42.62	13%
Grand Total			320.00	100%

*All site areas subject to final survey.

Source: Surbana

Based on the proposed Land Use Plan Kimisagara Sector is proposed to accommodate a population of 31,100¹¹ by Year X. Figure 6.9 presents the Proposed Land Use Plan Year X for Kimisagara Sector.

6.5.2 Kimisagara Sector - Proposed Residential Use Plan

The existing informal residential neighbourhoods around the market along Avenue du Mont Kigali are proposed to be rezoned as medium rise apartments. The existing settlements in the steep areas along slopes of the Mount Kigali are marked for low density single family developments. The zoning regulations for these areas would encourage developers to provide a range of commercial, public and recreational amenities within their housing developments, thus creating a quality living environment. Figure 6.10 presents the Proposed Residential Use Plan Year X for Kimisagara Sector.

6.5.3 Kimisagara Sector - Proposed Commercial Use Plan

Existing commercial developments along Avenue du Mont Kigali are proposed to be retained and revitalised. A neighbourhood centre is proposed near the existing market, to provide for medium density retail shops, serving the residents of both the Gitega and Kimisagara Sectors. These developments are easily accessible and large enough to meet the needs of the projected Year X population.

Figure 6.11 presents the Proposed Commercial Use Plan Year X for Kimisagara Sector.

6.5.4 Kimisagara Sector - Proposed Public Facilities Plan

At present the existing public facilities such as schools, health centres and religious buildings are sufficient to meet the needs of the projected Year X population.

Figure 6.12 presents the Proposed Public Facilities Plan Year X for Kimisagara Sector.

¹¹ This population is less than the present population. This is because the current density per unit is much higher than the density (4 persons per dwelling unit) proposed for the redevelopment. Hence, though the number of dwelling units proposed is higher than the existing number, the expected population in Kimisagara Sector will be less than the existing population.

6.5.5 Kimisagara Sector - Proposed Green and Open Spaces Plan

Areas around the natural drainage courses are proposed to be conserved and developed into linear parks. This would not only form a part of the storm water management system, but also offer recreational venues for residents and offer pedestrian and bicycle connectivity across the Sector. These parks are proposed as part of the larger green connector network proposed for the District.

Figure 6.13 presents the proposed Green and Open Spaces Plan Year X for Kimisagara Sector.

While Kimisagara Sector is well connected to the CBD via Avenue du Mont Kigali, there are no direct connections to Gitega, the neighbouring sector. In view of this, a green link consisting of a road connection lined with a range of commercial, recreation and public facilities is proposed to connect the two sectors.

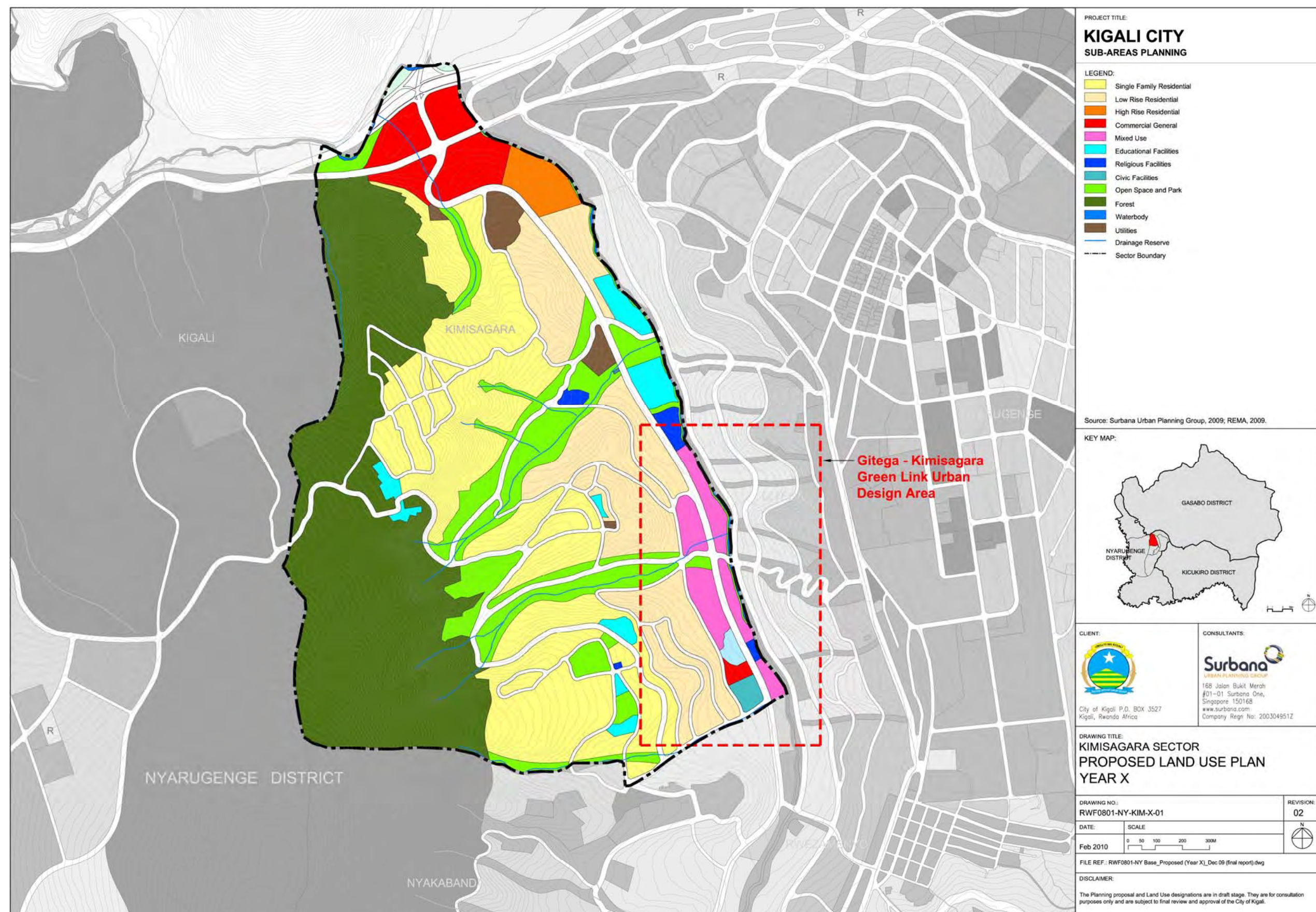


Figure 6.9: Kimisagara Sector: Proposed Land Use Plan
Source: Surbana

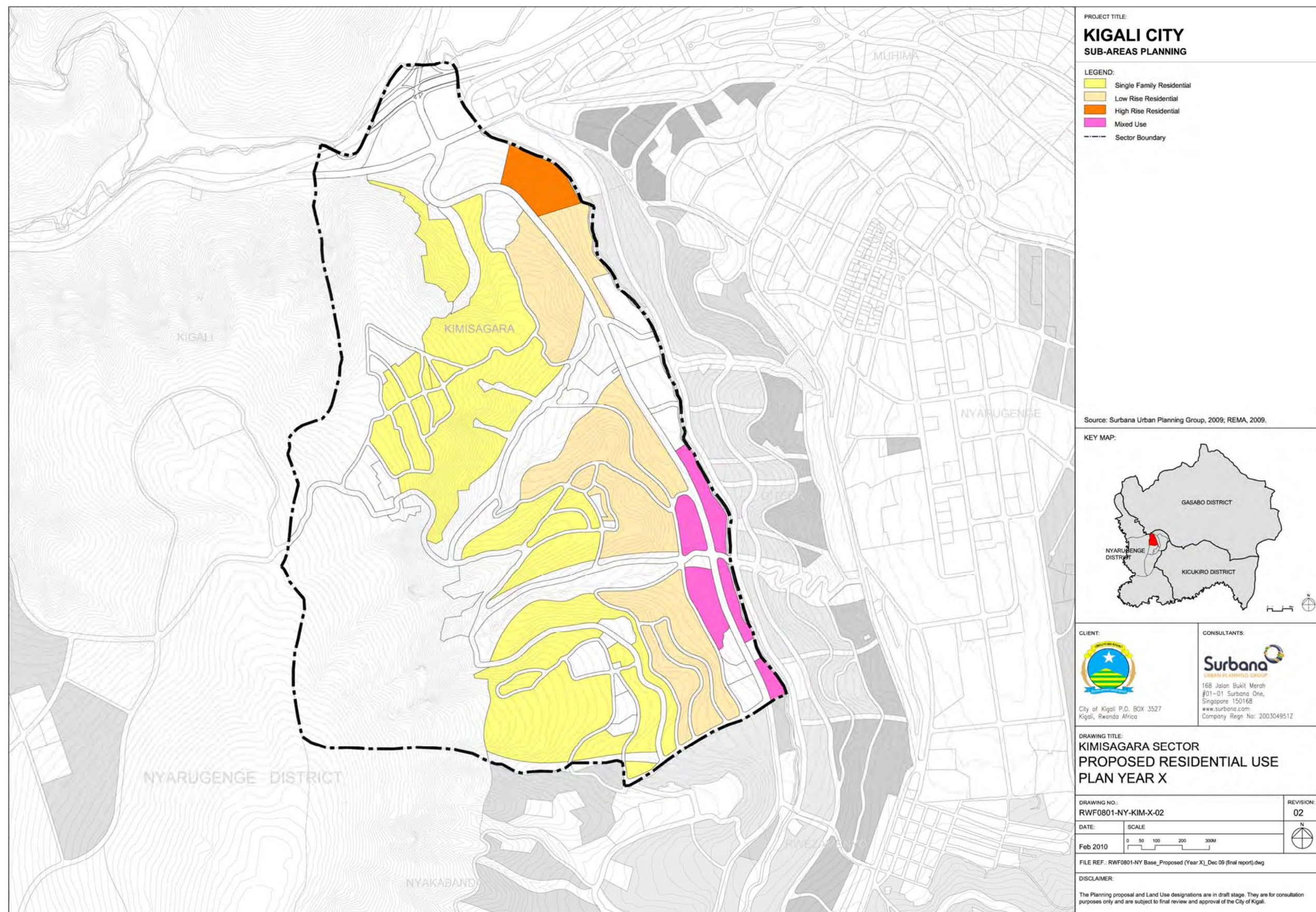


Figure 6.10: Kimisagara Sector: Proposed Residential Use Plan
 Source: Surbana

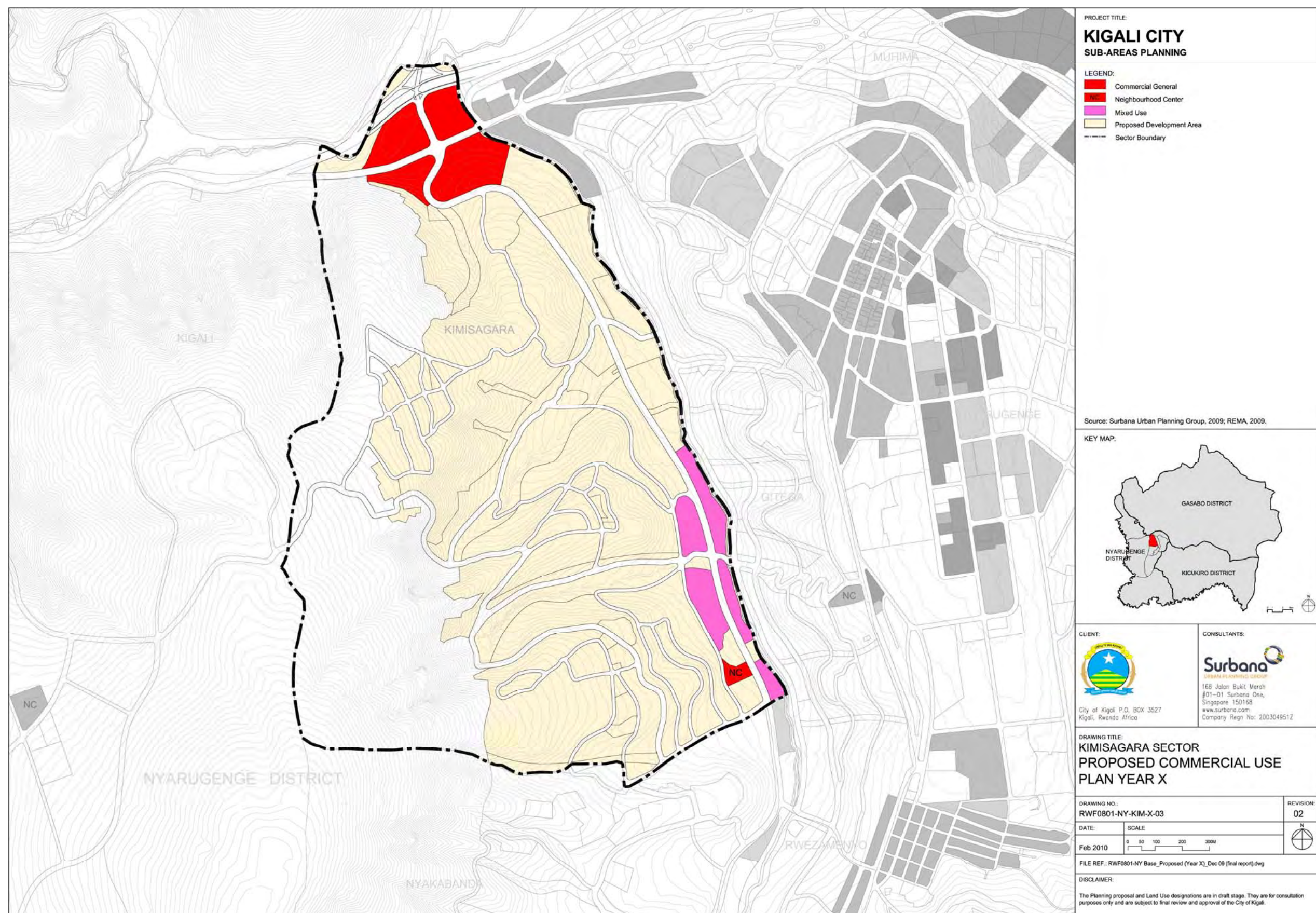


Figure 6.11: Kimisagara Sector: Proposed Commercial Use Plan
 Source: Surbana

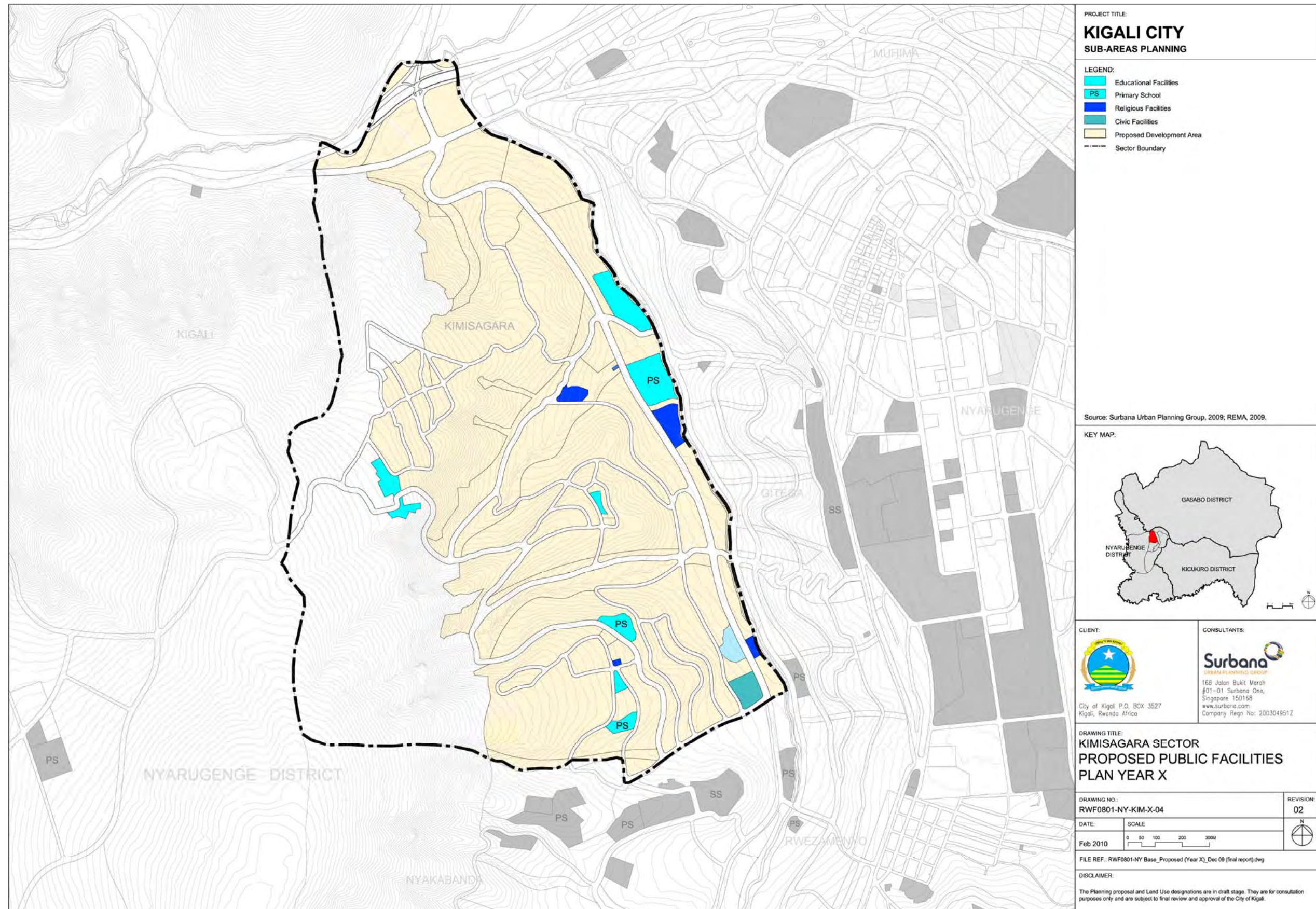


Figure 6.12: Kimisagara Sector: Proposed Public Facilities Plan
Source: Surbana

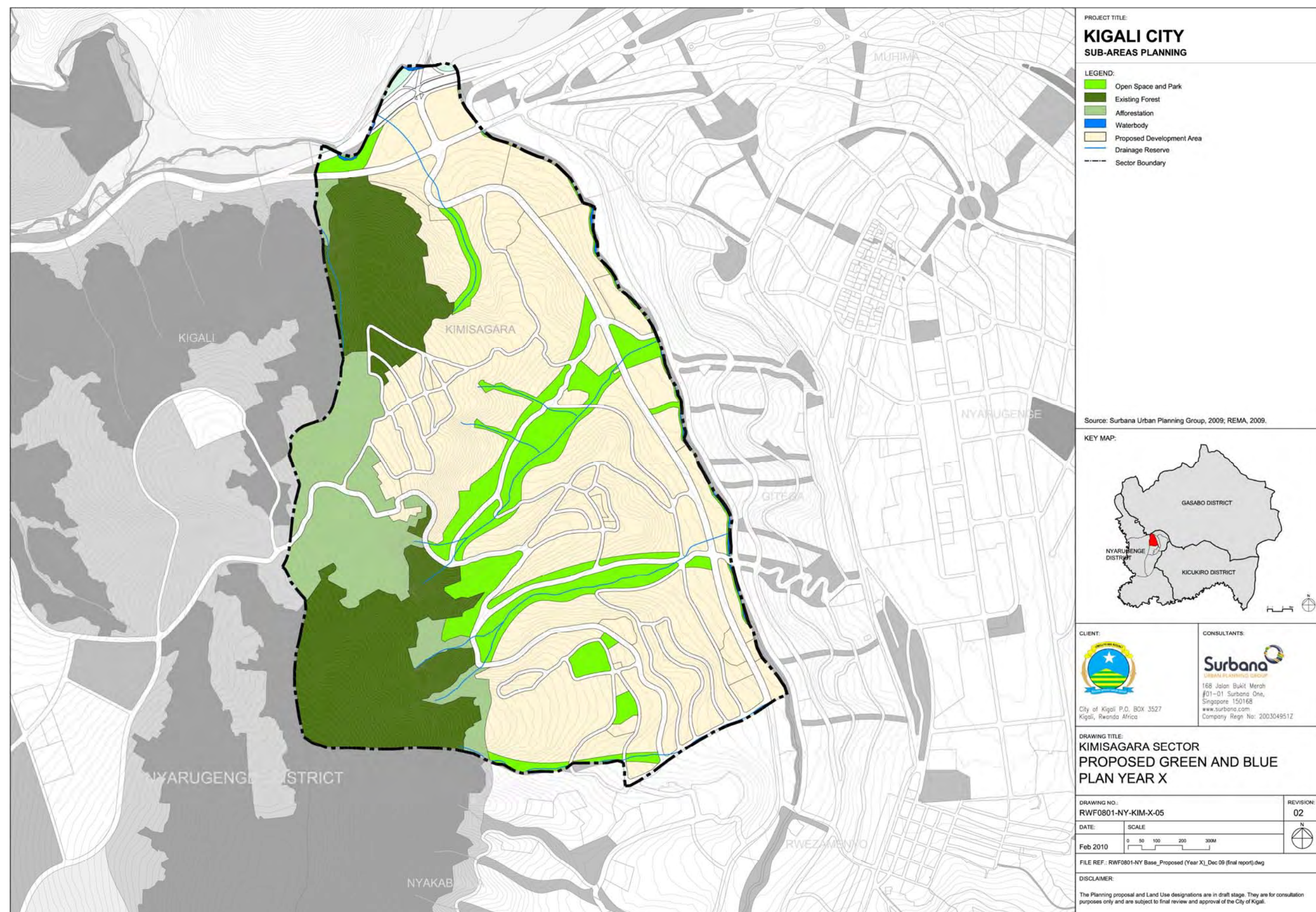


Figure 6.13: Kimisagara Sector: Proposed Green and Open Spaces Plan
Source: Surbana

6.5.6 Kimisagara Sector - Proposed Key Features Plan

The Gitega-Kimisagara Green Link connects Gitega and Kimisagara and intersects Avenue du Mont Kigali, a major arterial road connecting various sectors. A large number of commercial developments and public facilities exist along this intersection. In the section of the Green Link, which lies in Kimisagara Sector, these would be developed into a linear commercial and mix use strip. Due to its central location between the sectors, facilities and developments in this area are highly accessible.

A pedestrian spine running through the developments is proposed to increase connectivity to and through the various mix use and commercial developments, public facilities and parks.

Figure 6.14 to 6.16 present the proposed concept and design for of this Green and Mix Use Corridor.

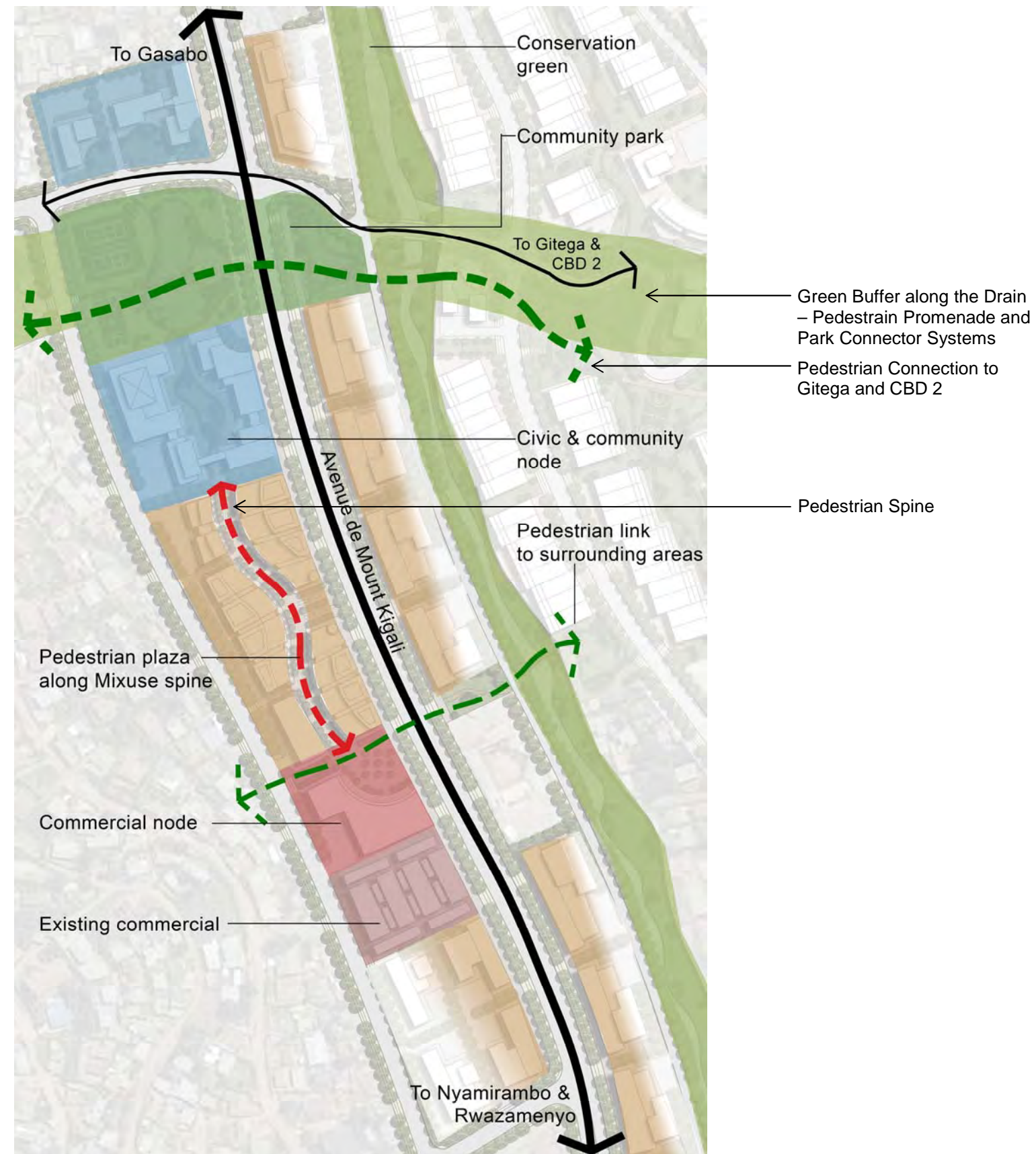


Figure 6.14: Kimisagara Sector - Concept for Green Link in Kimisagara.
Source: *Surbana*



Figure 6.15: Kimisagara Sector - Illustrative View of the Development in Kimisagara as part of the Gitega-Kimisagara Green Link.
Source: *Surbana*



Legend :

- ① Police Station
- ② Municipal Office
- ③ Existing Church
- ④ Mixed Use Development
- ⑤ Existing Drain with Green Buffer
- ⑥ Existing Commercial Market
- ⑦ New Shopping Centre
- ⑧ Public Plaza
- ⑨ Multi Level Carpark
- ⑩ Pedestrian Spine
- ⑪ Community Hall, Library & Kindergarten
- ⑫ Kimisagara Neighbourhood Park

Figure 6.16: Kimisagara Sector: Illustration of the Development in Kimisagara as part of the Gitega-Kimisagara Green Link.
Source: *Surbana*

CHAPTER 7: DETAILED MASTER PLAN FOR RWEZAMENYO SECTOR

This chapter presents the detailed Master Plan for Rwezamenyo Sector. Based on the analysis of the existing context, opportunities and constraints, a vision and concept are derived which guide the development of the Master Plan and the design of the key features within the Sector.

7.1 Rwezamenyo Sector - Context

- **Planning Area:** The total area of Rwezamenyo Sector is 103.30 ha.



Figure 7.1: Rwezamenyo Sector - Location Plan
Source: Surbana

- **Location and Connectivity:** Rwezamenyo Sector is located between 2 major arterial roads, Avenue du Mont Kigali and Avenue de la Nyabarongo. It is well connected to the CDB and the existing Nyabugogo Taxi Park by these arterial roads. The Kigali Regional Stadium (in Nyakabanda Sector) and the civic-cultural developments (in Nyamirambo Sector) are located to its south.
- **Existing Site Conditions:** A large part of this area is flat and is mostly occupied by well-planned high density housing and mix use developments. This area is served with proper road and infrastructure networks. The area along Avenue de la Nyabarongo comprises of well-organized grid-like developments. The area along Avenue du Mont Kigali is occupied by high density informal housing. A linear commercial strip occurs along Avenue de la Nyabarongo. The existing population density is approximately 209 people per hectare.

Table 7.1: Rwezamenyo Sector - Population Projection.

Area	Existing Population (2006)	Projected Population (2020)
Kigali City	1,085,000	1,988,000
Rwezamenyo Sector	21,569	27,901

Source: TAMA 2006: Population by Sector, KCMP Existing Conditions Analysis

- **Natural Constraints:** Rwezamenyo Sector is generally flatter than the other sectors within the urban fringe area, with 88% of the total land area being developable. (refer to **Error! Reference source not found.**).

7.2 Rwezamenyo Sector - Opportunities and Constraints

- **Opportunities:** Due to its largely flat topography, central location and connectivity to the CBD, this sector can be developed as a major civic - urban node with larger commercial, mix use and residential developments. This node will complement the CBD and serve the regional needs of the District. The existing well-planned roads and infrastructure allow for large scale developments. The planned development areas can be rezoned as higher density residential neighbourhoods to support the CBD. The informal housing areas can be reorganised and rezoned into low to medium density residential developments.
- **Constraints:** A number of existing public facilities such as schools, churches etc., an existing industrial development as well as the single family areas in the south need to be retained. The informal areas need to be reorganised.

Figure 7.6 presents the Opportunities Map and Figure 7.7 presents the Constraints Map for Rwezamenyo Sector.

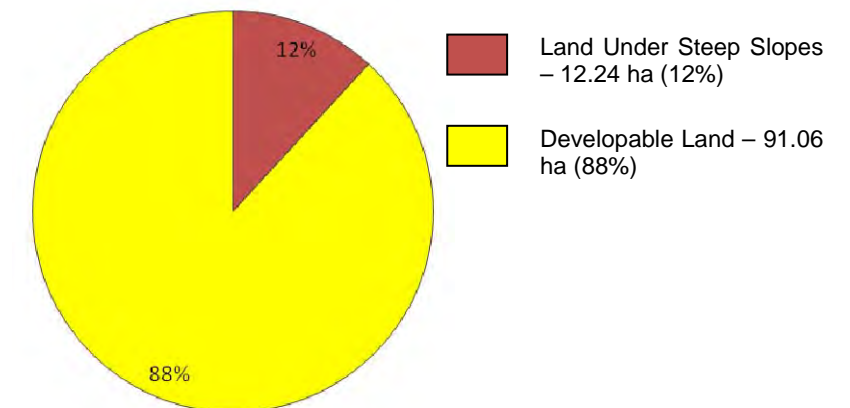


Figure 7.2: Rwezamenyo Sector - Land under Natural Constraints
Source: Surbana



Figure 7.3: Rwezamenyo Sector - Existing Topography.
Source: Surbana



Dense Informal Settlements.



Flat Area good for Development.



Vibrant Commercial Street.



Good Paved Roads.

Figure 7.4: Rwezamenyo Sector - Existing Context.
Source: Surbana

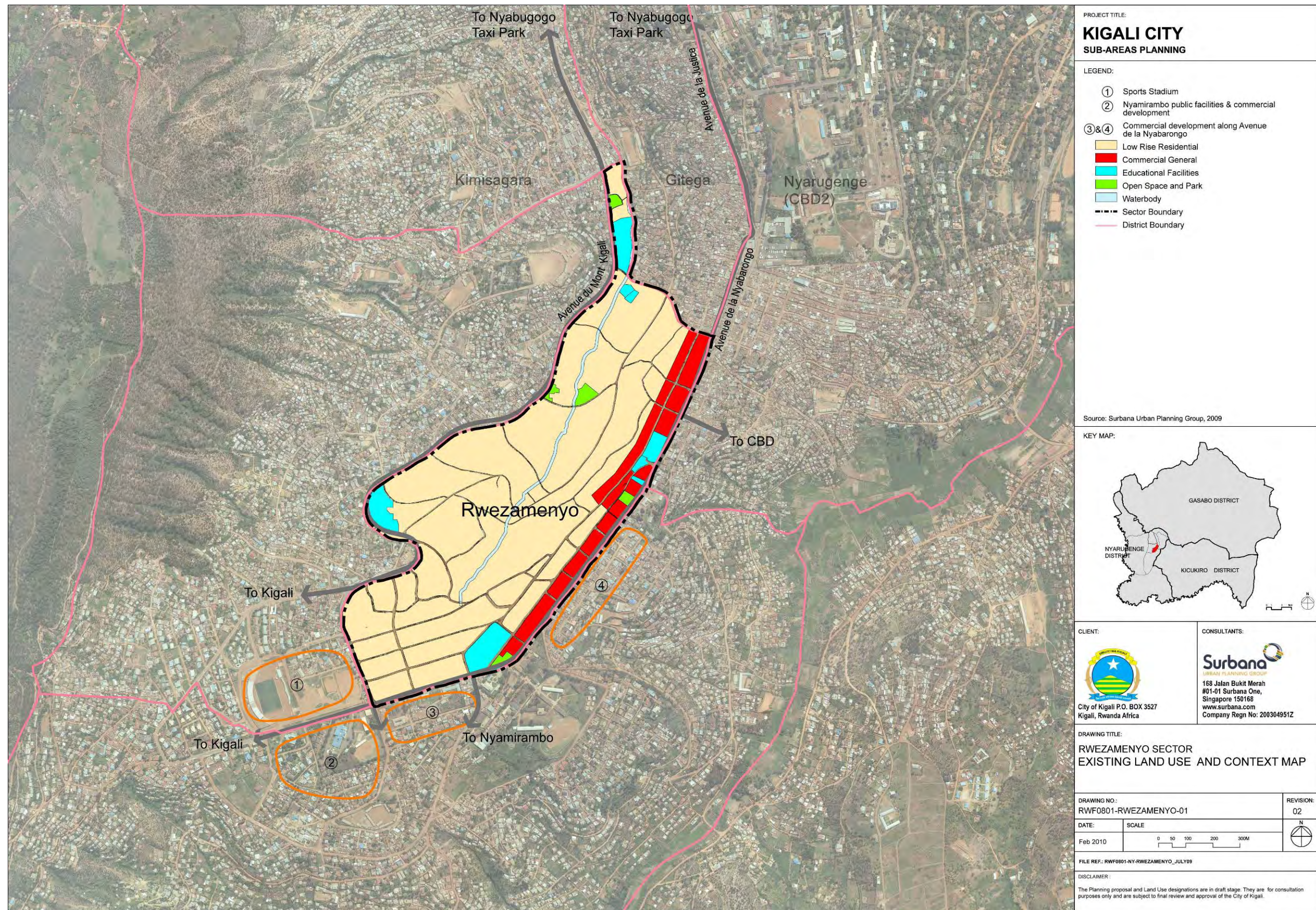


Figure 7.5: Rwezamenyo Sector - Existing Land Use and Context Map.
Source: Surbana

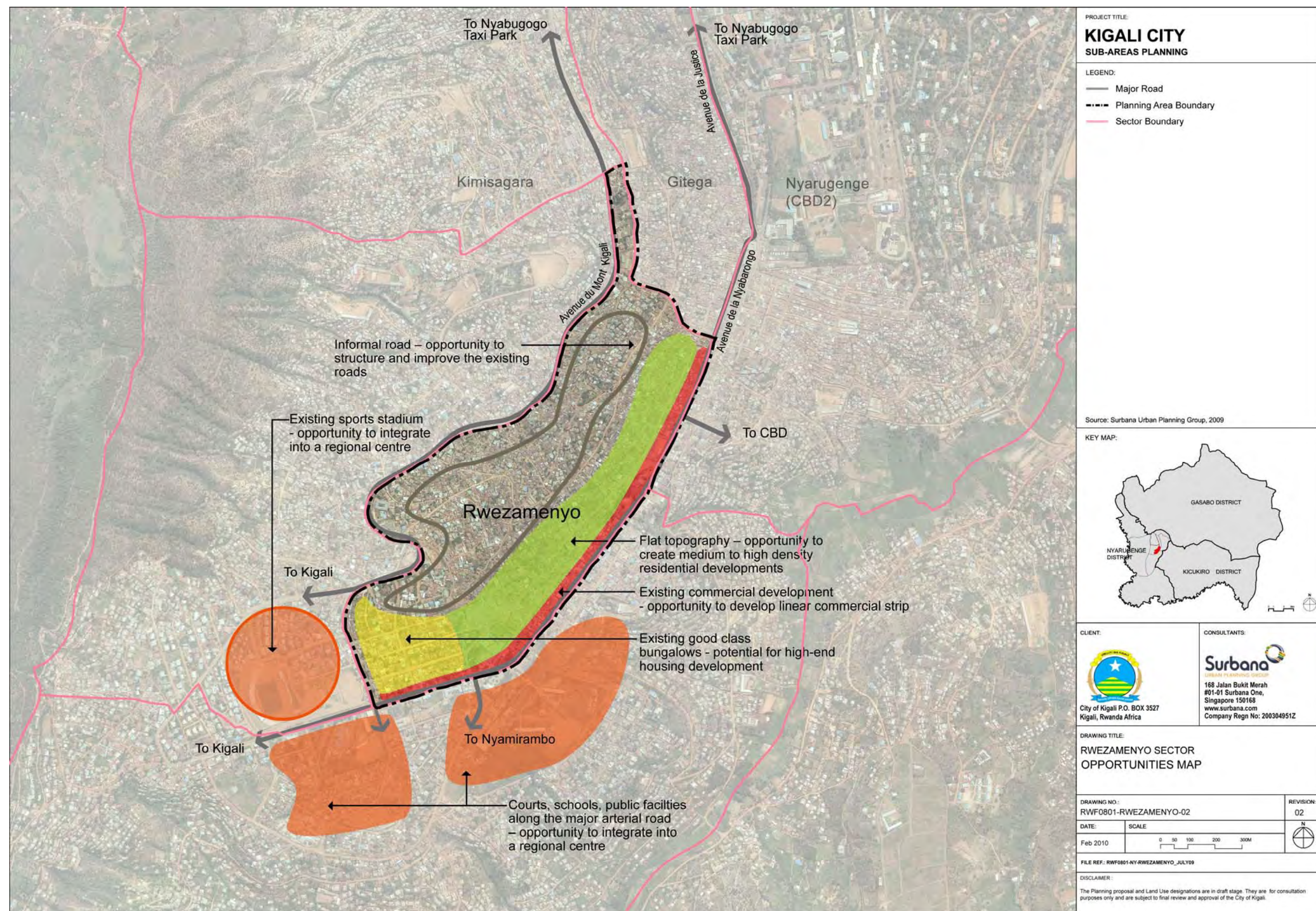


Figure 7.6: Rwezamenyo Sector - Opportunities Map.
 Source: Surbana

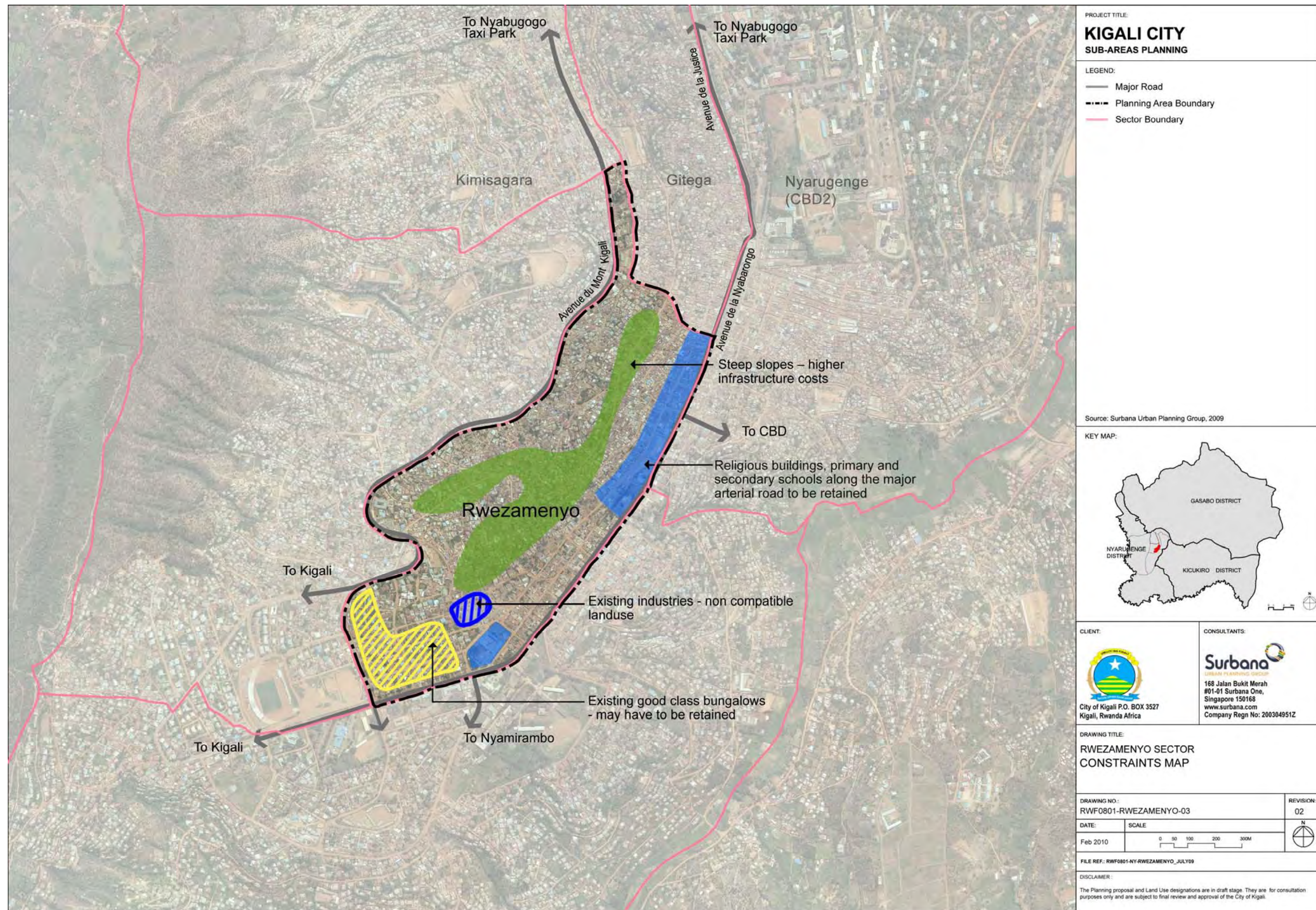


Figure 7.7: Rwezamenyo Sector - Constraints Map.
 Source: Surbana

7.3 Rwezamenyo Sector - Proposed Vision

‘Quality Housing at Urban Fringe’



Due to its proximity to employment and civic centres such as the CBD, KIST and the sports and cultural developments to its south, Rwezamenyo is envisioned to become an important urban node in Nyarugenge District offering a range of commercial and civic facilities as well as quality housing options for the locals and the expats.

7.4 Rwezamenyo Sector - Proposed Concept

Based on the existing context, opportunities and constraints as well as the proposed vision, a development concept has been proposed for Rwezamenyo Sector, as illustrated in Figure 7.8.

The key proposals of the concept plan are as follows:

- To intensify the existing planned areas along Avenue de la Nyabarongo into compact high density residential neighbourhoods. To intensify the existing informal housing areas along Avenue du Mont Kigali as medium density residential neighbourhoods.
- To rezone the existing linear commercial street into a commercial and mix use strip connecting the sports and civic developments to the south of the Sector to the Nyarugenge CBD.
- Integrate the developments proposed within the Sector with the Kigali Regional Sports Stadium and the public facilities in Nyamirambo Sector.
- To create a network of pedestrian and park connectors between Rwezamenyo and its surrounding sectors.

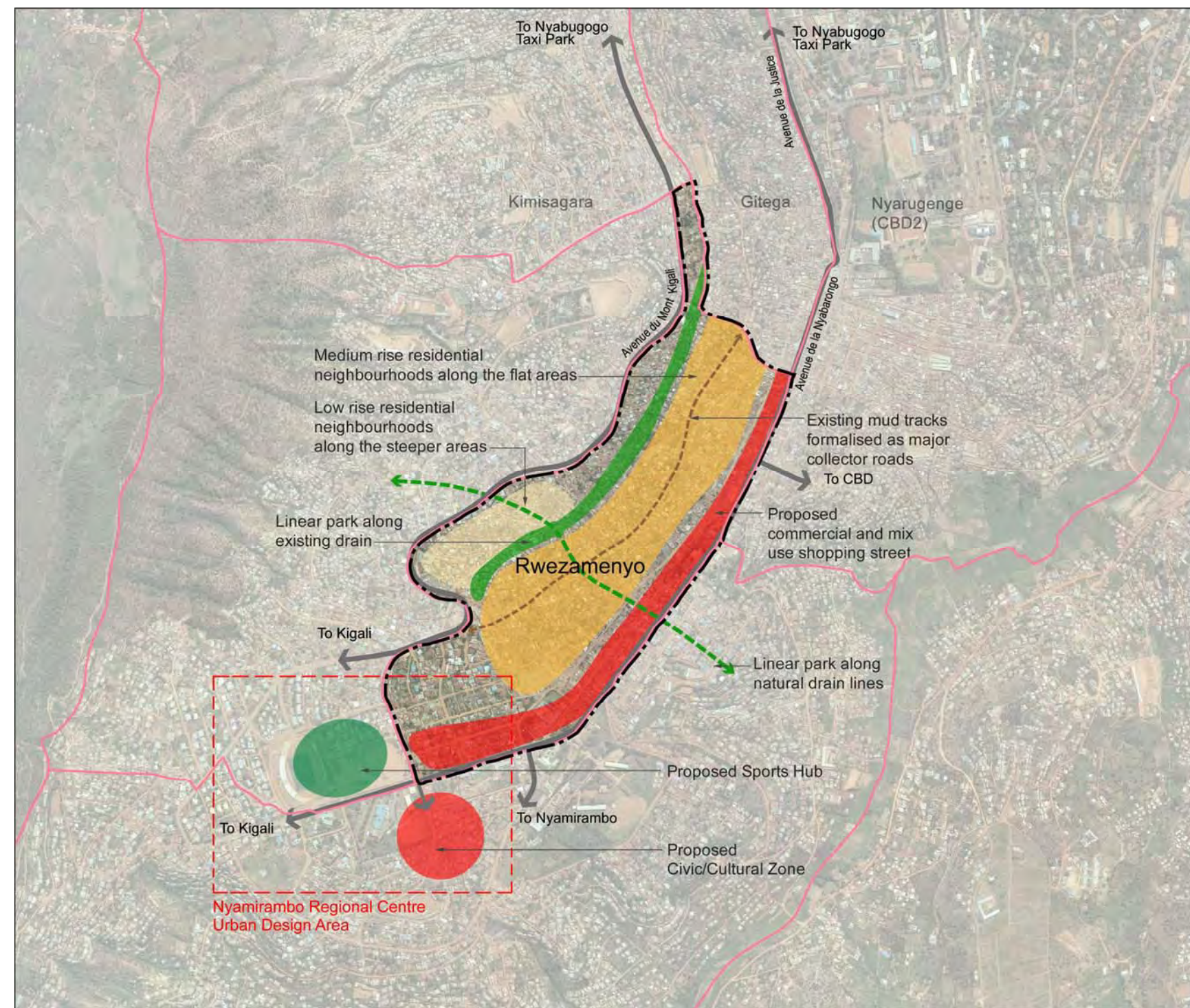


Figure 7.8: Rwezamenyo Sector - Concept Plan
Source: Surbana

7.5 Rwezamenyo Sector - Proposed Master Plan

The development concept is further refined and developed into the Detailed Master Plan for Rwezamenyo Sector. Presented below is the Land Use Plan proposed for Rwezamenyo Sector.

7.5.1 Rwezamenyo Sector - Proposed Land Use Plan

The Land Use Plan for Rwezamenyo Sector aims to build upon the existing land use patterns while offering incentives and flexibility for redevelopment into higher density uses. The key proposals of the Land Use Plan are:

- To rezone the existing mix use areas along Avenue de la Nyabarongo into a high density medium rise residential area. To rezone the low rise residential area along Avenue du Mont Kigali into medium density low rise residential area.
- To concentrate the existing commercial outlets into a retail and mix use strip along Avenue de la Nyabarongo.
- Encourage integration of public facilities and commercial centres with the sports and civic area in Nyakabanda and Nyamirambo.
- To safeguard natural drainage courses as parks and green connectors.

Table 7.2: Rwezamenyo Sector - Land Use Data.

Broad Land Use	Legend	Detailed Land Use	Area (ha)*	(%)
Residential		Low Rise Residential	32.02	31%
		Medium Rise Residential	28.53	28%
		Total Residential	60.55	59%
Commercial		Commercial General	9.77	9%
Mix Use		Mix Use	1.71	2%
Public Facilities		Educational Facilities	3.00	3%
		Civic Facilities	1.50	1%
		Total Public Facilities	4.50	4%
Open Space		Open Space and Park	5.84	6%
Waterbody		River	1.62	2%
Infrastructure		Transport	19.25	18%
		Utilities	0.14	0%
		Total Infrastructure	19.39	18%
Grand Total			103.30	100%

*All site areas subject to final survey.

