

DIADEM SOVEREIGN SRI LANKA

Rejuvenation of the Past Glory
of the Wetland City

CAPITAL CITY DEVELOPMENT PLAN 2019 - 2030

Volume II



Ministry of Megapolis & Western Development
Urban Development Authority
Sri Lanka

Capital City Development Plan – 2019-2030 Volume II

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Capital City Development Plan – 2019-2030 is delivered through a series of publications; Volume 01, 02 & 03. Volume II contains the situational analysis and the explanations on the need of a plan. Volume III contains a detailed elaboration on the plan including vision, goals, objectives, broader strategies, strategic projects and implementation mechanism. Volume III is a separate document which contains both special and general Planning & Building Regulations applicable to Capital City within the period of 2019–2030.

Capital City Development Plan – 2019-2030 was prepared by Western Province Division and Research & Development Division of Urban Development Authority with the consultation of relevant stakeholder agencies.

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Acknowledgement

Preparation of Capital City Development Plan (CCDP) is a collaborative work undertaken by the *Western Province and Research & Development Divisions of Urban Development Authority* in consultation with relevant stakeholder agencies. Throughout the process which continued for nearly one and half years, there were many who contributed to (CCDP) in numerous ways.

Our sincere gratitude is extended to the *Minister of Megapolis & Western Development, Honorable Minister Patali Champika Ranawaka* for his guidance and support in making this exercise a success. The counsels and support given by Secretary to the Ministry of Megapolis & Western Development and the fellow staff at Ministry are also highly valued.

Our special thanks is extended to the *Mayors, Chairmen, Council Members, Commissioners* and staff of all 04 Local Authorities; *Sri Jayawardenapura Kotte Municipal Council, Kaduwela Municipal Council, Maharagama Urban Council and Kotikawatte - Mulleriyawa Pradeshiya Sabha* for their great cooperation and contribution towards CCDP.

Special gratitude is extended to all relevant key stakeholder agencies of both state and private sector for sharing their comments, suggestions and ideas along with numerous valuable input data without which the CCDP won't be a reality. The comments, recommendations and suggestions given by general public; especially the *Capital City Community* in the means of stakeholder meetings, focused group discussions, business forums, through the website and other social media are also highly appreciated.

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Special gratitude is extended to *Development Planning Division, Research & Development Division, GIS Division, Enforcement Division, Environmental & Landscape Division, Project Management Division and Urban Regeneration Project Office of UDA* for their cooperation. In addition, all staff of UDA is remembered with utmost gratitude for their support towards CCDP in numerous ways.

Further, special thanks is extended to external parties who worked with us to make CCDP a reality such as **Mr. Indula Jayasekara** for 3D visualization of special project areas, **Mooniak** for designing of all publish materials, **Ms. Krishani Perera** for Strada Modeling and **Mr. Darshana Lakmal & Ms. Navodi Imalsha** for designing presentation panels and all who contributed towards CCDP in numerous ways.

Honorable Minister's Forward



Having established under the provisions of the Urban Development Authority Law: Act No. 41 of 1978, the Urban Development Authority by now has completed 40 years of service contributing to the urban development in Sri Lanka. At this moment the UDA marks another milestone by completing a comprehensive Development Plan for another decade for Capital City Region.

The Capital City is the administrative hub of Sri Lanka and it has also gained a considerable position in the international context as a unique wetland city in the world. The role of the Capital City is crucial, not only for the administration of the country, but also in Sri Lanka's journey to become a developed nation. Thus, the Capital City Development Plan 2030 shall be viewed as a scenario that has both national and international significance.

Our effort is to support the Administrative Capital City's role as a unique wetland city by shaping up its physical environment while ensuring city livability standards and efficient functioning of the city with upgraded infrastructure facilities. Also, we aim at addressing prevailing city issues with strategic actions. The specialty of this plan is that it doesn't limit to solve prevailing issues but attempts to envisage a broader vision for the city while harnessing its untapped potentials so far.

My understanding is that the preparation of this Plan involved extensive consultation of professionals, expertise, stakeholders and the communities, while engaging modern methods, sound techniques and innovative approaches. In this regard, I appreciate the extraordinary efforts of the Chairman, Director General, Planning Team and all staff of Urban Development Authority those who contributed in numerous ways to successfully complete this work. I also appreciate the support and contribution of relevant local authorities, state and private sector agencies and general public which worked equally on the same platform to make Capital City Development Plan a success.

Hon. Patali Champika Ranawaka
Minister of Megapolis and Western Development

Chairman's Forward



Today, the Urban Development Authority (UDA) is the apex planning and plan implementation body in Sri Lanka that is responsible for managing the state of the urban environments of the nation. The Authority was established in 1978 with the objective of introducing integrated planning and implementation, in order to promote and regulate developments for the common benefit of the urban areas. With the existence of Sri Jayawardenapura Kotte as the capital city of Sri Lanka for over three decades, it is high time that we view in retrospect to observe the achievements and successes as well as the drawbacks and failures it has gained.

We can be happy of the developments which have been commenced up to now, but certainly we need to accept that we could achieve much more on this unique city area. This Capital City Development Plan 2030 is a framework towards such noble objective of making the administrative capital and its surrounding areas a unique wetland city in a highly competitive, livable, sustainable and adorable manner to attract the attention of the rest of the world.

For the implementation of this Plan, we have not forgotten that our path is not as smooth as silk, but as rough as gravel, full of challenges, filled with uncertainties, and fouled by vicious intents. Yet the UDA today is equipped with necessary systems, tools and strategies to face such challenges, withstand those uncertainties, to make the Capital City: the 'Diadem Sovereign of Sri Lanka'.

I take this opportunity to offer my sincere gratitude to the Team of the UDA who had to work hard and committed to deliver this comprehensive work and also to all those who have supported and contributed with various means towards its formulation and hope the equal and continuous support of the all of them will be there towards its successful implementation.

Dr. Jagath Munasinghe

Chairman, UDA

Message from Mayors and Chairmen of Local Authorities



We extend our gratitude towards Urban Development Authority for the initiative taken to prepare a common plan amalgamating our 04 Local Authority Areas into an integrated planning area as Administrative Capital City. It is important to understand that the local authority boundaries drawn in legal documents are no longer reflected in real grounds, as all these areas function as a single entity accommodating the expansion of the capital city. Hence, we believe, by adopting a single plan, we will be able to develop all 04 Local Authority Areas in an equal way following a shared vision.

We appreciate UDA's attempt to make Capital City Development Plan a collaborative and participatory exercise by incorporating the recommendations, suggestions and criticisms given by us; the representatives of general public. Hence, we declare it as our plan and ensure our future collaboration and support in the implementation of Capital City Development Plan within the next eleven years. Also, we request all citizens and stakeholders of Capital City to act at individual and corporate levels to lead the city towards the shared vision as envisaged by the Capital City Development Plan - 2030

**APPROVAL OF THE DEVELOPMENT PLAN FOR THE CAPITAL CITY
COMPRISING OF SRI JAYEWARDENEPURA KOTTE MUNICIPAL COUNCIL,
KADUWELA MUNICIPAL COUNCIL, MAHARAGAMA URBAN COUNCIL,
KOTIKAWATTA - MULLERIYAWA PRADESHIYA SABHA AREAS**

I, Patali Champika Ranawaka, Minister of Megapolis and Western Development do hereby approve the Development Plan for the Capital City comprising of Sri Jayewardenepura Kotte Municipal Council, Kaduwela Municipal Council, Maharagama Urban Council, Kotikawatta - Mulleriyawa Pradeshiya Sabha Areas having considered the recommendation made by the Board of Management of the Urban Development Authority on 28th June 2019 by virtue of the powers vested in me under Section 8F of the Urban Development Authority (Amendment) Act No. 4 of 1982.



.....
Patali Champika Ranawaka,
Minister of Megapolis and Western Development.

Ministry of Megapolis and Western Development,
17th and 18th Floors,
"Suhurupaya",
Sri Subhuthipura Road,
Battaramulla.

Date: 28th June, 2019



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(Published by Authority)

PART I : SECTION (I) — GENERAL
Government Notifications

NOTICE OF APPROVAL OF THE DEVELOPMENT PLAN FOR THE CAPITAL CITY COMPRISING OF SRI JAYEWARDENEPURA KOTTE MUNICIPAL COUNCIL, KADUWELA MUNICIPAL COUNCIL, MAHARAGAMA URBAN COUNCIL, KOTIKAWATTA - MULLERIYAWA PRADEHSIYA SABHA AREAS

NOTICE is hereby given to the General Public of the Democratic Socialist Republic of Sri Lanka under Section 8G of the Urban Development Authority Law, No. 41 of 1978 as amended from time to time that I, Patali Champika Ranawaka, the Minister in charge of the subject of Megapolis & Western Development, by virtue of the powers vested in me under Section 8F of the said law, had approved the development plan on the 28th day of June, 2019 for the capital city comprising of Sri Jayewardenepura Kotte Municipal Council, Kaduwela Municipal Council, Maharagama Urban Council, Kotikawatta - Mulleriyawa Pradehsiya Sabha Areas, prepared under Section 8A of the said Law.

PATALI CHAMPIKA RANAWAKA,
Minister of Megapolis and Western Development.

28th June 2019.

Approval of the Development Plan for the Capital City comprising of Sri Jayewardenepura Kotte Municipal Council, Kaduwela Municipal Council, Maharagama Urban Council, Kotikawatta - Mulleriyawa Pradehsiya Sabha Areas

Public are hereby informed that the Development Plan prepared under Section 8A of the Urban Development Authority (Amendment) Act, No. 4 of 1982, for the Capital City comprising of Sri Jayewardenepura Kotte Municipal Council, Kaduwela Municipal Council, Maharagama Urban Council, Kotikawatta - Mulleriyawa Pradehsiya Sabha Areas have



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PART I : SEC. (I)- GAZETTE EXTRAORDINARY OF THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA 28.06.2019

been approved on 28th June 2019, by Hon. Patali Champika Ranawaka, Minister of Megapolis and Western Development by virtue of powers vested on him under Section 8 "F" of the said Amendment Act.

DR. JAGATH MUNASINGHE,
Chairman,
Urban Development Authority.

28th June 2019.

07 - 4553/1

**APPROVAL OF THE DEVELOPMENT PLAN FOR THE COLOMBO COMMERCIAL CITY AREA
COMPRISING OF COLOMBO MUNICIPAL COUNCIL, DEHIWALA - MOUNT LAVINIA MUNICIPAL
COUNCIL, KOLONNAWA URBAN COUNCIL, BORALES GAMUWA URBAN COUNCIL, PELIYAGODA
URBAN COUNCIL, WATTALA - MABOLA URBAN COUNCIL, WATTALA PRADESHIYA SABHA
AND KELANIYA PRADESHIYA SABHA AREAS**

NOTICE is hereby given to the General Public of the Democratic Socialist Republic of Sri Lanka under Section 8G of the Urban Development Authority Law, No. 41 of 1978 as amended from time to time that I, Patali Champika Ranawaka, the Minister in charge of the subject of Megapolis & Western Development, by virtue of the powers vested in me under Section 8F of the said law, had approved the development plan on the 28th day of June, 2019 for the Colombo Commercial City Area comprising of Colombo Municipal Council, Dehiwala - Mount Lavinia Municipal Council, Kolonnawa Urban Council, Boralesgamuwa Urban Council, Peliyagoda Urban Council, Wattala - Mabola Urban Council, Wattala Pradeshiya Sabha and Kelaniya Pradeshiya Sabha Areas, prepared under Section 8A of the said Law.

PATALI CHAMPIKA RANAWAKA,
Minister of Megapolis and Western Development.

28th June 2019.

**Approval of the Development Plan for the Colombo Commercial City Area comprising of Colombo
Municipal Council, Dehiwala - Mount Lavinia Municipal Council, Kolonnawa Urban Council,
Boralesgamuwa Urban Council, Peliyagoda Urban Council, Wattala - Mabola Urban Council, Wattala
Pradeshiya Sabha and Kelaniya Pradeshiya Sabha Areas**

Public are hereby informed that the Development Plan prepared under Section 8A of the Urban Development Authority (Amendment) Act, No. 4 of 1982, for the Colombo Commercial City Area comprising of Colombo Municipal Council, Dehiwala - Mount Lavinia Municipal Council, Kolonnawa Urban Council, Boralesgamuwa Urban Council, Peliyagoda Urban Council, Wattala - Mabola Urban Council, Wattala Pradeshiya Sabha and Kelaniya Pradeshiya Sabha Areas have been approved on 28th June 2019, by Hon. Patali Champika Ranawaka, Minister of Megapolis and Western Development by virtue of powers vested on him under Section 8 "F" of the said Amendment Act.

DR. JAGATH MUNASINGHE,
Chairman,
Urban Development Authority.

28th June 2019.

07 - 4553/2

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NOTICE OF APPROVAL OF THE DEVELOPMENT PLAN FOR THE MORATWUA MUNICIPAL COUNCIL AREA

NOTICE is hereby given to the General Public of the Democratic Socialist Republic of Sri Lanka under Section 8G of the Urban Development Authority Law, No. 41 of 1978 as amended from time to time that I, Patali Champika Ranawaka, the Minister in charge of the subject of Megapolis & Western Development, by virtue of the powers vested in me under Section 8F of the said law, had approved the development plan on the 28th day of June, 2019 for the Moratuwa Municipal Council Area, prepared under Section 8A of the said Law.

PATALI CHAMPIKA RANAWAKA,
Minister of Megapolis and Western Development.

28th June 2019.

Approval of the Development Plan for the Moratwua Municipal Council Area

Public are hereby informed that the Development Plan prepared under Section 8A of the Urban Development Authority (Amendment) Act, No. 4 of 1982, for the Moratuwa Municipal Council Area has been approved on 28th June 2019, by Hon. Patali Champika Ranawaka, Minister of Megapolis and Western Development by virtue of powers vested on him under Section 8 "F" of the said Amendment Act.

DR. JAGATH MUNASINGHE,
Chairman,
Urban Development Authority.

28th June 2019.

07 - 4553/3

NOTICE OF APPROVAL OF THE DEVELOPMENT PLAN FOR THE KALUTARA URBAN DEVELOPMENT AREA COMPRISING OF KALUTARA URBAN COUNCIL AND KALUTARA PRADESHIYA SABHA AREAS

NOTICE is hereby given to the General Public of the Democratic Socialist Republic of Sri Lanka under Section 8G of the Urban Development Authority Law, No. 41 of 1978 as amended from time to time that I, Patali Champika Ranawaka, the Minister in charge of the subject of Megapolis & Western Development, by virtue of the powers vested in me under Section 8F of the said law, had approved the development plan on the 28th day of June, 2019 for the Kalutara Urban Development area comprising of Kalutara Urban Council and Kalutara Pradeshiya Sabha Areas, prepared under Section 8A of the said Law.

PATALI CHAMPIKA RANAWAKA,
Minister of Megapolis and Western Development.

28th June 2019.

Approval of the Development Plan for the Kalutara Urban Development Area comprising of Kalutara Urban Council and Kalutara Pradeshiya Sabha Areas

Public are hereby informed that the Development Plan prepared under Section 8A of the Urban Development Authority (Amendment) Act, No. 4 of 1982, for the Kalutara Urban Development area comprising of Kalutara Urban Council

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and Kalutara Pradeshiya Sabha Areas have been approved on 28th June 2019, by Hon. Patali Champika Ranawaka, Minister of Megapolis and Western Development by virtue of powers vested on him under Section 8 "F" of the said Amendment Act.

DR. JAGATH MUNASINGHE,
Chairman,
Urban Development Authority.

28th June 2019.

07 - 4553/4

NOTICE OF APPROVAL OF THE DEVELOPMENT PLAN FOR THE BERUWALA URBAN DEVELOPMENT AREA COMPRISING OF BERUWALA URBAN COUNCIL AND BERUWALA PRADESHIYA SABHA AREAS

NOTICE is hereby given to the General Public of the Democratic Socialist Republic of Sri Lanka under Section 8G of the Urban Development Authority Law, No. 41 of 1978 as amended from time to time that I, Patali Champika Ranawaka, the Minister in charge of the subject of Megapolis & Western Development, by virtue of the powers vested in me under Section 8F of the said law, had approved the development plan on the 28th day of June, 2019 for the Beruwala Urban Development area comprising of Beruwala Urban Council and Beruwala Pradeshiya Sabha Areas, prepared under Section 8A of the said Law.

PATALI CHAMPIKA RANAWAKA,
Minister of Megapolis and Western Development.

28th June 2019.

Approval of the Development Plan for the Beruwala Urban Development Area comprising of Beruwala Urban Council and Beruwala Pradeshiya Sabha Areas

Public are hereby informed that the Development Plan prepared under Section 8A of the Urban Development Authority (Amendment) Act, No. 4 of 1982, for the Beruwala Urban Development area comprising of Beruwala Urban Council and Beruwala Pradeshiya Sabha Areas, have been approved on 28th June 2019, by Hon. Patali Champika Ranawaka, Minister of Megapolis and Western Development by virtue of powers vested on him under Section 8 "F" of the said Amendment Act.

DR. JAGATH MUNASINGHE,
Chairman,
Urban Development Authority.

28th June 2019.

07 - 4553/5

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Acronyms

- UDA – Urban Development Authority*
CMRSP – Colombo Metropolitan Regional Structure Plan
GND – Grama Niladari Division
CESMA – Western Region Megapolis Plan
SLITT – Sri Lanka Institute of Information Technology
CINEC – Colombo International Nautical and Engineering College
IT – Information Technology
DSD – Divisional Secretariat Division
SLLRDC – Sri Lanka Land Reclamation and Development Corporation *FAR - Floor Area Ratio*
JLL – Jones Lang LaSalle
LRT – Light Railway Transit
JICA – Japan International Corporation Agency
LA – Local Authority



DIADEM SOVEREIGN SRI LANKA
THE CAPITAL CITY DEVELOPMENT PLAN 2018 – 2030

01

*Planning
the Future of the
Capital City*





Chapter 01
**PLANNING CAPITAL
CITY'S FUTURE**

The Vision

Vision Statement

Planners Perception on
Capital City
Development Plan

1.1 The Vision

“Diadem Sovereign Sri Lanka”

1.1.1. The Vision Statement

“Rejuvenation of the Past Glory of the Wetland City”

The vision of the capital city plan is to rejuvenate the forgone glory of the once celebrated monarch of Sri Jayawardenapura on the current administrative capital, which is not adequately manifested in its physical environment and in the order of its activities. The glory of the Sri Lanka's Administrative Capital is expected to instill the sense of pride and healthy image of the city in the dwellers and users along with strong emphasis on the unique and sensitive environmental settings which will not be compromised during the implementation.

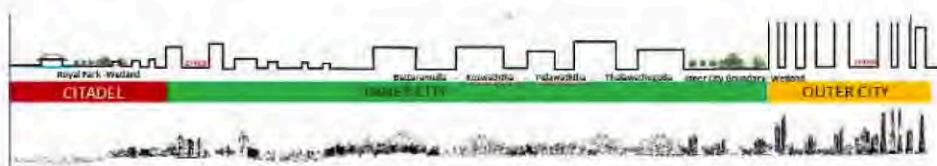


Figure 1.1 : Expected urban form in Capital City

Source : Western Province Division and Research & Development Unit, UDA - 2018

1.1.2. Planners Perception on Capital City Development Plan

During the reign of Parakramabahu VI, Kotte kingdom was the center of power and administration for the whole island. Historical sources provide evidence to believe that this king brought the country under one rule during his reign. ‘The Capital City Development Plan’ emphasizes the need of creating the pride of the ‘Past Glory’ by rejuvenating the center of governance by means bringing in the legislature, executive, and judiciary into the capital city.

‘Wetlands’ are dynamic aquatic ecosystems inherent to this area and they form a unique environmental setting for the area earmarked for the capital city. The vision statement in ‘The Capital City Plan’ emphasizes the key environmental component through the term ‘Wetland City’ as the area is mainly covered with wetlands compared to other green space. Hence, the attempt is to highlight and strengthen a positive relationship with this valuable ecosystem while promoting conservation and the wise use of them to achieve sustainable development and long lasting socio-economic benefits.

1.2 Strategic Goals

To accomplish the said vision, three strategic goals are introduced. Each strategic goal addresses a specific thrust area in the vision and they in turn, are translated into ‘smart’ objectives.

The success of the defined goals depends on their mutual nourishment and dependence of each other. For instance, a strong, safe and healthy city relies on successful urban management, economic development, management of natural areas and awareness and resilience to natural hazards and climate change. Accordingly, ‘The Capital City Development Plan’ has derived three goals to achieve its vision.

Strategic Goal 1:

The Ambience of a Capital City with a unique Identity and Inherited Character

A modern day capital city of any country needs to project an image of grandeur and complexity, but with an enormous sense of safety, security and humanity. At the same time, reflections of the glory of the past amongst present day developments will retain the identity of the place. The area earmarked for the development is blessed with valuable archeological sites in the immediate surroundings such as the Kotte Raja Maha Viharaya, Kaduwela – Kothalawala Sankapitiya Viharaya, Koratota Raja Maha Vihara, Ethul Kotte Alakeshwara Ruins etc. Sri Jayawardenapura Kotte also testifies the great kingdom city which existed back in the history. Hence, it is sensible to create the ‘ambience’ on this land back again. ‘The Capital City Plan’ expects to project the image of a futuristic city that will blend well with the existing characteristics of the area. The historic remnants and modern elements are expected to harmoniously blend to create interesting dynamics that in turn helps to create a unique identity and inherited character of the city.

Strategic Goal 2:

The Experience of a City bloomed in a Chain of Wetlands

The inherent strength of ‘The Capital City’ lies also on its prevailing green environment. The existence of the green and blue character including Kotte Marsh, Diyatha Marsh, Kolonnawa Marsh, Thalangama Marsh, Kelani River, Diyawanna Oya give the city, the opportunity to be developed as a unique Green city. It is very important that this potential is used to the fullest. This will go a long way in helping to create a sense of place and ownership for the people to voluntarily work towards maintaining this valuable asset of the city. ‘The Capital City Development Plan’ has recognized a strategic approach to open up the eco systems in the area to bloom the city with green and blue feature.



Strategic Goal 3:

A Place that Prospers with Smooth and Efficient Urban Systems and Smart Urban Facilities

'The Capital City' plays an important role as the prime administrative service provider to the whole country. In future, it shall step forward to provide an efficient and user friendly systems of information, governance, transportation and service provision for those who visit the area, both to deliver services and to obtain services. It shall also be a healthy destination of choice amongst international and local investors and enterprise for business and residence. To that end the Capital City shall contain an urban environment that provides the feeling of the smooth, polished and perfect with well-designed public spaces, convenient transport modes and well-maintained, clean and safe social and physical infrastructure.

1.3 Objectives

Strategic Goal 1 – The Ambience of a Capital City with a unique Identity and Inherited Character

- *Objective 1.1 – To physically establish to sense the axis of *tias Politica, Legislative, Executive and Judiciary related institutions within the Capital City**
- *Objective 1.2 – To establish a sense of strong center and a hierarchy of enclosures and provide the experience of Capital City Entrances at Strategic Locations*

Strategic Goal 2 – The experience of a city bloomed in a chain of wetlands

- *Objective 2.1 – To conserve and enhance the existing wetlands ecosystem with an extent of 3,300 hectares along with their catchments, within a total physical built up area of 16,250 hectares*
- *Objective 2.2 – To open up 80sqkm of wetlands, to the public and enhance water / wetland fronts with a length of 39kilometers for developments*

Strategic Goal 3 – A place that prospers with smooth and efficient urban systems and smart urban facilities

- *Objective 3.1 – To provide adequate space for state sector workforce of 65,000 and 135,000,000sqm of space for residential community within the reach of average 3 to 10 kilometers from their work places, along with necessary amenities, recreational facilities, economic infrastructure.*
- *Objective 3.2 – To establish an integrated system of reliable and comfortable public transport, which provides maximum 30 minutes reach between any two locations (average speed of 50 km per hour) within the capital city area with a single transit/modal switch by 2030.*
- *Objective 3.3 – To upgrade the physical infrastructure in par with international standards and the smart urban facilities in all public spaces.*

Chapter 01
**PLANNING CAPITAL
CITY'S FUTURE**

Objectives



DIADEM SOVEREIGN SRI LANKA
THE CAPITAL CITY DEVELOPMENT PLAN 2019–2030

02

SWOT Analysis



Chapter 02 SWOT ANALYSIS

Strategic Goal 1

Strategic Goal 2

Strategic Goal 1

The ambience of a Capital City with a unique identity and inherited character

Strengths

- S 1:** Location of the parliament along with the related administrative functions within the planning area.
- S 2:** The planning and urban design strategies that are already in practice.
- S 3:** Existence of historical Kotte kingdom archeological sites

Weaknesses

- W 1:** Less sensitivity and low priority given in the implementation and the enforcement towards the original vision and the urban design of Kotte-Sri Jayewardenapura Capital City Development Plan.
- W 2:** Strategic points on axis is densified with active urban functional activities.
- W 3:** Underserved settlements that provide home for 1% approximately of the residential Population.
- W 4:** Absence of active conservation programme for the available archeological sites and remnants.

Opportunities

- O 1:** Government policy and the proposals to refurbish and relocate some of the major institutions from Colombo to Sri Jayawardenapura.

Strategic Goal 2

The experience of a city bloomed in a chain of wetlands

Strengths

- S 1:** Coverage of 20% of planning area with wetland ecosystem.
- S 2:** The wetland eco-system that supports the natural drainage, bio-diversity and scenic beauty of the landscape covering about 20% of the land area
- S 3:** Public wetland ownership and rich bio-diversity

Weaknesses

- W 1:** Reduction of wetlands by 47% during the period of 1956 to 2016

Opportunities

- O 1:** Legal conservation status of wetlands
- O 2:** Proposed master plan and projects for wetland conservation
- O 3:** Declaration of Colombo (along with its surrounding lands) as a wetland capital by RAMSA convention and the associated wetland conservation plans

Chapter 02

SWOT ANALYSIS

Strategic Goal 3

Strategic Goal 3

A place that prospers with smooth and efficient urban systems and smart urban facilities

Strengths

- S 1:** Existence of clearly identifiable clusters of activities which can promote and contribute to the city economy.
- S 2:** 73% of earmarked Capital City planning area recognized as natural hazard free area.
- S 3:** Relatively higher level of connectivity among regional & local nodes.
- S 4:** Usage of lands in proposed administrative district for functions with national level importance. And the possibility of more than 20% of lands for public purposes.
- S 5:** Availability of education and health facilities to plan social infrastructure and community services for urban growth

Weaknesses

- W 1:** Identification of 23% of the planning area as flood inundation area
- W 2:** Non-reliable, poorly managed and low quality public transportation and inefficient traffic management.
- W 3:** Location of 75% government and semi government institutions outside the proposed administrative city area.

Opportunities

- O 1:** Existing proposals to improve public transportation such as the Light Rail, Rail Electrification, Bus Priority Lane and the Water Based Transport
- O 2:** Existing proposals for theme based development zones such as Techno city, Admin City, etc
- O 3:** Existing and increasing demand for land and property in the area as the preferred residential and corporate office location.
- O 4:** Proposed Infrastructure related projects
- O 5:** Climate Resilience Improvement Project (CRIP)

Threats

- T 1:** Competitive cluster development beyond the planning area.



Chapter 02 SWOT ANALYSIS

The Ambience of a Capital City with a unique Identity and Inherited Character

Strategic Goal 1: Strengths

S.G 1: The ambience of a Capital City with a unique identity and inherited character

Strategic Goal 1: Strengths

1. *Location of Parliament along with related administrative functions within the planning area.*

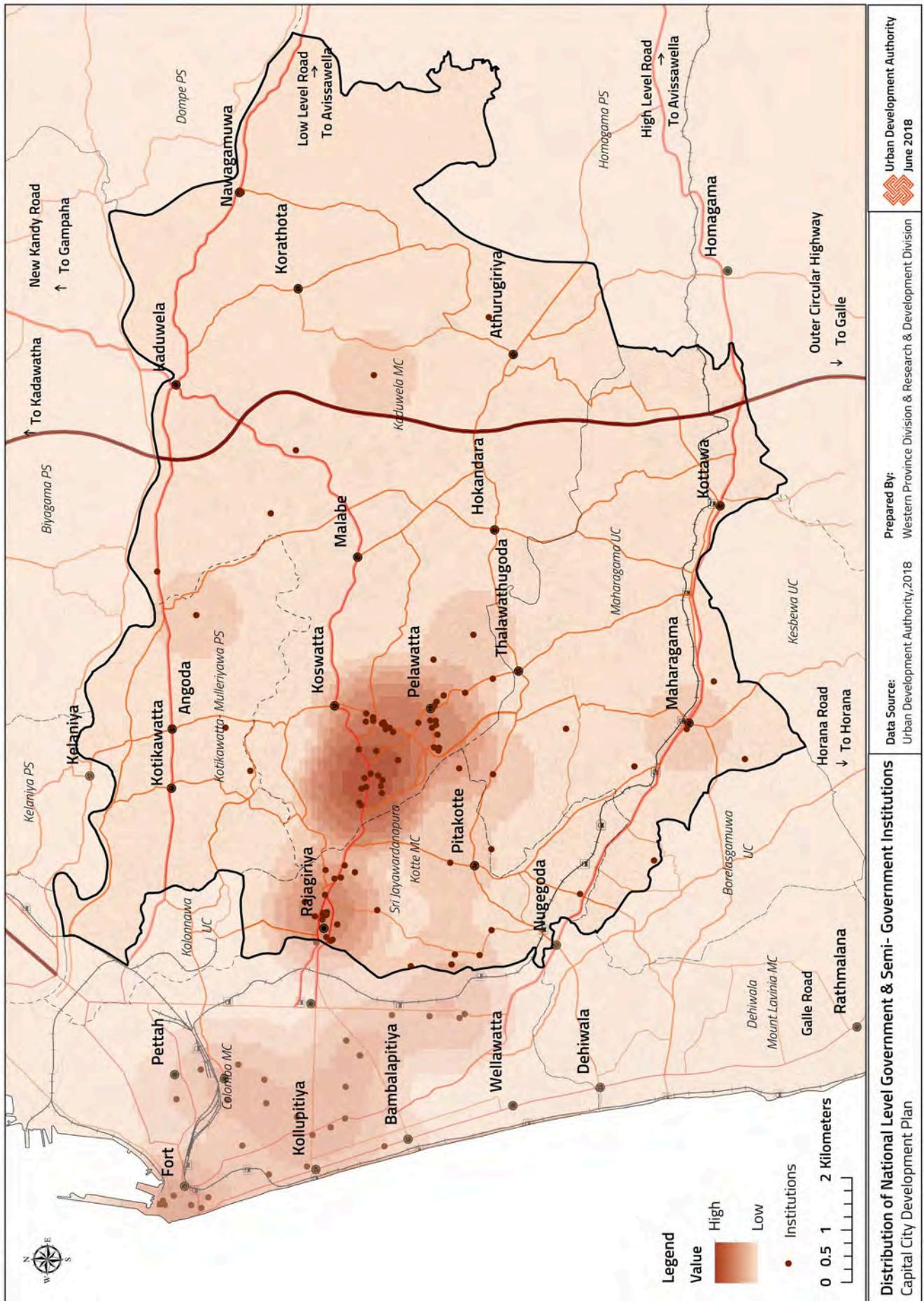
The Parliament generates great identity to the capital city. It plays a vital role as the country's ceremonial center and preserves the country's global identity. Considerably, a strong axis is already established by the Historic and nationally important Kelaniya temple and the Parliament. Further, 57 central government institutions and 42 semi government institutions are currently established within an area of 170 hectares which is 1% of the total planning area. These institutions provide ample support to hold the 'Administrative Character' of the area.

2. *The planning and urban design strategies that are already in practice.*

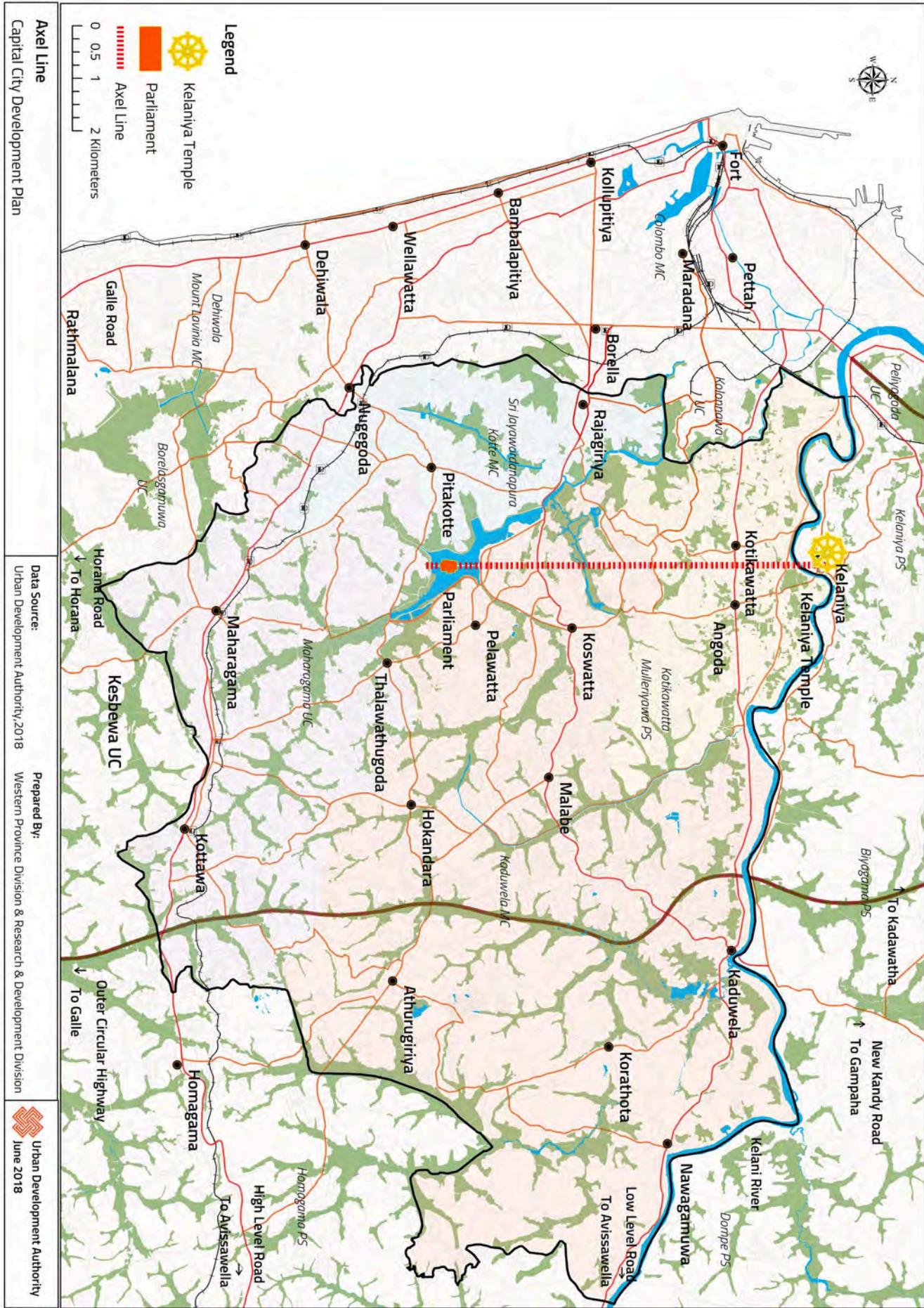
The optimum building height regulation practice within the area helps to preserve the perceived character of the parliament area.

3. *Existence of historical Kotte Kingdom archeological sites*

The Capital City is well-known for the inherited historical value it holds. Especially, the proposed center which holds the ruins of the Rampart Wall, Alakeshwara Ruins, Angampitiya Ground, Wehera Kanda, Outer Canal, Ambalama and tunnel enriches the unique character of the city center.

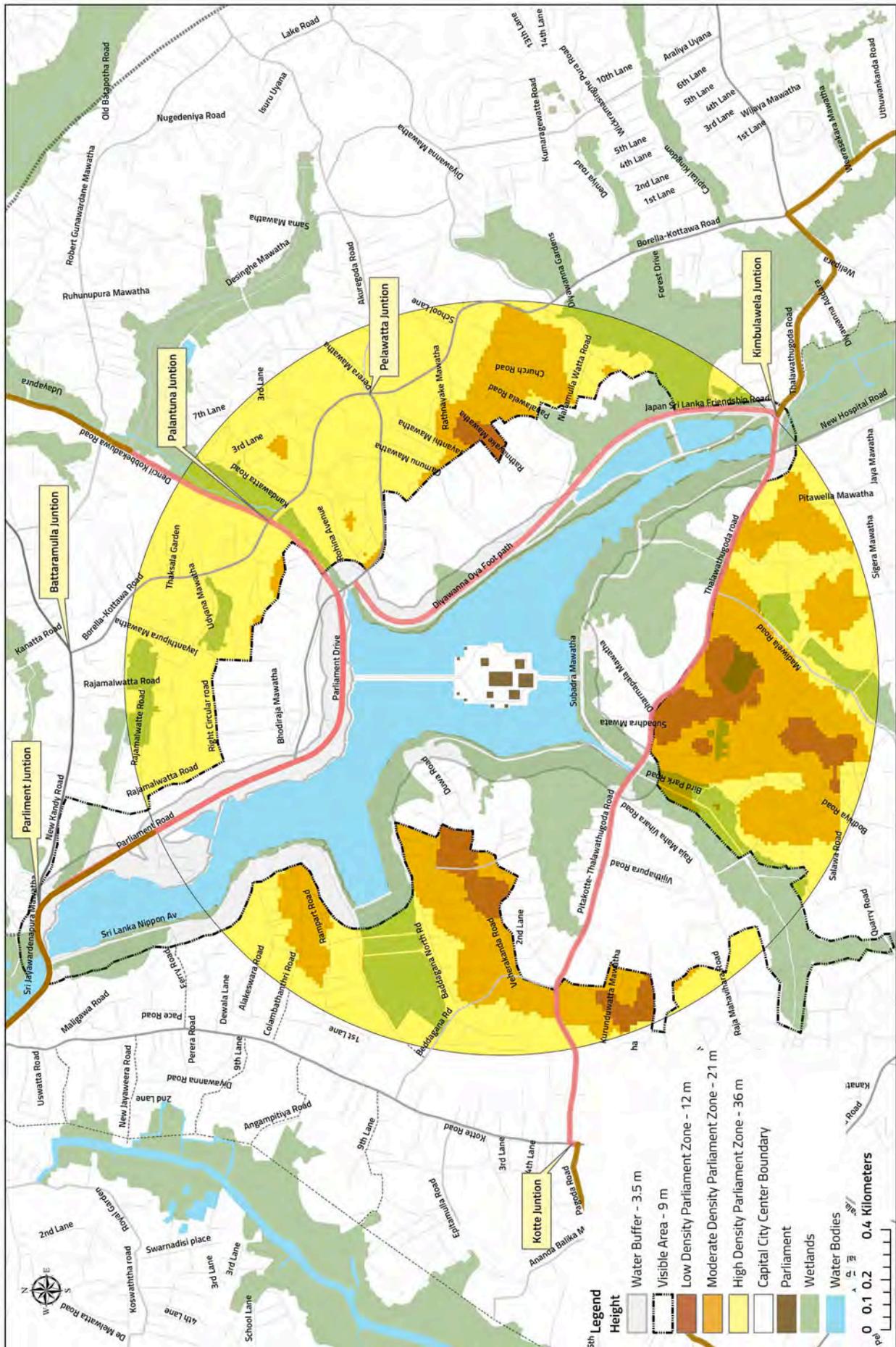


Map 2.1 : Distribution of national level government, semi-government offices
Source : Western Province Division and Research & Development Unit, UDA - 2018



Map 2.2 : Axis of planning area

Source : Western Province Division and Research & Development Unit, UDA - 2018



Map 2.3 : Building heights categorization – Parliament surrounding area
Source : Western Province Division and Research & Development Unit, UDA - 2018



Chapter 02 SWOT ANALYSIS

The Ambience of a Capital City with a unique Identity and Inherited Character

Strategic Goal 1:
Strengths

Strategic Goal 1:
Weaknesses

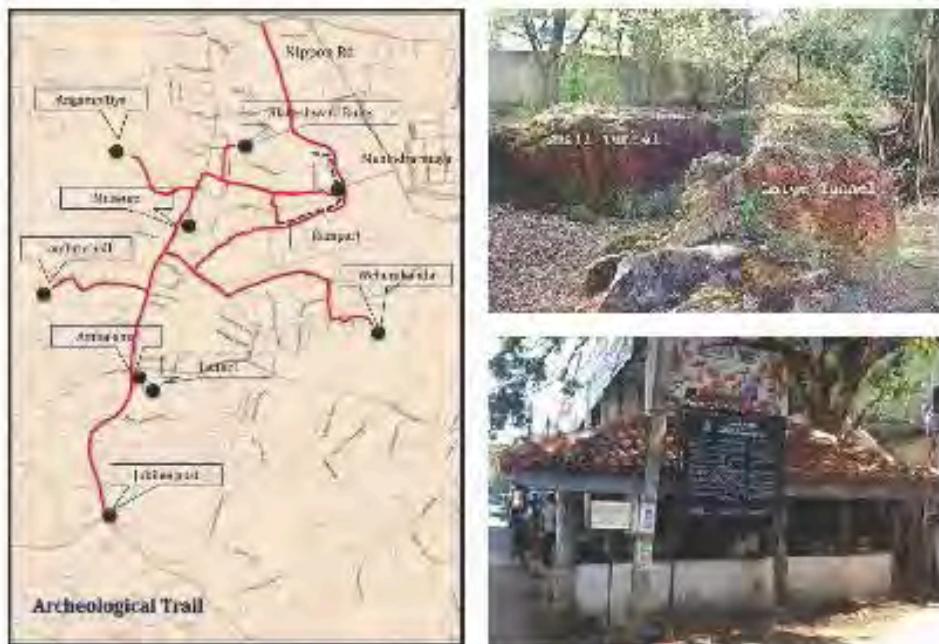


Figure 2.1 : Archeological sites in Kotte
Source : www.trips.lakadasun.org/a-tour-to-kingdom-of-kotte-2018

Strategic Goal 1 – Weaknesses

1. *Less sensitivity and low priority given in the implementation and the enforcement towards the original vision and the urban design of Kotte-Sri Jayawardenapura Capital City Development Plan*

According to survey results carried out by the Urban Development Authority, the respondents had mentioned that the Parliament building is the only iconic building which emphasizes the capital city character of Sri Jayawardenapura Kotte.



