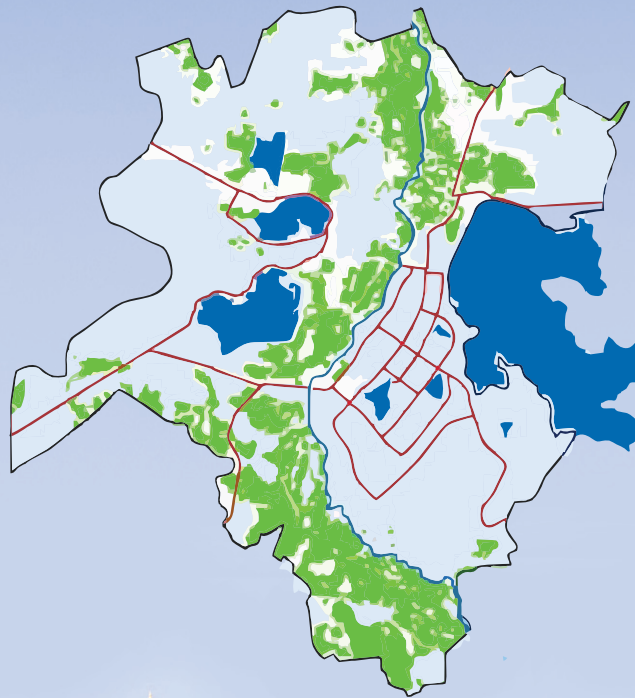


# **Anuradhapura Urban Development Plan Volume I**

**2019 - 2030**



**Urban Development Authority  
North Central Provincial Office  
Anuradhapura**

**2019 - 2030**

# Anuradhapura Urban Development Plan

## Volume I

2019 - 2030

Urban Development Authority

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Anuradhapura

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## Document Information

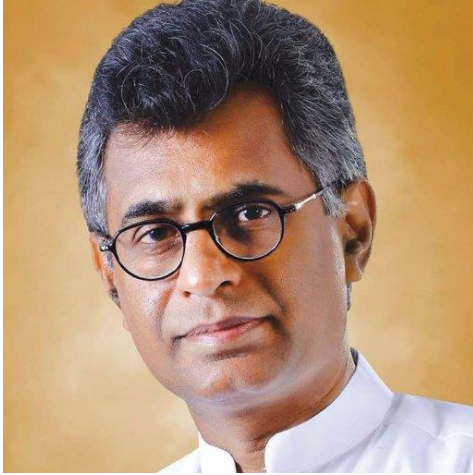
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## Honorable Minister's forward



41 of 1978, the Urban Development Authority by now has completed 40 years of service contributing to planned urban development in Sri Lanka. At this moment the UDA marks another milestone by completing a comprehensive Development Plans for all urban development areas in the Anuradhapura Region.

This development plan has been prepared for the implementation of the envisaged integrated development of the Anuradhapura Urban area.

Anuradhapura town which is the commercial center and the administrative capital of the Anuradhapura District, serves a large catchment of population. By using this integrated development plan aims to upgrade identity of marvelous uniqueness of Archeological area, irrigation systems etc.

My understanding is that the preparation of this Plan involved extensive consultation with professionals, experts, 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 the Urban Development Authority those who have 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 by working equally on the same platform to make the Anuradhapura Urban Development Plan a success.

Honorable Minister' 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 the developments for the common benefit of all inhabitants of the urban areas.

Under the Amendment Act No 4 of 1982 (Part II section 8A [1]) the Urban Development Authority has been mandated to prepare Development Plans for the Urban Development Areas, declared by the Minister-in-charge. The development plan for Anuradhapura Urban Area has been prepared and enforced under such provisions. As a result of the declaration part of Anuradhapura District

as an urban development area, the Urban Development Authority initiated the preparation of Anuradhapura Urban development plan considering physical, economic, social and environmental aspects of the Anuradhapura urban Area and its surroundings.

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 and to make the Anuradhapura Urban Area as Buddhist heritage Capital of the World with comfort and convenient environment.

I take this opportunity to offer my sincere gratitude to the Team of the UDA who had to work hard and was 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 – Urban Development Authority.

## **Messages from Local Authorities' Chairmans**

## **PREFACE**

This development plan has been made to create a prospering development for next 11 years in the physical, economic, social and environmental sectors in the Anuradhapura urban development area. While Anuradhapura town is recognized as a main city in Sri Lanka, it also functions as the Commerce, Education, Health, Administration and Religious Centers of the North Central Province. The main vision of the plan is to re build the historical majesty of the Anuradhapura city which has gradually developed with the proud historical process. While this development plan includes the aims, objectives, strategic projects and plans to achieve above said vision, this development plan is valid till the period up to 31.12.2030.

## **ACKNOWLEDGEMENT**

Hereby we offer our gratitude to the honorable Buddhist prelates and the prelates of other religious, most venerable Pallegama Siri Niwasa the chief incumbent of the Atamasthana and the most venerable Pallegama Hemarathana chief incumbent of the Ruwanmeli MahasayaViharaya, To the honorable mayor of the Anuradhapura Municipality and the Municipal staff including the Municipal Commission, To the Chairman, Director General, Deputy Director General (Planning) of the Urban Development Authority and all the staff members of the North Central Province who offered their services, Development planning Division, Research and Development Division, Geographical Information System Division and Environmental and Landscape Division, Enforcement Division, to the Archaeological Department, National Physical Planning Department, Education Department, Health Department, Railway Department, Sri Lanka Transport Board, Lanka Electricity Board, National Water Supply and Drainage Board, Sri Lanka Police which have cooperated in steps from the collection of basic data up to the publication of the gazette.

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**Development Plan Approved by the Hon. Minister**

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# **Anuradhapura Urban Development Plan**

## **Volume One**

### **Part I**

**Urban Development Authority**

**2019-2030**

## **01 Introduction**

By this urban development plan, a development plan is prepared for the Anuradhapura urban area and the necessary strategies have been developed for the prosperous development of the physical, economic, social, environmental sectors of the area to be achieved by the year 2030 through this strategic plan. Here, this development plan has been prepared as a strategic plan by using the mostly used modern technological tools, methodologies and analyses.

## **1.1 Background of the Development Plan**

A development plan is a tool used for the prosperous development of the physical, economic, social and environmental sectors in an area with a broad vision.

While the Urban Development Authority of Sri Lanka functions as a main institute for the urban development of Sri Lanka, the UDA has been authorized by the UDA Act No. 41 of 1978 for preparing and implementation of the urban plans for prospering development in the physical, economic, environmental sectors.

As per the powers vested under section 3 (I) of section 8 A, Act No.41 of 1978 as amended by Urban Development Authority Act No 04 of 1982, Anuradhapura Urban Council area has been declared as an Urban Development Area by special gazette notification No. 38 of 01<sup>st</sup> of July 1979. Under the greater Anuradhapura plan, Anuradhapura Municipal Area has been further declared as an urban development area by special gazette notification No 1173/11 of 10<sup>th</sup> of April 2001. The Urban development area is being equally boarded by the Anuradhapura Municipal area. This Urban Development Area consists of 6200 hectares. This development area consists of different portions added from divisional secretary areas of Nuwaragam Palatha Central, Nuwaragam Palatha East, Mihinthala. This development plan has been prepared for Anuradhapura urban development area based on providing community facilities and services by Urban Development Authority for preparing the integrated plans for lands and buildings, promoting and formalizing the physical development.

Based on above said reasons, a development plan was prepared by the Urban Development Authority for the Anuradhapura Municipal Council area for the period of 2006 to 2016. But, due to the legal background of the plan has expired and some of the rules and regulations of the plan are not valid for present development activities, the need for a new development plan arose.

This development plan is designed also through the study of the exterior areas of the Anuradhapura municipal area. This development plan provides the requirements to improve the physical, economic, social and environmental sectors in above mentioned areas and to create a prosperous development based on better use of above sectors within the period between 2019 to 2030.

## **1.2 Planning Team**

The plan for the Anuradhapura Urban Development Area was designed by the contributions of the following groups.

### **1.2.1 Main Coordinated Institutions**

Anuradhapura Municipal Council

Urban Development Authority

NuwaragamPalatha East Pradeshiya Sabha

NuwaragamPalatha Central Pradeshiya Sabha

### **1.2.2 Main Consultancy Agency**

National Physical Planning Department

Archaeological Department

Central Cultural Fund

Disaster Management Centre

NuwaragamPalatha East Secretariat Office

NuwaragamPalatha Central Secretariat Office

Central Environmental Authority

Provincial Irrigational Department North Central

Irrigational Department

Road Development Authority

District Secretary office – Anuradhapura

North Central Provincial Council

Divisional Secretariat Office – Mihinthalaaya

MihinthalaayaPradeshiya Sabha

NuwaragamPalatha Central Pradeshiya Sabha – Elayapaththuwa

NuwaragamPalatha East Pradeshiya Sabha – Vijayapura

National Water Supply and Drainage Board

Sri Lanka Transport Board

Provincial Educational Department – North Central Province

Sri Lanka Police

Sri Lanka Electricity Board

Provincial Health Department – North Central Province

Tourist Development Board

Agrarian Department

Road Passenger Transport Authority

Provincial Road Development Authority

### **1.2.3 Other Relevant Stakeholders**

Hotel Association – Anuradhapura

Business Association – Anuradhapura

chamber of commerce – Anuradhapura

Farmer's Associations

### **1.2.4 Urban Development Authority, Planning Team - Anuradhapura Provincial Office**

Director (North Central Province) – Plnr. Jagath Liyanage	
Dy. Director (Planning)	- Plnr. Rohini Gunathilake
Planning Officer	- Mr. M.P. Mayurawansa
Planning Officer	- Mrs. Sriyani Dahanayake
Planning Officer	- Mrs. Pushpini Indika
Planning Officer	- Mrs. Kumari Thalagune
Planning Officer	- Mrs. Renuka Dhanapala
Assistant Planning Officer	- Mr. Hasitha Prabhath
Assistant Planning Officer	- Mr. Suresh Maduranga

### **1.2.5 Urban Development Authority, Planning Team - Head Office**

Deputy Director General (Planning)

Development Planning Division

Research and Development Division

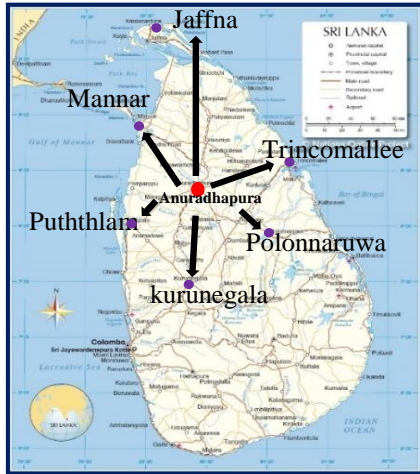
Geographical Information System Division

Environmental and Landscape Division

Enforcement Division

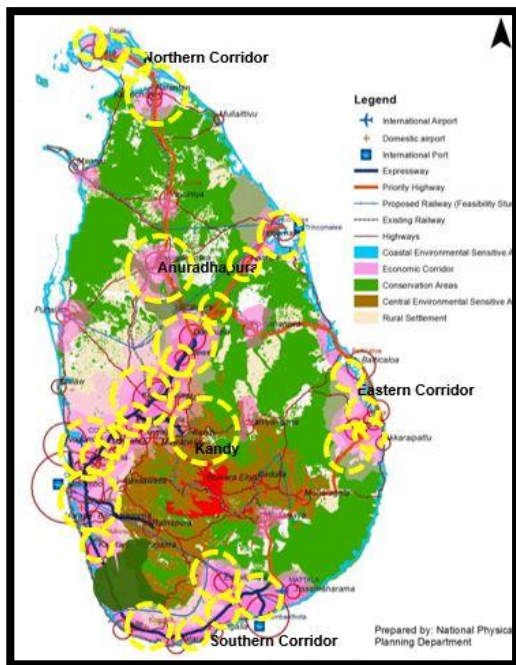
### 1.3 Scope of the Work

*Figure 1. 1 Zonal Network of the City*



While the Anuradhapura urban area has well connected with the areas situated in the North, East, South and West through the existing transport system, based on these connections, the Anuradhapura urban area functions as a service center of the region. The required plans are made to make Anuradhapura Urban Area as a healthy and secured main center within the region through this development plan.

*Figure 1. 2 Proposed National Physical Development Plan of Sri Lanka*



Moreover, Anuradhapura Urban Area and its neighboring areas have been identified as a highly urbanized area according to the national physical plan prepared by the national physical planning department and it is expected a population of 5 lacks within Anuradhapura Urban area by 2050. Through this development plan, the required plans are prepared for achieving the objectives of the national physical plan according to the requirements of above projected population and for the balanced development in the physical, economic, social and environment sectors.

Source. National Physical Planning Department 2017

As it is hoped to promote the foreign tourists to the Anuradhapura city by the 2030 according to the tourist development plan prepared by the Sri Lanka Tourist Development Authority, one of the objectives of this development plan is to prepare the required plans to create an environment physically and environmentally for above purpose.

Further, this development plan aims to provide comfortable and secured place for the public of the urban area by strategically minimizing the impact of natural disasters occurring in the area.

This development plan provides required opportunities for maintaining existing transport system within the urban area in comfortable manner. The needed requirements are to be supplied through this development plans to form land use pattern to provide facilities to open domestic air ports used for military purposes in an area to be developed through national level policies though it is difficult to be realized.

Further, the needed requirements are provided by this development plan to protect the scared city which was a special heritage in the area from the impacts of the irregular development processes, and to protect the existing historicity and inheritability within the sacred city, and to protect the factors affecting to increase the invincibility of the sacred city.

one of important objectives among the main objectives of this development plan is to make this area a comfortable and secured area through great development in physical, economic, social and environment sectors by the year 2030 by enforcing the rules and regulations related physical development and implementing its related projects, to prepare integrated plans for the prosperous development in physical, economic, social and environment sectors through this development plan.

## 1.4 Planning Process



### 1.4.1 Background study

The geographical data, mapping out has been performed for Anuradhapura urban area and areas surrounding it. The time period taken for this is about four months from April 2017. A scientific analysis has been done through the collection of required data from different institutions such as Anuradhapura Municipal Council, National Physical Planning Department and Road Development Authority.

### 1.4.2 Scoping

A study has been done on locating the town according to the urban hierarchy, the considering needs in Anuradhapura city according to the national level plans, development activities being implemented in the area and proposed development activities.

### **1.4.3 Problems potentials Identifications**

The ideas have been considered from resource persons, partners, private and public agencies and associations on how each institution has contributed to improve the development potentials in the city, problematic conditions and the possibilities for improving the city by preventing them. The development potentials and their problems of the area have been identified within the time period of October 2017 to February 2018. For this purpose, analyses of environmentally sensitive areas, analyses on changes in land use pattern, analyses about the areas affected by the development activities and analyses about the visiting of tourists and the devotees to the city and also study of related statistics have been done.

### **1.4.4 Vision & Goals formulations**

The vision and the objectives have been developed for promoting the progress of the city through preventing problematic conditions of the physical, economic, social, environmental sectors, and utilize the optimum use of the existing development potentials of the city.

### **1.4.5 Detail Analysis**

After developing the vision for the city and the goals for realizing the vision, a SOWT (strengths, opportunities, Weakness, Treats) analysis has been done by broadly identifying the strengthens, weakness, opportunities and treats and the potencies and their increasing and the decreasing and the various analysis done scientifically for taking the required actions. For this descriptive analysis a time period of three months from 2018 October has been spent.

### **1.4.6 Objectives formulations**

The objectives for the realization of the goals of the development plan have been prepared based on the results of the descriptive analysis has stated above. The goals were prepared to improve the development potentials in the area during a definite time period in different proportions to prevent the problematic conditions existing in the area through a definite period to move towards the development of the area.

#### **1.4.7 Strategy formulations**

For realizing the goals, the land use plan for physical, economic, social and environmental development, Proposed Land Use Plan, proposed water drainage system plan, proposed tourism promotion plan, proposed road and transport plan to be plans have been made.

#### **1.4.8 Projects Identification**

Having identified the functioning projects after studying the feasibility report for the realization of the goals, analysis was done for the cost estimate, the time period for the project, the uses and the beneficiaries of the project, methodologies for implementing the project.

#### **1.4.9 Rules & Regulations Making**

Here a legal framework actions are to provide a legal frame work to enforce the rules and regulations for building construction, rules and regulations for the land use creating legal frame work for the resolutions of the problems to minimize the problem identified for reaching the vision of the development plan by the analysis of the identified problems.

#### **1.4.10 Documentation/Tabulations/Diagrams/Presentation and Formalizing**

The draft Development plan forwarded to the Main Planning Committee of the UDA to get necessary instructions and suggestions for further corrections.

#### **1.4.11 Public/ Stakeholder Consultation**

After preparation of draft development plan, forward to the public comments and suggestions regarding content of same.

#### **1.4.12 Gazette of the Development Plan**

After obtaining public comments, and concerning about those, the amended draft plan legalized by Getting.

### **1.4.13 Project Formulation Support and Enforcement**

Delegated powers to the relevant institutes for implementation of the gazette development plan.

## **02 Preliminary Study**

The physical, economic, social and environment sectors and systems were studied in depth prior to formulate and develop this development plan for Anuradhapura Urban Area.

## **2.1 The Study Area**

In order to prepare this development plan for Anuradhapura Urban area, the background was set up by studying the areas which were included in the Grater Anuradhapura Development planning proposals gazette by the Gazette Notification No 1179/11 on 10th of April 2001.

An area consists of approximately 2050 square kilometers was selected for formulating required plans and strategies for the development of physical, economic, social and environment aspects in the Anuradhapura city which was the main administrative city of the Anuradhapura district. Approximately 1925.4 square kilometers land area including the areas of Nuwaragam Palatha Central, Nuwaragam Palatha East, Mihinthaleya, Thirappane, Rabawa, Nachchaduwa, Thalawa, Thabuththegama, Nochchiyagama of Anuradhapura district have been declared and stated as an Urban Development Area in the Grater Anuradhapura development plan issued by no 1179/11 gazette in 2001. Based on above area declaration, the area consists of a possibility to create a positive impact for the future development activities of Anuradhapura Urban Area was ensured by considering and analyzing the population, population growth rate, urban characteristics, land use patterns in above mentioned declared area prior to prepare the development plan for Anuradhapura urban development area.

## **2.2 Planning and Situational Context**

In the historical studies of Anuradhapura, it is revealed that Anuradhapura has its own an ancient and wonderful history. According to the folktale, evolution of Anuradhapura begins since such a long time of 483 B.C. Afterward, Anuradhapura becomes the first planned city of Sri Lanka. It is during the period of king Pandukabaya. Centre of the city had been planned in a systematic manner in this period. The court and other valuable elements (Anga Nagara) are situated in the inner part of the city and settlements of inhabitants and agricultural fields are situated away from the middle part of the city. According to the MahaWansaya, the city belonged to the king. Evidences prove that Anuradhapura which was the first kingdom of the Sri Lanka had remained as a capital city after 1400 years.

According to the records of the monks of Pahiyangala, Anuradhapura was very fertile city in 413 A.D. Even in that period, there had been huge fairs and variety of functions and those

records has further revealed that people who were living in that period spent their lives with joy.