Source: *Surbana*

Based on the proposed Land Use Plan Kimisagara Sector is proposed to accommodate a population of 27,900¹² by Year X. Figure 7.9 presents the Proposed Land Use Plan Year X for Kimisagara Sector.

7.5.2 Rwezamenyo Sector - Proposed Residential Use Plan

The existing mix use and multi-family residential neighbourhoods along Avenue de la Nyabarongo are proposed to be rezoned for medium rise apartments. The informal housing areas on slopes along Avenue du Mont Kigali are marked for low rise apartment developments. The zoning regulations for these areas would encourage developers to provide a range of commercial, public and recreational amenities within their housing developments, thus creating a quality living environment.

Figure 7.10 presents the Proposed Residential Use Plan Year X for Rwezamenyo Sector.

7.5.3 Rwezamenyo Sector - Proposed Commercial Use Plan

Existing commercial developments along Avenue de la Nyabarongo are proposed to be retained and revitalised into a linear commercial street. They are intended to offer city level services to the surrounding communities as well as the larger region. These developments are large enough to meet the needs of the projected Year X population.

Figure 7.11 presents the Proposed Commercial Use Plan Year X for Rwezamenyo Sector.

7.5.4 Rwezamenyo Sector - Proposed Public Facilities Plan

At present the existing public facilities such as schools, health centres and religious buildings are sufficient to meet the needs of the projected Year X population.

Figure 7.12 presents the Proposed Public Facilities Plan Year X for Rwezamenyo Sector.

7.5.5 Rwezamenyo Sector - Proposed Green and Open Spaces Plan

Areas around the natural drainage courses are proposed to be conserved and developed into linear parks. This would not only form a part of the storm water management system, but also offer recreational venues for residents and offer pedestrian and bicycle connectivity across the Sector. These parks are proposed as part of the larger green connector network proposed for the District.

Figure 7.13 presents the proposed Green and Open Spaces Plan Year X for Rwezamenyo Sector.

The existing linear commercial and mix use developments along Avenue de la Nyabarongo, the Kigali Regional Stadium and the civic-cultural developments in Nyamirambo Sector together are envisioned to be redeveloped as a Regional Centre, offering city and regional level sports, cultural and civic facilities. A pedestrian friendly boulevard along Avenue de la Nyabarongo is proposed to run through the urban node and bind the various developments together.

¹² This population is similar to the present population. This is because the current density per unit is much higher than the density (4 persons per dwelling unit) proposed for the redevelopment. Hence, though the number of dwelling units proposed is higher than the existing number, the expected population in Rwezamenyo Sector will increase only marginally from the existing population.

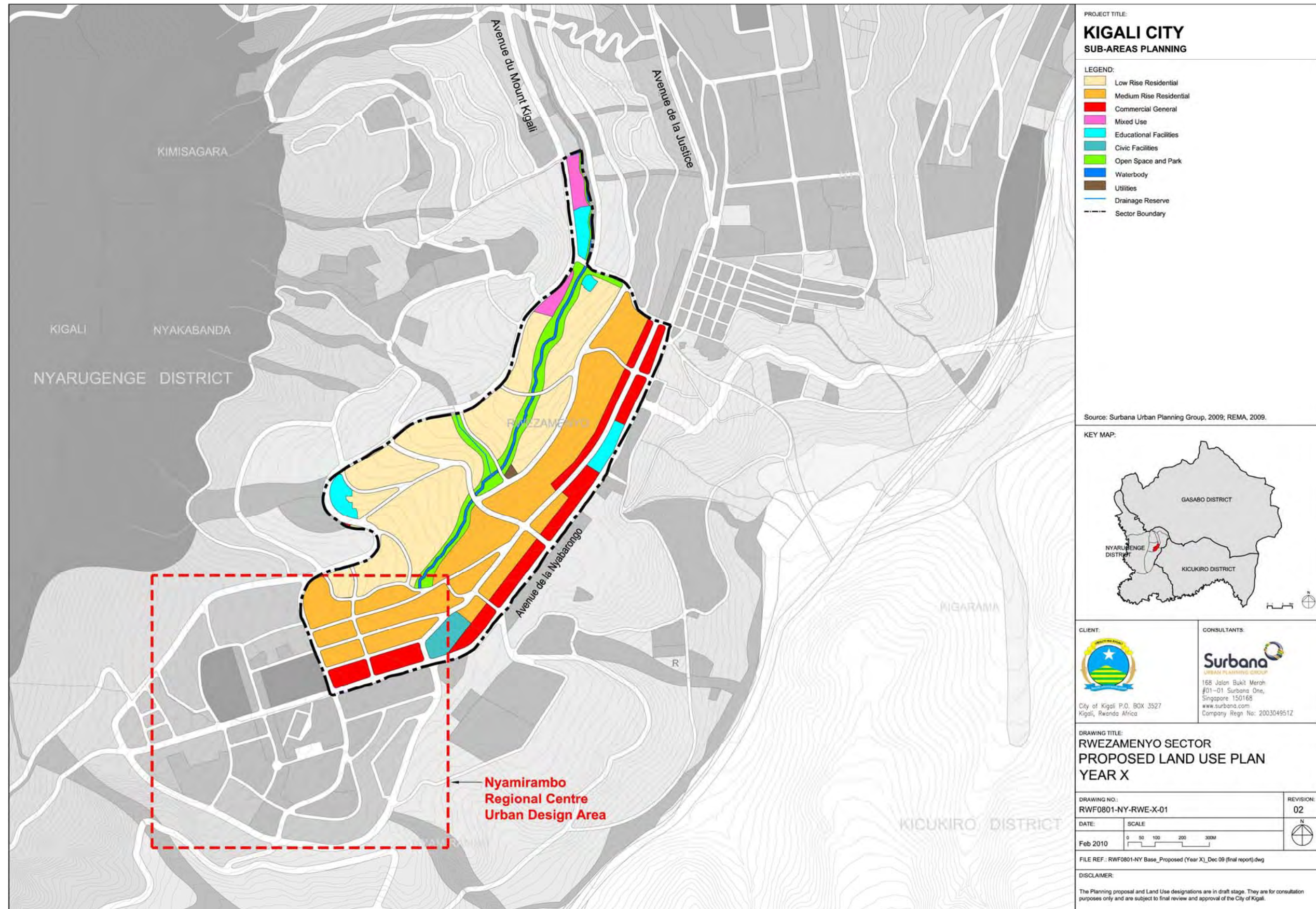


Figure 7.9: Rwezamenyo Sector - Proposed Land Use Plan
Source: Surbana

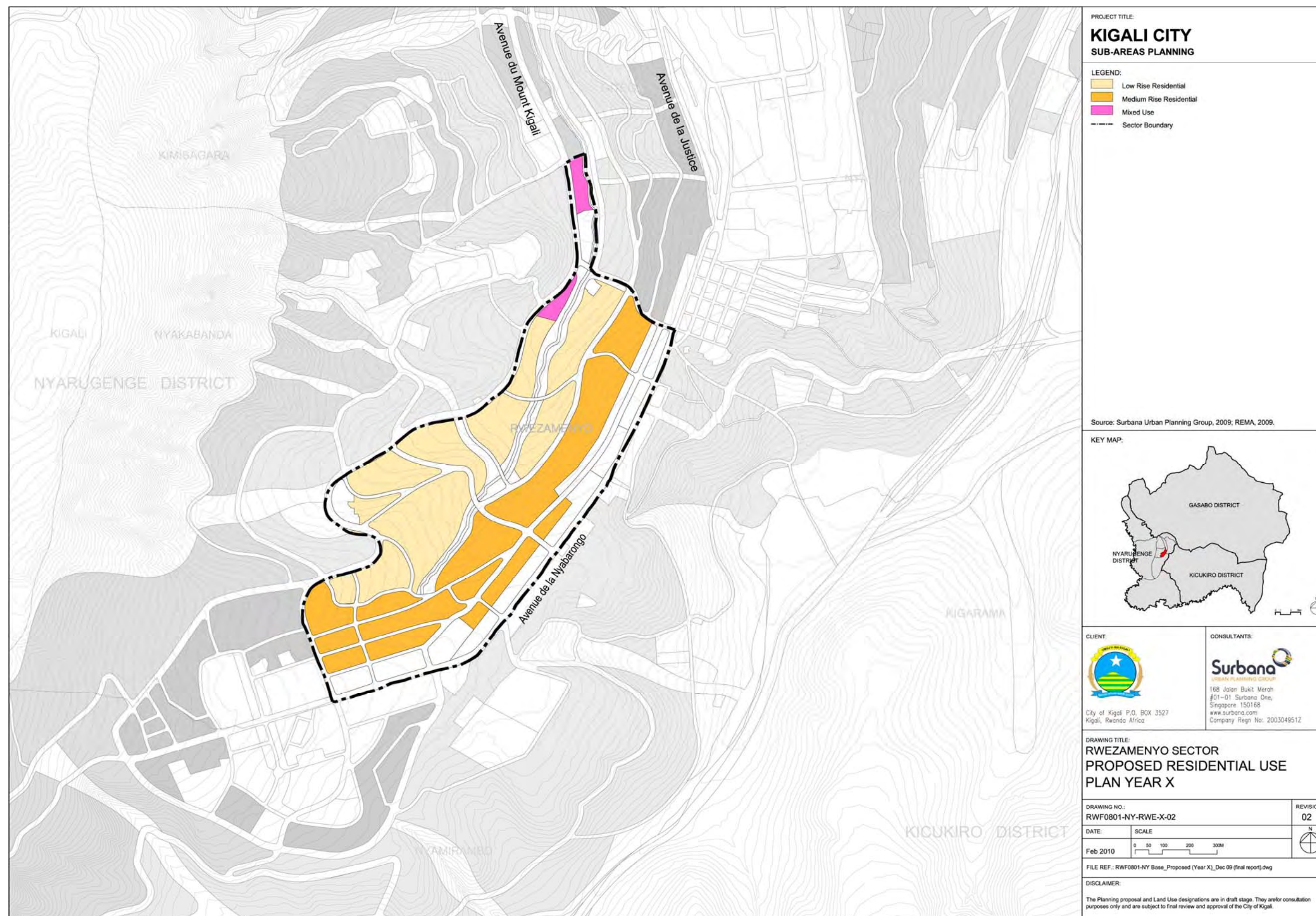


Figure 7.10: Rwezamenyo Sector: Proposed Residential Use Plan
 Source: Surbana

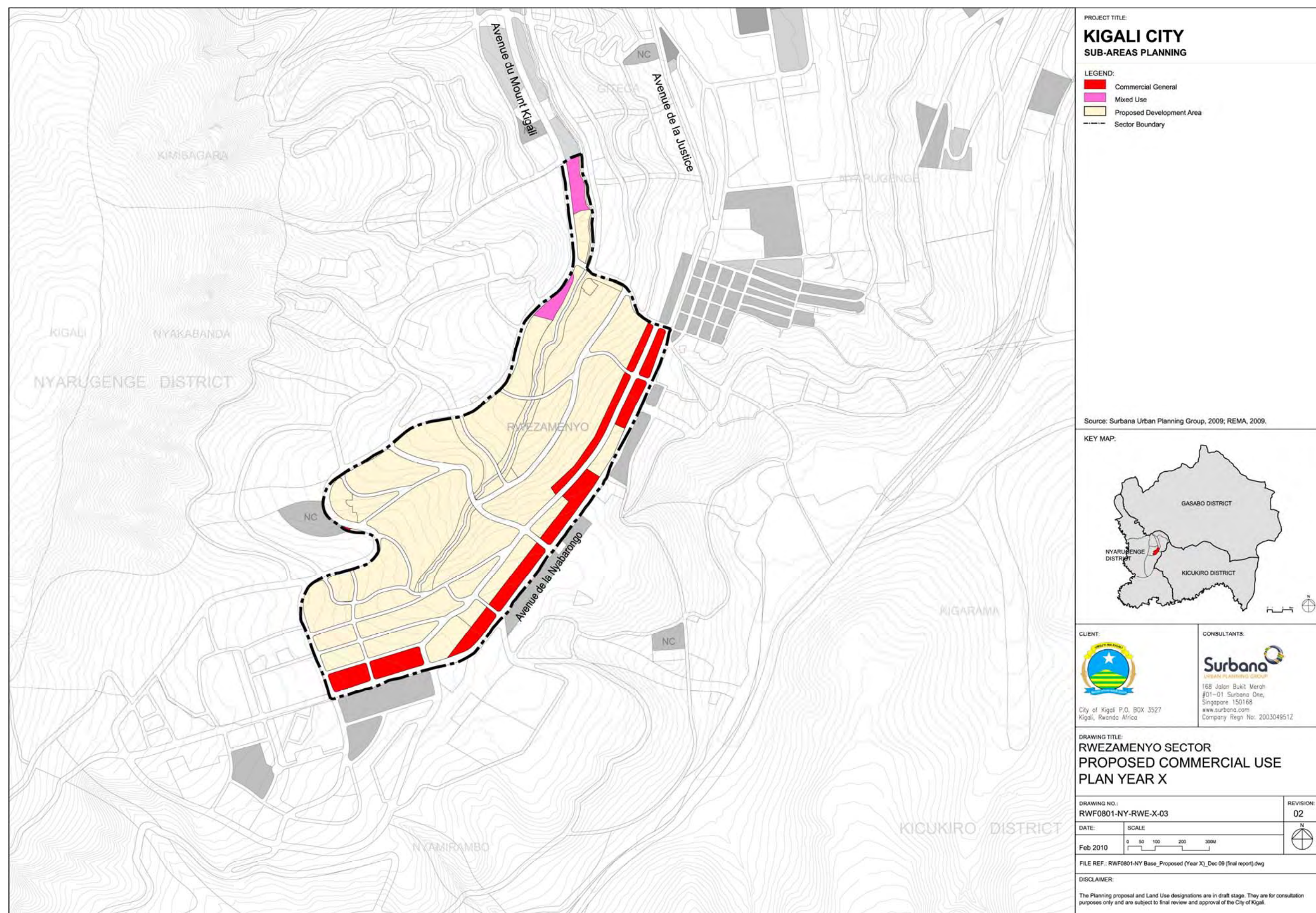


Figure 7.11: Rwezamenyo Sector: Proposed Commercial Use Plan
 Source: Surbana

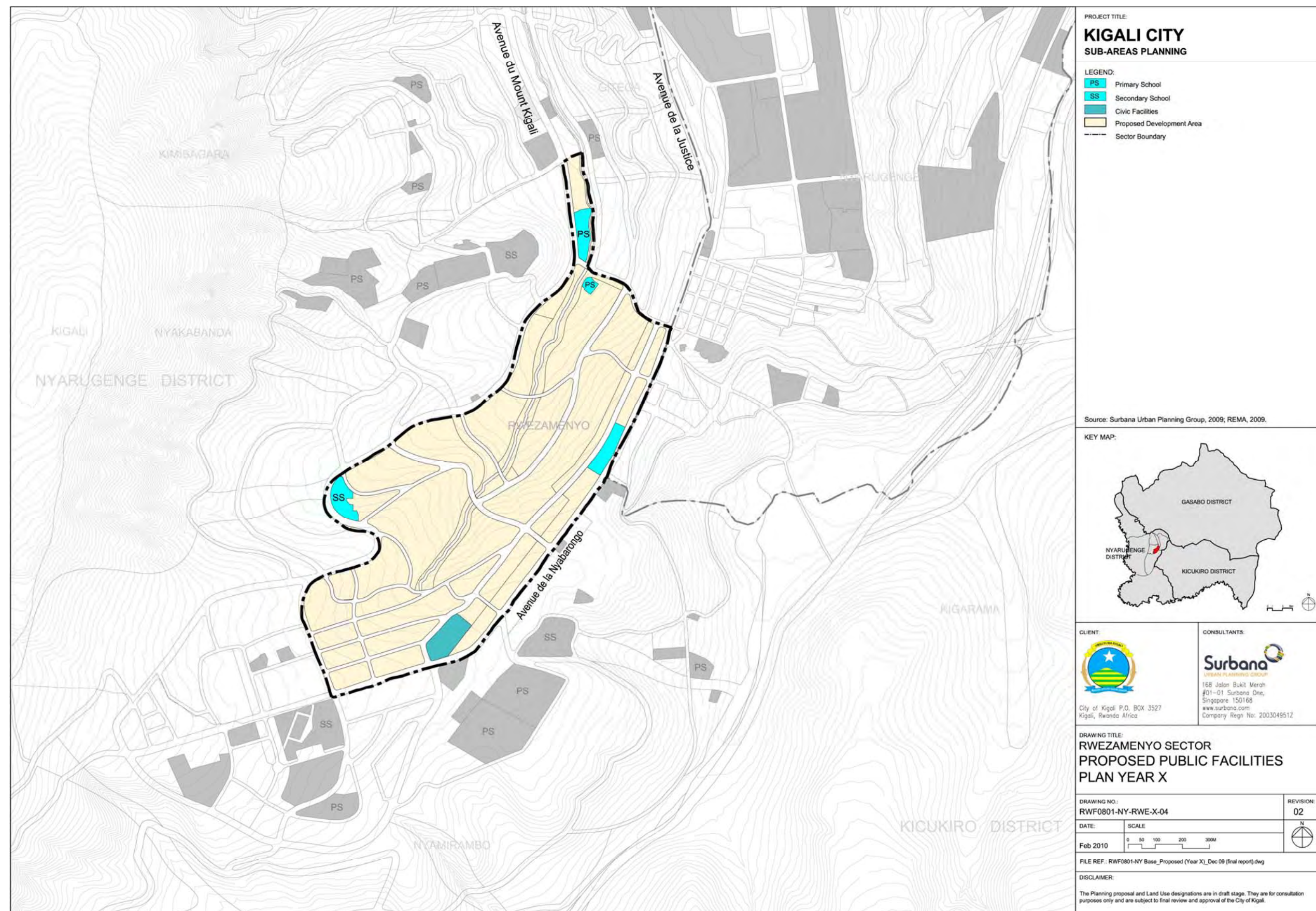


Figure 7.12: Rwezamenyo Sector: Proposed Public Facilities Plan
 Source: Surbana

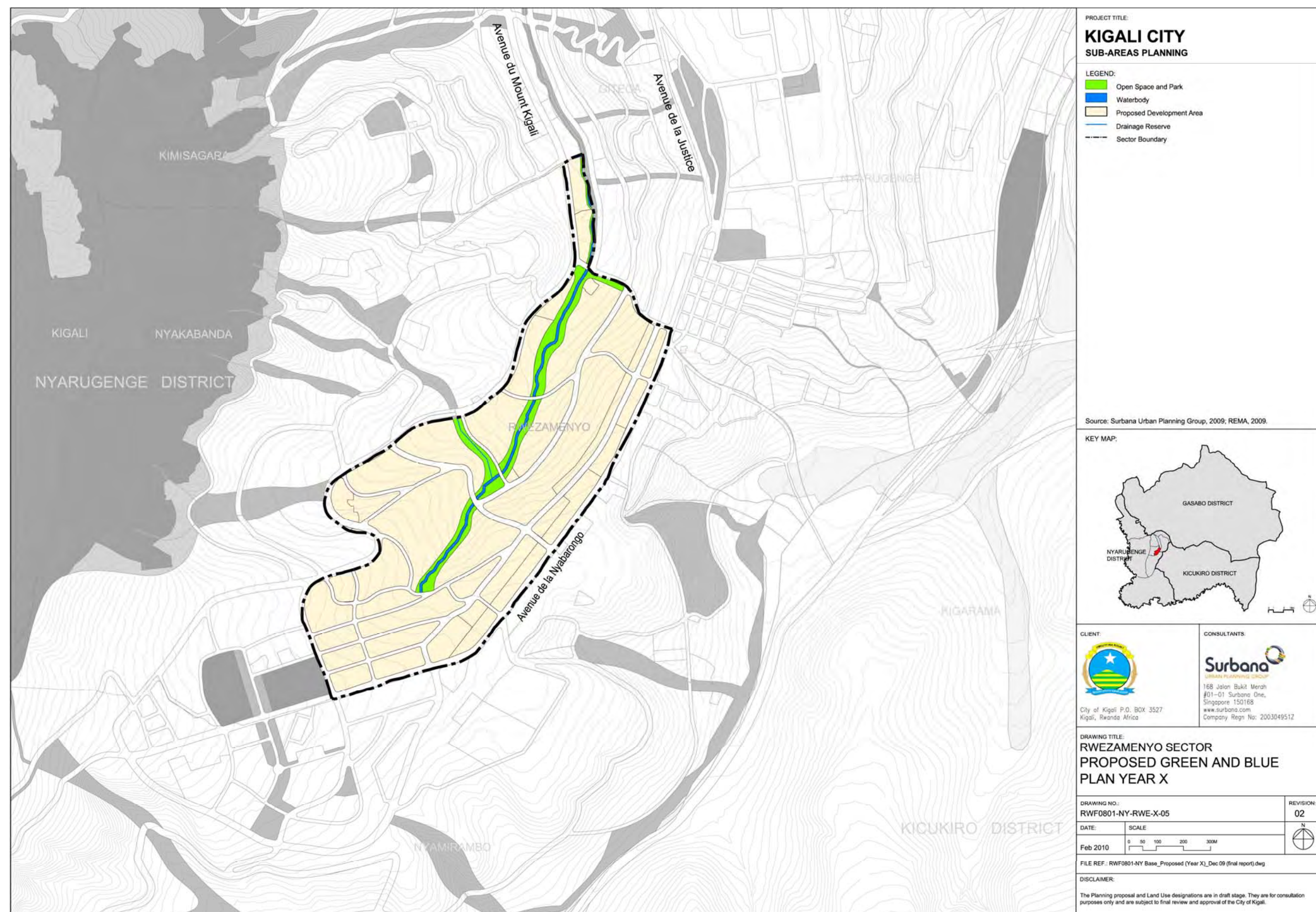


Figure 7.13: Rwezamenyo Sector: Proposed Green and Blue Plan
Source: Surbana

7.5.6 Rwezamenyo Sector - Proposed Key Features Plan

As part of Nyamirambo Regional Centre, the southern part of the commercial strip along Avenue de la Nyabarongo is proposed to be developed as a mix use area. The boulevard along this stretch is proposed as a distinctive street with landscaped pedestrian walkways lined with low-rise vibrant mix use, commercial, office and residential developments and intimate street-level facilities on both sides. Existing public facilities are proposed to be retained, upgraded and integrated with new facilities to give a distinctive identity to the development.



Figure 7.14: Rwezamenyo Sector - Illustrative View of the Development in Rwezamenyo Sector as part of the Nyamirambo Regional Centre.
Source: Surbana

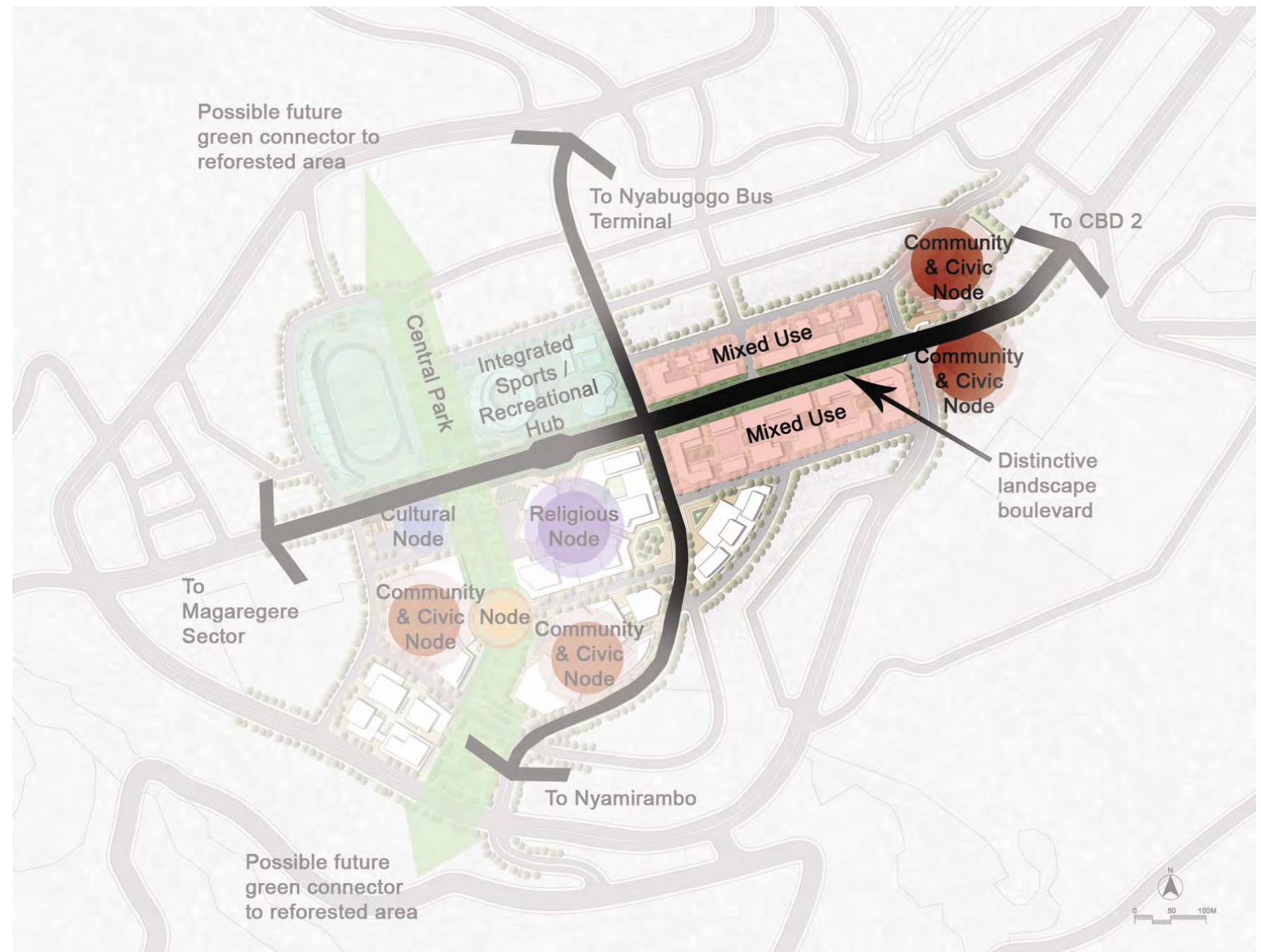


Figure 7.15: Rwezamenyo Sector – Concept of Regional Centre in Rwezamenyo.
Source: Surbana



Figure 7.16: Rwezamenyo Sector: Illustration of the Development in Rwezamenyo Sector as part of the Nyamirambo Regional Centre.
Source: Surbana

CHAPTER 8: DETAILED MASTER PLAN FOR NYAKABANDA SECTOR

This chapter presents the detailed Master Plan for Nyakabanda Sector. Based on the analysis of the existing context, opportunities and constraints, a vision and concept are derived which guide the development of the Master Plan and the design of the key features within the Sector.

8.1 Nyakabanda Sector - Context

- **Planning Area:** The total area of Nyakabanda Sector is 240.10 ha.



Figure 8.1: Nyakabanda Sector - Location Plan
Source: Surbana

- **Location and Connectivity:** The Nyakabanda Sector is located along the major arterial road, Avenue du Mont Kigali, which connects it to the CDB and the Nyabugogo Taxi Park. It is surrounded by the civic-cultural developments in Nyamirambo Sector to the south, the Rwezamenyo Sector to the east, Kimisagara Sector to the north and Mount Kigali to the west.
- **Existing Site Conditions:** Most parts of Nyakabanda Sector are occupied by high density informal housing. Public facilities are scattered among the housing areas and are accessible by dirt roads. The area abutting Avenue du Mont Kigali is mostly occupied by high density housing. Thick vegetation and low density informal housing areas are located along the steep slopes of Mount Kigali. The existing population density is approximately 125 people per hectare.

Table 8.1: Nyakabanda Sector - Population Projection.

Area	Existing Population (2006)	Projected Population (2020)
Kigali City	1,085,000	1,988,000
Nyakabanda Sector	29,764	40,209

Source: TAMA 2006: Population by Sector, KCMP Existing Conditions Analysis

- **Natural Constraints:** Only 9% of the total land area within the Sector is developable. Most of the land is in areas of steep unbuildable slopes or covered by forest and vegetation (refer to Figure 8.2). The areas of the Sector along Avenue du Mont Kigali are relatively gentler as compared to the rest of the sectors.

Figure 8.5 presents the Existing Context Map for Nyakabanda Sector.

8.2 Nyakabanda Sector - Opportunities and Constraints

- **Opportunities:** The Kigali Regional Stadium lies in the south of this Sector and can be upgraded into an integrated sports hub with complementing sports support facilities. This sports hub together with the commercial, civic and cultural developments of the neighbouring sectors can be developed into a Regional Centre. Due to its proximity and connectivity to the CBD, Nyakabanda can be developed into a high density residential area offering a mix of high-end as well as medium range housing options. The densely vegetated areas along the upper slopes of Mount Kigali offer an opportunity for tourism development. The existing natural drainage lines can be developed as recreational green spaces.
- **Constraints:** The key development constraint in Nyakabanda is the steep slope, which restricts large scale developments and results in incurring higher costs for infrastructure provision.

Figure 8.6 presents the Opportunities Map and Figure 8.7 presents the Constraints Map for Nyakabanda Sector.

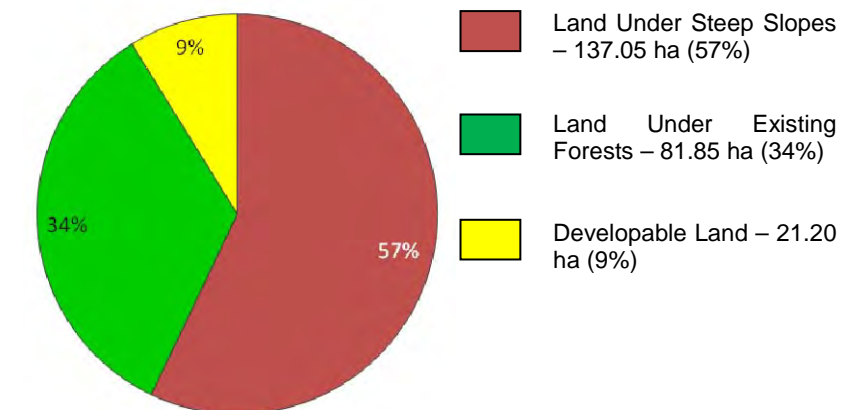


Figure 8.2: Nyakabanda Sector - Land under Natural Constraints
Source: Surbana



Figure 8.3: Nyakabanda Sector - Existing Topography.
Source: Surbana



Informal Settlements on Steep Slopes.



Boulevard de Nyabugogo - Major Arterial Road.



Sector Office.



Kigali Regional Stadium.

Figure 8.4: Nyakabanda Sector - Existing Context.
Source: Surbana

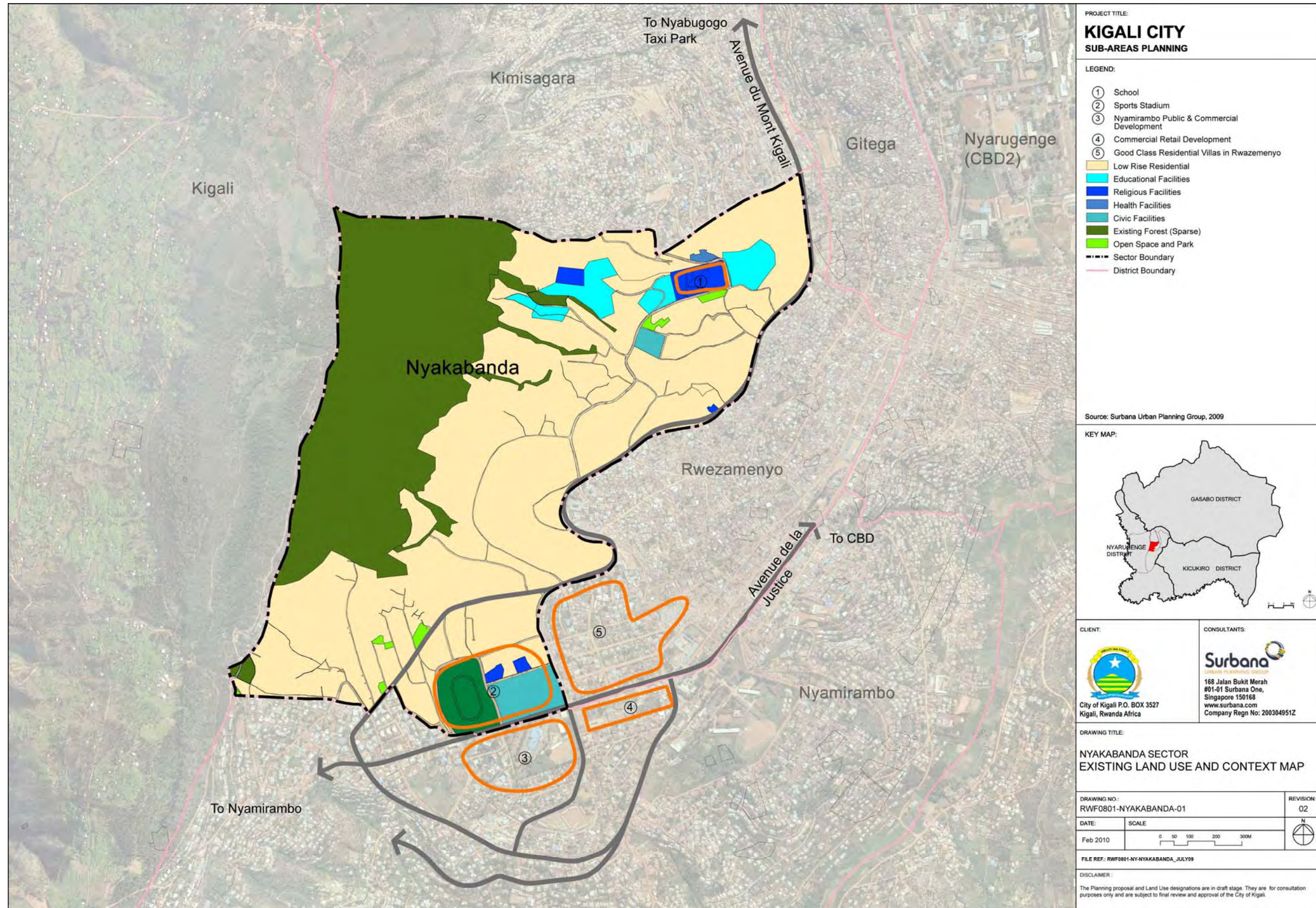


Figure 8.5: Nyakabanda Sector - Existing Land Use and Context Map.
Source: Surbana

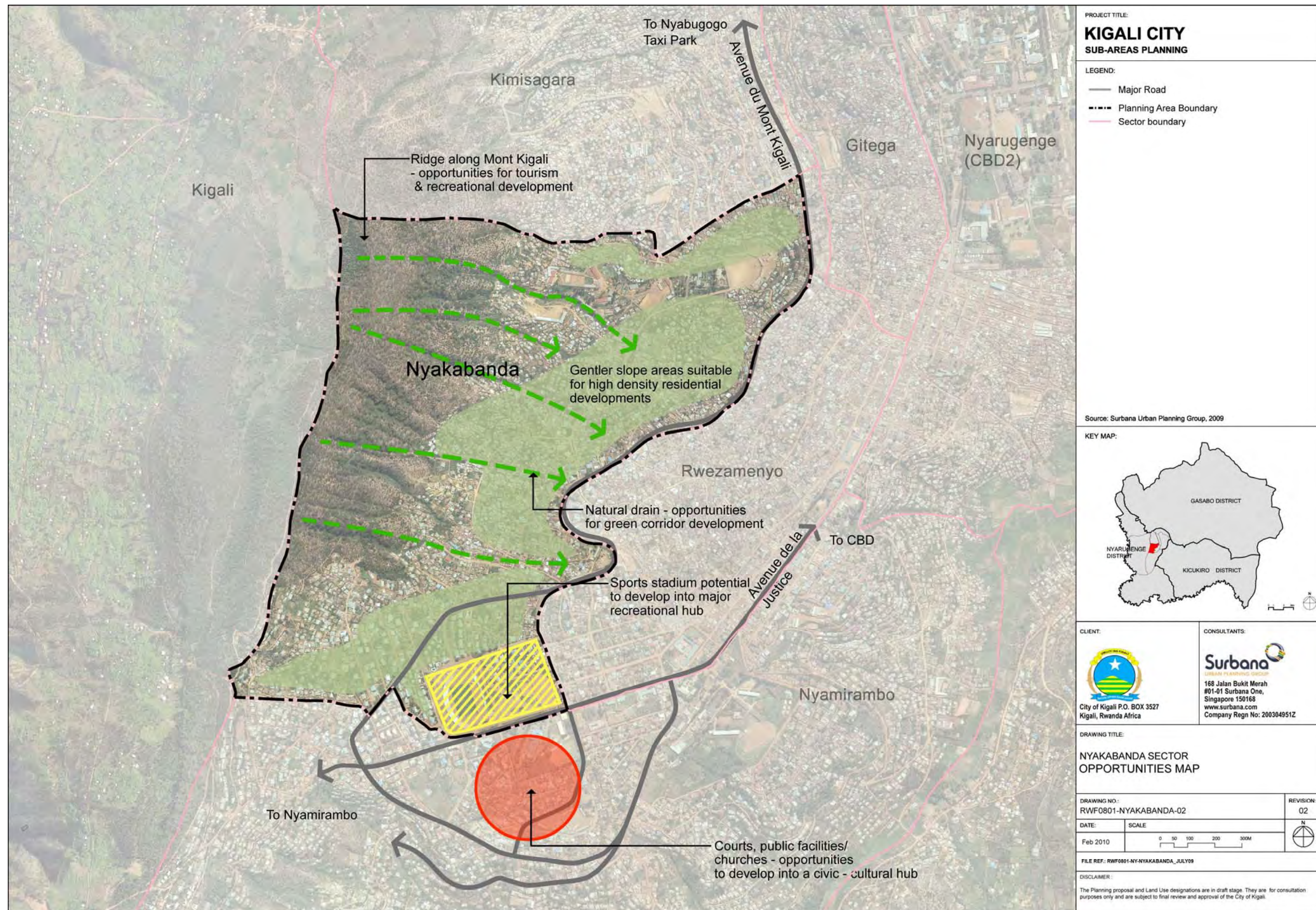


Figure 8.6: Nyakabanda Sector - Opportunities Map.
Source: Surbana

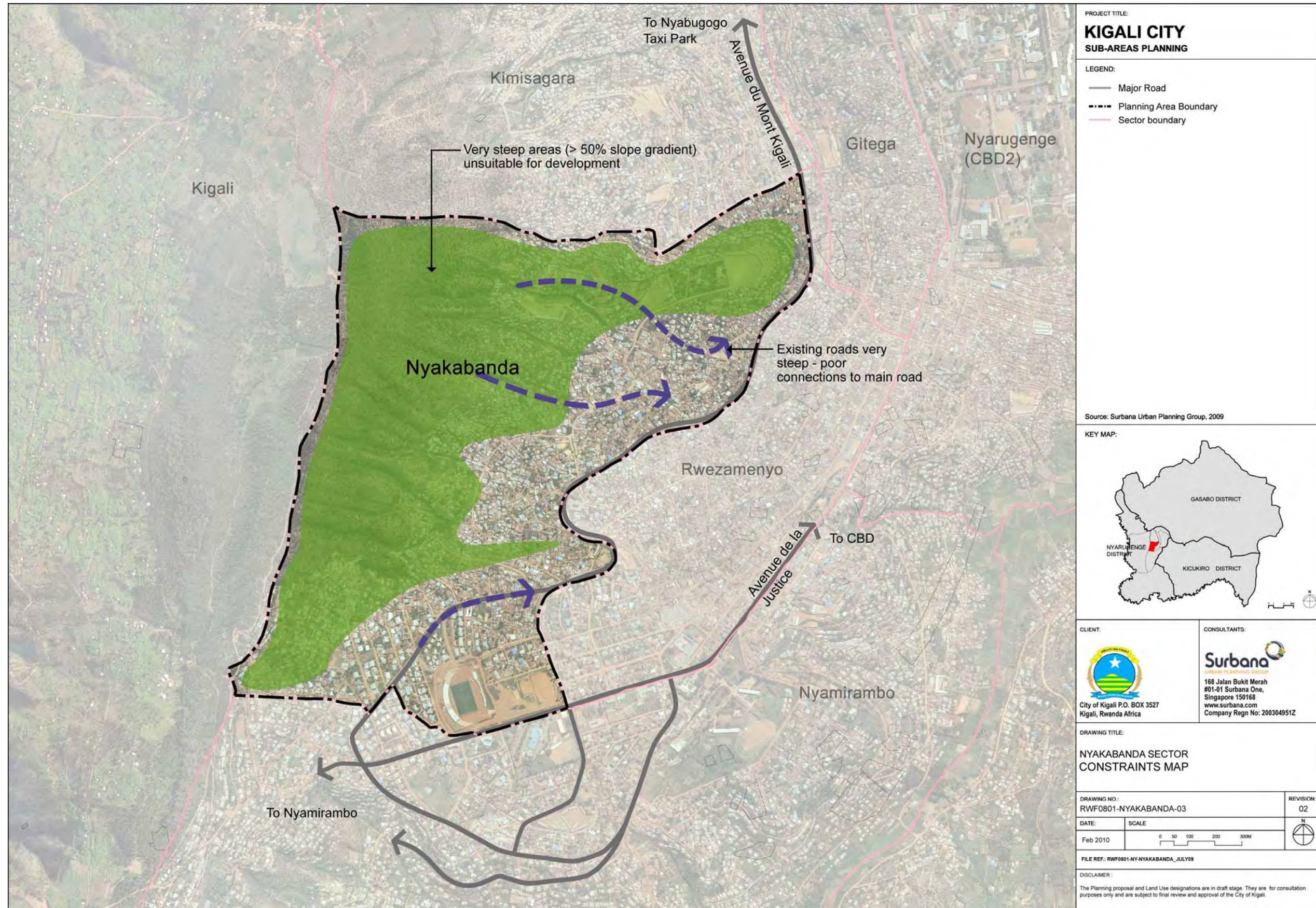


Figure 8.7: Nyakabanda Sector - Constraints Map.
 Source: Surbana

8.3 Nyakabanda Sector - Proposed Vision

‘Vibrant Sports Estate’



Nyakabanda Sector is envisioned to become a sports hub of the region attracting major sporting events and players from within Kigali and Rwanda. The high density residential developments in Nyakabanda Sector around the sport complex will complement the development of this area as part of the Regional Centre.

8.4 Nyakabanda Sector - Proposed Concept

Based on the existing context, the opportunities and constraints as well as the proposed vision, a development concept has been proposed for Nyakabanda Sector, as illustrated in Figure 8.8.

The key proposals of the concept plan are as follows:

- To redevelop the Kigali Regional Stadium into a comprehensive and integrated sports facility.
- To rezone the existing low rise residential area around the sports stadium into mix use developments to accommodate compact residential developments and commercial outlets for the locals and visitors.
- To rezone the upper slope areas into low density single family residential areas.
- To create a seamless network of pedestrian and park connectors between Nyakabanda and its surrounding sectors.
- To improve transportation and infrastructure systems.

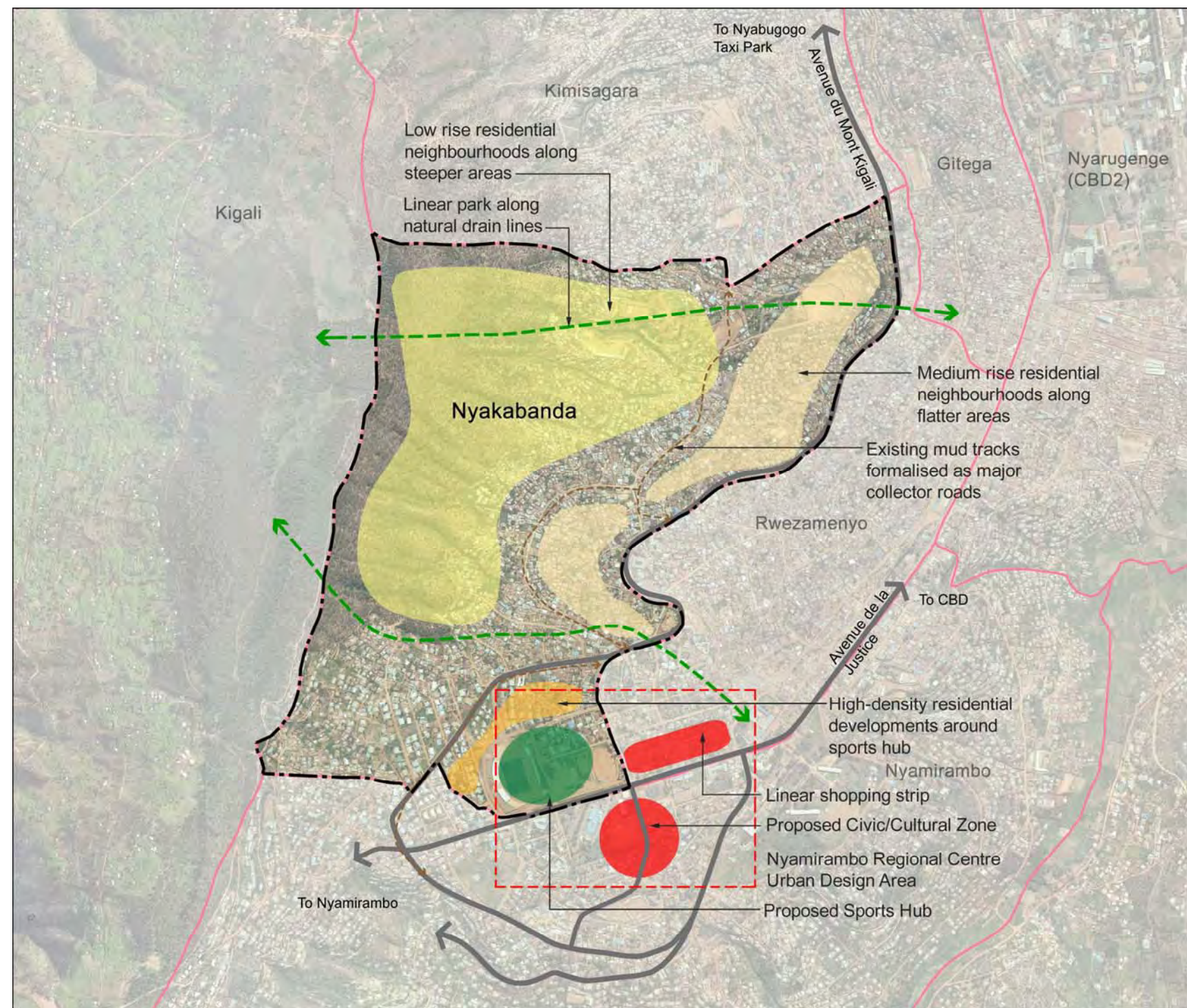


Figure 8.8: Nyakabanda Sector - Concept Plan
Source: Surbana

8.5 Nyakabanda Sector - Proposed Master Plan

The development concept is further refined and developed into the Detailed Master Plan for Nyakabanda Sector. Presented below is the Land Use Plan proposed for Nyakabanda Sector.

8.5.1 Nyakabanda Sector - Proposed Land Use Plan

A large part of the Sector is under steep unbuildable slope (>20%). However, as the land is fully built out and under private ownership, the Sector is proposed to be redeveloped into well planned housing communities instead of relocation of the existing housing stock. Hence, the Land Use Plan for Nyakabanda Sector aims to build upon the existing land use patterns while offering incentives and flexibility for redevelopment into higher density uses. The key proposals of the Land Use Plan are:

- To redevelop the existing sports stadium into a sports hub with comprehensive sports facilities such as a revamped outdoor sports stadium, an integrated indoor sports stadium, swimming complexes, hard courts, sports training facilities and amphitheatres, etc.
- To redevelop the area around the existing sports stadium into high density residential developments. To rezone the existing informal housing along Avenue du Mont Kigali into medium rise residential areas. To rezone the upper slope areas into low density single family residential areas.
- To allow for the development of a small commercial node along Avenue du Mont Kigali, which serves the needs of the surrounding neighbourhoods as well as the larger region.
- To retain and revitalise the existing public facilities and provide new facilities required for the increased population.
- To safeguard areas with steep slope and natural drainage courses as parks and green connectors.
- To regularise and widen the key pathways into collector and local access roads.

Based on the proposed Land Use Plan, Nyakabanda Sector is proposed to accommodate a population of 58,300 by Year X. Figure 8.9 presents the Proposed Land Use Plan Year X for Nyakabanda Sector.

Table 8.2: Nyakabanda Sector - Land Use Data.