Figure 2.2 : Sense of the place in Kotte
Source : Western Province Division and Research & Development Unit, UDA - 2016

2. Strategic points on axis is densified with active urban functional activities.

'Axis' is one of the major design principles in urban design practices as it helps to create the uniqueness of a city. However, when the hypothetical axis from the Parliament to Kelaniya Temple is considered, it is recognized that the area is densified with commercial and administrative activities. Hence, this positioning could discourage the expected changes on the axis as it will be a complicated task to reshape the axis innovative ideas and regulations.

3. Underserved settlements that provide home for approximately 1% of the residential population.

Two sites of the seven underserved settlements are located within the 'Center' and 'Inner City'. This incident could right away affect the 'Character' of the Capital City.

Identified Location	Land Ownership	No. of Houses
Obesekarapura (Arunodhya Mw)	KMC Land & Private	668-700
Kinda Ela Reservation	SLLRDC Land	30 -50
Bnadaranayakepura	Private	600-700
Maligawa Road	UDA Land	60
Baddagana Road	SLLRDC Land	17
Kittampahauwa Canal Reservation (Perera Mw)	SLLRDC Land	7-10
Kelaniweli Reservation	CGR Land	144

Table 2.1 : Underserved settlement in the planning area

Source : GN office data of Sri Jayawardenapura Kotte MC, Filed Survey and Observation 2017

4. Absence of active conservation programme for the available archeological sites and remnants.

The remaining archeological sites in the current capital city area are given a very low consideration. As a result, some dwellers have overtaken the historical ruins for their personal use. These incidents have dimidiated the conservation of this valuable city.

Chapter 02 SWOT ANALYSIS

The Ambience of a Capital City with a unique Identity and Inherited Character

Strategic Goal 1 Weaknesses



Chapter 02 SWOT ANALYSIS

The Ambience of a Capital City with a unique Identity and Inherited Character

Strategic Goal 1:
Weaknesses

Strategic Goal 1 :
Opportunities

The experience of a city
bloomed in a chain of
wetlands

Strategic Goal 2 :
Strengths



Figure 2.3 : Remaining archeological sites in Kotte
Image Courtesy : Thilini Niluka , Western Province Division – 2018

Strategic Goal 1 – Opportunities

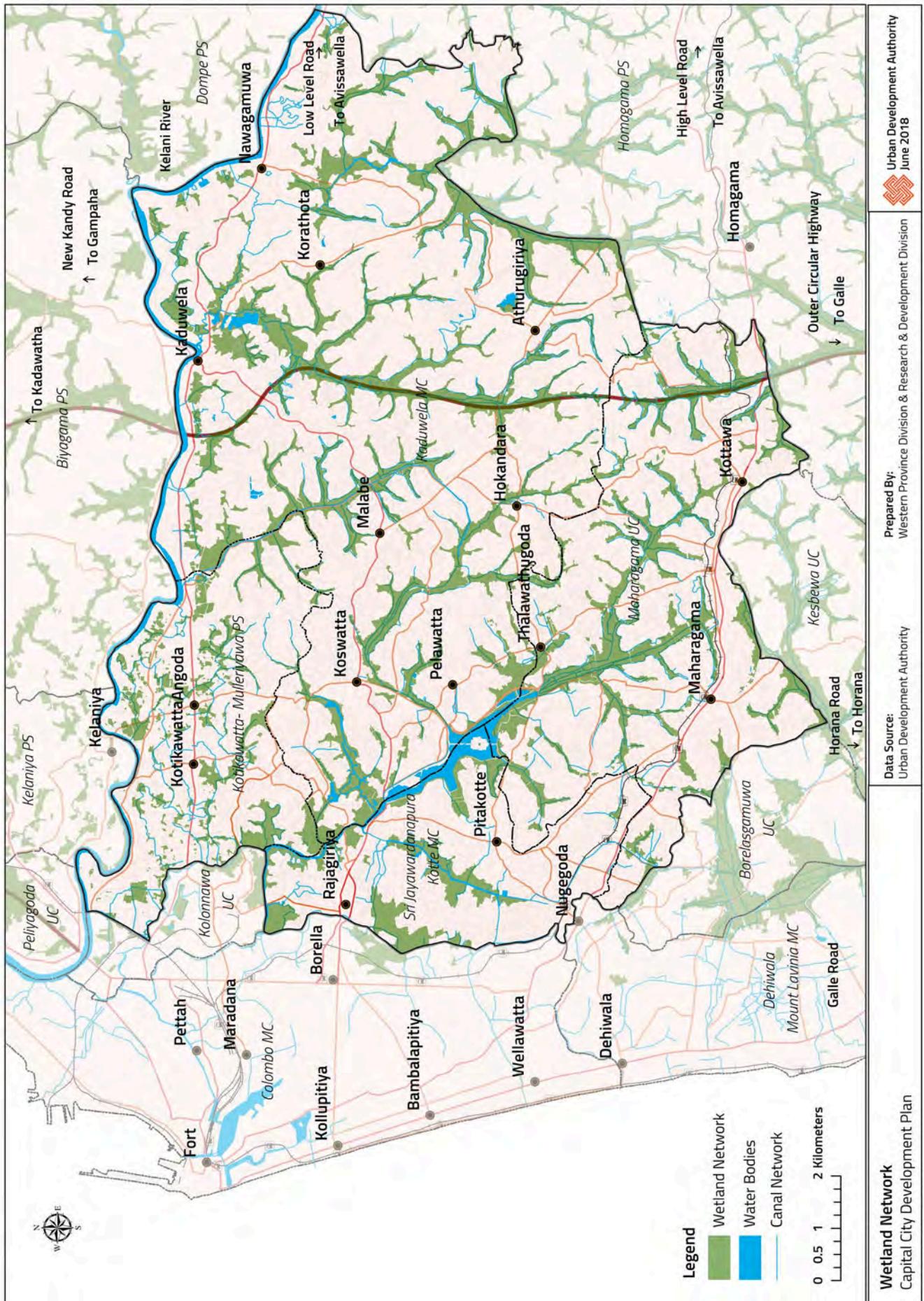
1. *Government policy and the proposals to refurbish and relocate some of the major institutions from Colombo to Sri Jayawardenapura.*

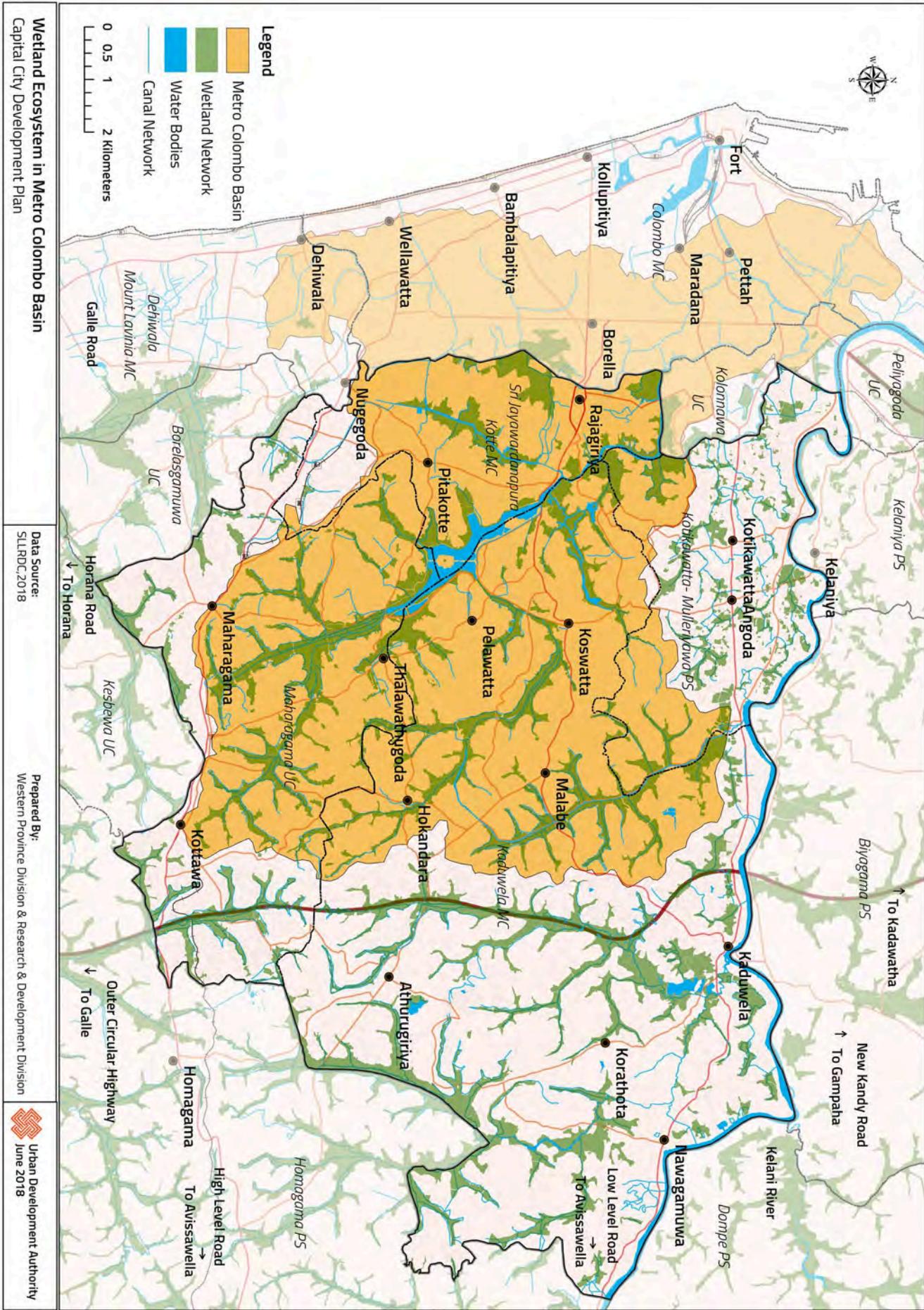
S.G.2 The experience of a city bloomed in a chain of wetlands

Strategic Goal 2 - Strengths

1. *Coverage of 20% of planning area with wetland ecosystem.*
2. *The wetland eco-system that supports the natural drainage, bio-diversity and scenic beauty of the landscape covering about 20% of the land area.*

The natural wetland feature is the most exceptional character of the Capital City Planning Area. It upholds the Capital City among the other capital cities in the world. It holds the main strength of the planning area, hence, 17% of the environmental sensitive area is legally protected. On the other hand, 78% of Greater Colombo Flood Retention Area is located within the Capital City Planning area.





Map 2.5 : Wetland ecosystem in the Metro Colombo basin

Source : Western Province Division and Research & Development Unit, UDA - 2018

3. Public wetland ownership and rich bio-diversity

The public legal wetland ownership has led to preserve the bio- diversity of the area and mitigate the conversion of wetlands into developable lands. Due to this reason, the unique character of wetland has been prominently secured.

Chapter 02 SWOT ANALYSIS

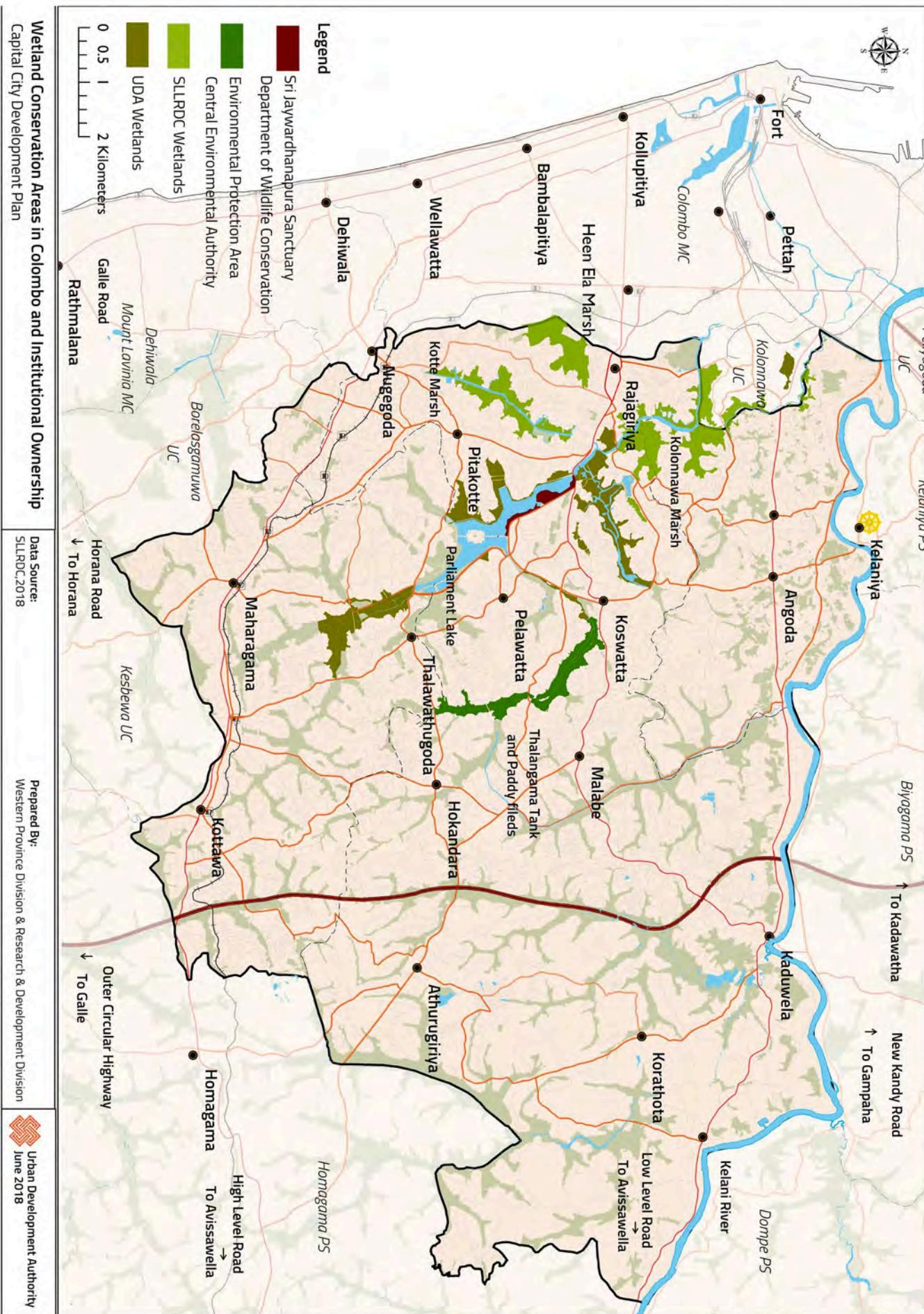
The experience of a city bloomed in a chain of wetlands

Strategic Goal 2 : Strengths

Main Sampling Unit	Species Richness	
	Flora	Fauna
Beddagana (Kotte) Marshes	141	129
Talangama Tank Marshes	110	174
Weli Park Marshes	101	121
Wetland Park	91	166
Mulleriyawa Marshes	89	97
Diyatha Uyana Marshes	89	121
Kolonnawa Marshes	85	139
Malabe Marshes	66	140
Madinnagoda Marshes	66	62
Parliament Road Marsh	62	107
Nawala (Heen ela) Marsh	59	107
Kimbulawala Marshes	45	109
Thalawathugoda Marshes	39	48
Bird Park	36	67
Polwatta Road Marshe	9	76

Table 2.2 : Wetland bio-diversity in the planning area

Source : Metro Colombo Urban Development Project



Map 2.6 : Wetland conservation areas in Capital City and institutional ownership
Source : Western Province Division and Research & Development Unit, UDA - 2018

Strategic Goal 2 – Weaknesses

1. Reduction of wetlands by 47% during the period from 1956 to 2016

The gradual decrease in wetlands around Kaduwela and Kotte areas over the past decades has threatened the eco systems.

(Gunawardena G.M.W.L, Urbanization and Wetland Ecosystems – a case study in Sri Jayawardenapura Kotte and suburbs)

Year	Area (m ²)
1956	8805188
1972	8210412
1999	6339851
2007	5548696
2016	4664412

Chapter 02 SWOT ANALYSIS

The experience of a city bloomed in a chain of wetlands

Strategic Goal 2 : Weaknesses

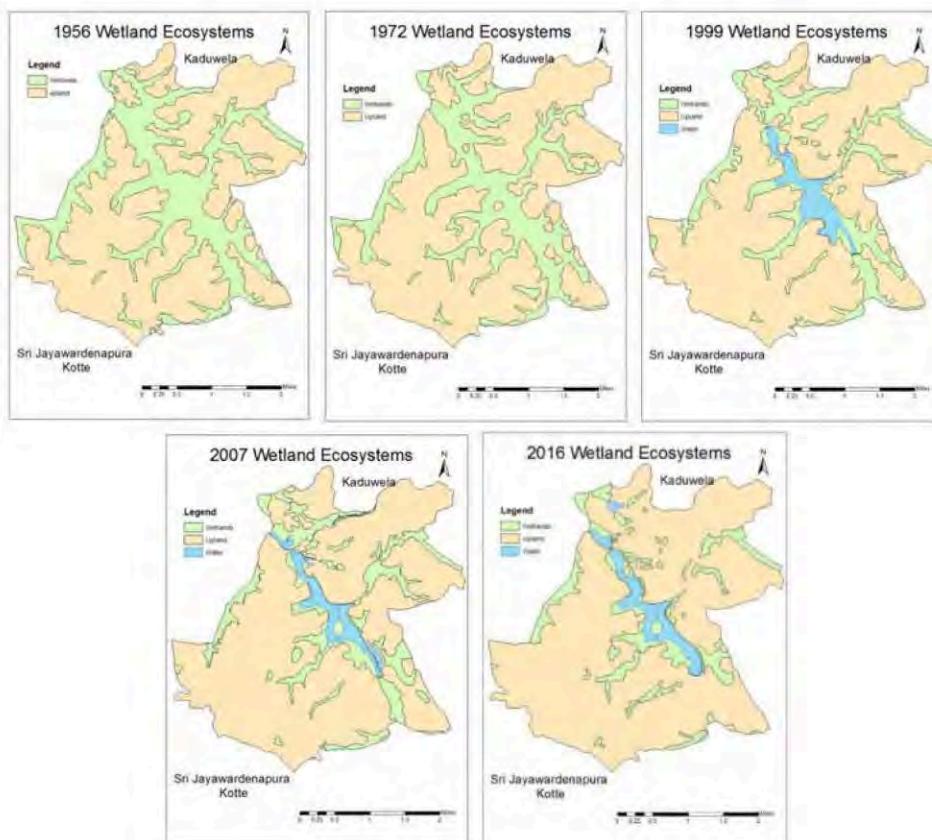


Figure 2.4 : Reduction in green coverage of the planning area

Source : Gunawardena G.M.W.L Urbanization and Wetland Ecosystems- A Case Study in Sri Jayawardenapura Kotte and Suburbs

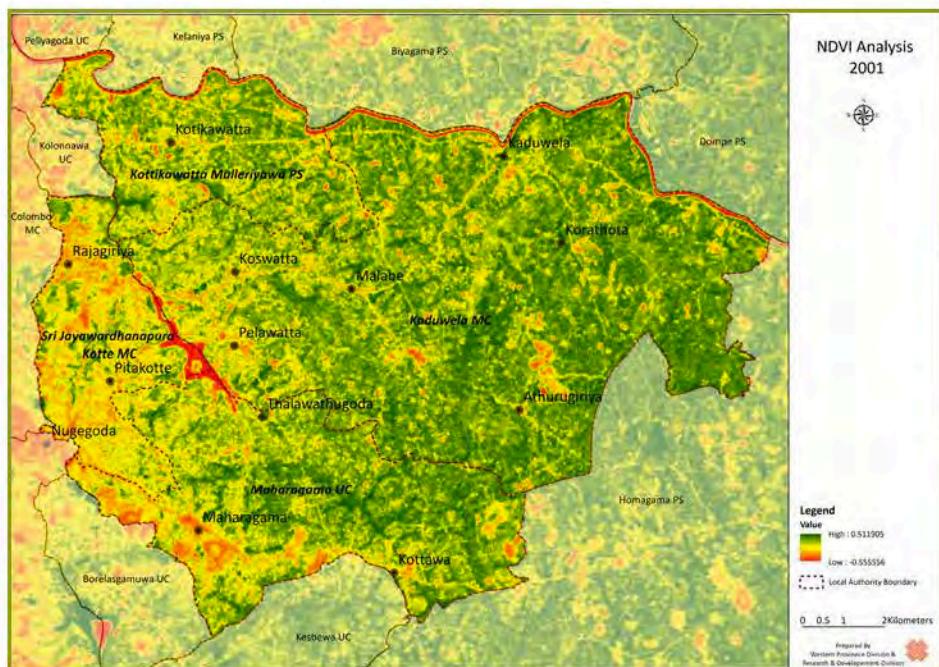
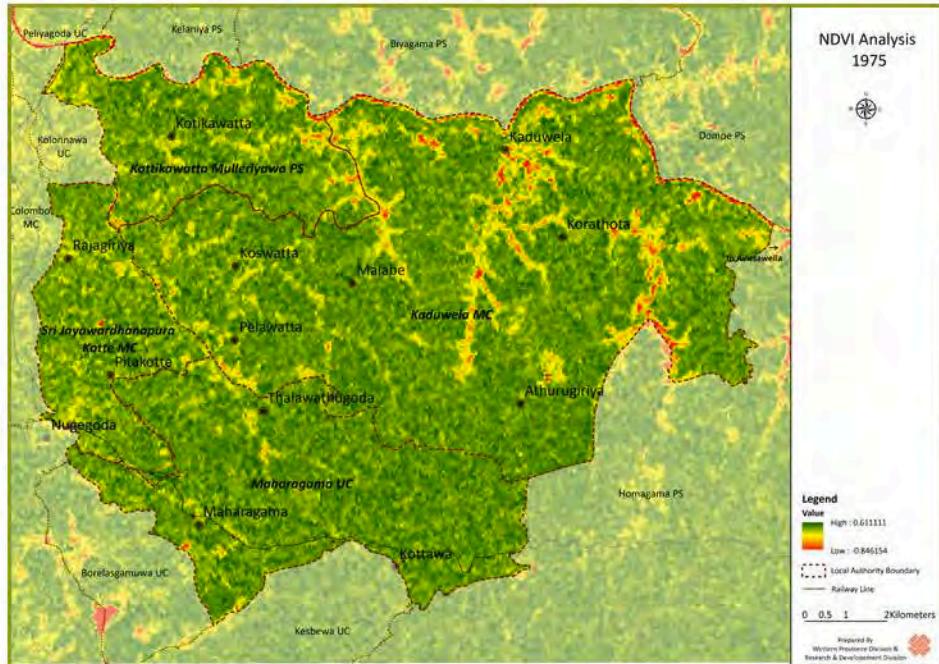


Chapter 02 SWOT ANALYSIS

The experience of a city
bloomed in a chain of
wetlands

Strategic Goal 2 :
Weaknesses

Further, the NDVI analysis indicates reduction in green coverage of the capital city planning area.



Chapter 02 SWOT ANALYSIS

The experience of a city bloomed in a chain of wetlands

**Strategic Goal 2 :
Weaknesses**

1995



2016

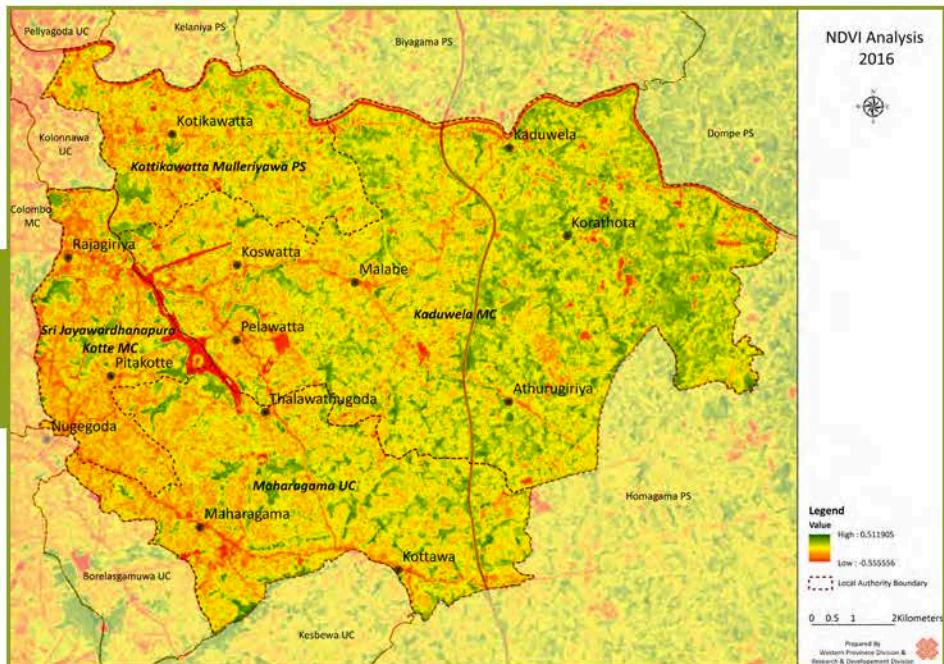
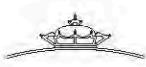


Figure 2.5 : Output results of NDVI analysis
Source : Landsat Satellite Images



Chapter 02
SWOT ANALYSIS

The experience of a city
bloomed in a chain of
wetlands

Strategic Goal 2 :
Opportunities

Strategic Goal 2 – Opportunities

1. Legal conservation status of wetlands

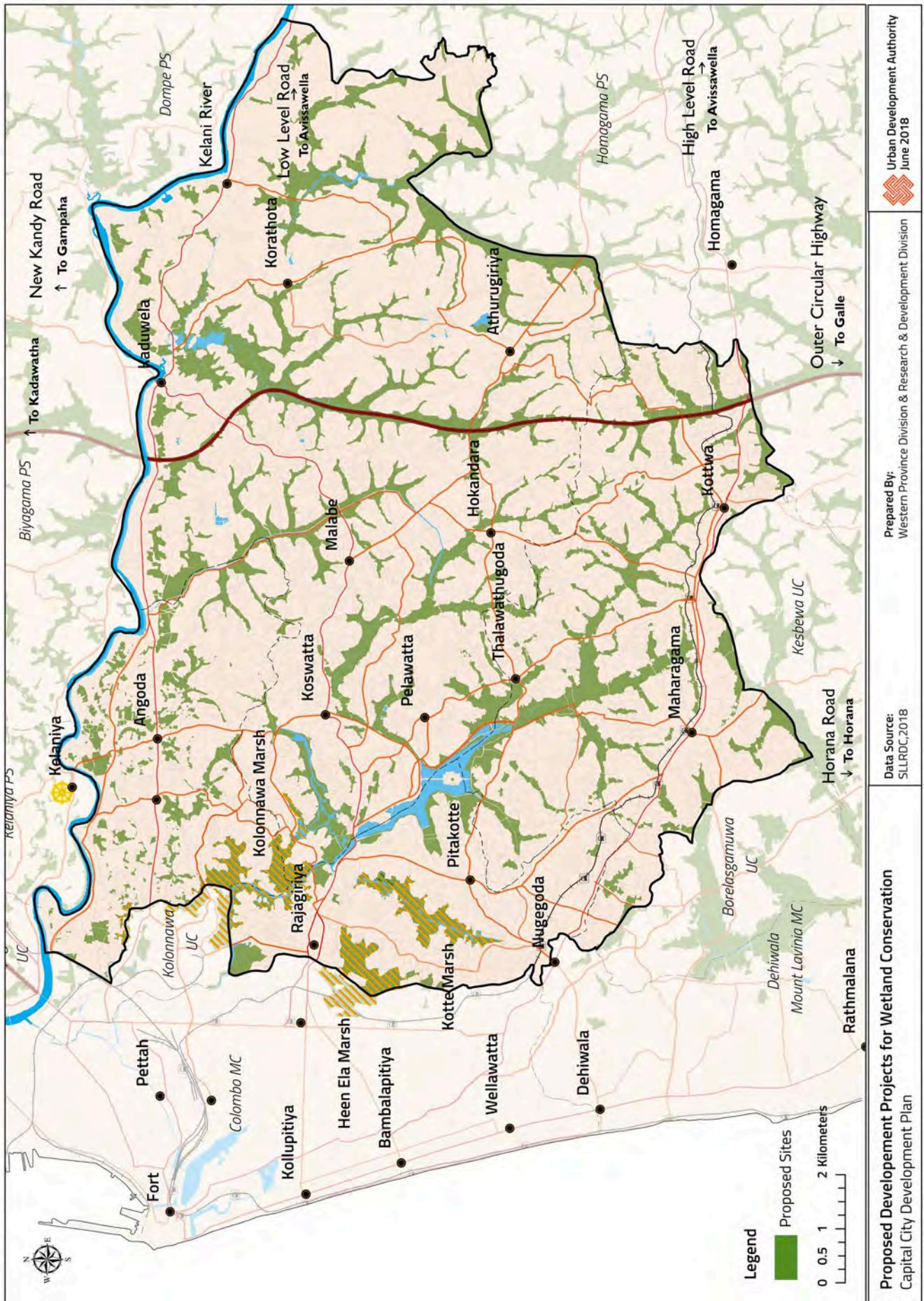
- Parliament Lake and associated wetlands are designated as a Wildlife Sanctuary (Sri Jayawardanepura Kotte Sanctuary) by the Department of Wildlife Conservation (DWLC) under the Fauna and Flora Protection.
- Thalangama Lake (CEA) protected under the National Environment Act (NEA), 1980.
- Wetland zoning guidelines gazetted in 2006 by the Urban Development Authority (UDA) for the Western Province (WP) in order to facilitate environmentally & economically sustainable use of wetlands in land use planning.

These statues support to create the blooming city feature by conserving wetlands.

2. Proposed master plan and projects for wetland conservation

2.1. Master Plan proposed by SLLRDC for Wetland Conservation

Inland Water Transport, Floating Cabanas, Floating Restaurant, Canal Bank Conservation, Bird Watching Towers, Eco-friendly Tourist Bungalow, Wetland Park and Organic Paddy Field are the proposals included in this project to conserve the wetlands



Map 2.7: Proposed development projects for wetland conservation
Source : Sri Lanka Land Reclamation and Development Cooperation



Chapter 02 **SWOT ANALYSIS**

The experience of a city
bloomed in a chain of
wetlands

Strategic Goal 2 :
Opportunities

2.2. Wetland Management Strategy – 2016

32 hectares of land from Thalawatugoda Wetland, 26 hectares of land from Kibulawala Wetland and 18 hectares of land from Baddagana Wetland are to be restored as wetland habitats and it is expected to uphold the city character with conservation of available wetlands.

2.3. Baddegama Bio-Diversity Park and Kotte Rampart Nature Park Project

The land with an extent of forty-six acres bounded by the Diyawanna Lake is to be developed as a bio diversity park and bird sanctuary by the Urban Development Authority.

3. *Declaration of Colombo (along with its surrounding lands) as a Wetland Capital by RAMSA Convention and the associated wetland conservation plans*

S.G 3 – A place that prospers with smooth and efficient urban systems and smart urban facilities

Strategic Goal 3 - Strengths

1. Existence of clearly identifiable clusters of activities which can promote and contribute to the city economy.
2. 72.86% of earmarked Capital City Planning Area recognized as natural hazard-free area.

According to Hazard Index and Risk Index of the planning area, 77% of the planning area is recognized free from the natural hazards. Hence, it will support the improvement of smooth urban system.

3. Relatively higher level of connectivity among regional & local nodes.

When the existing distribution of the nodes of the planning area is considered, it can be identified that nodes are spread in close proximity to each other with an approximate distance of 5km. Hence, these nodes are expected to provide provisions for a smooth urban system.

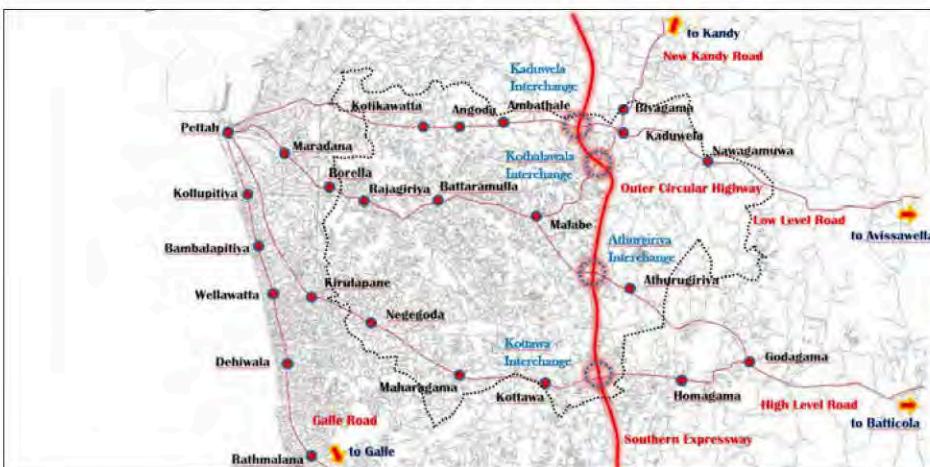


Figure 2.6 : Existing node distribution within the planning boundary
Source : Western Province Division and Research & Development Unit, UDA - 2018

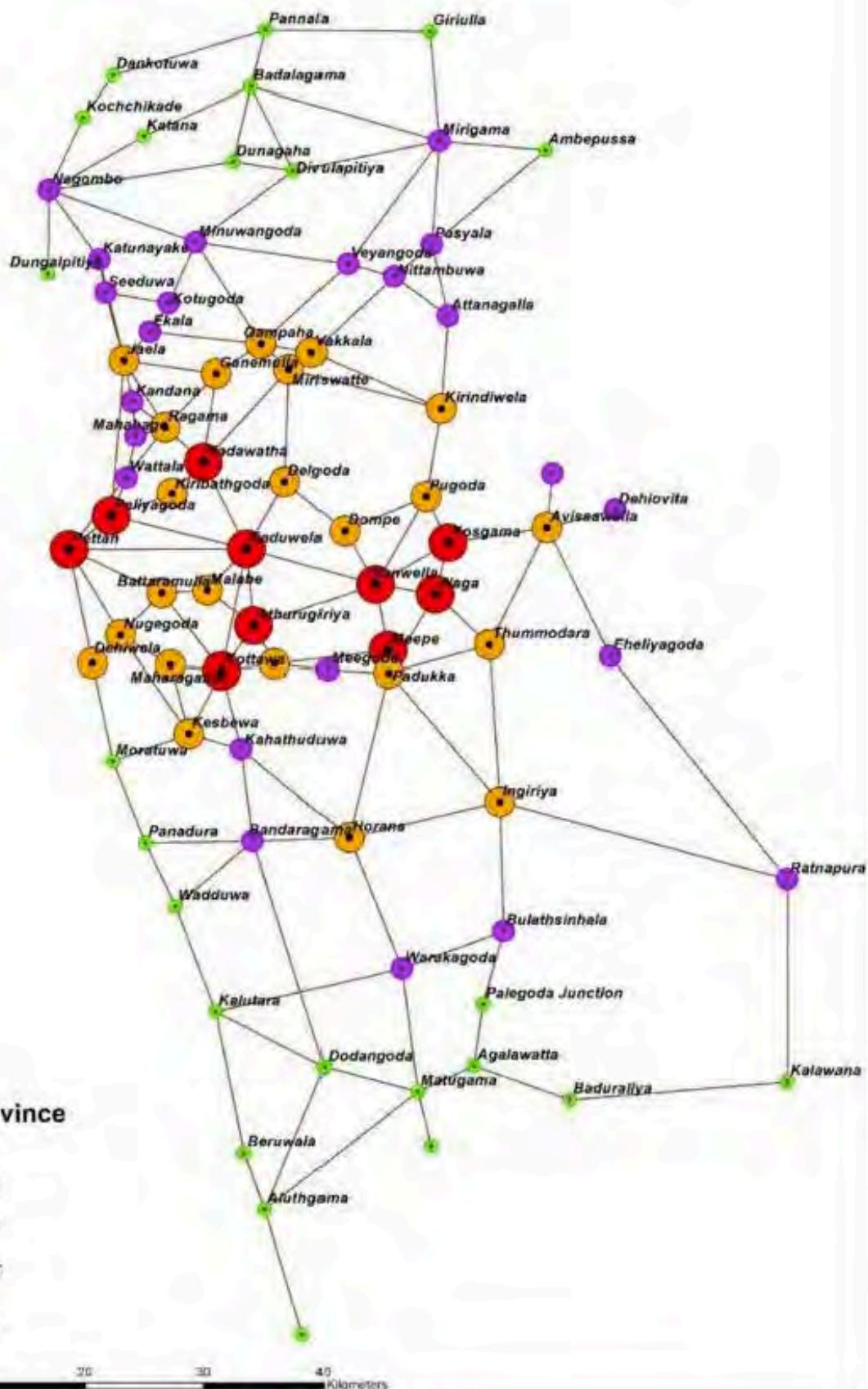
Chapter 02 SWOT ANALYSIS

A place that prospers with smooth and efficient urban systems and smart urban facilities

Strategic Goal 3 : Strengths



Western Province - Nodal Connectivity



Legend

Western Province

Connectivity

- 4th Order
- 3rd Order
- 2nd Order
- 1st Order

0 5 10 20 30 40 Kilometers

Map 2.8 : Western province nodal connectivity

Source : Western Province Division and Research & Development Unit, UDA - 2018

4. Usage of Lands in Proposed administrative district for functions with national level importance and the possibility of more than 20% of lands for public purposes.