When it is come to the period of king Wijayabahu IV, existing lush condition of the Anuradhapura has declined and gradually converted to the forest. At the 1680 A.D, the details of the Anuradhapura have been described in “Eadaa - Heladiwa”, the book written by Robert Nocks. According to the Robert Nocks, there was a huge tank in the center of the city and people have utilized the water of this tank for their cultivations and agricultural purposes. The small towns also had been established within as well as away from the main city. The book, “Eadaa - Heladiwa” reveals that these small towns also had surrounded by the forest. By the 19<sup>th</sup> century, Anuradhapura has become an unpopular city which was surrounded by the forest. This has been stated in the report of the Jhon Deew.

Again, the Anuradhapura city was uplifted by the British rulers in the same century of 19 and at the beginning of the 20 century, Archaeological activities were started. The city of Anuradhapura which accrued the historical value was named as a world heritage city by UNESCO in 1982. The initiations and efforts to develop the Anuradhapura city can be outlines as follows.

### **Conservation charter of Anuradhapura - 1942**

The aim of this charter was to remove and discourage the unsuitable land uses and irregular constructions while maintaining the regular and planned land use pattern in the city of Anuradhapura. Mr. Oliwere Wirashinghe, Town Planner was assigned to plan the new town of Anuradhapura in 1947 with the purpose of minimizing the consequences which were occurring due to the irregular constructions in the sacred city of Anuradhapura.

### **The program for conservation of the Anuradhapura - 1949**

Main purpose of this program was to remove the existing irregular constructions in sacred city of Anuradhapura. As a result, this program aimed to further preserve the sacred city of Anuradhapura. In this case, an area was planned as an Anuradhapura New Town for the new constructions and settlements.

### **Anuradhapura conservation Board – 1961**

The conservation Board was established in 1961 because of less efficiency of implementation of the Anuradhapura conservation program of 1949. According to the gazette No 32 of 1961, the powers of Anuradhapura city were obtained under control of this conservation board.

### **Anuradhapura Scared City Planning Program – 1948**

Although Anuradhapura scared city planning program was introduced in 1984, it was implemented in 1988. The main objective of this program was to construct the Watawandana Road. It was aimed to provide the accessibility for all archaeological sites. This program further aimed to relocate the people who were living illegally in archaeological sites in areas such as Niraviya and Mihidupura.

### **Anuradhapura Conservation Program – 1996**

The implementation of archaeological excavations was primary objective of this program. The requirements such as Researches related to the archaeological activities and educational activities, provision of common facilities for local as well as foreign tourist and pilgrims have been considered in this program.

### **Grater Anuradhapura Town Development Plan – 2001**

Approximately 1925.4 square kilometre from Anuradhapura district was declared as Urban Development Area by gazette No 1179/11 issued in 2001. Rambewa DS Division, Nuwaragam Palatha Central DS Division, Nuwaragam Palatha East DS Division, Mihinthalya DS Division, Thirappane DS Division, Nachchaduwa DS Division and a part of Thabuththegama DS Division and Nochchiyagama DS Division were declared and stated as Urban Development Area. In this way, 278 Grama Niladari divisions were gazetted. In addition to the Anuradhapura Municipal Council Area, in this plan, the foundation was set up to develop the identified more areas by considering the possibility for development of Physical, Economic, Social and Environment sectors in such areas.

### **Anuradhapura Municipal Council Area Development plan 2006 – 2016**

In this development plan, the Anuradhapura municipal council area was developed under the zoning plan approach. By this approach, opportunities have been provided in order to continue and maintain the day to day needs of the communities in the systematic manner and increase the functionality of the city through the different projects while ensuring the proper method for maintaining the effective land use pattern to preserve the orderliness of the city.

### **National Physical Plan of Sri Lanka 2011-2030**

In this development plan, Anuradhapura urban area and its high-density areas have been identified as a highly urbanized area and it is expected that population would grow by 1.5 million in suburban areas. Appropriate areas have been identified to be provided the required facilities for the communities for residential and commercial purposes while identifying the development project for the development of the city. The projects such as development of the road system, extension of the railways, proposing the new railways, opening the internal airport for civil communities and preparation of required physical environment for above priorities were highlighted in this development plan.

### **National Physical Plan of Sri Lanka 2017-2050 (Draft Plan)**

By this development plan also, two highly urbanized areas of Sri Lanka have been identified and one of them is Anuradhapura urban area and its dense area. It has been projected that population of this urbanized area would be approximately 0.5 million by 2050 and required development projects and appropriate areas for residential facilities have been identified to serve the above population growth in this development plan.

Present status of Physical, Economic, Social and Environment sectors of Anuradhapura urban area can be described as follows.

**Figure 2. 1 Anuradhapura Municipal Council Area**



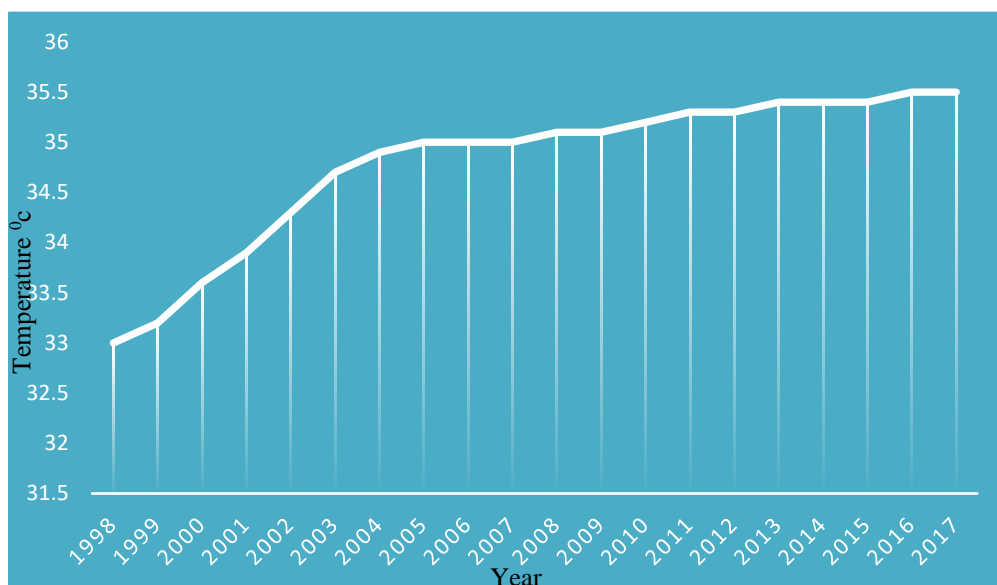
Source: Urban Development Authority

Anuradhapura Municipal Council area considered as main administrative hub of the Anuradhapura urban Area. It is situated at 100-meter height from mean sea level and its land area is 42 square kilometres. The Northern part of Malwathu oya has extended as New Town while the Western part of the Malwathu oya has extended as Sacred City. Anuradhapura Urban Development Area consists of 25 Grama Niladari Division including 12 GNDs of

Nuwaragampalatha East DS Division, 11 GNDs of Nuwaragam palatha Central DS Division and 02 GNDs of Mihinthalya DS Division.

This area consists of the characteristics of dry zone and torrid zone. Annual average temperature of area is between 33 to 35 degrees Celsius. When this annual average temperature level is compared with previous years, it can be observed that it is gradually increasing.

**Chart 2. 1 Increasing of Temperature**



Source: Department of Meteorology

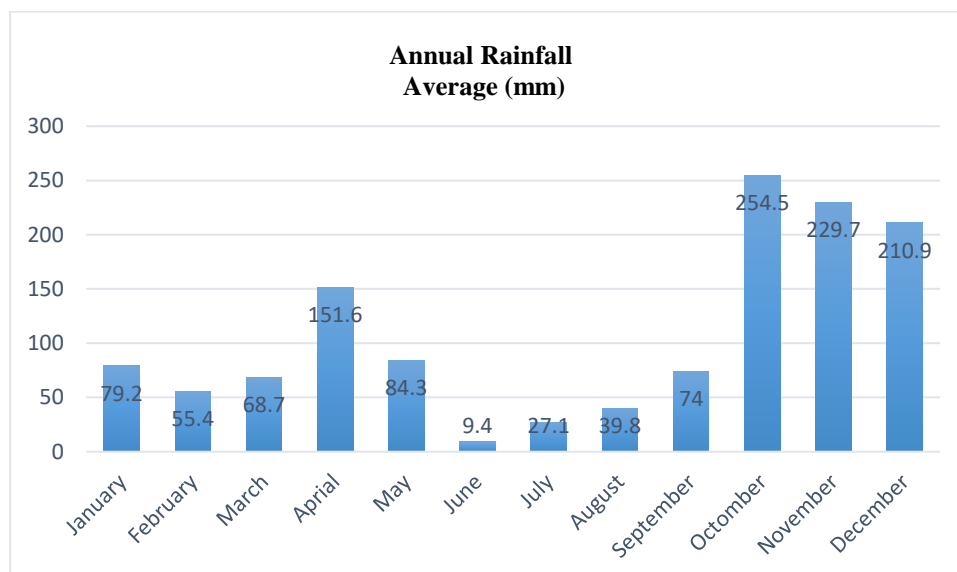
although the average temperature of area is such value, the Analyses conducted by international institutions have proved that the feeling temperature is high from 5 degrees Celsius.

**Table 2. 1 Difference of Environmental temperature and Feeling temperature**

Environment Temperature	33 <sup>0</sup>	35 <sup>0</sup>	34 <sup>0</sup>	32 <sup>0</sup>	31 <sup>0</sup>	29 <sup>0</sup>	28 <sup>0</sup>	27 <sup>0</sup>
Feeling temperature	40 <sup>0</sup>	42 <sup>0</sup>	41 <sup>0</sup>	40 <sup>0</sup>	37 <sup>0</sup>	35 <sup>0</sup>	34 <sup>0</sup>	31 <sup>0</sup>

Source: <https://www.accuweather.com>

Annual average rainfall is about 1000 ml to 1500 ml and maximum annual average rainfall occurs during the period of September to December, North East monsoon. Southwest monsoon rains take place during the period of May to June.

**Chart 2. 2 Differences of Rainfall**

Source: Department of Meteorology

As a whole, although the dry climate situation can be seen in the period about 9 months, Nuwara Wewa, Basawakkulama Wewa, Thisa wewa, Kumbichchankulama tank and additionally several small tanks such as Ponnaramkulama, Aththikulama, Wanniyankulama are situated in this area to store the water which receives with the activation of the Monsoon period. Value of the area becomes more intensive because of attraction and attention of the locals and foreigners for the shrines belong to the Atamasthana such as Sri Mahabodiya, Ruwanwali MahaSaya, Jethawanaramaya, Thuparamaya, Abayagiriya, Lankaramaya, Mirisawatiya, Lowamahapaya and existing places with the historical and archaeological values such as Samadi Statue, Isurumuniya, Ranmasu Uyana and based on these values, the city was declared as a World Heritage City by UNESCO in 1982.

When attention is paid for the population of the city, according to the reports of the census and statistic department, total population of Anuradhapura district in 2011 is 856,004 and 6% of it belongs to the urban population of Anuradhapura. When both years of 2001 and 2011 are compared according to its population density, it can be observed that there is a gradual declination of the population of the urban area. Urban population in 2001 is 56,632. This has gradually declined as 52,007 in 2011 and 52,703 in 2017. According to the statistic calculations, it is clear that the population growth rate has taken a low value such - 0.000847.

Population for square kilometer is 1231 in 2017 and highest population density reports in stage iii (part 1) GN division and stage iii (part 2) GN division and lowest population density reports in Thisawewa GN division. Female and male compositions in urban population of Anuradhapura are 52 percent and 48 percent respectively. If It is described according to the age categories, percentage of persons who belong to the age categories of 0 to 14, 15 to 59 and above 60 are 26 percent, 66 percent and 8 percent respectively. Therefore, high amount of active portion of the labor force can be identified as a resource to strengthen the economy of the city. When is the population of area is described according to their ethnicity and religious, statistical reports indicate that in 2017, Sinhalese was 92 percent and Buddhists was 90 percent and it can be mentioned that this situation supports to preserve the heritage of the Buddhist city.

When comparing the spread of the housing units of the area in 2001, 2011 and 2017, Housing units in 2001, 2011 and 2017 are 14868, 12401 and 12103 respectively and it is clear that this amount has gradually decreased with the population growth rate being minus.

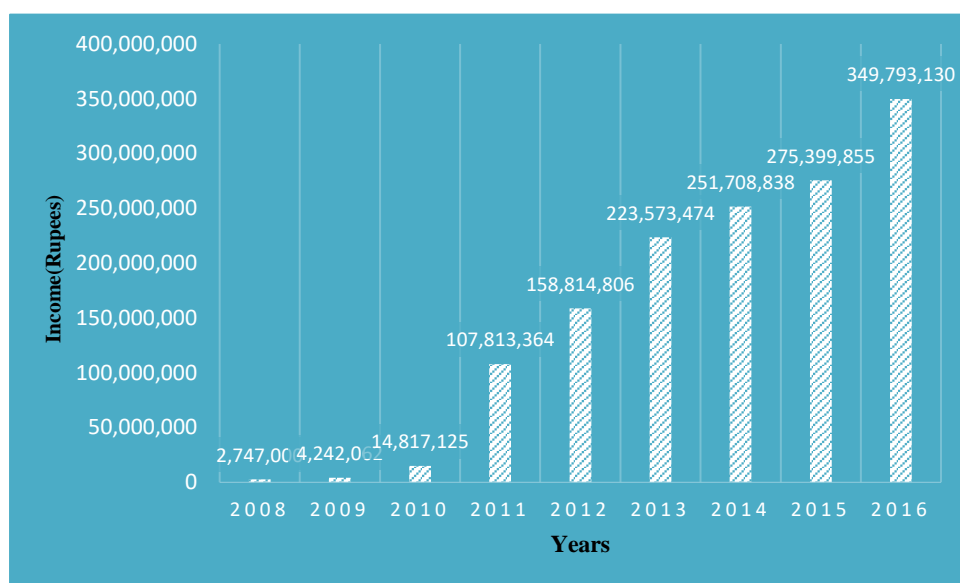
Large number of commuters daily arrives to the city through the six main entrances for fulfilling various requirements and various kind of identities like, city has been identified as a world heritage city, as a main administrative center of the province and as a main town of the district.

According to the traffic survey conducted by Urban Development Authority in 2016, it is reported that the population who arrives to the city from external areas for various requirements is 160,000. According to the survey reports of traffic branch of police of Anuradhapura, it is further revealed that this amount of population in every year increases up to 11 lacks during the period of Wesak, Poson and Esala festivals and especial massiveness such as Pichchamal Pujawa and Kapruk Pujawa.

In the analysis of economy of the Anuradhapura city, it is revealed that before 1950, Anuradhapura has a primary sector based strong economy, but now, the contribution of the tertiary sector has been higher than the primary sector. According to the reports of the Anuradhapura DS division, in 2017, contribution of Primary, secondary and tertiary sectors

are 9 percent, 19 percent and 72 percent respectively. The main administrative center of the province is situated in the Anuradhapura city, therefore more people come into the city in order to work in the administrative affairs, health service, educational affairs and trade affairs. Based on these reasons, there is high growth in the tertiary sector. According to the records of the Sri Lanka Tourism Development Authority, revenue which receives by the arrival of the foreign tourists has been a help to uplift the economy of Anuradhapura and this situation also has affected to make a growth in the service sector. When it is compared with the 2008, it is clear that direct income which was earned from the tourist industry has grown by the 100 percent.

**Chart 2. 3 Income from Foreign Tourist to the City 2008-2016**



Source: Tourist Development Authority Sri Lanka

A large number of local tourists come for different massiveness which are held based on the sacred shrines and therefore based on this arrival, there is a possibility to obtain the contribution to the economy. The crowd which comes for the religious festival approximately can be shown as follows.

**Table 1. Arrival of Local Tourist for Festivals -2016**

Religious Festivals	Arrival of Local Tourist per day (million)
Poson	0.8
Wesak	0.3
Esala	0.15
PichchamalPujawa	0.5
Dahaspethiya Mal Pujawa	0.3

Source: Archeological Department and Traffic Police Division

When considering about the existing road network of the area, it shows that there is a well-connected road network. Total length of the roads which are being maintained by the Road Development Authority is 45 kilometers and Total length of the road which is being maintained by the Municipal Council is about 231 kilometers and some roads area maintaining by Provincial Road Development Authority.

The considerable amount of government schools are located in this area and in 2017, total students and teachers are about 28008 and 1225 respectively while the teachers student ratio is higher value such as 1:23. National schools such as Anuradhapura central college, Surnapali Balika Maha Vidyalaya and Zahira Muslim Maha Vidyalaya are located in this area and in addition to these national schools, private schools such as Riyansiperera, school of especial education, Lyceum international school, Ceylinco college, Cambridge college , Rahula College also are situated. In addition to the school education, higher education institutions such as Bhikshu University, open university are situated in this area to uplift the higher education. With the purpose of uplifting the vocational education, Hotel school, Vocational Training Authority, Industrial College, National Apprentice and Industrial Training Authority, Technical University, Youth Services Council, Educational Centers are located in the area.

Main health center of the area is Anuradhapura teaching hospital and all staff of the hospital is 2494 including the 51 specialists and 229 doctors. Amounts of Monthly outpatients and clinical patients are about 21465 and 41700 in 2017 respectively. Monthly residential patients are about 11200 in 2017. This hospital consists of wards about 46. In addition to Anuradhapura teaching hospital, Prison hospital, Ayurveda hospital and Army hospital are in this area. In addition to that Number of private hospitals also located in the urban boundary.

In the urban areas, the piped water was supplied by the National Water Supply and Drainage Board and Thuruwila, Nuwara wewa and Thissa wewa are used as water sources. Water is distributed in the urban area by utilizing the 4 water tanks which have been constructed within the urban area and 5 water tanks which have constructed outside from the urban area.

The solid waste which is collected per day is about 20 metric tons in the Anuradhapura town and solid waste is collected and disposed by the Anuradhapura Municipal Council daily according to the schedule.

Even though there is no a sewage system to cover the entire town of Anuradhapura, small scale swage system has been established to cover the Anuradhapura new Bus stand and its commercial area.

## **2.3 Delineation of the Planning Boundary**

Following factors were mainly considered in determining the Anuradhapura urban and planning area.

### **2.3.1 Administrative Boundaries**

While a development plan was prepared based on 2006 to 2016 for the Anuradhapura Municipal Council boundary by the Urban Development Authority, in studying the population density and housing density influence made by the development activities, expansion of infrastructure facilities, changes of the land values have shown by now that, without limiting to the urban area, its development operations have expanded towards its external areas. In determining the administrative border of the planning area, the following GN divisions have been covered. Other than Anuradhapura Municipality Council area, the GN divisions of following divisions of the Mihinthale DS division, Henawatta GN division, Thannayamkulama, BandaraPuliyamkulama, Perimiumkulama, Katukeliyawa, Abayawewa, DewanamPiyathissapura, Pandulagama, Isurumuniya in the Madyamanuwagagampalatha DS division, the GN divisions of NagenahiraNuwaragampalatha DS division, Poththegama, Wannikulama 01, Wanniyakulama 02, Wanniyakulama 03, Wanniyakulama 04, Wanniyakulama 05, Wanniyakulama 06, Wannithammannawa and the GN divisions of Sawasthipura, Kudanelubawa, Mahanelubawa of the Nachchaduwa DS division.