Broad Land Use	Legend	Detailed Land Use	Area (ha)*	(%)
Residential		Single Family Residential	57.45	24%
		Low Rise Residential	40.19	17%
		Medium Rise Residential	10.91	4%
		Total Residential	109.89	45%
Commercial		Commercial General	2.01	1%
Public Facilities		Educational Facilities	6.61	3%
		Religious Facilities	3.02	1%
		Health Facilities	0.22	0%
		Civic Facilities	0.77	0%
		Total Public Facilities	8.16	4%
Open Space		Sports and Recreation	6.69	3%
		Open Space and Park	13.22	6%
		Total Open Space	22.74	9%
Nature Area		Forest	79.87	33%
Infrastructure		Transport	18.16	8%
		Utilities	1.03	0%
		Total Infrastructure	19.19	8%
Grand Total			240.10	100%

*All site areas subject to final survey.

Source: *Surbana*

8.5.2 Nyakabanda Sector - Proposed Residential Use Plan

Leveraging on the proposed sports hub, the area around it is proposed to be developed as high density medium rise apartment area. The existing multi-family informal residential neighbourhoods around the market along Avenue du Mont Kigali are proposed to be rezoned for medium rise apartments. The existing settlements in the steep areas along slopes of the Mount Kigali are marked for low density single family neighbourhood developments. The zoning regulations for these areas would encourage developers to provide a range of commercial, public and recreational amenities within their housing developments, thus creating a quality living environment.

Figure 8.10 presents the Proposed Residential Use Plan Year X for Nyakabanda Sector.

8.5.3 Nyakabanda Sector - Proposed Commercial Use Plan

A neighbourhood centre offering a range of services is proposed along Avenue du Mont Kigali. It is intended to offer local as well as city level services to the surrounding communities and the larger region.

Figure 8.11 presents the Proposed Commercial Use Plan Year X for Nyakabanda Sector.

8.5.4 Nyakabanda Sector - Proposed Public Facilities Plan

At present the existing public facilities such as schools, health centres and religious buildings are sufficient to meet the needs of the projected Year X population.

Figure 8.12 presents the Proposed Public Facilities Plan Year X for Nyakabanda Sector.

8.5.5 Nyakabanda Sector - Proposed Green and Open Spaces Plan

The sports hub would be the major recreational venue for the Sector as well as for the District at large. Besides this, areas around the natural drainage courses are proposed to be conserved and developed into linear parks. This would not only form a part of the storm water management system, but also offer recreational venues for residents and offer pedestrian and bicycle connectivity across the Sector. These parks are proposed as part of the larger green connector network proposed for the District.

Figure 8.13 presents the proposed Green and Open Spaces Plan Year X for Nyakabanda Sector.

The existing linear commercial and mix use developments along Avenue de la Nyabarongo, the Kigali Regional Stadium and the civic-cultural developments in Nyamirambo Sector together are envisioned to be developed as a Regional Centre, offering city and regional level sports, cultural and civic facilities. A pedestrian friendly boulevard along Avenue de la Nyabarongo is proposed to run through the urban node and bind the various developments together.

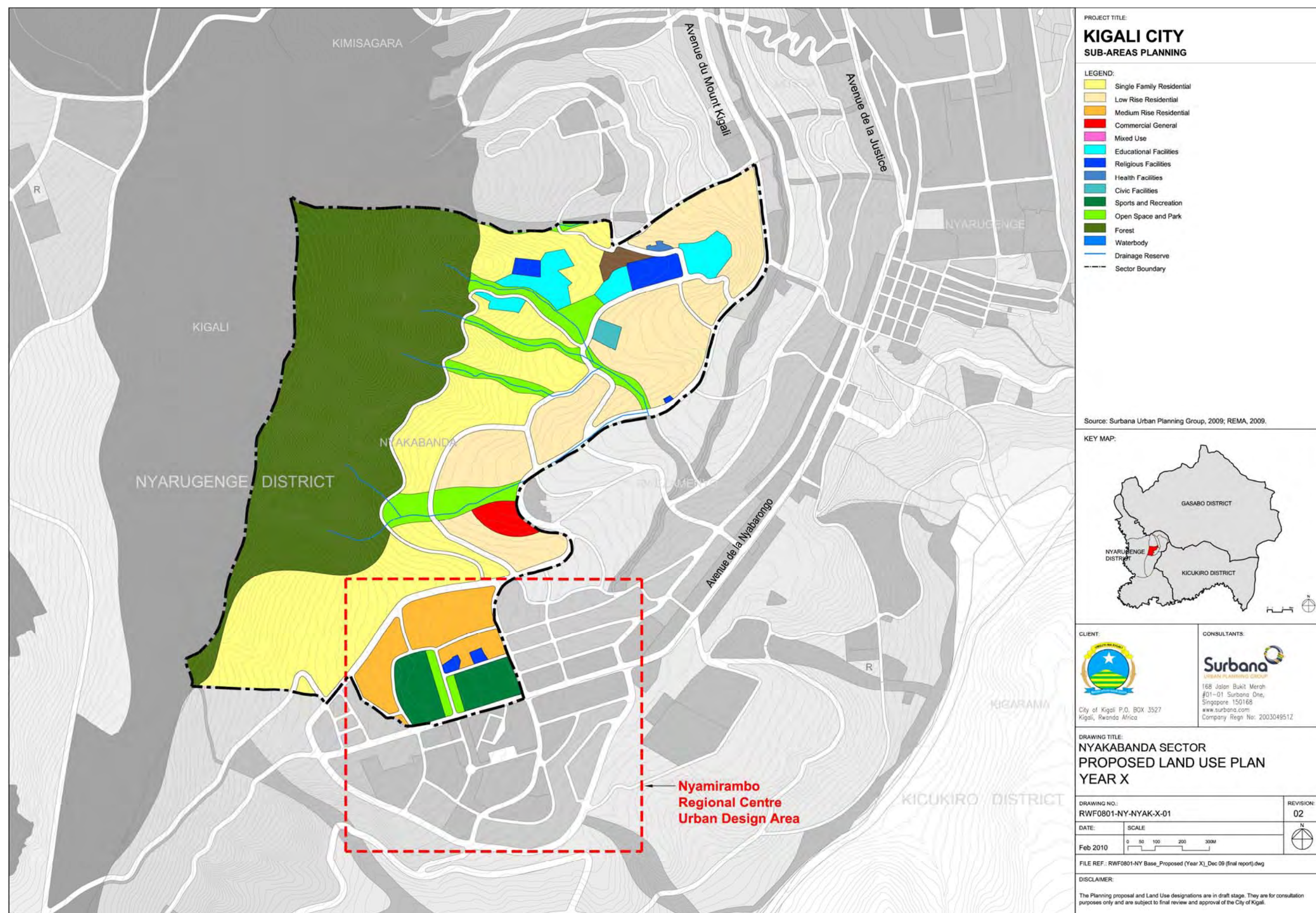


Figure 8.9: Nyakabanda Sector - Proposed Land Use Plan
Source: Surbana

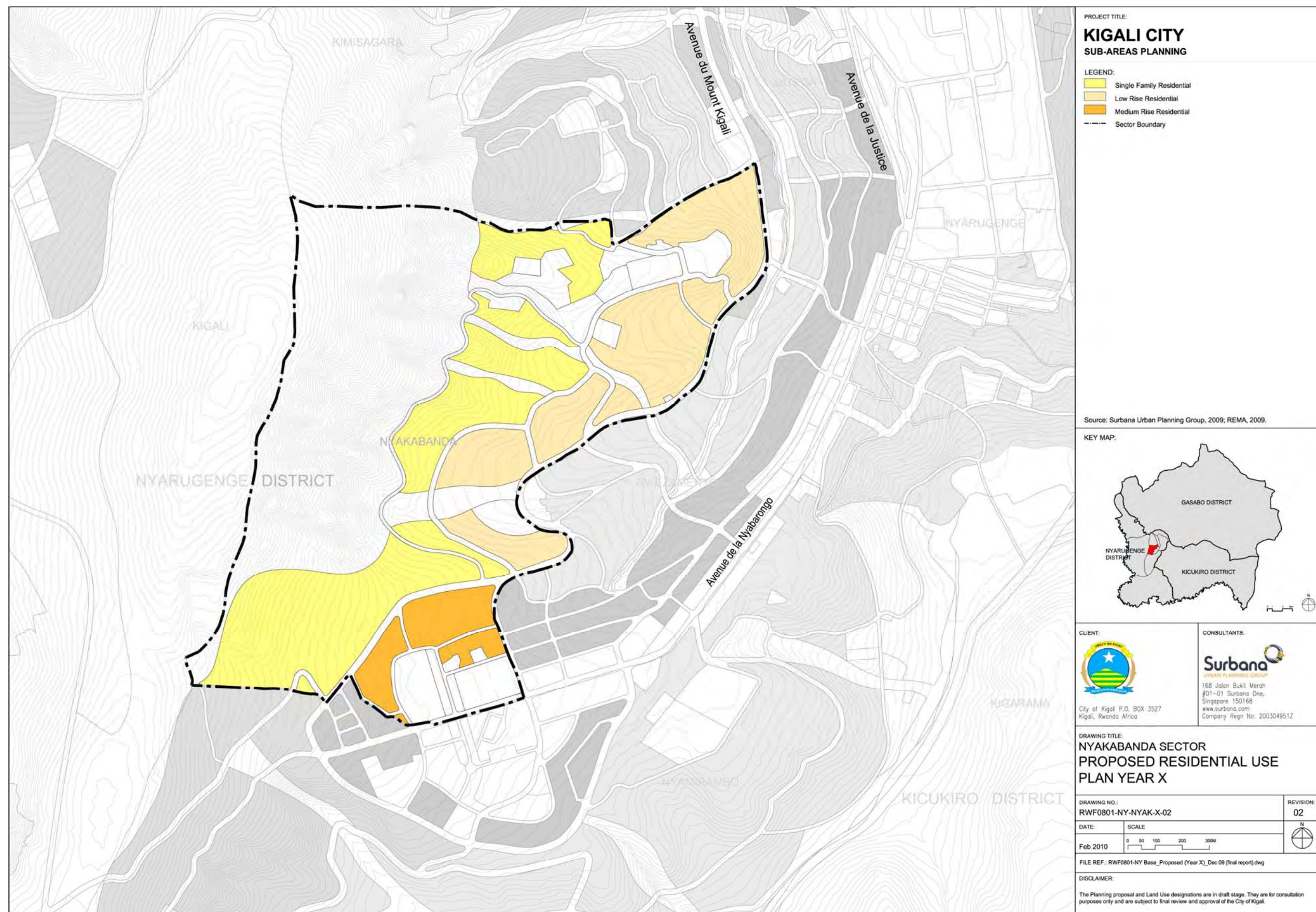


Figure 8.10: Nyakabanda Sector: Proposed Residential Use Plan
 Source: Surbana

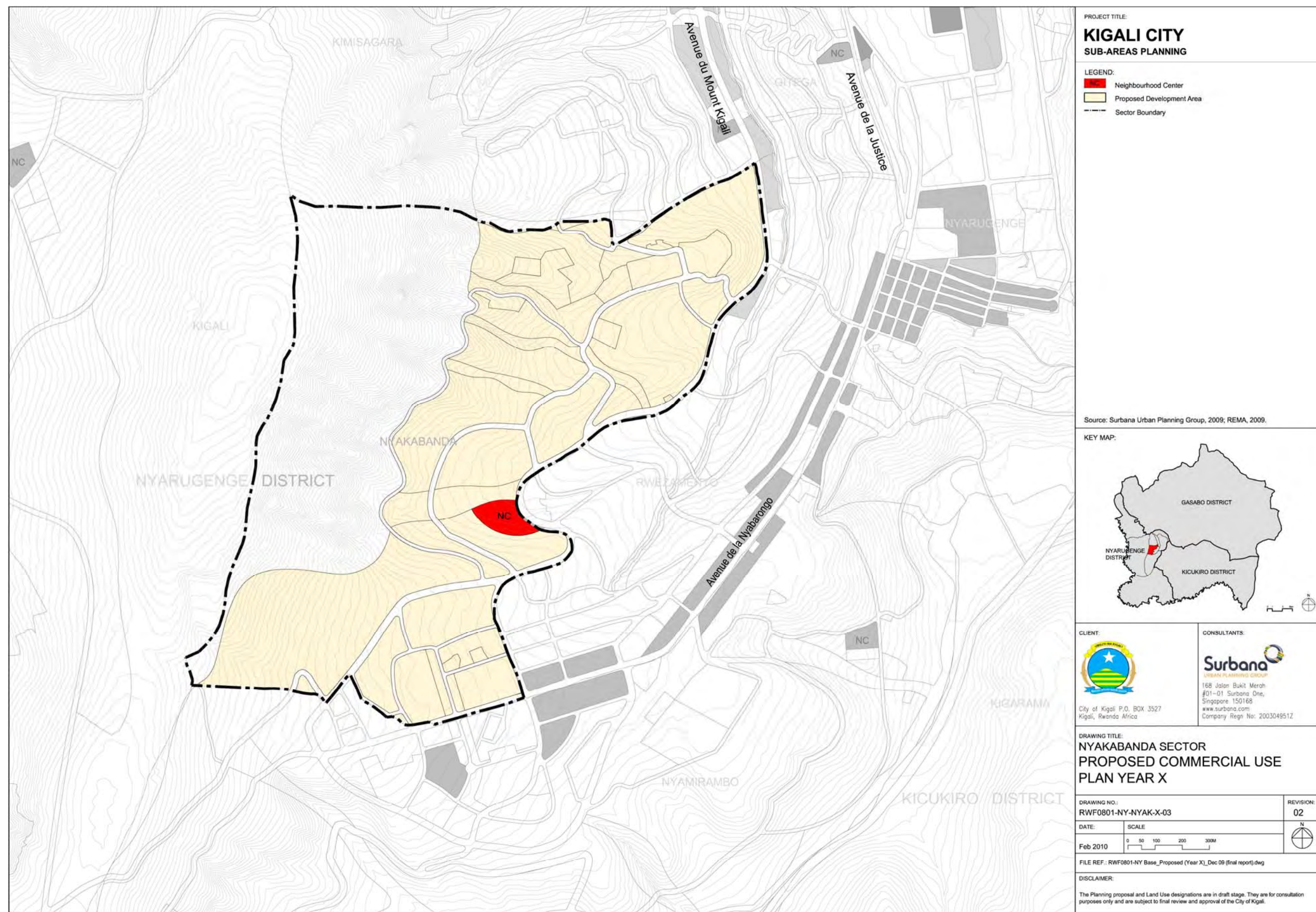


Figure 8.11: Nyakabanda Sector: Proposed Commercial Use Plan
 Source: Surbana

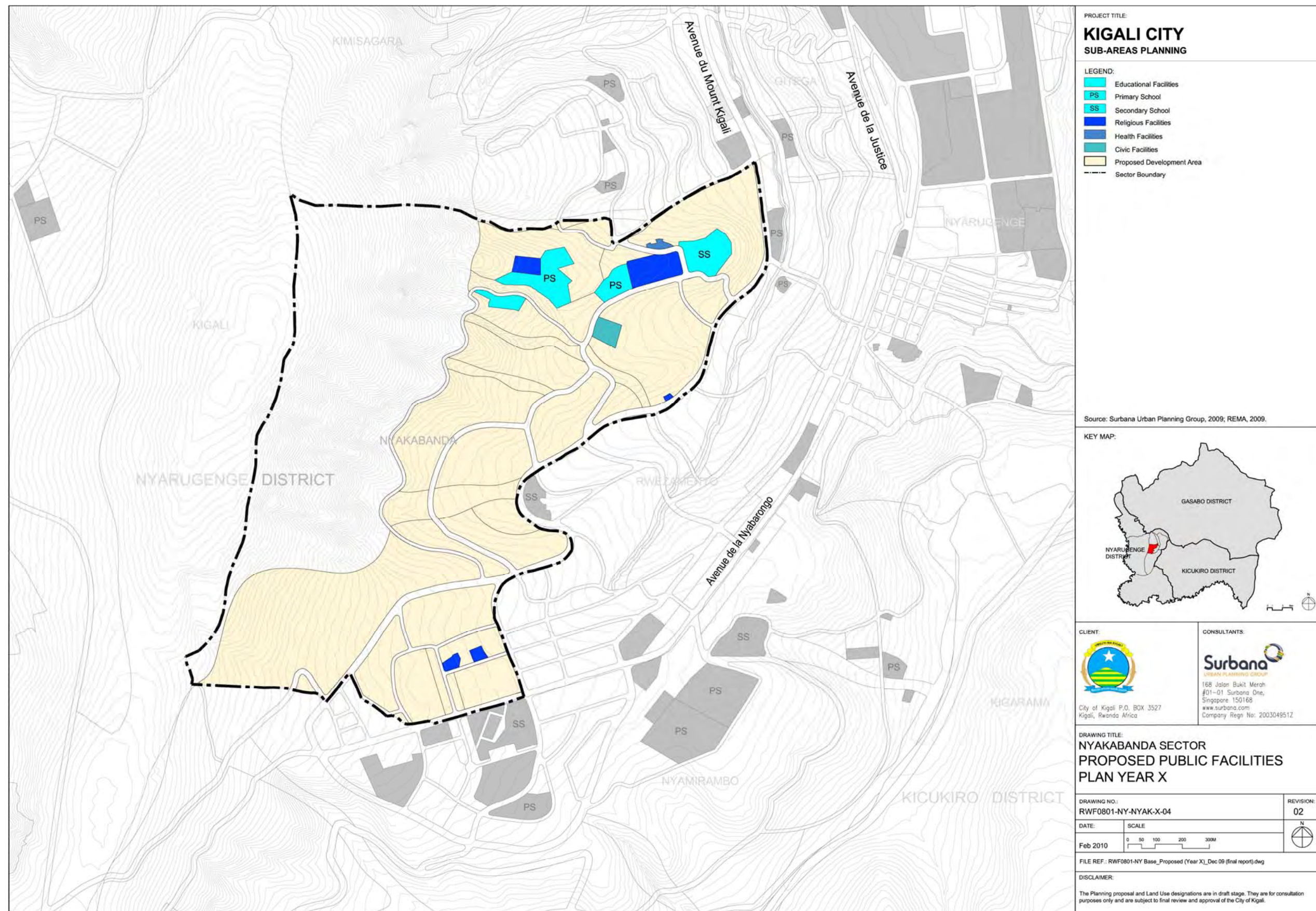


Figure 8.12: Nyakabanda Sector: Proposed Public Facilities Plan
Source: Surbana

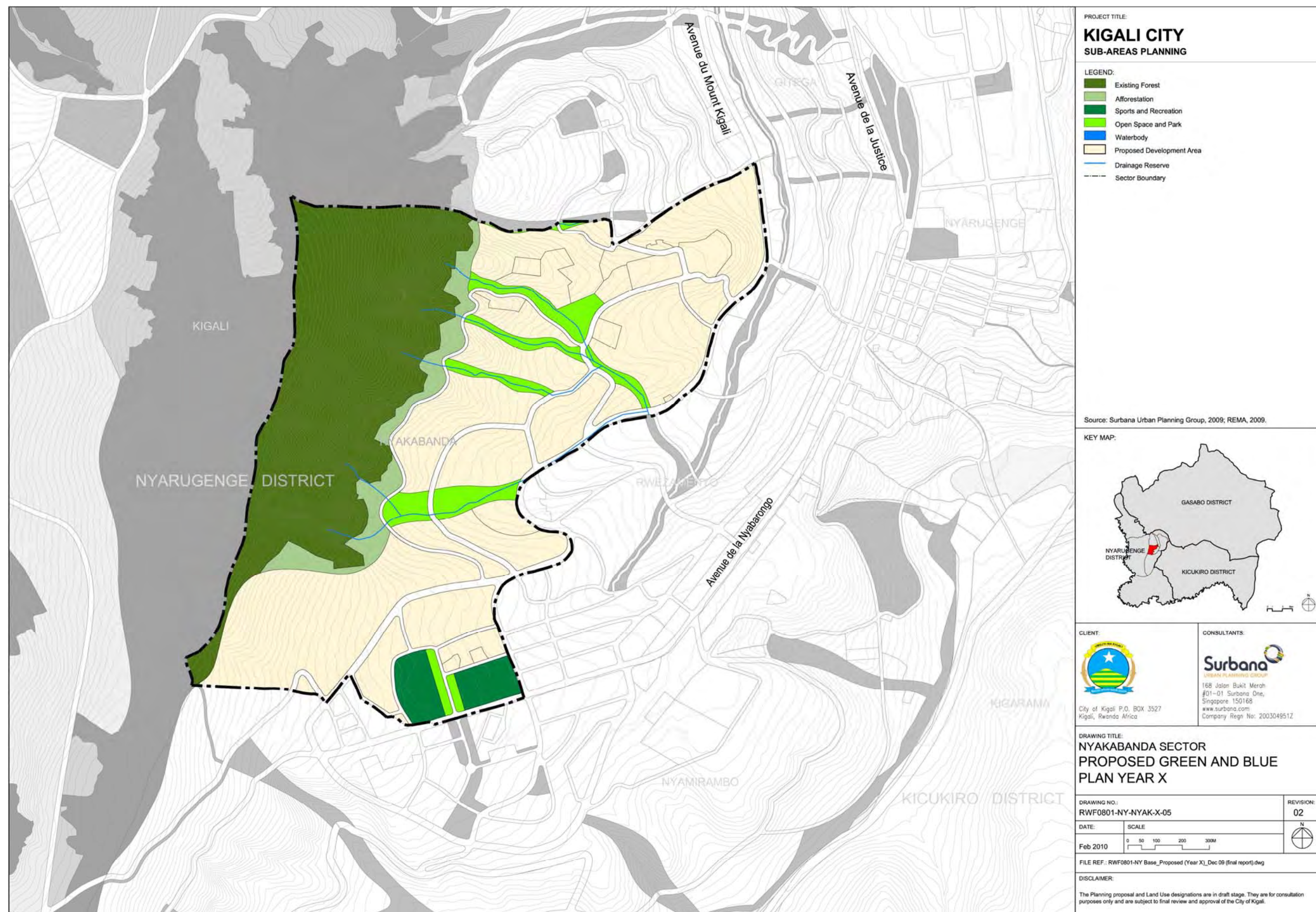


Figure 8.13: Nyakabanda Sector: Proposed Green and Blue Plan
Source: Surbana

8.5.6 Nyakabanda Sector - Proposed Key Features Plan

As part of Nyamirambo Regional Centre, existing regional stadium and its surrounding sites are proposed to be developed into an integrated sports and recreational hub housing the upgraded sports stadium, an indoor sports hall, a swimming complex and a recreational club. This sports hub along with the surrounding commercial and civic-cultural developments would be served by an efficient public transport facility which would be integrated within the landscape. The area is envisioned to have a vibrant pedestrian-friendly environment facilitated with iconic pedestrian bridges and attractive landscaping.



Figure 8.14: Nyakabanda Sector - Illustrative View of the Development in Nyakabanda Sector as part of the Nyamirambo Regional Centre.
Source: *Surbana*

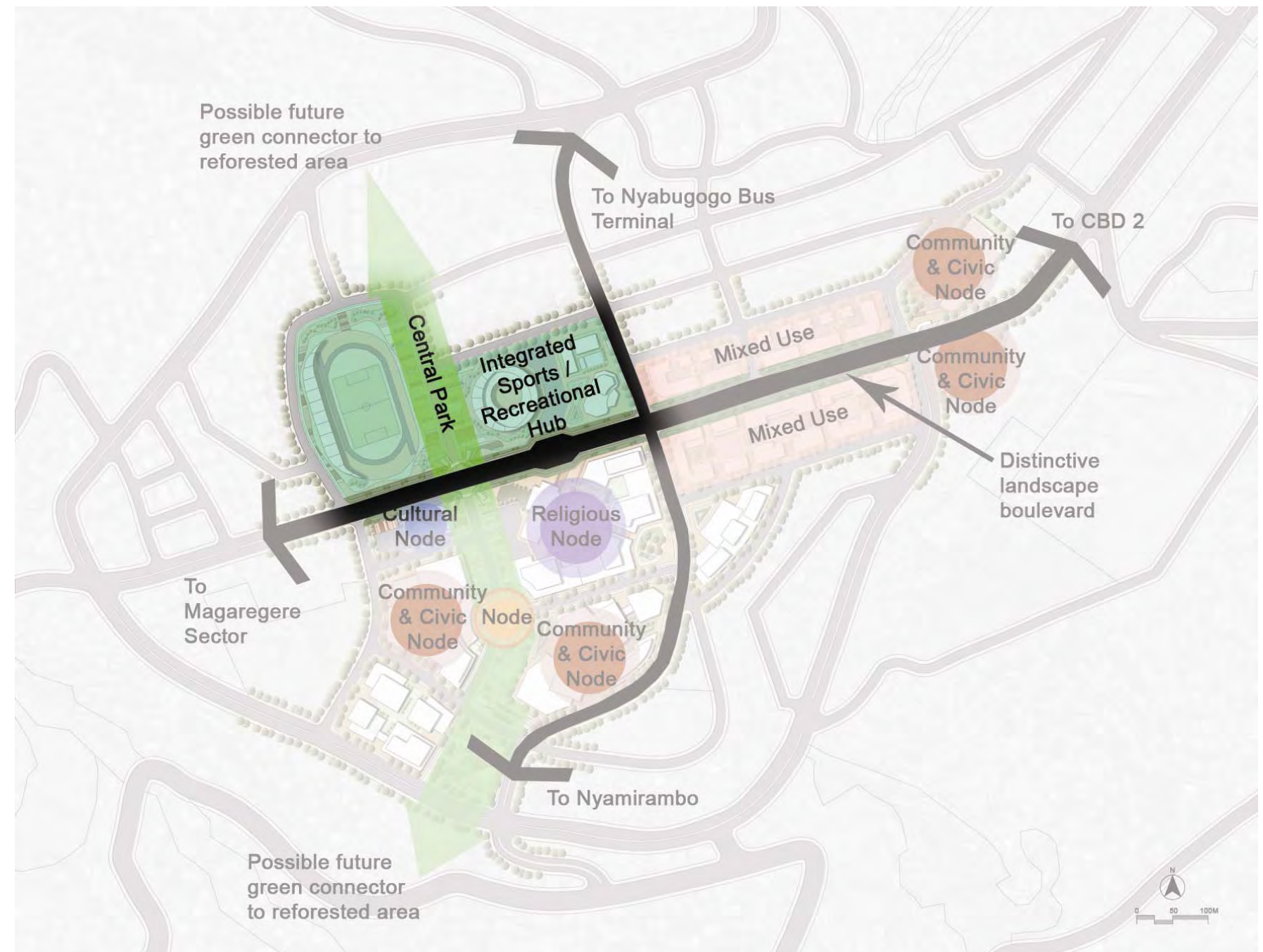


Figure 8.15: Nyakabanda Sector - Concept of Regional Centre in Nyakabanda.
Source: *Surbana*

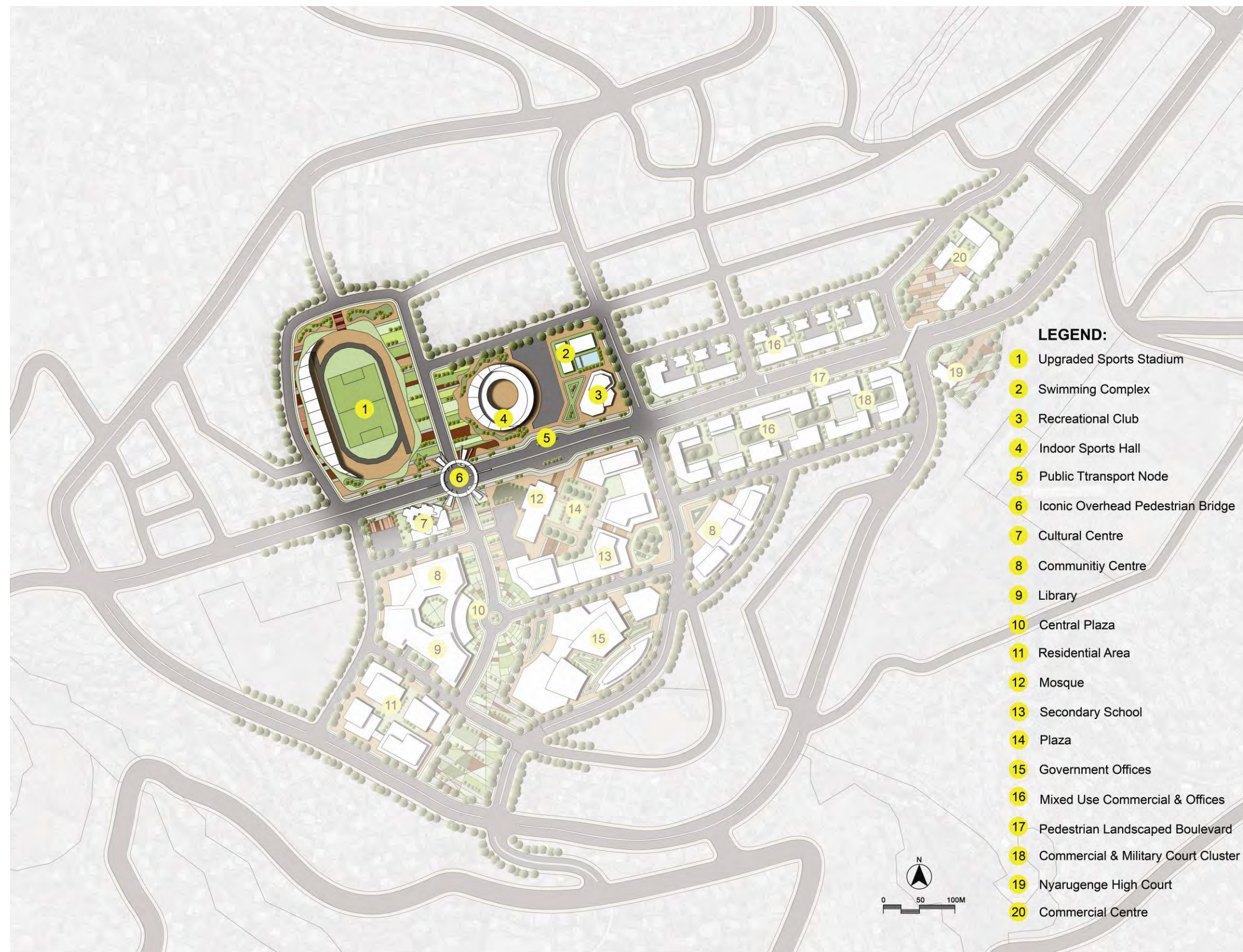


Figure 8.16: Nyakabanda Sector: Illustration of the Development in Nyakabanda Sector as part of the Nyamirambo Regional Centre.
Source: Surbana

CHAPTER 9: DETAILED MASTER PLAN FOR NYAMIRAMBO SECTOR

This chapter presents the detailed Master Plan for Nyamirambo Sector. Based on the analysis of the existing context, opportunities and constraints, a vision and concept are derived which guide the development of the Master Plan and the design of the key features within the Sector.

9.1 Nyamirambo Sector - Context

- **Planning Area:** The land area of Nyamirambo is 895.40 ha.



Figure 9.1: Nyamirambo Sector - Location Plan
Source: Surbana

- **Location and Connectivity:** The Nyamirambo Sector is located to the south of Nyarugenge Sector and is bounded by the arterial road Avenue de la Nyabarongo which runs along the north of the Sector and connects it to the CBD. It is surrounded by Nyakabanda and Rwezamenyo Sectors to the north, Kigali Sector to the west and Mageragere Sector to the south.
- **Existing Site Conditions:** Nyamirambo is one of the larger sectors of the District. About a third of the Sector, in the north, is urban and occupied with informal dense mix use developments. The area close to the Regional Stadium in Nyakabanda, along Avenue de la Nyabarongo has many important civic and cultural developments. The remainder of the Sector is largely rural and underdeveloped. Collectively the Sector has a low population density, with 5 people per hectare.

Table 9.1: Nyamirambo Sector – Population Projection.

Area	Existing Population (2009)	Projected Population (2020)
Kigali City	1,085,000	1,988,000
Nyamirambo Sector	42,388	102,458

Source: TAMA 2006: Population by Sector, KCMP Existing Conditions Analysis

- **Natural Constraints:** Parts of the Sector have a highly undulating topography with only 48% of the land area being developable (refer to **Error! Reference source not found.**). The northern and central sections of the Sector are relatively flatter and conducive for development, whereas the areas in between and to the south are highly inundated with densely vegetated steep slopes and natural drainage channels covered with vegetation.

9.2 Nyamirambo Sector - Opportunities and Constraints

- **Opportunities:** The Regional Stadium in Nyakabanda along with the existing commercial, civic and cultural developments in Nyamirambo and Rwezamenyo Sectors can be developed into a Regional Centre. The large pockets of flat land in the centre of the Sector offer an opportunity to develop high density townships located in idyllic natural settings. The flat portion of land along the wetlands at the southern tip of the Sector can be integrated as part of the District Centre development proposed in Mageragere Sector. The housing sites in Akumunigo and Rugarama and the included public facilities can be redeveloped into higher density residential townships.
- **Constraints:** A large part of the Sector is under natural constraints - steep slopes, forests and wetlands, which need to be conserved. Many existing roads are above the allowable gradients. Infrastructure provision within the Sector is minimal. The major roads, services and public facilities proposed as part of the housing projects in Akumunigo and Rugarama would need to be retained or redeveloped. The existing cemetery in the west needs to be conserved till it is allowed for redevelopment.

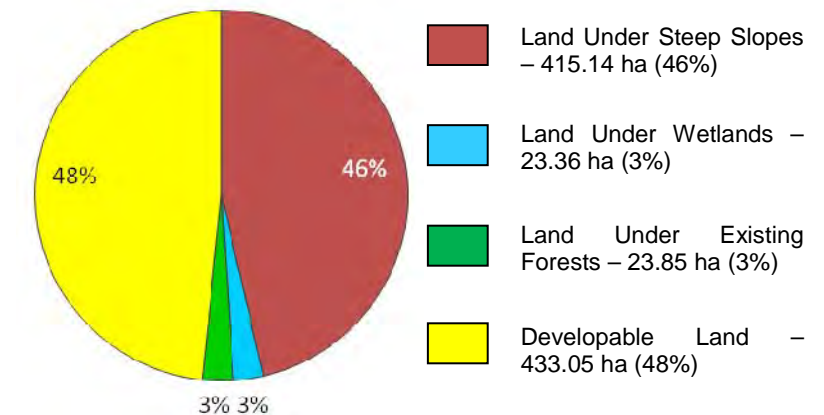


Figure 9.2: Nyamirambo Sector - Land under Natural Constraints
Source: Surbana



Figure 9.3: Nyamirambo Sector - Existing Topography.
Source: Surbana



Islamic Cultural Centre.



Market.



Sector Office.



Steep Unpaved Roads.

Figure 9.4: Nyamirambo Sector - Existing Context.
Source: Surbana

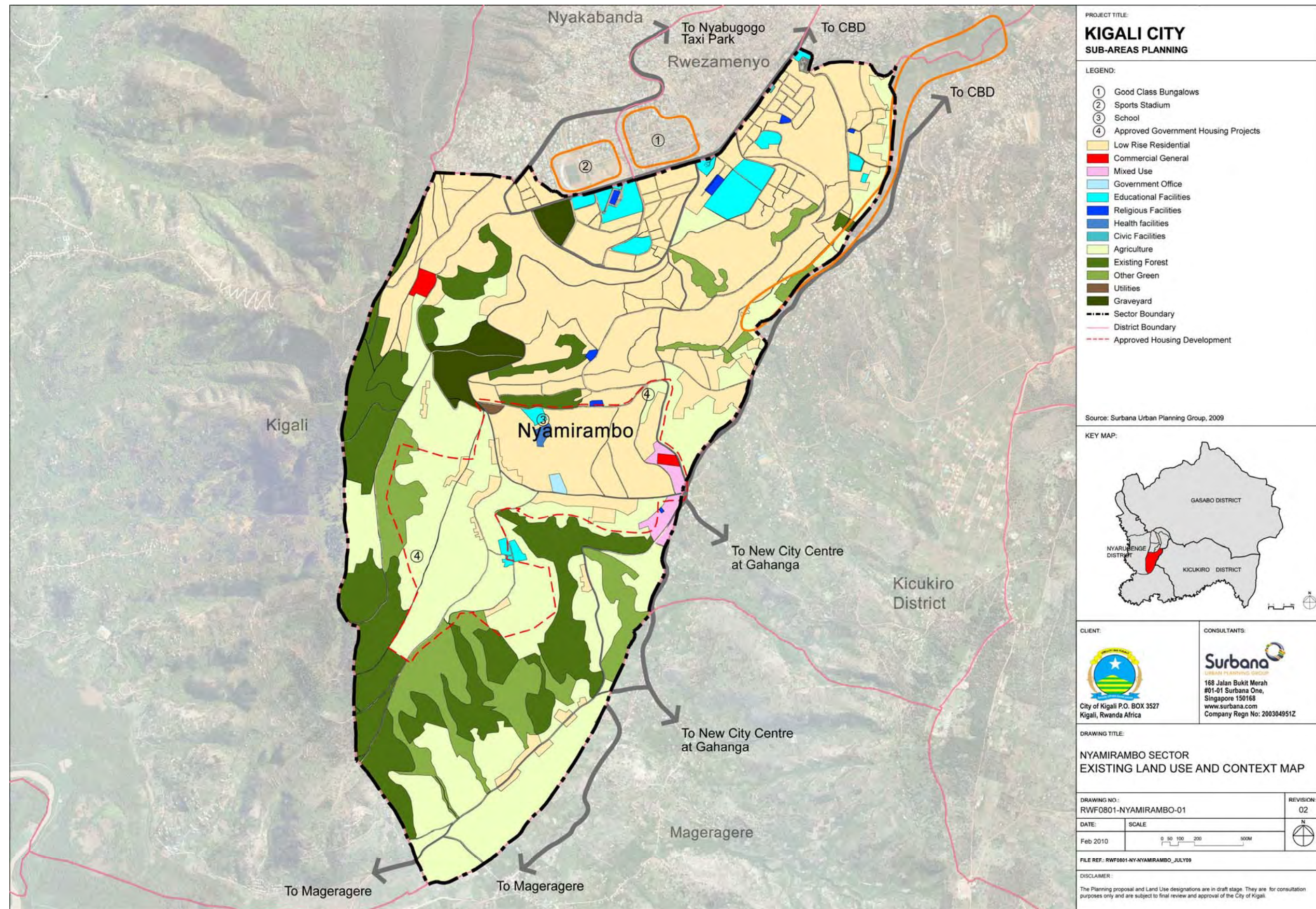


Figure 9.5: Nyamirambo Sector - Existing Land Use and Context Map.
Source: Surbana

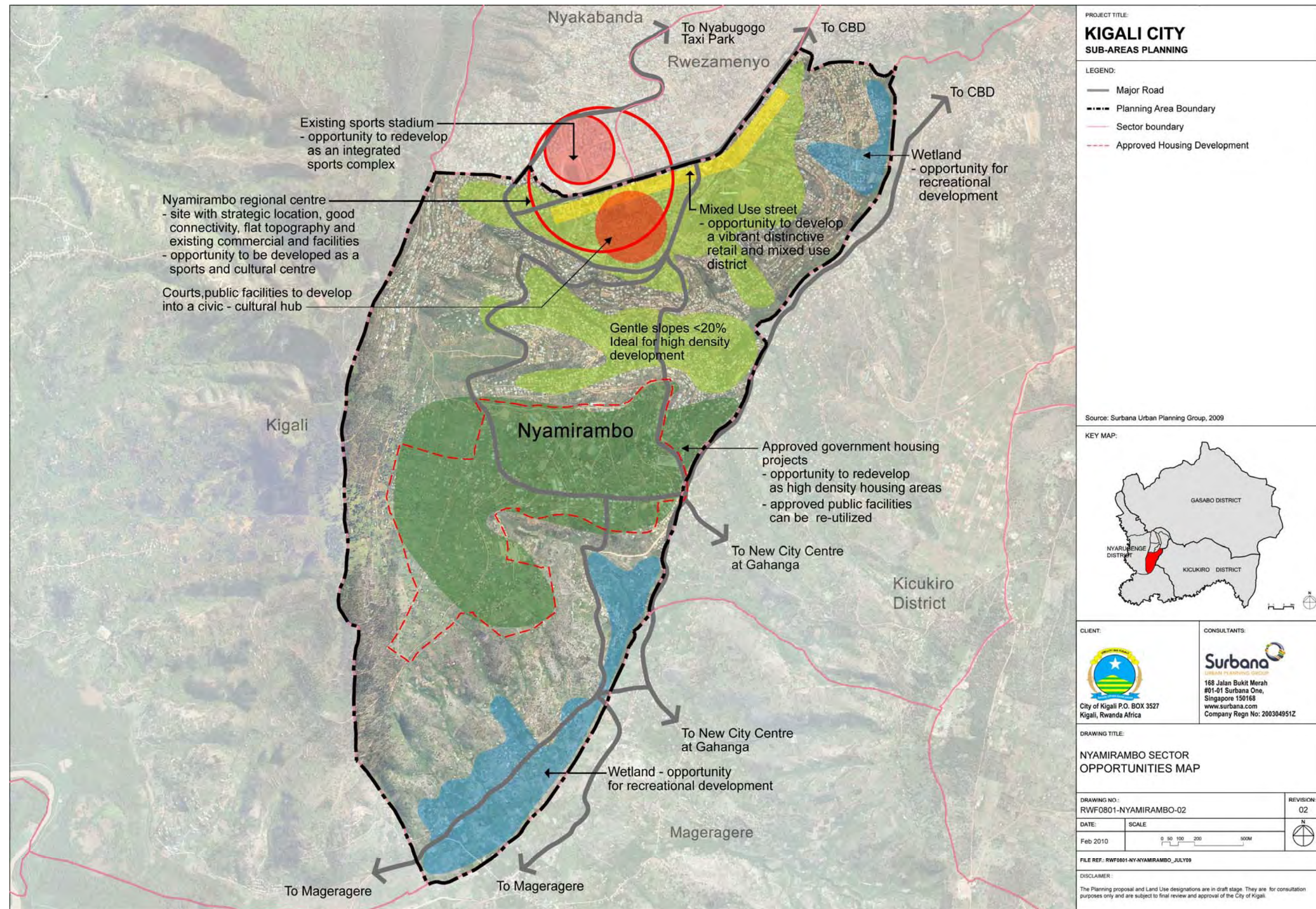


Figure 9.6: Nyamirambo Sector - Opportunities Map.
 Source: Surbana

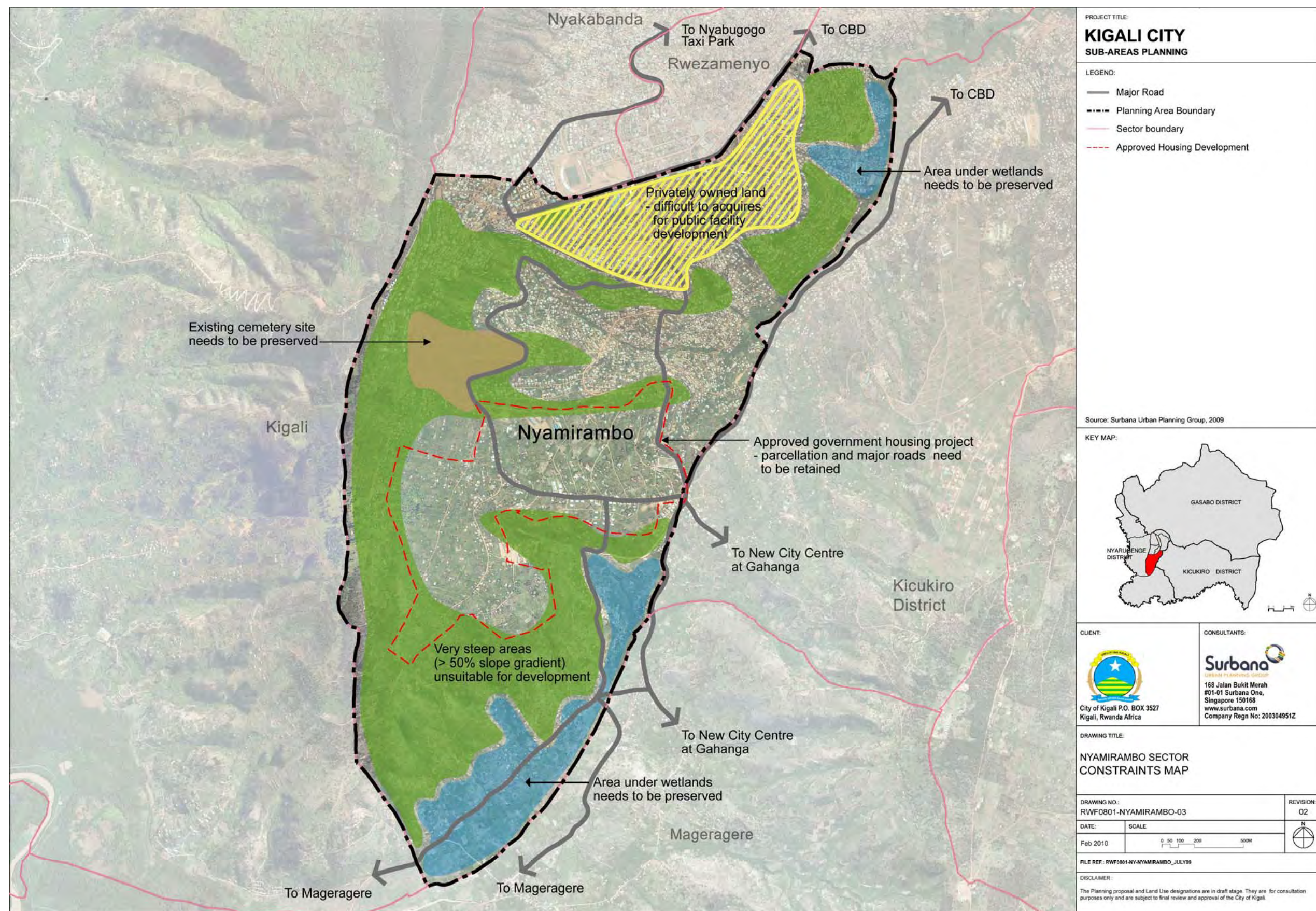


Figure 9.7: Nyamirambo Sector - Constraints Map.
Source: Surbana

9.3 Nyamirambo Sector - Proposed Vision

‘Vibrant Regional Centre and New Growth Areas’



Nyamirambo Sector is envisioned to be a part of the Regional Centre in the north as well as the District Centre in the south. The new residential enclaves in this new growth areas offer new attractive lifestyle choices.

9.4 Nyamirambo Sector - Proposed Concept

Based on the existing context, the opportunities and constraints as well as the proposed vision, a development concept has been proposed for Nyamirambo Sector, as illustrated in Figure 9.8.

The key proposals of the concept plan are as follows:

- To revamp the area around the sports stadium and the commercial developments along Avenue de la Nyabarongo, to create a vibrant and attractive Regional Centre.
- To develop District level public facilities at the southern end as part of the District Centre.
- To intensify the existing housing projects in Akumunigo and Rugarama as high density residential townships to meet the immediate housing needs of the CBD.
- To intensify the informal housing areas into low to medium density neighbourhoods.
- To provide adequate public facilities to serve the residential as well as tourist developments.
- To provide efficient transportation and infrastructure systems.