A total land area of 3% is allocated for administrative institutions within the proposed administrative district including Sethsiripaya Stage 1, Stage 2, Suhurupaya and Department of Census & Statistics. These Institutions are to provide a smooth urban system through cluster efficiency.

5. Availability of Education and Health facilities to plan social infrastructure and community services for Urban Growth

A total number of 81 schools are situated within the Capital City Planning area. The 81 schools include 19 national schools, 23 up to A/L, 30 up to O/L and 9 primary schools.

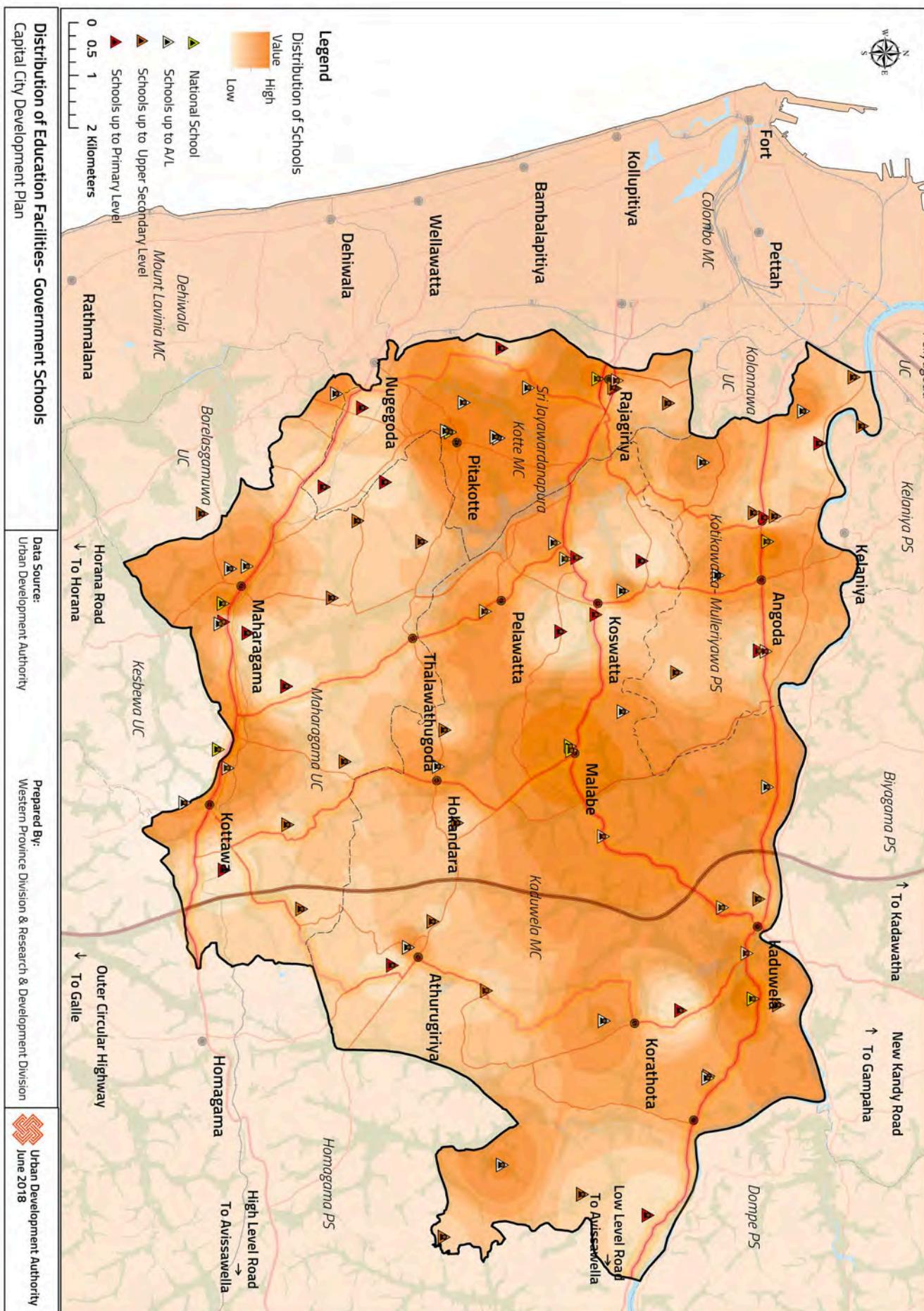
A total number of 22 government and private hospitals are located within the planning area. The 22 government hospitals include 3 teaching hospitals, 2 base hospitals, 3 divisional hospitals, 12 private hospitals and 2 ayurvedic hospitals.

Further, there are main hospitals situated with close proximity such as, Colombo General Hospital (2.9 km), Colombo South Teaching Hospital (1.4km), Ayurveda Hospital, Rajagiriya (100m), Asiri Surgical Hospital (2.9km), Ninewells Hospital (Pvt) Ltd (2.6km) and Oasis Hospital (3km).

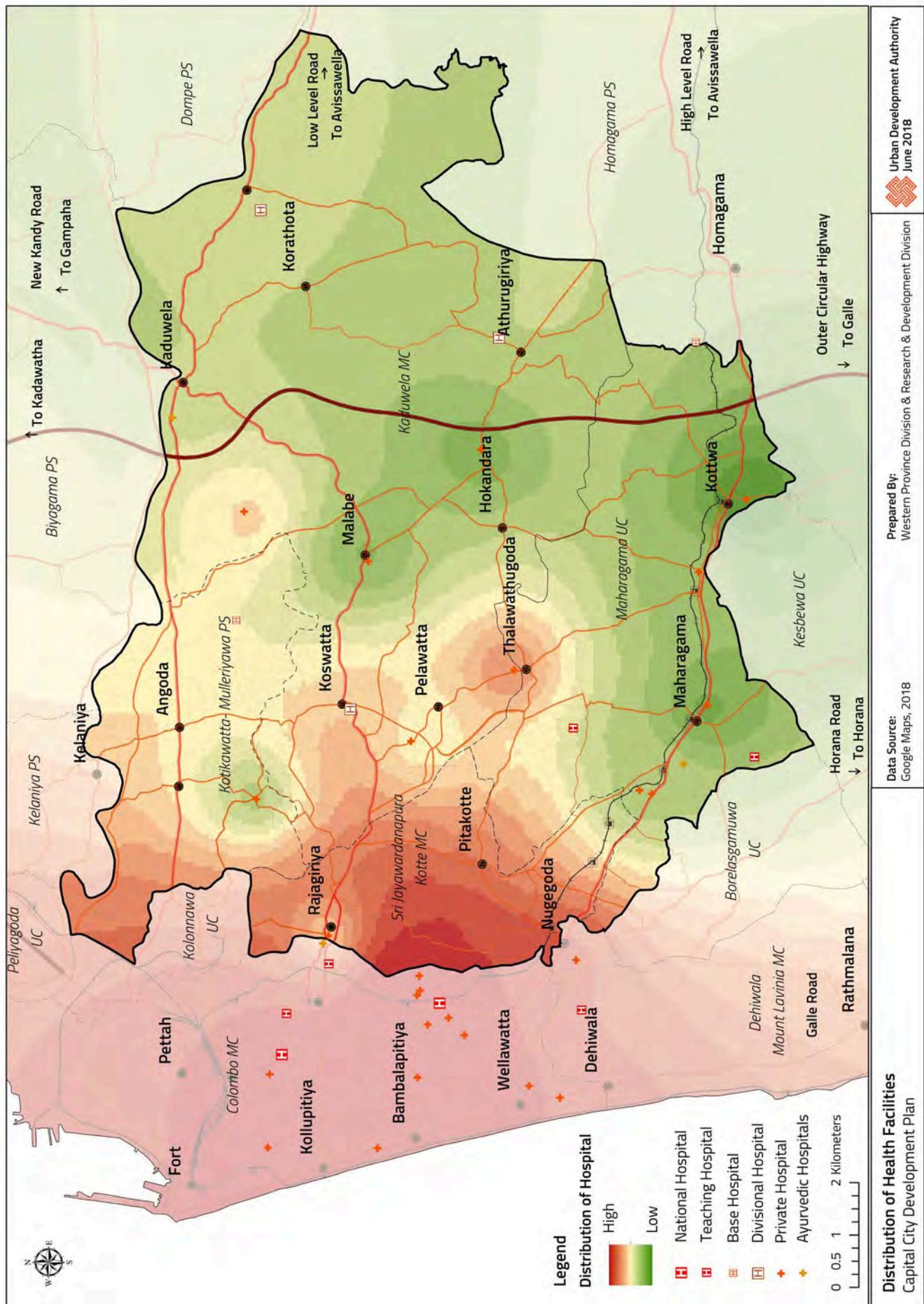
**Chapter 02
SWOT ANALYSIS**

A place that prospers with smooth and efficient urban systems and smart urban facilities

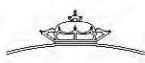
**Strategic Goal 3 :
Strengths**



Map 2.9 : Distribution of education facilities in planning area
Source : Western Province Division and Research & Development Unit, UDA - 2018



Map 2.10 : Distribution of health facilities in planning area
Source : Western Province Division and Research & Development Unit, UDA - 2018



Chapter 02 SWOT ANALYSIS

A place that prospers with smooth and efficient urban systems and smart urban facilities

Strategic Goal 3 : Weaknesses

Strategic Goal 3 - Weaknesses

1. Identification of 23% of the planning area as flood inundation area

An extent of 23% of the capital city planning area is unable to create developable lands due to flood inundation. Further, the development pressure of the area could adversely effect the wetlands.

2. Non-reliable, poorly managed and low quality public transportation and inefficient traffic management.

When the hourly capacity (pcu) of the major corridors of Capital City Planning area are considered, Malabe Corridor and Low Level Corridor exceeds the capacities.

7 Corridors	Peak Hour Road Traffic (PCU)	Hourly Capacity (PCU)
Kandy Corridor	4400	3300
Low Level Corridor	2900	2200
Malabe Corridor	5100	4400
Galle Corridor	2900	2300
Horana Corridor	2200	2300
High Level Corridor	2000	2300
Negombo Corridor	4000	4400

Table 2.3 : Hourly capacity indicator of the major corridors

Source : ComTrans Data -2017

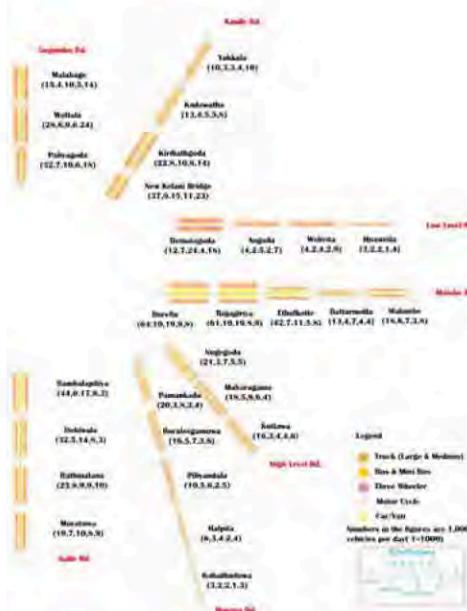
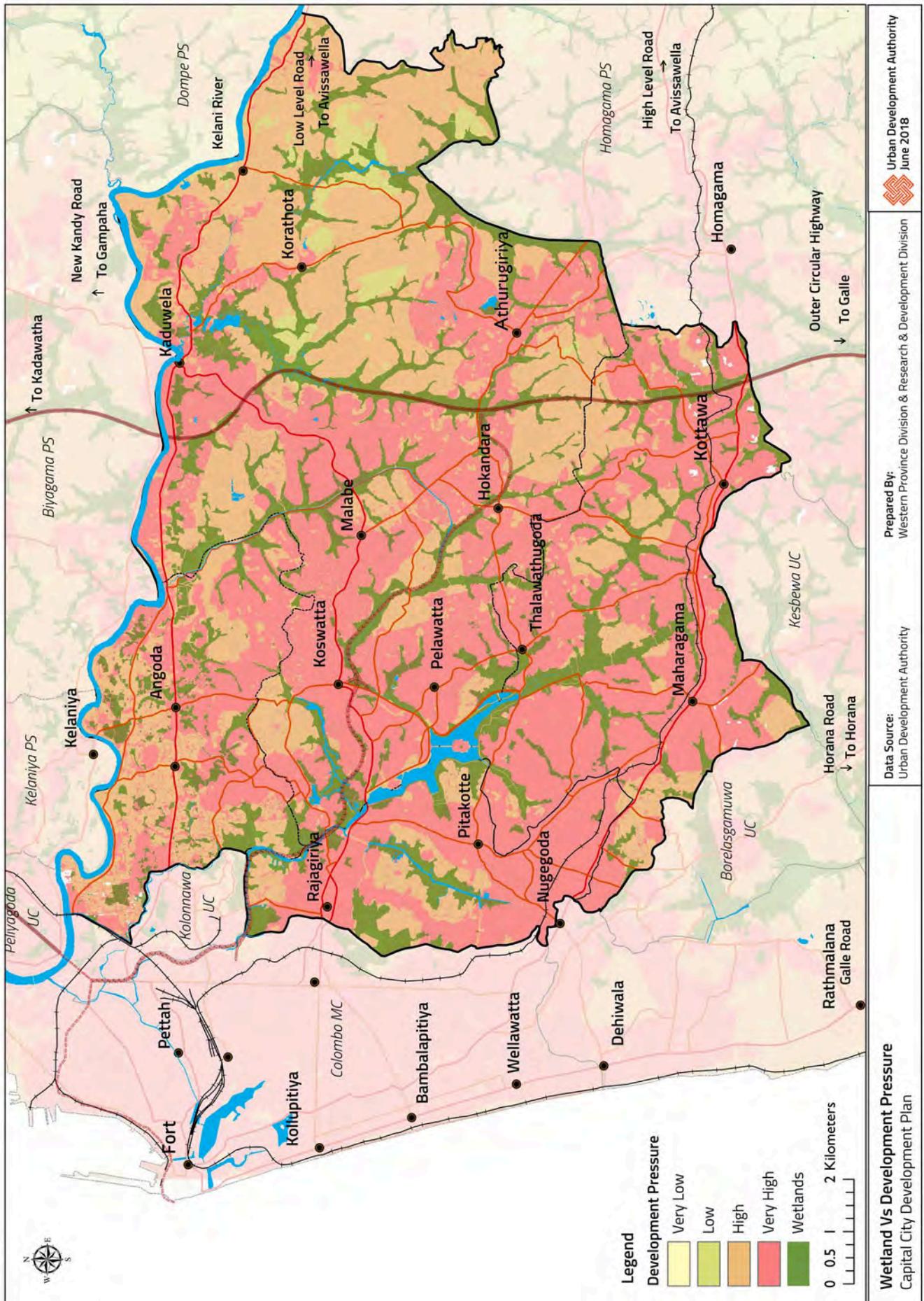
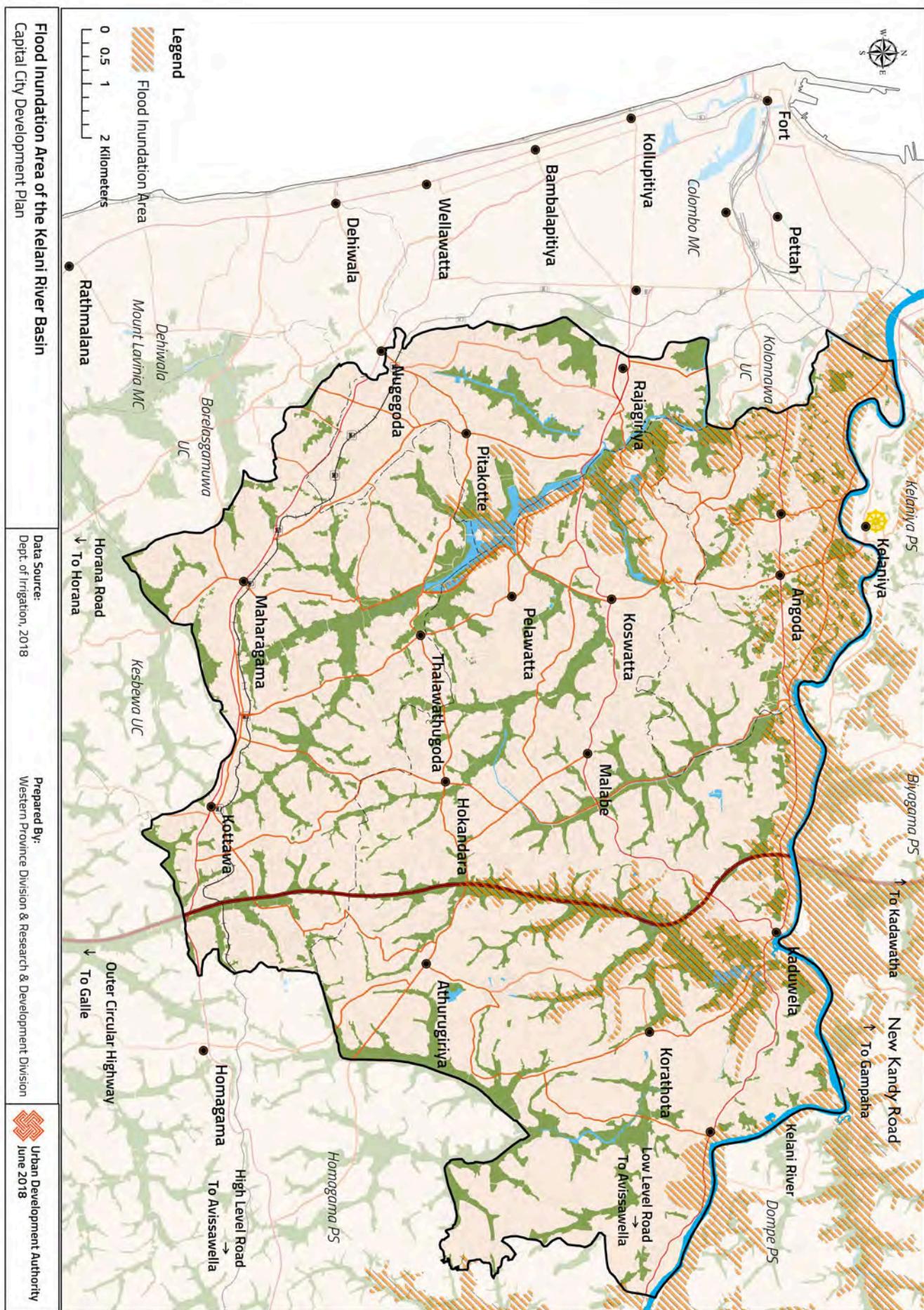


Figure 2.7: Vehicle capacity along the major corriodors

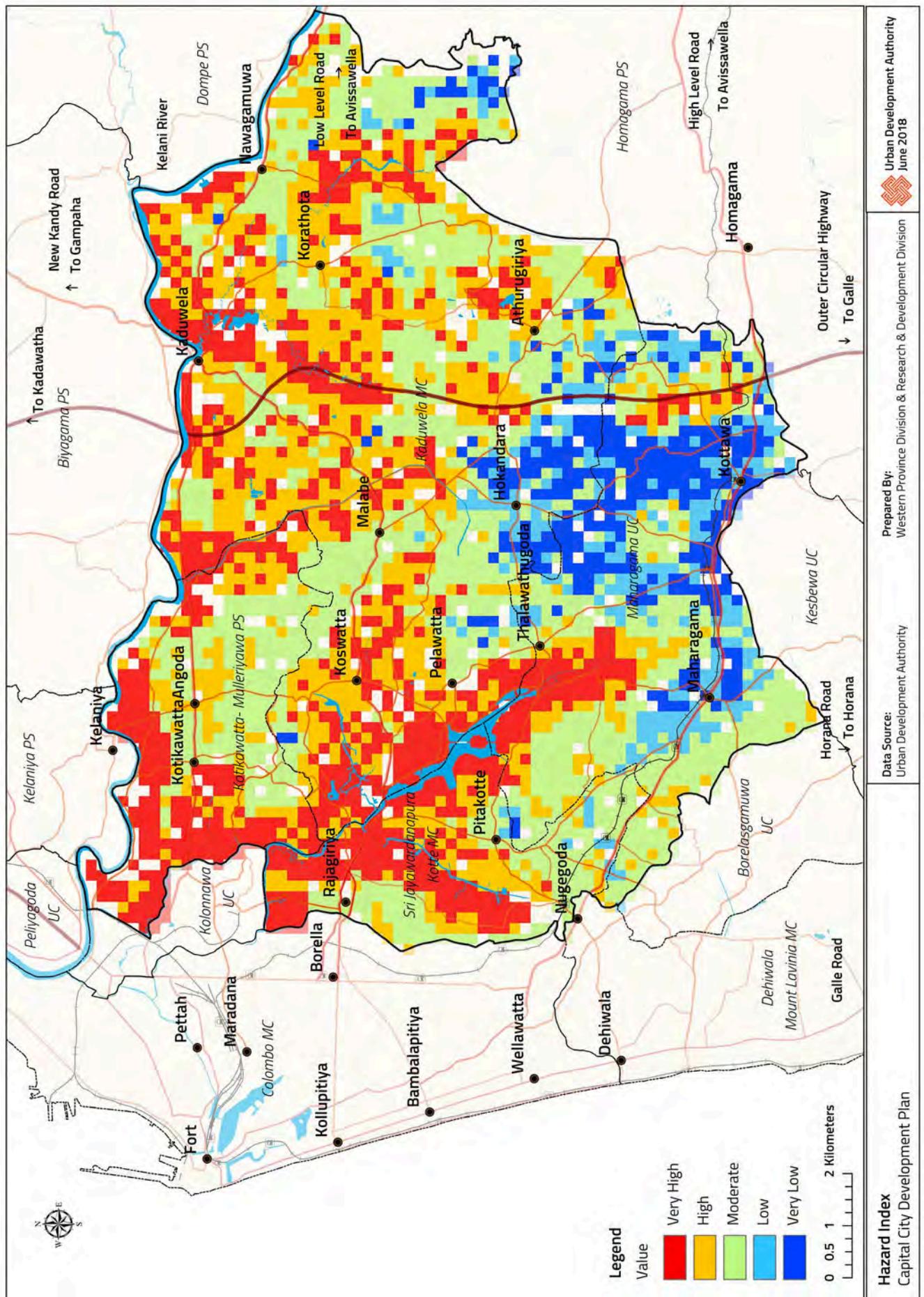
Source : ComTrans data - 2017



Map 2.11 : Wetland vs development pressure index in and around the boundary
Source : Western Province Division and Research & Development Unit, UDA - 2018

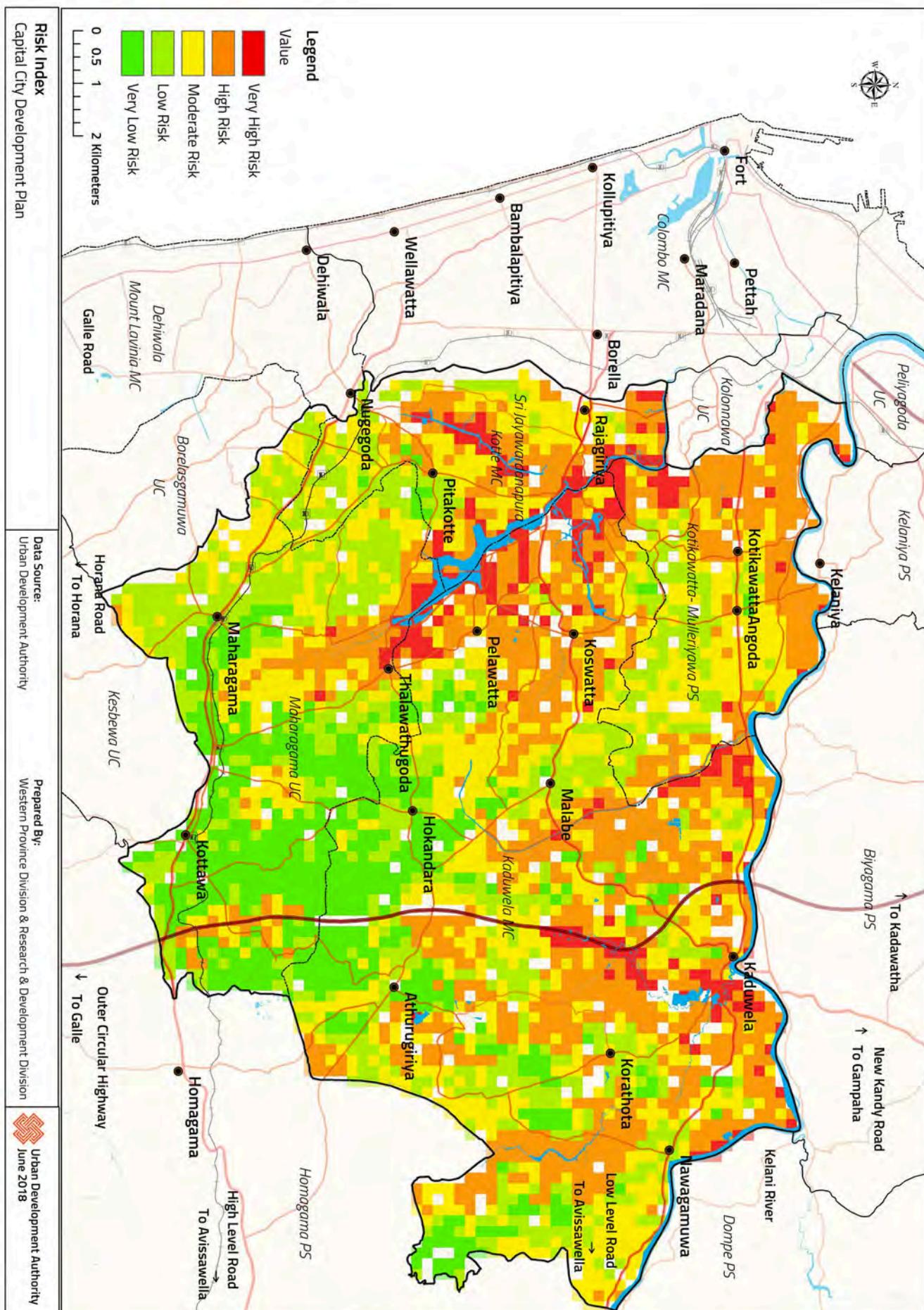


Map 2.12 : Flood inundation area in and around Kelani river basin
Source : Western Province Division and Research & Development Unit, UDA - 2018



Map 2.13 : Hazard Index of the planning area

Source : Western Province Division and Research & Development Unit, UDA - 2018



Map 2.14 : Risk Index of the planning area

Source : Western Province Division and Research & Development Unit, UDA - 2018

3. *Location of 75% government and semi government institutions outside the proposed administrative city area.*

Institutions are located beyond the proposed administrative city area namely, 266 Institutions in the Colombo Municipal Council, 5 institutions in Dehiwala, 5 institutions in Ratmalana, 4 institutions in Homagama and 4 institutions located in Kolonnawa Urban Council.

Chapter 02 SWOT ANALYSIS

A place that prospers with smooth and efficient urban systems and smart urban facilities

**Strategic Goal 3 :
Weaknesses**

**Strategic Goal 3 :
Opportunities**

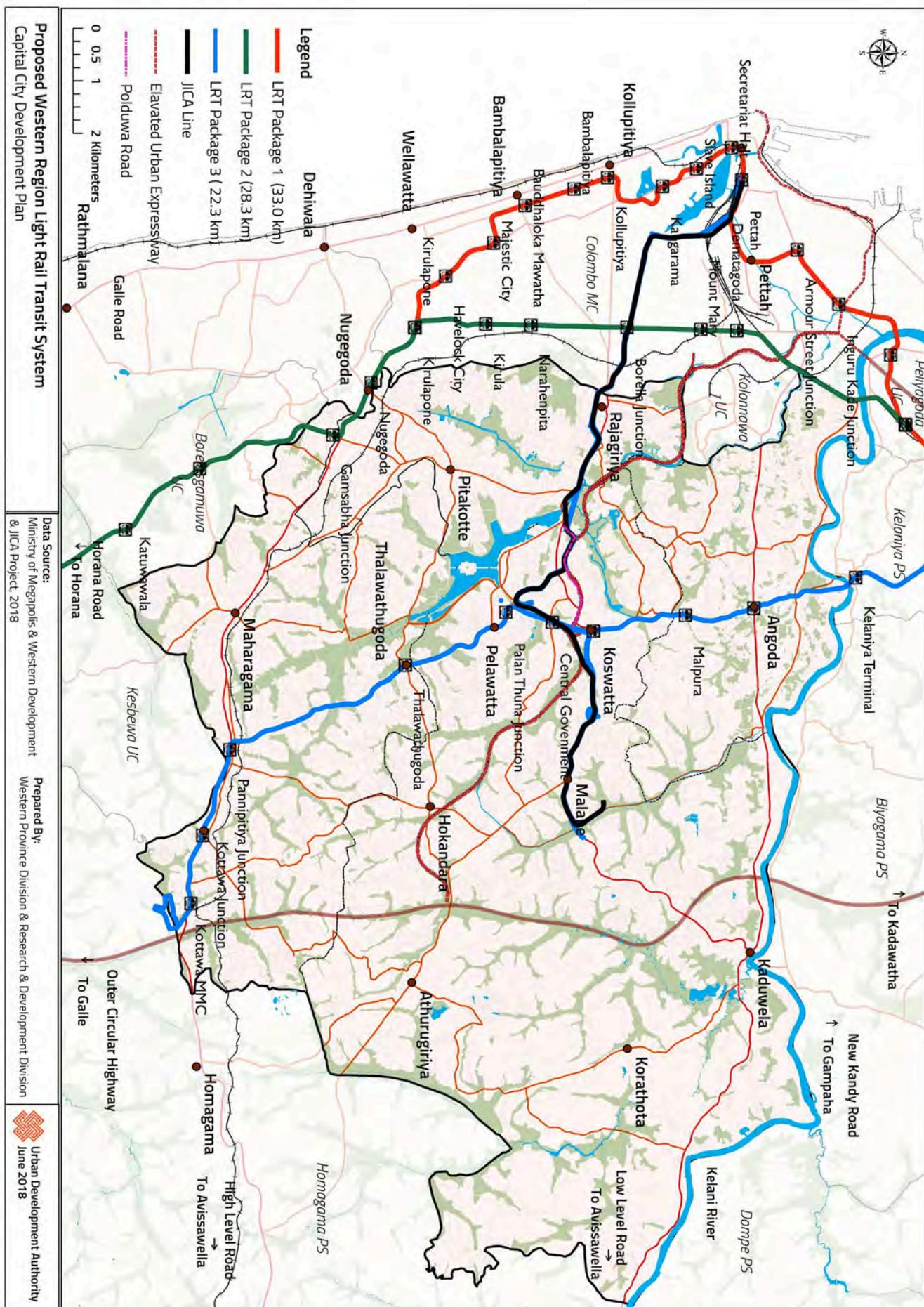
Strategic Goal 3 - Opportunities

1. *Existing proposals to improve public transportation such as the Light Rail, Rail Electrification, Bus Priority Lane and the Water Based Transport*

1.1. Proposed Light Rail Transit Project.

The project is initiated by the Ministry of Megapolis and Japan International Corporation Agency (JICA)

The JICA Line runs from Fort to Malabe via Capital City planning area. Three packages are proposed by the Ministry of Megapolis and the package 3 line (22.3km) runs via planning area from Ragama to Kottawa. It is expected to support a smooth urban system by reducing the heavy traffic burden.



Map 2.15 : Western Region Light Rail Transit Project.
Source : Megapolis Development Plan 2030

1.2. Water Transport Projects.

These projects are initiated by the Sri Lanka Land Reclamation and Development Corporation (SLLRDC). Two projects of the above relate to the planning area. Water Based Transport System from Diyatha Uyana to Wellawatta and from Mattakuliya to Hanwella along Kelani River are the transport related proposed projects of the area. They are also expected to support the smooth urban system by reducing the heavy traffic burden.

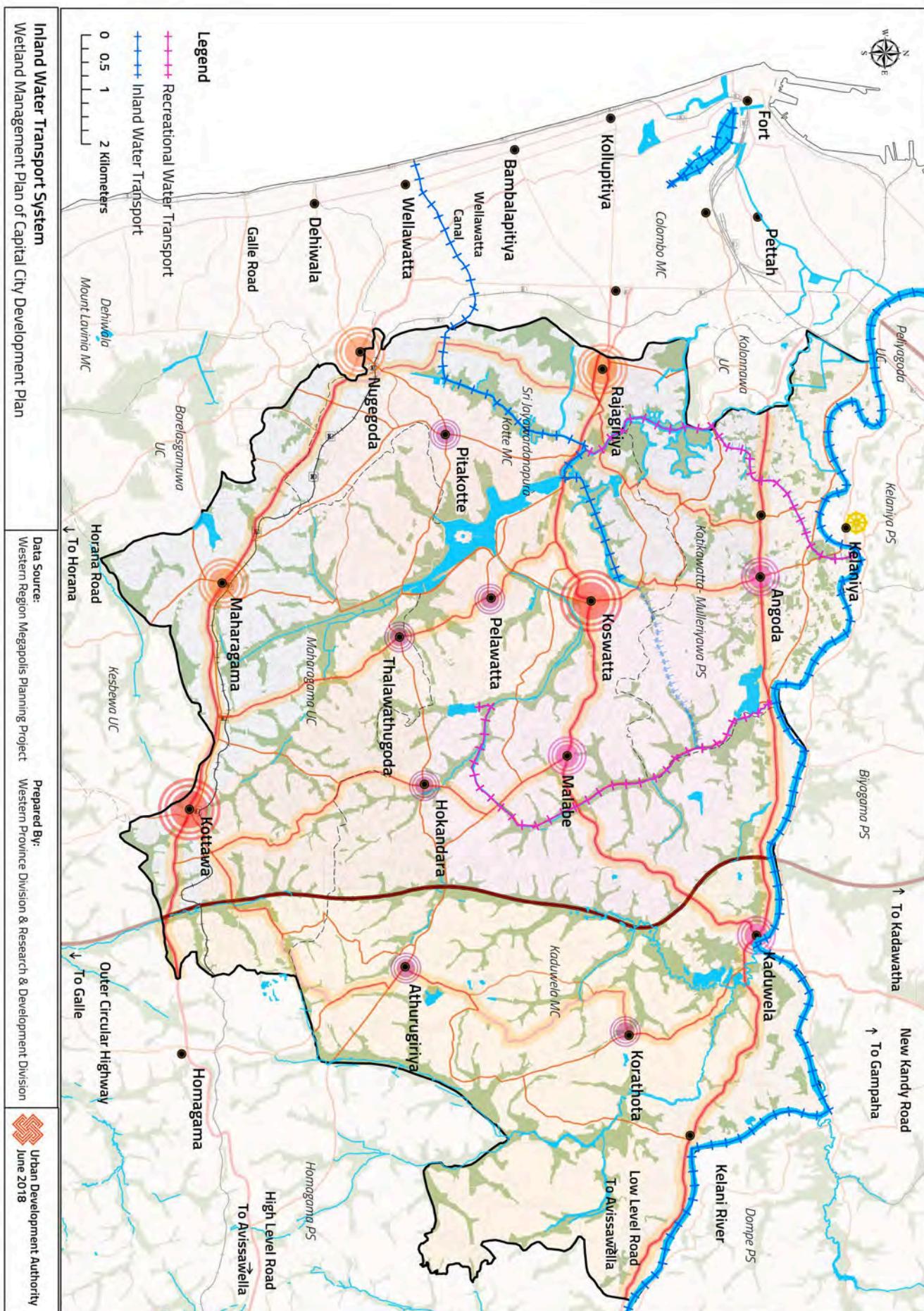


1.3. The Railway Electrification and Modernization Project (REMP)

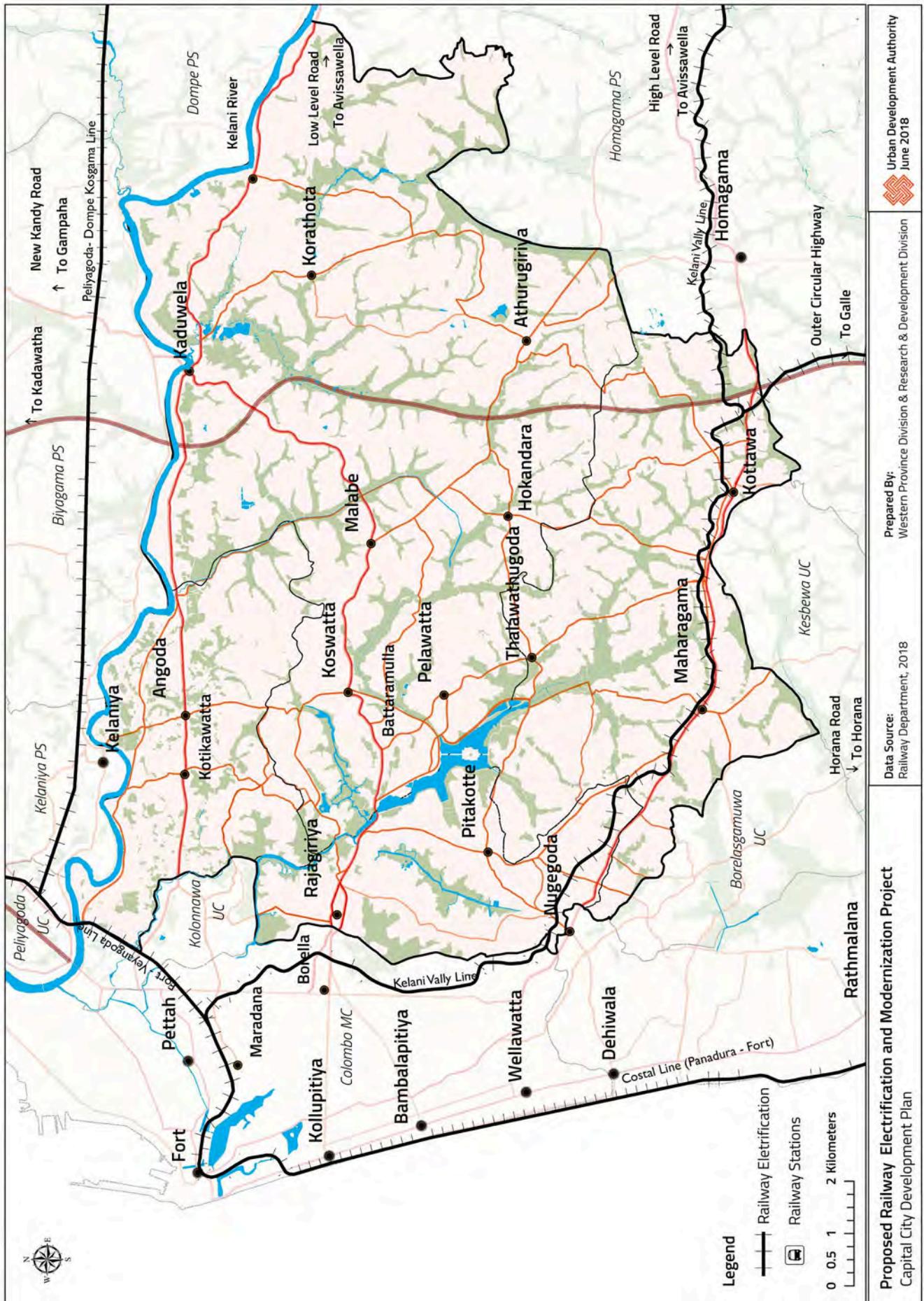
Four railways are proposed for electrification and modernization from REMP. Even now the Kelani Valley line runs along the planning area. Further, the proposed electrified railway line from Kelaniya to Kosgama runs adjacent to the planning area. Hence, these projects are to support a smooth urban system by reducing the traffic congestion.