### **2.3.2 Functioning of the area**

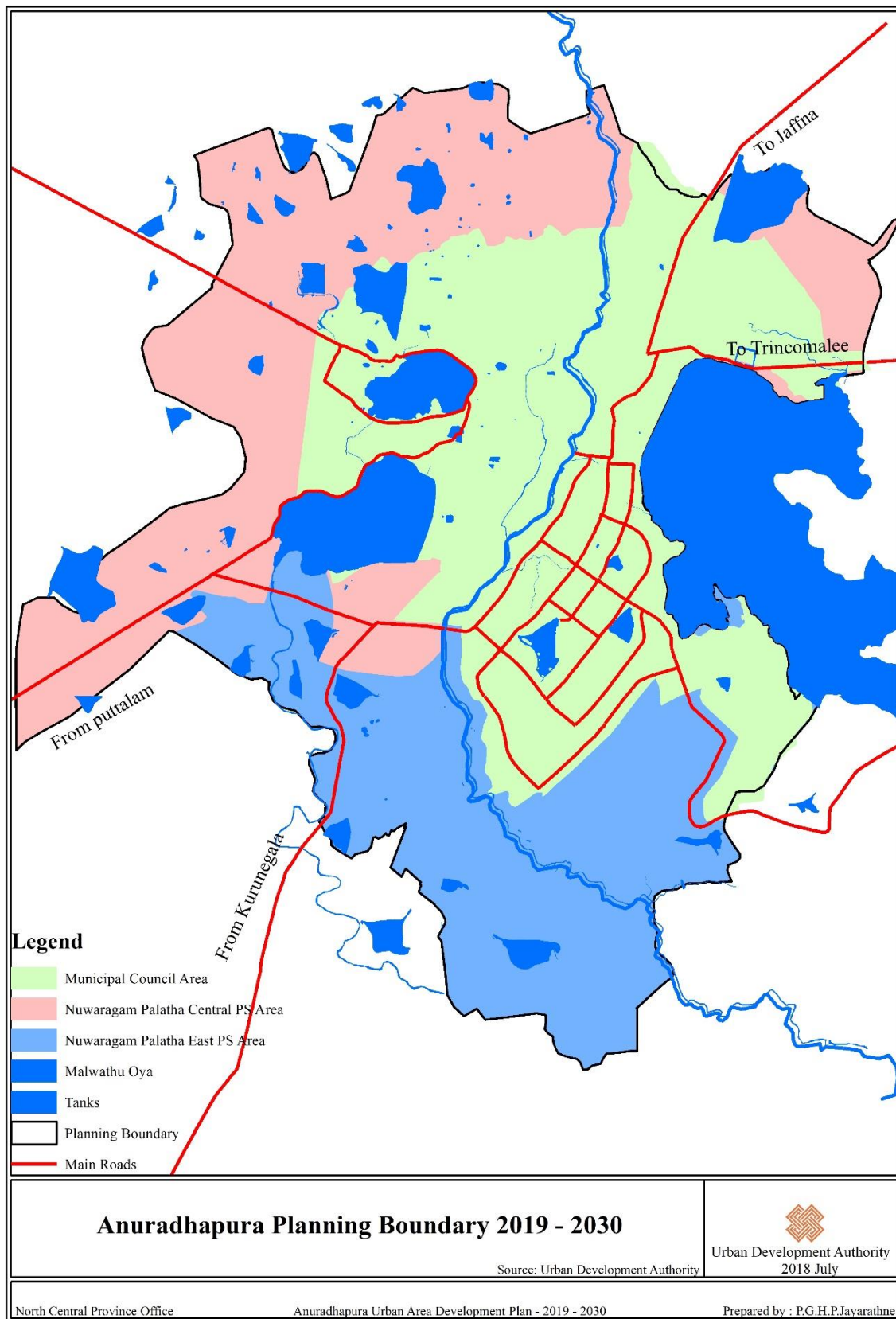
Development has taken place in the Anuradhapura city being the central area of North Central Province and the Anuradhapura District, the sacred city and religious cultural and tourism activities, to the western border of the Malwathu oya flowing across the city, the service center providing the services and the residential zone, showing the functioning of different uses. While the functions related to the sacred city are carried out by creating inter relationships with the new town. The functioning area of the new town is being expanded beyond the Municipal council Area. Here, it has been confirmed by the analysis that the gradual population expansion is taking place towards its external areas. By the studying the identification of the urbanization

level through the analysis of the inter relationship between the cities and the analysis of the fluctuation of the land values, changes in land use pattern, changes in the land value, expansion of infrastructure facilities, this situation has been confirmed.

### **2.3.3 Geographical Features**

It is made aware that this area is surrounded by environment sensitive areas including the paddy fields, tanks and forests. This has been confirmed by the analysis done for the environmentally sensitive areas. At the time these environmental sensitive areas are lying within planning area and beyond the Planning Area. And also analysis have been proved that, there are minimum effects to these sensitive areas due to development activities. Due to these reasons this development plan area expands beyond Anuradhapura Municipal Council Area covering 62 Square Kilometers

**Map 1 Planning Area 2019**



Source: Urban Development Authority

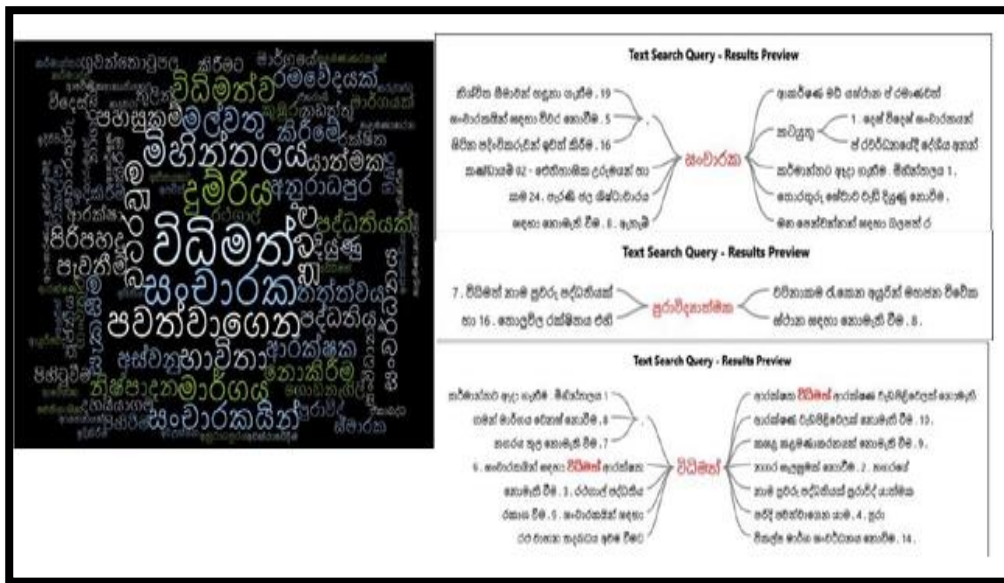
### **03 The Need of the Development Plan**

A new development plan is necessary by having difficulties in enforcing certain sections by now and expiring the legal period of the development plan declared from 2006 to 2016 within the Municipal Council Boundary, by better identification of the development potentials in the city and utilizing them, strategically preventing the activities creating obstacles to the development activities of the city.

As it is expected the population within the Anuradhapura city and its neighboring areas to be 0.5 million according to the National Physical Plan declared for 2050 by the National Physical Planning Department, there is a need for planning the city to address the above gap and therefore, for this purpose, it is expected to fulfil the requirements through this development plan.

The problems and weaknesses and development potentials of the city were identified by using the statistically documented data (secondary data sources) and analyses and by prioritizing the suggestions and proposals of the representative partners of the government and non-government organizations such as Municipal Council, Road Development Authority, Archaeological Department, Irrigation Department, Disaster Management Centre, DS Divisions, Trade Associations through the NVIEO software. As a result, this development plan aims to consider these identified potentials and problems in the development process of the city.

Figure 3. 1 Prioritize details by NVIVO Analysis

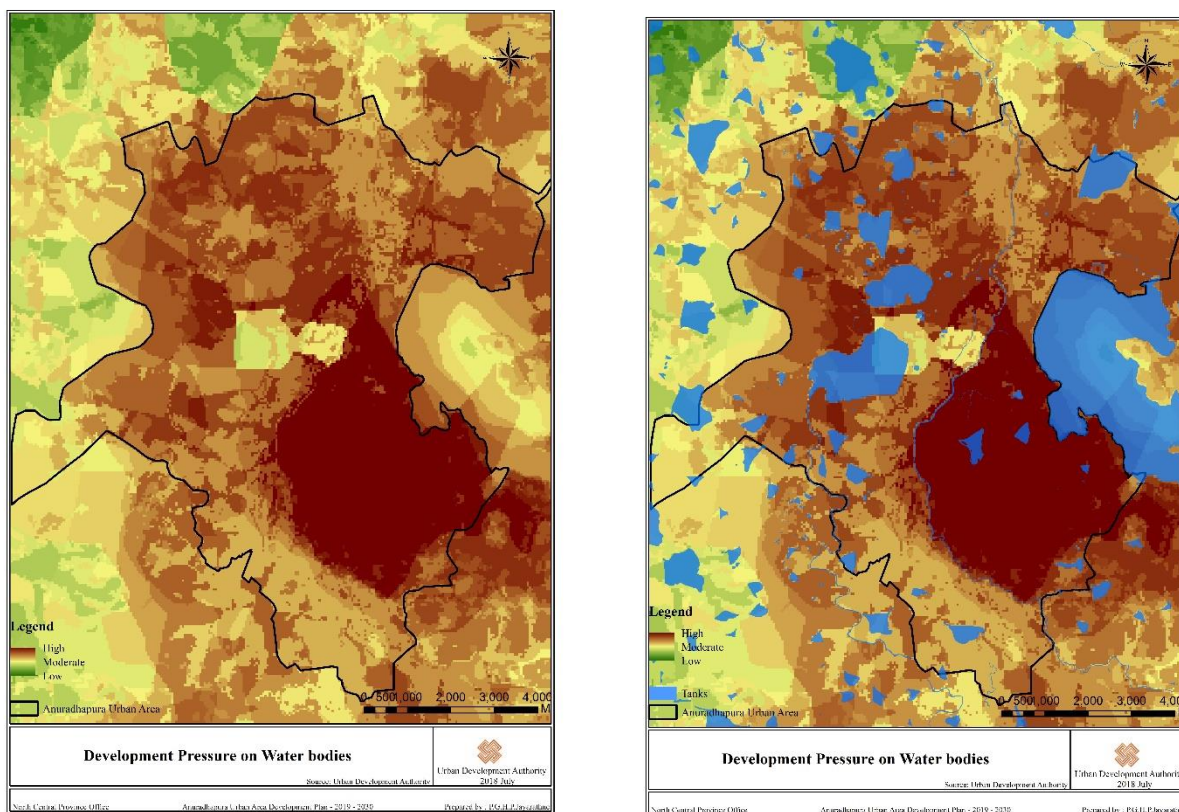


Source: Urban Development Authority

At the discussions with the people of the area, beneficiaries, tourists, professionals with especial knowledge, it was confirmed that especial attention should be paid for better utilization of the heritages still undiscovered and existing heritages within the scared city for the economic benefits of the city and protection of the unique pride of the city by conserving the environmentally sensitive areas for the future. Therefore, providing the opportunities for this purpose is another goal of this development plan.

An objective of this plan has been to supply the required services for the following percentages increased by analyzing the changes in the land use patterns between 2001 to 2016, 0.86 percent in the commercial sector, 0.3 percent in the administrative sector showing the growth of land use, and 1.56 percent in the tourism activities. By 2017 the service sector has achieved higher value surpassing the other sectors of the economy.

**Figure 3. 2 Development Pressure on Water Bodies**



Source: Urban Development Authority

In area, there are development pressure on water bodies and it has been able to confirm through the analysis activities. By studying above figures, this can be better understood (Map No.13 and 14).

While it is seen that this impact has widely affected to the tanks such as the MalwathuOya, KumbichchanKulama tank, KadaPanahawewa, PonnaramKulama tank, at the present, existing situation in the area is also the same. Therefore, this area and aquatic areas have to be protected but, at the present, as it is not occurring, people have to face to the flood threat. While the flood situation which occurs with the rains receiving especially during the inter - monsoon period and the monsoon period directly affects to the public life and economy of the city, the impact to the public life with the time is shown below.

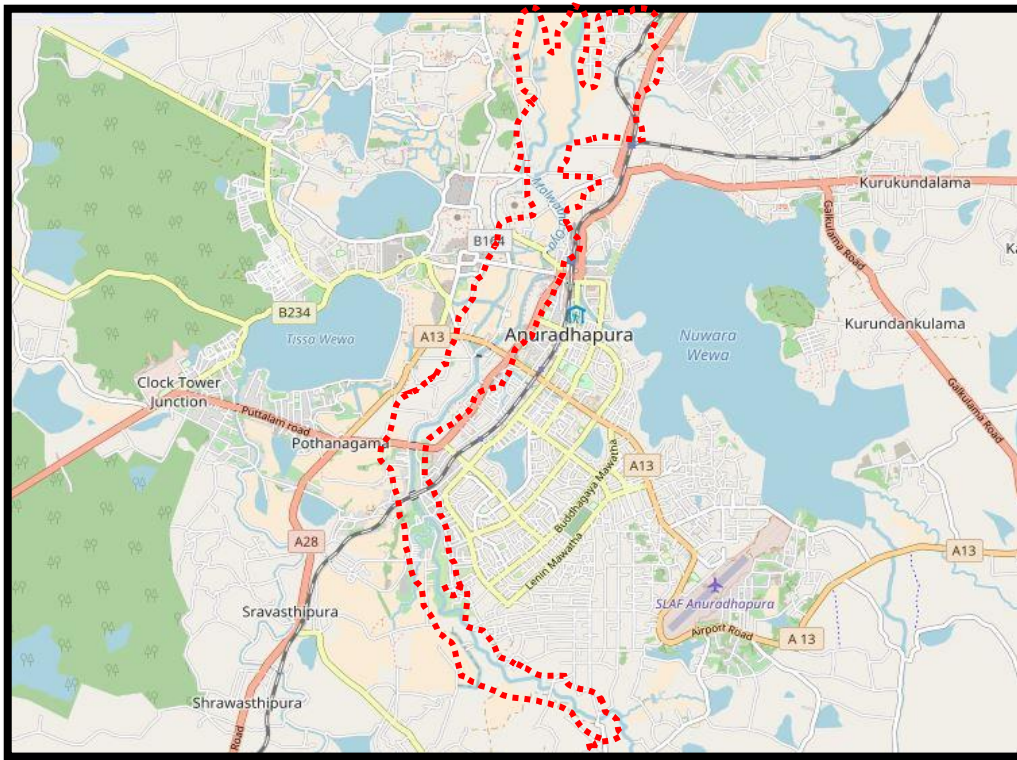
**Table 3. 1 Affection to the area due to flood situation**

<i>Date</i>	<i>Time period (Date)</i>	<i>Number of Affected Families</i>	<i>Number of affected people</i>	<i>Number of Houses</i>	<i>Number of damaged houses</i>
2016/05/17	1.5	97	405	01	04
2015/11/17	01	30	123	01	02
2014/05/21	10	1793	6032	33	42
2014/09/01	08	334	1360	21	67
2010/09/29	1.5	07	35	-	02
2007/12/23	06	179	863	08	15
20015/12/23	06	248	703	19	60
2009/12/12	05	01	05	-	-

Source: Disaster Management center

Below mentioned areas are inundated by regular flood. The inundation of the main roads due to the regular flood is an obstacle for the transportation and in some occasion, flood affects for the railway transportation as well.

**Figure 3. 3 The areas inundated by regular flood**



Therefore, this development plan is prepared for proper utilization of the above said development potentials and for achieving the prosperous development in the Physical, Economic, Social and Environment sectors by strategically minimizing the effects which obstruct to the development of the city.

# VOLUME I

## PART II



Urban Development Authority

2019 – 2030

## Minister's Approval

## Gazette Notification

## **04. The Planning Framework**

Here, vision, vision statement of the development plan, goals and objectives related to the vision are described and also scientific analyses and calculations which were done for achieving these goals and objectives are described in detail and by using the different strategical methods.

### **4.1 The Vision**

“The Buddhist Heritages Capital of the World”

### **4.2 Vision Statement**

“A convenient and magnificent city featuring valued characteristics inherited by Buddhist Culture & Heritage serving as a regional facilitator strengthened with a prosperous economy.”

Here, the vision, “**The Buddhist Heritages Capital of the World**” was prepared for the Anuradhapura urban area and meaning of the vision is to make the wonderful and comfortable city, filled with the characteristics of Buddhist heritage and Buddhist culture, equaled to a capital city and become that the provision of the service is the main element of the economy.

## **4.3 Goals**

After setting the above vision for the city of Anuradhapura, three main goals were identified to achieve the vision. Those can be outlined as follows,

### **4.3.1 Goal One**

#### **To become a Memorable, precious Buddhist Cultural & Heritage City**

This simply intends that to make a memorable city. Furthermore, this intends that a city which someone suddenly can memorize about the culture and Buddhist heritages, when he heard about the word of Anuradhapura city and also as city that someone can see the attractive Buddhist heritages at the entrance of the city as well as within the city.

### **4.3.2 Goal Two**

#### **To make comfort & Safe City for residencies & immigrant**

This intends that the city makes as a more comfortable city for the local and foreign tourists as well as city residencies which was secured from the natural disasters under the improvement of the physical, social, economic and environment aspects

### **4.3.3 Goal Three**

#### **To Convert Historical & Cultural Values as a main income Source of the City Economy**

This intends that the factors which make intensive the invincibility of the Anuradhapura city and values of the hereditary and degenerating agriculture-based irrigation civilization which was a main element of the culture since the period called “Anuradhagama” as well as elements of the Buddhist culture are involved in the urban economy by managing and polishing them properly.

## **4.4 Objectives**

### **4.4.1 Objectives for the First Goal**

01. In next 10 years period, to create the atmosphere to establish the required facilities in 13 places that isolated and exist as Buddhist heritages in the scared city with the purpose of opening them to the public in future.

02. To plan the scared city in the way of providing the required services and the facilities for the 150 000 of foreign tourists who are expected to bring to the Anuradhapura city by Sri Lanka Tourist Development Authority by 2030.

03. In next 10 years, prepare the city in order to maintain and develop the five View corridors to create the space for visiting city's Buddhist heritages within the city as well as out of the city.

04. Prepare the scared city based on the Atamasthana in order to provide the services and manage the 6 percent of annual growth of arrival of local pilgrims to the scared city.

### **4.4.2 Objectives for the Second Goal**

01. To prepare the city in order to keep the minimum traveling speed of vehicles as 25 kilometers per hour within the urban area by the 2030.

02. To implement the required development activities to convert the existing connectivity among the main transport centers in to the walking distances during next 10 years' period.

03. To prepare the urban area in order to equal the feeling temperature in urban area to the existing environmental temperature by the 2030.

04. To execute the required actions to mark the reserves' boundaries of the all environment sensitive areas and the archaeological sites existing in urban area in next 10 years' period.

05. To execute the required actions to establish the rain water sewerage system covering the enter urban area of Anuradhapura by the 2030.

#### **4.4.3 Objectives for the Third Goal**

01. Prepare the land use pattern in order to double the room amount of hotels in urban area and registered under the Sri Lanka Tourist Development Authority by next 10 years of period compared to the 2016.

## **05. SWOT analysis and Summery of Data Analysis**

It is important to identify the targeted information and data of the development trends by doing the appropriate analysis about the strengthens, opportunities, weakness and threats existing in the area in preparing the development plan for the Anuradhapura municipal council area and reaching vision of development plan.