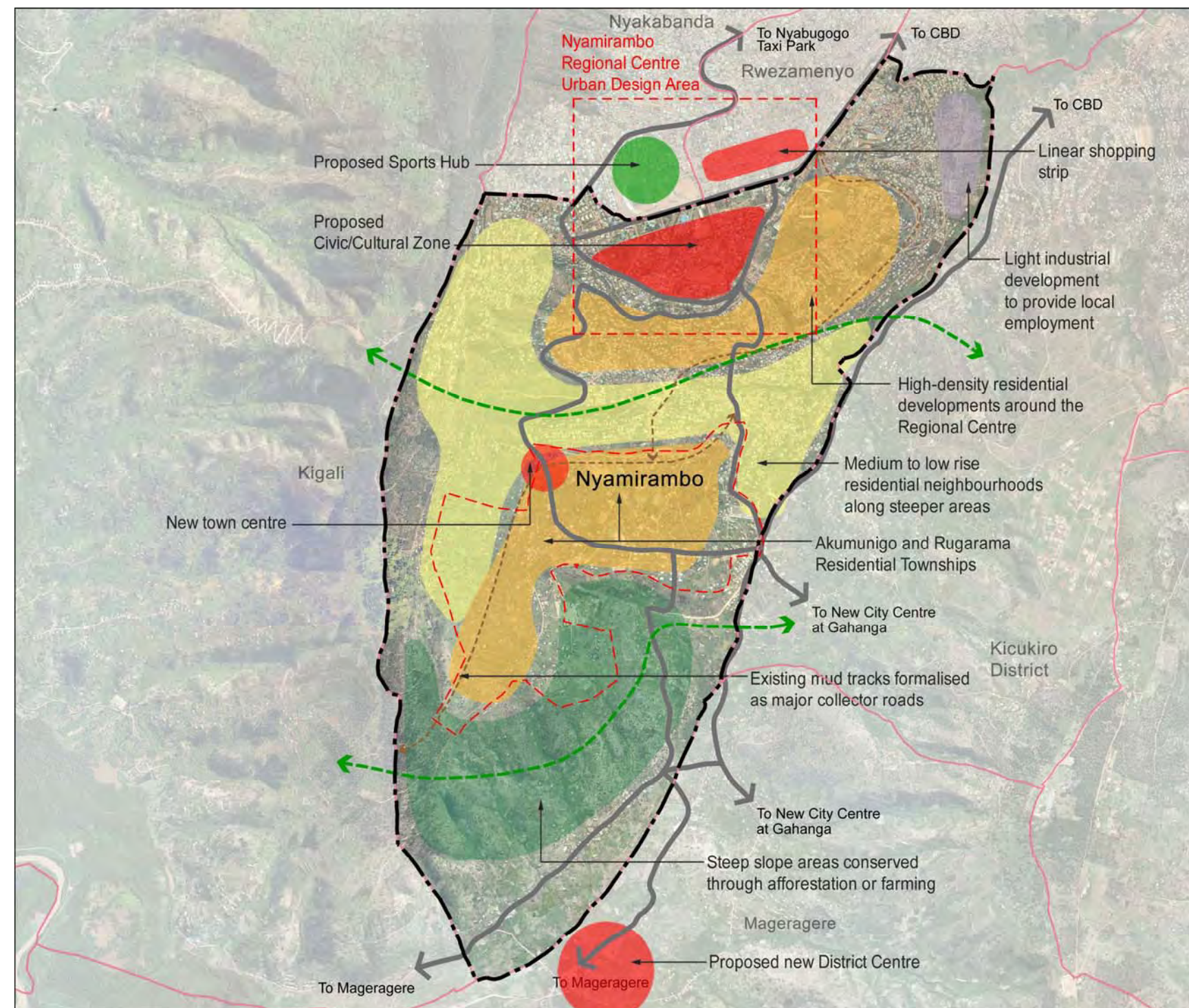


Figure 9.8: Nyamirambo Sector - Concept Plan
Source: Surbana

9.5 Nyamirambo Sector - Proposed Master Plan

The development concept is further refined and developed into the Detailed Master Plan for Nyamirambo Sector. Presented below is the Land Use Plan proposed for Nyamirambo Sector.

9.5.1 Nyamirambo Sector - Proposed Land Use Plan

The Land Use Plan aims to provide the location, distribution and character of the future land uses within the Sector, while offering incentives and flexibility for redevelopment into higher density uses. Key developments proposed in the Land Use Plan are:

- To integrate existing public facilities such as the Nyarugenge High Court, the Islamic Cultural Centre, the Nyamirambo Mosque and the commercial developments along Avenue de la Nyabarongo as part of the Regional Centre.
- To develop large public facilities in the south as part of the District Centre.
- To rezone Akumunigo and Rugarama as a high density medium rise residential township. To allow for the development of single-family residential neighbourhoods as part of the township development.
- To rezone the existing neighbourhoods and introduce new medium to high density residential neighbourhoods along Avenue de la Nyabarongo.
- To provide sufficient land for industries in the Sector.
- To retain and revitalise the existing public facilities and provide new facilities required for the increased population.
- To safeguard the areas of natural drainage courses as parks and green connectors.
- To regularise and widen the key dirt roads into collectors and local access roads.

Based on the proposed Land Use Plan, Nyamirambo Sector is proposed to accommodate a population of 147,000 by Year X.

Figure 9.9 presents the Proposed Land Use Plan Year X for Nyamirambo Sector.

Table 9.2: Nyamirambo Sector - Land Use Data.

Broad Land Use	Legend	Detailed Land Use	Area (ha)*	(%)
Residential		Single Family Residential	100.58	11%
		Low Rise Residential	145.65	16%
		Medium Rise Residential	114.90	13%
		Total Residential	361.13	40%
Commercial		Commercial General	18.80	2%
Public Facilities		Government Office	0.79	0%
		Educational Facilities	33.19	4%
		Religious Facilities	5.18	1%
		Health Facilities	5.24	1%
		Civic Facilities	10.47	1%
		Total Public Facilities	54.87	7%
Industries		Light Industries	22.16	2%
Open Space		Sports and Recreation	4.27	0%
		Open Space and Park	71.23	8%
		Total Open Space	75.5	8%
Nature Area		Forest	231.86	26%
		Other Green	0.95	0%
		Wetland	14.54	2%
		Total Nature Area	247.35	28%
Infrastructure		Transport	94.55	10%
		Utilities	4.60	1%
		Total Infrastructure	99.15	11%
Special Use		Graveyard	13.48	2%
Reserve Site	R	Reserve Site	2.98	0%
Grand Total			895.40	100%

*All site areas subject to final survey.

Source: *Surbana*

9.5.2 Nyamirambo Sector - Proposed Residential Use Plan

The area around the Regional Centre as well as the housing projects in Akumunigo and Rugarama are proposed to be rezoned as medium rise apartments. The areas characterised by medium density informal housing are proposed to be rezoned as cluster housing developments. The zoning regulations for these areas would encourage developers to provide a range of commercial, public and recreational amenities within their housing developments, thus creating a quality living environment. Figure 9.10 presents the Proposed Residential Use Plan Year X for Nyamirambo Sector.

9.5.3 Nyamirambo Sector - Proposed Commercial Use Plan

The Nyamirambo Regional Centre is expected to become a vibrant sports, cultural and civic centre for the entire District. In Nyamirambo, the Regional Centre would include retail spaces, hotels, cultural, entertainment and recreational facilities. While the Regional Centre would meet the larger needs of the population, a series of smaller commercial nodes, proposed based on the Township Planning Model developed for

Nyarugenge District (refer to Appendix 1), would meet the daily requirements of the residents.

A small town centre of 4.0 ha is proposed within Akumunigo Township comprising of larger developments such as a shopping malls, retail facilities, government branch offices, etc. Besides this one neighbourhood centre, with a size of 1.2 ha, is proposed for every neighbourhood (3000-4000 DUs). These are located within a walking radius of 500 m from all residential developments and comprise of small scale retail shops to meet daily needs of the residents.

An industrial zone is integrated within the Sector along Avenue Rwampara which will help provide local employment opportunities to the residents.

9.5.4 Nyamirambo Sector - Proposed Public Facilities Plan

The existing civic and public facilities in the Regional Centre would be revamped. The part of the District Centre in Nyamirambo would house large scale public facilities such as a higher education institute, a regional hospital, a regional library and a cultural centre.

Besides these large scale facilities, smaller public facilities would be provided within the townships and neighbourhoods, proposed based on the Township Planning Model developed for Nyarugenge District (refer to Appendix 2), to meet the daily requirements of the residents. Public facilities such as health centres, community halls and churches etc. are integrated with the neighbourhood centre.

9.5.5 Nyamirambo Sector - Proposed Green and Open Spaces Plan

The Sports Hub in Nyakabanda and the sports complex in Rugarama would be the major recreational venues for the Sector. Besides this, areas around the natural drainage courses are proposed to be conserved and developed into linear parks. This would not only form a part of the storm water management system, but also offer recreational venues for residents and offer pedestrian and bicycle connectivity across the Sector. These parks are proposed as part of the larger green connector network proposed for the District.

The existing linear commercial and mix use developments along Avenue de la Nyabarongo, the Kigali Regional Stadium and the civic-cultural developments in Nyamirambo Sector together are envisioned to be developed as a Regional Centre, offering city and regional level sports, cultural and civic facilities. A pedestrian friendly boulevard along Avenue de la Nyabarongo is proposed to run through the urban node and bind the various developments together.

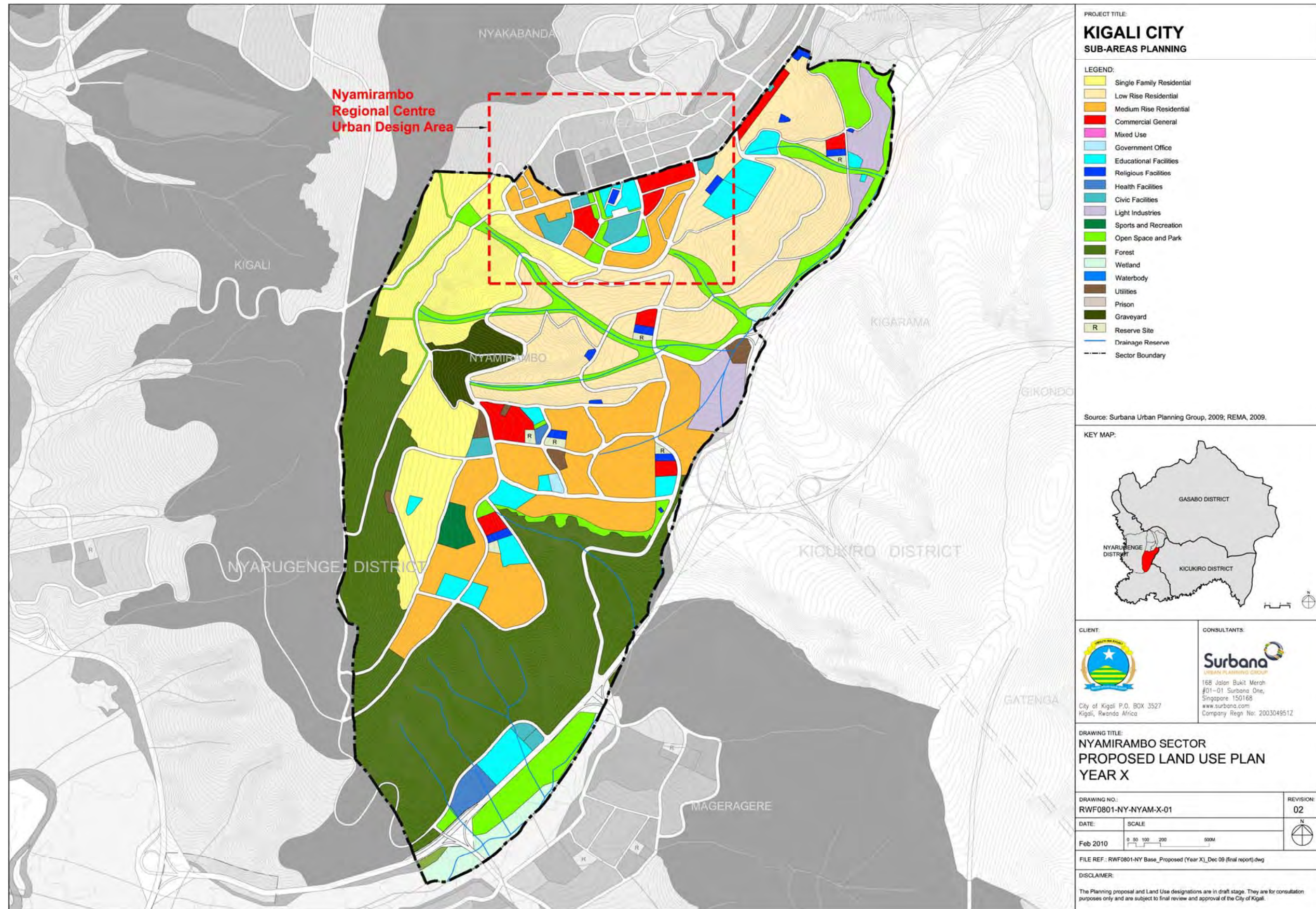


Figure 9.9: Nyamirambo Sector - Proposed Land Use Plan
Source: Surbana

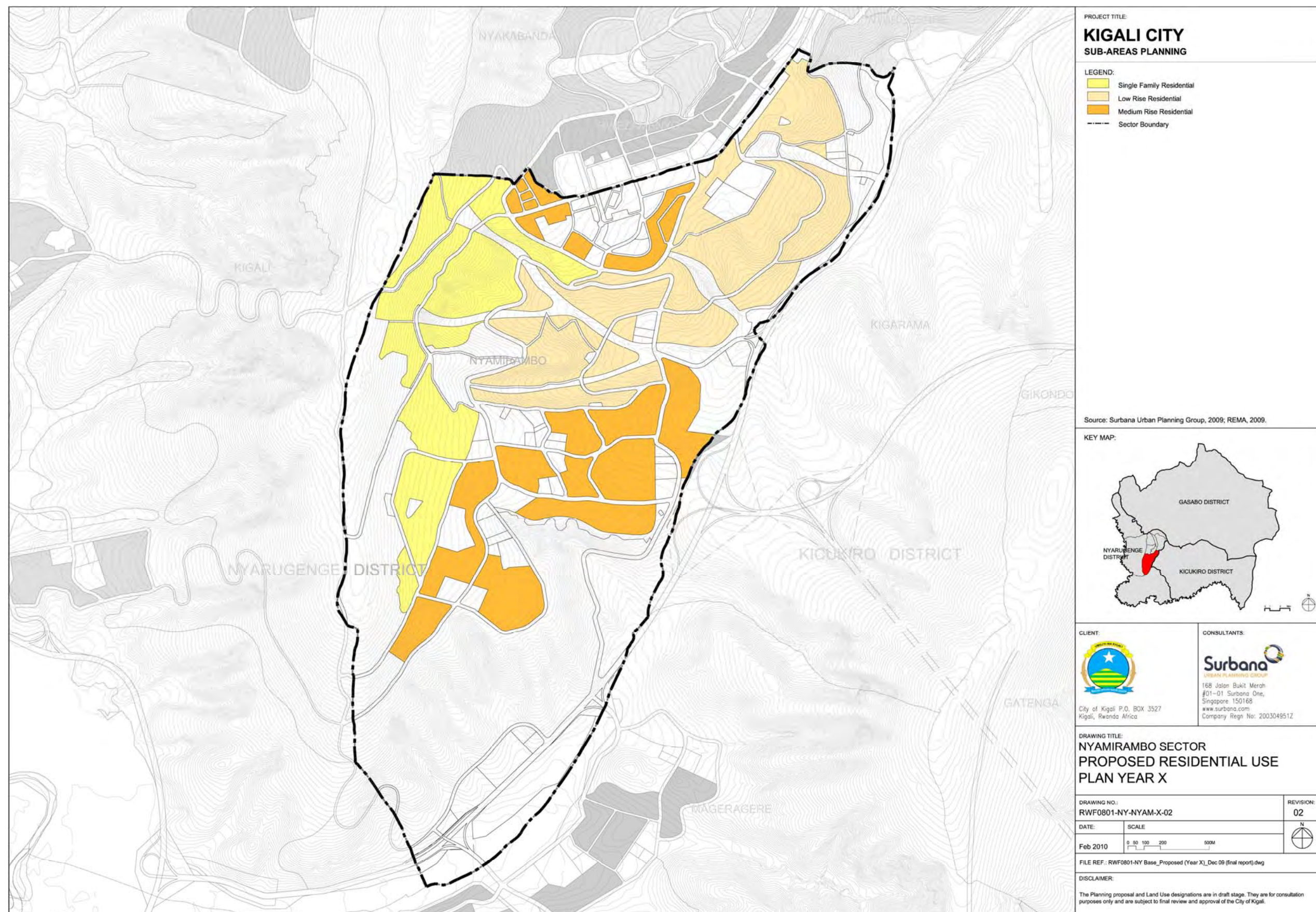


Figure 9.10: Nyamirambo Sector: Proposed Residential Use Plan
 Source: Surbana

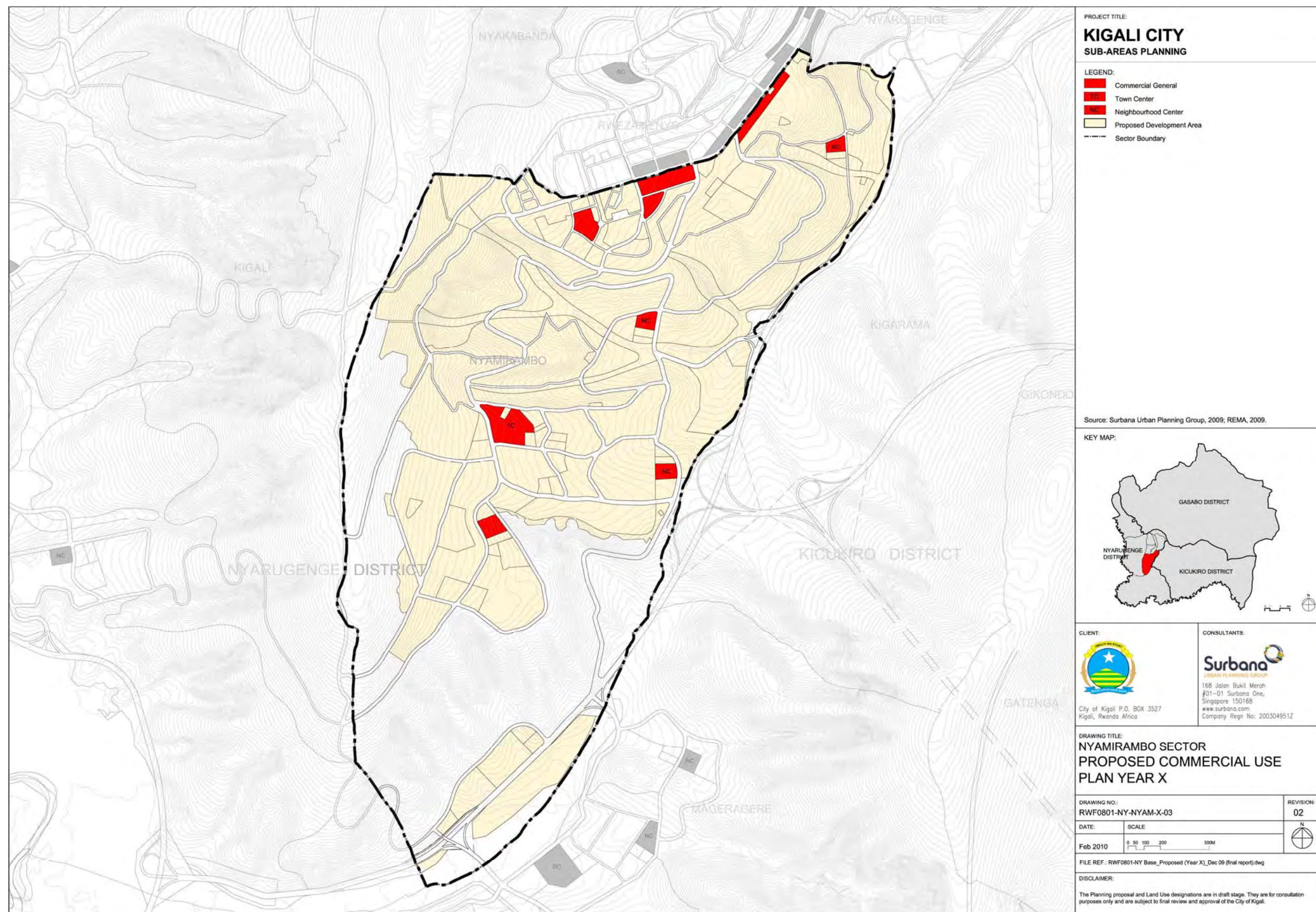


Figure 9.11: Nyamirambo Sector: Proposed Commercial Use Plan
 Source: Surbana

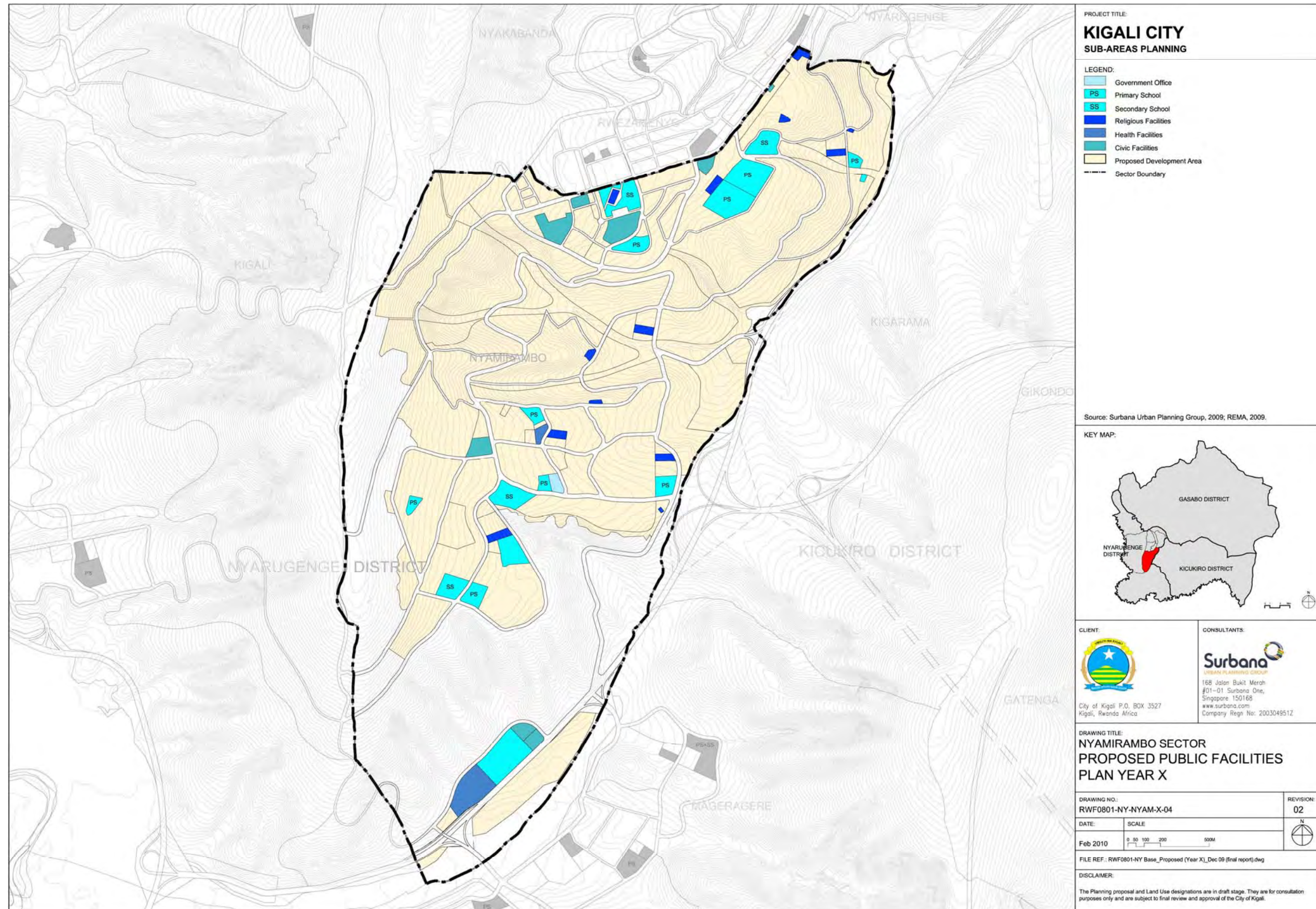


Figure 9.12: Nyamirambo Sector: Proposed Public Facilities Plan
Source: Surbana

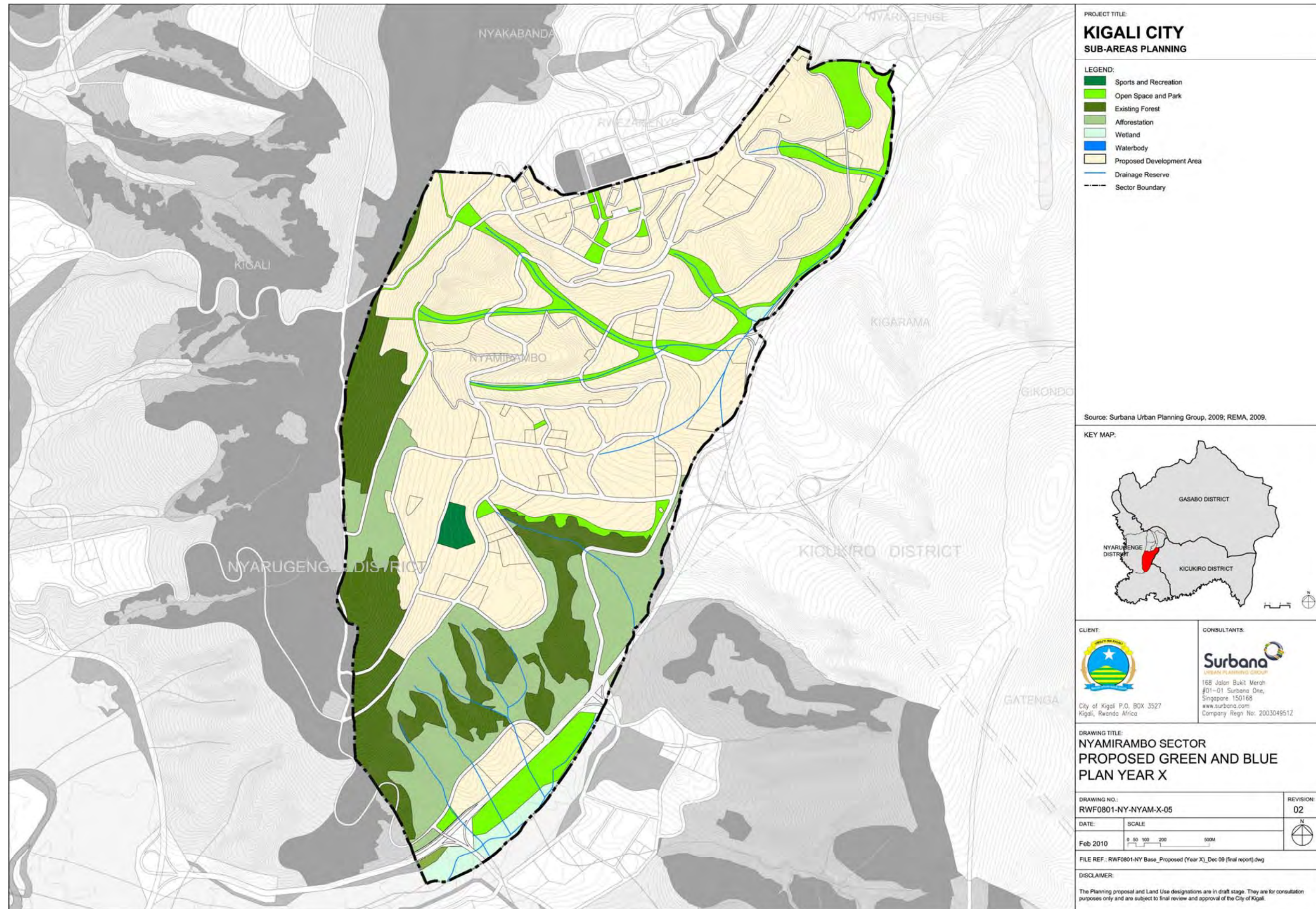


Figure 9.13: Nyamirambo Sector: Proposed Green and Blue Plan
Source: Surbana

9.5.6 Nyamirambo Sector - Proposed Key Features Plan

As part of the Nyamirambo Regional Centre, a cultural hub comprising of a vibrant commercial centre developed around the existing religions, cultural and civic developments in the north of Nyamirambo is proposed.

A distinctively landscaped central public plaza runs through the developments within the cultural hub and connects the adjoining sports hub in Nyakabanda Sector.



Figure 9.14: Nyamirambo Sector - Illustrative View of the Development in Nyamirambo Sector as part of the Nyamirambo Regional Centre.
Source: *Surbana*

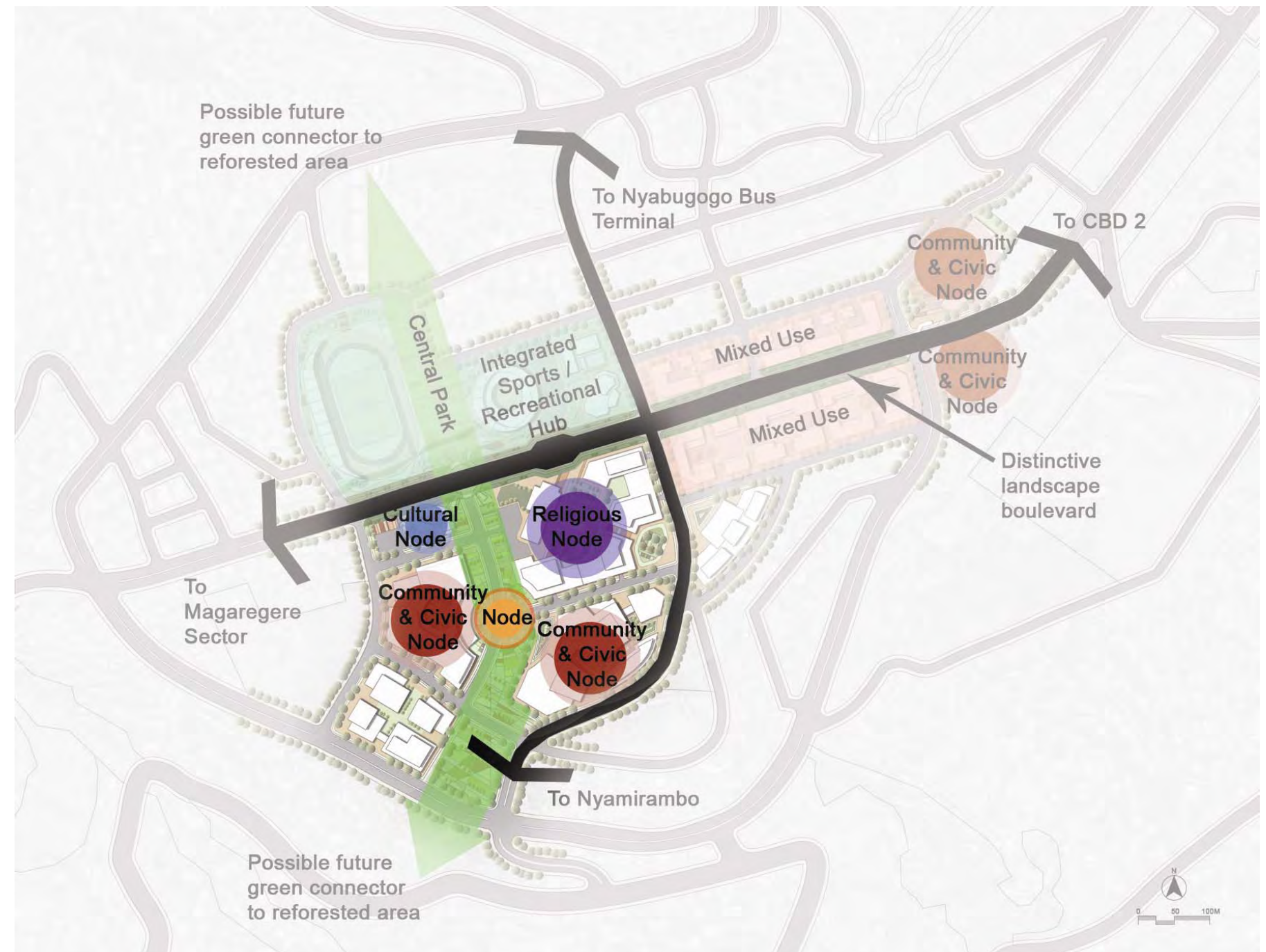


Figure 9.15: Nyamirambo Sector – Concept of Regional Centre in Nyamirambo Sector.
Source: *Surbana*



Figure 9.16: Nyamirambo Sector: Illustration of the Development in Nyakabanda Sector as part of the Nyamirambo Regional Centre.
Source: *Surbana*

CHAPTER 10: DETAILED MASTER PLAN FOR KANYINYA SECTOR

This chapter presents the detailed Master Plan for Kanyinya Sector. Based on the analysis of the existing context, opportunities and constraints, a vision and concept are derived which guide the development of the Master Plan and the design of the key features within the Sector.

10.1 Kanyinya Sector - Context

- **Planning Area** – The total area of Kanyinya Sector is 2456.00 ha.



Figure 10.1: Kanyinya Sector - Location Plan
Source: Surbana

- **Location and Connectivity:** The Kanyinya Sector is the northernmost sector of the District. It is very well connected with the CDB areas by major roads. The national highway which connects Kigali to Ruhengeri passes through this District and runs north-south. Avenue de Nyabugogo, which connects Kigali to Butare and the other southern sectors, runs along the south of the District. It is surrounded by Kigali Sector to the south.
- **Existing Site Conditions:** Kanyinya is largely unoccupied, except for the housing settlements and small public facilities along the national highway on the ridge and the industrial developments and water treatment facilities in the south along Avenue de Nyabugogo. Farming and fishing occurs on a small scale along the wetlands in the west.

Table 10.1: Kanyinya Sector – Population Projection.

Area	Existing Population (2009)	Projected Population (2020)
Kigali City	1,085,000	1,988,000
Kanyinya Sector	35,834	63,647

Source: TAMA 2006: Population by Sector, KCMP Existing Conditions Analysis

- **Natural Constraints:** The Sector has a highly undulating topography, with only 15% of the total land area being developable and most of the land being in areas of steep unbuildable slopes or covered by forest, vegetation or wetlands (refer to Figure 10.2). A long ridge runs north-south through the centre of the Sector. The areas of the Sector to the west, along wetlands as well as along the ridge are relatively gentler. The rest of the Sector occurs mainly in the form of steep slopes in the east and west.

Figure 10.5 presents the existing Context Map for Kanyinya Sector.

10.2 Kanyinya Sector - Opportunities and Constraints

- **Opportunities:** Due to the ready availability of buildable land along the wetlands and the ridge, and the Sector's proximity and connectivity to the CBD, Kanyinya has the potential to be developed into a high density residential area offering a mix of high-end as well as medium range housing options to accommodate the immediate housing demand. The Kigali-Ruhengeri national highway brings in numerous tourists and visitors in transit, which presents opportunities for tourism and resort developments.
- **Constraints:** A large part of the Sector is under natural constraints - steep slopes, forests and wetlands, which need to be conserved. There is a lack of roads and infrastructure provision within the Sector. The existing developments, such as the water treatment plant, need to be retained and developed around.
- Figure 10.6 presents the Opportunities Map and Figure 10.7 presents the Constraints Map for Kanyinya Sector.

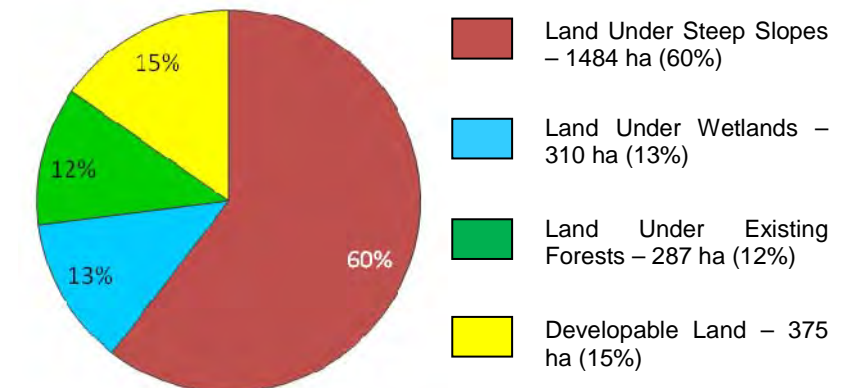


Figure 10.2: Kanyinya Sector - Land under Natural Constraints
Source: KCMP; 2007.

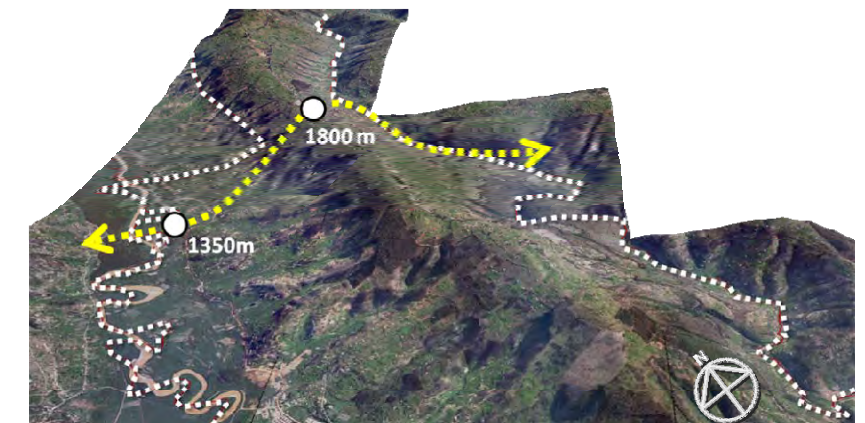
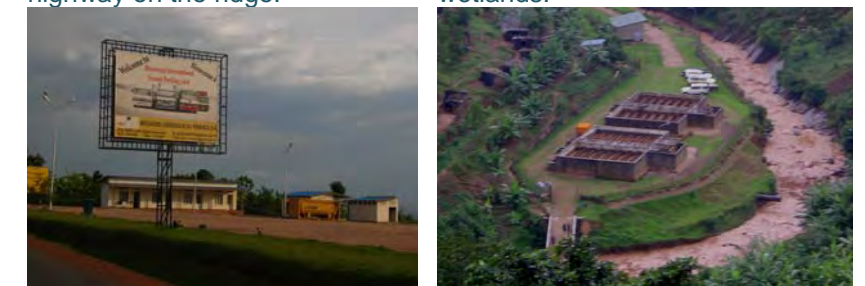


Figure 10.3: Kanyinya Sector - Existing Topography
Source: Surbana



Settlements along the national highway on the ridge.

Agricultural activities along the wetlands.



Toll station along the ridge.

Yanze River intake station.

Figure 10.4: Kanyinya Sector - Existing Context.
Source: Surbana

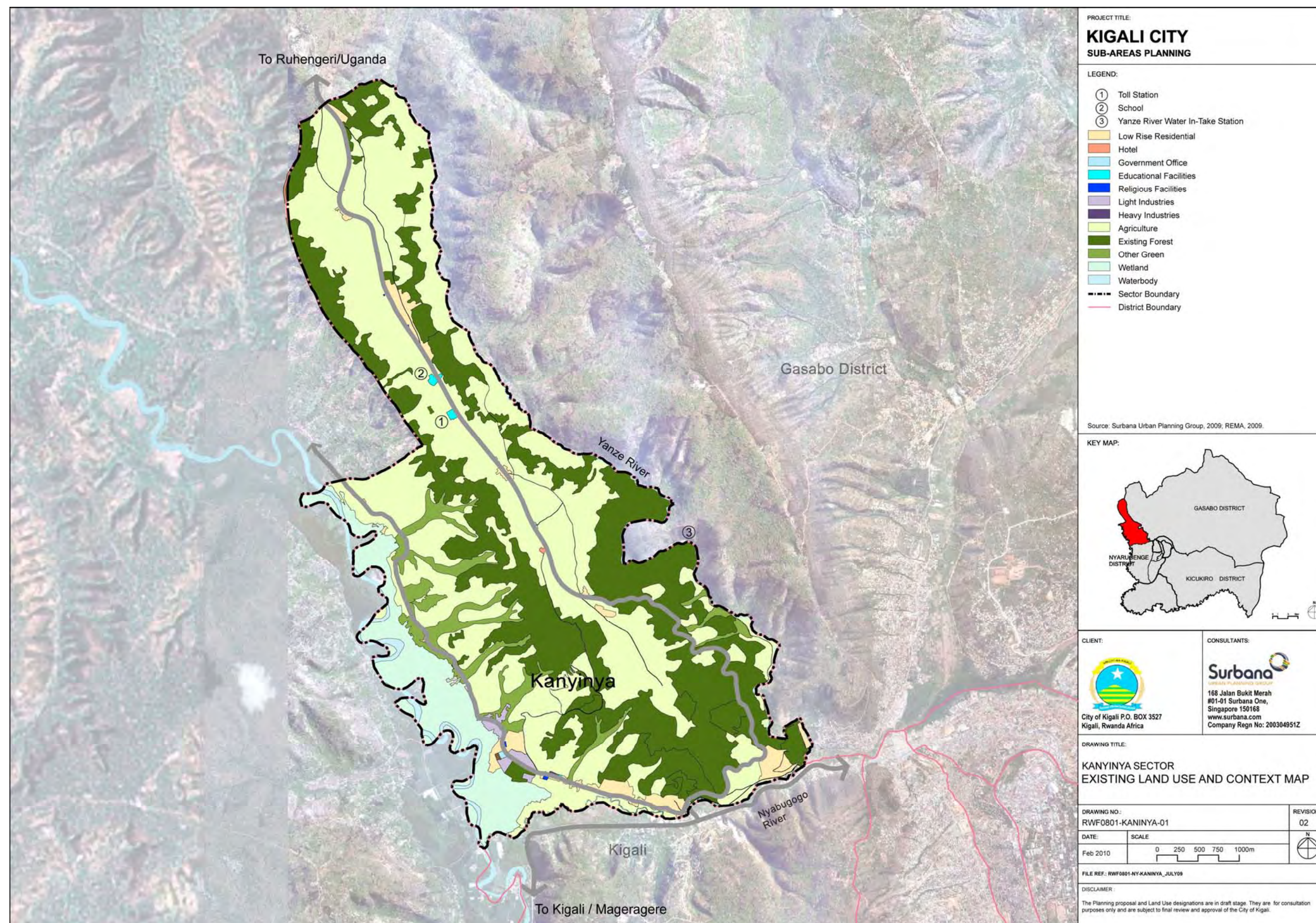


Figure 10.5: Kanyinya Sector - Existing Land Use and Context Map.
Source: Surbana

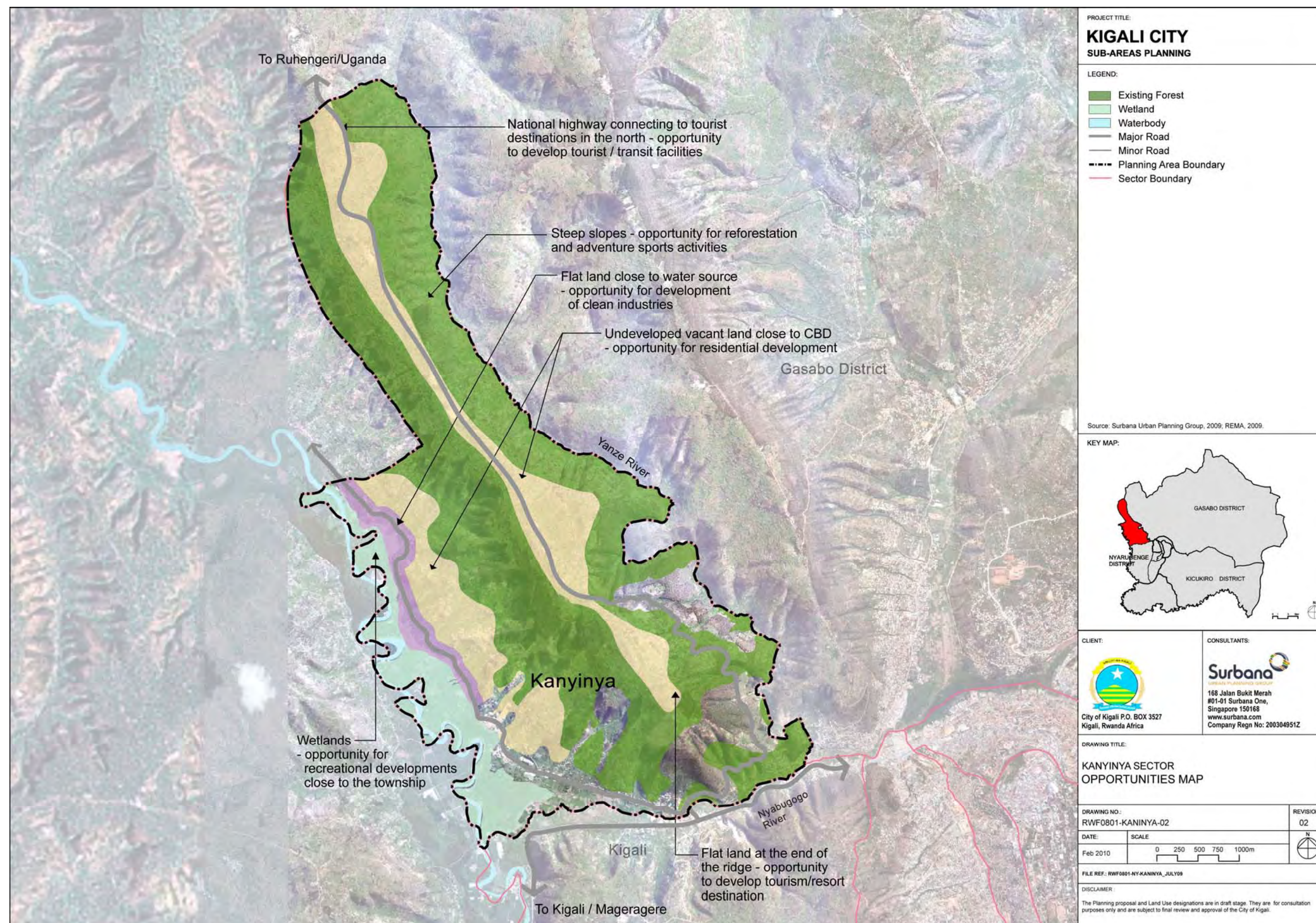


Figure 10.6: Kanyinya Sector - Opportunities Map.
Source: Surbana

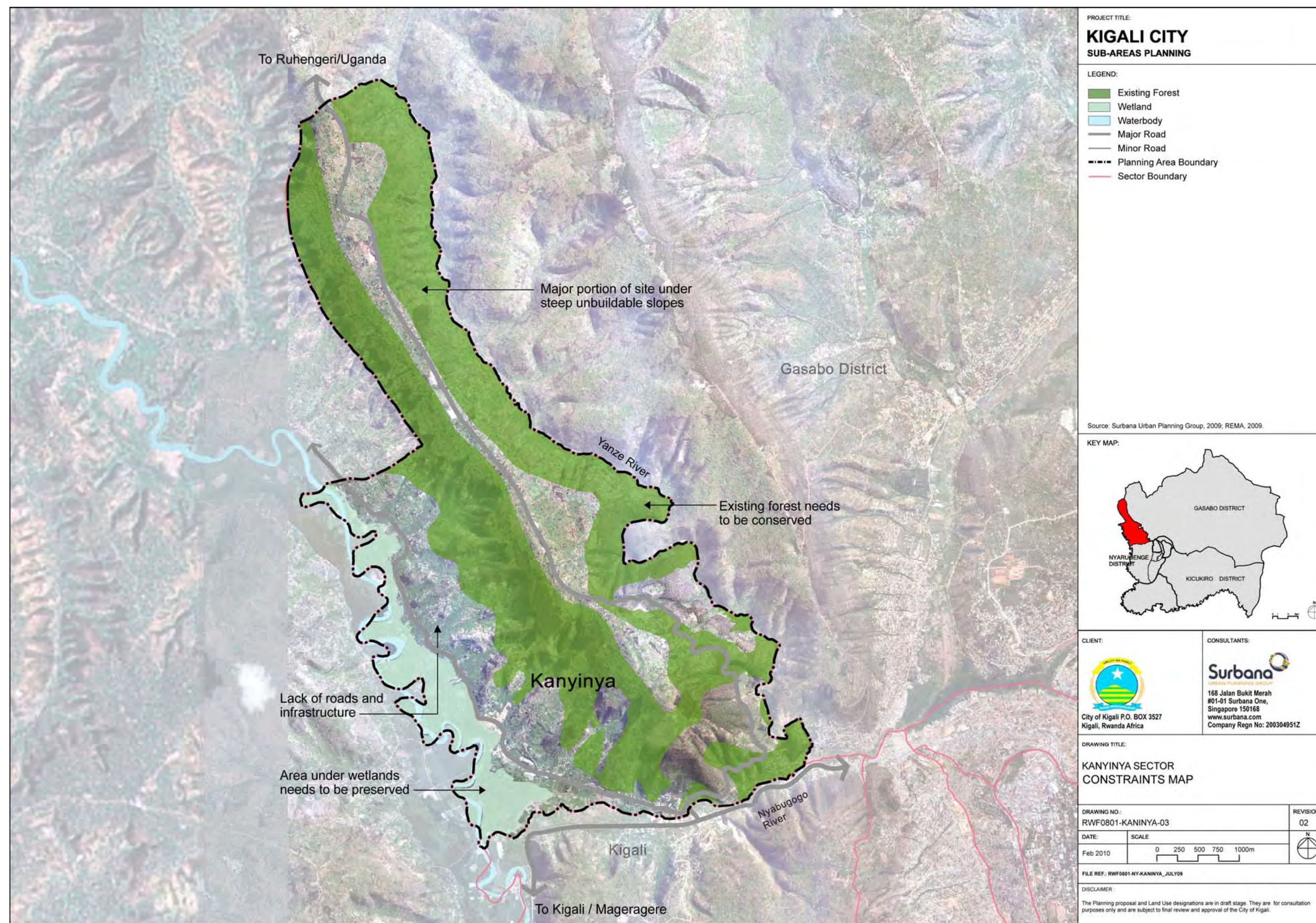


Figure 10.7: Kanyinya Sector - Constraints Map.
Source: Surbana

10.3 Kanyinya Sector - Proposed Vision

'The Scenic Transit Town'



Kanyinya Sector is envisioned to offer a range of comprehensive residential opportunities in close proximity to the CBD along the wetlands. Kanyinya would also become a tourist attraction offering resort and adventure sports activities, leveraging on its location along the transit route from Kigali to Ruhengeri as well on the scenic views and the pleasant climate.