1.4. Elevated Urban Expressway

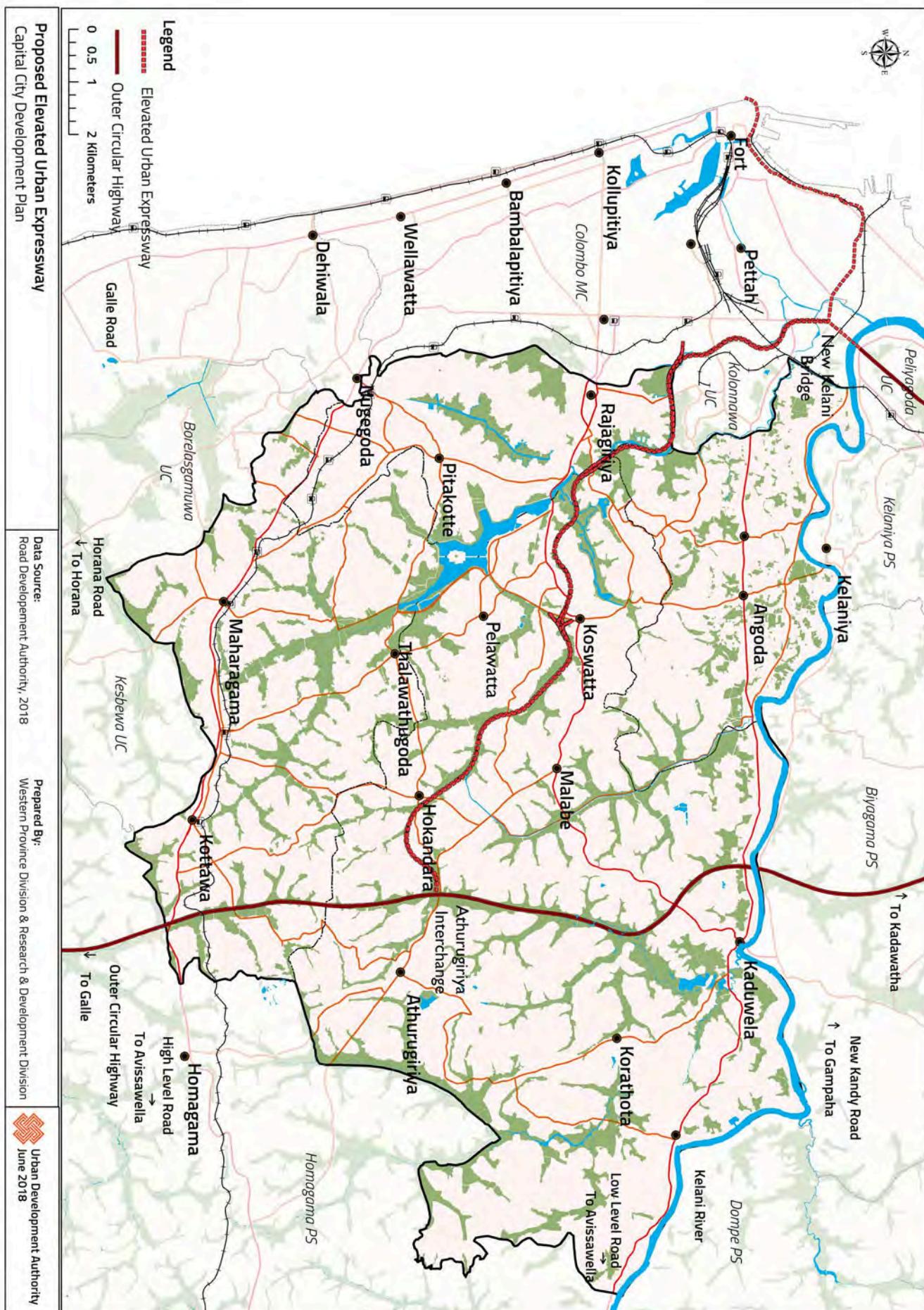
The project is proposed by the Road Development Authority in order to bypass the traffic congestion in the area.



Map 2.16 : Proposed inland water transport system
Source : Western Province Division and Research & Development Unit, UDA - 2018



Map 2.17 : Proposed railway electrification and modernization project
Source : Megapolis Development Plan 2030



Map 2.18 : Proposed elevated expressway
Source : Megapolis Development Plan 2030

2. Existing proposals for theme based development zones such as Techno city, Admin City, etc

Chapter 02 SWOT ANALYSIS

A place that prospers with smooth and efficient urban systems and smart urban facilities

Science and Technology City

The project is initiated by the Ministry of Megapolis & Japan International Corporation Agency (JICA). It includes a Township Development with IT, High Tech and Business Development facilities. This project is to support to create a smooth urban system by enhancing the cluster system.

Strategic Goal 3 : Opportunities

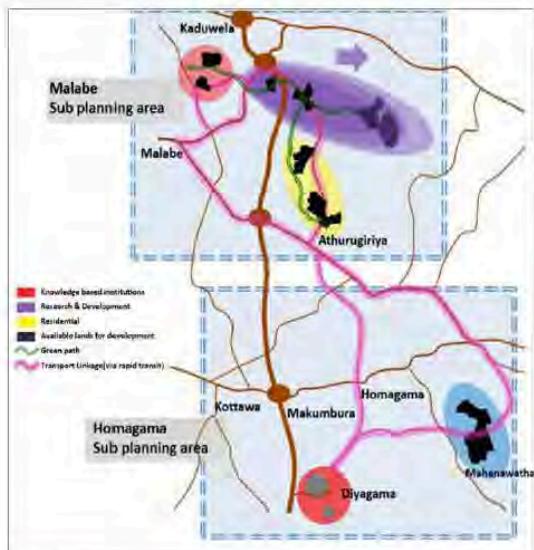


Figure 2.8 : Layout plan of Science and Technology City
Source : Megapolis Development Plan 2030

Administrative City Development Project

This project is initiated by the Ministry of Megapolis and Western Development. It is proposed to construct a building complex for cabinet secretariat, parliament related activities and offices for constitutional commissions with a high-rise mixed development and road development connecting Battaramulla junction & Polduwa road.

The Sethsiripaya Administrative Complex Project is also a long term project which proposes to build a series of buildings to house a large number of government ministries and administrative offices in Sethsiripaya premises, Battaramulla. Sethsiripaya stage III is another project proposed in the administrative district. It is carried out under Administrative Cities Development Project.

These projects are expected to support the enhancement of cluster efficiency in the administrative district.



Chapter 02 SWOT ANALYSIS

A place that prospers with smooth and efficient urban systems and smart urban facilities

Strategic Goal 3 : Opportunities



Figure 2.9 : Capital City Administrative District Development

Source : Megapolis Development Plan 2030

Total floor area (m ²)	123,909.2
Service area & Circulation (m ²)	32,419
Parking area (m ²)	18,694
Rentable area (m ²)	72,792.2

Project of Waters' Edge Greenway Trail, Diyatha Uyana- Colombo

The proposed project is to be implemented within a land extend of 58 acres in the prime location of Battaramulla area bounding the Diyatha Uyana Park & Waters' Edge Hotel.

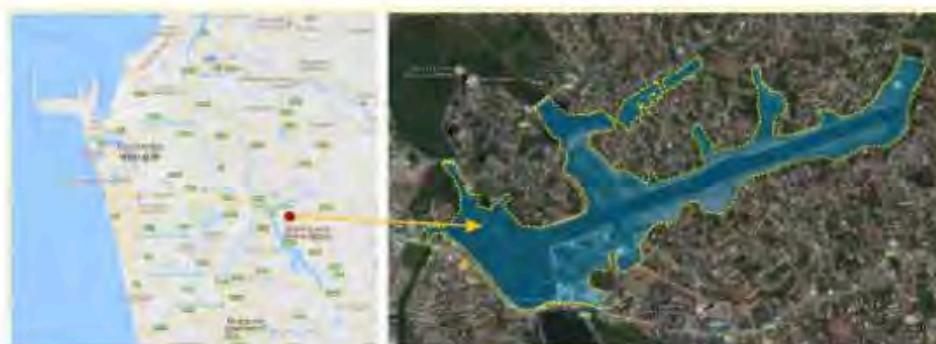


Figure 2.10 : Project of Water's Edge Greenway Trail, Diyatha Uyana Colombo

Source : Western Province Division and Research & Development Unit, UDA - 2018

3. Existing and increasing demand for land and property in the area as a preferred residential and corporate office location.

Since the land value of the Capital City planning area is relatively lower than the land values of Colombo Municipal Council area, it is expected to support the future catalyst development.

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A place that prospers with smooth and efficient urban systems and smart urban facilities

Strategic Goal 3: Opportunities

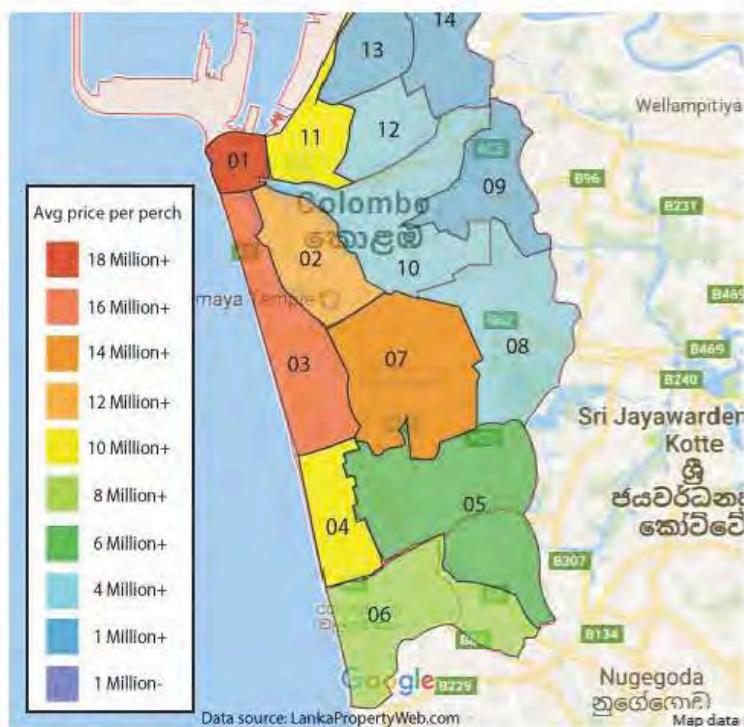


Figure 2.11 : Land value map of Colombo-2017

Source : Lankapropertyweb.com

PHYSICAL INDICATORS

Office Stock and Rental Values

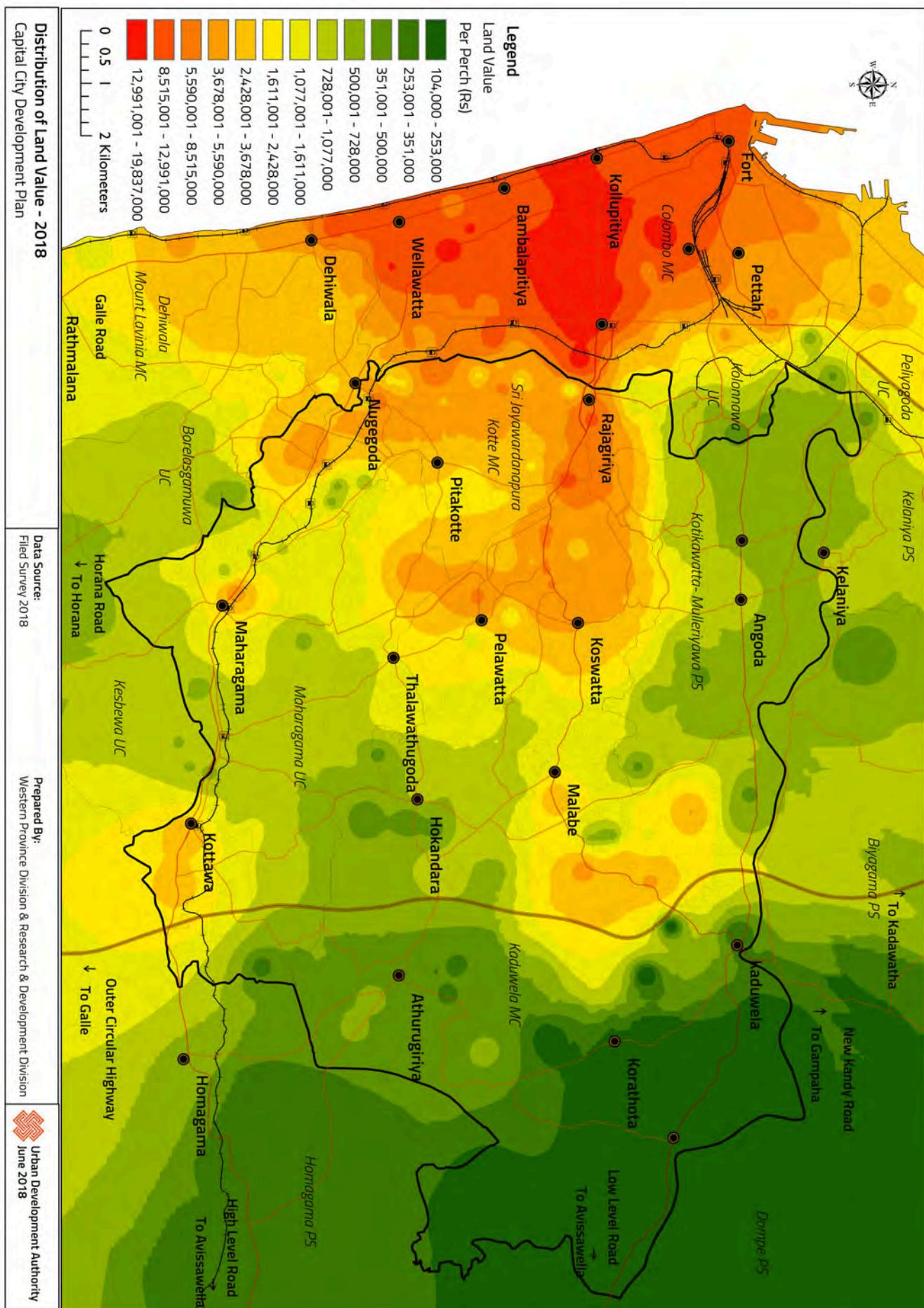
Micromarket	Stock	Rentals/sq. ft
Grade A CBD	0.9 Mn sc. ft.	LKR 250 - 375
Grade A SBD	0.1 Mn sc. ft.	LKR 290
Grade B CBD	0.6 Mn sc. ft.	LKR 180 - 225
Grade B SBD	1.2 Mn sq. ft.	LKR 165 - 250
Grade B (Peripherals)	0.2 Mn sc. ft. (Rajagiriya)	LKR 150 - 200

Note: Rentals for SBD markets appear higher or at par with CBD rentals due lack of a representative sample size.

Source: JLL Research* Note* JLL Estimates

Figure 2.12 : Office stocks and rental values

Source : JLL Research Reports Sri Lanka -2015



Map 2.19 : Distribution of land value -2018

Source : Western Province Division and Research & Development Unit, UDA - 2018

4. Proposed infrastructure related projects

4.1. Athurugiriya New Township Development Project

The Western Province Division of Urban Development Authority has planned to acquire a land consisting 8 acres (approximately) for the Athurugiriya New Township Development Project. It is comprised with following components in order to provide present and convenient environment for general public by reducing the traffic congestion of the city center.

- *Development of new bus terminal*
- *Development of public fair*
- *Mixed commercial development.*
- *Development of public car park*
- *Canal improvement project with retention pond.*

Source: Concept Paper of Athurugiriya New Township Development Project 2017, Western Province Division, Urban Development Authority.

4.2. Waste Water Treatment Plant Project

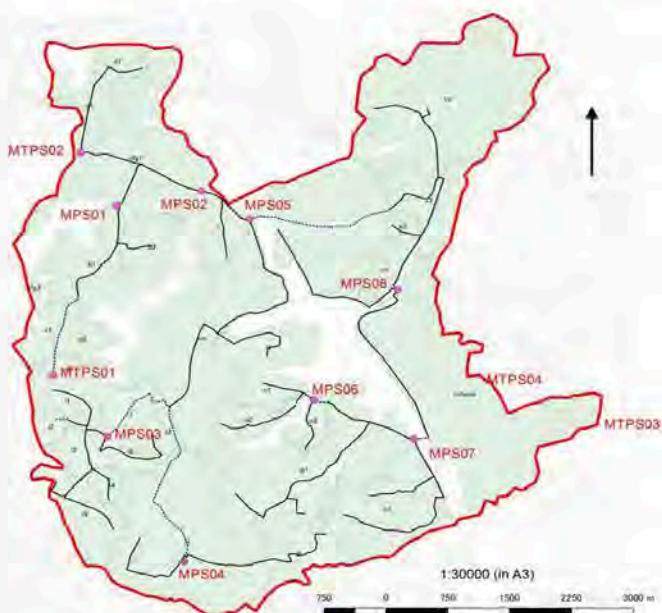


Figure 2.13 : Waste water treatment plant project

Source : Western Province Division and Research & Development Unit, UDA - 2018

The project is to provide piped sewerage facilities to serve a total area of approx. 3,400 ha to cover the major government and private institutions and a population of 222,000 in Sri Jayewardenapura Kotte and adjacent parts.

Chapter 02 SWOT ANALYSIS

A place that prospers with smooth and efficient urban systems and smart urban facilities

Strategic Goal 3 : Opportunities



Chapter 02 SWOT ANALYSIS

A place that prospers with smooth and efficient urban systems and smart urban facilities

Strategic Goal 3 :
Opportunities

Strategic Goal 3 :
Threats

5. Climate Resilience Improvement Project (CRIP)

Climate Resilience Improvement Project (CRIP) was commenced in 2014 and implemented under Ministry of Irrigation and Water Resources Management with the financial facility of the World Bank. The project development objective is to reduce the vulnerability of exposed people and assets to climate risk (hydro meteorological risks: flood, drought and landslide) and to improve Government's capacity to respond effectively to disasters.

Strategic Goal 3 - Threats

1. Competitive Cluster Development beyond the planning area.

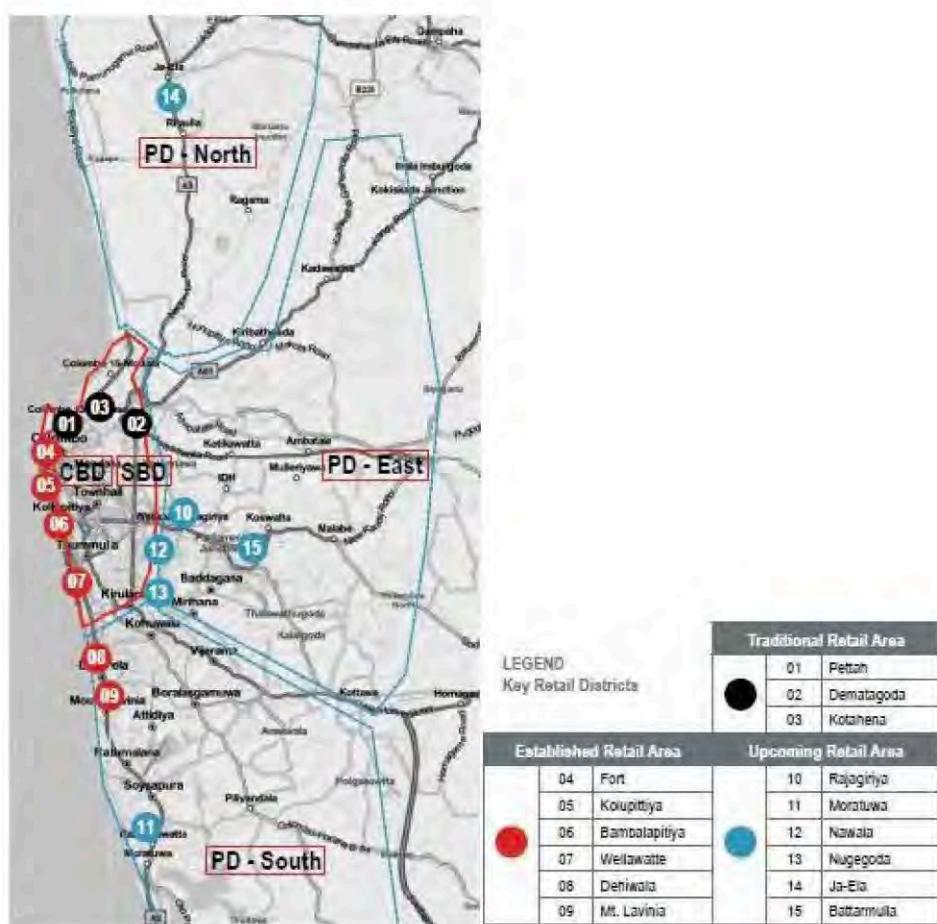


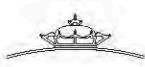
Figure 2.14 : Competitive Cluster Development in Colombo

Source : Western Province Division and Research & Development Unit, UDA - 2018

03

The Plan





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Land Use Strategy

Node Place Analysis

3.1 Land Use Strategy

The proposed spatial form of the capital city will be achieved through the land use strategy. For this purpose³, the Concept Plan has recognized eleven major districts with distinct characteristics on the Capital City Area has identified two main types of lands namely, sensitive areas, special potential areas. The Concept Plan with the intention of maintaining, conserving and promoting harmless use provides strong planning. Thus, Capital City Development Plan is not only a guide to development but, it also is a tool for the molding of the Capital City's physical form of the city. In view of the three main criteria given above, the land use is detailed in sub-zones those overlap the eleven main zones identified in Concept Plan.

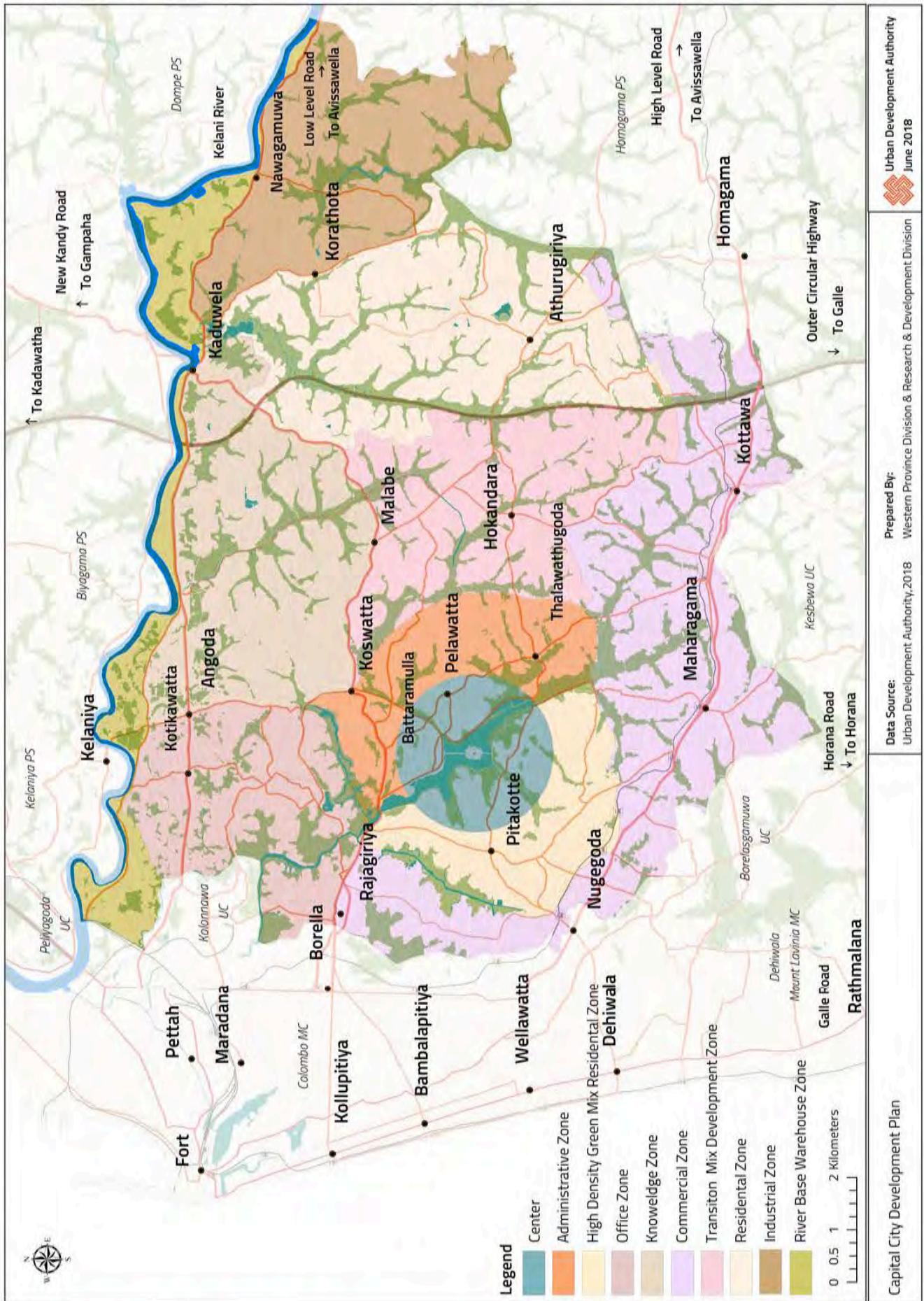
The plan proposes an urban form that comprised of a series of Nodes and Corridors to emerge in next decade. Integrated with this form, four specially designed criteria are identified namely; the Center, Axis, Caring Belt and a lace of wetlands to achieve the character of the proposed Capital City. Another reason is the majority of the public sense the area by moving along streets and parks. Hence, it is convenient to promote the identified main use of the zone along the Corridor or Node. Accordingly, the Node Place Analysis has been carried out to identify the future node development area as follow:

Determination of the Hierarchical order of Nodes – Node Place Analysis

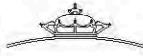
The Weighted Criteria Metrix is used to evaluate the relative importance of nodes. The relative importance of nodes was identified based on the following criteria which includes sub-components. Value of the node is decided based on following four criteria which include sub components.

- *Node Diversity*
- *Node Intensity*
- *Place Diversity*
- *Place Intensity*

The outcome of this analysis assists in understanding the existing hierarchy of the current nodes. The result is evaluated once more with another set of criteria to understand the future priority nodes of the planning area.



Map 3.1 : Land Use composition in the planning boundary
Source : Western Province Division and Research & Development Unit, UDA-2018



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Land Use Strategy

Node Place Analysis

Node Diversity:

The Node Diversity is based on,

- Roads to be connected to the national road network
- Railroad connections
- Regional integration
- Broadband facilities for telecommunication

The result indicates that, Kottawa, Delkanda, Maharagama, Nugegoda, Battaramulla, and Kaduwela Nodes possess the highest node diversity.

Node	Node Diversity				
	Roads to be connected to the National Road Network	Regional Integration	Railroad Connections	Broadband facilities for Telecommunication	Total
Ambatale	12	3	2	5	22
Angoda	12	3	2	5	22
Arangala	8	3	2	5	18
Athurugiriya	20	9	2	5	36
Battaramulla	20	15	2	5	42
Bombiriya	12	3	2	5	22
Delkanda	16	15	10	5	46
Ethulkotte	12	12	2	5	31
Gothatuwa	8	3	2	5	18
Hokandara	20	9	2	5	36
Kaduwela	20	15	2	5	42
Kohilawatta	8	3	2	5	18
Korathota	8	3	2	5	18
Koswatta	16	15	2	5	38
Kotikawatta	16	3	2	5	26
kottawa	20	15	10	5	50
Maharagama	16	12	10	5	43
Malabe	12	9	2	5	28
Nawagamuwa	8	3	2	5	18
Nawala	8	9	2	5	24
Nugegoda	16	12	10	5	43
Pagoda	8	6	2	5	21
Pannipitiya	12	6	10	5	33
Pelawatta	16	9	2	5	32
Pitakotte	8	6	2	5	21

Node	Node Diversity				
	Roads to be connected to the National Road Network	Regional Integration	Railroad Connections	Broadband facilities for Telecommunication	Total
Rajagiriya	20	12	2	5	39
Thalahena	8	3	2	5	18
Thalapathpitiya	8	3	2	5	18
Thalawathugoda	16	12	2	5	35
Weliwita	8	3	2	5	18

Chapter 03 THE PLAN

Land Use Strategy

Node Place Analysis

Table 3.1 : Node diversity analysis

Source : Western Province Division and Research & Development Unit, UDA-2018

Node Intensity:

Node Intensity is based on,

- Actual quantities of the flows
- Building density
- Frequency of departures of public transportation

According to the weighted value of above criteria, it is clear that Battaramulla, Rajagiriya, Nugegoda, Maharagama, Kottawa, and Koswatta Nodes hold the highest Node Intensity.

Node	Node Intensity			
	Frequency of Departures of Public Transportation	Building Density	Actual quantities of the Flows	Total
Ambatale	3	4	3	10
Angoda	6	6	3	15
Arangala	3	4	3	10
Athurugiriya	12	6	9	27
Battaramulla	15	10	15	40
Bombiriya	3	4	3	10
Delkanda	12	8	9	29
Ethulkotte	9	8	12	29
Gothatuwa	6	6	3	15
Hokandara	3	4	3	10
Kaduwela	12	6	9	27
Kohilawatta	3	6	3	12
Korathota	3	4	3	10
Koswatta	15	8	9	32



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Land Use Strategy

Node Place Analysis

Node	Node Intensity			
	Frequency of Departures of Public Transportation	Building Density	Actual quantities of the Flows	Total
Kotikawatta	3	8	9	20
kottawa	15	6	15	36
Maharagama	15	10	12	37
Malabe	9	6	12	27
Nawagamuwa	3	4	3	10
Nawala	6	6	9	21
Nugegoda	15	10	12	37
Pagoda	3	4	3	10
Pannipitiya	6	4	3	13
Pelawatta	9	6	9	24
Pitakotte	6	6	9	21
Rajagiriya	15	8	15	38
Thalahena	3	4	3	10
Thalapathpitiya	3	4	3	10
Thalawathugoda	9	6	9	24
Weliwita	3	4	3	10

Table 3.2 : Node Intensity analysis

Source : Western Province Division and Research & Development Unit, UDA- 2018

Place Diversity:

Place diversity value is based on,

- *Land Use Diversity -*

Land Use Diversity (LUD) is measured by examining the spatial patterns and uses of land. The analysis shows that areas with a higher LUD are closer to main corridors while areas with lower LUD are located closer to residential areas.

- *Services and other functions of inhabitants or firms -*

The level and functionality of service is measured based on infrastructure availability and basic services of central functional buildings (administrative, international and unique endowment)

- *Place in its veracity -*

This is analyzed based on the particular city's dependency on other key cities.

- Innovativeness -*

Innovativeness is measured based on future potential cities that has capacity to create new spaces and societies with proposed development activities.

- Attractiveness as living and working environment-*

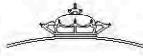
Attractiveness as a living and working environment is measured through city attractiveness to investments and tourist destinations etc. The results indicate that the highest diversity exists in Battaramulla, Maharagama, Nugegoda and Rajagiriya.

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Land Use Strategy

Node Place Analysis

Node	Place Diversity					
	Land use	Services and other functions of inhabitants or firms.	Place in its veracity	Innovation	Attract as living and working environment	Total
Ambatale	10	8	2	2	9	31
Angoda	10	12	4	2	9	37
Arangala	10	8	4	2	6	30
Athurugiriya	15	16	8	6	12	57
Battaramulla	25	20	8	8	12	73
Bombiriya	10	8	2	2	9	31
Delkanda	15	8	4	6	9	42
Ethulkotte	15	12	6	4	9	46
Gothatuwa	10	8	2	4	6	30
Hokandara	10	8	8	4	6	36
Kaduwela	15	12	8	6	12	53
Kohilawatta	10	8	2	4	6	30
Korathota	10	8	6	4	6	34
Koswatta	15	16	8	8	12	59
Kotikawatta	10	12	4	6	9	41
kottawa	15	16	8	8	12	59
Maharagama	20	16	8	8	12	64
Malabe	15	12	8	6	12	53
Nawagamuwa	10	8	2	4	6	30
Nawala	15	12	8	6	9	50
Nugegoda	20	16	8	8	12	64
Pagoda	10	8	6	4	6	34
Pannipitiya	10	8	6	4	6	34
Pelawatta	15	16	8	6	9	54



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Land Use Strategy

Node Place Analysis

Node	Place Diversity					
	Land use	Services and other functions of inhabitants or firms.	Place in its veracity	Innovation	Attract as living and working environment	Total
Pitakotte	10	12	8	6	9	45
Rajagiriya	20	16	8	8	12	64
Thalahena	5	8	6	4	6	29
Thalapathpitiya	5	8	6	4	6	29
Thalawathugoda	15	12	8	6	9	50
Weliwita	10	8	2	4	6	30

Table 3.3 : Place diversity analysis

Source : Western Province Division and Research & Development Unit, UDA-2018

Place Intensity:

Place Intensity value is based on,

- *Quantity of activities (No of different activities that occur in a planning space)*
- *Rates of employment (Source: Census and Statistics Data 2017 / Sampath Pathika 2017)*
- *Population density*

Accordingly, the highest place intensity is held by Koswatta, Nugegoda, Rajagiriya, Kottawa, Maharagma and Battaramulla areas.

Name	Place Intensity			
	quantity of activities	Rates of employments	Population density	Total
Ambatale	9	12	4	25
Angoda	9	12	6	27
Arangala	6	8	6	20
Athurugiriya	9	16	6	31
Battaramulla	12	20	6	38
Bombiriya	6	8	2	16
Delkanda	6	12	8	26
Ethulkotte	9	8	6	23
Gothatuwa	6	8	6	20
Hokandara	6	8	6	20
Kaduwela	12	16	6	34
Kohilawatta	9	8	6	23

Chapter 03 THE PLAN

Land Use Strategy

Node Place Analysis

Name	Place Intensity			
	quantity of activities	Rates of employments	Population density	Total
Korathota	6	8	2	16
Koswatta	12	20	8	40
Kotikawatta	9	8	8	25
kottawa	12	20	6	38
Maharagama	12	20	6	38
Malabe	9	16	6	31
Nawagamuwa	6	8	6	20
Nawala	9	16	8	33
Nugegoda	12	20	8	40
Pagoda	6	12	8	26
Pannipitiya	6	8	8	22
Pelawatta	9	16	6	31
Pitakotte	9	12	6	27
Rajagiriya	12	20	8	40
Thalahena	6	8	6	20
Thalapathpitiya	6	8	6	20
Thalawathugoda	9	16	6	31
Weliwita	3	8	2	13

Table 3.4 : Place intensity analysis

Source : Western Province Division and Research & Development Unit, UDA-2018

Finally, the separately weighted values are combined and calculated to result the level of the Node as below. As for the results, Battaramulla is the Level One Node of the planning area.

Node	Node Analysis		Place Analysis		Level of Node
Ambatale	22	10	31	25	88
Angoda	22	15	37	27	101
Arangala	18	10	30	20	78
Athurugiriya	36	27	57	31	151
Battaramulla	42	40	73	38	193
Bombiriya	22	10	31	16	79
Delkanda	46	29	42	26	143
Ethulkotte	31	29	46	23	129
Gothatuwa	18	15	30	20	83
Hokandara	36	10	36	20	102
Kaduwela	42	27	53	34	156



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Land Use Strategy

Node Place Analysis

Node	Node Analysis		Place Analysis		Level of Node
Kohilawatta	18	12	30	23	83
Korathota	18	10	34	16	78
Koswatta	38	32	59	40	169
Kotikawatta	26	20	41	25	112
kottawa	50	36	59	38	183
Maharagama	43	37	64	38	182
Malabe	28	27	53	31	139
Nawagamuwa	18	10	30	20	78
Nawala	24	21	50	33	128
Nugegoda	43	37	64	40	184
Pagoda	21	10	34	26	91
Pannipitiya	33	13	34	22	102
Pelawatta	32	24	54	31	141
Pitakotte	21	21	45	27	114
Rajagiriya	39	38	64	40	181
Thalahena	18	10	29	20	77
Thalapathpitiya	18	10	29	20	77
Thalawathugoda	35	24	50	31	140
Weliwita	18	10	30	13	71

Table 3.5 : Summary table of node place analysis

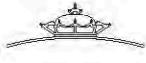
Source : Western Province Division and Research & Development Unit, UDA-2018

As the next step, the recognized nodes were weighted considering the future scenario to understand the difference of hierarchy of nodes in the current situation.