## 5.1 Goal One – SWOT Analysis

To become a Memorable, precious Buddhist Cultural & Heritage City

### Strength

Hold the famous and new Buddhist festivals in the city

The famous Buddhists religious heritages are within the city

The ability to see the Buddhist heritages within the city and at the entrance of the city

Declaring as a world heritage city by the UNESCO

9% growth of the annual arrival of the foreign tourists

Changing the land use pattern intensively for providing the services to pilgrims and tourists

The city directly connects with other tourism cities.

Visible of Buddhist's heritages beautifully in night

There are over 100 of ruins in the places with the Buddhist heritages

About 2/3 from the scared city still remains for the excavations

### Weakness

The Buddhist heritages in the city have been covered by the constructed buildings

Less awareness among the public about most of the places which have a Buddhist and archeological value and existing these places still as hidden

Harmful land use pattern of the scared city

Limited space for provision and promotion of the services in scared city.

Decrease of the visitors who come to visit the museums

The culture connected with the distinguished irrigation civilization is not utilized in the tsarism industry

Lack of and less quality service provision for pilgrims and tourists and less quality of the available facilities

There are no appropriate areas for spiritual development in secret city

### S.W.O.T

### Opportunity

Being a main city of the cultural triangular

The trend for the meditation among the world population

### Threat

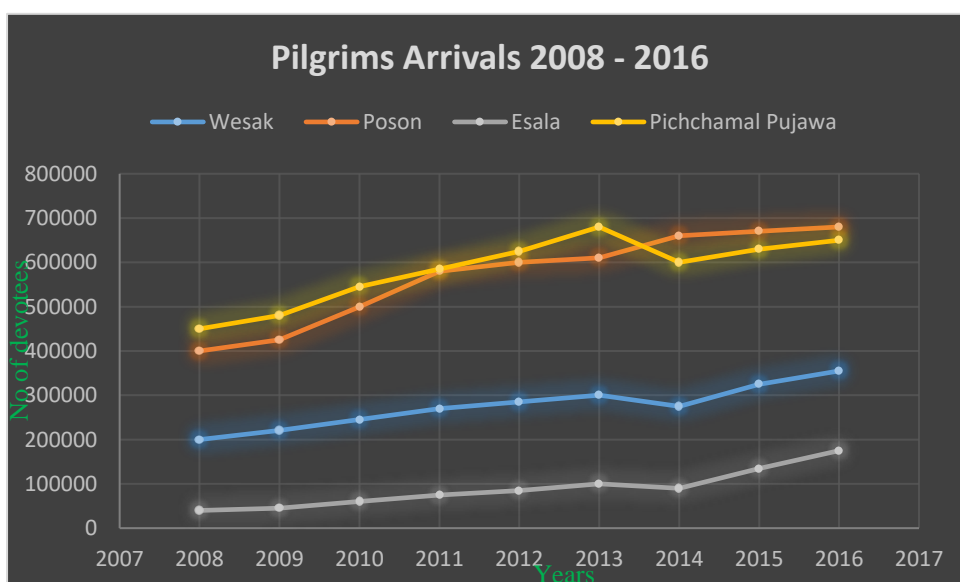
Increase the tourists' attraction for the adjacent cities such as Sigiriya and Polonnaruwa.

### 5.1.1 strength

#### Hold the famous and new Buddhist festivals in the city

Deferent massiveness and festivals are held based on the city of Anuradhapura which has the huge importance and value of the Buddhist culture. Many people participate in these festivals annually. Wesak festival, Poson festival, Asala festival, the procession and Pichchamal Pujawa are the main festivals among these and the visitors which come annually for these festival has increased up to 50 percent in the last 8 years.

*Chart 5. 1 Pilgrims who come for Buddhist festivals annually 2008-2016*



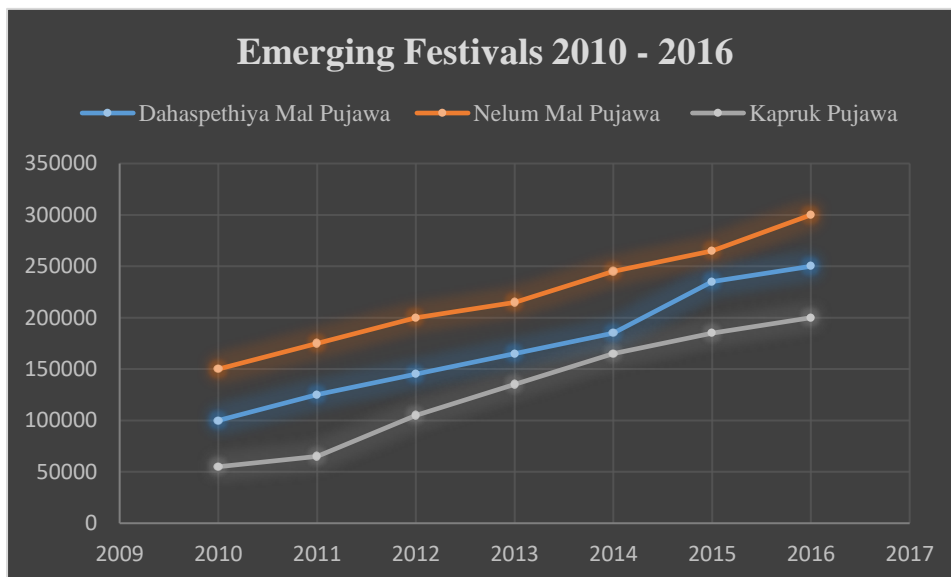
Source: Archaeological Department

When attention was paid for the growth of the tourists from 2008 to 2016 it is clear that there is a 10% growth of the tourists who come to visit the Wesak festival in each year comparatively to the previous year. Annual growths of above said festivals are 12%, 12% and 6.5% respectively. It is a factor to prove the importance and value of the Buddhist heritages of Anuradhapura area.

In addition to this, at the present, new religious festivals and massiveness have borne based on the scared city of Anuradhapura. When attention was paid for the period from 2010 to 2016,

many massiveness and festivals such as Dahaspethiya mal pujawa, Nelum mal pujawa, Kapruk puja, Ausada puja have borne and it can be seen that there is a high growth among the pilgrims who come for these festivals from the all areas of Sri Lanka.

**Chart 5. 2 The participation in present massiveness**



Here, it can be seen that there is about 11% annual growth for the Daspethiya Mal Pujawa and about 15 % annual growth for the Nelum Mal Pujawa.

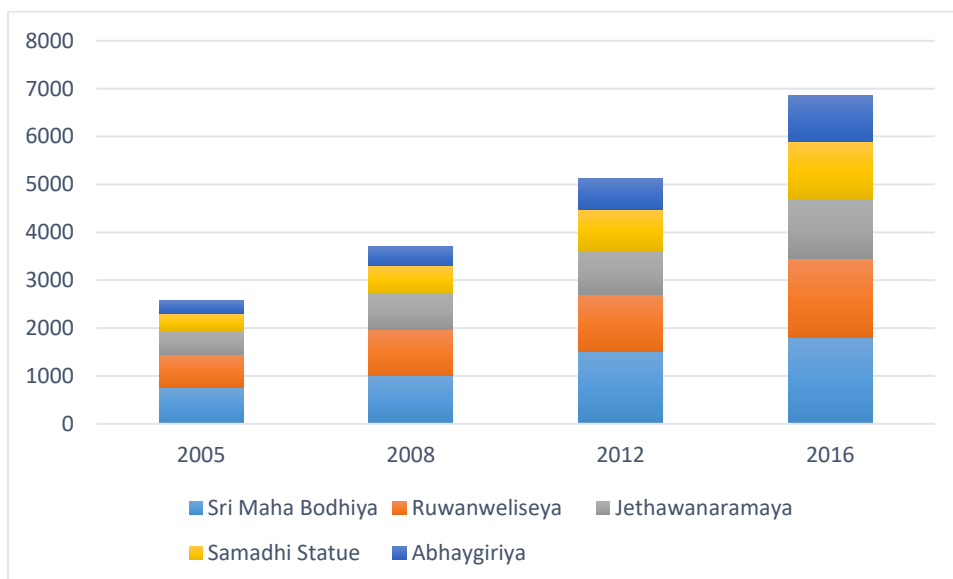
Source: Archaeological Department

According to this, it is clear that there is a gradual growth among the visitors who come for these Buddhists religious festivals and massiveness conducting based on the city of Anuradhapura. This growth has become an assistance to promote the importance of the Buddhists religious of the city of Anuradhapura among the locals and foreign and this situation contributes directly or indirectly for the social and economic improvement of the area.

**The famous Buddhists religious heritages are within the city**

The great and wonderful holy places belong to the Buddhist heritages such as Sri Maha Bodiya, Ruwanwalisaya, Jethawanaramaya, Samadi Statue, Abayagiriya are situated as the main feature to make as an attractive city with Buddhist heritage which is a main objective of the development plan prepared for the period of 2019 to 2030. When the arrival of the tourist that occur since several years is studied, it is indicated that there is a gradual growth.

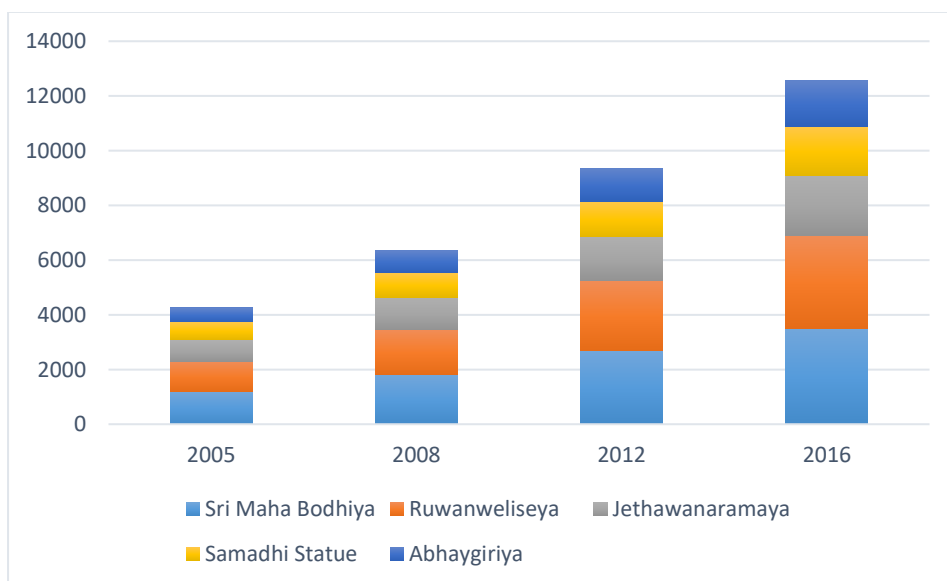
**Chart 5. 3 Tourists and pilgrim’s arrival of week Days 2005-2016**



Source: Archaeological Department

The per day population who visit the above said massiveness at the weekends are as follows,

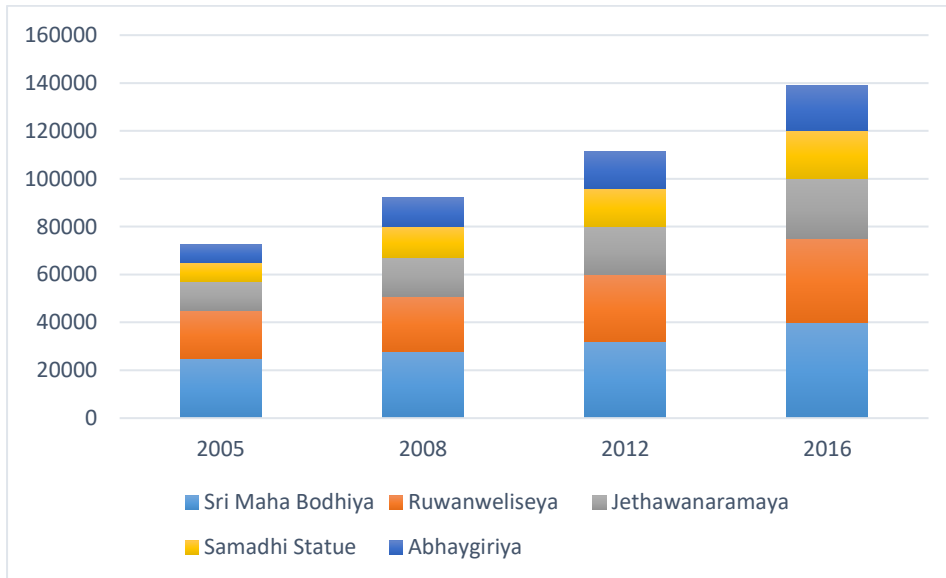
**Chart 5. 4 Tourists and pilgrim’s arrival of weekends 2005-2016**



Source: Archaeological Department

The population who come in the full Moon Poya day to the above-mentioned places are as follows.

**Chart 5. 5 Tourists and pilgrim’s arrival of Poya Days 2005-2016**



Source: Archaeological Department

This statistic analysis indicates that the population who came to visit these places from different areas from 2005 to 2016 has gradually grown. As a percentage, it is about 40 %.

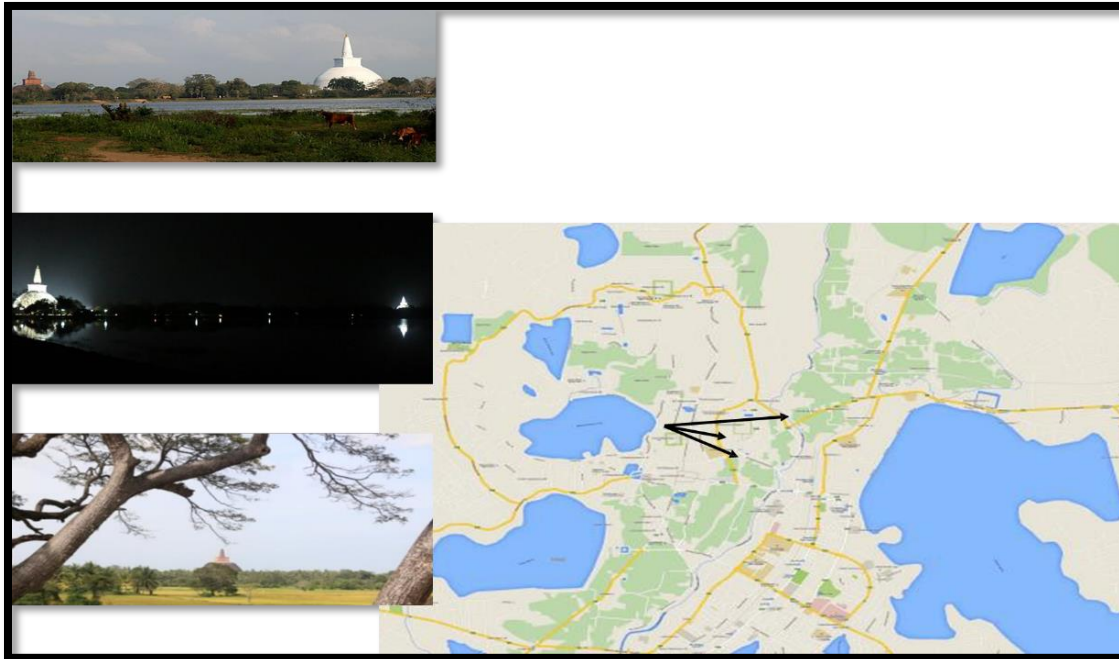
The above chart shows and explains the reputation for the valuable Buddhist places belongs to the Anuradhapura city and that the population who comes for visiting these places have gradually grown. This situation is one of strong factors to reach the goal of making the Anuradhapura city as a famous city for the Buddhist heritages.

**The ability to see the Buddhist heritages within the city and at the entrance of the city**

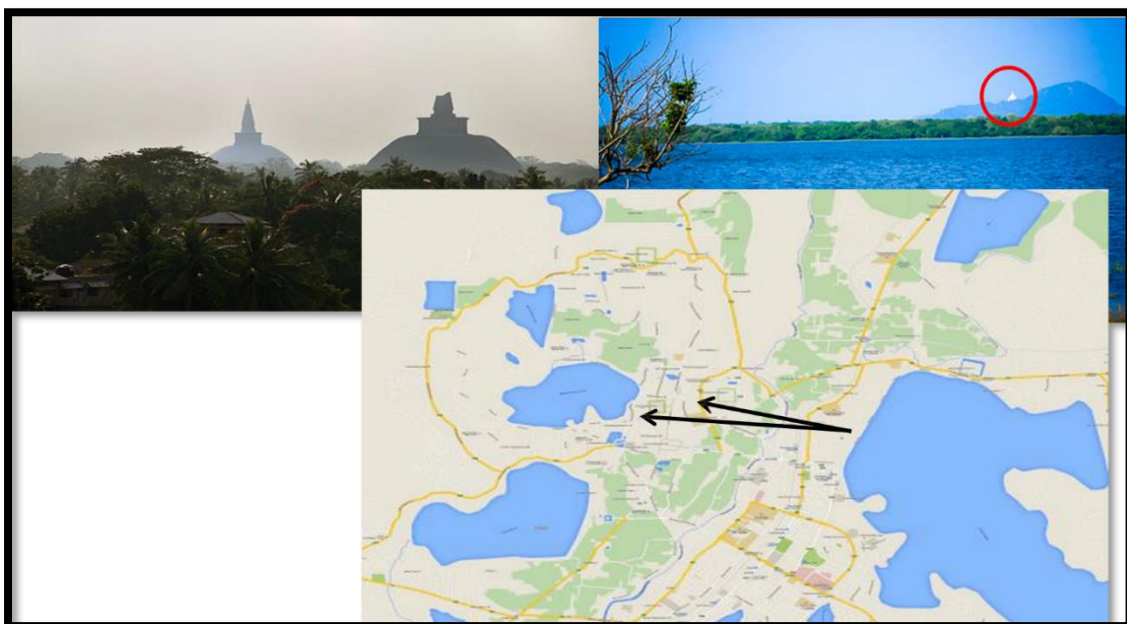
The ability to proudly see the Buddhist heritages at the entrance of the city as well as within the city has been a reason to create the pleasant thinking in the comers to the city. By this way, as the ability to see the Buddhist heritages at the special different places, the person is able to realize the value of the city and the historical Buddhist heritages of the city suddenly when he enters to the city as well as stay in and travel across the city. And also, based on this scenery,

any person of the world can memorize that he is in or enter to the city which is one of richest cities from the grate Buddhists heritages. This path of the visibility can be identified at the several places in the new town and the surrounding areas.