10.4 Kanyinya Sector - Proposed Concept

Based on the existing context, the opportunities and constraints as well as the proposed vision, a development concept has been proposed for Kanyinya Sector, as illustrated in Figure 10.8.

The key proposals of the concept plan are as follows:

- To develop a high density, medium rise residential township in the buildable areas along the wetlands to the west. To allow for adequate commercial facilities and supporting light industrial activities.
- To rezone the area along the highway on the ridge to allow for development of luxury resorts and adventure sports activities, complete with necessary supporting facilities.
- To provide adequate public facilities to serve the residential as well as tourist developments.
- To provide efficient transportation and infrastructure systems.

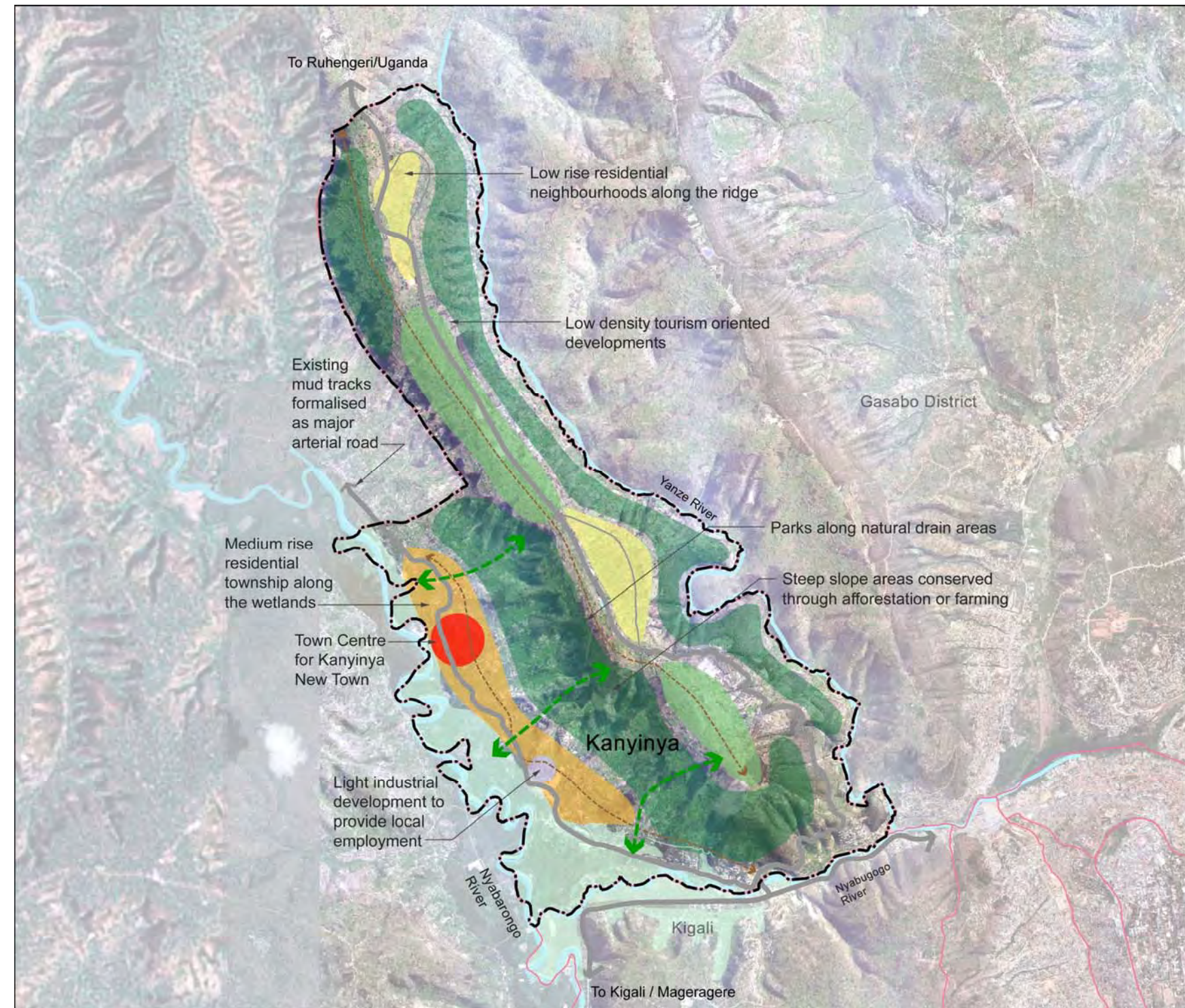


Figure 10.8: Kanyinya Sector - Concept Plan.
Source: *Surbana*

10.5 Kanyinya Sector - Proposed Master Plan

The development concept is further refined and developed into the Detailed Master Plan for Kanyinya Sector. Presented below is the Land Use Plan proposed for Kanyinya Sector.

10.5.1 Kanyinya Sector - Proposed Land Use Plan

The Land Use Plan aims to build upon the physical opportunities and constraints of the Sector and offers incentives for high density development. The key developments proposed in the Land Use Plan are:

- To allow for the development of a high density medium rise residential township along the wetlands.
- To allow for the development of single-family residential neighbourhoods along the ridge.
- To allow for the development of tourism, resort and active recreation facilities along the ridge.
- To develop public facilities and commercial facilities to support the residential growth.
- To provide sufficient land for industries.
- To safeguard the areas of natural drainage courses as parks and green connectors.

Table 10.2: Kanyinya Sector - Land Use Data.

Broad Land Use	Legend	Detailed Land Use	Area (ha)*	(%)
Residential		Single Family Residential	161.18	7%
		Medium Rise Residential	77.84	3%
		Total Residential	239.02	10%
Commercial		Commercial General	10.00	0%
		Hotel	0.31	0%
		Total Commercial	10.31	0%
Public Facilities		Government Office	0.50	0%
		Educational Facilities	14.43	1%
		Religious Facilities	2.62	0%
		Total Public Facilities	17.55	1%
Industries		Light Industries	9.79	0%
Open Space		Sports and Recreation	92.19	4%
		Open Space and Park	60.72	2%
		Total Open Space	152.91	6%
Agriculture		Agriculture	229.97	9%
Nature Area		Forest	1344.44	56%
		Other Green	24.21	1%
		Wetland	282.46	11%
		Total Nature Area	1651.11	68%
Waterbody		River	30.75	1%
Infrastructure		Transport	109.24	5%
		Utilities	12.07	0%
		Total Utilities	121.31	5%
Reserve Site	R	Reserve Site	2.54	0%
Grand Total			2,456.00	100%

*All site areas subject to final survey.

Source: *Surbana*

Based on the proposed Land Use Plan Kanyinya Sector is proposed to accommodate a population of 82,500 by Year X. Figure 10.9 presents the Proposed Land Use Plan Year X for Kanyinya Sector.

10.5.2 Kanyinya Sector - Proposed Residential Use Plan

The areas of relatively gentler slopes along the wetlands have been zoned for medium rise apartment developments. Due to the ready availability of land, this new township can help to absorb the immediate population growth in the CBD. The land in the flatter portions along the ridge has been zoned for single-family villa housing and resort developments.

Figure 10.10 presents the Proposed Residential Use Plan Year X for Kanyinya Sector.

10.5.3 Kanyinya Sector - Proposed Commercial Use Plan

A series of local commercial nodes, proposed based on the Township Planning Model developed for Nyarugenge District (refer to Appendix 1), are provided to meet the daily requirements of the residents.

A small town centre of 4.0 ha is proposed within the new township along the wetlands, comprising of larger developments such as a shopping malls, retail facilities, government branch offices, a bus interchange, etc.

Besides this, one neighbourhood centre, with a size of 1.2 ha, is proposed for every neighbourhood (3,000-4,000 DUs). These are located within a walking radius of 500 m from all residential developments and comprise of small scale retail shops to meet daily needs of the residents. The neighbourhood centres proposed along the ridge serves the local population, the tourists as well as the transit population along the highway.

An industrial zone is integrated within the township to provide employment opportunities to the residents. The residents in the settlements along the ridge are expected to support the neighbouring tourism developments.

Figure 10.11 presents the Proposed Commercial Use Plan Year X for Kanyinya Sector.

10.5.4 Kanyinya Sector - Proposed Public Facilities Plan

A range of public facilities would be provided within the townships and neighbourhoods, proposed based on the Township Planning Model developed for Nyarugenge District (refer to Appendix 2), to meet the daily requirements of the

residents. Larger facilities such as a vocational training institute, and hospitals would form a part of the Town Centre. Public facilities such as health centres, community halls and churches etc. are integrated with the neighbourhood centre.

Figure 10.12 presents the Proposed Public Facilities Plan Year X for Kanyinya Sector.

10.5.5 Kanyinya Sector - Proposed Green and Open Spaces Plan

A large sports field and a scenic wetland park are proposed in the new township along the wetlands. Adventure sports activities, camping sites, resorts and related tourism developments are proposed along the ridge and the surrounding steep slopes.

A large town park along with smaller neighbourhood parks are proposed along the natural drainage courses. This would not only form a part of the storm water management system, but also offer recreational venues for residents and offer pedestrian and bicycle connectivity across the Sector. These parks are proposed as part of the larger green connector network proposed for the District.

Figure 10.13 presents the proposed Green and Open Spaces Plan Year X for Kanyinya Sector.

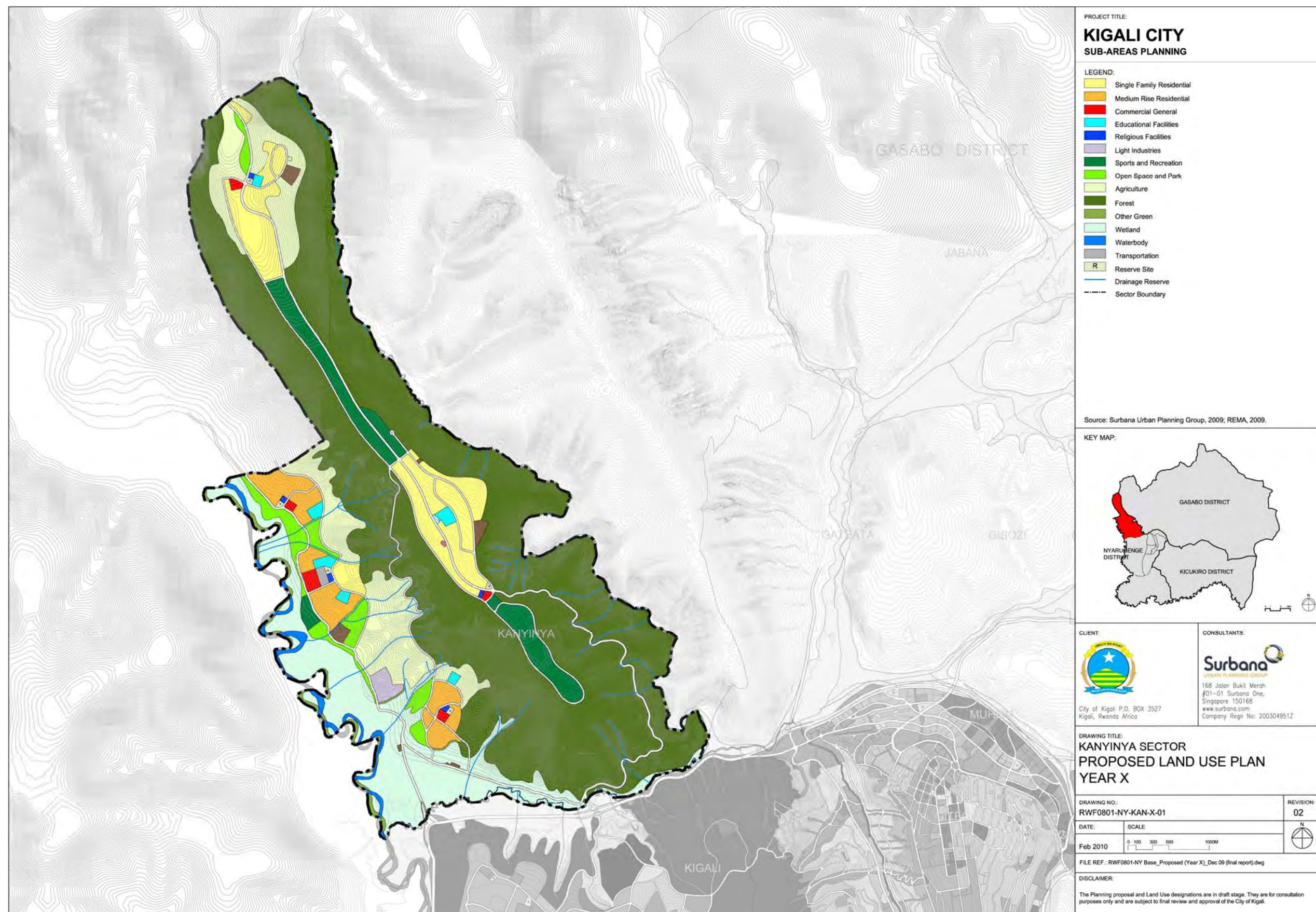


Figure 10.9: Kanyinya Sector: Proposed Land Use Plan
Source: Surbana

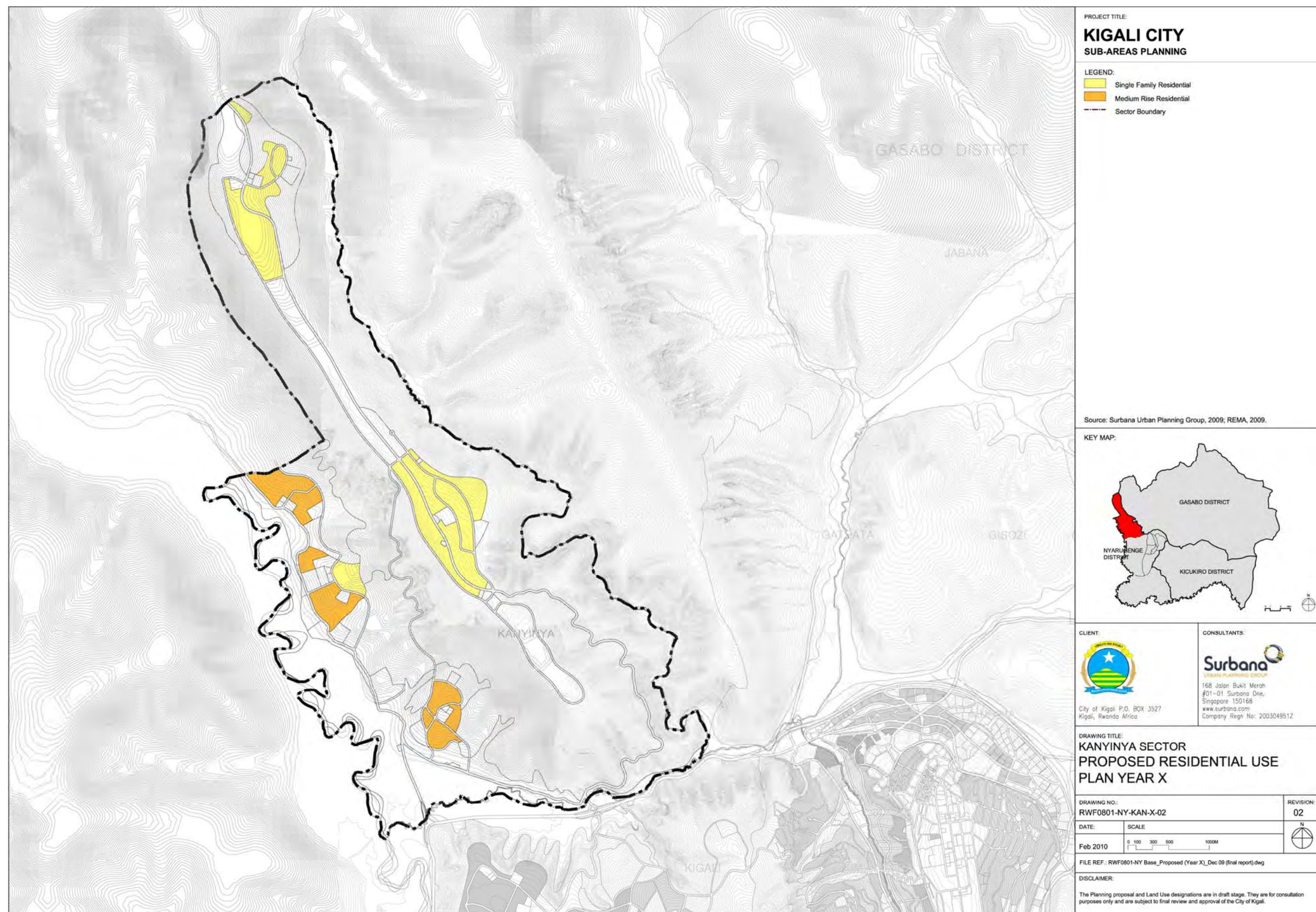


Figure 10.10: Kanyinya Sector: Proposed Residential Use Plan
 Source: Surbana

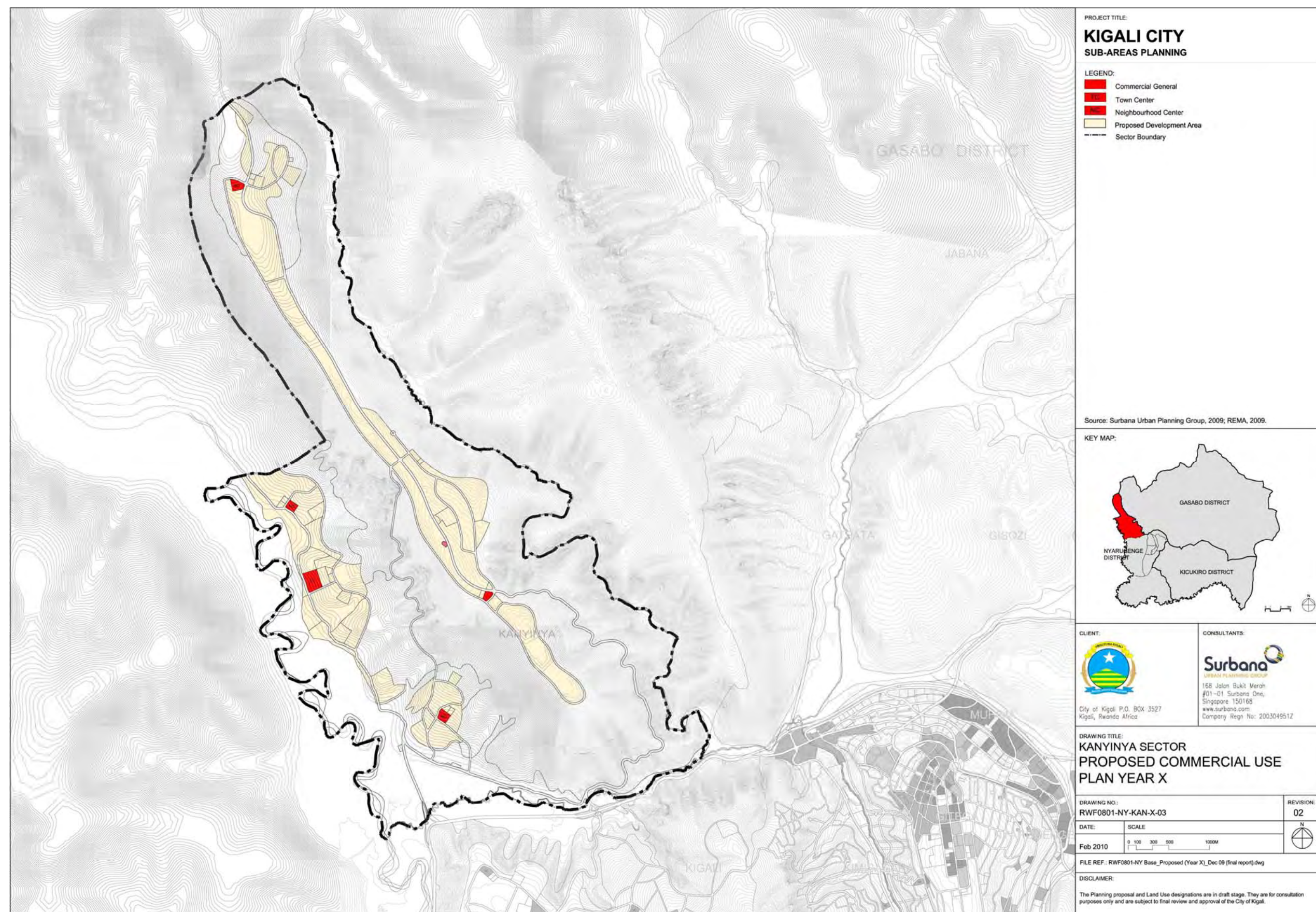


Figure 10.11: Kanyinya Sector: Proposed Commercial Use Plan
Source: Surbana

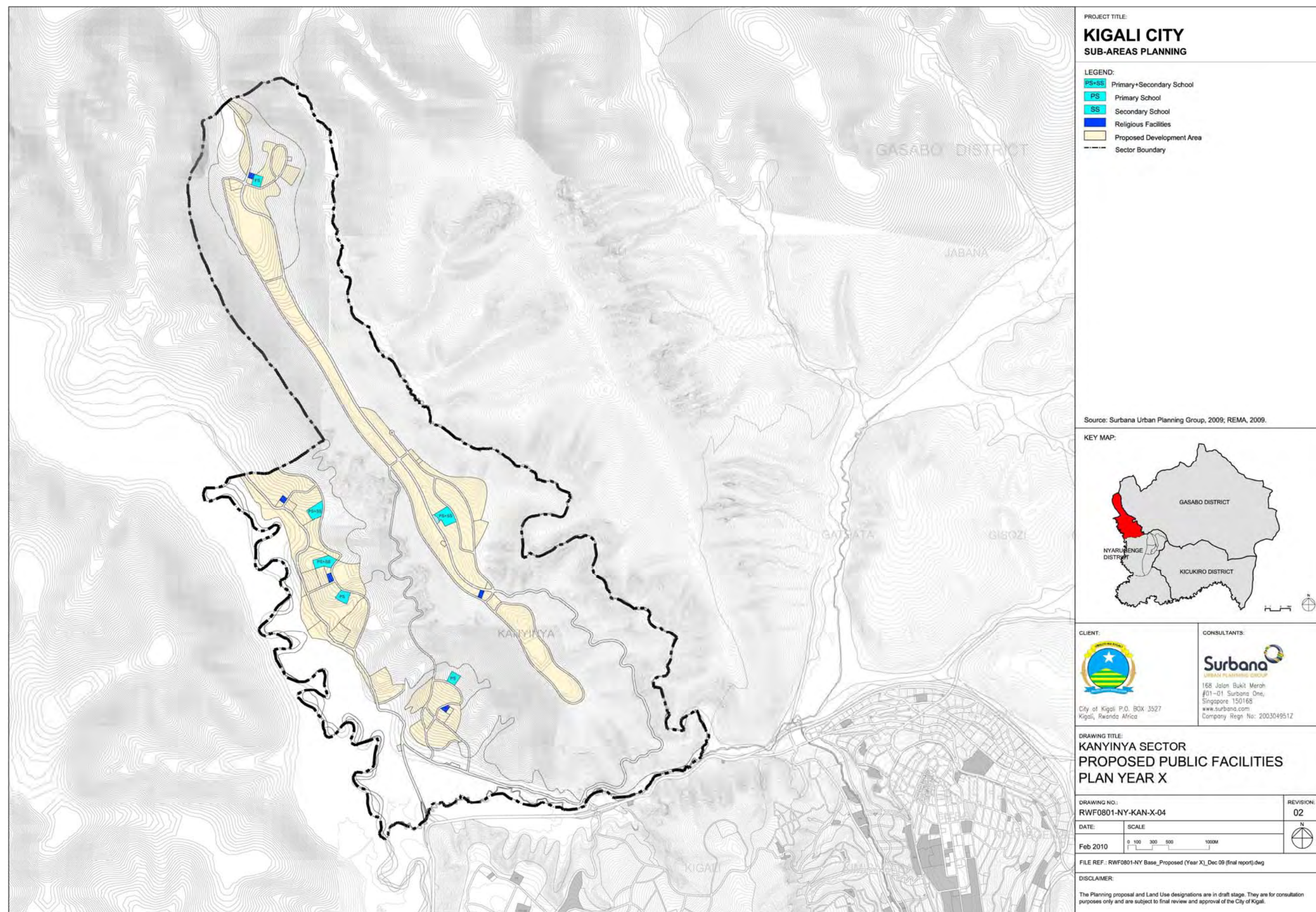


Figure 10.12: Kanyinya Sector: Proposed Public Facilities Plan
 Source: Surbana

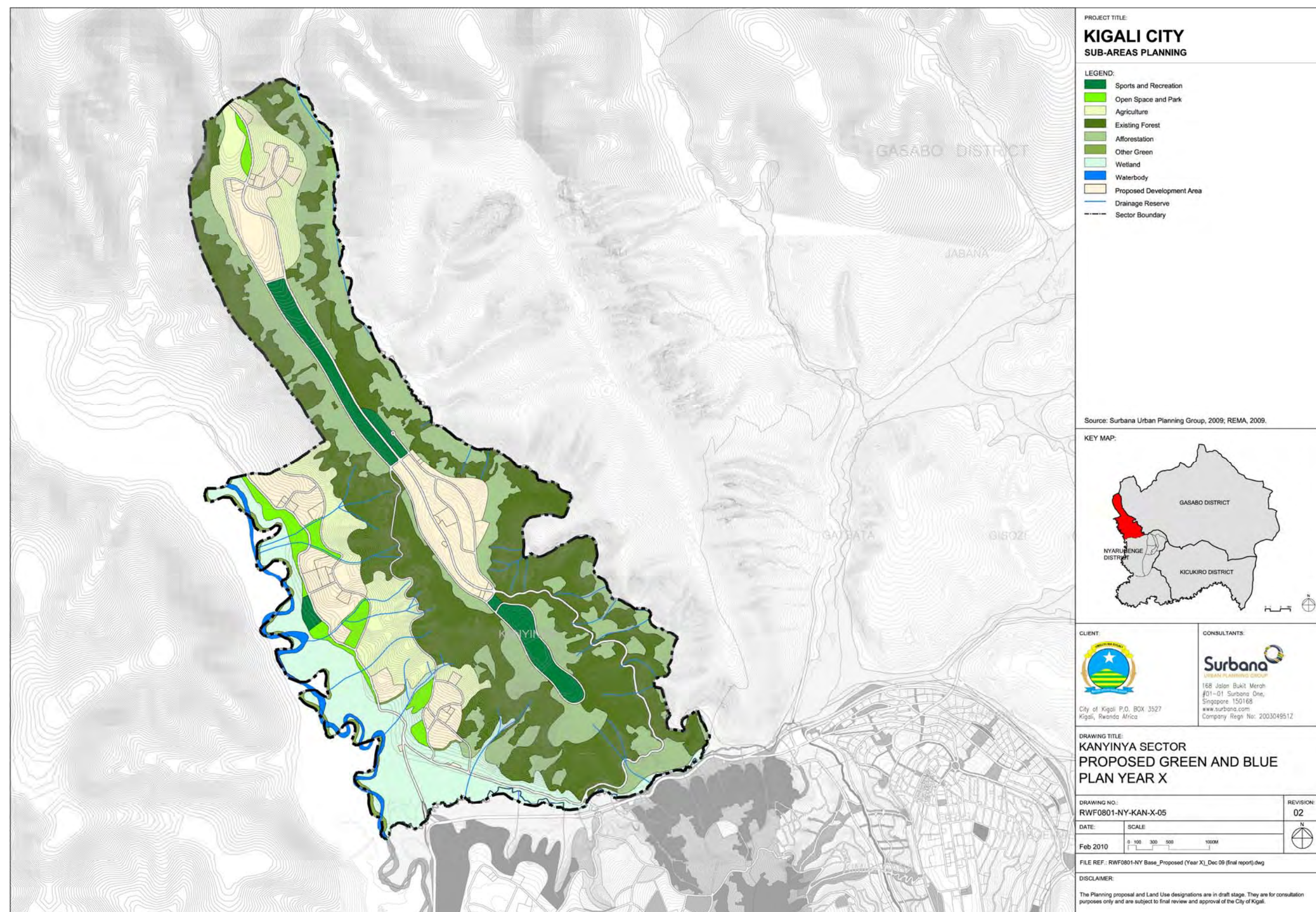


Figure 10.13: Kanyinya Sector: Proposed Green and Blue Plan
Source: Surbana

CHAPTER 11: DETAILED MASTER PLAN FOR KIGALI SECTOR

This chapter presents the detailed Master Plan for Kigali Sector. Based on the analysis of the existing context, opportunities and constraints, a vision and concept are derived which guide the development of the Master Plan and the design of the key features within the Sector.

11.1 Kigali Sector - Context

- **Planning Area:** The total area of Kigali Sector is 3031.00 ha.



Figure 11.1: Kigali Sector - Location Plan.
Source: Surbana

- **Location and Connectivity:** Kigali Sector is located on the western border of the District. It is connected to the CDB by Avenue de Nyabugogo, which runs along the north of the Sector and connects Kigali City to Butare. It is surrounded by Kanyinya Sector to the north, Mageragere Sector of the south and Kimisagara and Nyakabanda Sectors to the east.
- **Existing Site Conditions:** Kigali is largely unoccupied, except for the few housing settlements and small public facilities on the upper flat areas of the Sector and the industrial developments along the wetlands in the west. Agriculture and livestock farming occurs on a small scale along the wetlands. A large stone quarry exists on the north along Avenue de Nyabugogo and needs to be restituted.

Table 11.1: Kigali Sector – Population Projection.

Area	Existing Population (2006)	Projected Population (2020)
Kigali City	1,085,000	1,988,000
Kigali Sector	21,233	49,234

Source: TAMA 2006: Population by Sector, KCMP Existing Conditions Analysis

Natural Constraints: The Sector has a highly undulating topography, with only 22% of the total land area being developable and most of the land being in areas of steep unbuildable slopes or covered by forest, vegetation or wetlands (refer to **Error! Reference source not found.**). A linear ridge runs along the east of the Sector, where Mount Kigali, the point of highest elevation in the City is located. From here the Sector gradually slopes towards the wetlands in the form of a series of inundating plateaus and valleys. The deep valleys areas form the natural runoff courses of the Sector and are covered with natural vegetation. The higher flatter areas in between the valleys meet the wetlands in the form of densely vegetated steep slopes.

Figure 11.5 presents the existing Context Map for Kigali Sector.

11.2 Kigali Sector - Opportunities and Constraints

- **Opportunities:** the large pockets of flat land on top of the Sector offer an opportunity to develop high density townships which have scenic views of the City and the wetlands, are located in idyllic natural settings and are well connected to the CBD. The densely forested areas along the ridge as well as the wetland and river offer abundant opportunities for the development of tourism and recreational activities. The approved umudugudu projects and the included public facilities offer an opportunity for redevelopment into higher density residential development.
- **Constraints:** A large part of the Sector is under natural constraints - steep slopes, forests and wetlands, which need to be conserved. There is a lack of roads and infrastructure provision within the Sector. The major roads, services and public facilities proposed as part of the umudugudu developments would need to be retained or redeveloped at the time of future development. A 30 ha site allocated for the development of a land fill site needs to be retained.

Figure 11.6 presents the Opportunities Map and Figure 11.7 presents the Constraints Map for Kigali Sector.

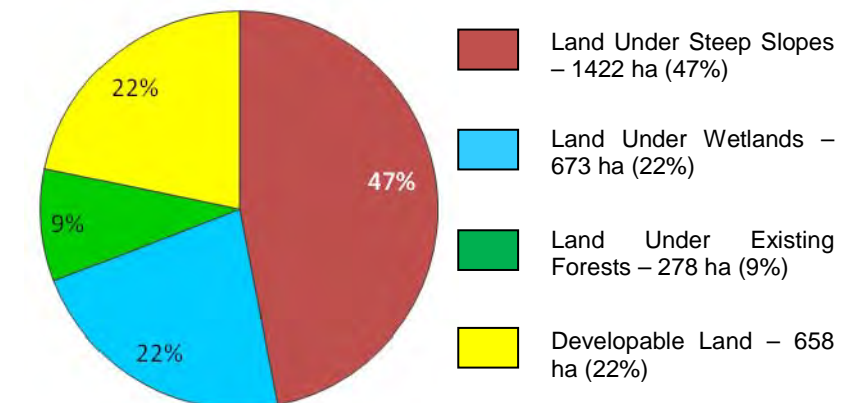


Figure 11.2: Kigali Sector - Land under Natural Constraints.
Source: KCMP; 2007.



Figure 11.3: Kigali Sector - Existing Topography.
Source: Surbana



Figure 11.4: Kigali Sector - Existing Context.
Source: Surbana

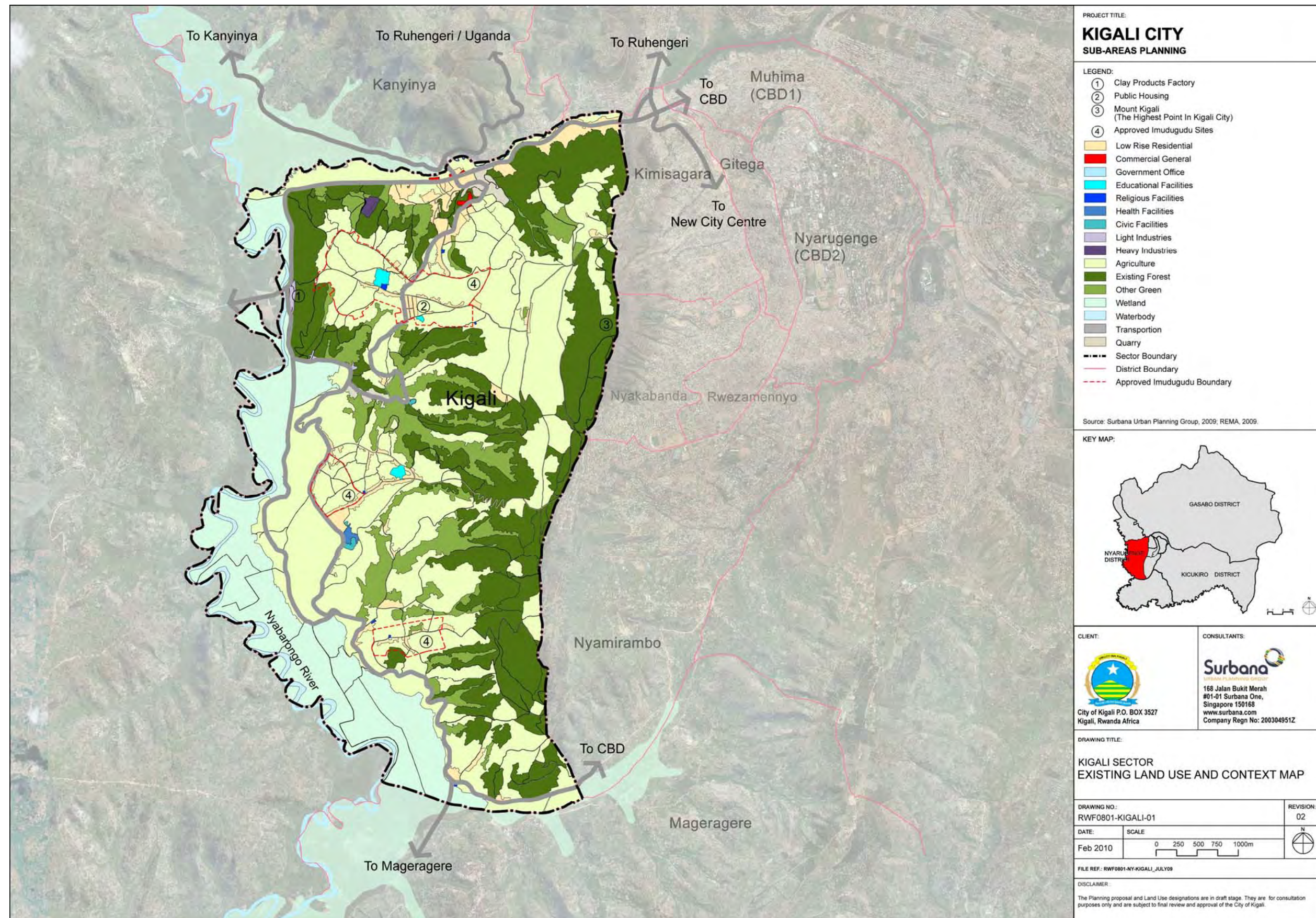


Figure 11.5: Kigali Sector - Existing Land Use and Context Map.
Source: Surbana

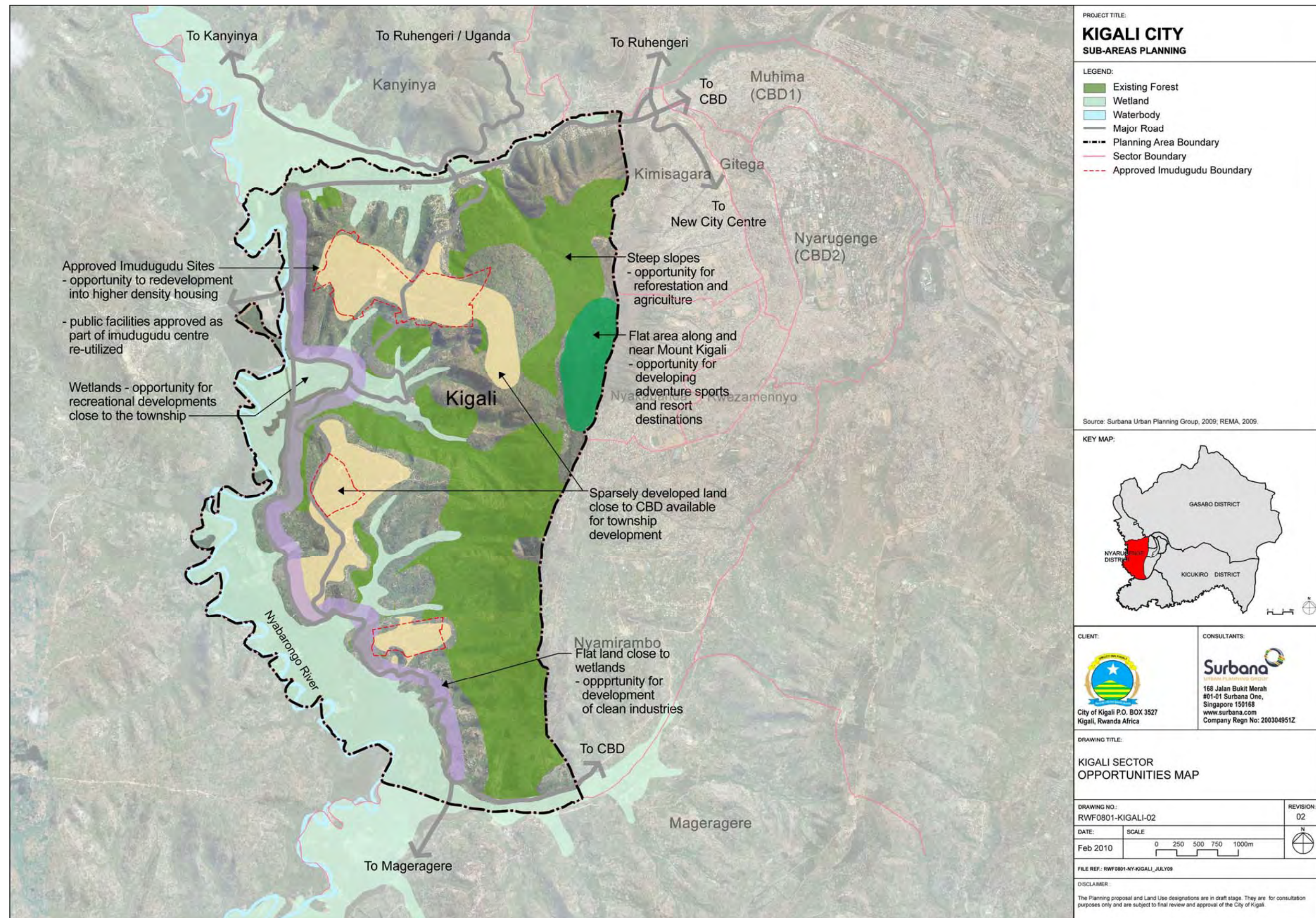


Figure 11.6: Kigali Sector - Opportunities Map.
Source: Surbana

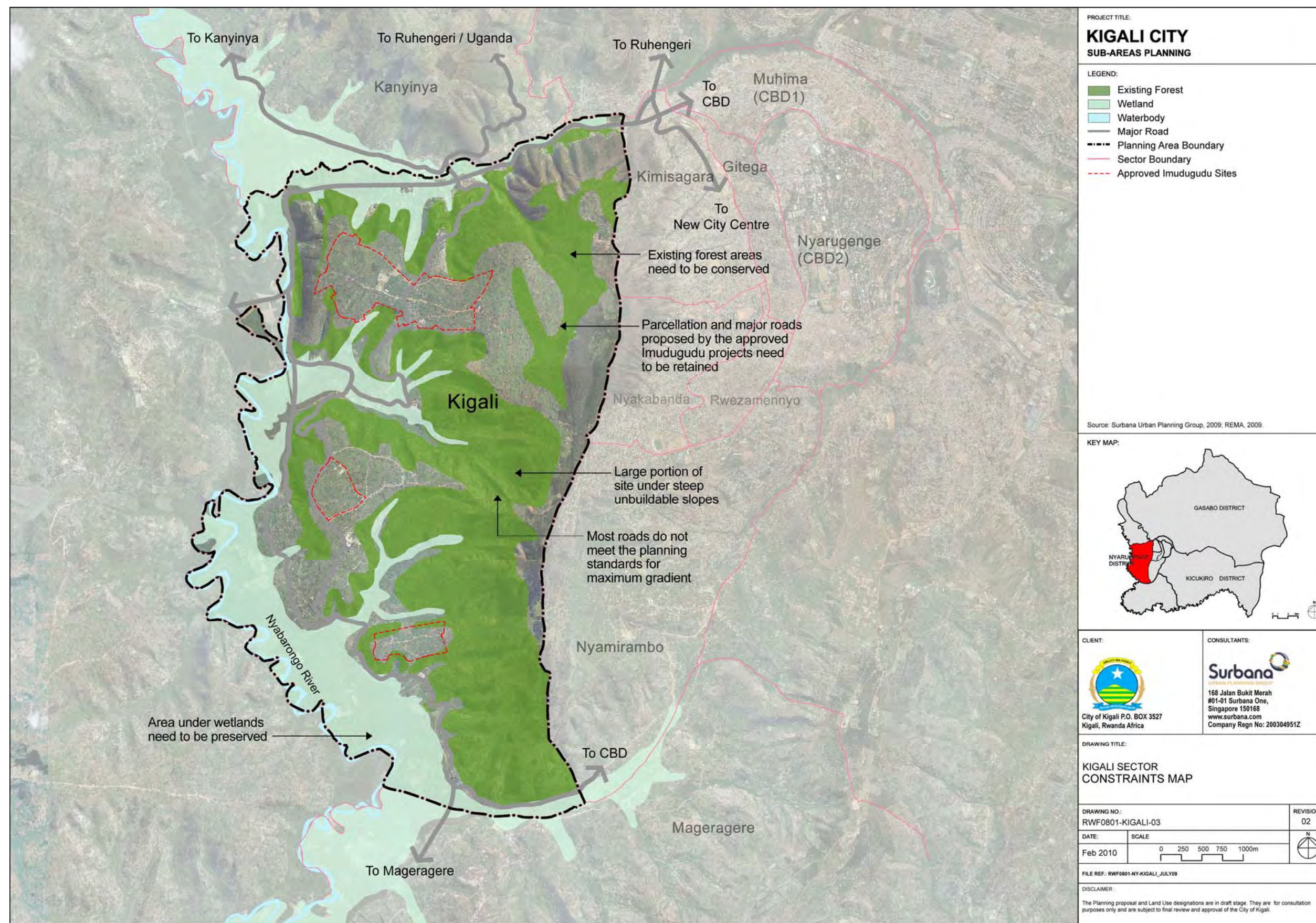
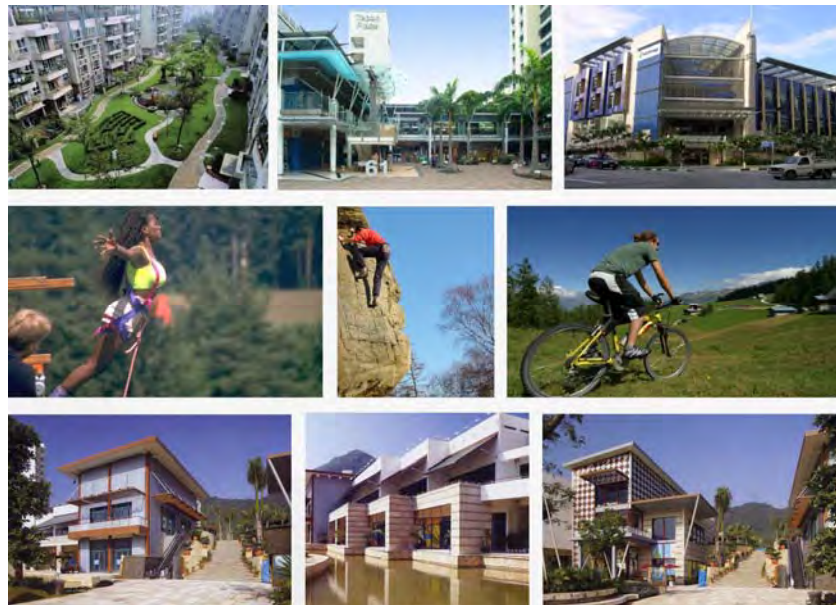


Figure 11.7: Kigali Sector - Constraints Map.
Source: Surbana

11.3 Kigali Sector - Proposed Vision

'The New Generation Residential Township'



Kigali Sector is envisioned to house attractive residential townships, developed in a scenic natural setting, complete with comprehensive public facilities. Kigali would also become a tourist attraction offering scenic resort and adventure sports activities leveraging on the picturesque setting and views, forested areas, challenging terrain and pleasant climate.

11.4 Kigali Sector - Proposed Concept

Based on the existing context, the opportunities and constraints as well as the proposed vision, a development concept has been proposed for Kigali Sector, as illustrated in Figure 11.8.

The key proposals of the concept plan are as follows:

- To rezone the approved umudugudu developments as well as the buildable areas around them as high density, medium rise residential township in the buildable areas on top of the hill. To allow for adequate commercial facilities and supporting light industrial activities.
- To allow for development of luxury resorts and adventure sports activities, complete with necessary supporting facilities along the ridge of the hill.
- To provide adequate public facilities to serve the residential as well as tourist developments.
- To provide efficient transportation and infrastructure systems.