Name	Administrative	Commercial	Residential	Development Pressure	Sensitivity Analysis	Land Value	Vertical Density	Horizontal Density	Land Availability	Land Uses Change %	Total
Ambatale	1	2	4	2	2	6	12	15	12	14	70
Angoda	2	3	4	3	4	9	16	15	18	14	88
Arangala	1	1	4	2	8	6	8	15	18	14	77
Athurugiriya	2	3	4	3	6	9	12	15	24	21	99
Battaramulla	4	4	3	4	4	12	16	10	12	21	90
Bombiriyा	1	2	4	1	4	3	8	10	18	14	65
Delkanda	1	3	3	3	8	9	16	20	18	21	102
Ethukotte	2	2	4	3	6	9	12	15	6	14	73
Gothratuwa	1	2	3	2	4	6	12	15	18	14	77
Hokandara	1	3	5	3	6	12	16	20	18	14	98
Kaduwela	1	4	4	3	4	9	16	20	18	21	100
Kohillawatta	1	4	4	1	4	6	8	10	18	14	67
Korathota	1	2	3	2	4	6	8	20	28	14	84
Koswatta	5	2	3	5	10	12	20	25	18	28	130
Kotikawatta	1	4	3	4	6	9	16	20	18	21	102
Kottawa	1	3	4	5	8	15	20	25	18	28	129
Maharagama	2	5	4	3	8	12	20	20	24	14	120
Malabe	2	5	4	4	10	12	16	20	24	14	109
Nawagamuwa	1	3	4	2	4	6	8	15	24	14	79
Navala	2	2	3	4	6	12	16	20	12	21	99
Nugegoda	1	3	3	5	8	12	20	20	18	28	121
Pagoda	1	5	4	3	8	9	16	20	12	21	88
Pannipitiya	1	2	3	3	8	9	8	20	12	21	89
Pelawatta	3	3	4	4	4	12	8	15	12	21	85
Pitakotte	2	2	3	3	8	9	12	20	12	14	85
Rajagiriya	2	4	3	4	8	15	20	25	12	28	122
Thalahena	1	3	4	3	6	9	12	15	18	7	78
Thalapathipitiya	1	1	4	2	6	12	12	20	18	7	83
Thalawathugoda	3	4	3	4	8	12	16	20	18	14	102
Wellwita	1	2	3	2	2	6	8	10	24	7	65

Table 3.6 : Future prediction for the nodes distribution

Source : Western Province Division and Research & Development Unit, UDA-2018



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Land Use Strategy

Node Place Analysis

The final result is as below,

Proposed Nodes

1st priority nodes

- Koswatta (will merge with Battaramulla)
- Kottawa (will merge with Makubura)

2nd priority nodes

- Maharagama
- Rajagiriya
- Nugegoda

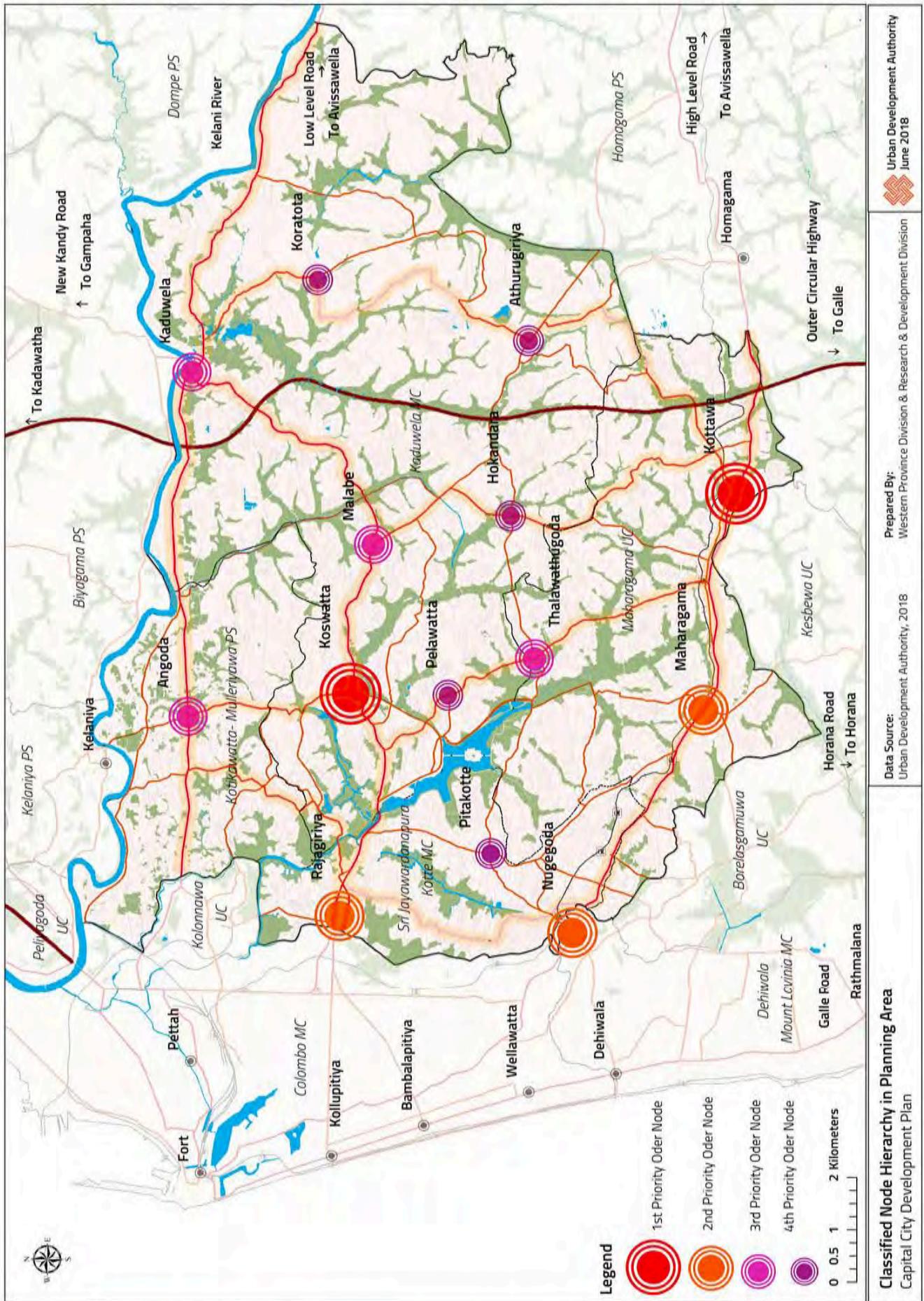
3rd priority nodes

- Kaduwela
- Malabe
- Angoda
- Thalawathugoda

4th priority nodes

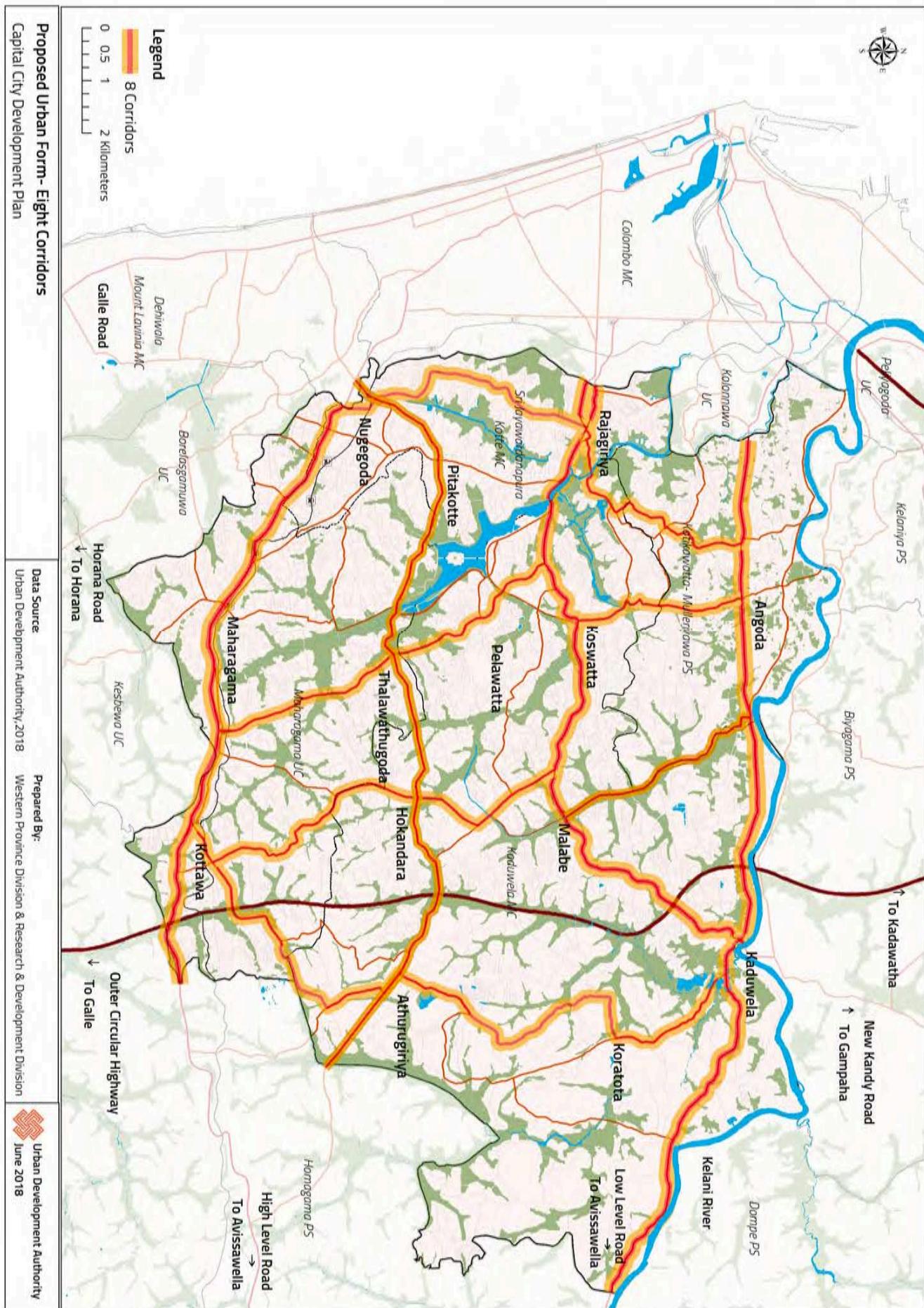
- Athurugiriya
- Hokandara
- Korathota
- Palawatta
- Pitakotte

Further, eight main corridors are identified. The above identified nodes are to release the pressure of the node along those corridors. The below map indicates the irregular shape grid network created by the mentioned strategy,



Map 3.2 : Classified node hierarchy in planning area
Source : Western Province Division and Research & Development Unit, UDA-2018

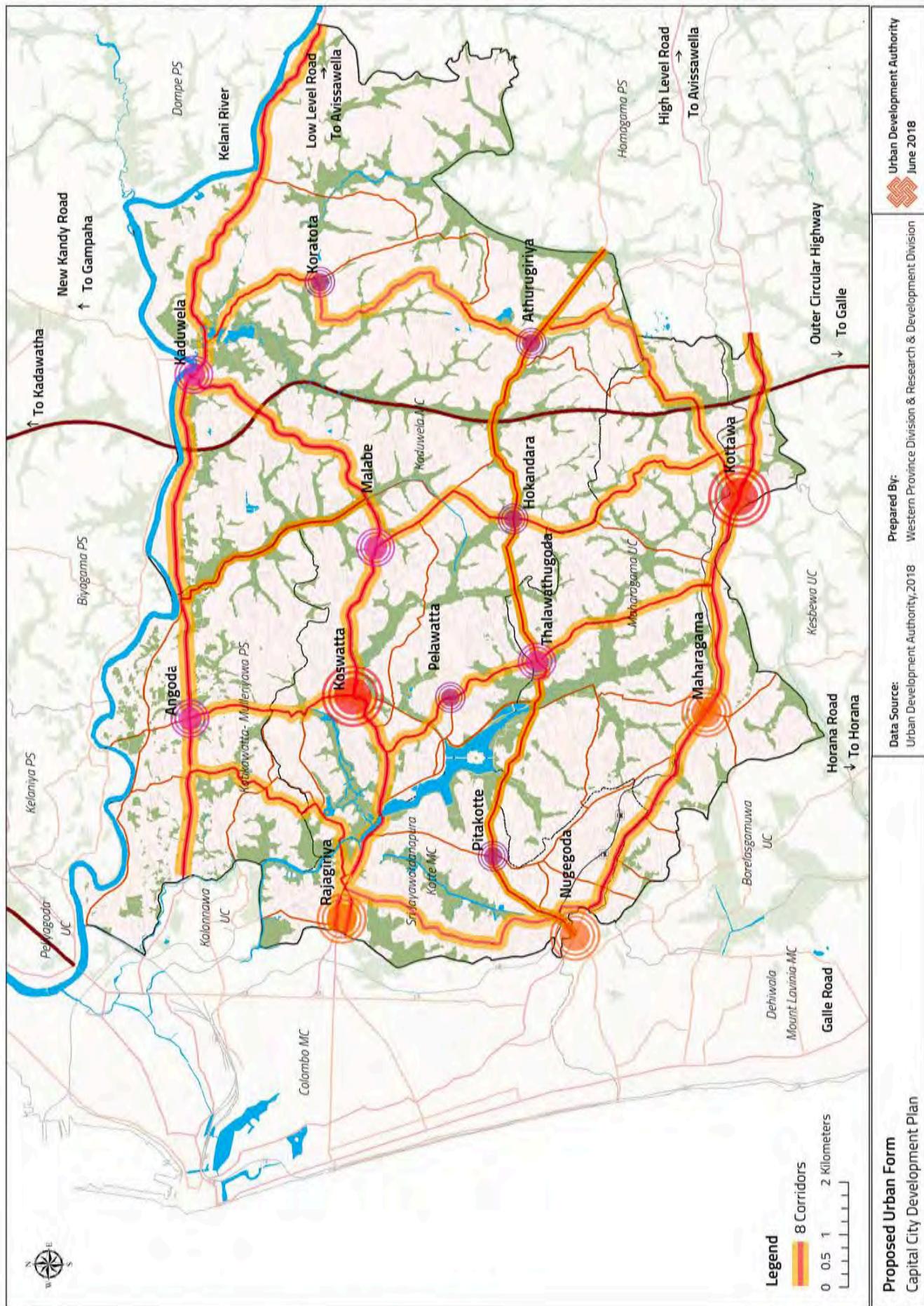
Proposed Eight Corridors



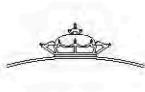
Map 3.3 : Proposed eight corridors

Source : Western Province Division and Research & Development Unit, UDA-2018

Proposed Composite Spatial Strategy for Next Ten Years



Map 3.4 : Proposed composite spatial strategy for next 10 years (2019 -2030)
Source : Western Province Division and Research & Development Unit, UDA-2018



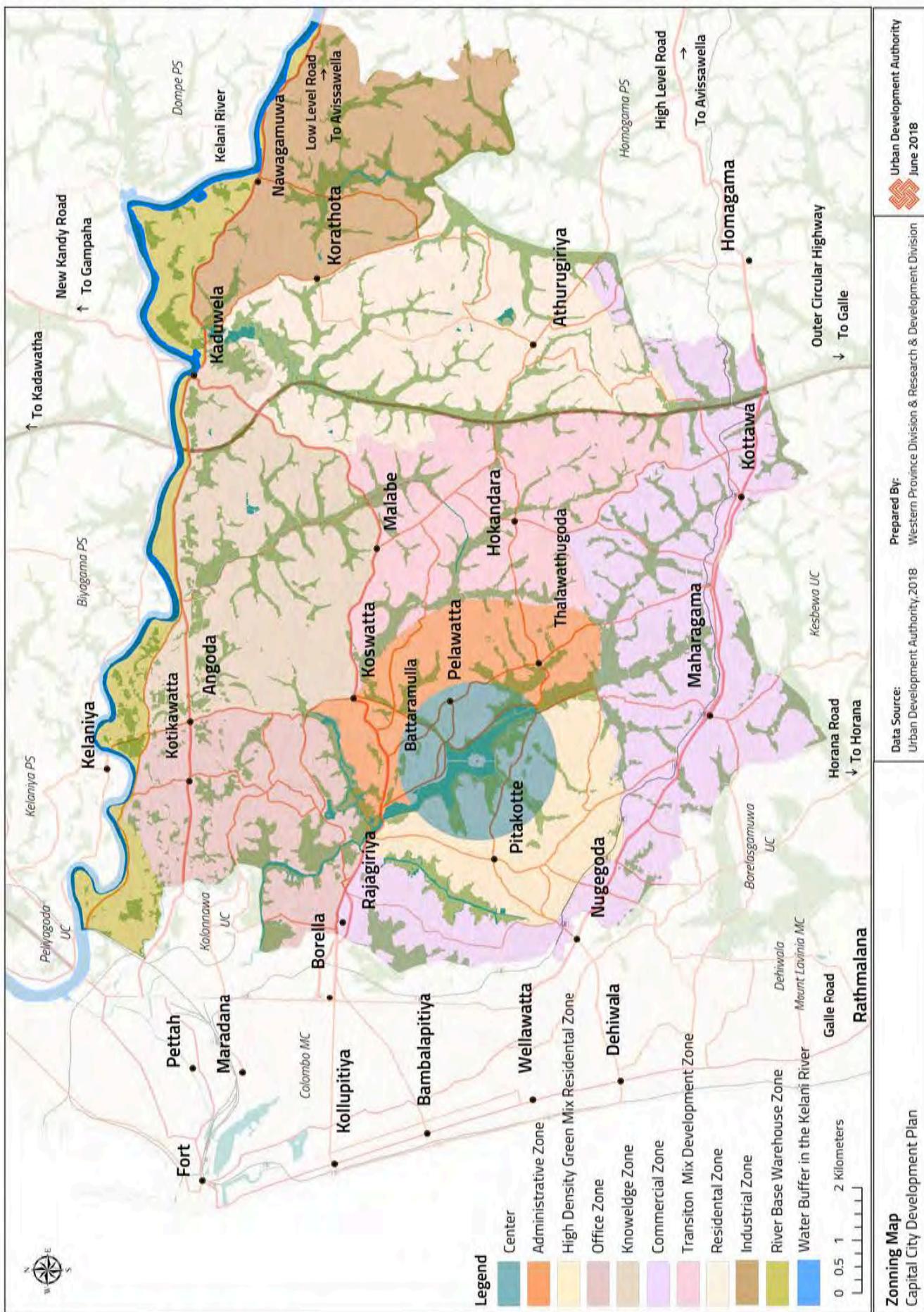
**Chapter 03
THE PLAN**

Land Use Strategy

Node Place Analysis

As a result of density development in proposed nodes, it is assumed the demand for space in the remaining areas of identified zones would rise. Hence, it is proposed to direct the development through the corridors within zones. The corridor development is projected to create second wave of the densities which then would lead to remaining areas.

To achieve the below Zoning Plan, following floor spaces in different land uses and population in residential and commuter categories are expected.



Map 3.5 : Zoning Map of the Capital City plan

Source : Western Province Division and Research & Development Unit, UDA-2018



Chapter 03
THE PLAN

Projection of
Population, Floor Space
and Commuter

Proposed Population
Projection for
the Capital City

3.2 Projection of Population, Floor Space and Commuter

3.2.1 Proposed Population Projection for the Capital City

Considerations:

- *The Capital City center with low population -*
- *It is proposed to develop the center in the Capital City area with concern to accentuate 'The Sovereign Power of Sri Lanka'.*
- *Inner and Outer city area with moderate density -*
- *It is proposed to encourage economic and administrative uses within the Inner City and Outer City areas exclusive of High Density Cluster II.*
- *Periphery with quotidian density -*
- *It is proposed to encourage the residential population in the Periphery Area*

Assumptions:

- *The population growth of the Center is forecasted based on the positive growth rate (0.0219) recorded in the area. Currently, all GNDs except one GND in the Center area represent a negative growth rate.*
- *Inner and Outer city population growth rate is forecasted based on a 10% rise to the current growth rate of GNDs in the area. (Average Proposed Growth Rate is 0.0106)*
- *The High Density Cluster I is encouraged to be used for residential purposes. Therefore, the population prediction is based on the highest positive average growth rate of the Inner City (0.025). The reason behind this growth rate adoption is the positive growth rate indicated by the GNDs.*
- *Other Zones except Environmental Sensitive Zone, River Base Warehouse Zone and industrial Zone encourage residential Population in its area. Those Zones have considered a moderate growth rate of 0.046.*
- *Low Density Cluster of the Capital City discourages population to the area. Therefore, population of the area is forecast based on the lowest growth rate. (0.05)*
- *The natural growth rate in the Capital City area is calculated as 0.036. However, the expected growth rate with the proposed developments is 0.05.*

Limitations:

The proposed growth rates for different zones are based on planned developments proposed by the Capital City Development Plan. According to the Implementation Strategy of the Capital City, it is assumed an approximate period of 30 years would be taken to complete all projects proposed by the plan. Accordingly the projected population in 30 years is 1,550,000 considering a growth rate of 0.01%. Further the population for the next 10 years projected as below.

Zone	Population 2018	Population based on Business as Usual scenario	Population based on Projects Based scenario 2030	Difference between Existing and Predicted Population	Difference between Business as Usual and Proposed Growth rate
Center	31,520	29,450	43,000	-11,480	13,550
Inner and Outer City	637,000	838,270	1,081,000	444,000	242,730
Periphery	137,000	112,280	148,000	11,000	35,720
Total Area	763,000	980,000	1,272,000	509,000	292,000

Table 3.7 : Population projection for the Capital City – 2030

Source : Western Province Division and Research & Development Unit, UDA-2018

Zone	Population 2018	Population based on Business as Usual scenario	Population based on Projects Based scenario 2050	Difference between Existing and Predicted Population	Difference between Business as Usual and Proposed Growth rate
Center	39,000	37,000	44,000	5,000	7,000
Inner and Outer City	637,000	1,140,000	1,298,000	661,000	158,000
Periphery	137,000	186,000	204,000	67,000	18,500
Total Area	774,000	1,362,000	1,546,000	772,000	184,000

Table 3.8 : Population projection for the Capital City -2050

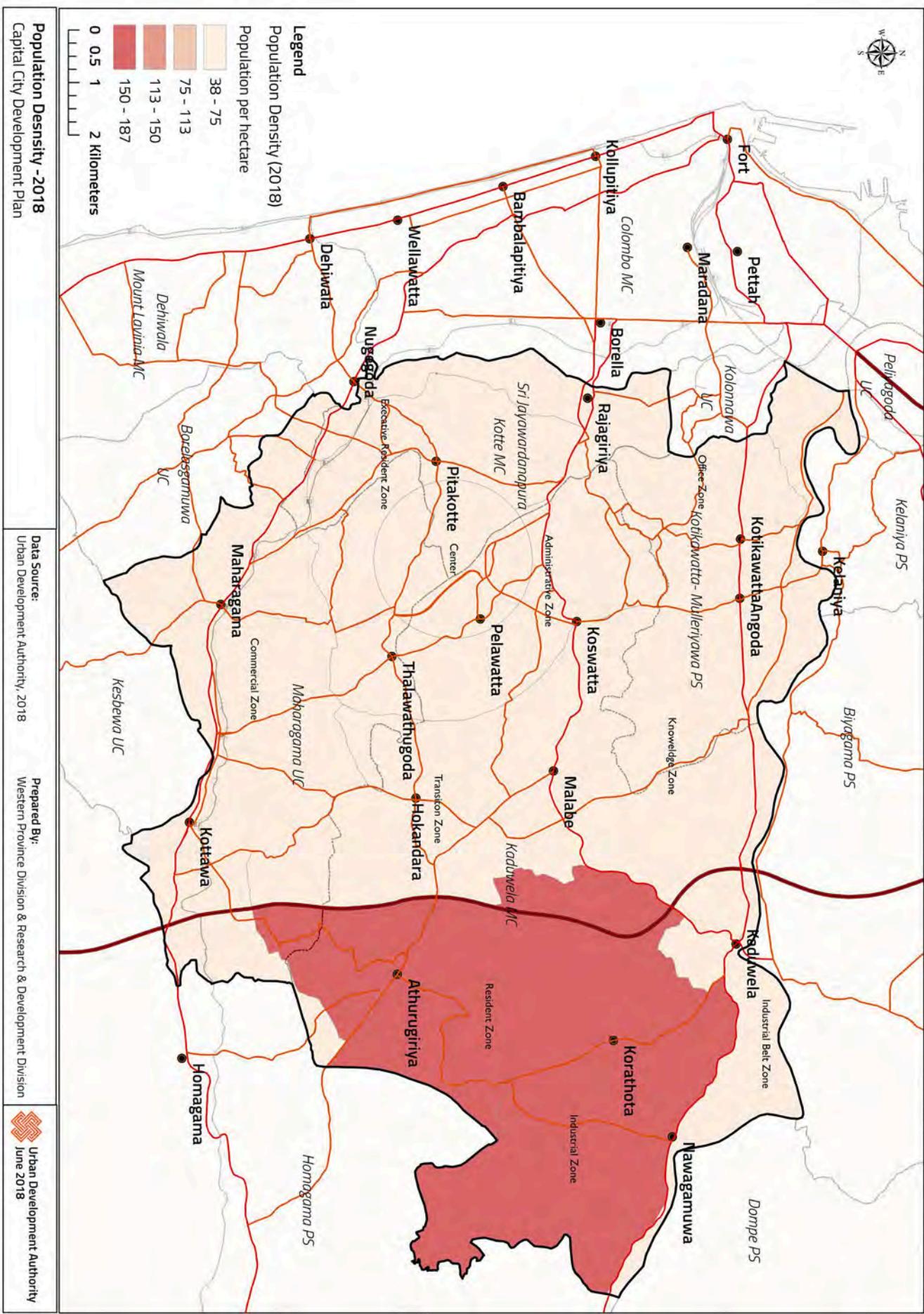
Source : Western Province Division and Research & Development Unit, UDA-2018

‘The Existing Population Density of Capital City’ map even now depicts the highest population density in the Periphery as expected in the plan, while other areas hold a low density. Further, the maps ‘Business as Usual Scenario’ and ‘Project Based Scenario’ elaborate how population density varies. Accordingly, the ‘Project Based Scenario’ achieves a higher population density in areas where the Capital City Development Plan promotes residential developments compared to the ‘Business as Usual Scenario’ and supports the overall plan and concept.

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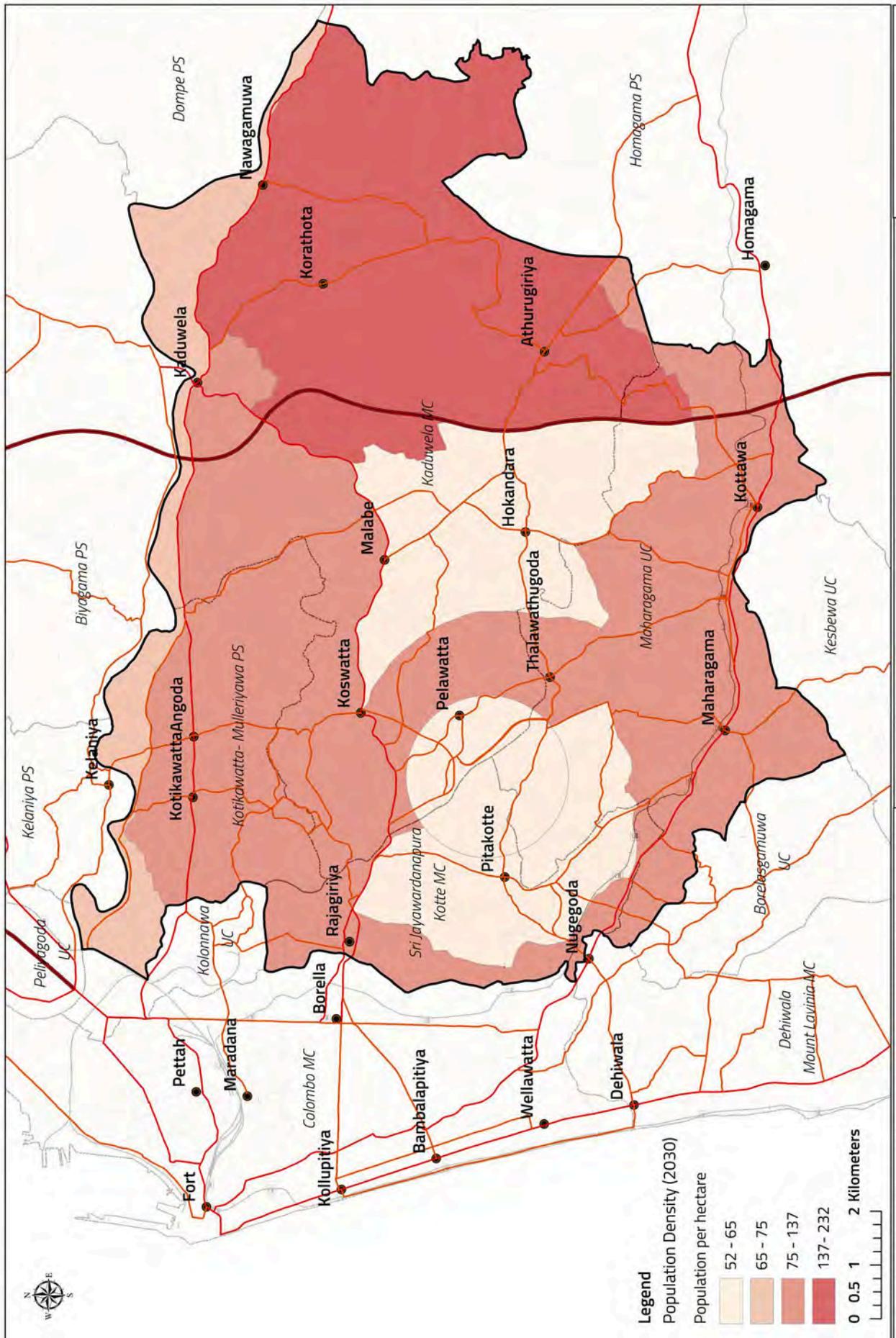
Projection of Population, Floor Space and Commuter

Proposed Population Projection for the Capital City



Map 3.6 : Population density in Capital City - 2018

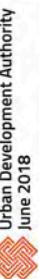
Source : Western Province Division and Research & Development Unit, UDA-2018



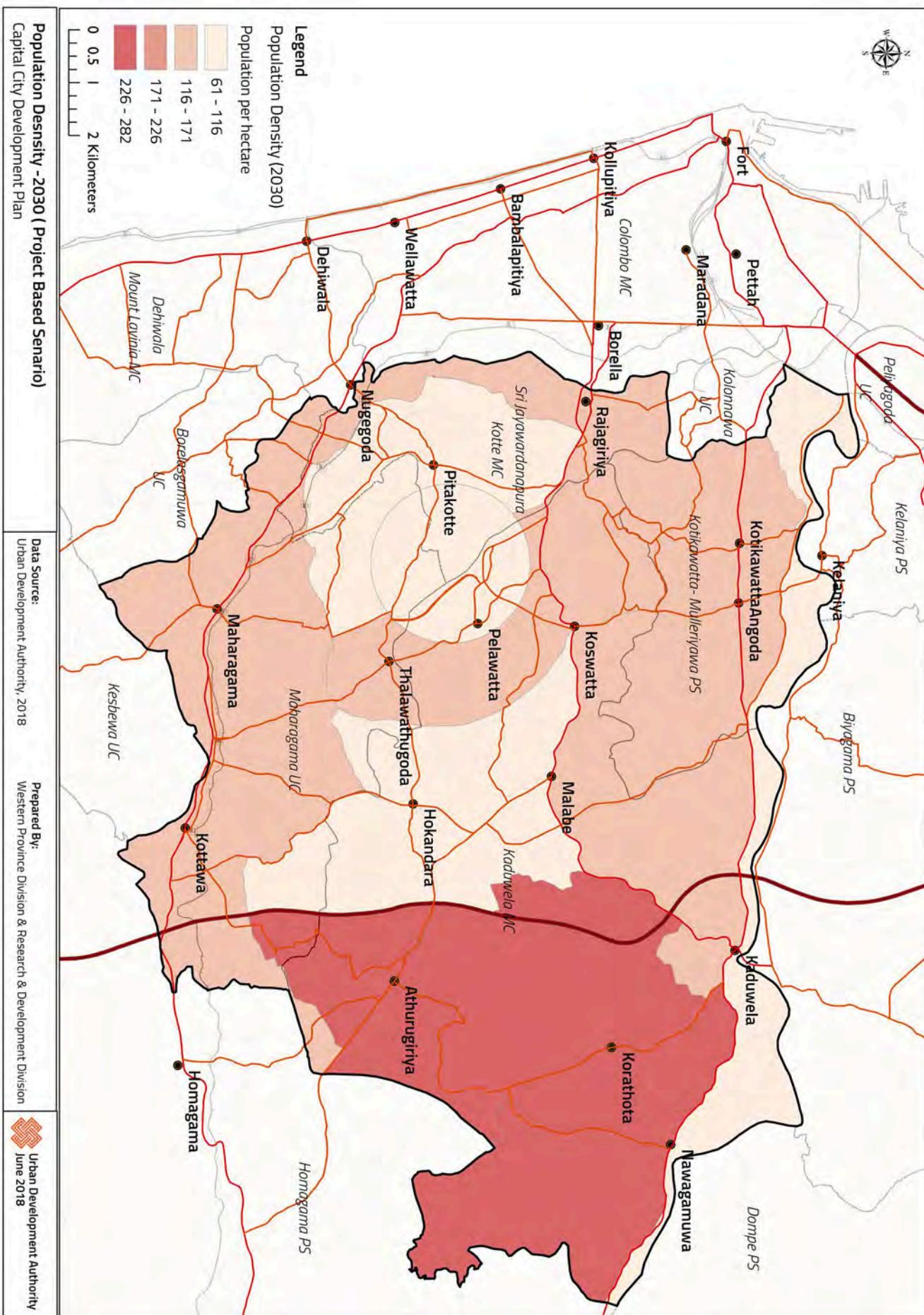
Map 3.7 : Population density in Capital City (Business as usual Scenario) - 2030
Capital City Development Plan

Data Source:
Urban Development Authority
Western Province Division & Research & Development Division
2018

Prepared By:
Western Province Division & Research & Development Division
June 2018



Map 3.7 : Population density in Capital City (Business as usual Scenario) - 2030
Source : Western Province Division and Research & Development Unit, UDA-2018



Map 3.8 : Population density in Capital City (Project based Scenario) - 2030
Source : Western Province Division and Research & Development Unit, UDA-2018

3.2.2. Proposed Spatial Change for the Capital City

The proposed spatial form of the area is prepared mainly on the plan concept since it is vital to change the land use to represent the proposed use of the zone. According to the implementation strategy of the Capital City, it is assumed an approximate period of 30 years would be taken to complete all projects of the plan. Accordingly the space in 30 years is 193,968,853 sq.m (excluding center). Further the space for the next 10 years is projected as below. Most importantly, it is expected to double the office space by 2030. (The assumptions of the space calculation are detailed in the Volume III of the Capital City Development Plan)

Consideration:

- Space Development of Capital City is proposed to achieve the proposed urban form of the Capital City Plan.*
- Proposed space for the Capital City development plan 2030 and 2050 has been developed based on two scenarios.*

Propositions:

According to the Implementation Strategy of the Capital City, it is assumed to take 10 years to complete the given projects. Therefore, the achievement of space development will be completed by 2030.

Existing Distribution of Different Land Uses (Refer Annexure 5)

Zone	Existing Residential space (Sqm)	Existing Commercial Space (Sqm)	Existing Office Space (Sqm)	Existing Industrial Space (Sqm)	Existing Other Space (Sqm)	Total Development Area (Sqm)
Center	1,112,000	587,000	857,000	250,000	707,000	3,513,000
High Density Mix Development Zone	7,674,000	783,000	363,000	76,000	499,000	9,395,000
Administrative Zone	4,919,000	594,000	796,000	194,000	551,000	7,055,000
Commercial Zone	26,488,000	3,807,000	1,999,000	986,000	595,000	33,876,000
Office Zone	4,866,000	1,581,000	1,243,000	590,000	432,000	8,713,000
Knowledge Zone	10,678,000	1,848,000	515,000	334,000	567,000	13,943,000
Transition Zone	9,053,000	794,000	581,000	382,000	359,000	11,169,000
Industrial Belt	4,033,000	583,000	1,000	718,000	126,000	5,462,000
Industrial Zone	6,068,000	667,000	441,000	2,220,000	415,000	9,811,000
Residential Zone	10,692,000	457,000	51,000	1,182,000	312,000	12,695,000
Environmental Sensitive Zone	46,000	78,000	57,000	41,000	62,000	285,000
Total Space	84,473,000	7,586,000	2,439,000	4,754,000	2,576,000	101,829,000

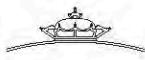
Table 3.9 : Land use distribution in 2018

Source : Western Province Division and Research & Development Unit, UDA-2018

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Projection of Population, Floor Space and Commuter

Proposed Spatial Change for the Capital City



**Chapter 03
THE PLAN**

Projection of Population, Floor Space and Commuter

Proposed Spatial Change for the Capital City

Existing Proportional Distribution of Different Land Uses

Zone	Residential space %	Commercial Space %	Office Space%	Industrial Space %	Other Space %
Executive Residential Zone	87	7	1	1	5
Administrative Zone	87	4	3	0.2	5
Commercial Zone	90	4	3	2	1
Office Zone	68	12	12	4	3
Knowledge Zone	81	11	2	2	4
Transitional Zone	90	6	0.2	3	2
Industrial Belt	73	11	0	13	2
Industrial Zone	75	3	1	19	3
Residential Zone	84	4	0	9	2
Total Area	83	7	2	5	3

Table 3.10 : Proptional distribution in different land uses – 2018

Source : Western Province Division and Research & Development Unit, UDA-2018

Proposed Distribution of Different Land Uses (2030 and 2050)

Zone	Proposed Residential Space(Sqm)	Proposed Commercial Space(Sqm)	Proposed Office Space(Sqm)	Proposed Industrial Space(Sqm)	Proposed Other Space(Sqm)	Total Developed area (Sq m)
Center	1,134,626	704,239	942,810	250,000	848,147	3,879,822
High Density Mixed Development Zone	8,441,800	1,174,031	562,414	84,127	773,549	11,035,921
Administrative Zone	5,165,054	1,010,461	1,593,210	222,817	964,040	8,955,582
Commercial Zone	27,812,519	6,472,633	2,899,165	1,085,120	713,462	38,982,899
Office Zone	5,109,424	2,214,185	1,802,349	619,747	648,657	10,394,362
Knowledge Zone	11,746,254	2,402,934	643,404	350,732	680,629	15,823,953
Transition Zone	4,436,262	1,072,003	610,462	439,777	430,642	6,989,145
Industrial Belt	6,675,194	611,997	15,000	1,005,816	151,861	8,459,868
Industrial Zone	11,761,717	901,305	550,869	3,552,362	539,007	17,305,259
Residential Zone	11,227,094	845,964	73,828	1,217,725	436,426	13,801,037
Environmental Sensitive Zone	51,062	109,238	76,958	43,414	99,200	379,872
Total Space	93,561,005	17,518,989	9,770,468	8,871,636	6,285,621	136,007,719

Table 3.11 : Proposed space distribution in different land uses -2030

Source : Western Province Division and Research & Development Unit, UDA-2018

Zone	Proposed Residential space	Proposed Commercial Space	Proposed Office Space	Proposed Industrial Space	Proposed Other Space	Total Development Area
Executive Residential Zone	8,501,098	1,165,375	137,714	46,479	798,127	10,648,793
Administrative Zone	10,988,286	2,708,084	1,086,605	13,754	621,760	15,418,489
Commercial Zone	29,962,436	18,700,920	1,289,259	466,473	510,217	50,929,305
Office Zone	12,058,396	3,526,243	3,379,047	290,235	267,303	19,521,224
Knowledge Zone	20,581,329	10,120,606	1,573,615	234,030	2,335,953	34,845,534
Transitional Zone	24,562,858	749,912	42,783	282,415	244,566	25,882,535
Industrial Belt	10,003,560	1,265,708	-	1,436,880	253,102	12,959,251
Industrial Zone	6,223,220	334,541	50,868	3,040,452	263,983	9,913,064
Residential Zone	11,496,719	685,918	101,831	1182257	383,432	13,850,158
Total Space	134,377,903	39,257,307	7,661,723	6,992,974	5,678,445	193,968,353

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Projection of Population, Floor Space and Commuter

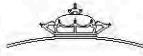
Proposed Spatial Change for the Capital City

Table 3.12 : Proposed space distribution in different land uses -2050
Source : Western Province Division and Research & Development Unit, UDA-2018

Proposed Proportional Distribution Different Land Use (2050)

Zone	Residential space %	Commercial Space %	Office Space%	Industrial Space %	Other Space %
Executive Residential Zone	80	11	1	0.4	7
Administrative Zone	71	18	7	0.1	4
Commercial Zone	59	37	3	1	1
Office Zone	62	18	17	1	1
Knowledge Zone	59	29	5	1	7
Transitional Zone	95	3	0.2	1	1
Industrial Belt	77	10	0	11	2
Industrial Zone	63	3	1	31	3
Residential Zone	83	5	0.7	9	3
Total Area	69	20	4	4	3

Table 3.13 : Proposed propotional distribution in different land uses - 2050
Source : Western Province Division and Research & Development Unit, UDA-2018



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Projection of Population, Floor Space and Commuter

Proposed Commuter Population of the Capital City

3.2.3. Proposed Commuter Population of the Capital City

Commuter population of the Capital City is predicted based on the proposed land use and following assumptions.

Assumptions:

Activity Type	Average Per Capita Space
Retail/Whole Sale	20
Tourism	40
Private Office	30
Industrial	60
Institutional	25
Residential	50

Table 3.14 : Average per capita space
Source : www.un.org/esa/population/pubsarchive

Propositions:

According to the Implementation Plan of Capital City, it is planned to complete all the identified projects by 2030. Hence, it requires a period of 30 years to achieve the predicted commuter population in reality.