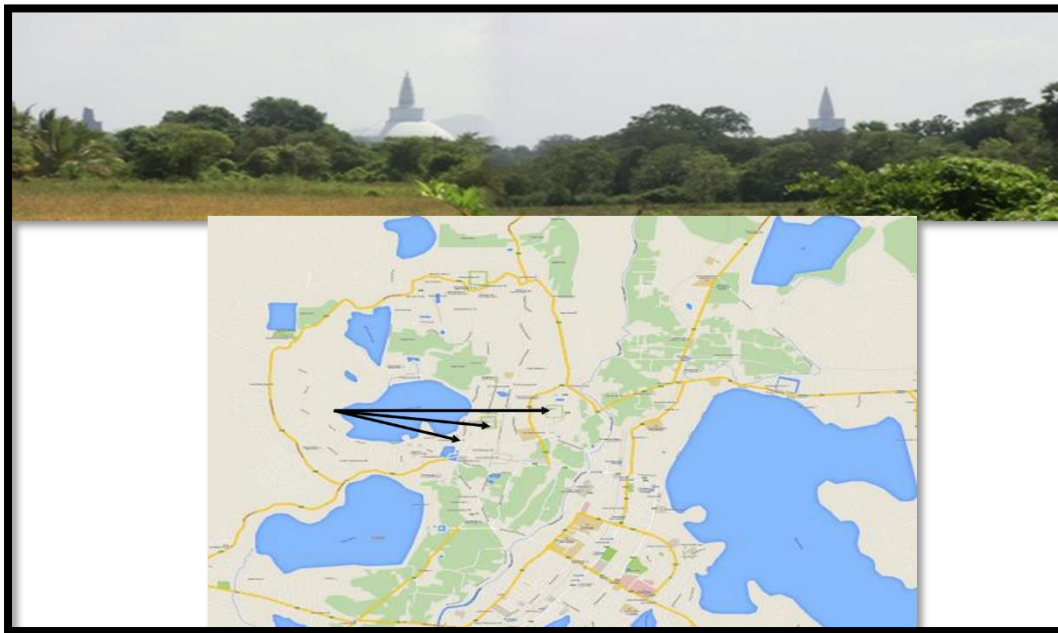
*Figure 5. 2 View from Basawakkulama Tank bund*



*Figure 5. 1 View from Nuwara Wewa bund*



**Figure 5. 3 View from Arippu Road**

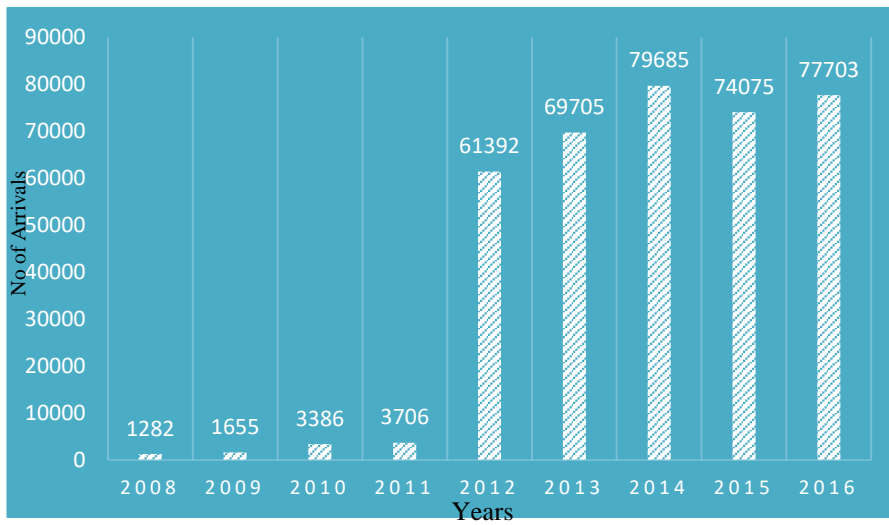


### **Declaring as a world heritage city by the UNESCO**

As the well-planned settlements for the survival of human being with the beginning of the Sinhala Wansakathawa, its pattern of the evolution and greatness of planning are revealed, and the second, third and fourth objectives of the UNISCO have been predicated by estimating and evaluating the values of the historical, cultural and Buddhist heritages, the scared city of Anuradhapura was declared as a world heritage city by the UNESCO in 1982. Attention of the foreign states as a result of this value received for the scared city of the Anuradhapura is an especial factor.

### **9% growth of the annual arrival of the foreign tourists**

After declaration of the Anuradhapura scared city as a world heritage city, the city was very famous among the locals as well as among the foreigners. As a result, the attention of the other countries of the World to the city gradually increased. This trend is realized when studying the amount of arrivals of the foreign tourists to the Anuradhapura city during the period of 2008 to 2016.

**Chart 5. 6 Arrival of foreign tourists 2008-2016**

#### Tourism Development Authority Sri Lanka

Annual growth of the arrival of the foreign tourist during the period of 2008 to 2016 is increased by 9 percent and 77,703 of foreign tourists have arrived to the Anuradhapura city by the 2016. It is recorded that direct income of this is about Rs 350 million.

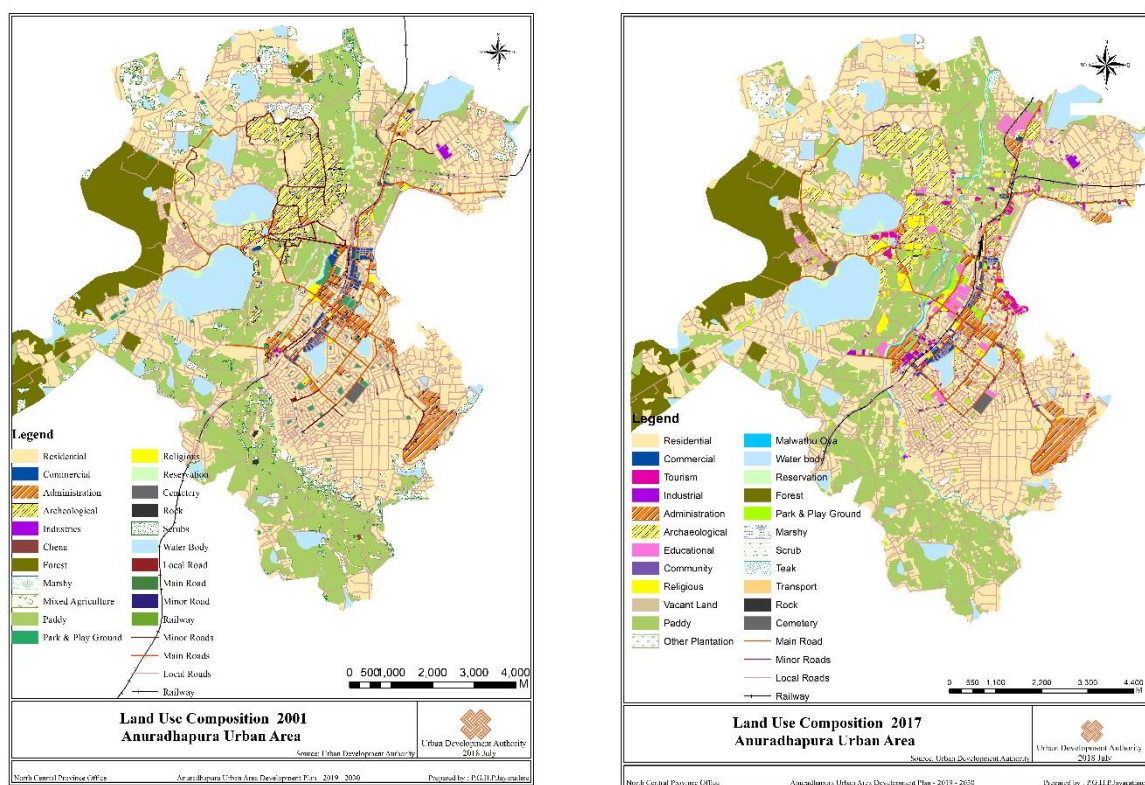
In the year 2016, 77,703 foreigners have arrived to the Anuradhapura city and by consideration this trend of arrival of the foreigners, it is forecasted that about 105,000 of foreigners would arrive to Anuradhapura by 2030. Arrival of about 150,000 of foreigners are expected to Anuradhapura by the Tourist Development Authority and achievement of this target is an objective of this development plan as well.

Above factors further prove the ability to become the city which improved with the Buddhist heritages and cultures and have a more attention not only locally but also internationally. This potential is a foundation to develop the urban areas in physical, economic, social and environmental sectors. Further, the ability to obtain the contribution for the development of the city through the interstate relationships is a huge strengthen.

**Changing the land use pattern intensively for providing the services to pilgrims and tourists**

Changing and adaptation of the land use pattern in the proper way of providing the required services for the international and local comers to the city is a powerful factor to establish the strong economy in the city of the Anuradhapura.

**Figure 5. 4 Changing of Land Use pattern to facilitate the tourists**



Source. Urban Development Authority

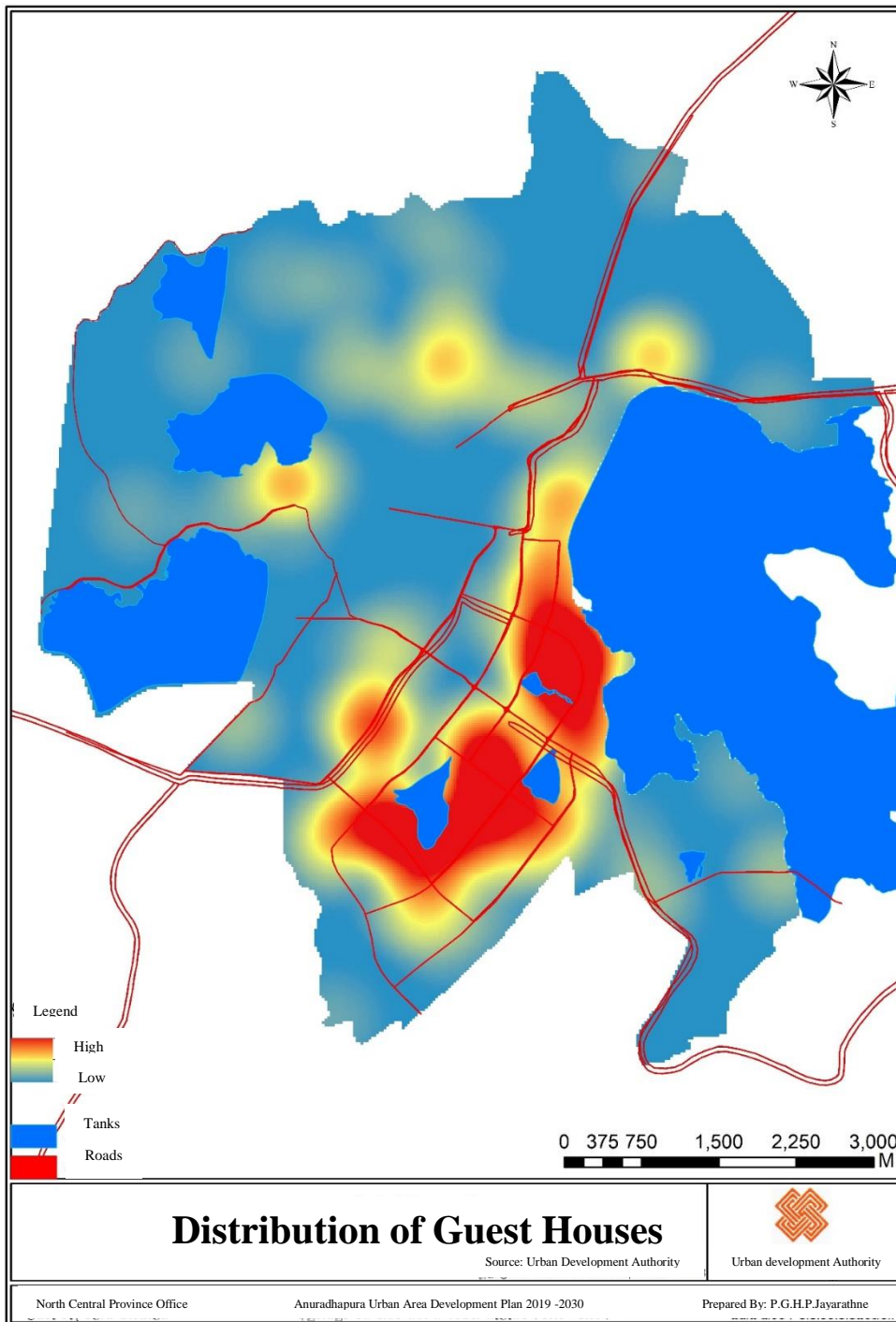
**Table 5. 1 Land Use Pattern 2001-2017**

<i>Land Use</i>	<i>2001 Hec.</i>	<i>2001 %</i>	<i>2017 Hec.</i>	<i>2017 %</i>	<i>Difference</i>
<i>Administrative Activities</i>	257	6.27	270	6.58	+0.31
<i>Archeological Sites</i>	689	16.80	689	16.80	0
<i>Commercial Activities</i>	65	1.58	100	2.44	+0.86
<i>Technical Activities</i>	54	1.32	24	0.59	-0.73
<i>Park and Ground</i>	77	1.88	53	1.29	-0.59
<i>Residential</i>	1869	45.56	1463	35.67	-9.89
<i>Paddy</i>	694	16.92	678	16.53	-0.39
<i>Environment System</i>	477	11.63	475	11.58	-0.05
<i>Tourist Activities</i>	01	0.02	65	1.58	+1.56

Source: Urban Development Authority

the higher amount from the allocated land for the residential purpose in the land use pattern of the 2001 has converted to the places which provide the services for the tourists in 2017 and this can be highlighted as a special situation. In the period of 2001 to 2017, the residential uses have declined by 9.9 % as a result of increase of the provision of the services for tourist, pilgrims against to the increased tourism activities and its uses in the city. Therefore, the present situation can be identified that the most residential land uses have converted into the places which provide the tourism related services (Map No.07 and 08). Specially in the 2017, although the growth of commercial uses is 0.86%, the growth of land uses related to the tourism industry has taken higher value of 1.56%. Therefore, it is clear that the land use pattern in the New Town has intensively changed in order to provide the services for the international and local persons who come to the Anuradhapura Municipal Council area.

**Figure 5. 5 Distribution of Guest Houses**



The hotels and guest houses which are the main component of the tourist industry are locating with the possibility for better visibility to the culturally and historically important and indigenous places of the Anuradhapura Area (Map No.25).

Source: Urban Development Authority



**There are over 100 of ruins in the places with the Buddhist heritages**

Over 100 of ruins connected to the Buddhist heritages exist in and belong to the Anuradhapura city and this situation is very essential factor to make the Anuradhapura city as the capital city of the local and international Buddhist heritages. The places such as Atamasthana, Dalada Maligaya, Kuttampokuna, Ath Pokuna and many other places which are being still excavating have been reason for the unabated attraction among the tourists.

**About 2/3 from the scared city still remains for the excavations**

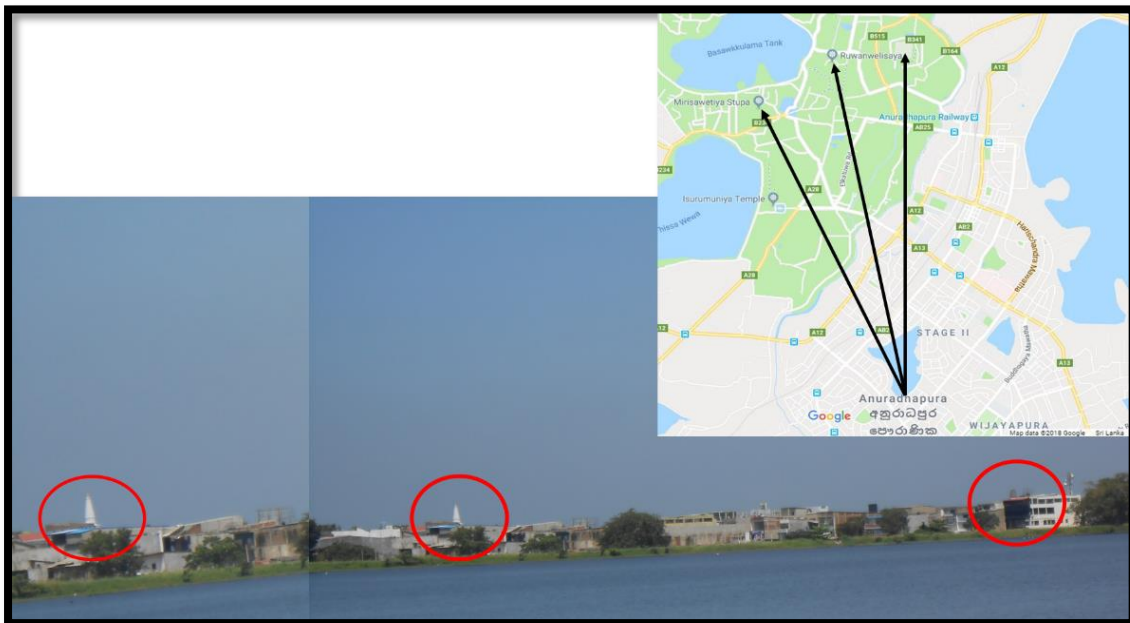
According to the records of the Archaeological Department, it is clear that still there is about 2/3 land area in the scared city of the Anuradhapura for the excavations. This situation also is a main strengthen to develop the Anuradhapura city as the capital city of the world Buddhist heritages. Creating the environment in the city for conducting the local and international researches and the studies about the history of Anuradhapura is a better opportunity to reveal the historical values of the Anuradhapura city to the world.

### 5.1.2 weaknesses

#### **The Buddhist heritages in the city have been covered by the constructed buildings**

This is an obstacle to fulfil the first goal of the development plan. Specially, when it is looked on the bank of the Kumbichchankulama tank, the topes such as Ruwanwalisaya, Mirisawatiya and Jethawanaramaya can be viewed very beautifully but at the present, buildings are being constructed in the way of covering these beautiful sceneries.

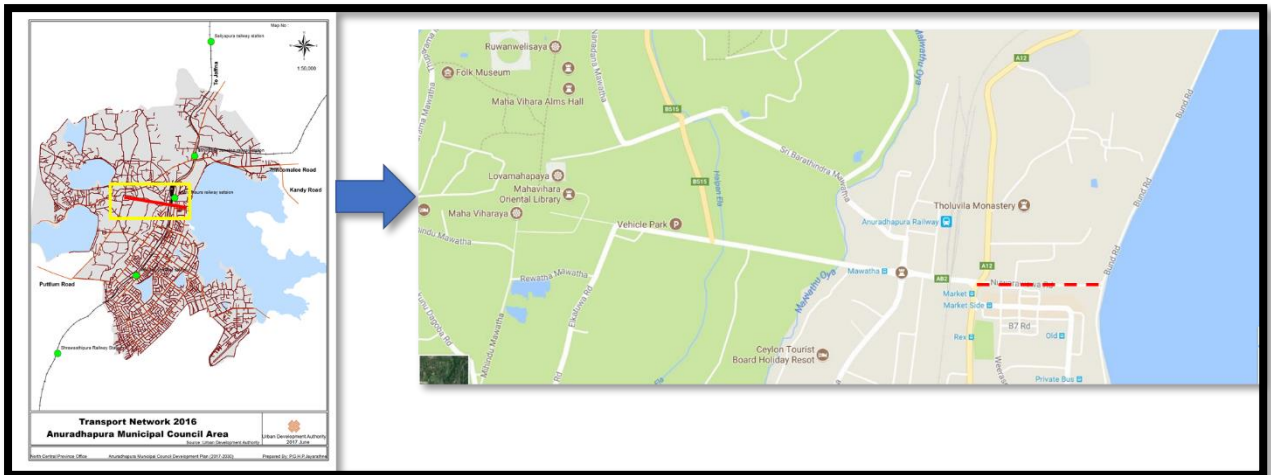
*Figure 5. 7 View from Kubichchankulama Tank*



Source: Urban Development Authority

The Ruwanwalisaya, Jethawanaramaya and the MinthalayaChaithya are well presented from the bank of the Nuwara wewa. In particular, the bank of the Nuwarawewa Tank is the only the place that can be seen the MihintaleChaithya from the Anuradhapura town. This scenery and path of this view have been covered by the unauthorized buildings which are being constructed at present. Therefore, by the studying of the changes of the land use pattern, it is realized that the buildings which are being constructed, have been covered the existing Buddhist massiveness.