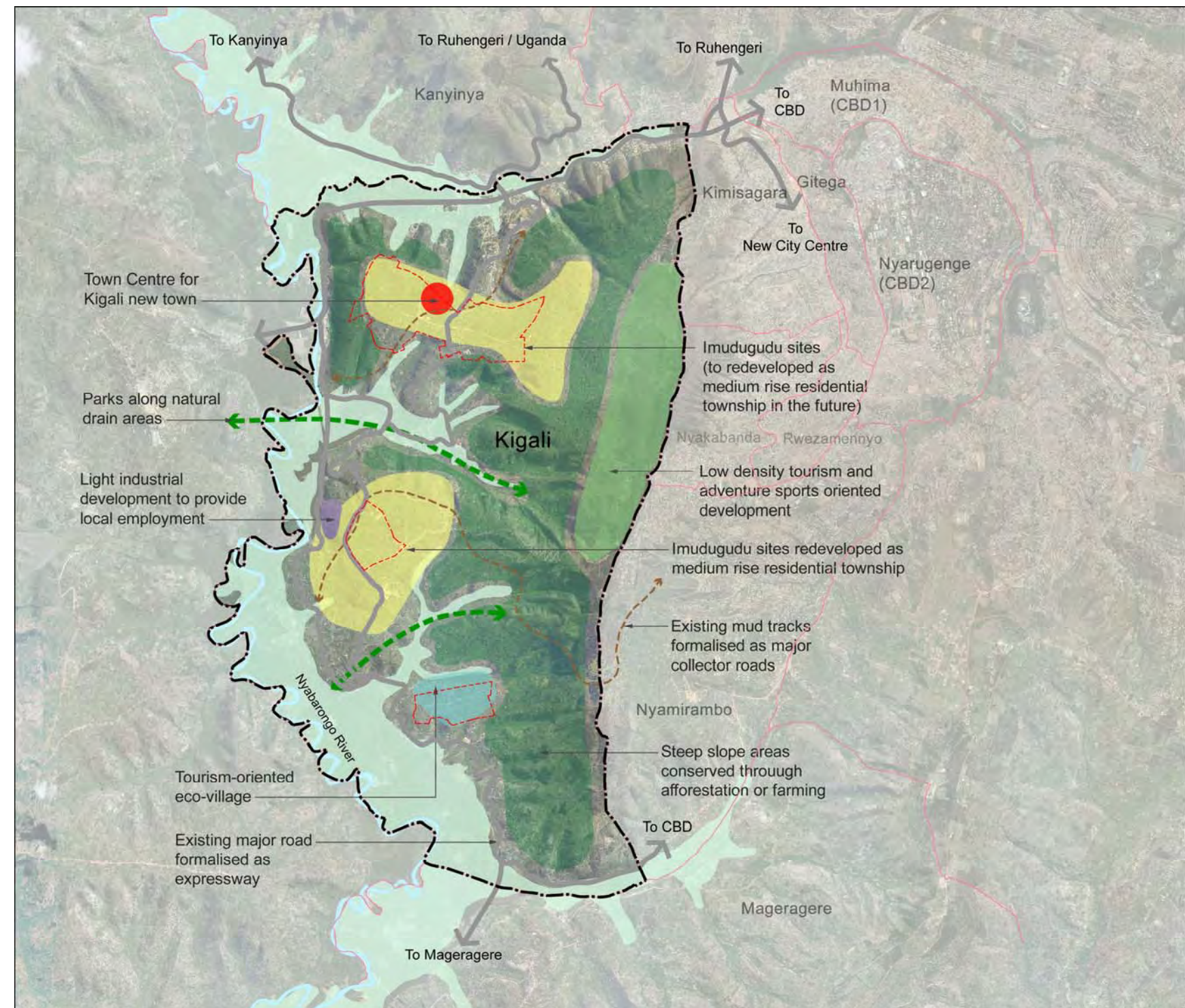


Figure 11.8: Kigali Sector - Concept Plan
Source: Surbana

11.5 Kigali Sector - Proposed Master Plan

Presented below is the Land Use Plan proposed for Kigali Sector.

11.5.1 Kigali Sector - Proposed Land Use Plan

The Land Use Plan aims to build upon the physical opportunities and constraints of the Sector and offers incentives for high density development. The key developments proposed in the Land Use Plan are:

- To allow for the development of a high density medium rise residential township on top of the hill.
- To allow for the development of single-family residential neighbourhoods as part of the township development.
- To develop recreational venues along the wetlands.
- To develop public facilities and commercial facilities to support the residential growth.
- To provide sufficient land for industries.
- To safeguard the areas of natural drainage courses as parks and green connectors.

Table 11.2: Kigali Sector - Land Use Data.

Broad Land Use	Legend	Detailed Land Use	Area (ha)*	(%)
Residential		Single Family Residential	97.72	3%
		Medium Rise Residential	239.96	8%
		Total Residential	337.68	11%
Commercial		Commercial General	22.01	1%
Public Facilities		Government Office	0.71	0%
		Educational Facilities	31.09	1%
		Religious Facilities	6.26	0%
		Health Facilities	12.28	0%
		Civic Facilities	0.61	0%
		Total Public Facilities	50.95	1%
Industries		Light Industries	18.56	1%
Open Space		Sports and Recreation	9.13	0%
		Open Space and Park	232.53	8%
		Total Open Space	241.66	8%
Agriculture		Agriculture	414.87	14%
Nature Area		Forest	955.30	32%
		Other Green	65.78	2%
		Wetland	605.67	20%
		Total Nature Area	1626.75	54%
Waterbody		River	48.89	2%
Infrastructure		Transport	188.60	6%
		Utilities	38.82	1%
		Total Infrastructure	227.42	7%
Special Use		Prison	5.58	0%
		Graveyard	29.49	1%
		Total Special Use	35.07	1%
Reserve Site	R	Reserve Site	8.94	0%
Grand Total			3,031.00	100%

*All site areas subject to final survey.

Source: *Surbana*

Based on the proposed Land Use Plan Kigali Sector is proposed to accommodate a population of 158,200 by Year X. Figure 11.9 presents the Proposed Land Use Plan Year 2020 and Figure 11.10 presents the Proposed Land Use Plan Year X for Kigali Sector.

11.5.2 Kigali Sector - Proposed Residential Use Plan

The flat areas on the hill top have been zoned for medium rise apartment developments with a mix of single family residential areas. These new residential townships, which are proposed to be developed by rezoning the umudugudu sites, will help address the future housing demand in the District.

Figure 11.11 presents the Proposed Residential Use Plan Year 2020 and Figure 11.12 presents the Proposed Residential Use Plan Year X for Kigali Sector

11.5.3 Kigali Sector - Proposed Commercial Use Plan

A series of local commercial nodes, proposed based on the Township Planning Model developed for Nyarugenge District (refer to Appendix 1), are provided to meet the daily requirements of the residents. The commercial sites in the umudugudu are proposed to be reutilised for the development of the new commercial centres.

A large town centre of 12.0 ha is proposed within the northern township, comprising of larger developments such as a shopping malls, retail facilities, government branch offices, a bus interchange, etc. Besides this, one neighbourhood centre, with a size of 1.2 ha, is proposed for every neighbourhood (3,000-4,000 DUs). These are located within a walking radius of 500 m from all residential developments and comprise of small scale retail shops to meet daily needs of the residents.

An industrial zone is integrated within the township to provide employment opportunities to the residents.

Figure 11.13 presents the Proposed Commercial Use Plan Year 2020 and Figure 11.14 presents the Proposed Commercial Use Plan Year X for Kigali Sector.

11.5.4 Kigali Sector - Proposed Public Facilities Plan

A range of public facilities would be provided within the townships and neighbourhoods, proposed based on the Township Planning Model developed for Nyarugenge District (refer to Appendix 2), to meet the daily requirements of the residents. Larger facilities such as a vocational training institute, and hospitals would form a part of the Town Centre. Public facilities such as health centres, community halls and churches etc. are integrated with the neighbourhood centre. The public facility sites in the umudugudu are proposed to be reutilised for the development of the new public facilities. A large 800 ha site located centrally in the Sector is allocated for a land fill site and is adequately buffered.

Figure 11.15 presents the Proposed Public Facilities Plan Year 2020 and Figure 11.16 presents the Proposed Public Facilities Plan Year X for Kigali Sector.

11.5.5 Kigali Sector - Proposed Green and Open Spaces Plan

The large areas under natural constraints are utilised for recreation and tourism. The forested areas along the ridge and steep slopes are proposed as venues for resort, camping and adventure sport activities. The low-lying areas along the wetlands are proposed to be developed as wetland parks. The steep unbuildable slopes and areas along natural drainage courses within the townships are proposed to be developed as large town park and smaller neighbourhood parks. This would not only form a part of the storm water management system, but also offer recreational venues for residents and offer pedestrian and bicycle connectivity across the Sector. These parks are proposed as part of the larger green connector network proposed for the District. A sports field is added to every township. The buildable areas around the umudugudu would continue to be used for agriculture, till the time they are rezoned for township development.

Figure 11.17 presents the proposed Green and Open Spaces Plan Year 2020 and Figure 11.18 presents the proposed Green and Open Spaces Plan Year X for Kigali Sector.

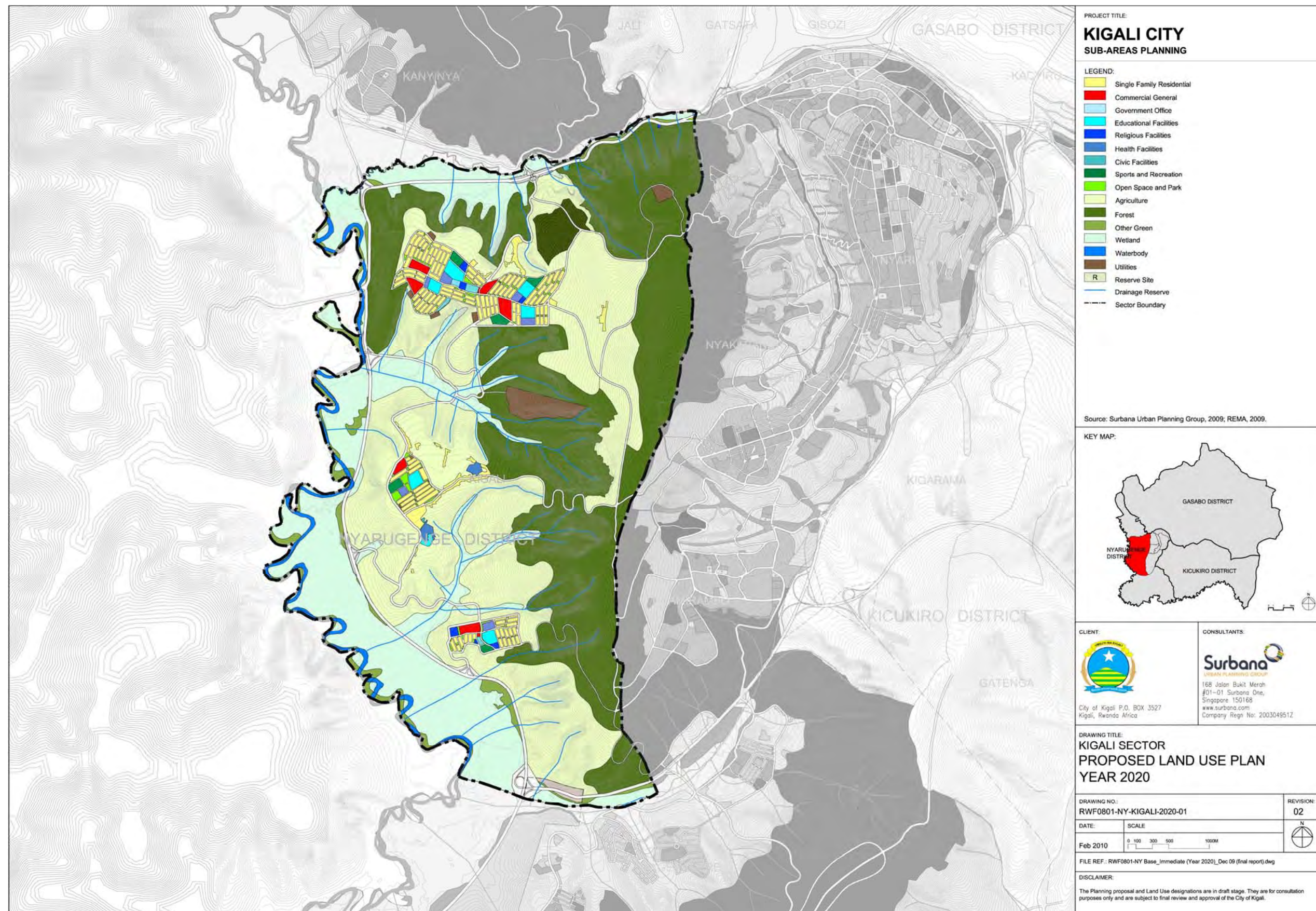


Figure 11.9: Kigali Sector - Proposed Land Use Plan Year 2020
Source: Surbana

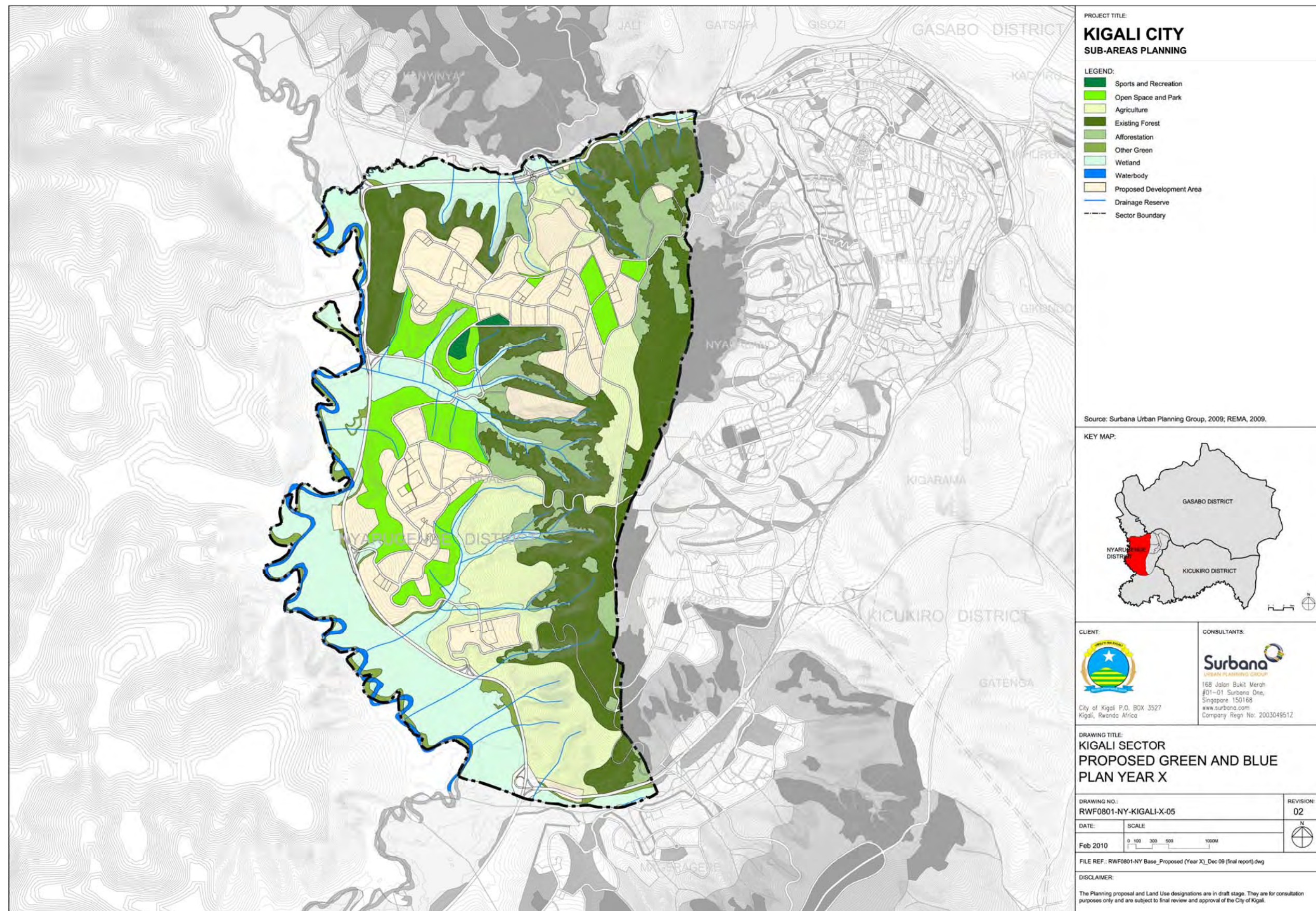


Figure 11.10: Kigali Sector - Proposed Land Use Plan Year X
Source: Surbana

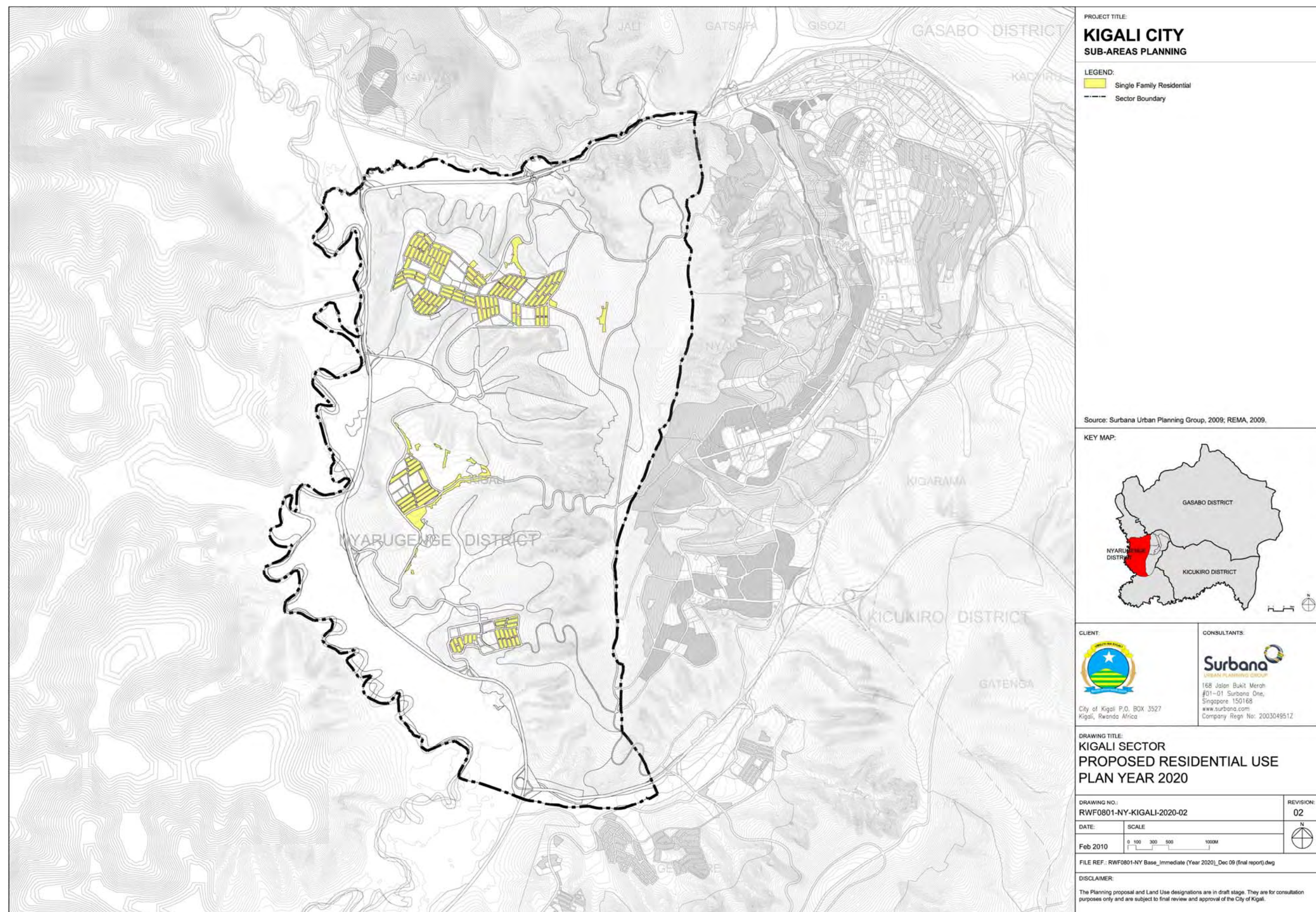


Figure 11.11: Kigali Sector: Proposed Residential Use Plan Year 2020
 Source: Surbana

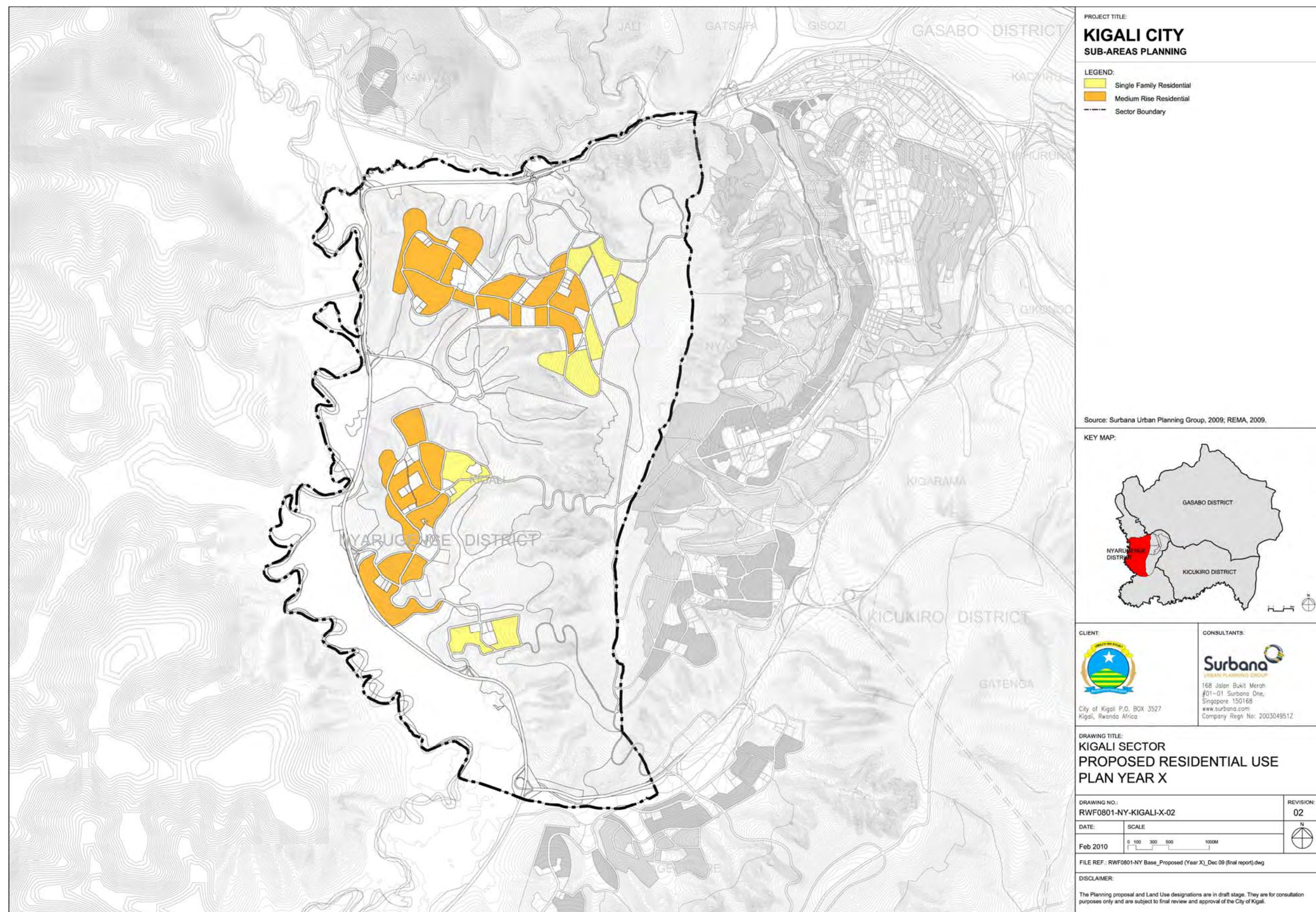


Figure 11.12: Kigali Sector: Proposed Residential Use Plan Year X
 Source: Surbana

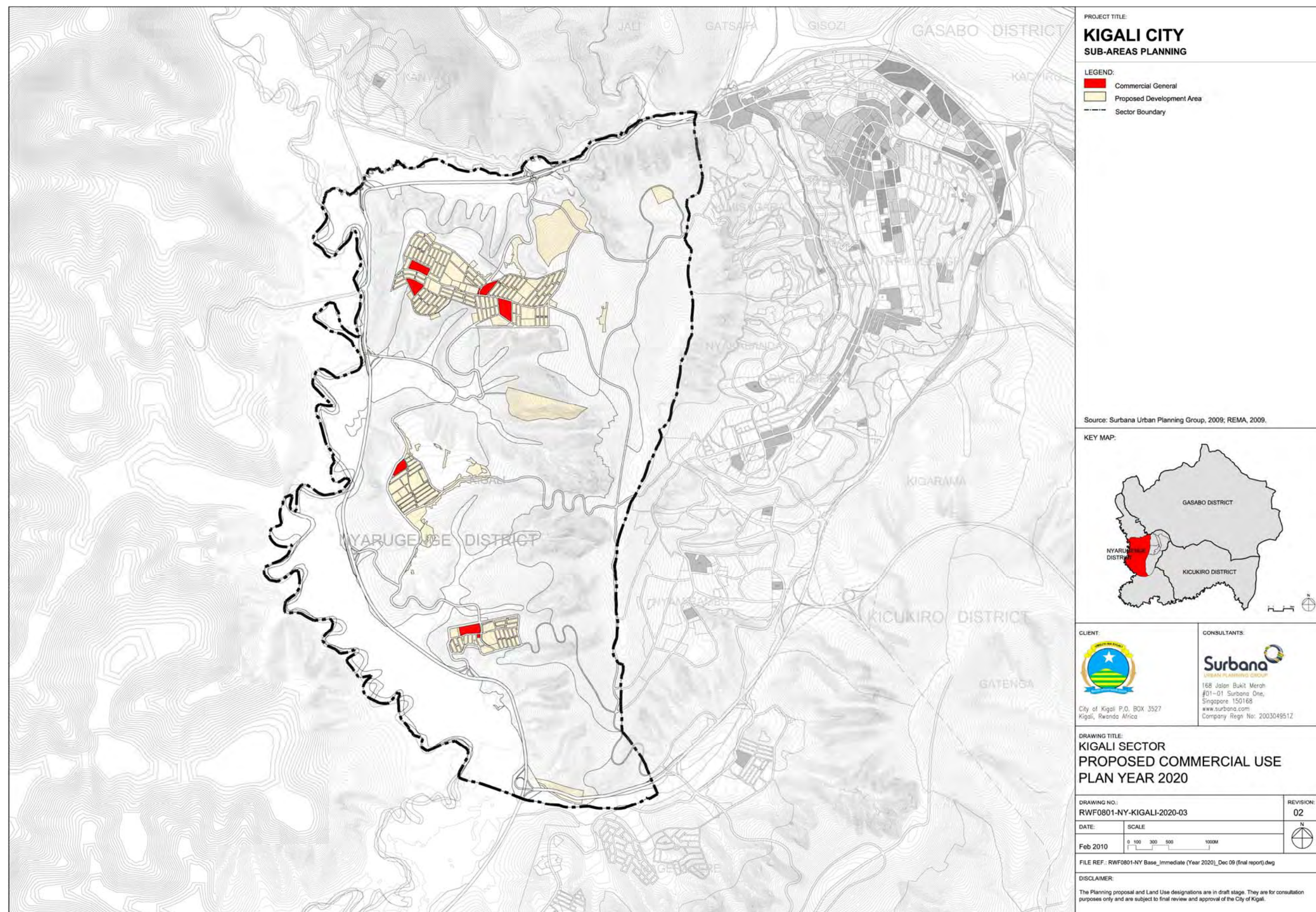


Figure 11.13: Kigali Sector: Proposed Commercial Use Plan Year 2020
 Source: Surbana

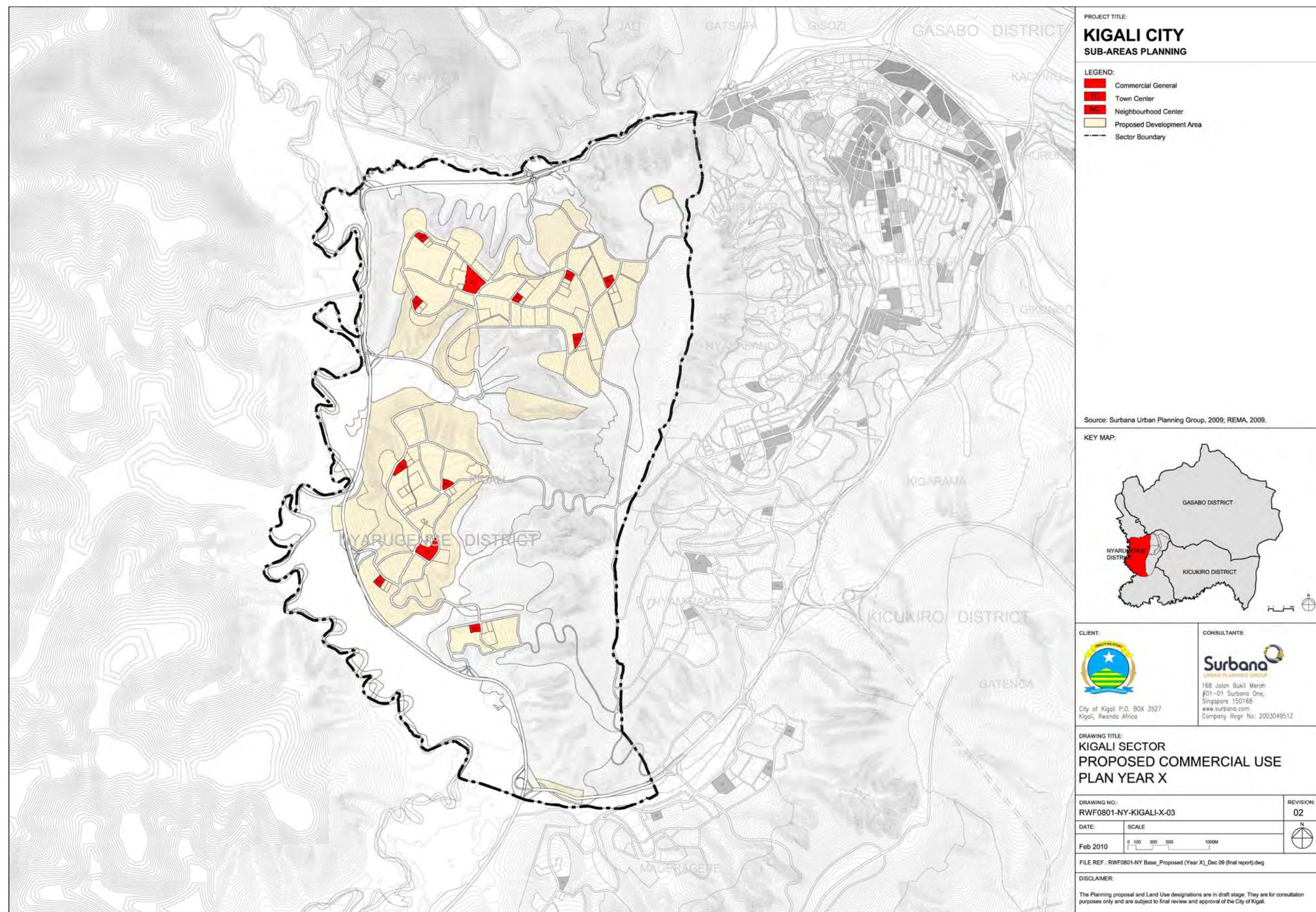


Figure 11.14: Kigali Sector: Proposed Commercial Use Plan Year X
 Source: Surbana

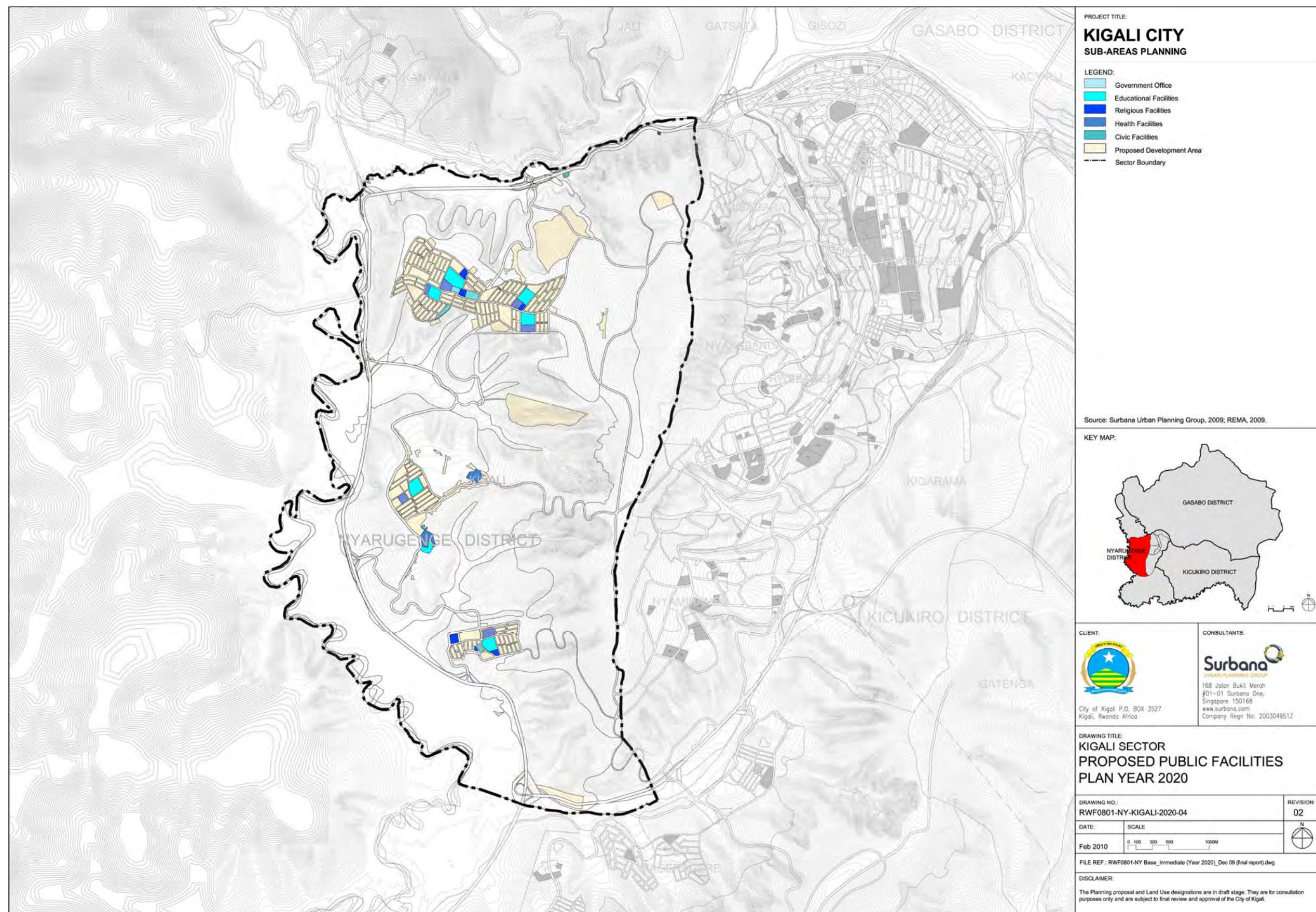


Figure 11.15: Kigali Sector: Proposed Public Facilities Plan Year 2020
Source: Surbana

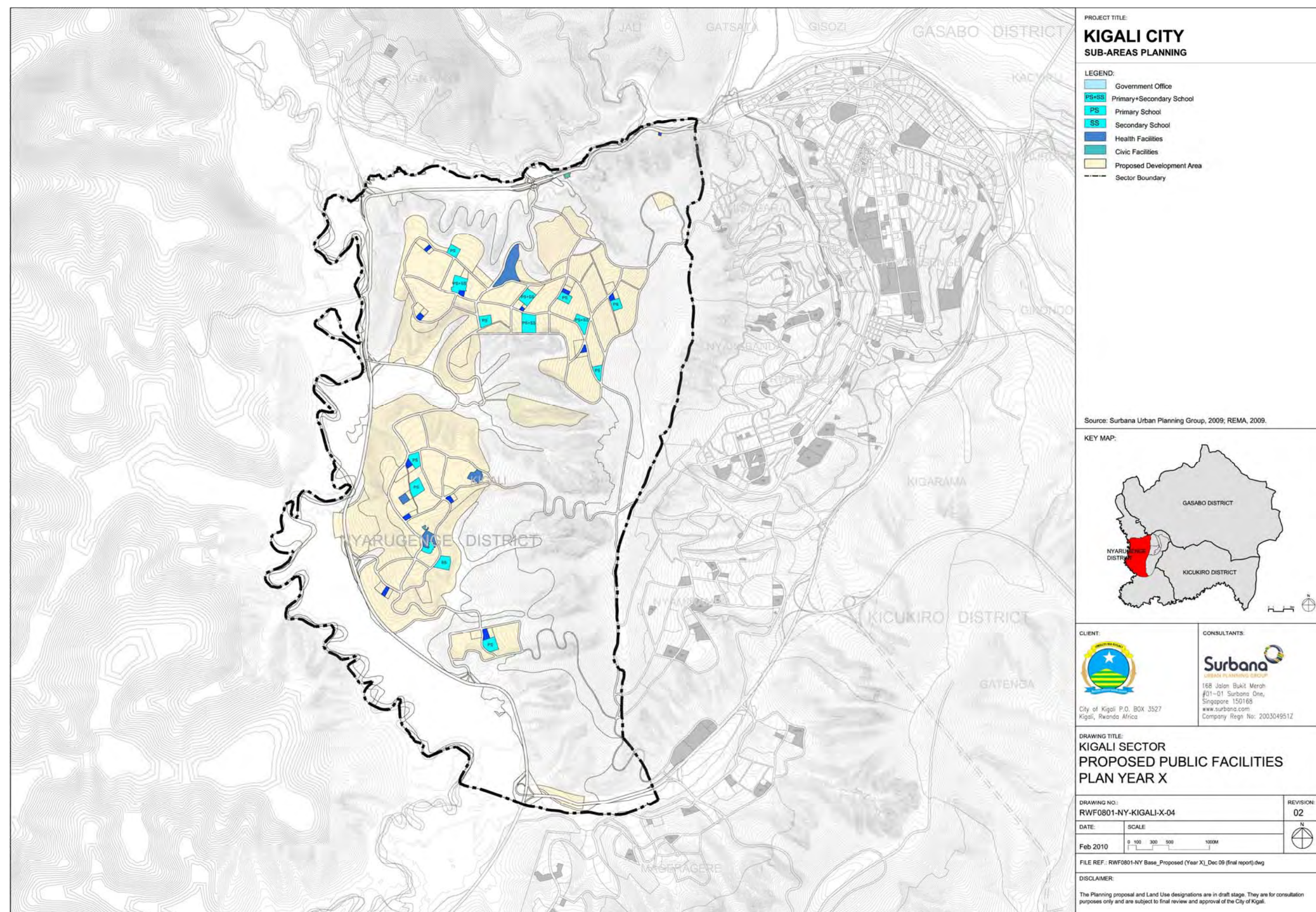


Figure 11.16: Kigali Sector: Proposed Public Facilities Plan Year X
Source: Surbana

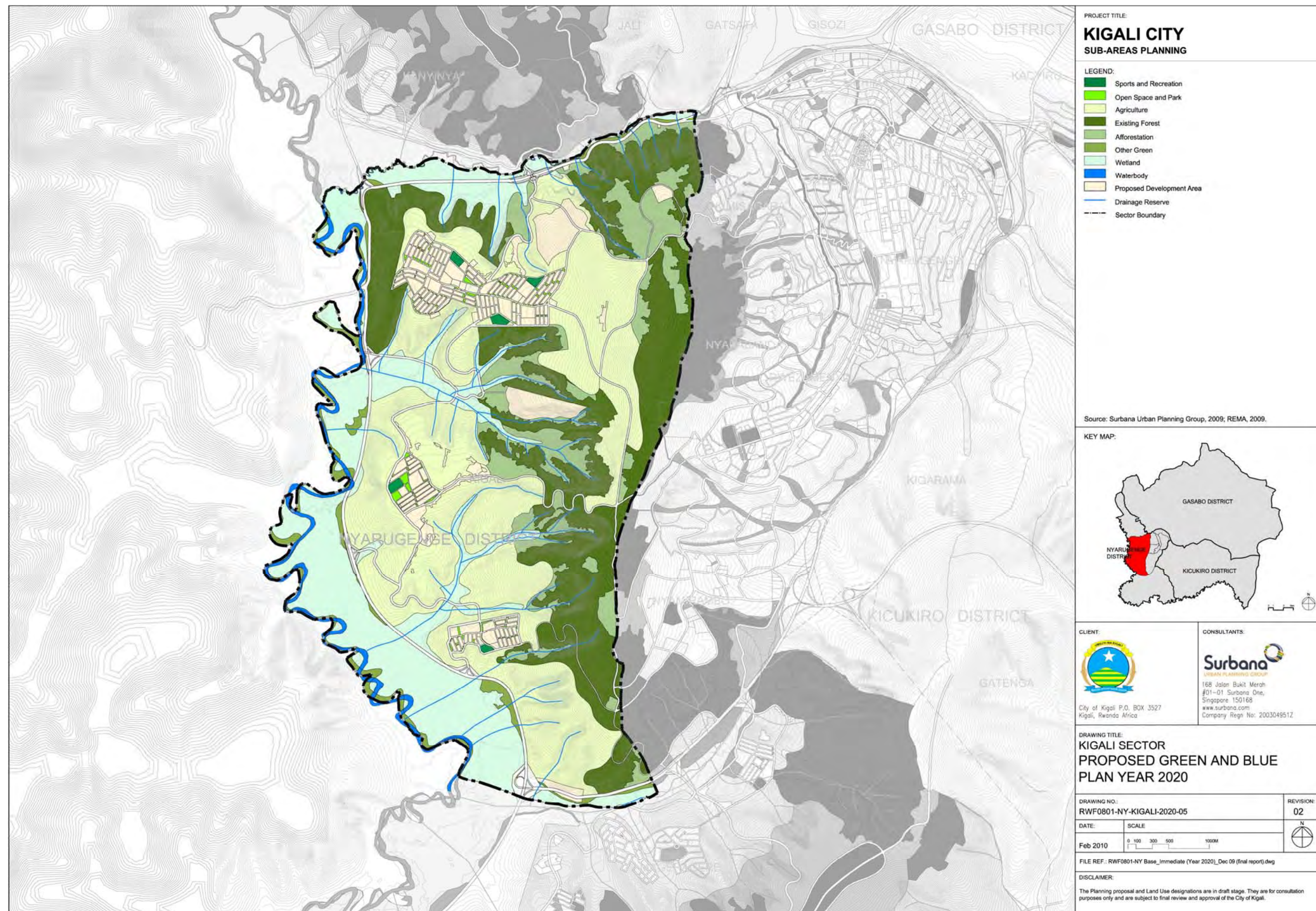


Figure 11.17: Kigali Sector: Proposed Green and Blue Plan Year 2020
Source: Surbana

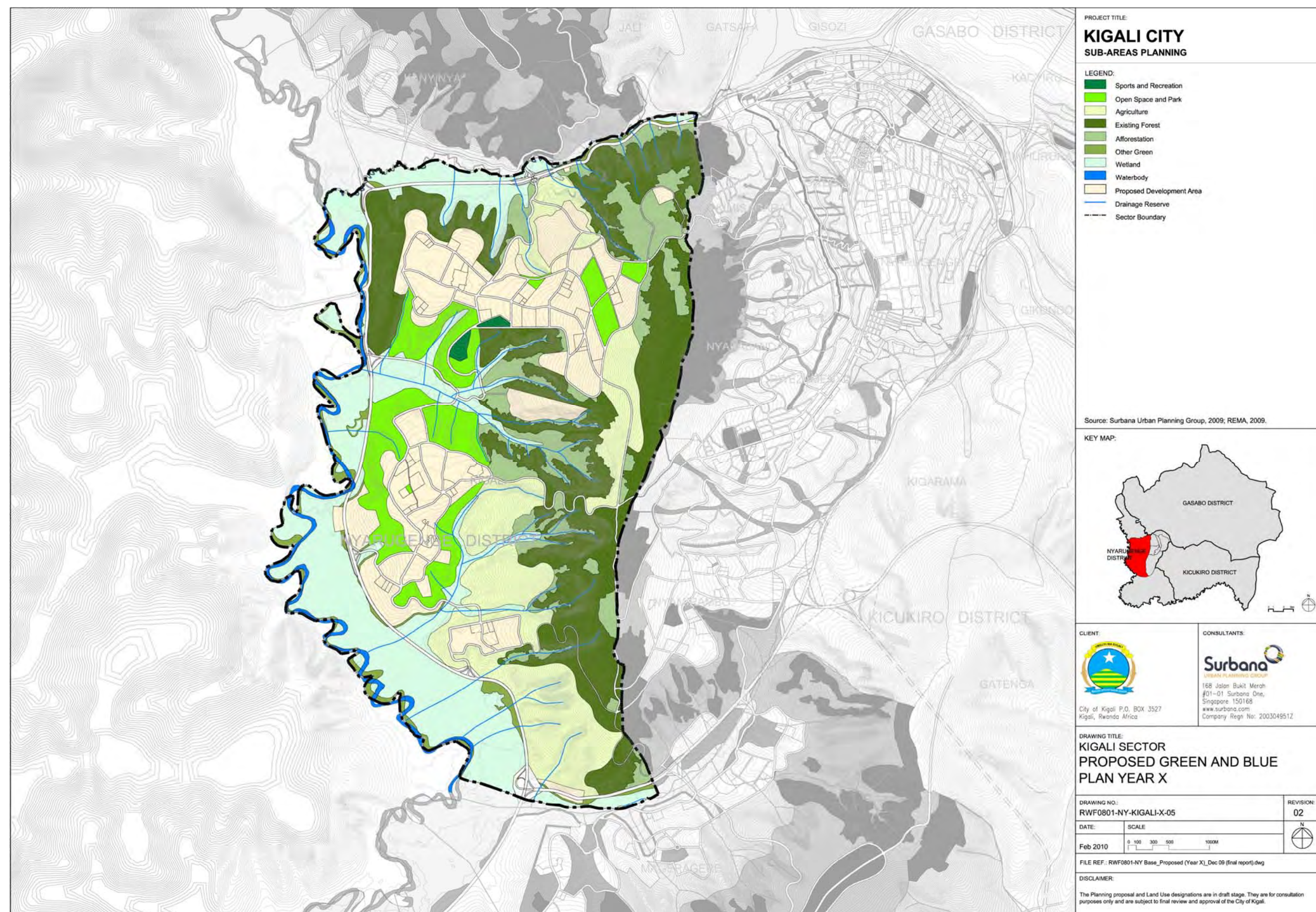


Figure 11.18: Kigali Sector: Proposed Green and Blue Plan Year X
Source: Surbana

CHAPTER 12: DETAILED MASTER PLAN FOR MAGERAGERE SECTOR

This chapter presents the detailed Master Plan for Mageragere Sector. Based on the analysis of the existing context, opportunities and constraints, a vision and concept are derived which guide the development of the Master Plan and the design of the key features within the Sector.

12.1 Mageragere Sector - Context

- **Planning Area:** The total area of Mageragere is 5,502 ha.



Figure 12.1: Mageragere Sector - Location Plan.
Source: Surbana

- **Location and Connectivity:** Mageragere Sector is the southernmost sector of the District. Its northern parts are connected to the CBD by dirt roads, which pass via Nyamirambo Sector. The rest of the Sector has limited connectivity, mainly in the form of irregular mud tracks. The new City Centre proposed in Gahanga in Kicukiro District is located along its eastern border. Nyamirambo and Kigali Sectors lie to the north of the Sector.
- **Existing Site Conditions:** Mageragere is largely unoccupied, except for the few housing settlements and small public facilities along the relatively flatter slopes of the Sector. Farming occurs on a large scale along the wetlands to the north and to the west. A 800 ha site in the northwest of the Sector has been allocated for the relocation of the central prison.

Table 12.1: Mageragere Sector – Population Projection.

Area	Existing Population (2006)	Projected Population (2020)
Kigali City	1,085,000	1,988,000
Mageragere Sector	18,587	34,414

Source: TAMA 2006: Population by Sector, KCMP Existing Conditions Analysis

- **Natural Constraints:** The Sector has a highly undulating topography, with only 35% of the total land area being developable and most of the land being in areas of steep unbuildable slopes or covered by forest, vegetation or wetlands (refer to Figure 12.2). A linear ridge runs east west in the middle of the Sector dividing it into the northern and southern halves. Large wetland areas surround the Sector to the north, west and south. The Nyabarongo skims the western and southern edge of the Sector. The deep valleys formed along the natural runoff courses of the Sector and are covered with natural vegetation. The upper areas are in the form of densely vegetated steep slopes. Figure 12.5 presents the existing Context Plan of Mageragere Sector.

12.2 Mageragere Sector - Opportunities and Constraints

- **Opportunities:** the large pockets of flat land along the wetlands offer an opportunity to develop high density townships. In particular the area in the southeast, adjacent to the future City Centre in Gahanga has a large developable site, which can be developed as a new township leveraging on its prime location. The area in between Nyamirambo and Mageragere Sectors offers an opportunity for the development of a new district centre, which is centrally located from the CBD and the new City Centre. The densely forested areas along the ridge as well as the wetland and river offer abundant opportunities for the development of tourism and recreational activities. The approved umudugudu projects and the included public facilities offer an opportunity for redevelopment into higher density developments.
- **Constraints:** A large part of the Sector is under natural constraints - steep slopes, forests and wetlands, which need to be conserved. There is a lack of roads and infrastructure provision within the Sector. The major roads, services and public facilities proposed as part of the umudugudu developments would need to be retained or redeveloped at the time of future development. A 800 ha site allocated for the relocation of the Central Prison needs to be retained.