Existing Commuter Population of the Capital City

Existing Commuter Population					
Zone (Existing Situation)	Commuter Population for Commercial Space	Commuter Population for Office Space	Commuter Population for Industrial Space	Commuter Population for Other Space	Total Commuter Population
Center	22,000	21,000	3,000	21,000	68,000
High Density Mixed Resi-dent Zone	29,000	9,000	1,000	15,000	54,000
Administrative Zone	22,000	20,000	2,000	17,000	61,000
Commercial Zone	142,000	50,000	12,000	17,000	223,000
Office Zone	59,000	31,000	7,000	13,000	112,000
Knowledge Zone	69,000	13,000	4,000	17,000	104,000
Transition Zone	30,000	14,000	5,000	10,000	59,000
Industrial Belt	22,000	3,000	9,000	3,000	38,000
Industrial Zone	25,000	11,000	28,000	12,000	76,000

Chapter 03 THE PLAN

Projection of Population, Floor Space and Commuter

Proposed Commuter Population of the Capital City

Existing Commuter Population					
Zone (Existing Situation)	Commuter Population for Commercial Space	Commuter Population for Office Space	Commuter Population for Industrial Space	Commuter Population for Other Space	Total Commuter Population
Residential Zone	17,000	1,000	15,000	9,000	45,000
Environmental Sensitive Zone	3,000	1,000	1000	1,860	7,000
Total Commuter Pop for Space					850,000

Table 3.15 : Commuter population in the Capital City - 2018

Source : Western Province Division and Research & Development Unit, UDA-2018

Predicted Commuter Population of the Capital City (2030)

Predicted Commuter Pop 2030					
Zone (Predicted Situation)	Commuter Pop for Commercial Space	Commuter Pop for Office Space	Commuter Pop for Industrial Space	Commuter Pop for Other Space	Total Com Population
Center	26,000	23,000	3,000	25,000	78,000
High Density Mixed Resident Zone	44,000	14,000	1,000	23,000	82,000
Administrative Zone	38,000	40,000	3,000	29,000	109,000
Commercial Zone	243,000	72,000	14,000	21,000	350,000
Office Zone	83,000	45,000	7,747	19,460	155,000
Knowledge Zone	90,110	16,000	4,384	20,419	131,000
Transition Zone	40,200	15,000	5,000	13,000	74,000
Industrial Belt	23,000	6,000	12,000	4,000	45,000
Industrial Zone	34,000	14,000	44,000	16,000	108,000
Residential Zone	32,000	2,000	15,000	13,000	62,000
Environmental Sensitive Zone	4,000	2,000	600	4,000	10,000
Total Commuter Pop for Space					1,204,000

Table 3.16 : Predicted commuter population of the Capital City - 2030

Source : Western Province Division and Research & Development Unit, UDA-2018



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**Projection of
Population, Floor Space
and Commuter**

**Proposed Commuter
Population of
the Capital City**

Predicted Commuter Population of the Capital City (2050)

Zone	Projected Commuter Population					Total Commuter Population
	Commuter of Commercial Space	Commuter of Office Space	Commuter of Industrial Space	Commuter of Other		
Executive Residential Zone	58,000	4,500	775	32,000		95,275
Administrative Zone	135,000	36,000	230	25,000		196,230
Commercial Zone	935,000	43,000	8,000	20,000		1,006,000
Office Zone	176,000	113,000	5,000	11,000		305,000
Knowledge Zone	500,000	52,000	14,000	93,000		649,000
Transitional Zone	37,000	1,400	5,000	10,000		53,400
Industrial Belt	63,000	-	24,000	10,000		97,000
Industrial Zone	17,000	1,700	51,000	10,000		79,700
Residential Zone	34,000	3,000	20,000	15,000		72,000
Total Space	1,962,865	255,391	116,550	227,138		2,553,000

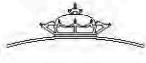
Table 3.17 : Predicted commuter population of the Capital City -2050

Source : Western Province Division and Research & Development Unit, UDA-2018



04

*Utility
Management
Strategy*



Chapter 04
**UTILITY
MANAGEMENT
STRATEGY**

Introduction

Aims and Objectives

The Approach

4.1. Introduction

4.1.1. Aims and Objectives

The Utility Management Strategy serves almost all objectives with special concern on the objectives given under Goal 03 which states a place that prospers with smooth and efficient urban systems and smart urban facilities.

4.1.2. The Approach

The Infrastructure in the Sri Lanka's Capital City area will have to be developed both by direct intervention of the State Sector Infrastructure Development Agencies and through Public-Private Partnerships. Hence the Capital City Development Plan shall be referred as a guiding framework for such interventions.

The objective of the strategy is to upgrade the physical infrastructure in par with international standards and the smart urban facilities :

- *The Management of Utilities and Services*
 - Electricity Supply
 - Water Supply
 - Solid Waste Management
 - Waste Water Treatment and Disposal System
- *Provision of Adequate Social Infrastructure*
 - Education Institutions
 - Health Institutions

The expected population in the area earmarked for the Capital City development within the envisaged period of the plan is 1,546,000 (2050). The following strategies have been formulated with this figure in view.

The overall developments in the area shall elevate Kotte-Sri Jayawardenapura and its surroundings into a state-of-the-art smart city that provides its inhabitants with efficient, affordable and comfortable living, working and entertainment facilities.

4.2. Scope of the Strategy

3.1. The planning framework covered by Utility Management Strategy includes:

- a. Tentative demands for different types of physical and social infrastructure, estimated based on the projected residential and commuter populations, urban activities and services proposed under any section of this strategy, and for specific geographic units within the planning area in different time durations.
- b. The relevant infrastructure projects of other authorities are incorporated as for the requirements of the plan.
- c. Locations earmarked and the geographic entities to be served by such infrastructure developments projects.
- d. The order of priorities, timelines and proposed process of implementation of such projects are considered.

3.2. The strategy addresses general requirements and does not intend to address infrastructure development needs of individual entities, firms or sectors.

3.3. The strategy has taken the foreseeable conditions in the socio-economic environment, the advancement of technologies and the projected socio-demographic conditions, based on the available information. Any unexpected and unprecedented events or conditions shall be addressed with timely interventions.

3.4. All strategic projects, proposed in this section of the plan are expected to serve the planning area within the time durations specified in chapter 1 of the development plan. situations beyond these durations will have to be dealt with timely updating of the development plan.

**Chapter 04
UTILITY
MANAGEMENT
STRATEGY**

Scope of the Strategy

Strategic Intervention for the Utility Management : Physical Infrastructure

Strategic Intervention – Electricity Supply

4.3. Strategic Intervention for the Utility Management : Physical Infrastructure

Strategic Intervention 1: Electricity Supply

The Current Situation :

The purpose of electricity supply plan is to provide uninterrupted and reliable supply of grid based electricity to the Capital City area. On the existing situation of the electricity supply, both Ceylon Electricity board and Lanka Electricity Company (Pvt) Ltd are responsible to provide electricity for capital city area. Hence it is necessary to identify the existing electricity supply plans



Chapter 04
**UTILITY
MANAGEMENT
STRATEGY**

Scope of the Strategy

**Strategic Intervention for
the Utility Management :
Physical Infrastructure**

**Strategic Intervention –
Electricity Supply**

of the Ceylon Electricity board and the Lanka Electricity Company (Pvt) Ltd. The Ceylon Electricity Board provides electricity for Kaduwela Municipal Council area, Part of the Maharagama Urban Council area and part of the Kotikawatta Pradeshiya Sabha area. The Lanka Electricity Company (Pvt) Ltd provides electricity for Kotte Municipal Council area and, part of the Maharagama Urban Council area and a part of the Kotikawatta Pradeshiya Sabha area.

The following table indicates installed capacity (in kVA) and current load (in kVA) of the CEB in Capital City Planning Area during the day & night peak.

Area	Capacity (kVA)	kVA		%kVA	
		Day	Night	Day	Night
Malabe	66680	8894	13303	13.33	19.95
Thalangama	86930	7948	9398	9.14	10.81
Weliwita	59510	7560	8185	12.7	13.75

Table 4.1 : Capacity installation and current load of the CEB

Source : Ceylon Electricity Board - 2018

The following table indicates the existing capacity of the electricity of Lanka Electricity Company (Pvt) Ltd.

Substation	Capacity
Kolonnawa	2x10MVA
Ethul Kotte	2x10MVA
Nugegoda	2x10MVA
Udahamulla	2x10MVA
Boralesgamuwa	2x5MVA
Maharagama	2x10MVA
Nawala	2x10MVA
Kotikawaththa	2x5MVA
Peliyagoda-Sedawaththa Feeder	2x10MVA

Table 4.2 : Electricity capacity of LECO for Planning area

Source : Lanka electricity company (Pvt) Ltd - 2018

The Projected situations in 2030 and 2050 :

The expected electricity demand for the domestic usage is as below

Zones	population - 2030	Number of housing units - 2030	Domestic Demand (kwh) -2030
Center	42830	10982	1317846
Administrative Zone	186130	47725	5727077
High density Mixed Development Zone	85190	21843	2621231
Commercial Zone	306550	78602	9432308
Knowledge Zone	165710	42489	5098769
Office Zone	140850	36115	4333846
Transition mix Development Zone	105730	27110	3253231
River base warehouse Zone	45480	11661	1399385
Residential Zone	143340	36753	4410462
Indsutrial Zone	42520	10902	1308308
Environmental sensitive Zone (Kelani)	10060	2579	309538
Total	1274390	326766	39212000

Table 4.3 : Domestic electricity demand of the Capital City - 2030

Source : Western Province Division and Research & Development Unit, UDA - 2018

Chapter 04 UTILITY MANAGEMENT STRATEGY

Scope of the Strategy

Strategic Intervention for the Utility Management : Physical Infrastructure

Strategic Intervention – Electricity Supply

Zones	Population - 2050	Number of housing units- 2050	Domestic Demand (kwh)-2050
Center	44,000	11282	1353846
Inner & Outer City	1,298,000	332821	39938462
Periphery	204,000	52308	6276923
Total area	1,546,000	396410	47569231

Table 4.4 : Domestic electricity demand of the Capital City - 2050

Source : Western Province Division and Research & Development Unit, UDA - 2018



Predicted space for requirement of electricity.

Zone	Proposed Residential Space(Sqm)	Proposed Commercial Space(Sqm)	Proposed Office Space(Sqm)	Proposed Industrial Space(Sqm)	Proposed Other Space(Sqm)	Total Developed area (Sqm)
Center	1,134,626	704,239	942,810	250,000	848,147	3,879,822
High Density Mixed Development Zone	8,441,800	1,174,031	562,414	84,127	773,549	11,035,921
Administrative Zone	5,165,054	1,010,461	1,593,210	222,817	964,040	8,955,582
Commercial Zone	27,812,519	6,472,633	2,899,165	1,085,120	713,462	38,982,899
Office Zone	5,109,424	2,214,185	1,802,349	619,747	648,657	10,394,362
Knowledge Zone	11,746,254	2,402,934	643,404	350,732	680,629	15,823,953
Transition Zone	4,436,262	1,072,003	610,462	439,777	430,642	6,989,145
Industrial Belt	6,675,194	611,997	15,000	1,005,816	151,861	8,459,868
Industrial Zone	11,761,717	901,305	550,869	3,552,362	539,007	17,305,259
Residential Zone	11,227,094	845,964	73,828	1,217,725	436,426	13,801,037
Environmental Sensitive Zone	51,062	109,238	76,958	43,414	99,200	379,872
Total Space	93,561,005	17,518,989	9,770,468	8,871,636	6,285,621	136,007,719

Table 4.5 : Predicted space for requirement of electricity - 2030

Source : Western Province Division and Research & Development Unit, UDA - 2018

Zone	Proposed Residential Space(Sqm)	Proposed Commercial Space(Sqm)	Proposed Office Space(Sqm)	Proposed Industrial Space(Sqm)	Proposed Other Space(Sqm)	Total Developed area (Sqm)
Executive Residential Zone	8,501,098	1,165,375	137,714	46,479	798,127	10,648,793
Administrative Zone	10,988,286	2,708,084	1,086,605	13,754	621,760	15,418,489
Commercial Zone	29,962,436	18,700,920	1,289,259	466,473	510,217	50,929,305
Office Zone	12,058,396	3,526,243	3,379,047	290,235	267,303	19,521,224
Knowledge Zone	20,581,329	10,120,606	1,573,615	234,030	2,335,953	34,845,534
Transitional Zone	24,562,858	749,912	42,783	282,415	244,566	25,882,535
Industrial Belt	10,003,560	1,265,708	-	1,436,880	253,102	12,959,251
Industrial Zone	6,223,220	334,541	50,868	3,040,452	263,983	9,913,064
Residential Zone	11,496,719	685,918	101,831	1182257	383,432	13,850,158
Total Space	134,377,903	39,257,307	7,661,723	6,992,974	5,678,445	193,968,353

Table 4.6 : Predicted space for requirement of electricity -2050

Source : Western Province Division and Research & Development Unit, UDA-2018

The standard electricity demand is predicted based on the proposed land uses over the total planning area. Hence, any electricity supply improvement project that would directly or indirectly contribute to the electricity supply of Capital City are incorporated into the Capital City Development Plan.

Strategic Intervention 2 : Water Supply

The Current Situation :

The purpose of water supply strategic intervention is to provide 100% reliable water supply to the Capital City Area. Hence, it is necessary to identify the existing water supply, future water demand and plans of National Water Supply and Drainage Board (NWSDB) of Sri Lanka. The NWSDB projections are based on the demand of local authorities and the proposed Capital City projections are based on the proposed zones of the concept. According to the data provided by NWSDB, the existing water provision for the relevant area is as follows.

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Strategic Intervention for the Utility Management : Physical Infrastructure

Strategic Intervention – Water Supply



Figure 4.1: Water provision in Colombo district

Source : Western Province Division and Research & Development Unit, UDA – 2018

Water demand for the year 2011

Local Authority	Existing (2011) (m ³ /d)			
	Domestic Consumptions	Non Domestic Consumptions	Special Consumptions	Total Average Day Consumptions
Sri Jayewardenepura Kotte MC	20690	1925	0	33754
Kaduwela MC	23466	2616	2269	41694
Maharagama UC	23440	3035	2421	42496
Kotikawatta-Mulleriyawa PS	15218	1348	2201	27598
Total Water Supply	82814	8924	6891	145542

Table 4.7 : Water demand of NWSDB for the year – 2011

Source : National Water Supply and Drainage Board



Since it is difficult to understand the present condition based on 2011 data, 2015 demand projection of NSWDB has been used to project the current demand (2018) of the Capital City considering a total population of 774,082 in the area by 2018.

Water demand for the year 2015 (Prepared by NWSDB)

Local Authority	Population of 2015	Domestic Consumptions (m³/d)	Non Domestic Consumptions (m³/d)	Special Consumptions (m³/d)	Total Average Day Consumptions (m³/d)	Total Maximum Day Demand(m³/d)
Sri Jayewardenepura Kotte MC	111048	19410	3162	1457	34326	37759
Kaduwela MC	264630	38420	4288	4168	66709	73381
Maharagama UC	208416	30658	3914	2421	52848	58132
Kotikawatta-Mulleriyawa PS	137913	18608	1644	2201	32076	35284
Total Water Supply Area based on Local Authorities	722,007	107,096	13,008	10,247	185,959	204,556

Table 4.8 : Water demand of NWSDB for the year - 2015

Source : National Water Supply and Drainage Board

Water demand for the year 2018 (Prepared by the UDA)

	Population of 2018	Domestic Consumptions	Non Domestic Consumptions	Special Consumptions	Total Average day Consumptions	Total Maximum Day Demand
Total Area based on Concept of Capital City	774,082	114,820	13,946	10,986	19,9371	219,310

Table 4.9 : Water demand for the year - 2018

Source : Western Province Division and Research & Development Unit, UDA - 2018

The Projected Situations in 2030 and 2050 :

Water demand for the year 2030 (Prepared by NWSDB)

Local Authority	Population of 2030	2030 Projection (m³/d)					
		Domestic Demand	Non Domestic Demand	Special Demand	Total Demand of the Area	Total Average Day Demand	Total Maximum Day Demand
Sri Jayewardenepura Kotte MC	130724	25622	4171	1672	31465	37910	41702
Kaduwela MC	330358	56818	6419	5059	68296	82176	90396
Maharagama UC	260181	45998	5745	2783	54526	65690	72261
Kotikawatta-Mulleriyawa PS	172677	26248	2317	2525	31090	37457	41203
Total Water Supply	893940	154686	18652	12039	185,377	223233	245562

Table 4.10 : Water demand of NWSDB for the year - 2030

Source : National Water Supply and Drainage Board

NWSDB has projected the water demand for a population of 893,940 for the year 2030. However, for the next 30 years of this plan proposes a population of 1,545,934. Further, it is projected that the existing non-domestic space will increase by 45% by the next 30 years. (Refer the Spacial Strategic Intervention) Based on the said criteria, this plan has projected the water demand - 2050 for the Capital City area as below,

	Population of 2018	Domestic Consumptions (m³/d)	Non Domestic Consumptions (m³/d)	Total Demand per Day (m³/d)
Total Area	1,545,934	267,506	37,648	305,154

Table 4.11 : Capital City water demand - 2050

Source : Western Province Division and Research & Development Unit, UDA - 2018

According to the water demand projection for the next 30 years, there is a gap of 118281m³ of water for the area compared with the NWSDB figures.



Projects of NWSDB for the year 2030

Existing Scheme	Future Scheme	Water Treatment Facilities	Estimated Existing Water Treatment Facility Supplied in 2011 (m3/day)	Clean Water to be Provided (m3/day)				
				2012	2015	2020	2025	2030
Kotte	Kotte	Ambathale	39768	47734	53239	36011	38007	34729
		Weliwita	0	0	0	16502	17649	24257
Battaramulla	Battaramulla	Ambatale	22119	31182	37149	0	0	0
		Weliwita	0	0	0	37472	40309	43351
Kaduwela	Kaduwela	Labugama	14392	20563	22300	23246	28461	25766
		Chico	0	0	3655	4053	856	916
		Weliwita	0	0	0	0	0	4791
Maharagama	Maharagama	Kalatuwawa	4019	4567	5190	0	0	0
		Ambathale	19834	24245	26272	0	0	-
		Weliwita	0	0	0	38474	41379	44476
Kolonnawa	Kolonnawa	Labugama	1258	1522	8283	0	0	0
		Kalatuwawa	2095	2840	0	0	0	0
		Ambatale	39203	48714	49332	58160	62793	67757
		Weliwita	0	0	0	0	0	0
Total			142688	181367	205420	213918	229454	246043

Table 4.12 : Projects of NWSDB for the year 2030

Source : National Water Supply and Drainage Board

Strategic Intervention 3 : Solid Waste Management

The Current Situation :

Solid waste management has become a national level issue in Sri Lanka. Colombo District accounts for the highest weight of solid waste in the country. Solid Waste Management Strategic Intervention is an essential component to accomplish the objectives of this plan.

The current solid waste disposal method in the DSDs of the proposed Capital City Area are as follows,

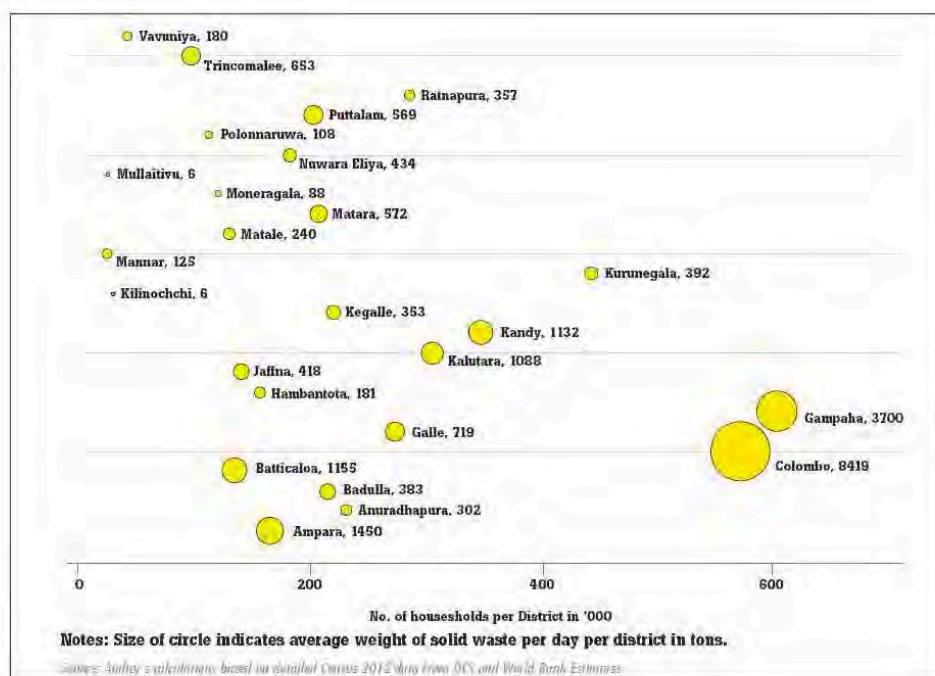


Figure 4.2 : Solid waste generation in Colombo district

Source : www.pressreader.com/sri-lanka/daily-mirror-sri-lanka

- Kaduwela DSD - above 50 % solid waste managed by the local authority
- Maharagama DSD- above 60% solid waste managed by the local authority
- Kolonnawa (Kottikawatta) DSD- above 80% solid waste managed by the local authority
- Sri Jayawardanepura DSD- above 98% solid waste managed by the local authority

Accordingly, solid waste management methods are inadequate even at present.

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Strategic Intervention for the Utility Management : Physical Infrastructure

Strategic Intervention – Solid Waste Management



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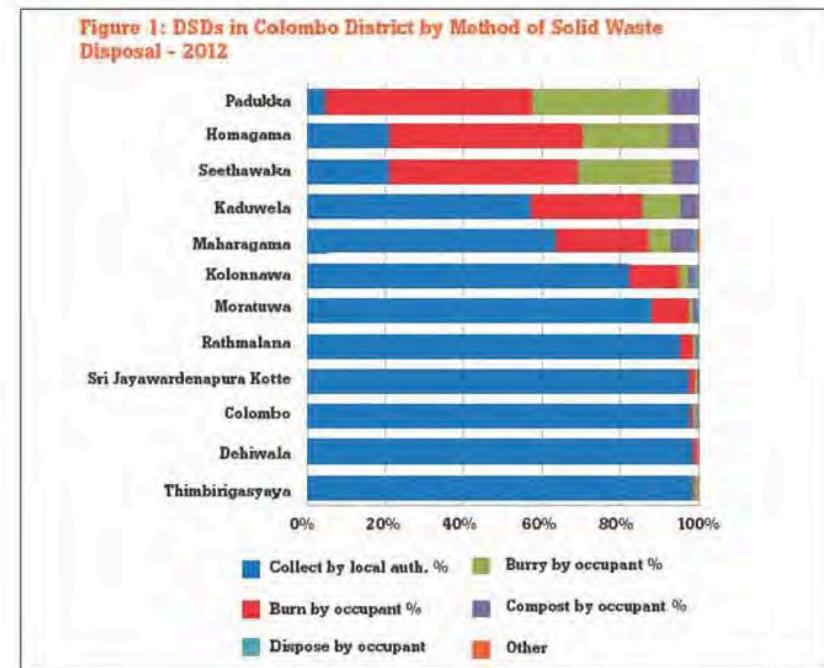


Figure 4.3 : DSD-s in Colombo district by method of solid waste disposal - 2012

Source : www.pressreader.com/sri-lanka/daily-mirror-sri-lanka

Current capacity and methods of solid waste management

Local Authority	Current Solid Waste Dumping Place	Capacity
Sri Jayawardenapura Kotte MC	Karadiyana Open Dumping Site	25 Acres of Land area Dispose 500 MT per day
Maharagama UC		
Kotikawatta PS	Open dumping site	40 MT per day
Kaduwela MC	Kaduwela Waste Energy Project	35 MT Per day

Table 4.13 : Current capacity and methods of solid waste management

Source : Relevant local authority data - 2018

Assumptions for the estimation of solid waste generation

Area	Per Capita Solid Waste generation (Residential) (MT)
Municipal Council	0.7
Urban Council	0.4
Pradeshiya Sava	0.3

Table 4.14 : Assumptions for the estimation of solid waste generation of the local authorities

Source : Solid waste management authority - 2018

Present solid waste generation based on residential population

Local Authority	Residential Population of 2018	Waste Generation 2018(MT)
Kaduwela MC	277693	194
Maharagama UC	232093	93
Sri Jayawardenapura Kotte MC	98962	69
Kottikawatta PS	165266	50
Total Area	774013	406

Table 4.15 : Solid waste generation based on residential population – 2018

Source : Western Province Division and Research & Development Unit, UDA - 2018

The Projected Situations in 2050 :

Predicted solid waste generation based on residential population

Local Authority	Residential Population of 2050	Waste Generation of 2050
Kaduwela MC	414217	290
Maharagama UC	777780	311
Sri Jayawardenapura Kotte MC	107517	75
Kottikawatta PS	246420	74
Total Area	1545934	750

Table 4.16 : Solid waste generation based on residential population - 2050

Source : Western Province Division and Research & Development Unit, UDA - 2018

Solid waste generation based on floating population

Per capita solid waste generation by floating population is estimated to be 0.15kg per day (Source: www.Environment clearance.nic.in)

	Floating Pop	Solid Waste Generation (MT)
Floating Population of Capital City 2018	902,400	135
Floating Population of Capital City 2050	2,500,000	375

Table 4.17 : Solid waste generation based on commuter population - 2050

Source : Western Province Division and Research & Development Unit, UDA - 2018

The current capacity of solid waste dumping sites is approximately 575 metric tons and current waste generation of the area is approximately 541 metric tons. The solid waste generation of the proposed Capital City area is estimated to be 1,125 metric tons. These figures show that innovative methods and increased capacities required to manage future situations.

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**Strategic Intervention for
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**Strategic Intervention –
Solid Waste Management**

**Strategic Intervention –
Waste Water Treatment
and Disposal System**

Solid Waste Management Projects

Ministry of Megapolis and Wester Development initiated a project to handle 3500 metric tons of solid waste generated in Metro Colombo Area with a facility developed in Aruwakkalu. It intends to serve Sri Jayawadenapura Kotte Municipal Council and Kotikawatte- Mulleriya area.

The future floating population in the proposed Capital City would generate approximately 400 metric tons of solid waste per day. These predicted solid waste generations by floating population are assumed as 100 metric tons and 200 metric tons for Sri Jayawardenapura and Kotikawatta local authority areas respectively. This wastes are proposed to be accommodated by the Aruwakkalu facility.

Unless the other local authorities too will not be included, a fresh solution will be needed since, Kaduwela and Maharagama local authorities will produce 400 metric tons per day in the future and the Karadiyana Waste to Energy Project has only a limited capacity of 35 metric tons per day. Hence it proposed to improve the capacity of Karadiyana waste to energy project to this strategy and any other solid waste projects will be incoporated.

Strategic Intervention 4 : Waste Water Treatment and Disposal System

The Current Situation :

It is generally believed that wastewater is no longer suitable for use as it is full of contaminants including bacteria, chemicals and other toxins. Hence, it is vital to treat and reduce the contaminants to acceptable levels to make the water safe to discharge into the environmental systems. However, at present there is no proper waste water treatment and disposal system for the plan area. As a result, it explices the difficulty of maintaining the ‘city character’ deprived of proper waste water disposing network. Accordingly, this section proposes a strategic intervention to manage the waste water of the area.

The existing wastewater generation of the area is indicated as below,

Existing Waste Water Generation of the Area

Wastewater Treatment and Disposal System (Kaduwela)	
Population in the year 2018	277693
Design population considering 80% coverages	
Water Consumption (m ³ /day)	222,154
Per Capita Waste Water generation	120l/d/person
Base wastewater flow(m ³ /day)	26,658
Taking 35% of Base wastewater flow as wastewater generation from Commercial Institutions	9,330
Average dry weather flow (m ³ /day)	35,989
Infiltration 20% (m ³ /day)	7,198
Total average dry weather flow on total population m ³ /day	43,187
	45,000m ³ /day

Table 4.18 : Waste water treatment and disposal system in Kaduwela - 2018

Source : Western Province Division and Research & Development Unit, UDA - 2018

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Strategic Intervention for the Utility Management : Physical Infrastructure

Strategic Intervention – Waste Water Treatment and Disposal System

Wastewater Treatment and Disposal System (Maharagama)	
Population in the year 2018	232,093
Design population considering 80% coverages	
Water Consumption (m ³ /day)	185,674
Per Capita Waste Water generation	120l/d/person
Base wastewater flow(m ³ /day)	22,280
Taking 35% of Base wastewater flow as wastewater generation from Commercial Institutions	7,798
Average dry weather flow (m ³ /day)	30,079
Infiltration 20% (m ³ /day)	6,015
Total average dry weather flow on total population m ³ /day	36,095
	36,000m ³ /day

Table 4.19 : Waste water treatment and disposal system in Maharagama - 2018

Source : Western Province Division and Research & Development Unit, UDA - 2018



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**Strategic Intervention –
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Wastewater Treatment and Disposal System (Sri Jayawardhanpura)	
Population in the year 2018	98961.71597
Design population considering 80% coverages	
Water Consumption (m ³ /day)	79,169.37277
Per Capita Waste Water generation	120l/d/person
Base wastewater flow(m ³ /day)	9,500.324733
Taking 35% of Base wastewater flow as wastewater generation from Commercial Institutions	3,325.113657
Average dry weather flow (m ³ /day)	12,825.43839
Infiltration 20% (m ³ /day)	2,565.087678
Total average dry weather flow on total population m ³ /day	15,391
	15,000m ³ /day

Table 4.20 : Waste water treatment and disposal system in Sri Jayawardenapura Kotte -2018

Source : Western Province Division and Research & Development Unit, UDA - 2018

Wastewater Treatment and Disposal System (Kotikawatta)	
Population in the year 2018	165265.885
Design population considering 80% coverages	
Water Consumption (m ³ /day)	13,2212.708
Per Capita Waste Water generation	120l/d/person
Base wastewater flow(m ³ /day)	15,865.52496
Taking 35% of Base wastewater flow as wastewater generation from Commercial Institutions	5,552.933735
Average dry weather flow (m ³ /day)	21,418.45869
Infiltration 20% (m ³ /day)	4,283.691739
Total average dry weather flow on total population m ³ /day	25,702
	325,000m ³ /day

Table 4.21 : Waste water treatment and disposal system in Kotikawaththa -2018

Source : Western Province Division and Research & Development Unit, UDA - 2018

The Projected Situations in 2050

Projected Wastewater Generation of the Area by 2050

Wastewater Treatment and Disposal System (Kaduwela)	
Population in the year 2050	414,217
Design population considering 80% coverage	
Water Consumption	331,373
Waste Water generation	120l/d/person
Base wastewater flow(m ³ /day)	39,765
Taking 35% of BF as wastewater generation from Commercial Institutions	13,918
Waste water flow from commercial institution	
Average dry weather flow	53,682
Infiltration 20%	10,736
Total ADWF flow to the TP m ³ /day	64,419
	65,000m³/day

Table 4.22 : Waste water treatment and disposal system in Kaduwela - 2050

Source : Western Province Division and Research & Development Unit, UDA - 2018

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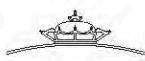
Strategic Intervention for the Utility Management : Physical Infrastructure

Strategic Intervention – Waste Water Treatment and Disposal System

Wastewater Treatment and Disposal System (Maharagama)	
Population in the year 2050	777,780
Design population considering 80% coverage	
Water Consumption	622,224
Waste Water generation	120l/d/person
Base wastewater flow(m ³ /day)	74,667
Taking 35% of BF as wastewater generation from Commercial Institutions	26,133
Waste water flow from commercial institution	
Average dry weather flow	100,800
Infiltration 20%	20,160
Total ADWF flow to the TP m ³ /day	120,960
	120,000m³/day

Table 4.23 : Waste water treatment and disposal system in Maharagama -2050

Source : Western Province Division and Research & Development Unit, UDA - 2018



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**Strategic Intervention –
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Wastewater Treatment and Disposal System (Sri Jayawardhanpura)	
Population in the year 2050	107,517
Design population considering 80% coverages	
Water Consumption	86,014
Waste Water generation	120l/d/person
Base wastewater flow(m ³ /day)	10,322
Taking 35% of BF as wastewater generation from Commercial Institutions	3,613
Waste water flow from commercial institution	
Average dry weather flow	13,934
Infiltration 20%	2,787
Total ADWF flow to the TP m ³ /day	16,721
	17,000m³/day

Table 4.24 : Waste water treatment and disposal system in Sri Jayawardenapura Kotte -2050
Source : Western Province Division and Research & Development Unit, UDA - 2018

Wastewater Treatment and Disposal System (Kotikawatta)	
Population in the year 2050	246,420
Design population considering 80% coverage	
Water Consumption	197,136
Waste Water generation	120l/d/person
Base wastewater flow(BF)(m ³ /day)	23,656
Taking 35% of BF as wastewater generation from Commercial Institutions	8,280
Waste water flow from commercial institution	
Average dry weather flow	31,936
Infiltration 20%	6,387
Total ADWF flow to the TP m ³ /day	38,323
	38,000m³/day

Table 4.25 : Waste water treatment and disposal system in Kotikawaththa -2050
Source : Ministry of Education -2018

The above tables imply that the existing wastewater generation would be doubled by the year 2030 with the Capital City development. For that reason, it is crucial to address the issue of wastewater along with the plan implementation.

Identified Projects for Wastewater Treatment and Disposal

National Water Supply and Drainage Board has designed a wastewater treatment (SP-I-1) and disposing project for Sri Jayawardanepura Kotte MC and surrounding areas including a part of Kaduwela MC, Dehiwala-Mt. Lavinia MC, Maharagama UC and Kotikawatta-Mulleriyava PS with a total population of 218,800. Nevertheless, it covers only 21% of the total area. Hence, it requires an extended wastewater treatment and disposal project for the whole area.

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Strategic Intervention for the Utility Management : Physical Infrastructure

Strategic Intervention – Waste Water Treatment and Disposal System



Figure 4.4 : Waste water treatment and disposable project proposal

Source : National Water Supply and Drainage Board- 2018



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**Strategic Intervention for
the Utility Management :
Social Infrastructure**

**Strategic Intervention –
Educational Institutions**

4.4. Strategic Intervention for the Utility Management : Social Infrastructure

Social infrastructure generally includes facilities to provide social services. Types of social infrastructure include health care (hospitals), education (schools and universities), public facilities (community health). They serve as the backbone of the wellbeing of the society. ‘The Capital City Development Plan’ mainly considers the health and education sector of the planning area. Accordingly, Educational Sector Improvement and Health Sector Improvement Strategic Intervention are proposed.

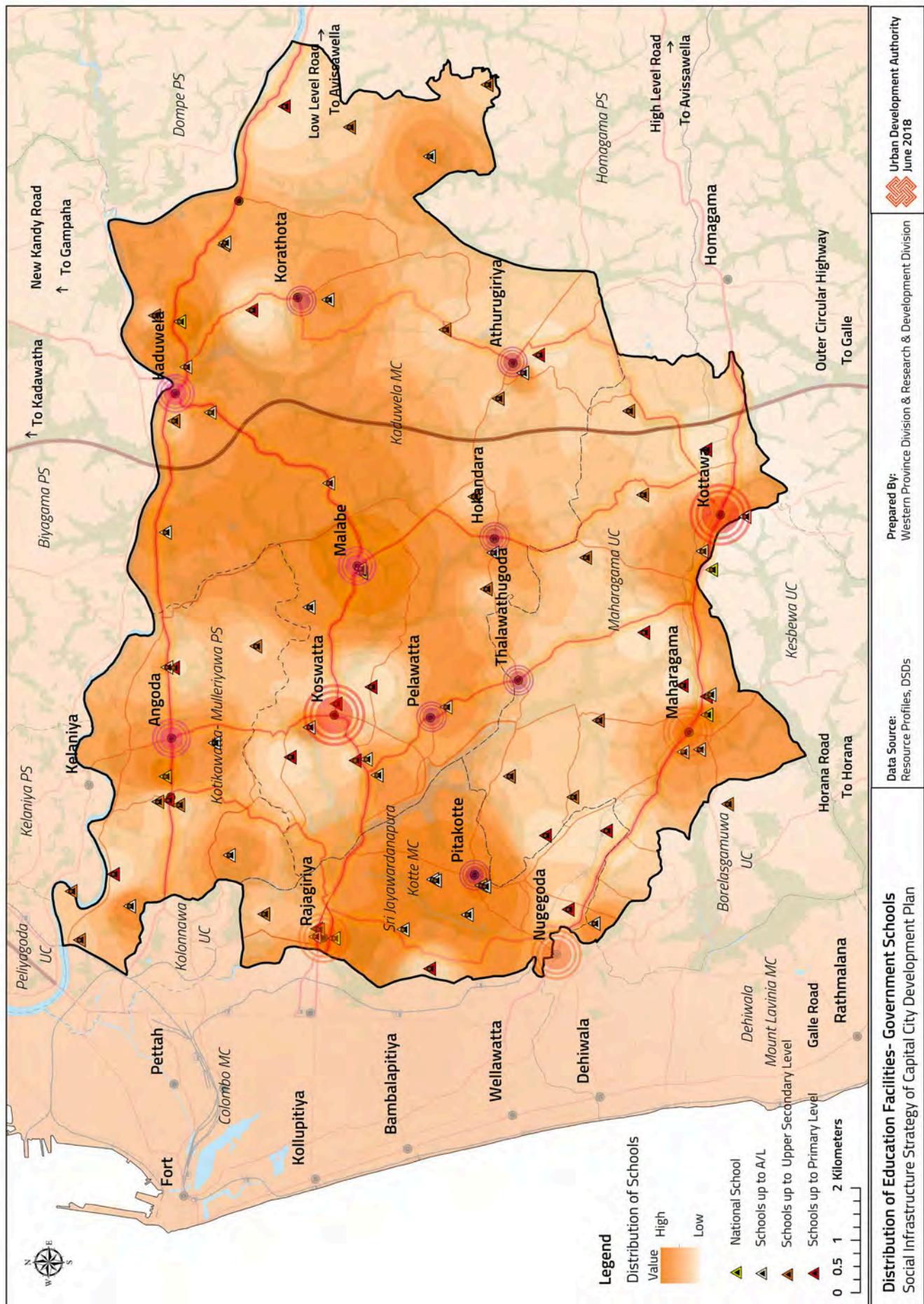
Strategic Intervention 1 : Educational Institutions

Current Situation

The Capital City Development Plan area consists of 81 government schools where, 19 of them belong to national level school category.

Type	Number of Government Schools
National Schools	19
Up to A/L	23
Up to O/L	30
Primary Schools	9
Total	81

Table 4.26 : No of school distribution within the Capital City
Source : Ministry of Education – 2018



Map 4.1 : Distribution of educational facilities - Gvt schools - 2018
Source : Western Province Division and Research & Development Unit, UDA - 2018



Chapter 04
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**Strategic Intervention for
the Utility Management :**
Social Infrastructure

Strategic Intervention –
Educational Institutions

The Projected Situation in 2050

A student population of 145,000 was recorded in 2012 with 85,267 students studying in government schools in the planning area. It is 59% of the total student population and the remaining 41% is assumed to attend private schools (international and other). This is based on following assumptions,

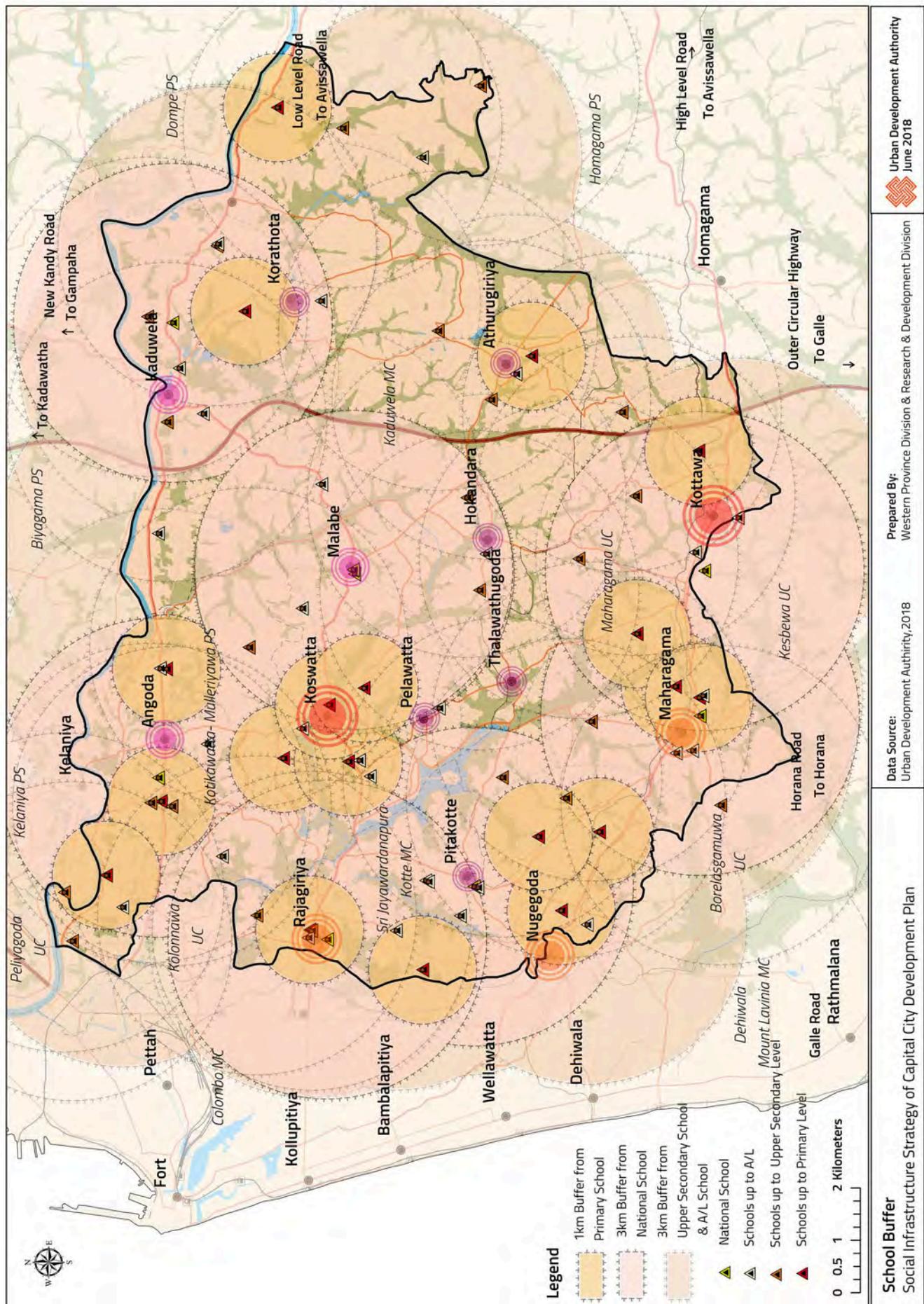
1. *The population which belongs to the age group of 5 to 19 years in the planning area attends schools which are located within the planning area.*
2. *The total number of students in each school is identified as the maximum capacity of the given school.*

The student population estimated for 2050 is 169,700.