**Figure 5. 8 Construction of Building Covering Buddhist Pagoda**



Source: Urban Development Authority

**Figure 5. 9 Walking Path of Buddhist pagoda Disturbed due to Construction of Building**



Source: Urban Development Authority

**Figure 5. 10 View of RuwanveliMahaseya, Jethawanaramaya and Mihinthalya from Nuwara wewaTank bund**

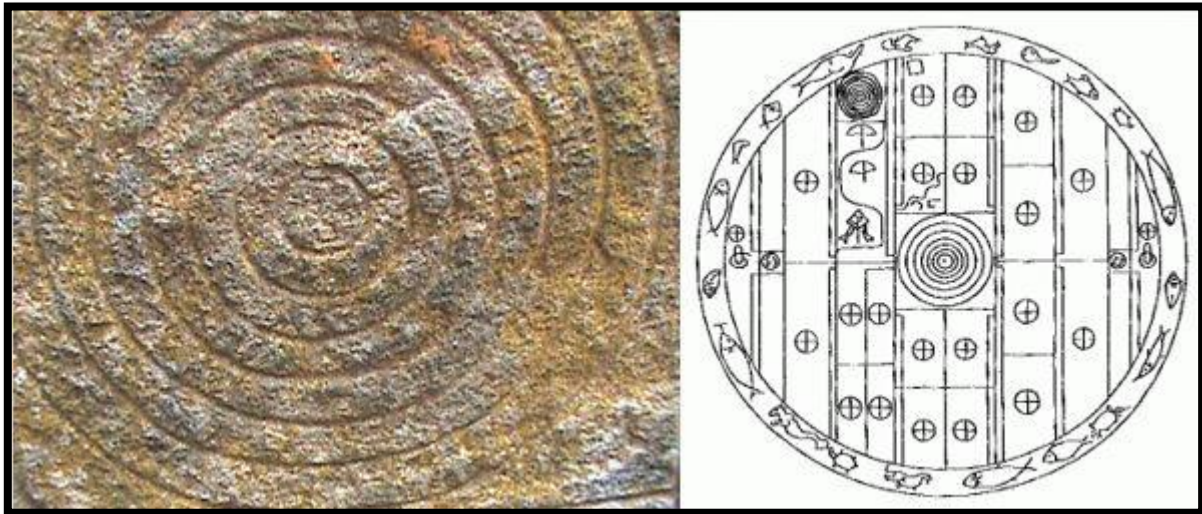


Source: Urban Development Authority

**Less awareness among the public about most of the places which have a Buddhist and archaeological value and existing these places still as hidden.**

Undiscovered Buddhist and archaeological sites still exist in the Anuradhapura city and the all museums including Dewana Samadhi Pilimaya, Thunwana Samadhi Pilimaya, RasweemSalawa, RathnaPrasadhaya, Naka Wehera can be highlighted as main undiscovered Buddhist places. The Archaeological Department has revealed that more than 100 places including historical places still exist in the Anuradhapura city hiddenly. The RanmusuUyana which is situated in the scared city can be identifies as a beautiful and historically valuable place and its specified place called ViswaDoratuwa is important as a place which acquired a speciality through the various legends since the history. This place also still exists as a hidden place which was not much aware among the local and foreign tourists, creating the space to see and know about such important and hidden places to the public will be very helpful to promote the Buddhist vales of the city in the world.

*Figure 5. 11 Vishwa Doratuwa*



Source: Urban Development Authority

**Harmful land use pattern of the scared city**

In the Anuradhapura area, more time of the year belongs to the summer period. Therefore, during this period, the temperature of the roads connected with the Buddhist places and archaeological sites is very high and as a result, the persons who use these roads during this period are embarrassed. Therefore, the survey data revealed that arrival and stay of the pilgrims in the scared city is very low during the day time.

*Figure 5. 12 Harmful land use pattern of the scared city*



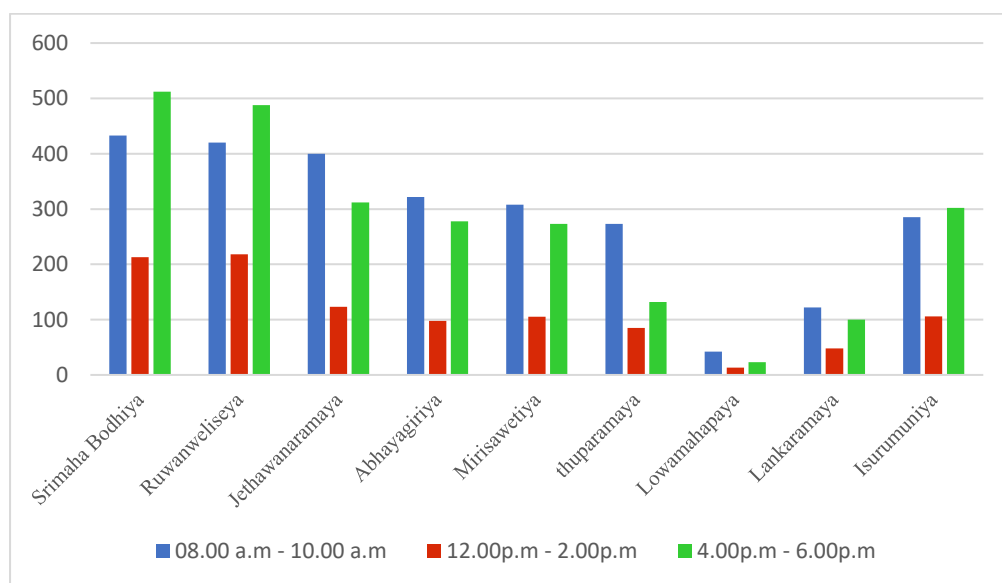
Feeling temperature of the city is higher than the normal temperature from 05 degrees of Celsius. This condition is explained by below table.

**Table 5. 2 Difference of Environmental temperature and Feeling temperature**

Environmental Temperature	33 <sup>0</sup>	35 <sup>0</sup>	34 <sup>0</sup>	32 <sup>0</sup>	31 <sup>0</sup>	29 <sup>0</sup>	28 <sup>0</sup>	27 <sup>0</sup>
Feeling Temperature	40 <sup>0</sup>	42 <sup>0</sup>	41 <sup>0</sup>	40 <sup>0</sup>	37 <sup>0</sup>	35 <sup>0</sup>	34 <sup>0</sup>	31 <sup>0</sup>

Source: <https://www.accuweather.com>

**Figure 5. 13 Arrivals of pilgrims for holy places of Sacred City**



Source: Urban Development Authority

There is a 65 percent decline of the arrival of pilgrims into the scared city in the day time when comparing it with the arrival of pilgrims in the morning. The congested and limited space for the pilgrims and tourists for visiting and worshiping the scared city of Anuradhapura due to the harmful land use pattern of the scared city is one of weaknesses.

### **Limited space for provision and promotion of the services in scared city.**

20 sq.km belongs to the scared city which is located in the Anuradhapura Municipal Council area. When studying the land use pattern of the scared city, it is clear that it is very difficult to find the developable land areas in the scared city of Anuradhapura.

**Table 5. 3 Land Use Pattern of Sacred City**

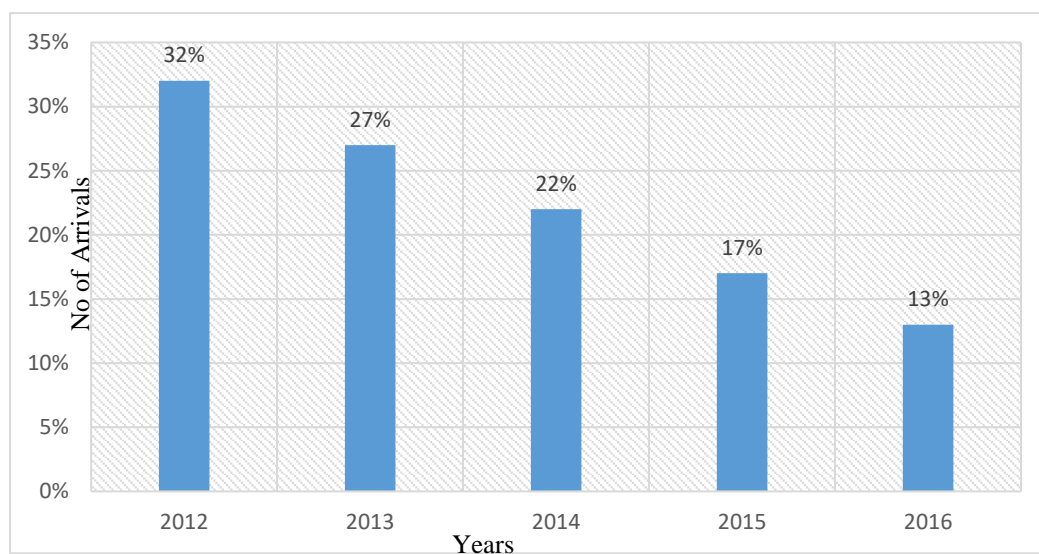
No	Land Use Pattern	Area (Sq.Km)
<b>01</b>	Tanks and Reservations	4.8
<b>02</b>	Archaeological Area	4.0
<b>03</b>	Paddy	4.5
	Total	13.3

Source: Urban Development Authority

According to the above table, it is indicated that acquiring the land area for development activities with the purpose of providing the services for the public who comes to the scared city is not easy task. As the recommendations should be obtained from the different institutions in order to implement the development activities even in the existing land extent, this situation also has been an obstacle for the possible development of the scared city of the Anuradhapura.

### **Decrease of the visitors who come to visit the museums**

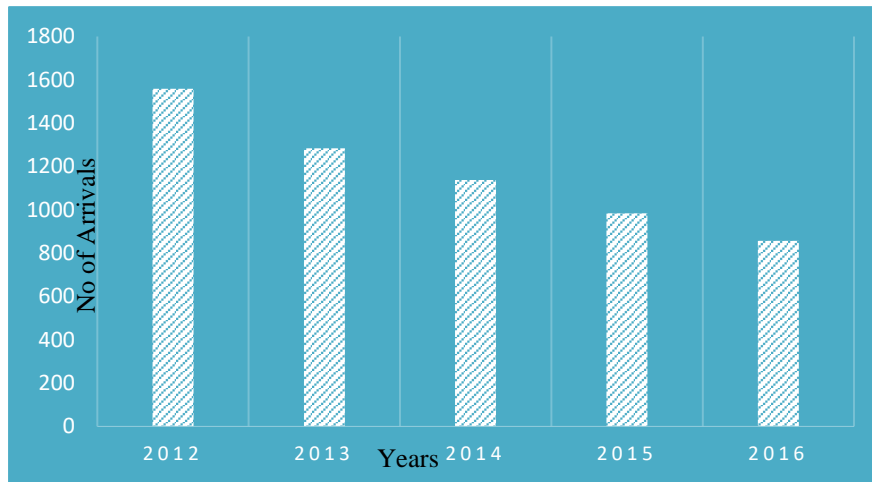
Below graph explains that the crowd who come to scared city as well as visit the museums is gradually declining due to the difficult environmental conditions.

**Chart 5. 7 Arrival of foreign tourists to visit the museum**

Source: Tourist Development Authority Sri Lanka

The five main museums such as Jeethawana Museum, Abayagiri Museum, Archaeological Museum, public Museum and Isurumuniya Museum have been established in the sacred city of Anuradhapura but it is difficult to realize the historical value of the Anuradhapura city and the Buddhist heritages by visiting and observing these museums. As a result, the locals and foreigners who come to visit these places are gradually declining. When the period from 2012 to 2016 was comparatively observed, it can be seen a gradual decrease of the visitors who come to visit the museums. As an example, although 77,703 foreigners have arrived into the Anuradhapura city in 2016, only the small group of these foreigners, about 32 percent from the above-mentioned total foreigners who came into the Anuradhapura city in 2016, had visited the museums. Below chart shows the number of foreigners who visited the museums during the period of 2012 to 2016 as a percentage from the total number of foreigners who arrived into the Anuradhapura city in the same period.

**Chart 5. 8 foreign visitors who are come to visit museums during the period of 2012 to 2016**



Source: Tourist Development Authority Sri Lanka

**Figure 5. 14 Lack of access for tourist to get information from Museum**



Source: Urban Development Authority

Only the antiquities can be seen in these museums and ability to study on these antiquities has been bereaved. Some descriptions including the historical information can be seen only in the Sinhala language and therefore, the opportunity for the foreigners to know about that valuable information has got avoided. It is a main obstacle to fulfil the above-mentioned goals.

**The culture connected with the distinguished irrigation civilization is not utilized in the tourism industry**

Anuradhapura is a city based on distinguished irrigation civilization. Though this civilization is wonderful, the awareness among the locals and foreigners is at the minimum level of 01 percent about its engineering technology. It is revealed at the field interviews that, from it, the small group have well realization about the irrigation civilization. The economic system which flourished on the irrigation civilization that can be developed on the Cascade System is a component that is able to get the attention of the tourists.

**Lack of and less quality service provision for pilgrims and tourists**

The quality of the latrine facilities in sacred city is very less and the most of existing latrines have unusably crumbled. In particular, the latrines existing near the places such as Abayagiri Stupa, Samadi Statue, Mirisawetiya Stupa, Twin Ponds are very aged and those are not in the usable condition. The new latrine systems recently constructed near the Isurumuniya and Maura Pirivana are not sufficient to fulfil the requirements of the pilgrims. Further, as there are no required facilities to obtain the pure drinking water for the locals and foreigners who come into the sacred city, most of them use to bring the bottled drinking water and this adverse practice has been a reason to create the environmental issues within the area.

### 5.1.3 Opportunities

#### Being a main city of the cultural triangle

The cultural triangle has been named based on the cities such as Anuradhapura, Polonnaruwa and Kandy which comes from the Buddhist background. Here, there is a trend that most of the local and foreign tourists are attracted by the cities such as Polonnaruwa and Kandy. Based on this situation, by developing the Anuradhapura as a city which was rich from the Buddhist values and heritages equally to the Kandy and Polonnaruwa cities, there is a possibility to attract the people who regularly visit the above-mentioned cities, Polonnaruwa and Kandy to the Anuradhapura city. Moreover, this city development and after increased attraction among the people for the Anuradhapura city will bring the opportunities to promote the Buddhist values of the Anuradhapura city in the world and this would directly affect to the economic growth of the city.

#### The trend for the meditation among the world population

*Table 5. 4 Per Day Population attracted for the meditation at Buddhist Centre in Thailand*

<i>Year</i>	<i>No. of People</i>
<i>2014</i>	<i>113</i>
<i>2015</i>	<i>383</i>
<i>2016</i>	<i>496</i>

Source: <http://www.papaemeditation.org>

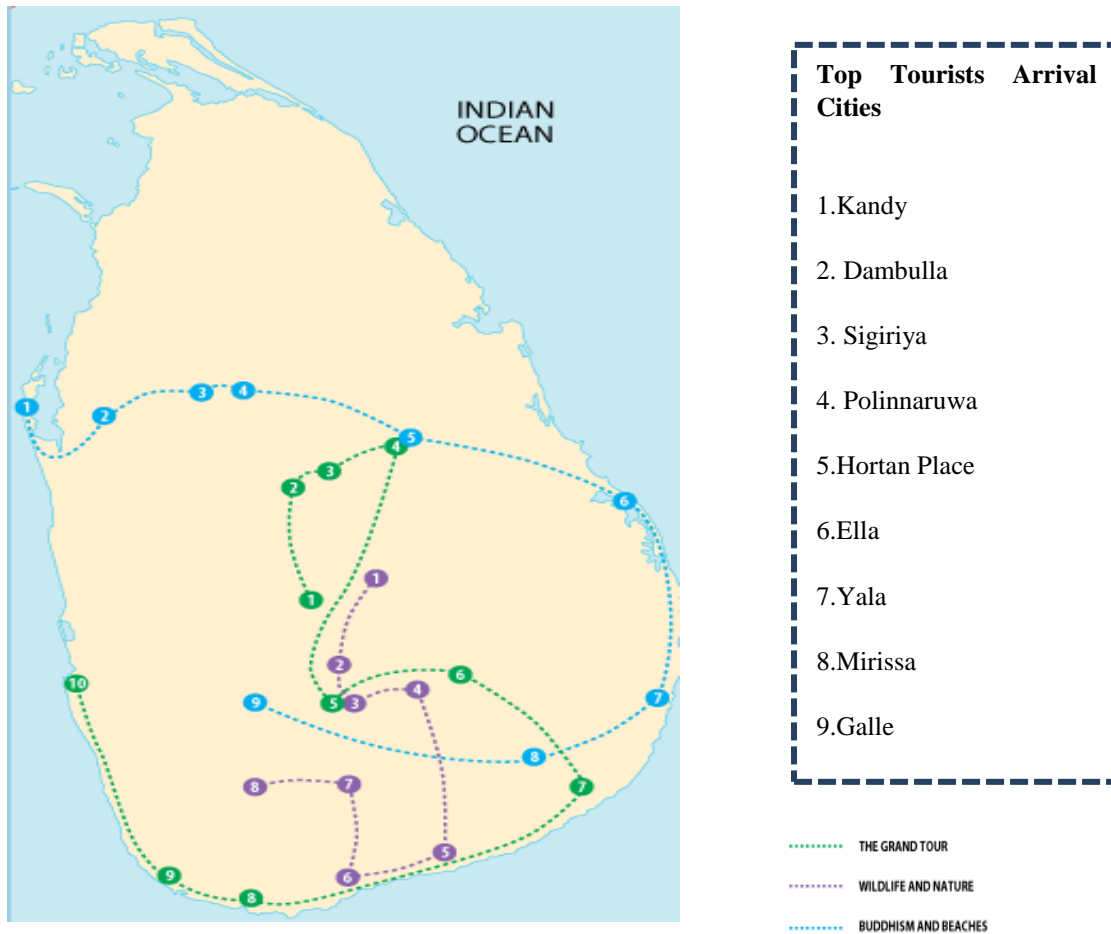
The most of the people of world are suffering from the mental stress because of the disorderly situations of the people with the development. The studies have ensured that as a solution for this, at the present, there is high trend for the meditation among most of the persons of world. Here, the analysis done by the United State has revealed that by the 2012, (5.1.3.2.2) about 18 million adults of the United State have attracted for the meditation. It is about 8 percent. It has been ensured that about 1.6 percent, that is 927,000 from the child population of the United State has also attracted for the meditation and there is a trend that these persons migrate to the Buddhist countries for the meditations. Further, they have revealed that among these, the

countries such as Thailand, Myanmar, Nepal and India have been the main and priority countries which are migrated by the world population for the meditation. In particular, the Thailand is a main and priority county among other countries which practices the meditation and methods of the meditation. Comparatively to the previous years, it is mentioned that the different people from different areas of the world come individually and as groups to the main place of the Thailand which directs the people for the meditation. Here, among these persons, the countries such as United State, Germany, Prance, Netherland and United Kingdom are in the priority. This will be a good opportunity to fulfil the goal of the vision, **“To become a Memorable, precious Buddhist Cultural & Heritage City ”** and “To become an unforgettable city that the Buddhist heritages and cultural values have been secured” because the attention of the locals and the foreigners for the Anuradhapura city can be acquired by creating the environment in the city to fulfil their spiritual needs and through this, the Buddhist values of the city can be popularized among the people of the world.