Figure 12.6 presents the Opportunities Plan and Figure 12.7 presents the Constraints Plan for Mageragere Sector.

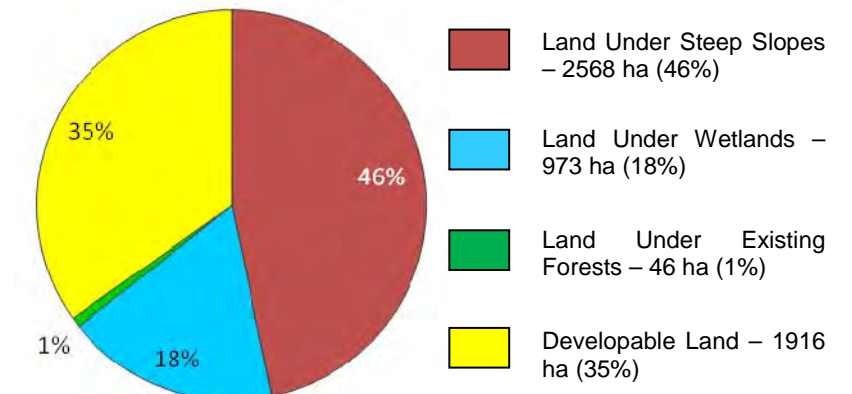


Figure 12.2: Mageragere Sector - Land under Natural Constraints.
Source: KCMP; 2007.



Figure 12.3: Mageragere Sector - Existing Topography.
Source: Surbana



Sector Office.



Approach road into Kankuba.



View of Nyabarongo River from the peak.



Existing residential street in the south of the sector.

Figure 12.4: Mageragere Sector - Existing Context.
Source: Surbana

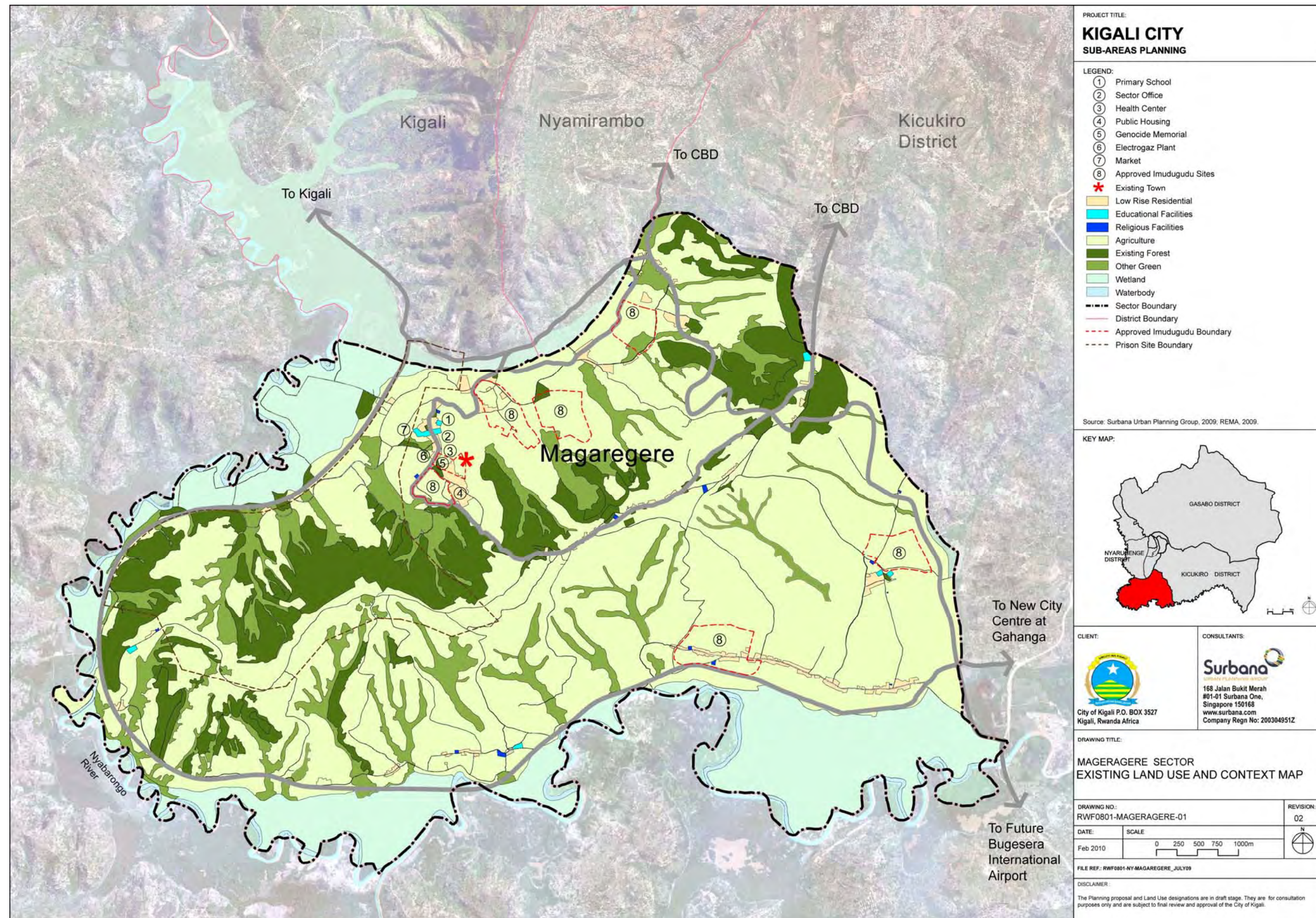


Figure 12.5: Mageragere Sector - Existing Land Use and Context Map.
Source: Surbana

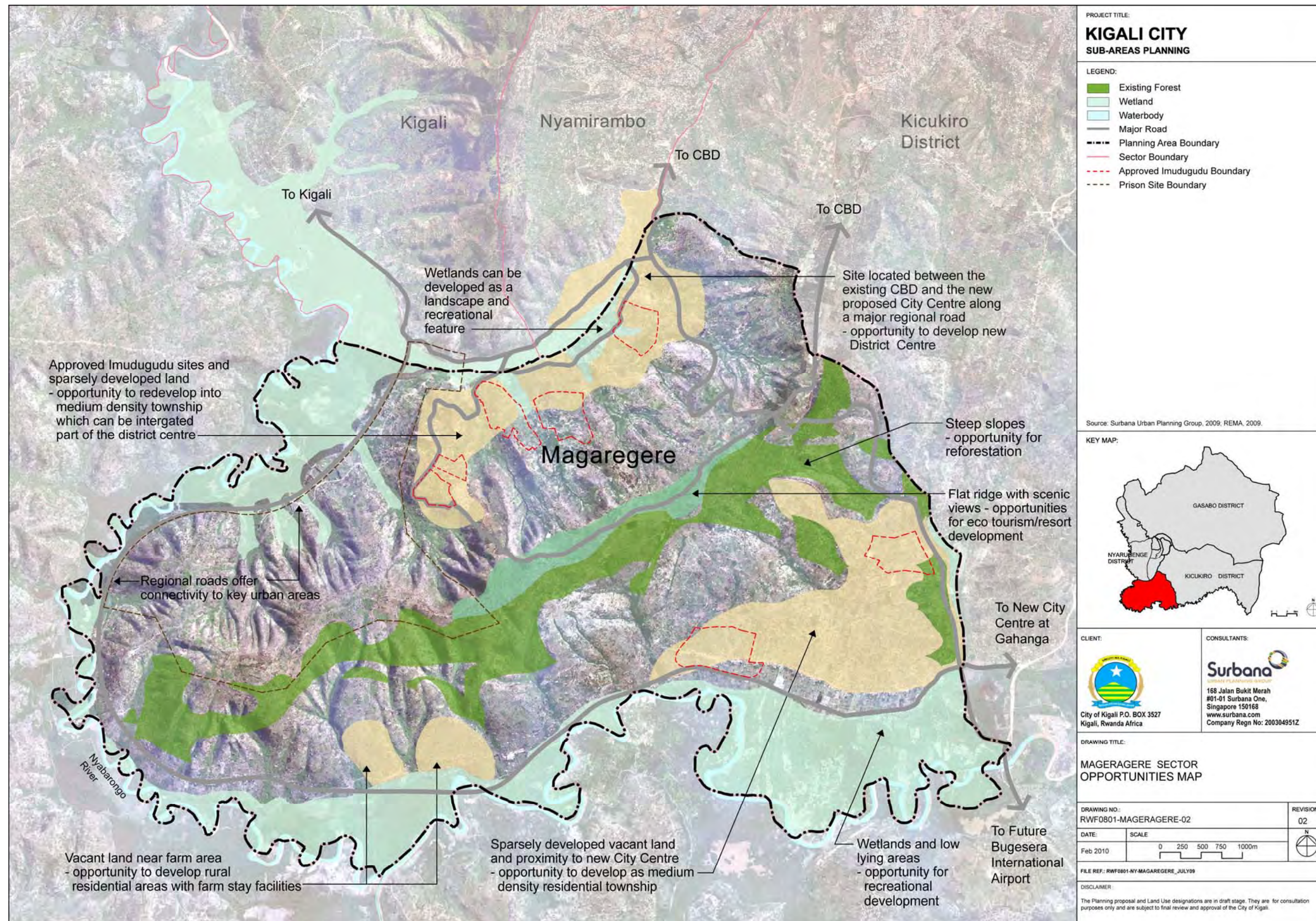


Figure 12.6: Mageragere Sector - Opportunities Map.
Source: Surbana

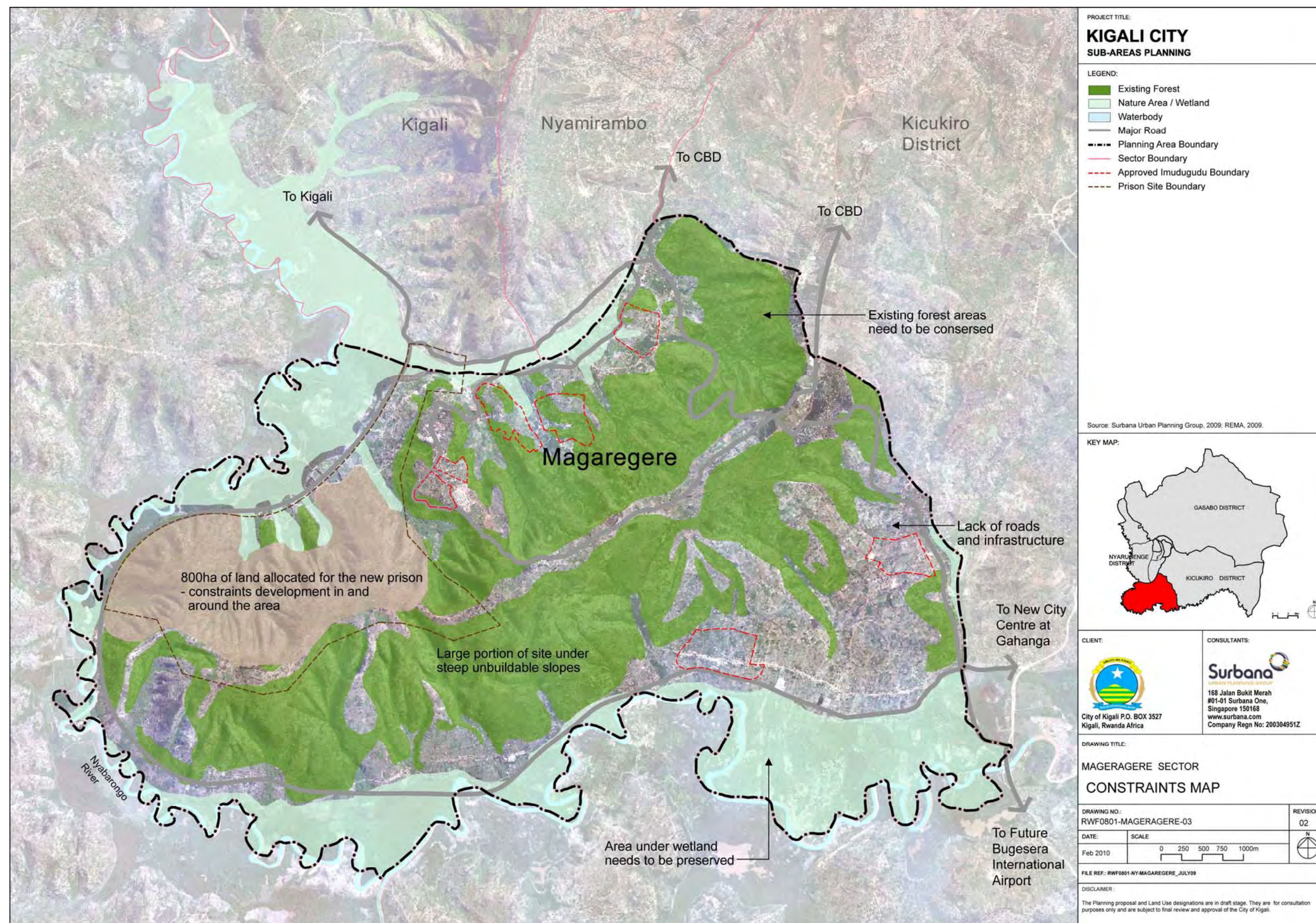


Figure 12.7: Mageragere Sector - Constraints Map.
Source: Surbana

12.3 Mageragere Sector - Proposed Vision

'Southern Gateway'



Mageragere Sector is envisioned to become the gateway to Kigali from the future Bugesera Airport in the south, with large flourishing townships in close proximity to the new City Centre. Mageragere would also become a tourism and recreation destination offering scenic resort and adventure sports activities leveraging on the scenic views, unique natural assets and its strategic location within its surrounding context.

12.4 Mageragere Sector - Proposed Concept

Based on the existing context, the opportunities and constraints as well as the proposed vision, a development concept has been proposed for Mageragere, as illustrated in Figure 12.8. The key proposals of the concept plan are as follows:

- To allow for the development of a new District Centre in between Nyamirambo and Mageragere Sectors housing district level public facilities.
- To rezone the approved umudugudu developments as well as the buildable areas around them as high density, medium rise residential townships. To allow for adequate commercial facilities and supporting light industrial activities.
- To allow for development of luxury resorts and adventure sports activities along the ridge of the hill. To allow for the development of an eco-village for eco-tourism.
- To provide adequate public facilities to serve the residential as well as tourist developments.
- To provide efficient transportation and infrastructure systems.

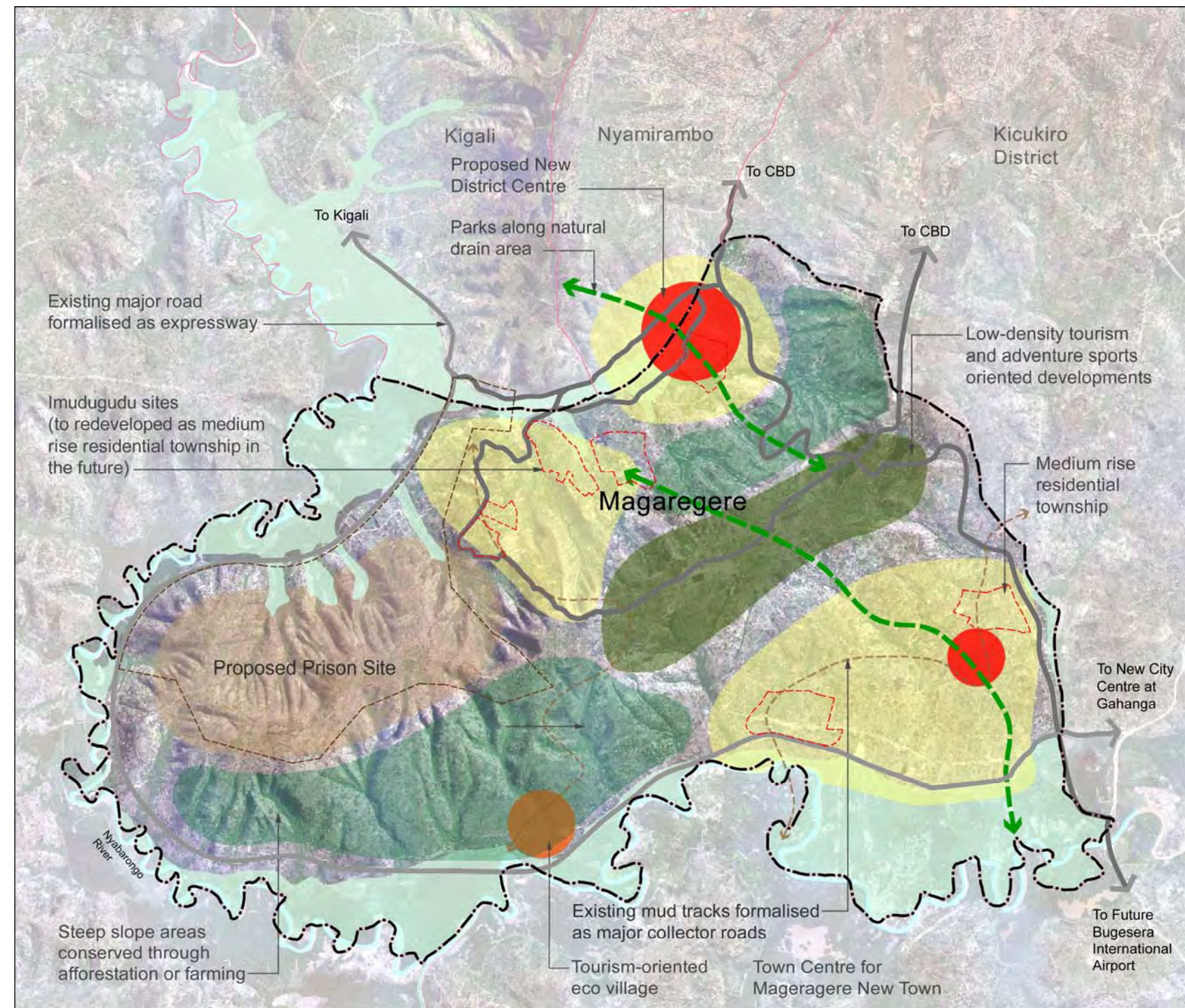


Figure 12.8: Mageragere Sector - Concept Plan.
Source: *Surbana*

12.5 Mageragere Sector - Proposed Master Plan

The development concept is further refined and developed into the Detailed Master Plan for Mageragere Sector. Presented below is the Land Use Plan proposed for Mageragere Sector.

12.5.1 Mageragere Sector - Proposed Land Use Plan

The Land Use Plan aims to build upon the physical opportunities and constraints of the Sector and offers incentives for high density development. The key developments proposed in the Land Use Plan are:

- To allow for the development of a civic and commercial node for developing large scale district level developments.
- To allow for the development of a high density medium rise residential township along the wetlands, on the north as well as in the south east, close to the new City Centre. To allow for the development of single-family residential neighbourhoods as part of the township development.
- To allow for the development of an eco-village in the south offering farm stay and eco-tourism activities. To allow for the development of tourism, resort and active recreation facilities along the ridge. To develop attractive recreational venues along the wetlands.
- To develop public facilities and commercial facilities to support the residential growth.
- To provide sufficient land for industries.
- To safeguard the areas of natural drainage courses as parks and green connectors.

Based on the proposed Land Use Plan Mageragere Sector is proposed to accommodate a population of 194,800 by Year X. Figure 12.9 presents the Proposed Land Use Plan Year 2020 and Figure 12.10 presents the Proposed Land Use Plan Year X for Mageragere Sector.

Table 12.2: Mageragere Sector - Land Use Data.

Broad Land Use	Legend	Detailed Land Use	Area (ha)*	(%)
Residential		Single Family Residential	166.34	3%
		Medium Rise Residential	312.05	6%
		Total Residential	478.39	9%
Commercial		Commercial General	34.43	1%
Public Facilities		Government Office	0.98	0%
		Educational Facilities	50.88	1%
		Religious Facilities	6.51	0%
		Health Facilities	0.31	0%
		Civic Facilities	2.97	0%
		Total Public Facilities	61.65	1%
Industries		Light Industries	12.56	0%
Open Space		Sports and Recreation	145.26	3%
		Open Space and Park	260.28	5%
		Total Open Space	405.54	8%
Agriculture		Agriculture	864.61	16%
Nature Area		Forest	1376.02	24%
		Other Green	226.86	4%
		Wetland	864.78	16%
		Total Nature Area	2467.66	44%
Waterbody		River	67.52	1%
Infrastructure		Transport	256.20	5%
		Utilities	20.34	0%
		Total Infrastructure	276.54	5%
Special Use		Prison	781.60	14%
		Graveyard	42.27	1%
		Total Special Use	823.87	15%
Reserve Site	R	Reserve Site	9.46	0%
Grand Total			5,502.00	100%

*All site areas subject to final survey.

Source: *Surbana*

12.5.2 Mageragere Sector - Proposed Residential Use Plan

The flat areas along the wetlands have been zoned for medium rise apartment developments with a mix of single family residential areas. These new residential townships, which are proposed to be developed by rezoning the umudugudu sites, will help address the future housing demand in the District. Figure 12.11 presents the Proposed Residential Use Plan Year 2020 and Figure 12.12 presents the Proposed Residential Use Plan Year X for Mageragere Sector.

12.5.3 Mageragere Sector - Proposed Commercial Use Plan

While the new District Centre would meet the larger needs of the population, a series of smaller commercial nodes, proposed based on the Township Planning Model developed for Nyarugenge District (refer to Appendix 1), would meet the daily requirements of the residents. The commercial sites in the umudugudu are proposed to be reutilised for the development of the new commercial centres.

A large town centre of 12.0 ha is proposed within the southern township, comprising of larger developments such as a shopping malls, retail facilities, government branch offices, a bus interchange, etc. Besides this, one neighbourhood centre, with a size of 1.2 ha, is proposed for every neighbourhood (3,000-4,000 DUs). These are located within a walking radius of 500 m from all residential developments and comprise of small scale retail shops to meet daily needs of the residents. An industrial zone is integrated within the township to provide employment opportunities to the residents. Figure 12.13 presents the Proposed Commercial Use Plan Year 2020 and Figure 12.14 presents the Proposed Commercial Use Plan Year X for Mageragere Sector.

12.5.4 Mageragere Sector - Proposed Public Facilities Plan

A range of public facilities would be provided within the townships and neighbourhoods, proposed based on the Township Planning Model developed for Nyarugenge District (refer to Appendix 2), to meet the daily requirements of the residents. Larger facilities such as a vocational training institute, and hospitals would form a part of the Town Centre. Public facilities such as health centres, community halls and churches etc. are integrated with the neighbourhood centre. The public facility sites in the umudugudu are proposed to be reutilised for the development of the new public facilities. A large 800 ha site on the northwest of the Sector is allocated for the relocation of the central prison and is adequately buffered. Figure 12.15 presents the Proposed Public Facilities Plan Year 2020 and Figure 12.16 presents the Proposed Public Facilities Plan Year X for Mageragere Sector.

12.5.5 Mageragere Sector - Proposed Green and Open Spaces Plan

The large areas under natural constraints are utilised for recreation and tourism. The forested areas along the ridge and steep slopes are proposed as venues for resort, camping and adventure sport activities. The low-lying areas along the wetlands are proposed to be developed as wetland parks. The steep unbuildable slopes and areas along natural drainage courses within the townships are proposed to be developed as large town park and smaller neighbourhood parks. This would not only form a part of the storm water management system, but also offer recreational venues for residents and offer pedestrian and bicycle connectivity across the Sector. These parks are proposed as part of the larger green connector network proposed for the District. A sports field is added to every township. The buildable areas around the umudugudu would continue to be used for agriculture, till the time they are rezoned for township development. Figure 12.17 presents the proposed Green and Open Spaces Plan Year 2020 and Figure 12.18 presents the proposed Green and Open Spaces Plan Year X for Mageragere Sector.

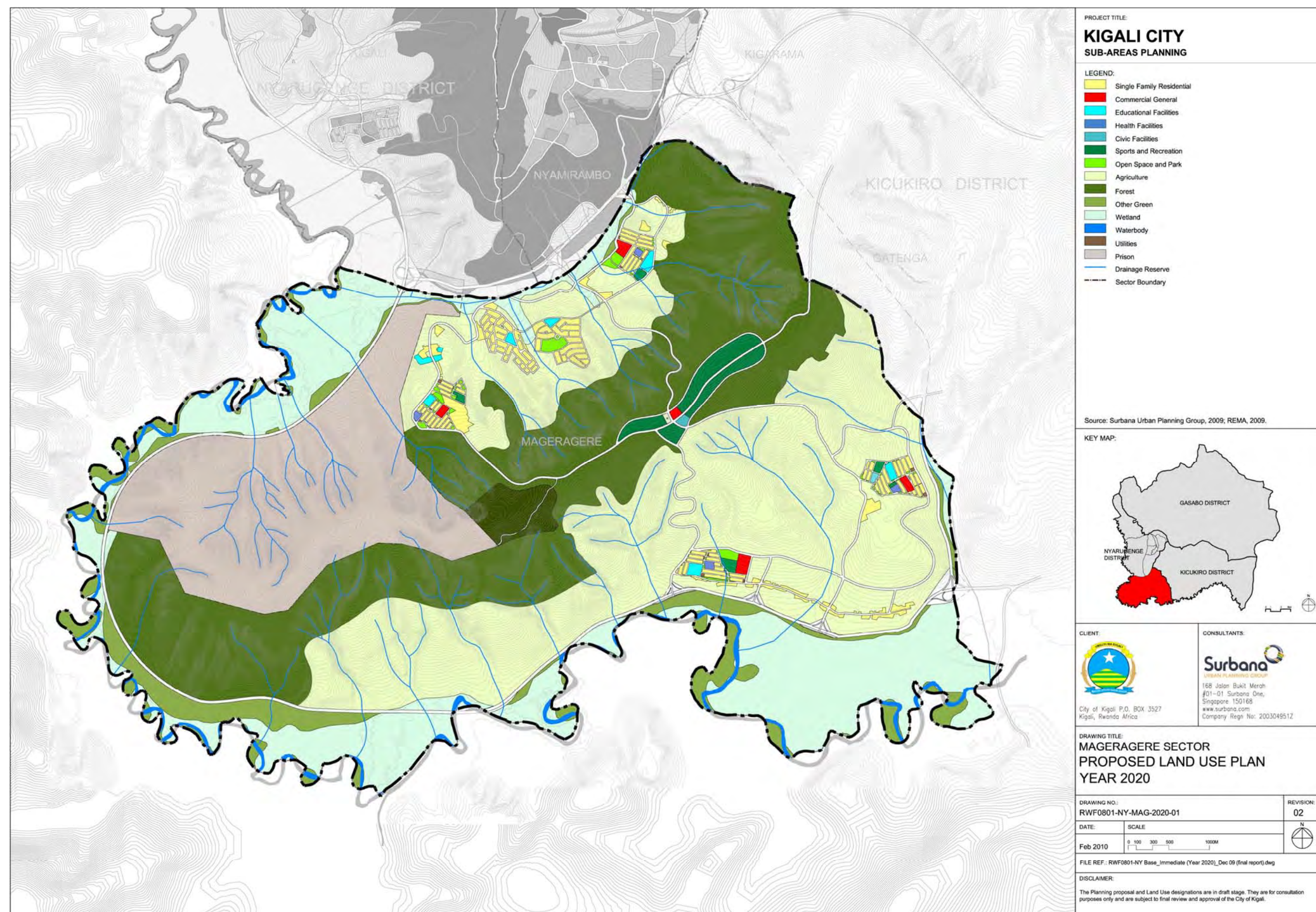


Figure 12.9: Mageragere Sector - Proposed Land Use Plan Year 2020
Source: Surbana

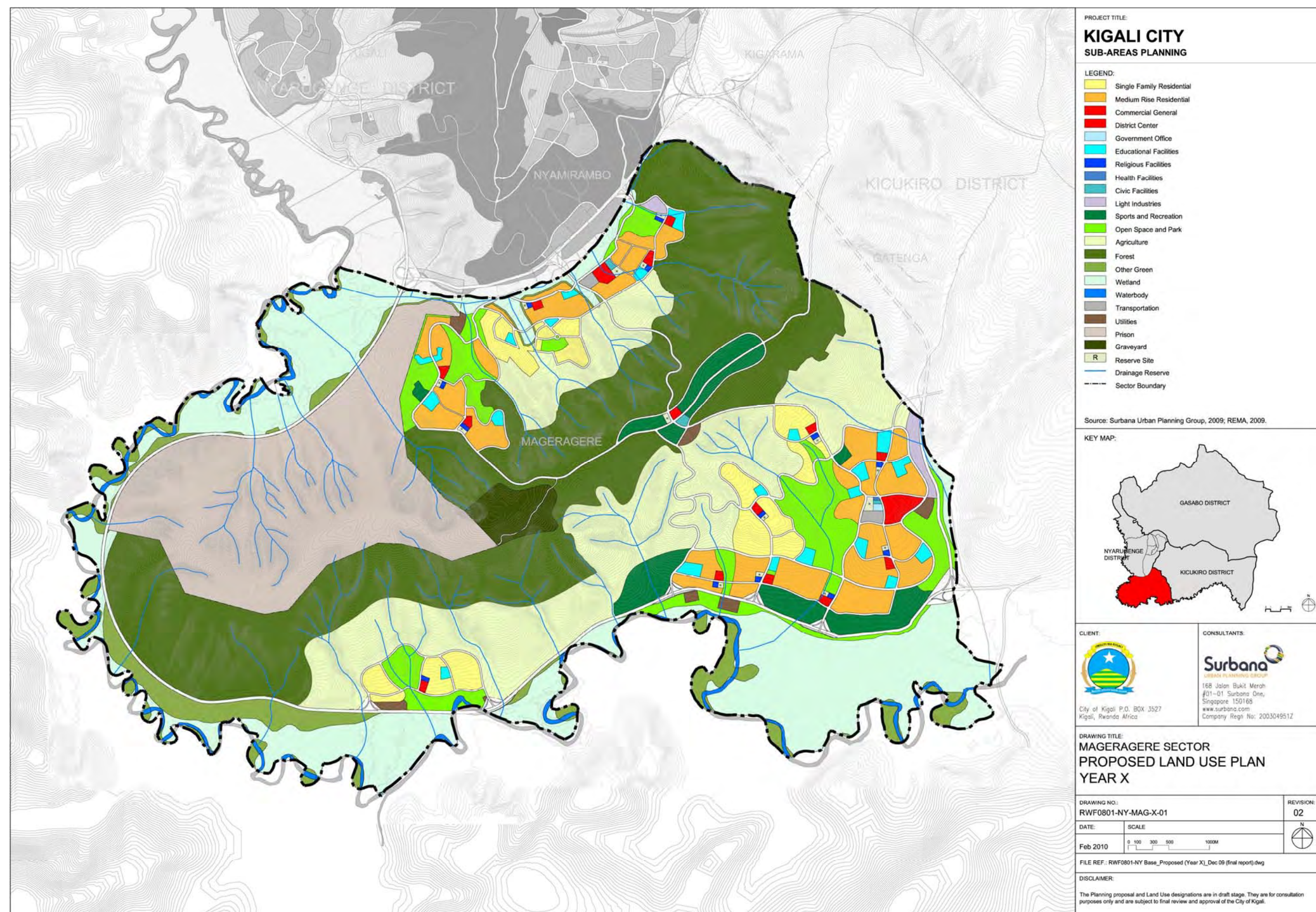


Figure 12.10: Mageragere Sector - Proposed Land Use Plan Year X
Source: Surbana

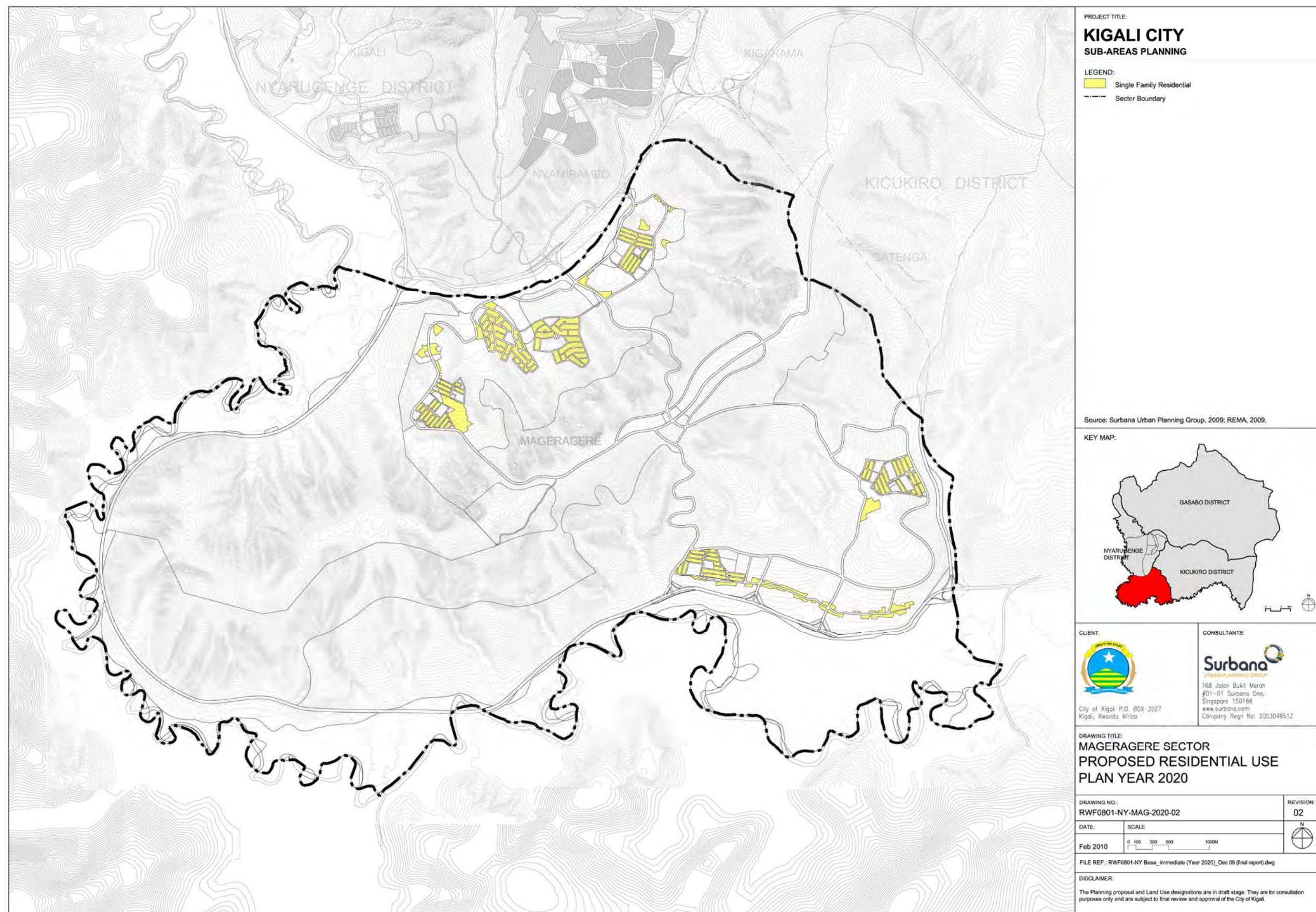


Figure 12.11: Mageragere Sector: Proposed Residential Use Plan Year 2020
 Source: Surbana

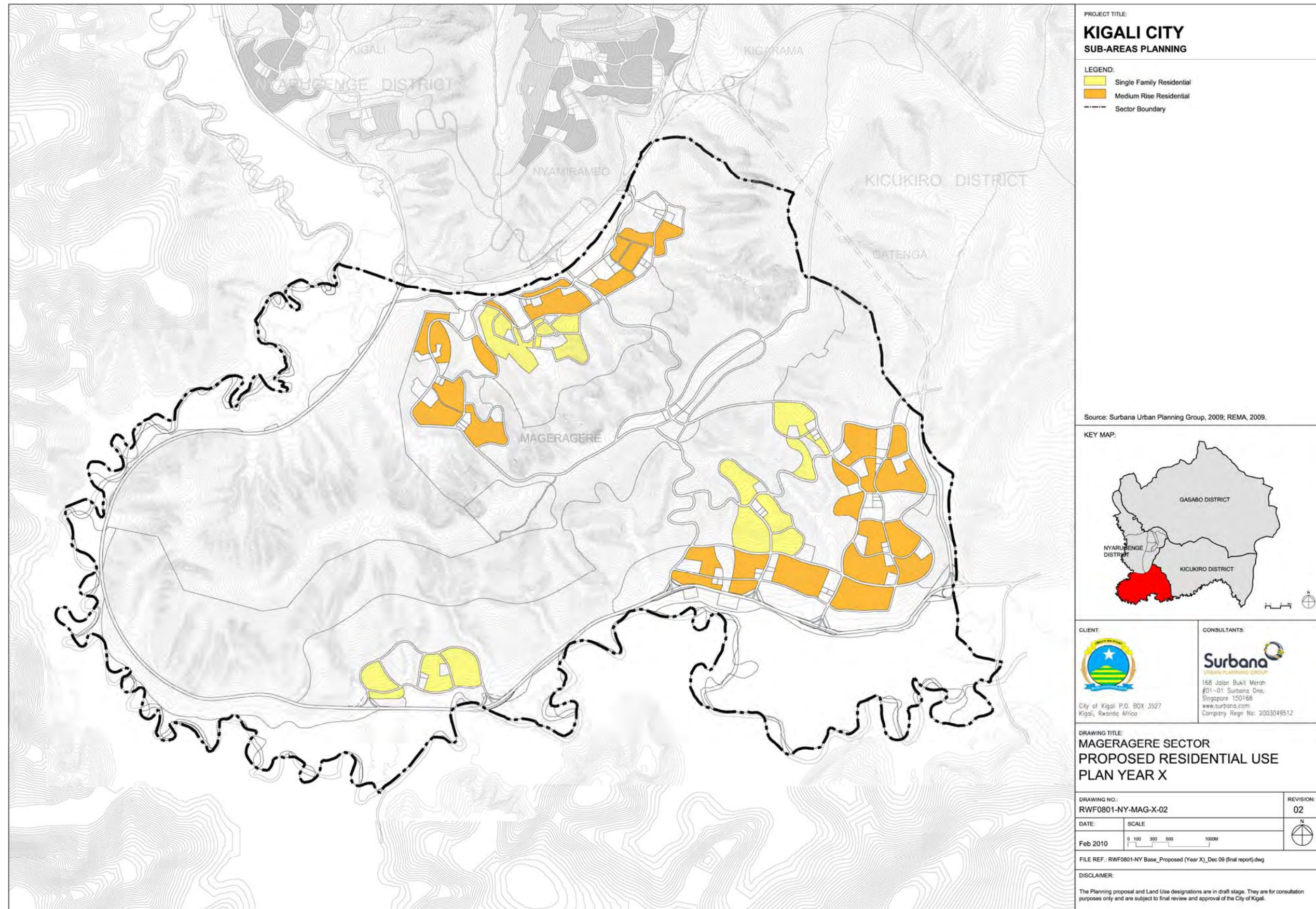


Figure 12.12: Mageragere Sector: Proposed Residential Use Plan Year X
 Source: Surbana

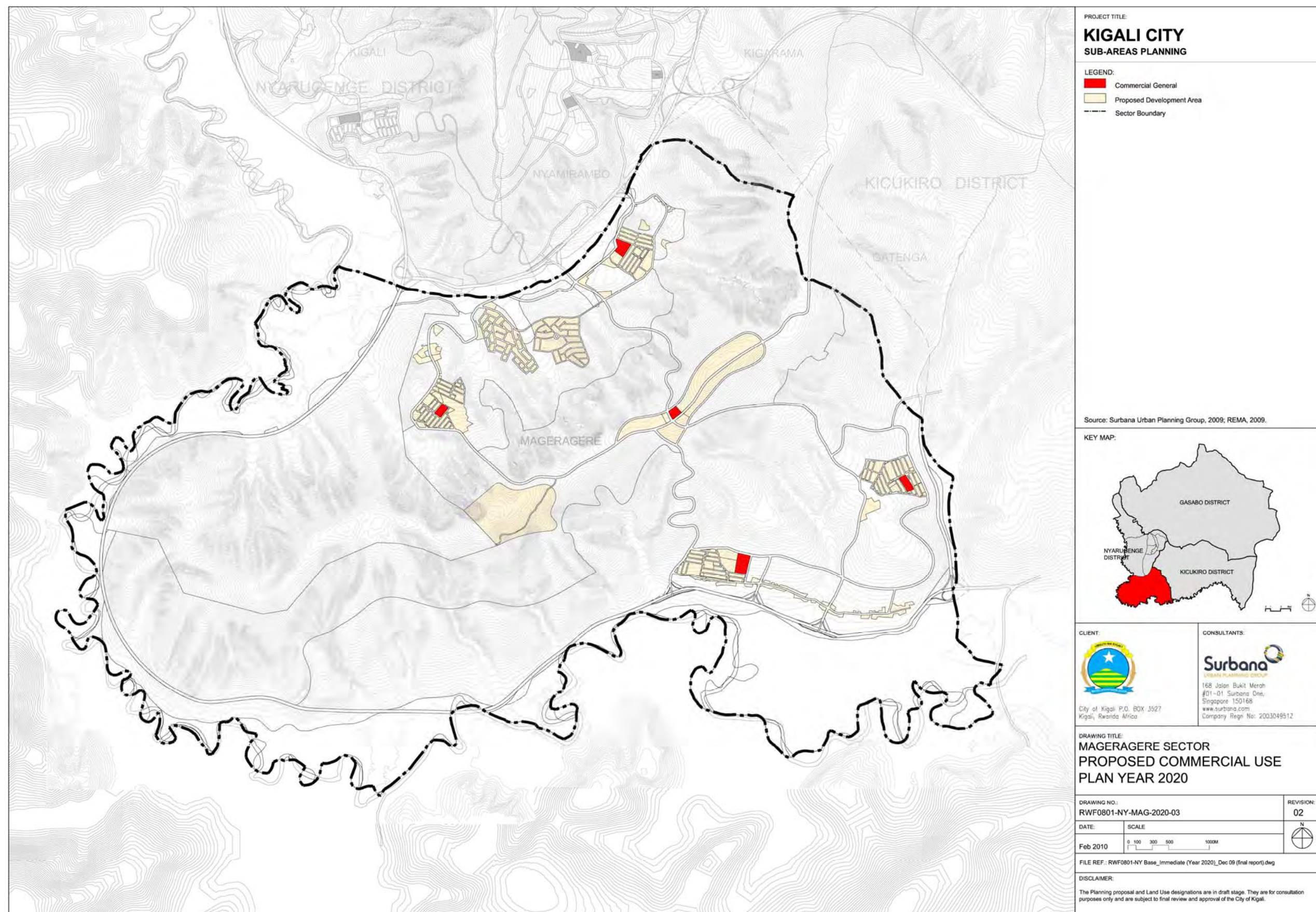


Figure 12.13: Mageragere Sector: Proposed Commercial Use Plan Year 2020
 Source: Surbana

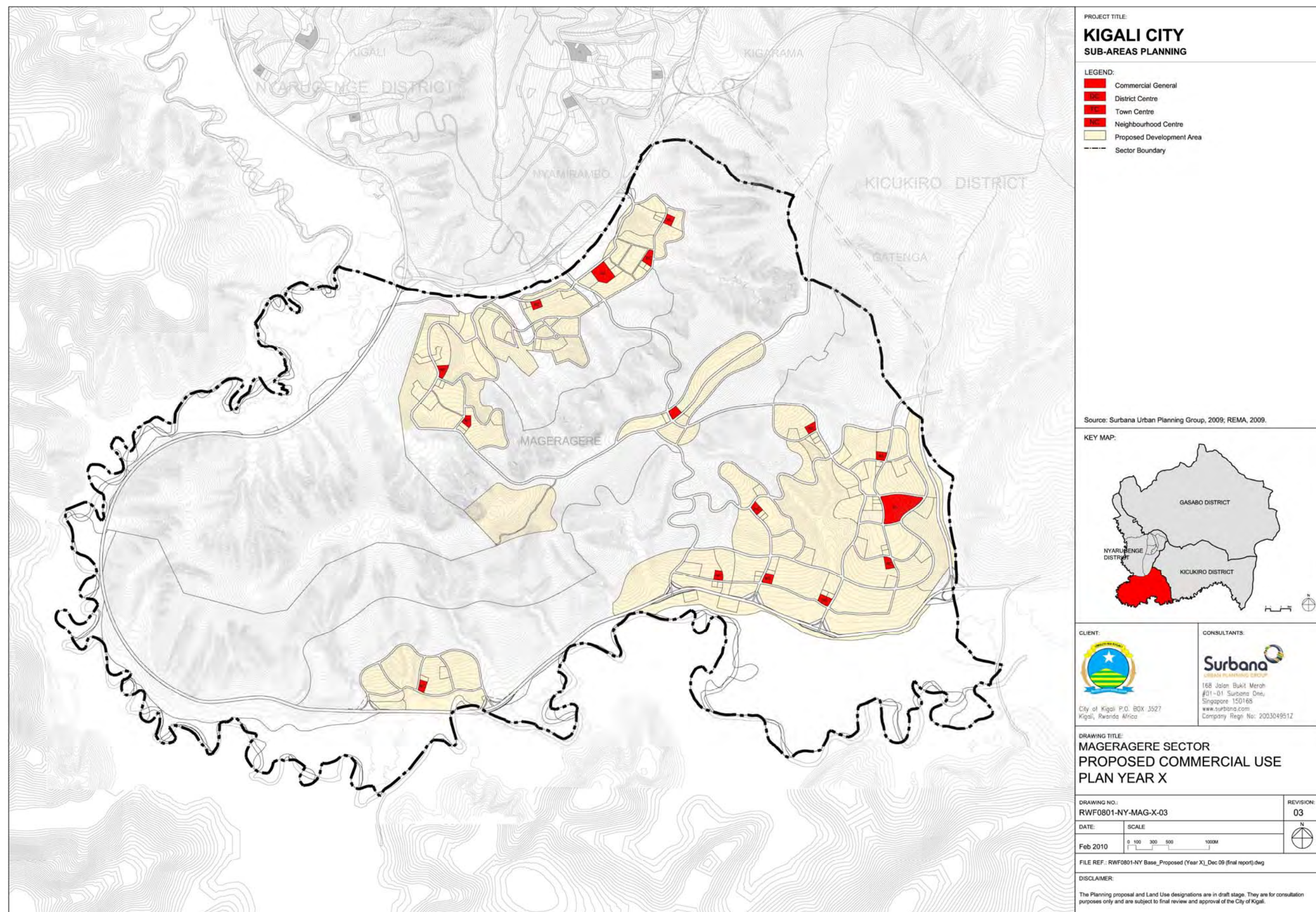


Figure 12.14: Mageragere Sector: Proposed Commercial Use Plan Year X
Source: Surbana

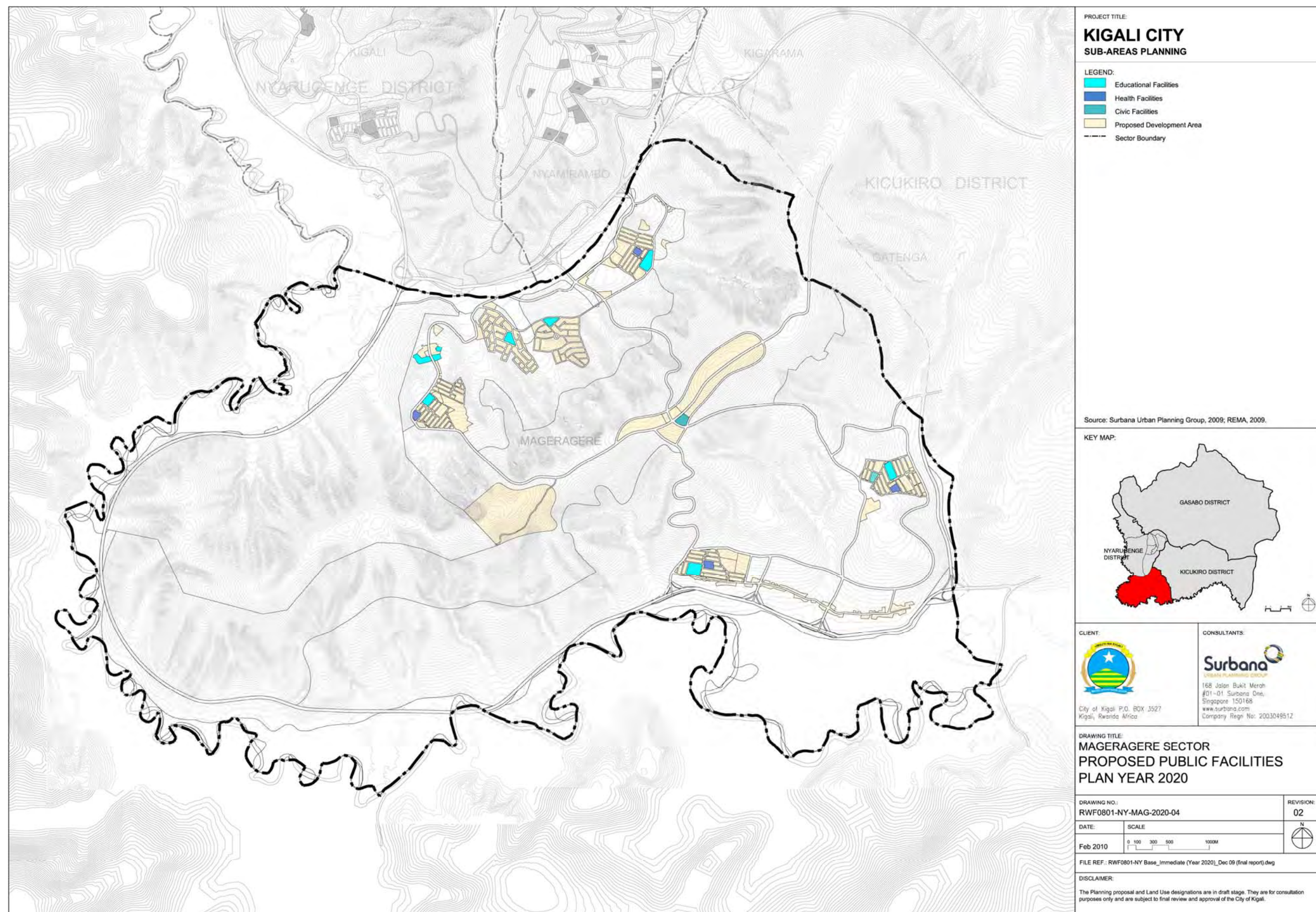


Figure 12.15: Mageragere Sector: Proposed Public Facilities Plan Year 2020
Source: Surbana