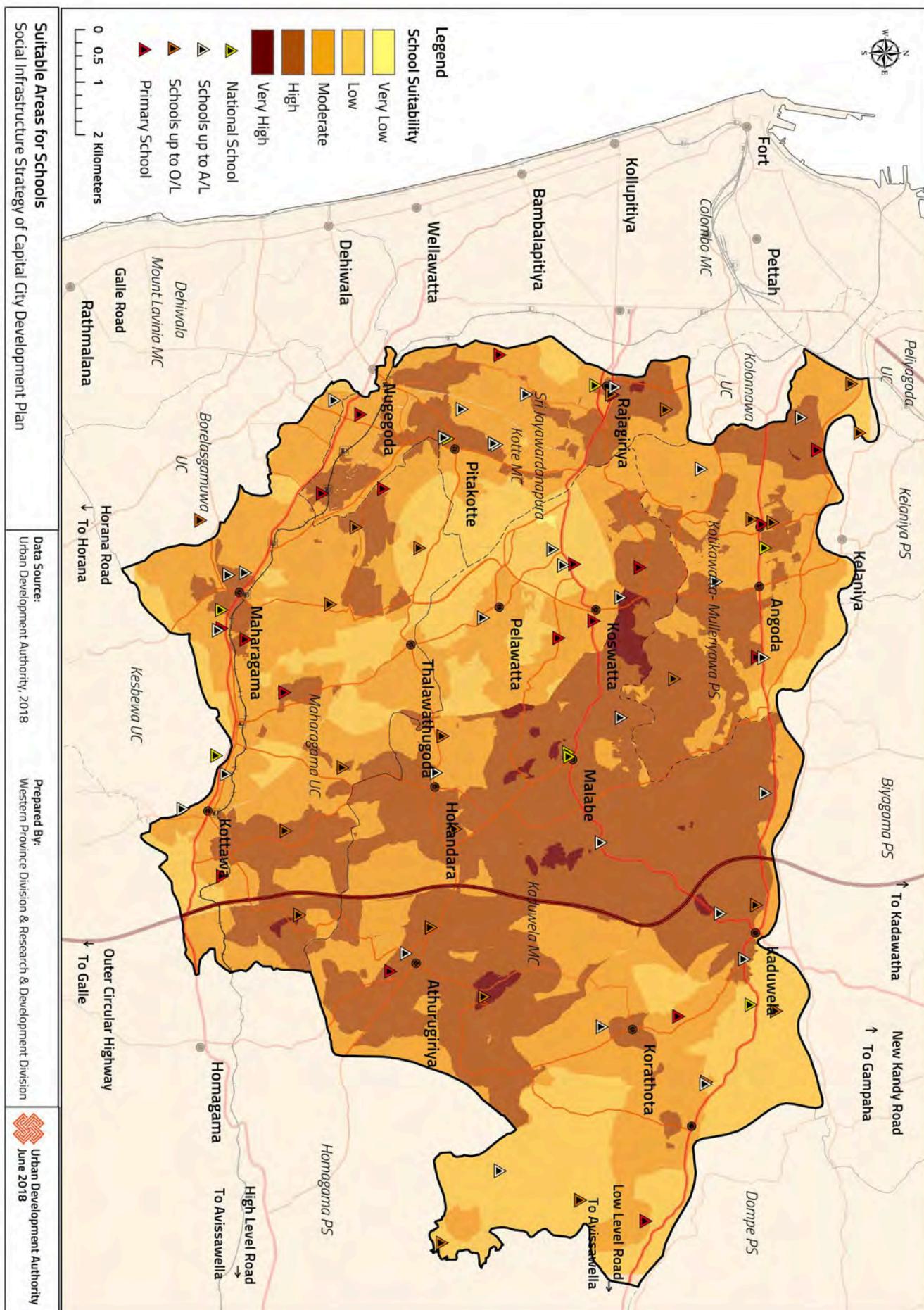
Further, the expansion of the government schools is expected by 17% by the year 2030. In order to facilitate the said growth, suitable areas are identified based on the distribution of estimated student population, proposed road network and the other aspects of the plan.

The catchment of a school is assessed to be 3km for national schools and secondary schools and 1km for primary schools. Such buffering exercise shows that there is an even distribution of schools in the area. Hence, the need is not to increase the number of schools but to enhance the available facilities and to increase their capabilities.

According to the Suitability Analysis, Knowledge City Area and a part of the Peripheral Residential area are identified as the most suitable for educational facilities.



Map 4.2 : Availability of school infrastructure in Capital City plan
Source : Western Province Division and Research & Development Unit, UDA - 2018



Map 4.3 : Suitability analysis for schools

Source : Western Province Division and Research & Development Unit, UDA - 2018

Strategic Intervention 2 : Health Institutions

The Current Situation

Currently, 22 government hospitals are located within the planning area including 3 hospitals which belong to the Teaching Hospital Category (Sri Jayawardenapura Hospital, National Institute of Mental Health and Apeksha Hospital). In addition to them, there is a large number of private hospitals in almost all major town.

It is noticed that health facilities are well distributed over the planning area and most importantly, many government and private health facilities are located towards Colombo.

The Projected Situation in 2050

The population and hospital ratio in 2012 is recorded as 10,000:0.32. By the year 2030, it is projected to be 10,000: 0.26 with the projected population.

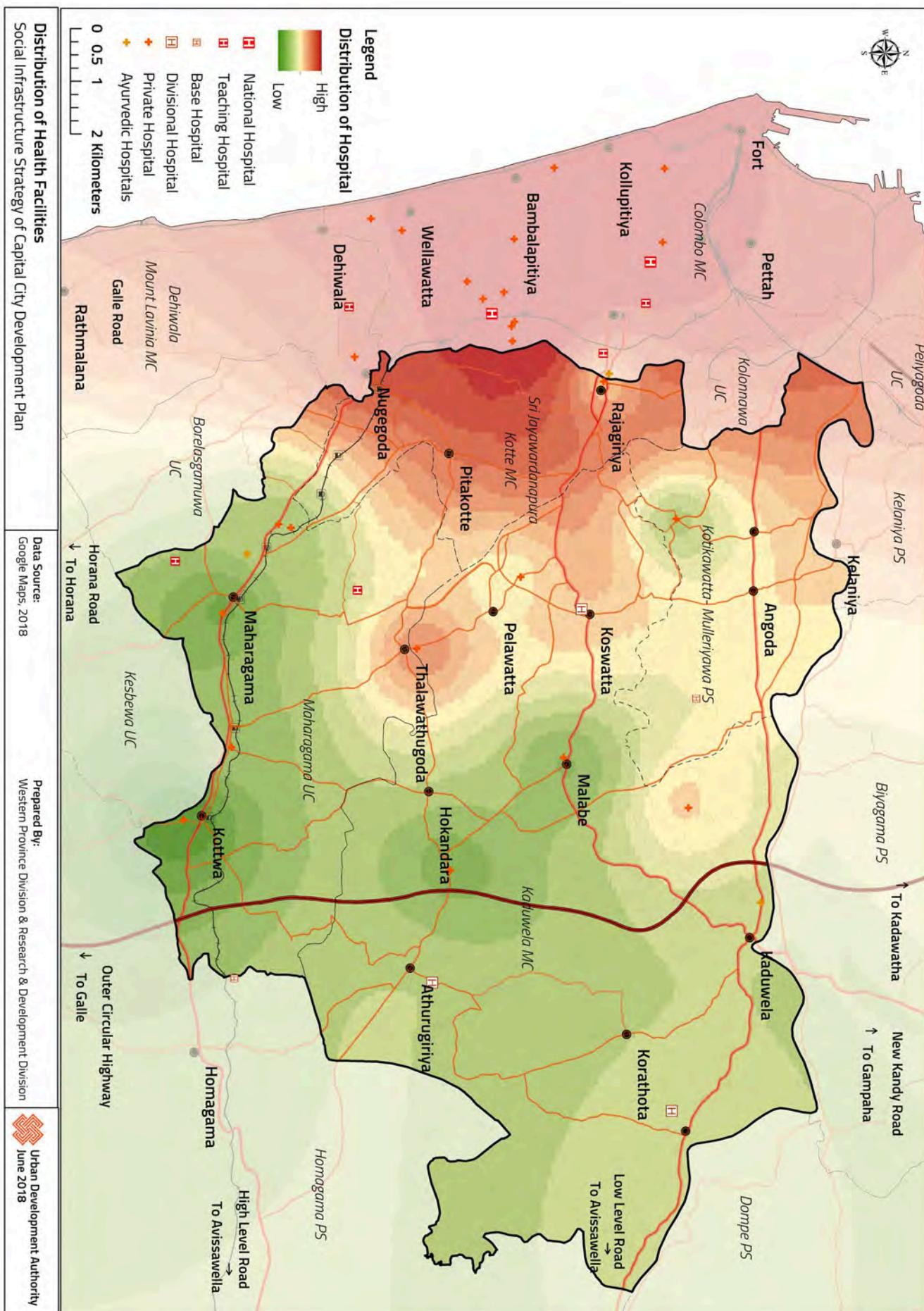
According to the World Health Organization - World Health Standards, the hospital bed density is 5 beds per 1000 persons. In 2012, it was recorded as 2.4 beds/ 1000 persons. The projected bed density in 2030 is 1.95 beds/1000 persons with the projected populations. This shows a need for additional health facility.

Capital City Development Plan has been identified importance of establishing judiciary related institution within the proposed axis of Capital City which will further discuss in the chapter 10. For the above establishment Capital City Plan has identified land of IDH Base Hospital as the best alternative. Hence, two sites are identified as alternatives to relocate the IDH Base Hospital with required capacities and to achieve the WHO World Health Standards.

Chapter 04 UTILITY MANAGEMENT STRATEGY

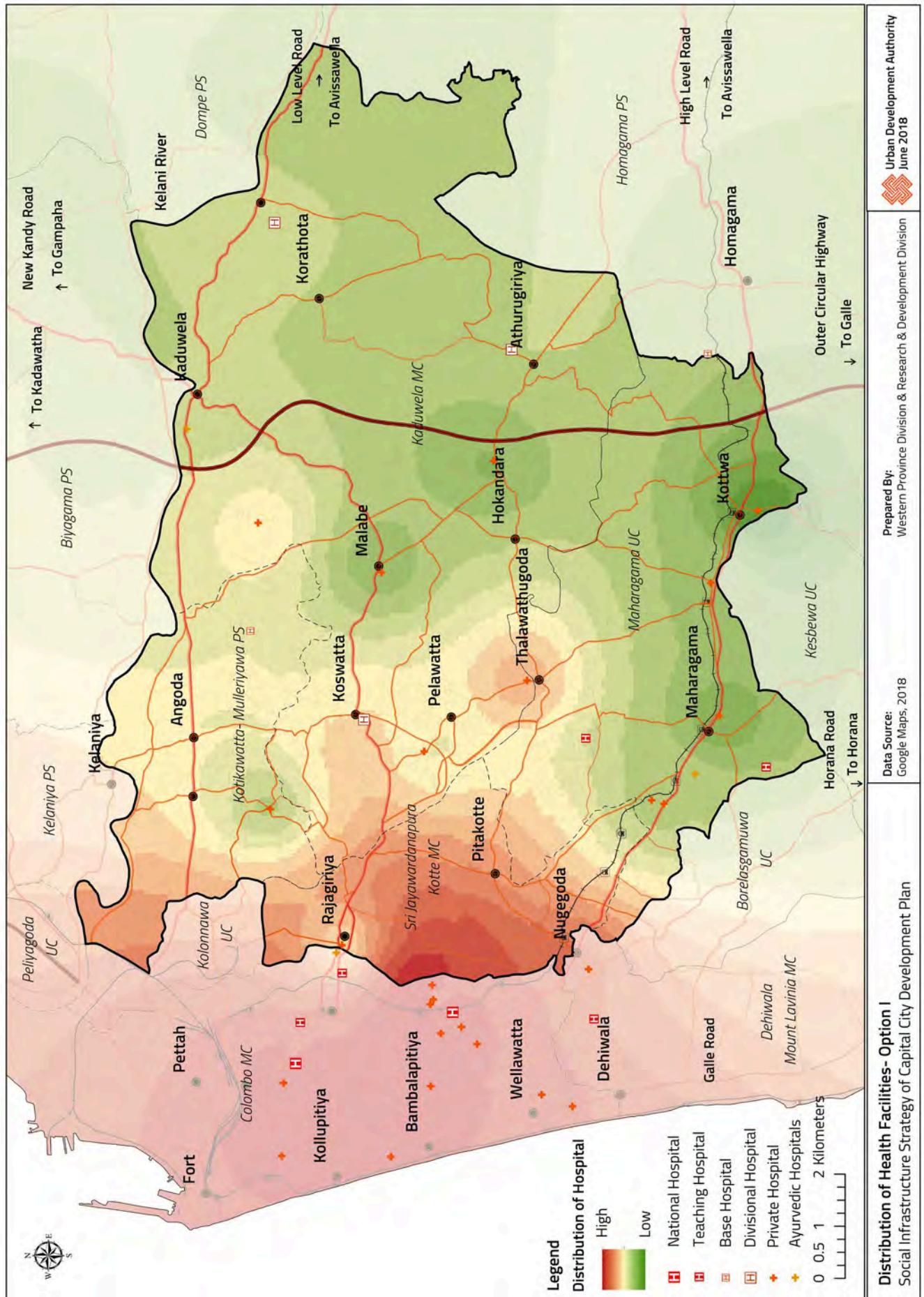
Strategic Intervention for the Utility Management : Social Infrastructure

Strategic Intervention – Health Institutions

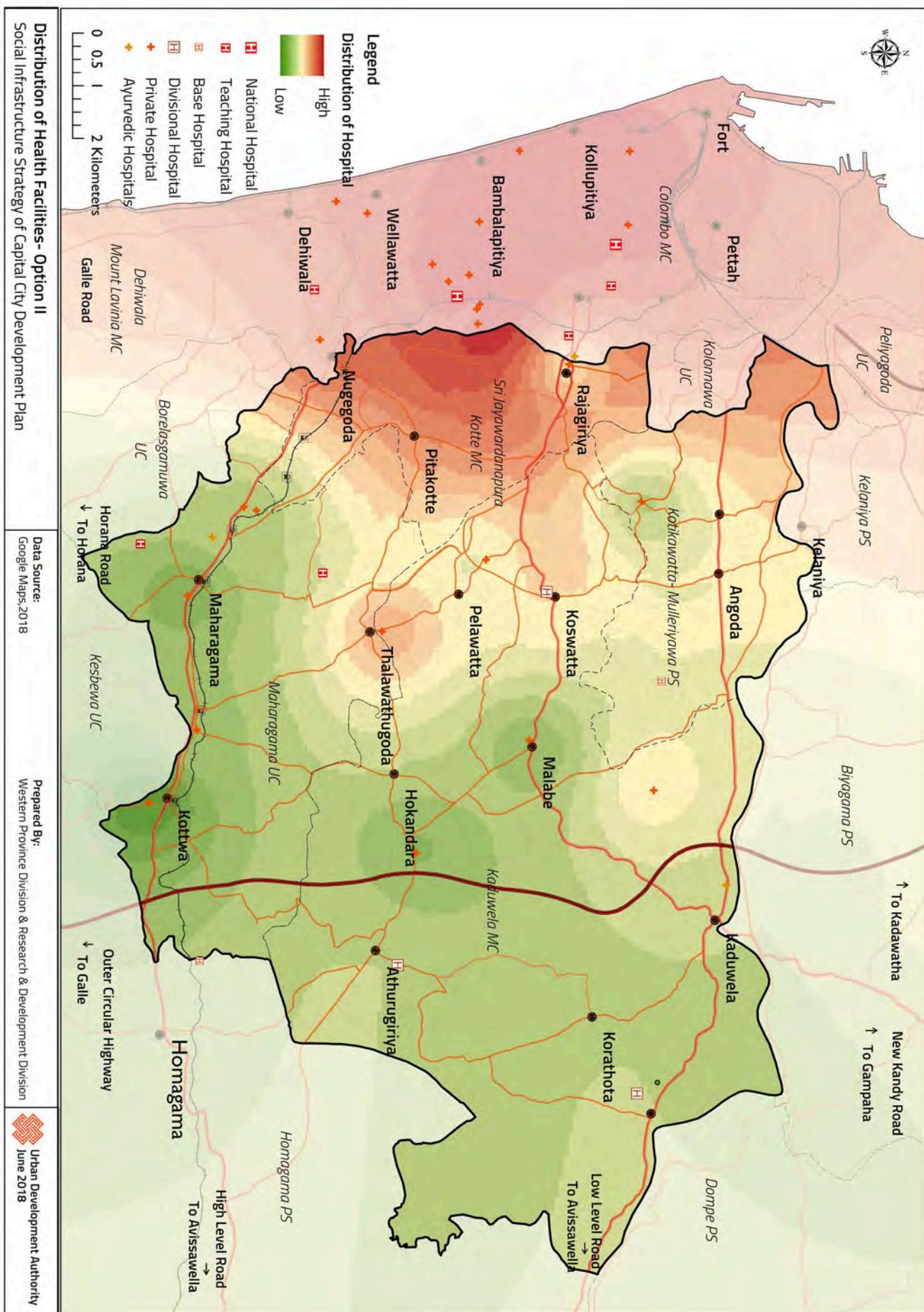


Map 4.4 : Distribution of health facilities - 2018

Source : Western Province Division and Research & Development Unit, UDA - 2018



Map 4.5 : Distribution of health facilities – Option 1 (Ranala site)
Source : Western Province Division and Research & Development Unit, UDA – 2018



Map 4.6: Distribution of health facilities - Option 2 (Nawagamuwa site)
Source : Western Province Division and Research & Development Unit, UDA - 2018

05

Transport Development Strategy





Chapter 05
**TRANSPORT
DEVELOPMENT
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[Introduction](#)

[Aims and Objectives](#)

[The Approach](#)

5.1 Introduction

5.1.1. Aims and Objectives

This strategy generally serves to accomplish almost all objectives given in Chapter 1 of this plan, but specifically the Objectives under Goal 03.

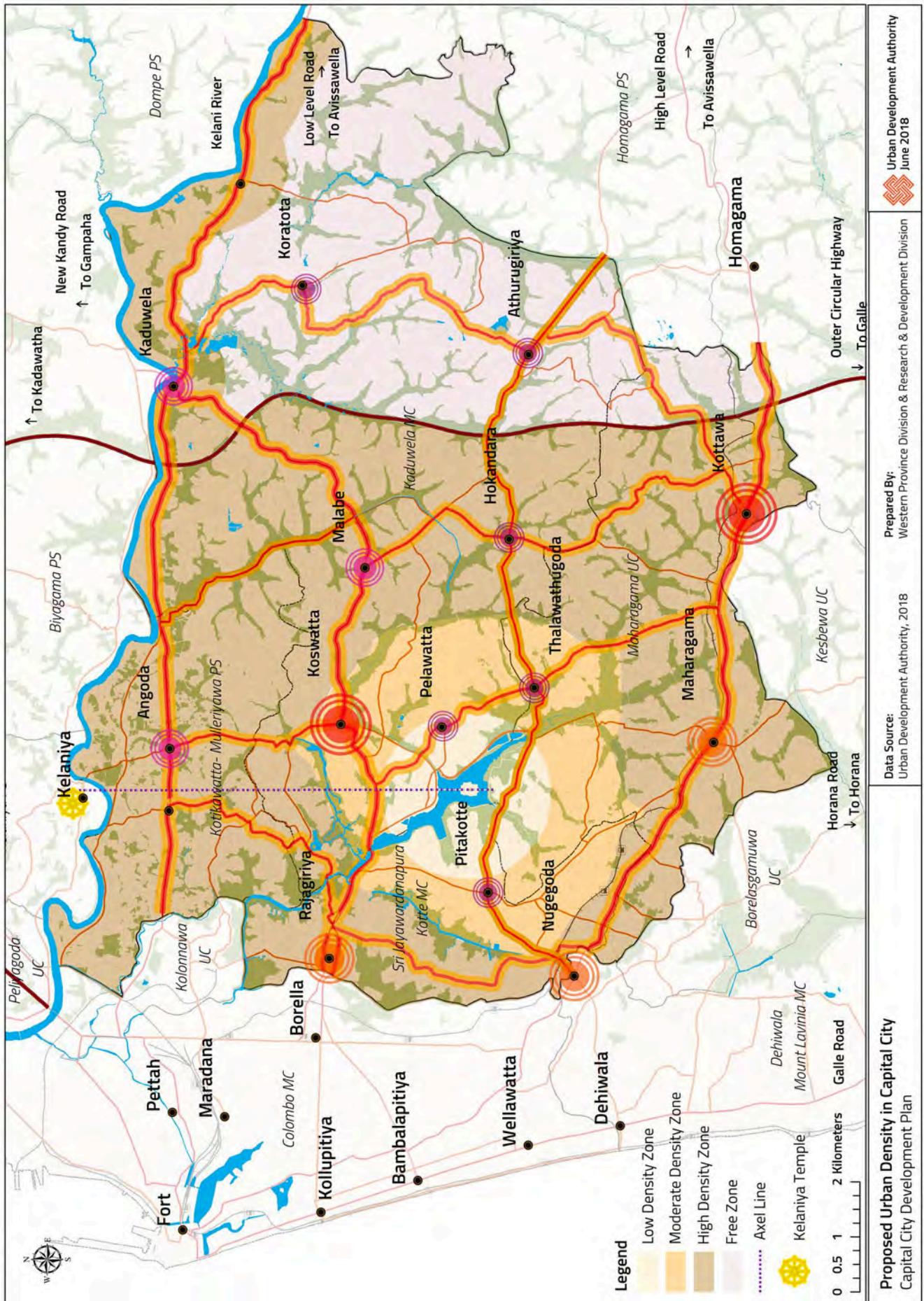
5.1.2. The Approach

In conformity with the goals and objectives of the Capital City Development Plan, the Transportation Development Strategy aims to provide the earmarked planning area with a higher level of inter and intra nodal connectivity, an efficient, economical and comfortable public transportation through appropriate modal integration, congestion free and emission free clean passenger and goods transportation, and, safe, pleasant and attractive environment throughout the area. Accordingly, the first target of the plan is to create a transport network which supports the proposed node and corridor development with identified densities as below,

First Priority Nodes	-	<i>Koswaththa - Battaramulla, Kottawa - Makubura, Nugegoda,</i>
Second Priority Nodes	-	<i>Maharagama, Rajagiriya</i>
Third Priority Nodes	-	<i>Kaduwela, Malabe, Kotikawaththa - Angoda, Thalawthugoda</i>
Fourth Priority Nodes	-	<i>Athurugiriya, Korathota, Hokandara, Pelawaththe, Pitakotte</i>

And to reduce the traffic congestion of the Capital City with a smooth transportation network which would lead to enhance the efficiency of the city.

The strategy apart from these two, the road network has also attempted to integrate the wetlands of the Capital City area with the new transportation systems.



Map 5.1: Proposed urban density in Capital City
Source : Western Province Division and Research & Development Unit, UDA - 2018



Chapter 05
**TRANSPORT
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Scope of the Strategy

Present Status

5.2. Scope of the Strategy

1. *The planning framework covered by this strategy includes:*
 - a. *Tentative demands for different types of transportation modes, estimates based on the projected residential and commuter populations, urban activities and services proposed under other section of this plan, and for specific geographic units within the planning area in different time durations.*
 - b. *Specific projects identified to address such demands by the Urban Development Authority and the other relevant agencies.*
 - c. *Locations earmarked for transport development facilities and the geographic entities that would be served by such transport developments projects.*
 - d. *The order of priorities, the timelines and the proposed process of implementation of such projects considered.*
2. *However, this strategy addresses general requirements and does not intend to address infrastructure development needs of individual entities, firms.*
3. *All strategic projects, proposed in this section of the plan are expected to serve the planning area within the time durations specified in Chapter 01 of the Development Plan. Situations beyond these time durations will have to be dealt with timely updating of the Development Plan.*

5.3 Present Status

The population of the Capital City for year 2050 is expected to be 1,520,000 which seem to be twice the current population (774,000). On the other hand, the commuter population expected in the area is 2,500,000 which is approximately twice the current commuter population. For that reason, unless viable alternatives will be introduced, it is clear that the intervened traffic generation will worsen the traffic congestion in near future with the existing transport facilities.

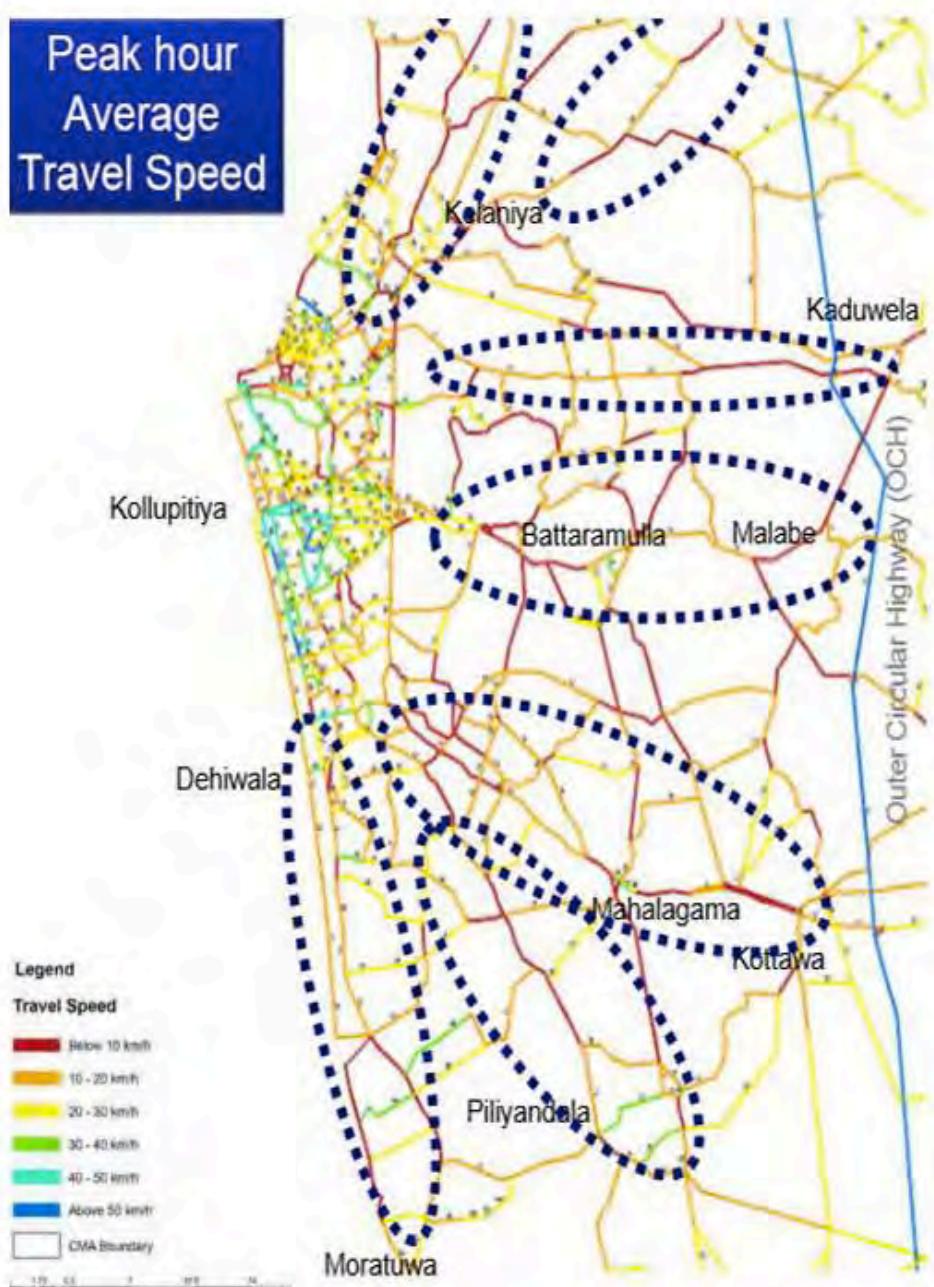


Figure 5.1: Travel speed within Colombo

Source : Western Province Division and Research & Development Unit, UDA – 2018



Chapter 05
**TRANSPORT
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Present Status

Traffic Generated in Different Zones of the Capital City in 2030

Assumptions based on *Eric, J. 2011. Basics of ITE Trip Generation and its Role in Calculating Transportation Impact Fees. Innovation for better mobility.*

Two Independent Impact Fee Studies					
Type of Land Use ^a	ITE Code	Daily Trip Generation Rate ^b	Pass-by Percentage ^c	Discounted Impact Fee ^d	ITERIS
General Office (per 1,000 sf)					
< 50,000 sf	710	15.65	0%	\$2,204	
50,000 – 100,000 sf	710	16.25	0%	\$2,000	
100,001 – 200,000 sf	710	12.15	0%	\$1,711	
> 200,000 sf	710	11.17	0%	\$1,601	
General Retail (per 3,000 sf)					
< 50,000 sf	820	86.56	18%	\$6,337	
50,000 – 100,000 sf	820	75.30	42%	\$6,090	
100,001 – 200,000 sf	820	55.92	35%	\$5,417	
> 200,000 sf	820	53.28	32%	\$5,101	
Industrial					
General Light Industrial (per 1,000 sf) ^e	110	6.97	0%	\$ 961	
General Heavy Industrial (per 1,000 sf) ^e	120	1.5	0%	\$ 211	
Industrial Park (per 1,000 sf) ^e	150	6.96	0%	\$ 960	
Warehousing (per 1,000 sf) ^e	120	5.96	0%	\$ 899	
Mini-Warehouse (per 1,000 sf) ^e	151	2.5	0%	\$ 352	

Existing Traffic Generation based on Land use of the Capital City

	Traffic Generation of Residential Spaces	Traffic Generation of Commercial Spaces	Traffic Generation of Office Spaces	Traffic Generation of Industrial Spaces	Traffic Generation of Other Spaces	Total Traffic Generation of Zones
Executive Residential Zone	51,162	10,022	309	465	798	62,756
Administrative Zone	32,794	4,375	560	138	622	38,489
Commercial Zone	127,136	192,725	1,008	17,588	1,418	339,874
Office Zone	32,441	30,326	482	2,902	465	66,616
Knowledge Zone	71,189	24,913	944	2,340	934	100,321
Transitional Zone	60,353	9,530	64	2,824	318	73,089
Industrial Belt	26,886	10,885	—	7,184	253	45,209
Industrial Zone	40,456	4,603	122	15,202	429	60,813
Residential Zone	71,283	7,865	3,547	509	623	83,828
Total	513,700	295,244	7,035	49,153	5,861	870,994

Table 5.1 : Traffic generation based on land use - 2018

Source : Western Province Division and Research & Development Unit, UDA – 2018

5.4. The Projected Situations in 2050

Predicted Traffic Generation based on the Land use of the Capital City

Zone	Traffic Generation of Commercial Spaces	Traffic Generation of Office Spaces	Traffic Generation of Industrial Spaces	Traffic Generation of Other Spaces	Traffic Generation of Residential Spaces	Total Traffic Generation of the Zones Per day
Executive Residential Zone	10,022	309	46	798	54,687	65,862
Administrative Zone	43,755	3,260	14	1,244	73,255	121,527
Commercial Zone	192,725	1,008	1,759	1,418	199,750	396,659
Office Zone	30,326	5,058	290	516	192,234	228,424
Knowledge Zone	124,563	1,888	234	4,672	137,209	268,566
Transitional Zone	47,651	128	282	381	89,811	138,254
Industrial Belt	21,770	–	1,437	506	21,479	45,192
Industrial Zone	5,754	153	3,040	528	135,972	145,447
Residential Zone	9,045	3,547	51	717	306,071	319,430
Total	485,610	15,350	7,154	10,780	1,210,467	1,729,361

Table 5.2 : Predicted traffic generation based on land use generation – 2050

Source : Western Province Division and Research & Development Unit, UDA - 2018

Chapter 05
TRANSPORT
DEVELOPMENT
STRATEGY

The Projected
Situations in 2050



Map 5.2 : Composite map of Transport Development Strategy
Source : Western Province Division and Research & Development Unit, UDA - 2018

5.5. Strategic Interventions

To accomplish the objectives of the transport sector, three strategic interventions are proposed as given below,

Strategic Intervention 1: *Prioritization and widening of identified existing roads and introduce new inter-links associated with wetlands.*

Strategic Intervention 2: *Introduction of new modes of public transportation integrated with the existing ones.*

Strategic Intervention 3: *Develop inter-modal exchanges for convenient transit and land value capture.*

Strategic Intervention 1: Prioritization and widening of identified existing roads and introduce new inter-links associated with wetlands.

The purpose of road widening is to improve the level service of the roads in order to cater the future traffic demand of the area. Accordingly, the plan has introduced four types of priority roads as below,

- P1 – Urban Functional Highways*
- P2 – Arterial Roads*
- P3 – Sub Arterial Roads*
- P4 – Local Authority Roads*
- P5 / P6 – Wetland Roads*

01). P1 – Urban Functional Highways

Three Urban Functional Highways are proposed to the Capital City with a width 30m as follow,

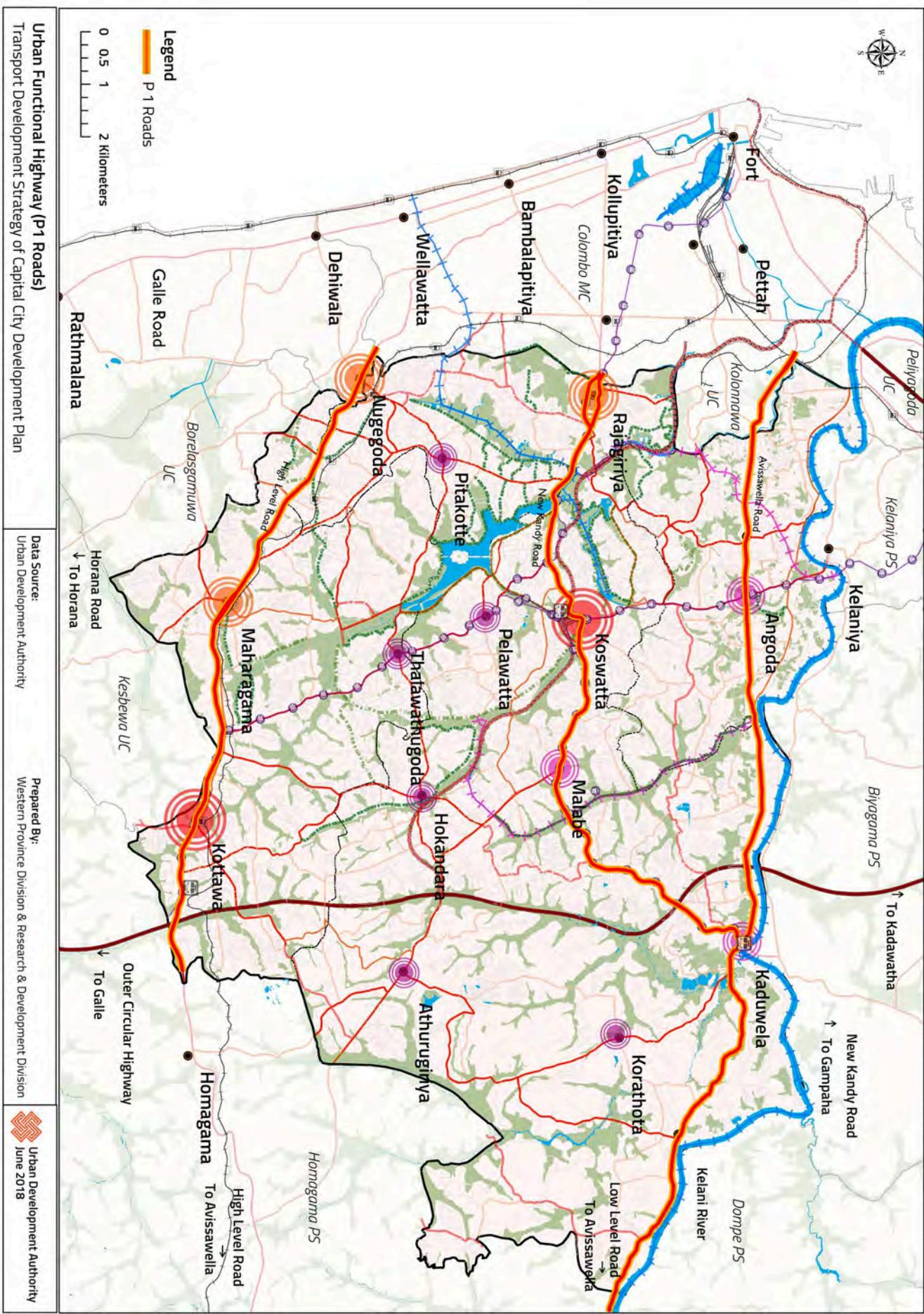
- *High Level Road*
- *Low Level Road*
- *New Kandy Road*

It is expected to attract the maximum investment to develop the area with a livable character. In this regard these three urban functional highways hold the highest concentration of infrastructure and therefore, within the next ten years they will attract the largest extents of the development in this area, forming the main corridors.