### 5.1.4 Threats

Increase the tourists' attraction for the adjacent cities such as Sigiriya and Polonnaruwa.

Figure 5. 15 Tourism Cities where Tourists Spend more Days

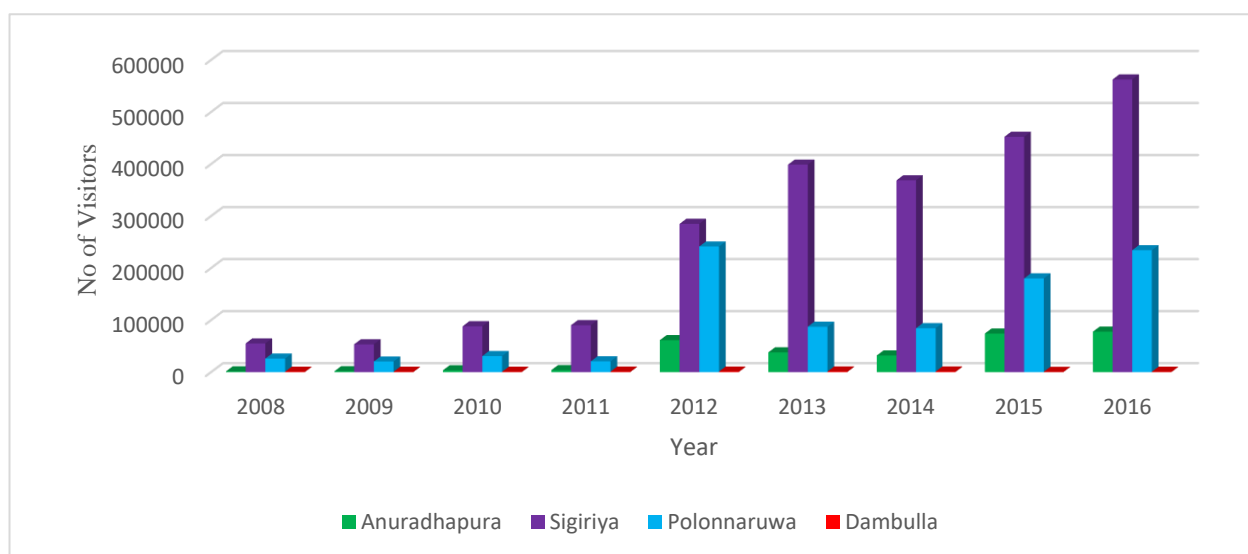


Source: Tourist Development Authority Sri Lanka

Annual reports of the Tourist Board have mentioned that most of the tourists who come to visit the cultural triangular, are attracted by the cities such as Kandy and Polonnaruwa although the Anuradhapura city is the Buddhist and archaeological city. Therefore, their stay is limited to per day or half day in the Anuradhapura city. This situation occurs because tourists do not have adequate knowledge about the Anuradhapura city and its importance and sometimes, the guiders provide the wrong guidance, interpretations and explanations to the tourists such as

“Anuradhapura city consists of the Buddhist heritages which have only the same characteristics and features”. Therefore, there is a huge need of initiating to obtain the required actions in order to prevent the receiving of such wrong information to the tourists, provide the proper and adequate knowledge and realization for the tourists and increase the time period of staying the tourists in the Anuradhapura city. By this initiative, city has a possibility to achieve the economic benefits.

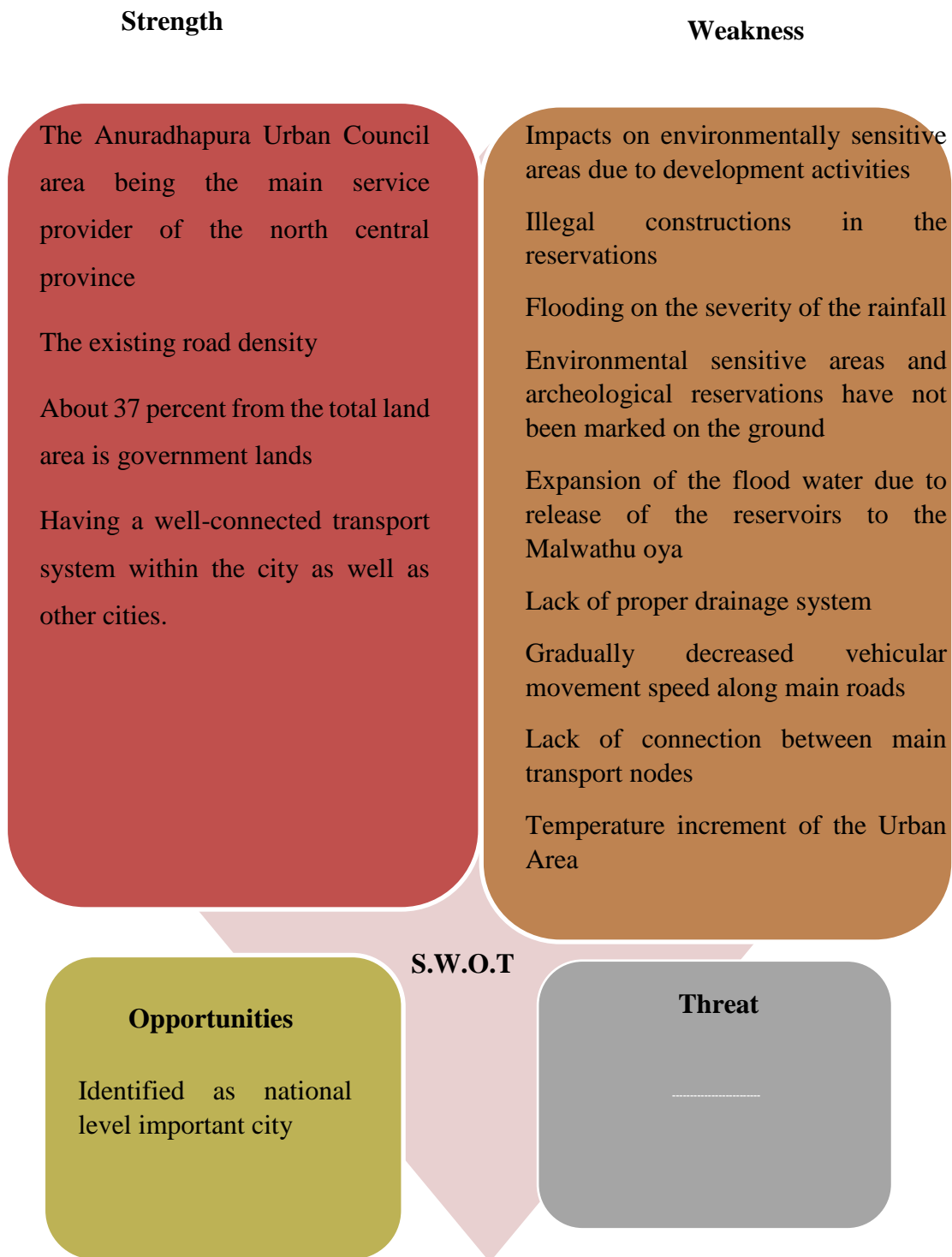
**Chart 5. 9 Tourist arrival for Cultural Cities**



Source: Tourist Development Authority Sri Lanka

## 5.2 Goal Two – SWOT Analysis

To make comfort & Safe City for residencies & immigrant



### 5.2.1 Strength

**The Anuradhapura Urban Council area being the main service provider of the north central province**

*Figure 5. 16 Location of Services Places*



As the main places of providing the services in North Central province are located in the Anuradhapura city, the providing service to the public is at the higher level. The developing the Anuradhapura city as a city combined with the attractive and more convenient environment like a capital city is one of goal of the Urban development plan to be implemented in the period of 2018 to 2030.

Source: Urban Development Authority

For achieving this goal, that is, for proving the reality of the goal of “to develop the city as a place which provides the more convenient service”, following places which provide the services are situated within the city and the per day number of persons who come to these places approximately can be highlighted.

**Table 5. 5 Per day average number of persons come to service centres**

No	Service Place	Number of commuters per Day
	Main Railway Station	500
	Provincial Council	1500
	Anuradhapura Teaching Hospital	35000
	Ayurvedic Hospital	4000
	District Court Complex	300
	District Secretariat Office	1000
	Police Station	300
	Bus Stand	40000
	Rail way Station at New Town	700

Source: Urban Development Authority

Here, in addition to these places, many other groups of people come to the Anuradhapura city to fulfil their requirements and it is aimed to develop the Anuradhapura city as a place where provide a prompt and very advance service and easily can be obtained the services.

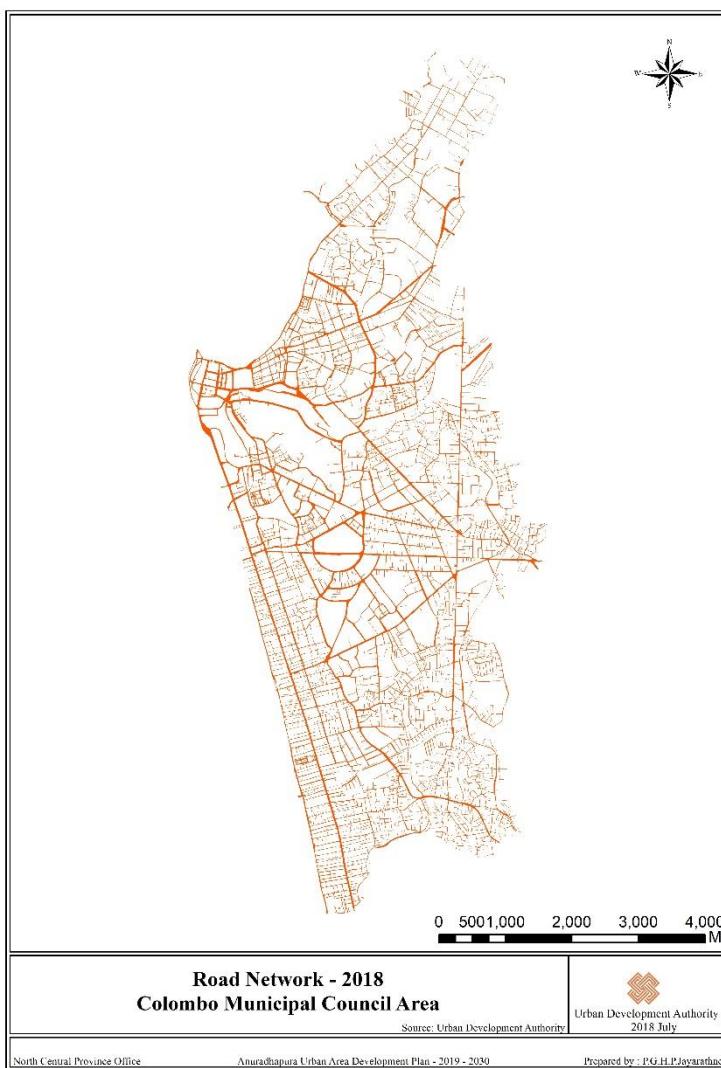
### **The existing road density**

There is a proper and well-connected road network in the Anuradhapura Urban Council Area. The proper and well-connected road network has been a reason to ensure the convenience to travel among the locals as well foreigners who comes to the Anuradhapura city to fulfil their service requirements. This situation can be realized by comparing the road network of the Anuradhapura Urban Council Area with the road networks of the other urban areas of the county. For this, Colombo Municipal Council, Galle Municipal Council and Kandy Municipal Council were selected and when comparatively considering with the road networks of these areas, there is a good road density in the Anuradhapura Urban Council Area.

The road density of the Colombo Municipal Council is 27.2 km per square kilometre. (Map No. 11). The road density of the Galle Municipal Council is 19.3km per square kilometre. The road density of the Kurunagela Municipal Council is 09.3 km per square kilometer (Map No.

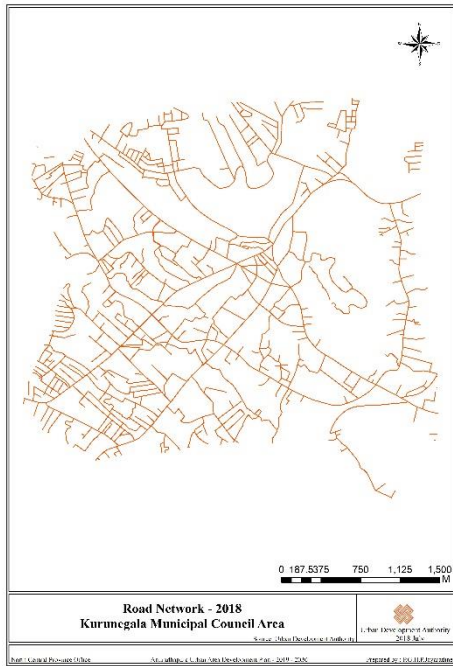
16). The road density of the Anuradhapura Municipal Council is 16.9 km per square kilometers (Map No. 10) according to these figures, since there is a very effective road density in the Anuradhapura Municipal Council area as the road density of the other municipal council areas, the people are able to travel within and across the city without any congestion. This is also a development potential of the Anuradhapura city for achieving the goal of “the become the Anuradhapura city which was more convenient and well secured”.

**Figure 5. 17 The road Network of the Colombo Municipal Council**



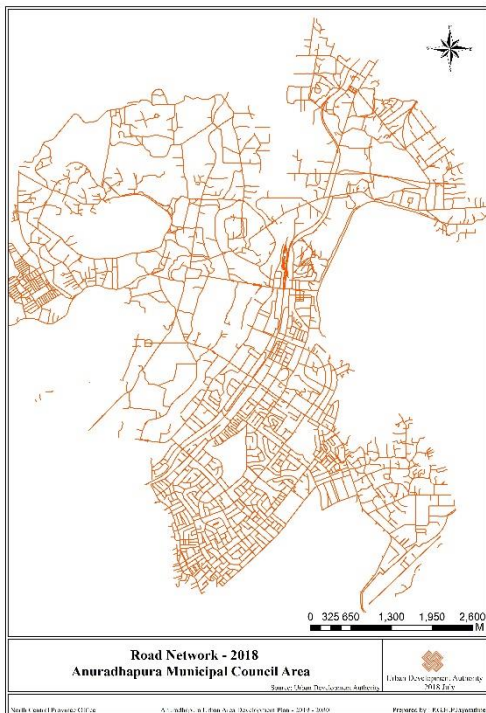
Source: Urban Development Authority

**Figure 5. 18 The road Network of the Kurunegala Municipal Council**



Source: Urban Development Authority

**Figure 5. 19 The road Network of the Anuradhapura Municipal Council**



Source: Urban Development Authority

**About 37 percent from the total land area is government lands**

This can be introduced as a main strength of the city to achieve the second goal of the development plan. Reason of it is, that the city has considerable and required lands to provide the required facilities for the persons and comparatively to the increasing population in efficient and more convenient manner. At the present, among the main places which provide the services, the institutes such as Teaching hospital of Anuradhapura, provincial council, District secretariat office and national level school are in the priority. As the demand for the growth of the service of such institutions can increase with the time, it can be considered that the possibility to utilize these government lands to easily accomplish this future demand for the growth of such institutions in order to provide the quality and quick service for the communities of the area is one of main strengths of the area.

**Having a well-connected transport system within the city as well as other cities.**

*Figure 5. 20 The city interconnection with other cities*



When studying the natural situation of the Anuradhapura city, it is proved that the city having the direct connection with other cities through the well-connected transport system is one of development potentials. The well-connected road system as well as the rail way transport system with other cities have ensured the functionality of the city, and therefore, the ability to quickly arrive to the city and ability to easily return to the origin by utilizing this well-connected transport system after fulfilling the variety of the service requirements of the people is one of strengthens related to

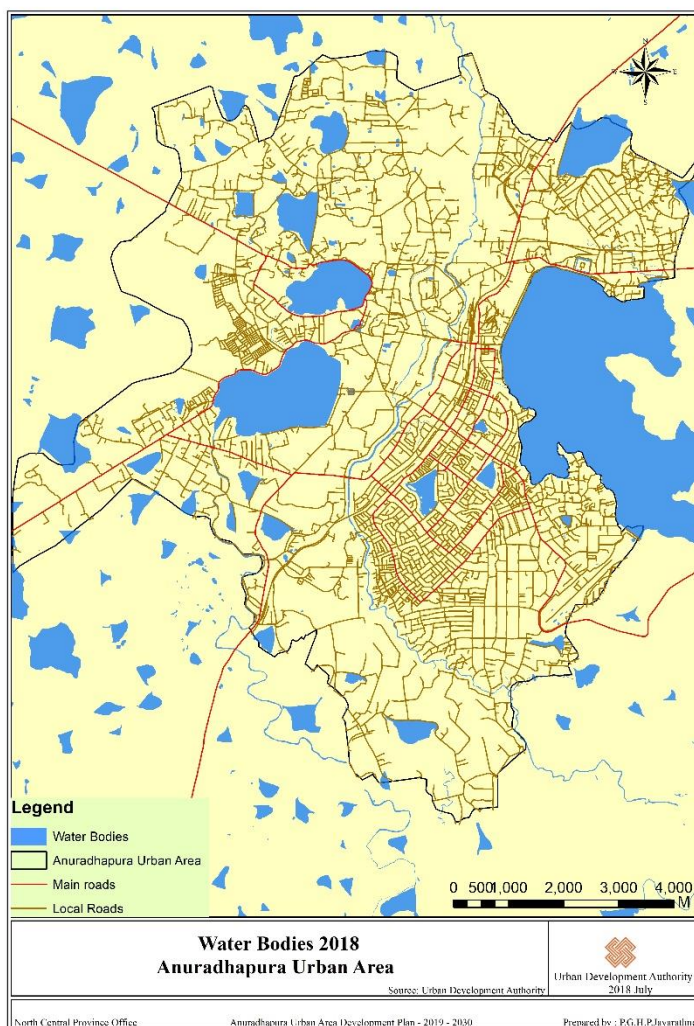
the existing well-connected transport system of the city. The cities such as Polonnaruwa,

Trincomalee, Vauniya, Mannar, Kurunegala and Kandy are well connected cities with Anuradhapura city.