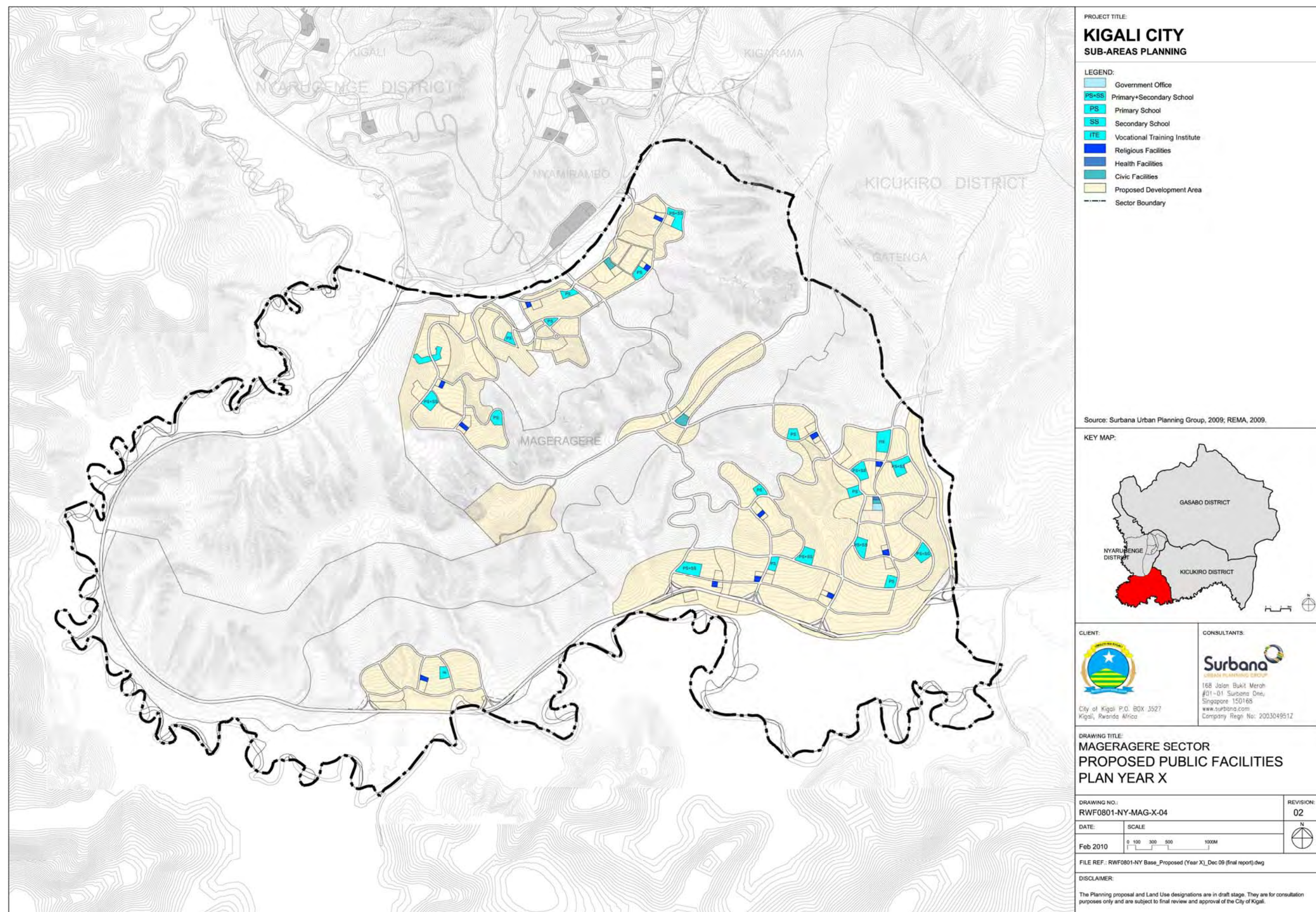


Figure 12.16: Mageragere Sector: Proposed Public Facilities Plan Year X
Source: Surbana

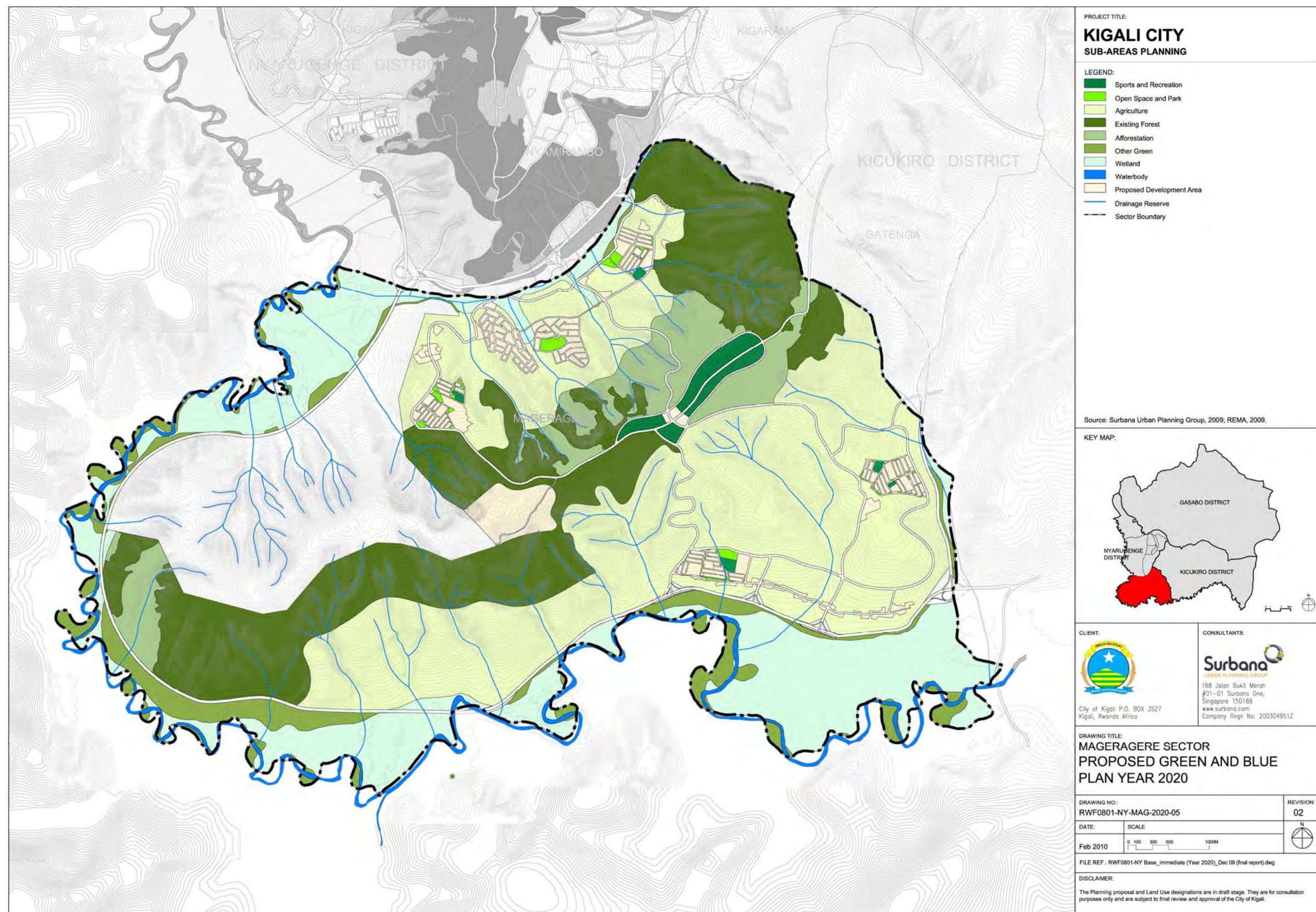


Figure 12.17: Mageragere Sector: Proposed Green and Blue Plan Year 2020
Source: Surbana

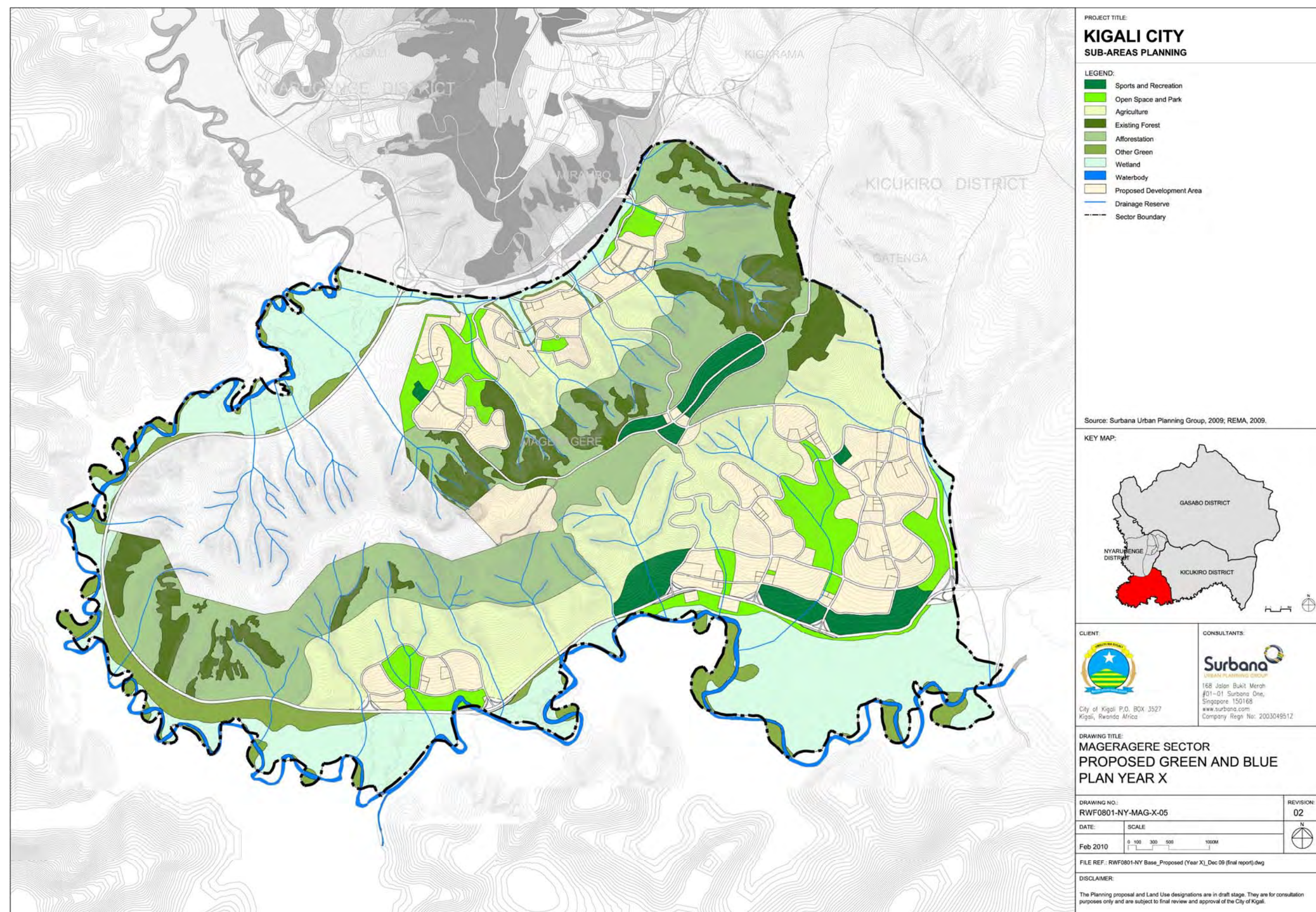


Figure 12.18: Mageragere Sector: Proposed Green and Blue Plan Year X
Source: Surbana

CHAPTER 13: IMPLEMENTATION MECHANISM

The implementation of the Master Plan for Nyarugenge District is expected to take about 15-30 years. This chapter presents the mechanisms and the development priorities proposed for the implementation of the Master Plan for Nyarugenge District.

13.1 Proposed Implementation Mechanism

The key tools and strategies proposed for the implementation of the Master Plan for Nyarugenge District include the implementation of the Zoning Plan, the Capital Improvement Plan, and the development of special projects.

As the detailed implementation plan and strategies for the CBD areas are already elaborated in the Detailed Master Plan and Urban Design Report for CBD1, CBD2 and Kimicanga, the implementation plan for the Master Plan for Nyarugenge District will concentrate mainly on the areas excluding Muhima and Nyarugenge Sectors.

13.1.1 Implementation of Zoning Plan

The implementation of the Zoning Plan for the Nyarugenge District is expected to regulate the development in different parts of the District. The proposed Zoning Plan encourages development in areas where the infrastructure is available and restricts development in areas where infrastructure development is not the priority. The Zoning Plan will be reviewed on a 5 yearly basis, in response to the needs and the development pressures of different parts of the District.

13.1.2 Capital Improvement Plan (CIP)

The Capital Improvement Plan is aimed at improving infrastructure capacity and providing essential public facilities required to support the proposed Land Use Plans for the Nyarugenge District. The proposed capital improvement projects should be funded by the government and are to include the following:

- Infrastructure development, which includes roads, water supply, power supply, sewerage and drainage systems.
- Development of requisite public facilities such as schools and higher education institutes, community halls and cultural centres, health centres and polyclinics, government offices, museums, public libraries etc.
- Development of the umudugudu and government housing.
- Development of new residential townships.
- Development of public parks, sports fields and public spaces such as the wetlands parks, public parks, etc.

A. Infrastructure Development

The capital improvement projects proposed for Nyarugenge District will be discussed separately in Chapter 6 of the Detailed Transportation and Infrastructure Master Plan Report for Nyarugenge District. The CIP would include the redevelopment of existing infrastructure in the urban fringe areas and the provision of new infrastructure in the new township areas.

B. Development of Public Facilities

The key public facilities that need to be developed for Nyarugenge District would include:

- The development of the new cemetery sites in Kigali and Mageragere Sectors.
- The development of the Kigali Sport Complex and the Nyamirambo Regional Centre.
- The development of district level amenities such as the district office, a regional library, a hospital, higher education institutions, an old age home etc. in the new District Centre.

Besides these, smaller but critical facilities such as a district level fire station also need to be provided in Kigali Sector.

C. Development of Umudugudu and other Government Housing Projects

Under the government's land consolidation programme, the City is currently undertaking the development of 11 umudugudu, in order to allow for development for effective agricultural practices (as shown in the Year 2020 Master Plan). The agricultural activities in the District are expected to effectively function for about 10 - 15 years. When the land value in the umudugudu increases due to urban development pressure, the City would need to acquire the land and redevelop it into medium density residential townships as proposed in the Year X Master Plan.

D. Development of Residential Townships

As per the Year X Master Plan, 6 residential townships in Kanyinya, Kigali, Mageragere and parts of Nyamirambo Sectors need to be developed by the City in the long term (15-30 years). The development of these townships would include the development of road and infrastructure as well as the development of related public facilities. The development of these townships is proposed to be administered by the City to ensure that the township would provide an adequate quantum of affordable housing to cater to the needs of the majority of the population. While parts of the township could be tendered out for commercial development, the overall development should be controlled by the government to ensure quality, affordability and efficiency in land use and infrastructure development.

E. Development of Public Parks

Lastly, 5 major parks need to be developed in Nyarugenge District within the next 30 years period, which include:

- Kigali Wetland Park abutting CBD1
- Kigali Summit Adventure Park
- Kanyinya Wetland Town Park
- Kigali Wetland Town Park
- Mageragere Wetland Town Park
- Nyarugenge District Centre Wetland Park

As part of the park development, land acquisition needs to be carried out for certain portion of the wetlands that are currently occupied for various uses.

In addition to the above, a comprehensive tree planting programme needs to be prepared as part of the afforestation, soil conservation and slope protection measures, as recommended in the greening strategies.

13.1.3 Special Projects

A few 'special projects' have been identified within Nyarugenge District. These projects need involvement or initiation by the government. For successful execution of these projects, the following measures have to be taken:

- Ensure that an integrated and high quality development is achieved in these projects.
- Generate funding or financing for these projects through various public and private sources.
- Form special-purpose vehicles to effectively manage and execute these projects.

The projects identified as 'special projects' are usually large and complex. The execution of such projects, which also involves financing and marketing, is best done with the Public-Private Partnership (PPP) approach – in which private sector participation is allowed. The PPP is recommended¹³ because it offers a win-win solution for the public, the public sector and the private sector.

The Special Projects identified in Nyarugenge District are:

- Development of the market and commercial centre in Gitega Sector.
- Development of proposed golf course in Mageragere Sector
- Development of proposed equestrian club and resort in Mageragere Sector.

¹³ No particular PPP model is recommended in order to keep the options open for the government and the Department of Land Use Management & GIS to explore different ways of implementation.

13.2 Proposed Phasing Plan

The Master Plan will be implemented in phases. Each phase has a specific development emphasis, based on which the priority projects for that phase are identified. The key objective of the phasing plan is to direct the physical development in the District in a comprehensive and coordinated manner.

Figure 13.1 presents the Phasing Plan proposed for Nyarugenge District and Table 13.1 to Table 13.3 elaborate the development emphasis and projects as part of each development phase.

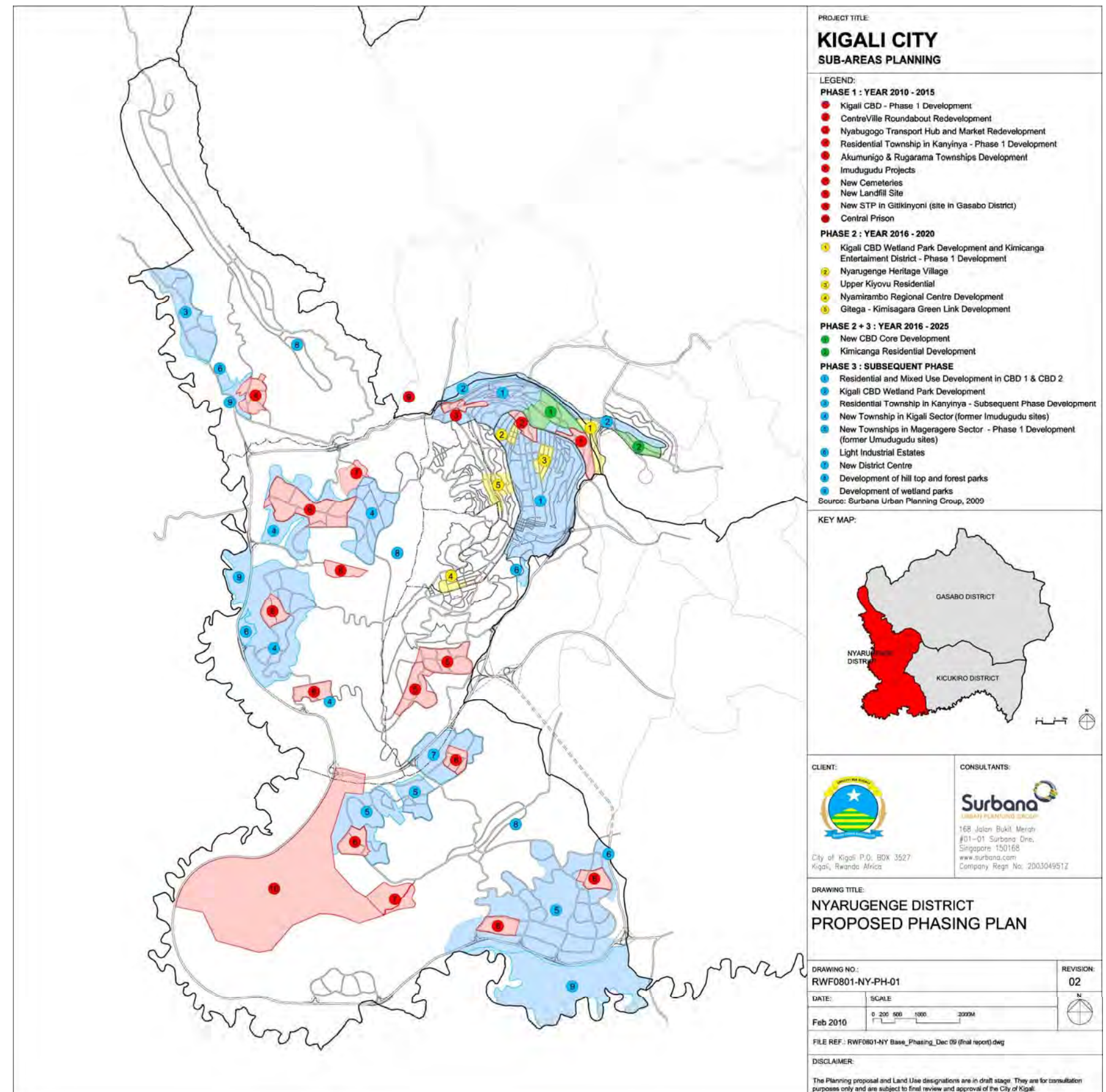


Figure 13.1: Nyarugenge District: Proposed Phasing Plan.
Source: Surbana

Table 13.1: Nyarugenge District Phasing Plan - Phase 1(2010 - 2015)

Phase	Objectives	Symbol	Project and Details	Project Description and Scope	Remarks / Implementation Strategy
Phase 1 2010- 2015	Position Kigali CBD as the Regional Financial Hub.	1	Kigali CBD - Phase 1 Development Site Area: 32 Ha Location: MUHIMA SECTOR	Development of prime commercial and office complex including: - Development of road & infrastructure, and - Development of public plazas & landscaping.	The City has recently undertaken site clearance and initiated land sale, in partnership with Caisse Sociale du Rwanda (CSR).
		2	CentreVille Roundabout Redevelopment Site Area: 41 Ha Location : NYARUGENGE and MUHIMA SECTORS	Commercial area redevelopment, including: - Development of pedestrian deck around the present roundabout, - Redevelopment of the Cultural Centre along Boulevard de l' OUA, - Redevelopment of commercial plots on the west of Avenue de la Paix into a shopping mall, and - Introduction of an attractive landscape feature at the Roundabout.	Public project, except for the redevelopment of the commercial plots, for which the City could facilitate formation of a stakeholders' association for collaborating the redevelopment efforts.
	Making Kigali CBD regionally and locally accessible.	3	Nyabugogo Transport Hub and Market Redevelopment Site Area: 18 Ha Location: KIMISAGARA SECTOR	Development of commercial and transportation hub, including: - Launch of land sale tender, and - Infrastructure provision.	Private commercial project. Government's role would include tendering the site to achieve the planning intention. A design competition could be initiated to ensure high architectural quality.
	Providing quality and affordable housing for the growing population.	4	Residential Township in Kanyinya - Phase 1 Development Site Area: 43 Ha Location: KANYINYA SECTOR	Residential Township development, including: - Development of public housing - 4,500 units, - Development of road and infrastructure for the entire Township, and - Development of public facilities - 1 Neighbourhood Centre and 1 Primary school.	This project would be undertaken & administered by the City or by the Ministry of Housing. Alternatively, the City could form a state board or a special purpose vehicle to administer public housing development.
		5	Akumunigo & Rugarama Townships Development Site Area: 124 Ha Location : NYAMIRAMBO SECTOR	Residential township development, including: - Road and infrastructure development, and - Development of public facilities such as schools and neighbourhood centres.	The City is currently making the land available for development to private developers.
	Consolidation of farmland and settlements to improve efficiency of farming and provision of infrastructure.	6	Umudugudu Projects Site Area: Varies Location : KIGALI AND MAGERAGERE SECTORS	Public housing schemes as part of the land consolidation programme.	Projects currently in government undertaking.
	Addressing the immediate infrastructure needs of the District.	7	2 New Cemeteries Site Area: 40 Ha (approx) each Location : KIGALI AND MAGERAGERE SECTORS	Construction of two new cemeteries to replace the present cemetery in Nyamirambo.	
		8	New Landfill Site Site Area: 24 Ha (approx) Location : KIGALI SECTOR	Construction of a new landfill site in Kigali to replace the present landfill site in Nyanza.	
		9	New STP in Gitikinyoni Location : GASABO DISTRICT	Construction of a centralised STP to serve the City.	
		10	Central Prison Site Area : 809 Ha Location : MAGERAGERE SECTOR	Construction of the Central Prison	

Source: Surbana

Table 13.2: Nyarugenge District Phasing Plan - Phase 2 (2016 - 2020) and Phase 2+3 (2016 – 2025)

Phase	Objectives	Symbol	Project and Details	Project Description and Scope	Remarks / Implementation Strategy
Phase 2 2016 - 2020	Sustaining growth of CBD as the Regional Financial Hub.	1	Kimicanga Entertainment District - Phase 1 Development Site Area: 11 Ha Location: GASABO DISTRICT	Development of commercial and entertainment complex, including: - Launch of land sale tender, and - Infrastructure provision.	Private commercial project. Government's role would include tendering the site to achieve the planning intention. A design competition could be initiated to ensure high architectural quality.
			Kigali CBD Wetland Park - Phase 1 Development Site Area: 14 Ha Location: MUHIMA SECTOR	Development of wetland park including: - Creation of water bodies, - Creation of landscape areas, pedestrian paths, seating areas and public facilities, and - Development of pedestrian bridge linking to CBD Phase 1.	Public project.
	Making Kigali CBD an attractive tourist destination.	2	Nyarugenge Heritage Village Site Area: 7 Ha Location: NYARUGENGE SECTOR	Commercial area redevelopment, including: - Paving and streetscape improvement of the existing street, - Infrastructure development, - Development of multi-storey public parking facilities, and - Development of start-up commercial cluster.	Public project.
	Providing quality housing for local and expatriate professionals to support CBD's role as the Regional Financial Hub.	3	Upper Kiyovu Residential Development Site Area: 21 Ha Location : NYARUGENGE SECTOR	Residential and hotel development, including: - Conversion of land around the Statehouse into high end housing area and hotels.	The City would facilitate in making the housing parcels available for development to private developers.
	Encouraging redevelopment of existing urban areas.	4	Nyamirambo Regional Centre - Phase 1 Development Site Area: 12 Ha Location: NYAKABANDA SECTOR	Regional and Sports Centre Redevelopment, including: - Refurbishment of the existing stadium, - Development of indoor sports hall and swimming complex, and - Development of commercial centre.	Public Project.
		5	Gitega - Kimisagara Green Link Development Site Area: 37 Ha Location: GITEGA AND KIMISAGARA SECTORS	Road connector development, including: - Construction of dual- one connector road, - Development of public facilities along the road, and - Landscaping.	Public Project.
Phase 2 + 3 2016 - 2025	Sustaining growth of CBD as the Regional Financial Hub.	1	New CBD Core Development Site Area: 71 Ha Location: MUHIMA SECTOR	Development of premium office and commercial area, including: - Road and infrastructure development, - Development of city square, plazas & public spaces, and - Development of expressway along the wetland.	Special purpose vehicle would be set-up to execute this project.
		2	Kimicanga Residential Development Site Area: 26 Ha Location: GASABO DISTRICT	Development of premium urban housing area, including: - Launch of land sale tender, and - Infrastructure provision.	Private commercial project. Government's role would include tendering the site to achieve the planning intention.

Source: Surbana

Table 13.3: Nyarugenge District Phasing Plan - Subsequent Phases

Phase	Objectives	Symbol	Project and Details	Project Description and Scope	Remarks / Implementation Strategy
Subsequent Phases	Sustaining growth of CBD as the Regional Financial Hub.	1	Residential and Mix Use Development in CBD1 and CBD2 Site Area: 546 Ha Location: MUHIMA AND NYARUGENGE DISTRICTS	Development of premium urban housing and commercial areas, including: - Launch of land sale tender, and - Infrastructure provision.	Private commercial project. Government's role would include tendering the site to achieve the planning intention.
		2	Kigali CBD Wetland Park - Phase 2 Development Site Area: 98 Ha Location: MUHIMA SECTOR	Development of wetland park including: - Creation of water bodies, - Creation of landscape areas, pedestrian paths, seating areas and public facilities, and - Development of pedestrian bridge linking to CBD Phase 1.	Public project.
	Encouraging development in the new growth areas with an emphasis on public housing.	3	Residential Township in Kanyinya – Subsequent Phase Development Site Area : 145 Ha Location : KANYINYA SECTOR	Residential Township Development, including: - Road and infrastructure development, - Public housing development, - Development of public facilities, and - Development of public parks and recreational areas.	This project would be undertaken & administered by the City or by the Ministry of Housing. Alternatively, the City could form a state board or a special purpose vehicle to administer public housing development.
		4	New Townships in Kigali Sector (former Imudugudu sites) Site Area: 712 Ha Location: KIGALI SECTOR		
		5	New Townships in Mageragere Sector (former Imudugudu sites) Site Area: 861 Ha Location: MAGERAGERE SECTOR		
	Providing localised employment opportunities in the new growth areas.	6	Light Industrial Estates in Nyamirambo, Kanyinya, Kigali and Mageragere Site Area: Varies Location: Varies	Light industrial estate development, including: - Road and infrastructure development, and - Development of standard industrial buildings for lease.	The City could set-up a special purpose vehicle to manage the industrial estates.
	Improving the overall living standard of the population.	7	New District Centre Site Area: 107 Ha Location: MAGERAGERE SECTOR	Development of the new District Centre, including: - Development of new roads and utilities, - Development of public facilities (civic buildings, vocational institution, higher educational institution, regional hospital, regional library), and - Development of wetland park & landscaping of all public areas.	Public Project. Involvement of private sector in the educational facilities development is possible.
		8	Development of hill top and forest parks. Site Area: Subject to further study Location: KANYINYA, KIGALI AND MAGERAGERE SECTORS	Development of recreational areas, including: - Development of parks and amenities, and - Development of trekking routes and pedestrian connectors.	Public Project.
		9	Development of wetland parks. Site Area: Subject to further study Location: KANYINYA, KIGALI AND MAGERAGERE SECTORS	Development of recreational areas, including: - Development of parks and amenities, and - Development of boardwalks and pedestrian connectors.	Public Project

Source: Surbana

CHAPTER 14: FOLLOW UP MEASURES

14.1 Introduction

The Detailed Master Plan presented above sets the direction for the development of Nyarugenge District for the next 15-30 years. In order to meaningfully implement the Master Plan, it needs to have a legal status. Moreover, considering the uncertainties of future developments, it is critical to review, adjust and improve the Master Plan so as to respond to changing socio-economic situation and the aspirations of the people. The implementation of the Master Plan requires a capable team which would ensure that the desired vision of the Master Plan is realised.

In view of the above, the follow-up measures recommended for the successful implementation of the Master Plan are described below.

14.2 Establishment of Legal Framework

The Master Plan (i.e. the Zoning Plan), once approved, should have a legal status and should not be seen as government's tool to expropriate land or to achieve certain political goals. As the concept of a Master Plan or a Zoning Plan is new in Kigali, it is therefore necessary for the government to establish a legal framework to ensure the successful implementation of the Master Plan. At the same time, the government should prepare the document to regulate the reviewing, changes and approval to the Master Plan (Zoning Plan).

14.3 Monitoring and Evaluation:

It is common to have major reviews of the Master Plan every five years. However, as the concept of launching a Master Plan is new in the City of Kigali, it is recommended to have the first major review of the Master Plan after 3 years of its launch. In this review, the Department of Land Use Management and GIS can look into the current development trend and compare it to the one proposed in the Master Plan, in order to see if there are any deviations, and thus find means to address them. The review will also look at problems arising from the urban development, such as parking problems, traffic jams, lack of public spaces etc. and find means to address them through planning.

Besides these major reviews, interim minor reviews should also be conducted, especially to assess the zoning boundaries and regulation and to ensure that the zoning guidelines are practical, clear and easy to understand.

14.4 Establishment of Planning Manual

To allow for an effective Master Plan review as well as for the successful implementation of the Master Plan, it is recommended that the Department of Land Use Management and GIS establish a manual to document the planning, review and approval processes.

This manual should incorporate the following:

- Review and approval procedure of the Master Plan (what issues need to be reviewed, who would be involved in the review, who would be the approving authority, what would be the means to disseminate the information to the public etc.).
- Initiation and approval process for changes in the Zoning Guidelines (who would initiate the process, who would approve the changes, what would be the means to disseminate the information to the public etc.).
- Updating and approval process of the GIS information (when to update, what to update, who would approve the updates, who can access the information etc.).
- Procedure for assessment and approval of planning/development application (who should assess, what is the assessment procedure, who should approve, how long the procedure should take to complete etc.).

14.5 Development of Special Control Guidelines

Special control guidelines are required to ensure quality development within the City, to ensure sustainability and to enhance local culture and identity. As such, preparations of 2 other key development guidelines are recommended, in addition to the Master Plan and Zoning Guidelines:

- City Sustainable Framework and Green Building Codes - this could be introduced in Kigali as implemented in many other countries.
- Heritage Conservation Guidelines - for conservation of heritage buildings and developments within the City.

14.6 Capacity Building and Recruitment:

Considering the high workload currently undertaken by the Department of Land Use Management and GIS to facilitate urban development in the City, capacity building is required to allow the staff to manage and further improve the Master Plan. Training is further recommended to allow the City staff to carry out the following responsibilities effectively:

- Accessing the planning / development application.
- Giving feedback on and improving the Zoning Guidelines and Urban Design Control Regulations.
- Updating, developing and maintaining GIS database.
- Coordinating with the City's Infrastructure Department, the National Land Centre and various service providers for the implementation of the Master Plan.

Besides training, recruitment is also recommended for Senior GIS Managers and Senior Planners who would take the lead in Development Control (Zoning); in coordination works with the Ministry of Infrastructure and the service providers for implementation works; and in strategic research.

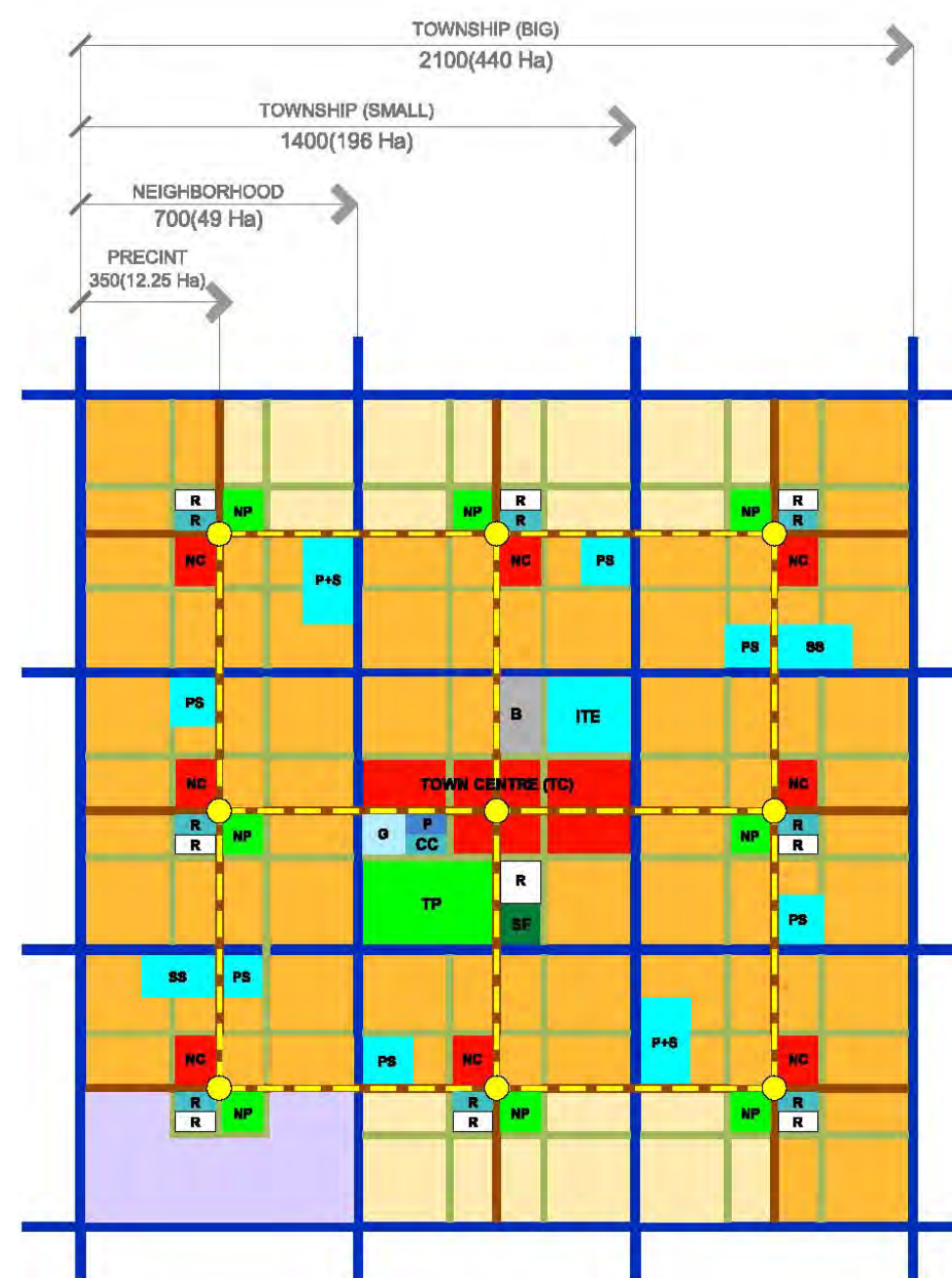
Appendices

APPENDIX 1 : NEW TOWNSHIP PLANNING MODEL

A Township Planning Model has been developed for Kigali based on factors such as availability of buildable land, desired density of housing areas, average dwelling unit and family size as well as the adequate provision of amenities, infrastructure and transport facilities. This model is a graphical representation of the organisation of the different land uses in a new town and the distribution of various public facilities.

The new town would have a 30-70 mix of single family and multi-family housing organised into neighbourhoods of approximately 15,000 people. Each neighbourhood, comprising of smaller precincts, would have centrally located, accessible neighbourhood centres, a neighbourhood park, religious buildings etc. Schools would be well distributed through the neighbourhoods. At the town level, each small (60,000 population) and large (120,000 population) town would have a town centre with town level commercial and public uses. Figure A1.1 and Table A1.1 present the new township planning model and the related land take-up, proposed for Kigali City.

This model only indicates the location and distribution of various land uses as well as the hierarchy and spacing of roads. It needs to be adapted to specific site context, existing conditions, terrain etc. for the implementation of new towns.



PLANNING HIERARCHY:

	DWELLING UNITS (DU)	POPULATION (POP)
PRECINCT (12.25 Ha)	1,000	3,750 to 4,500
NEIGHBOURHOOD (49 Ha)	3,500	15,000 to 18,000
TOWNSHIP (SMALL) (196 Ha)	15,000	50,000 to 60,000
TOWNSHIP (BIG) (440 Ha)	35,000	120,000 to 150,000

LEGEND:

Land Use

RESIDENTIAL	Single Family
	Medium Rise
COMMERCIAL	NC Neighbourhood Centre
	TC Town Centre
EDUCATION FACILITIES	PS Primary School
	SS Secondary School
	P+S Primary + Secondary School (Combined)
	ITE Vocational Institute
SOCIO-CULTURAL FACILITIES	R Religious Facilities
	CC Cultural Centre
	C Civic Facilities
HEALTH FACILITIES	P Polyclinic
PARK & OPEN SPACES	NP Neighbourhood Park
	TP Town Park
SPORTS & RECREATION	SF Sports Field
CIVIC FACILITIES	G Government Office
INDUSTRIES	Light Industries
VACANT LAND	R Reserved Site
TRANSPORT	B Bus Interchange

Road and Transportation

Major / Minor Arterial
Collector
Pedestrian Connectivity
Bus Route
Bus Stops

Figure A1.1: Proposed Township Planning Model for Nyarugenge District.
Source: Surbana

Table A1.1: Proposed New Township Planning Brief for Nyarugenge District.

PLANNING BRIEF FOR NEW TOWN KIGALI (135,000 POPULATION / 35,000 DWELLING UNITS)						
S/No:	Land Uses	Provision Standard (Minimum)	Site Area Standard (Ha)	Total Provision	Land Area	
					(Ha)	%
1	<u>Residential</u>	70% of residential land reserved for medium density housing				
	1.1 Private Housing	65 DU / Ha	58.5	1	58.5	13
	1.2 Public Housing	180 DU / Ha	183.0	1	183.0	42
					241.5	55
2	<u>Commercial</u>					
	2.1 Neighborhood Centre	1 per 15,000 Pop	1.2	8	9.6	2.2
	2.2 Small Town Centre	1 per 60,000 Pop	4.0	-	-	-
	2.3 Town Centre	1 per 120,000 Pop	12.0	1	12.0	2.7
					21.6	4.9
3	<u>Educational Facilities</u>					
	3.1 Primary School	1 per 15,000 Pop	1.5	6	9.0	2.0
	3.2 Secondary School	1 per 25,000 Pop	2.4	2	4.8	1.1
	3.3 Primary + Secondary School (Combined)	-	2.8	2	5.6	1.3
	3.4 Vocational / ICT Institute	1 per 150,000 Pop	5.0	1	5.0	1.1
					24.4	5.5
4	<u>Socio-Cultural Facilities</u>					
	4.1 Community Hall *	1 per 15,000 Pop	0.2	-	-	-
	4.2 Church / Mosque	1 per 15,000 Pop	0.5	-	-	-
	4.3 Cultural Centre	1 per 120,000 Pop	0.5	1	0.5	0.1
					0.5	0.1
5	<u>Health Facilities</u>					
	5.1 Health Centre *	1 per 15,000 Pop	0.5	-	-	-
	5.2 Polyclinic	1 per 120,000 Pop	0.5	1	0.5	0.1
					0.5	0.1
6	<u>Park and Open Spaces</u>					
	6.1 Neighbourhood Park	1 per 15,000 Pop	1.0	8	8.0	1.8
	6.2 Town Park	1 per 120,000 Pop	6.0	1	6.0	1.4
					14.0	3.2
7	<u>Sports and Recreation</u>					
	7.1 Sports Field	1 per 120,000 Pop	1.5	1	1.5	0.3
					1.5	0.3
8	<u>Civic Facilities</u>					
	8.1 Government / Municipal Offices / Sector Office / District Office	1 per 120,000	1.0	1	1.0	0.2
					1.0	0.2
9	<u>Industry</u>					
	9.1 Light Industry	1 per Town	10.0	2	20.0	4.5
					20.0	4.5
10	<u>Transport and Infrastructure</u>					
	10.1 Transport and Infrastructure (includes Bus Terminus)	25% of New Town Land Take 1 per Town	110.0 2.5	- 1	110.0	25.0
					110.0	25.0
11	<u>Reserved Site for Unanticipated Future Use</u>					
	11.1 Neighbourhood Level	1 per Neighborhood	0.5	8	4.0	1
	11.2 Town Level	1 per Town	1.0	1	1.0	0.2
					5.0	1

* To be developed as part of the neighbourhood centre

Assumptions:

1. Private Housing - Average Unit size = 150 sq.m. (Type R1A, Single Family Residential)
2. Public Housing - Average Unit Size = 80 sq.m. (Type R3, Medium Rise)
3. Household Size = 4 people

Source: *Surbana*

Total	440.0	100
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Site Area	440.0
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APPENDIX 2 : PUBLIC FACILITIES PROVISION STANDARDS

Table A2.1: Proposed Public Facilities Provision Standards for Nyarugenge District.

PUBLIC FACILITIES PROVISION STANDARDS				
		South Africa	Singapore	Proposed for Kigali
Commercial	Neighbourhood Centre	Data not available	1 per 13,000 - 20,000 population (4,000 to 6,000 DU). 1.7 ha site.	1 per neighbourhood (15,000 population). 1.2 ha site.
	Small Town Centre	Data not available	Data not available	1 per township (60,000 population). 4.0 ha site.
	Town Centre	Data not available	1 per town (100,000 - 200,000 population). 17-25 ha site.	1 per township (120,000 population). 12.0 ha site.
Educational Facilities	Primary School	1 per 3,000 - 4,000 population. Max walking distance 1.5 km. Min 2.4 ha site.	1 per 13,400 population. 1.8 ha site.	1 per neighbourhood (15,000 population). 1.5 ha site.
	Secondary School	1 per 6,000 - 10,000 population . Max walking distance 2.25 km. 4.6 ha site.	1 per 19,150 population. 3.0 ha site.	1 per 20,000 - 25,000 population. 2.4 ha site.
	Primary + Secondary School (Combined)	Data not available	Data not available	2.8 ha site. (Based on existing school sites)
	Vocational / ICT Institute	Data not available	1 per town. 5.0 ha site.	1 per township (120,000 population). 5.0 ha site.
	Higher Education Institute	Data not available	1 per 500,000 population. 6.0 ha site.	1 per 500,000 population. 6.0 ha site.
Socio-Cultural Facilities	Community Hall *	1 per 10,000 population. Max travel time 20 to 30 mins. 0.5 ha site.	1 per 40,000 population. 0.4 ha site.	1 per precinct (5,000 population). 0.5 ha site.
	Regional Library	1 per 5,000 - 50,000 population. Min size 130 m ² .	1 per 65,000 population. 0.4 ha site.	1 per 500,000 population. 0.5 ha site.
	Church / Mosque / Temple	1 per 2,000 population. 150m ² to 3,000 m ² site.	1 per 25,000 population. 0.2 -0.45 ha site.	1 per neighbourhood (15,000 population). 0.5 ha site.
	Museums / Cultural Centre etc.	Data not available	Data not available	1 per township (120,000 population). 1.5 ha site.
Health Facilities	Health Centre *	0.1 ha per 5,000 population or 0.5 ha per 20,000 population 1 per minimum population of 5,000	Served by private practitioners as part of commercial facilities	1 per neighbourhood (15,000 population). 0.5 ha site.
	Polyclinic	1 ha per 40,000 population. 1.5 ha per 60,000 to 80,000 population. Max travel time of 30 mins	1 for minimum population of 150,000 (excluding privately operated clinics). 0.5 ha site for 150,000 - 200,000 population .	1 per township (120,000 population). 5.0 ha site. Max travel time of 30 mins.
	Regional Hospital	No data available	4.5 beds per 1,000 population. 5.0 ha site.	1 per 500,000 population. 5.0 ha site.
Parks and Open Spaces	Neighbourhood Park	Data not available	Data not available	1 per neighbourhood (15,000 population). 1.0 ha site.
	Town Park	6 ha to 10 ha site.	1 per town. 10 ha site.	1 per township (120,000 population). 6.0 ha site.
	Sports Field	International Standards. 500m to 1,500 m from other user-schools, community Centres.	1 per 125,000 population. 3.0 ha site.	1 per township (120,000 population). 1.5 ha site. (Near to schools or community centres or combine with parks.)
Sports and Recreation	Sports Centre (with Swimming Complex and Stadium)	No data available	1 per 125,000 population.	1 for every 500,000 population. 6.0 ha site.
Civic Facilities	Fire Station	1 for min population of 60,000. 1.2 ha site.	1 to cover 5 - 8 mins response time. 0.4 - 0.6 ha site.	5 minutes response time. 0.5 ha site.
	Government / Municipal Offices	Max travel time 30 mins. 1 for min population of 50,000. Min 3,000 m ² site.	Data not available	1 Sector office per Sector. 1 District office per District.

* To be developed as part of neighbourhood centre.

Source: *Surbana*

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