Chapter 05
TRANSPORT
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Strategic Interventions

Strategic Intervention :
Road Widening



Chapter 05 TRANSPORT DEVELOPMENT STRATEGY

Strategic Interventions

Strategic Intervention: Road Widening



Figure 5.2: Recommended typical cross section of P1 road category
Source : Western Province Division and Research & Development Unit, UDA - 2018



Figure 5.3: Recommended typical cross section of P1 road category with LRT
Source : Western Province Division and Research & Development Unit, UDA - 2018



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Strategic Interventions

Strategic Intervention :
Road Widening

O2). P2 – Arterial Roads

An arterial network is developed to facilitate the movement between Urban Functional Highways in the Capital City i.e. Center, Commercial Strip, Knowledge District, Transition District, Administrative District, Residential District and Periphery. It is expected that; this development would create a grid patterned transport network and develop the corridors in the area

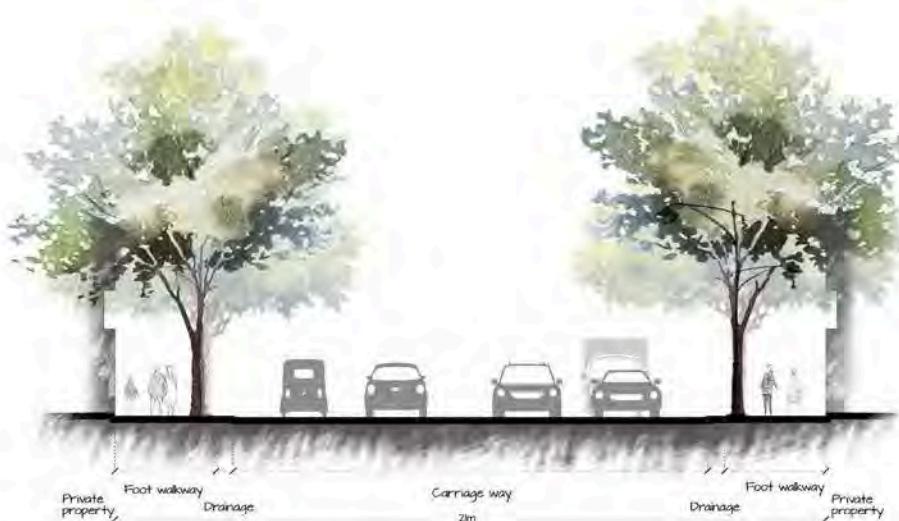
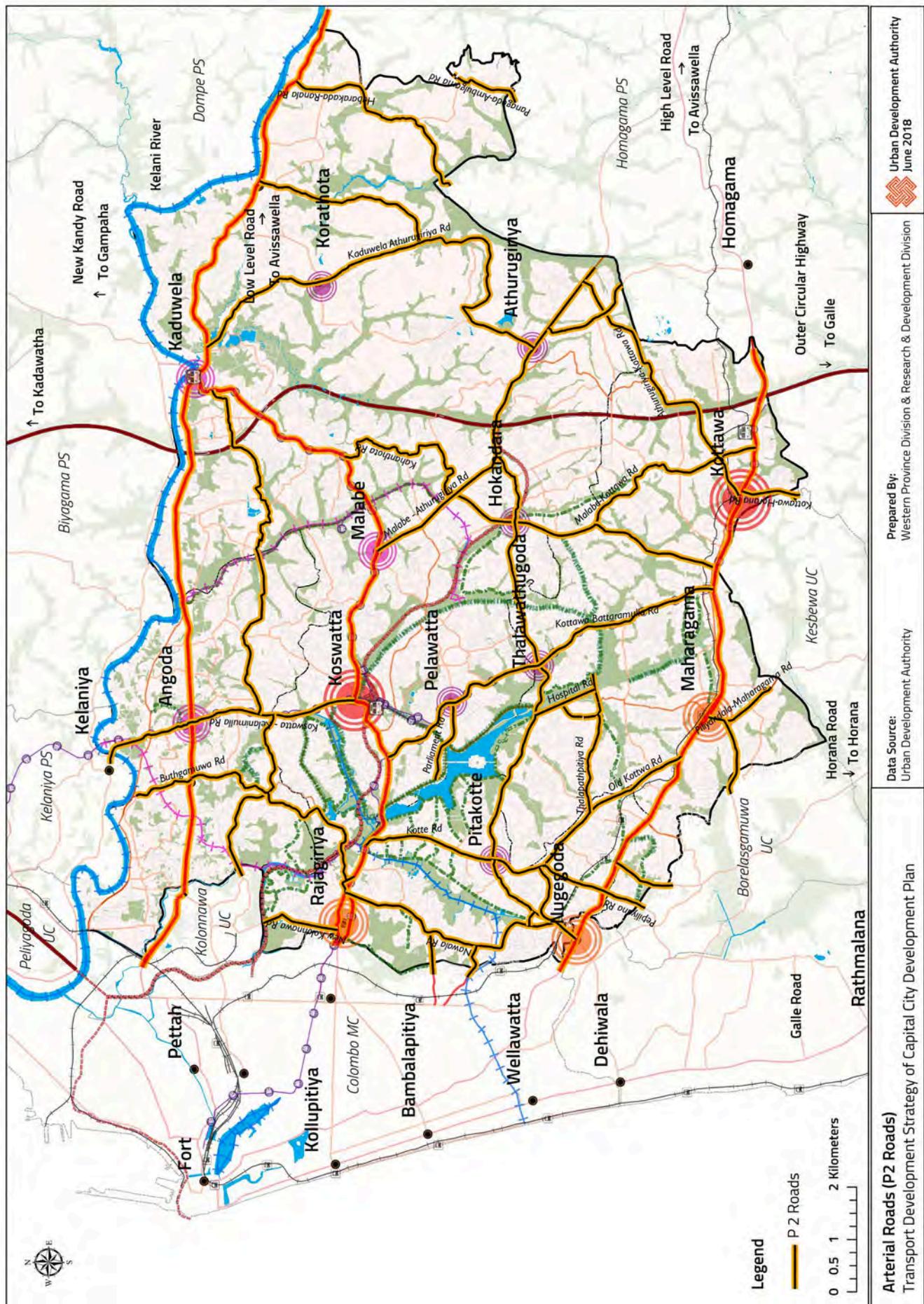


Figure 5.4: Recommended typical cross section of P2 road category

Source : Western Province Division and Research & Development Unit, UDA - 2018



Map 5.4 : P2 category road distribution in the Capital City
Source : Western Province Division and Research & Development Unit, UDA - 2018



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**TRANSPORT
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Strategic Interventions

Strategic Intervention :
Road Widening

03). P3 – Sub Arterial Roads

Sub-Arterial Road network is the traffic feeder at the neighbourhood level. Further, the Sub Arterial roads are connected to the Urban Function Highways and Arterial Road Network.



Figure 5.5: Recommended typical cross section of P3 road category

Source : Western Province Division and Research & Development Unit, UDA - 2018

04). P4 – Local Authority Roads

Local Authority Roads which do not fall under the categories, P1, P2, P3, P5, P6 are considered P4 roads. These roads are proposed to be developed with a width of 7m.



Figure 5.6: Recommended typical cross section of P4 road category

Source : Western Province Division and Research & Development Unit, UDA - 2018



Map 5.5 : P3 category road distribution in the Capital City
Source : Western Province Division and Research & Development Unit, UDA – 2018



Chapter 05
**TRANSPORT
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Strategic Interventions

Strategic Intervention :
Road Widening

05). P5 & P6 – Wetland Roads

The main purpose of the proposed wetland roads is to expose the wetlands of the Capital City to the public. Such exposure will enable to preserve them from encroachments and will bring in a pleasant drive/walk to the users of the road. Accordingly, it is planned to open up more than 30% of the available wetlands. Two categories of Wetland Roads are proposed for the area. They are,

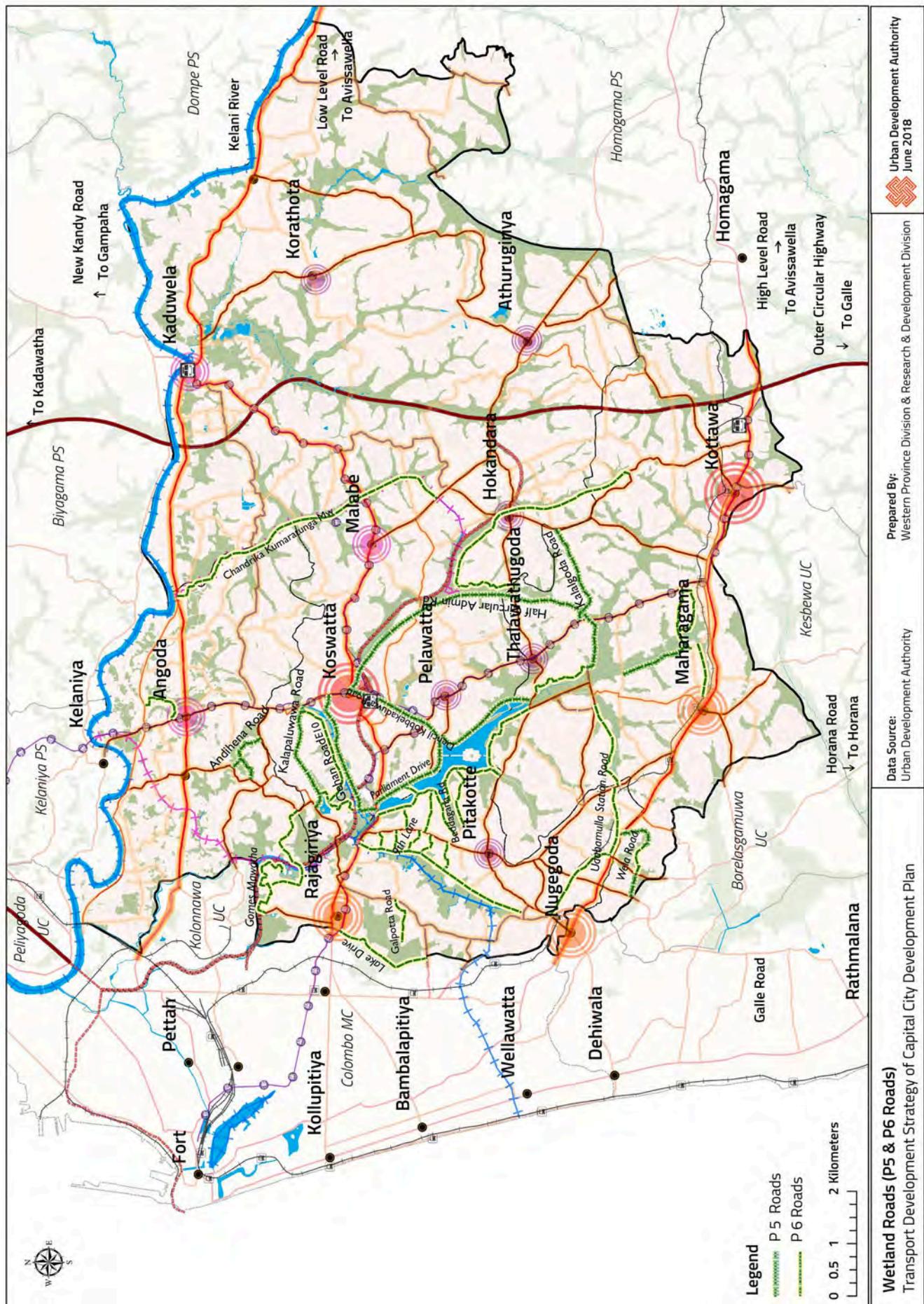
- *Limited Access (One lane) Wetland Road*
- *Connecting (Two lane) Wetland Roads*



Figure 5.7: Recommended typical cross section of P5 road category
Source : Western Province Division and Research & Development Unit, UDA - 2018



Figure 5.8: Recommended typical cross section of P6 road category
Source : Western Province Division and Research & Development Unit, UDA - 2018



Map 5.6 : Wetland road category distribution in the Capital City
Source : Western Province Division and Research & Development Unit, UDA - 2018



Chapter 05
**TRANSPORT
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Strategic Interventions

Strategic Intervention :
**New Modes of Public
Transportation**

Strategic Intervention 2: Introduction of new modes of public transportation integrated with the existing ones.

The outcomes of STRDA simulation shows that, the vehicle volume of the area is not manageable only with the road improvements. Further, the changing level of integration resulted in by the new connecting roads will lead to a change in land uses and traffic patterns in the nodes and corridors. Hence, it is essential to introduce new modes of public transport to decrease the private vehicle attraction towards the critical nodes Capital City. Accordingly, following alternatives are proposed;

- *Light Rail Transit*
- *Bus Rapid Transit*
- *Water Based Transport*

Light Rail Transit:

The Japan International Corporation Agency (JICA) and Ministry of Megapolis and Western Development work on an LRT to avoid the ground level traffic congestion of the Colombo district. Accordingly, two LRT lines are proposed for this area as given below,

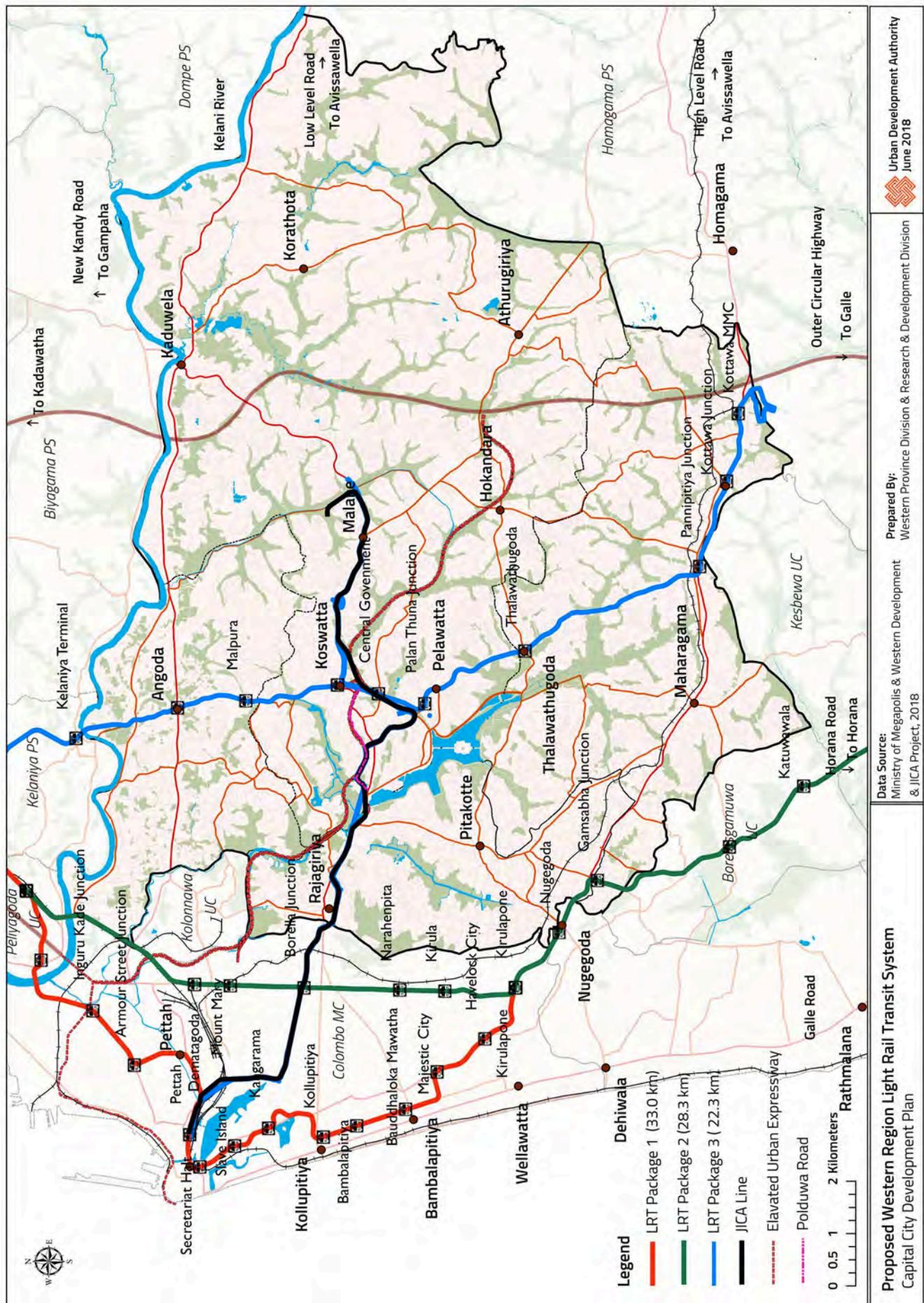
- *East – West LRT line from Malabe to Pettah and Malabe to Kaduwela (Proposed under JICA loan)*
- *North- South LRT line from Hunupitiya to Kottawa (Proposed as a PPP by Ministry of Megapolis and Western Development)*

The expected delivery capacity of the proposal is as below,

Classification	Length	Daily Passengers		PPHPFD
		Passengers	Passenger/km	
Megapolis	23.2	456,262	19,666	10477
JICA	15.7	498,000	31,720	19800

Table 5.3 : Predicted daily passengers
Source : young&cecb 2018

The new transport proposals will change the ridership and result in traffic pattern. Further, it is planned to release land for development within the identified stations. However, all these are still in the preliminary stage.



Map 5.7 : Light rail transit system

Source : Western Province Division and Research & Development Unit, UDA - 2018



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Strategic Interventions

Strategic Intervention :
**New Modes of Public
Transportation**

Bus Rapid Transit:

In case the LRT projects will not be realized, this plan strongly proposes to introduce BRT as a viable alternative to the LRT along the same routes.

Elevated Highway:

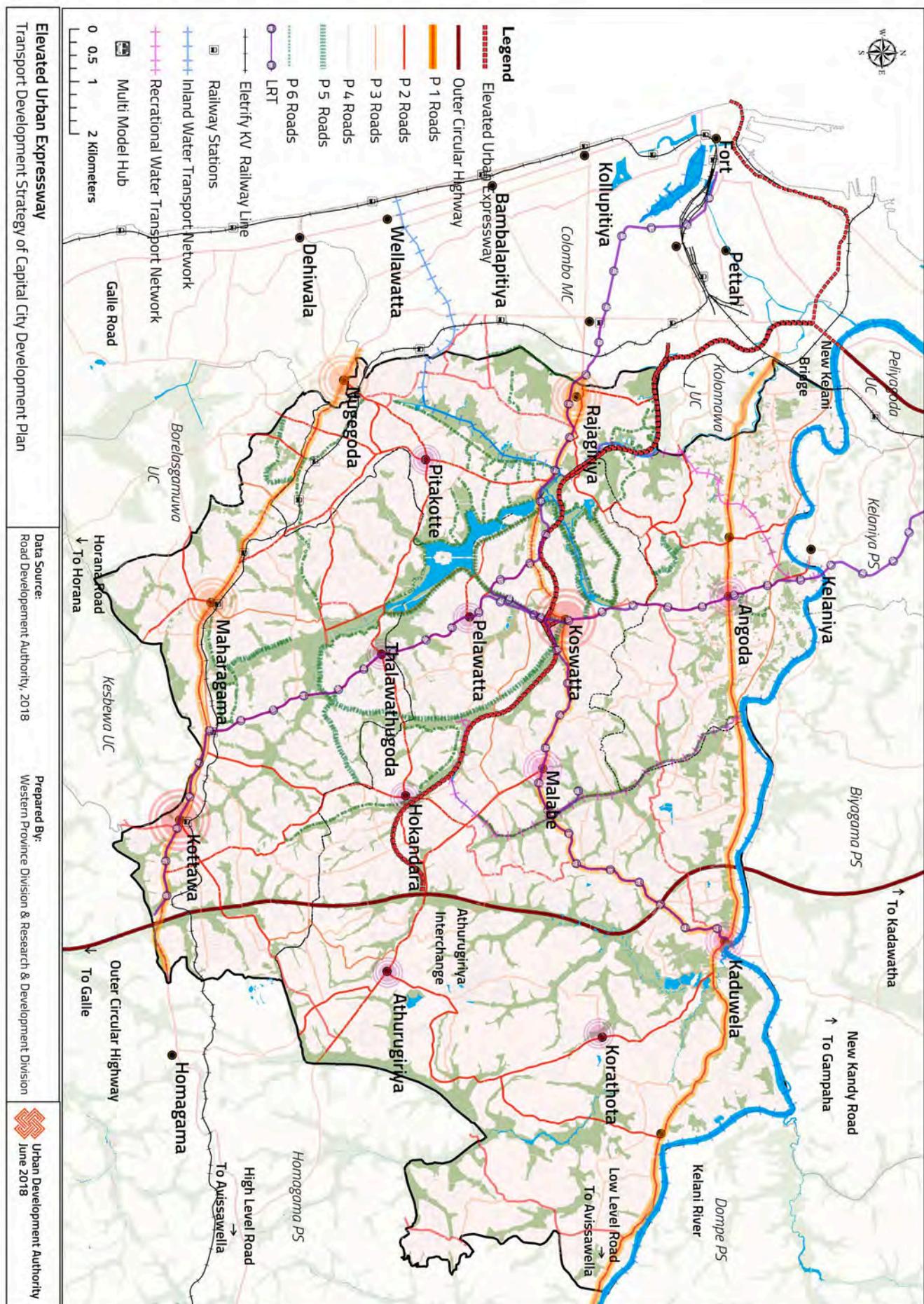
Elevated Highway that is being developed by the RDA links the New Kelani River Bridge to Athurugiriya via Rajagiriya. It will facilitate the towns between Colombo and the suburban areas. The highway provides access points at Koswatte, Malabe and Rajagiriya.

Phase I : NKB To Rajagiriya	
Total Length	6.9km
Total Ramp Length	3.6km
Nominal Width of the Carriageway	25.4m
No of Lanes	4
Lane width	3.5m

Phase II: Rajagiriya to Athurugiriya	
Total Length	10.4km
Nominal Width of the Carriageway	25.4km
No of Lanes	4
Lane Width	3.5m

Table 5.4 : Details of elevated highway

Source : www.mohsl.gov.lk/web/images/stories/project



Map 5.8 : Elevated urban expressway

Source : Western Province Division and Research & Development Unit, UDA - 2018

Data Source:
Road Developement Authority, 2018

Prepared By:
Western Province Division & Research & Development Division

Urban Development Authority
June 2018



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Strategic Interventions

Strategic Intervention :
**New Modes of Public
Transportation**

Strategic Intervention :
**Inter-modal Exchanges for
Convenient Transit**

Electrified Railway:

Ministry of Transport is working on a project to electrify the Kelani Valley railway (60Km). This will enhance the rail transportation with an access at Rajagiriya.

Strategic Intervention 3: Develop inter-modal exchanges for convenient transit and land value capture.

The intention of Multi-modal Transport Hub is to achieve the maximum utility for the development through integration of different transport modes. Accordingly, three multi-modal hubs for the Capital City are identified as follows,

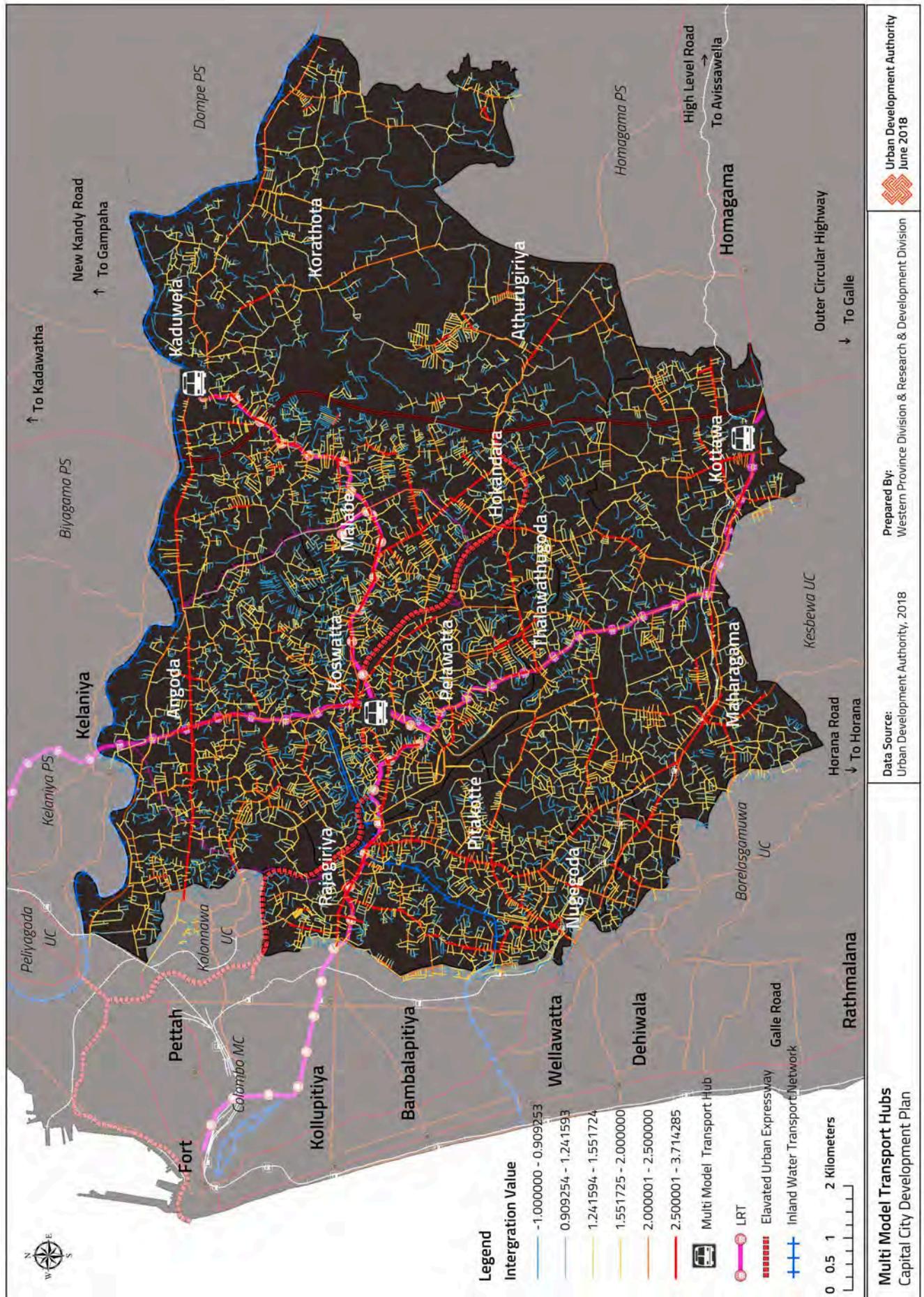
- *Kottawa*
- *Koswatta*
- *Kaduwela*

Kottawa Multi-modal Transport Hub

Kottawa Multi Model hub was initiated within a total area of 1874 perches by the Township Development Component of Greater Colombo Urban Transport Development Project. It connects busses arriving from Outer Circular Highway and Kelani Valley railway to the proposed North-South LRT. This will facilitate passengers and boost the development in the area.

No	Land use	Land Area (Perch)
1	Institutional	88.5
2	Institutional	162.6
3	Park and Ride	120.2
4	Extension of Bus Terminal	49.1
5	Bus Terminal and Public Square	168.5
6	Commercial	227.4
7	Commercial	181.6
8	Commercial	131.9
9	Leisure	57.7
10	Mix Development	232.5
11	Mix Development	420.7
12	Railway Station	34.0

Table 5.5 : Makubura trasnits orient development landuse composition
Source : Western Province Division ,UDA-2018



Map 5.9 : Locations of multi- model transport hubs in Capital City
Source : Western Province Division and Research & Development Unit, UDA - 2018



Chapter 05 TRANSPORT DEVELOPMENT STRATEGY

Strategic Interventions

Strategic Intervention :
Inter-modal Exchanges for
Convenient Transit

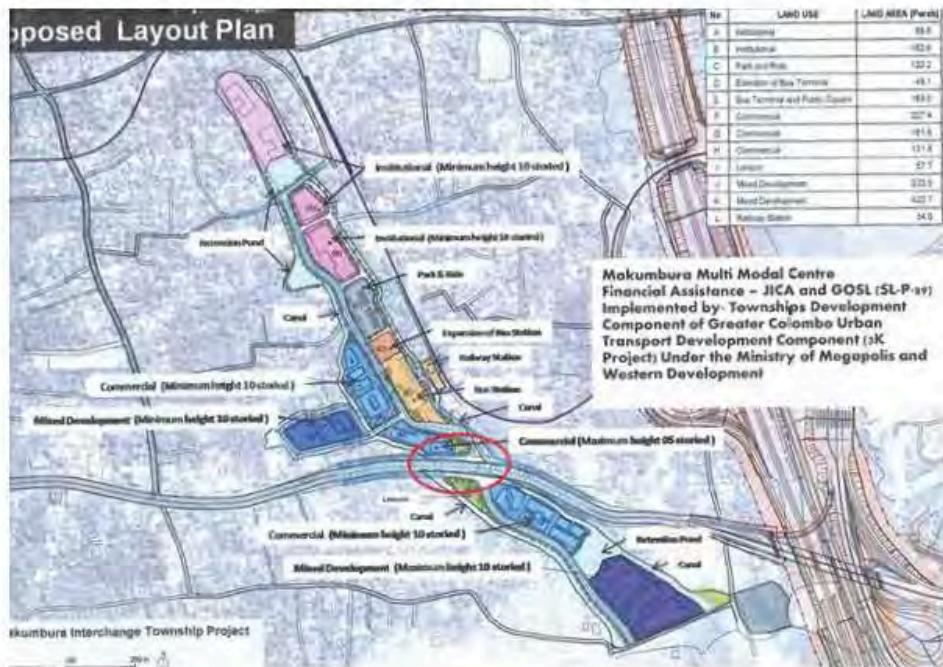


Figure 5.9: Makumbura transit orient development
Source : Western Province Division , UDA - 2018

Koswatta Multi-modal Transport Hub

A land of 6 acres is proposed for the development similar to the land use of Kottawa Multi-modal Hub. This project will facilitate the bus routes from Elevated Highway and proposed North-South and East-West LRT's to interlink at the center of the Capital City areas.



Figure 5.10: Location of Kosawaththa multi-model hub
Source : Western Province Division and Research & Development Unit, UDA - 2018

Kaduwela Multi-modal Transport Hub

Kaduwela similarly holds a prominent recognition for a Multi-modal Transport Hub as it is located within close proximity to the Outer Circular Highway and proposed extension of LRT (JAICA) from Malabe to Kaduwela.

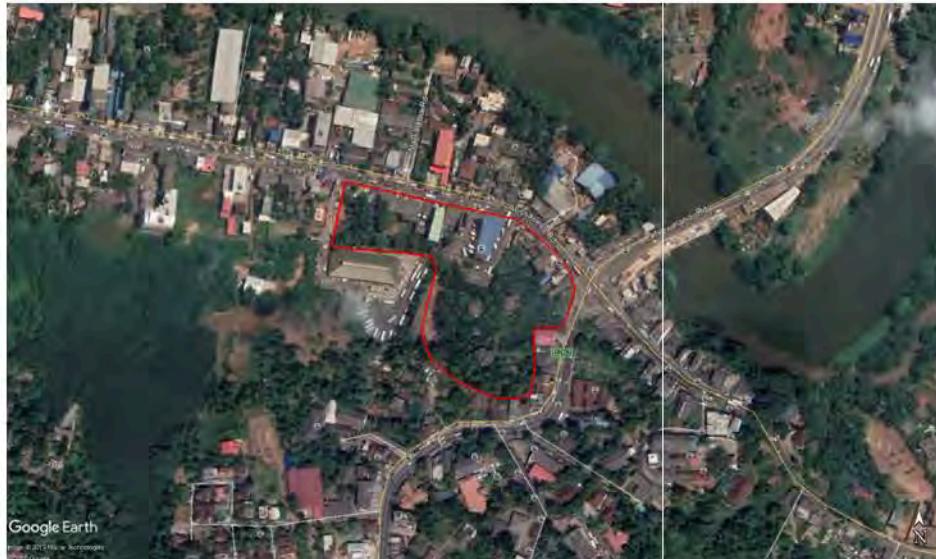


Figure 5.11: Location of Kaduwela multi -model hub

Source : Western Province Division and Research & Development Unit, UDA - 2018

Chapter 05 **TRANSPORT DEVELOPMENT STRATEGY**

Strategic Interventions

Strategic Intervention :
Inter-modal Exchanges for
Convenient Transit



Chapter 05
**TRANSPORT
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**Impacts of Road
Widening Proposal of
Transport Strategy**

5.6 Impacts of Road Widening Proposal of Transport Strategy

1. Public Transport Passenger Volume of 2035



Map 5.10 : Public transport passenger volume in 2035
Source : Colombo Master Plan, Urban Development Authority

Chapter 05 TRANSPORT DEVELOPMENT STRATEGY

Impacts of Road Widening Proposal of Transport Strategy

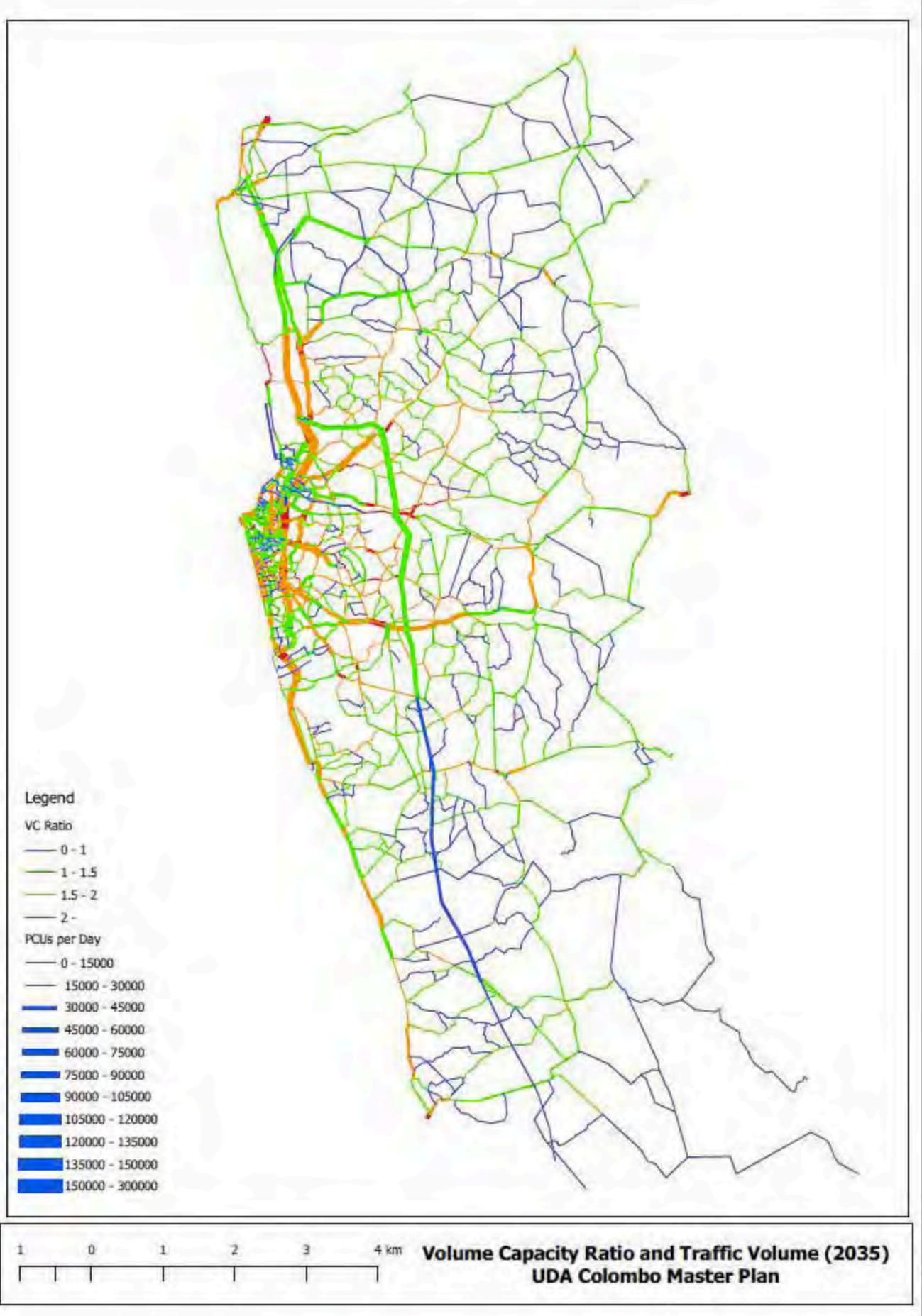
The STRDA simulation on road widening proposal suggests that the highest traffic demand generation of the area is from the High-level and New Kandy Road in the Capital City area. According to the current Com Trans Data, the highest volume of passenger flow is recorded from the New Kandy Road. However, according to this plan for the year 2035, the highest passenger flow generation is expected from the High-Level road. It is because the land use plan of Capital City proposes a high-density Commercial Strip along the High-level Road.

2. Volume Capacity Ratio and Traffic Volume of 2035

The v/c ratio, also referred to as degree of saturation, represents the sufficiency of an intersection to accommodate the vehicular demand. A v/c ratio less than 0.85 generally indicate that adequate capacity is available and vehicles are not expected to experience significant queues and delays. As the v/c ratio approaches 1.0, traffic flow may become unstable, and delay and queuing conditions may occur. Once the demand exceeds the capacity (a v/c ratio greater than 1.0), traffic flow is unstable and excessive delay and queuing is expected. Under these conditions, vehicles may require more than one signal cycle to pass through the intersection (known as a cycle failure). For design purposes, a v/c ratio between 0.85 and 0.95 generally is used for the peak hour of the horizon year (generally 20 years out). Overdesigning for an intersection should be avoided due to negative impacts to pedestrians associated with wider street crossings, the potential for speeding, land use impacts, and cost" (Transportation, 2004). According to STRDA model prediction of V/C ratio, approximately more than 90% of roads are expected to exceed capacity of roads even with the new road improvements. Hence, it is essential to improve public transport modes of the area parallel to road improvement.

No.	KPIs	2020	2020_rv	2035	2035_rv
1	Pax-km (bn. pax-kms /year)	50.8	51.0	67.8	67.5
2	Pax-hr (bn. pax-hr /year)	2.23	2.26	3.55	3.41
3	VOT (bn. Rs. /year)	496	505	825	799
4	Veh-km (bn. veh.-km /year)	15.88	15.95	19.12	19.02
5	VOC (bn. Rs. /year)	593	599	801	792
6	Speed (km/h)	22.8	22.5	19.1	19.8
7	Supply Cost (bn. Rs. /year)	1,089	1,104	1,625	1,591
8	Accessible Population to Transit (mn.)	0.73	0.73	0.73	0.73
9	CO2 Emission (mn. ton/year)	3.14	3.16	4.12	4.08
10	CO2 Loss (bn. Rs. /year)	7.7	7.8	10.1	10.0
11	Accident Loss (bn. Rs. /year)	9.2	9.3	11.1	11.0
Total Cost (bn. Rs. /year)		1,110	1,125	1,651	1,617

Table 5.6 : KPI of road widening proposals of Capital City plan
Source : Western Province Division and Research & Development Unit, UDA - 2018



Map 5.11 : Volume capacity ratio and traffic volume - 2035
Source : UDA Colombo Master Plan

3. Road widening and Integration

Even though it is difficult to cater the rapid generation of traffic only through the road widening proposals, it enables to achieve the proposed spatial form of the Capital City. The change in the levels of integration after the new road improvement is highly supportive to the proposed nodes and corridor development.

As a result of the road development, the level of integration of nodes are assumed to be improved as below,

Priority levels of Node	Node	Existing Level of Integration	Future Level of Integration
First	Koswatta-Battarmulla	2 -2.5	2.5-3.7
	Kottawa- Makubura		
Second	Maharagama	2 -2.5	2.5-3.7
	Nugegoda		
	Rajagiriya		
Third	Kaduwela	1.2-1.5	2-2.5
	Malabe	2 -2.5	2.5-3.7
	Kotikawaththa-Angoda		
Fourth	Thalawthugoda	2-2.5	2-2.5
	Athurugirya	2-2.5	2.5-3.7
	Korothota	1.2-1.5	1.2-1.5

Table 5.7 : Differences between existing and expected Intergration

Source : Western Province Division and Research & Development Unit, UDA – 2018

The levels of integration of the proposed development corridors are expected to increase from 2-2.5 to 2.5-3.7 while reducing the integration among the remaining area from 1.2-1.5 to -0.1-0.9, which will support the proposed node and corridor development of the area.