**About 10 % from the total land area is water area**

This is also can be identified as a development potential (strengthen) of the Anuradhapura city and also this is a reason for minimizing the negative effects on people due to the high temperature of the city. As a whole, The Anuradhapura city is experiencing dry weather conditions of about nine months of the year. Due to the city's availability of this aquatic region, the city's coolest air city is experiencing low heat demand in the city. Here is how these are located in the city (Map No. 09)

**Figure 5. 21 Water areas within the Urban Area**



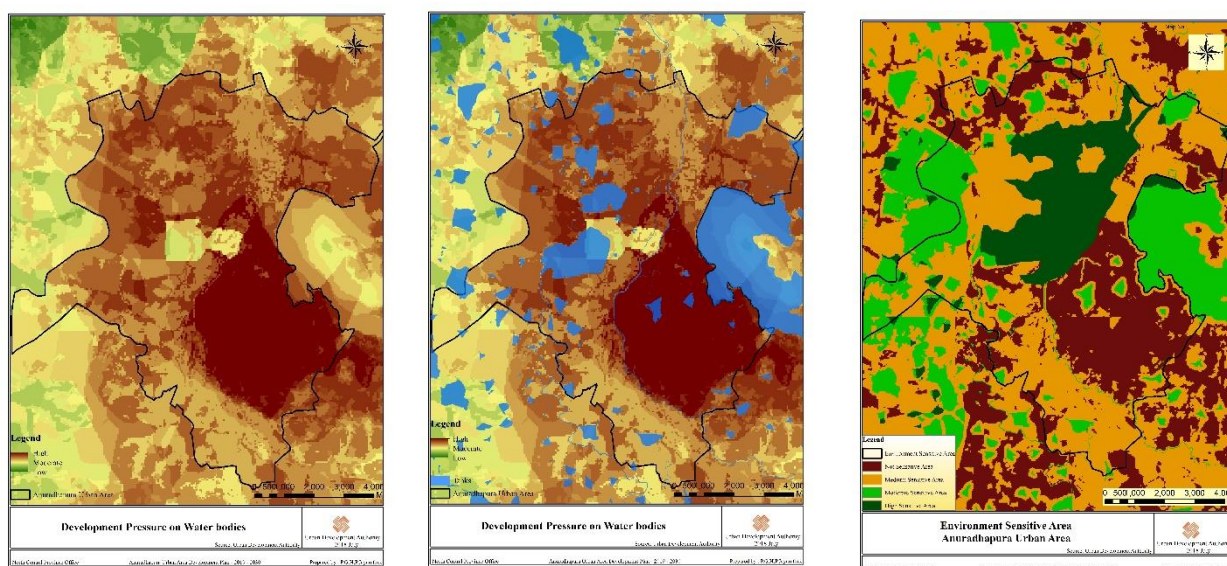
Source: Urban Development Authority

## 5.2.2 weaknesses

### Impacts on environmentally sensitive areas due to development activities

Analyses indicate that the development of the environment is aggravated by environmental impacts. The analysis has shown that tanks such as KumbichchanKulama, Kadapanaha and Ponnaramkulama tanks are severely impacted. Especially these were confirmed by the analysis as an ecologically sensitive area. Analysis confirms that these environmental impacts have a direct and indirect impact on the public due to pressure from development activities (Map No. 13,14 and 21)

*Figure 5. 22 Effected Environment sensitive areas due to development activities*



Source: Urban Development Authority

### Illegal constructions in the reservations

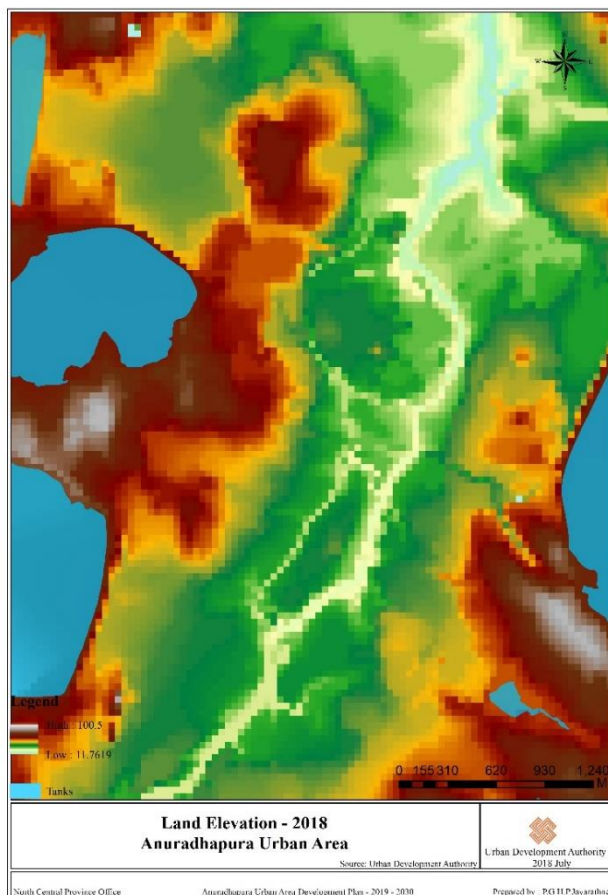
The unauthorized constructions of the Tank Reserve, the MalwathuOya Reserve and the canal reservations have been greatly reduced. In particular, unauthorized constructions have been carried out in areas such as PonnaramkulamaWewa, Kadapanahawewa, Nuwara Wewa and its spill roads and this is a major factor in the flood problems.

### Flooding on the severity of the rainfall

It can be identified as the main disadvantage in the area to make the Anuradhapura urban area a comfortable and safe place like a capital city. When the time of activation of monsoon, this flood occurs and the damage from the flooding situation exacerbates the flow of the Malwathu Oya stream across the area. It is also advisable to take a long time away from the flow of water from the large and tanks outside the area as well as from the small tanks that flow out of the Malvathu Oya.

As a matter of fact, the floods are rapidly spreading throughout the area, because the Anuradhapura urban area is much plain. The land area of the land is very low, and the contour lines are less than 0.5 meters. It can be easily understood by looking at the diagram below (Map No. 12)

**Figure 5. 23 Elevation of ground surface**



For this reason, due to floods when the ground is flattened, water rapidly spreads throughout the area. Further, the reasons for this situation such as maintenance of canal drains, drainage systems of the Malwathu Oya and maintenance of the drainage system, and unauthorized constructions can also be exacerbated by this flood situation. This is very clear in the analysis of the impact of the flood state for 2002-2016.

Source: Urban Development Authority

**Table 5. 6 Affected to the urban area due to flood**

<i>Date</i>	<i>Time period (Date)</i>	<i>Number of Affected Families</i>	<i>Number of affected people</i>	<i>No of Houses</i>	<i>Number of damaged houses</i>
2016/05/17	1.5	97	405	01	04
2015/11/17	01	30	123	01	02
2014/05/21	10	1793	6032	33	42
2014/09/01	08	334	1360	21	67
2010/09/29	1.5	07	35	-	02
2007/12/23	06	179	863	08	15
20015/12/23	06	248	703	19	60
2009/12/12	05	01	05	-	-

### **Environmentally sensitive areas and archaeological sites have not been marked on the ground**

This is also a major problem in the area. Above said situation affects indirectly and directly for gradual increase of the unauthorized residents in the area and increase the impact of the flood situation occurring on the rainfall intensity. Many unauthorized residents have built their habitats in the reservations. Some persons have done the constructions in order to obstruct the water of the irrigation canals. The main reason for this is that boundaries of reservations in these environment sensitive areas have not been properly mark done the land. Below you can see some of the pictures that confirm these situations.

*Figure 5. 24 Unauthorised construction in reservation of Kadapanaha Wewa*



*Figure 5. 25 Unauthorised construction in reservation MalwathuOya*



*Figure 5. 26 Unauthorised construction in spill canal of Nuwara Wewa*



## **Intensifying the flood situation due to release the overflowing water of the reservoirs to the Malwathu Oya**

Another threat to make the city of Anuradhapura as a safe and comfortable city is that not only adding the spill water of the Nachchaduwa reservoir which is situated away from the Anuradhapura urban area to the Malwathu Oya but also intensify the flood situation in the urban area due to gathering the spill water that release from the reservoirs situated in the city during the rainy season to the city centre. It can be easily understood through the following data.

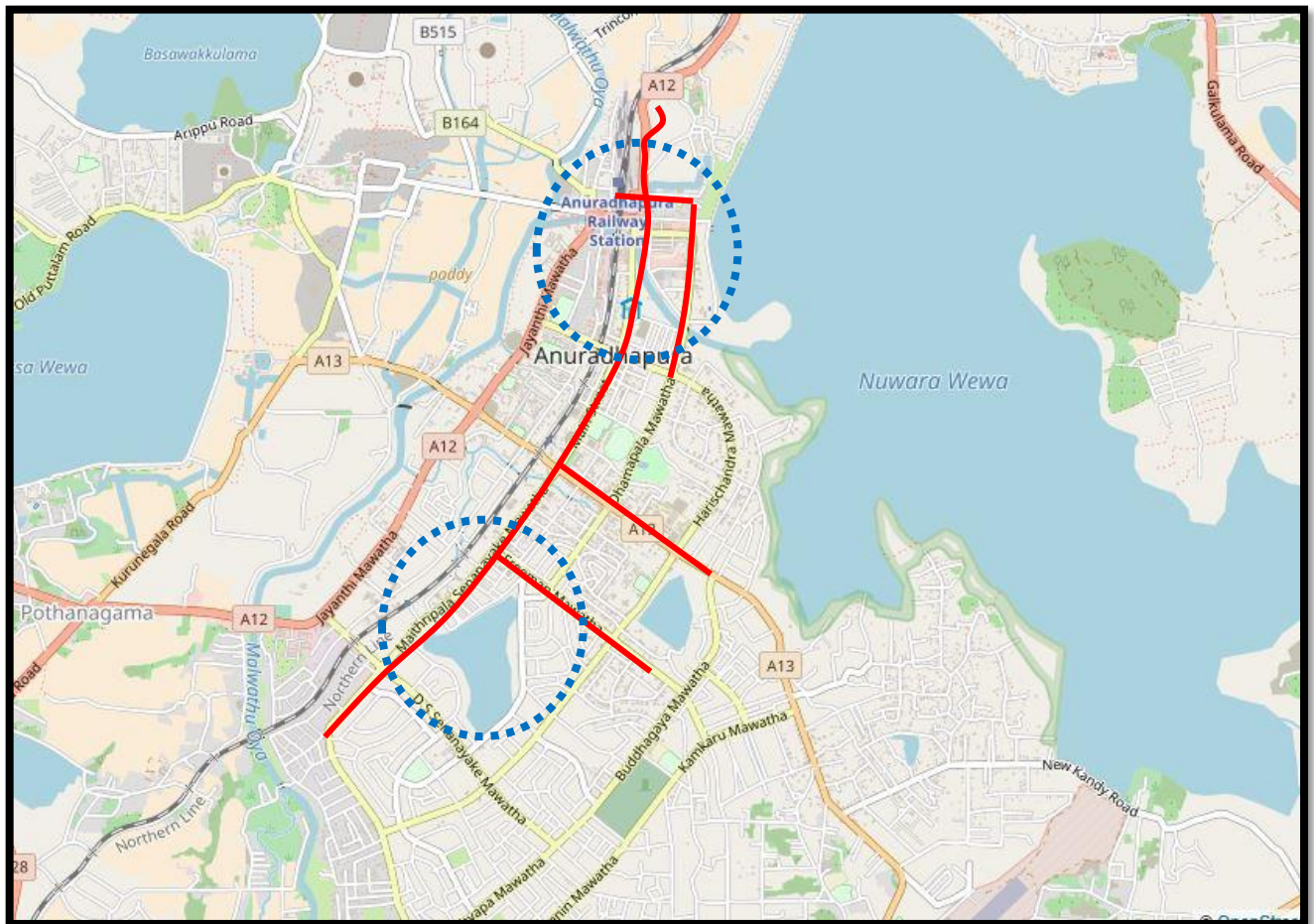
**Table 5. 7 Water capacity spilled from reservoirs - 2014**

<i>Reservoirs</i>	<i>Capacity ft per Arc.</i>	<i>Spilled capacity ft per Arc.</i>
<i>NachchaduwaWewa</i>	<i>45000</i>	<i>248520</i>
<i>Nuwara Wewa</i>	<i>36000</i>	<i>108509</i>
<i>AbhayaWewa</i>	<i>1675</i>	<i>22877</i>
<i>ThisaWewa</i>	<i>3500</i>	<i>18600</i>

Source: Disaster Management Centre

## **Lack of a proper drainage system**

This is another main weakness in urban areas. This can be identified as a direct factor that intensifies the impact of the flood situation which occurs with the activation of the monsoon period. Although there is well-connected and concreted rain water drainage system in the surrounding area of the new bus stand and old bus stand, the impact of the flood is intensify as in many places, the connection of the rain water drainage system has been split. This can be identified as another weakness in the urban area. The below is how the rainwater drainage system is located in the city. The concreted areas have been highlighted in dark red and the areas which do not have well connected rain water drainage system without have been highlighted in blue.

**Figure 5. 27 The areas availability of Rain water discharge drainage system**

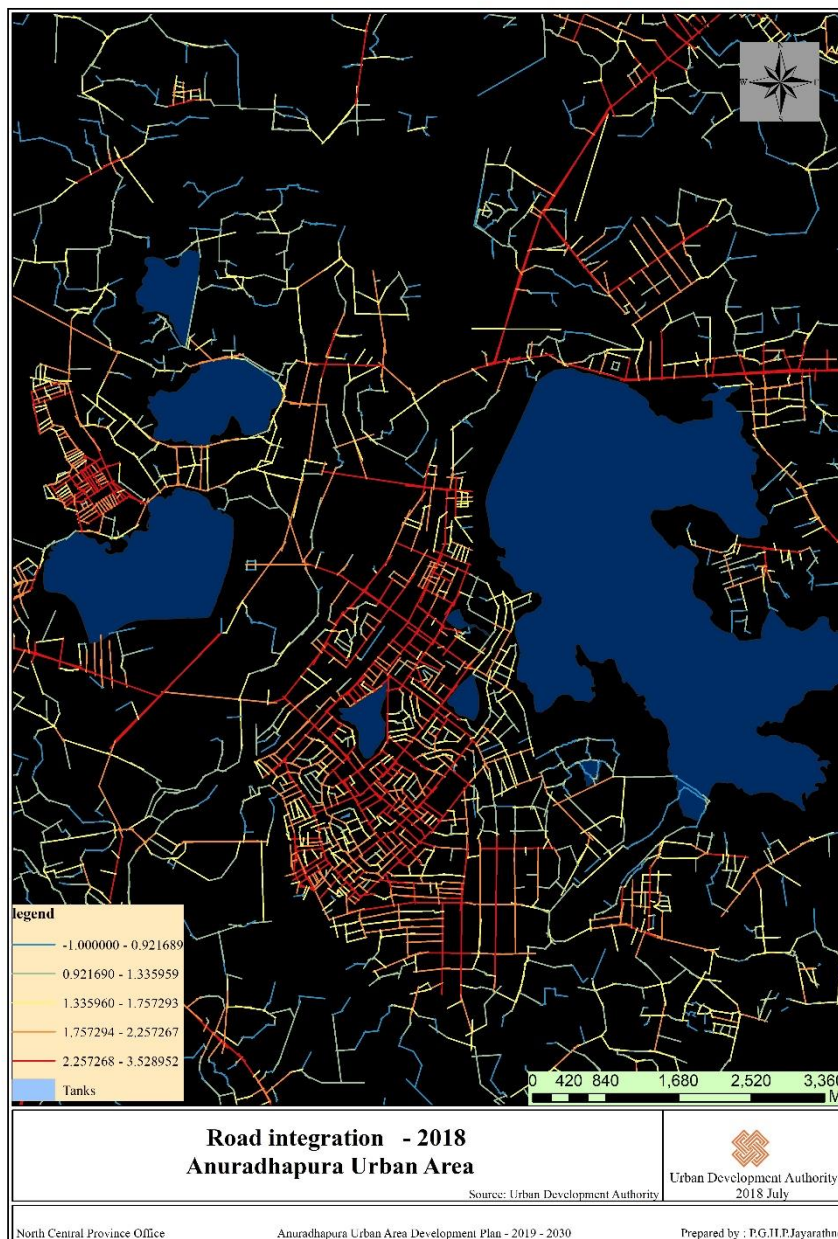
### **Gradually decreasing the vehicle movement speed along the Main road**

A road network with a good interconnection was planned in the first basic configuration plan for the Anuradhapura city. Based on this configuration plan, although there is high road density of 17 square kilometers including 05 A grade roads maintaining by the Road Development Authority, 04 B grade roads controlling by the Provincial Road Development Authority, the road system controlling by the Anuradhapura Municipal Council on the development of major and by-pass road system, when analyzing the data related to the vehicle movement speed on the main roads of several years, it is clear that there is a gradual decrease of the vehicle movement speed on the main roads of urban area. This is confirmed when analyzing the vehicle movement speed at the Bandaranaike Mawatha and Maithripala Senanayake Mawatha. When studying the vehicle movement speed in 2008, 2010, 2012, 2014, and 2017, it is confirmed that there is a decrease of the vehicle movement speed during the peak hours of the Bandaranayaka Mawatha. The speed limits are 30, 28, 27, 26, 24 kilometers per hour respectively and vehicle

movement speed in the Maithipala Senanayake Mawatha has also been reduced gradually in these years. It is 37, 33, 31, 28, and 25 km per hour respectively.

However, the by-pass roads within the urban limits are very well connected and in good quality. It was ensured the ability for optimum utilization of the development potentials by the Space Syntax analysis conducted based on these well-connected road network. (Map No. 23).

**Figure 5. 28 Integration of road network**



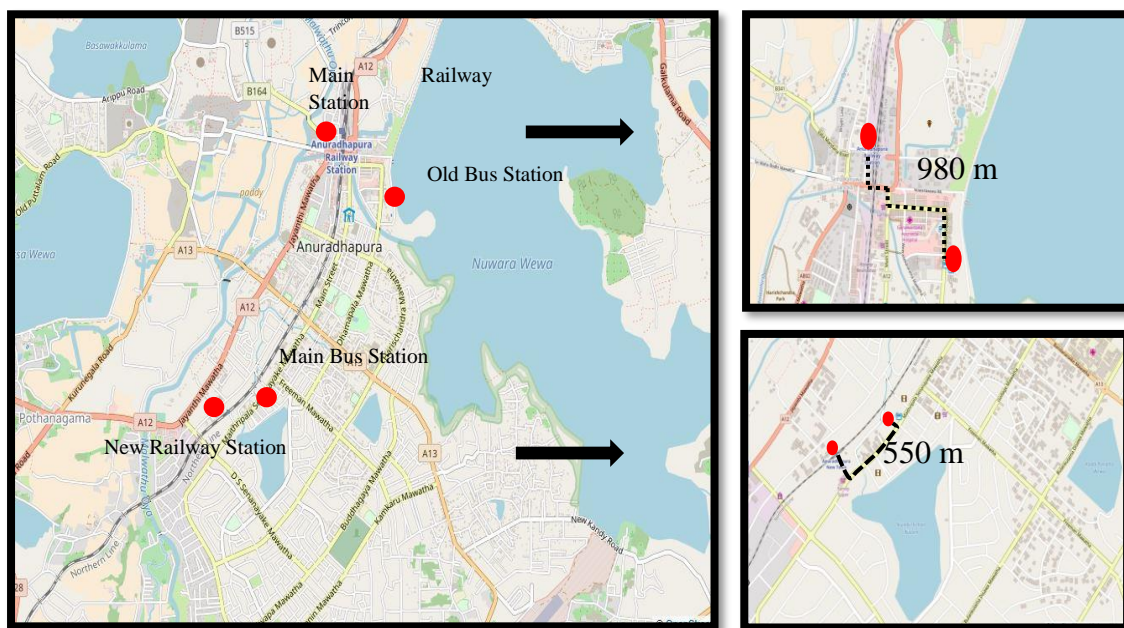
the above analysis indicates that the dark redlines of Figure are the appropriate roads to make a better transport situation. It is confirmed by the Connectivity Analysis conducted to find the level of ability to attract the people into the city through the existing road network, that there is the very strong connection at most of the places where encounter the by-pass roads. But, in spite of this situation, the vehicle movement speed of

the main roads in the urban area is gradually decreasing and, now, it is at the level of 25 kilometers per hour. The Analyzes have confirmed that two major factors are affected as

reasons for this situation. That is, the bad conditions of the by-passes and the ignorance of the outsiders who come to the city about existing by-pass road system within the urban boundary. This existing situation in the urban area is a weakness affecting in making a comfort and the secured city. By avoiding this situation, required actions will be taken to create the better vehicle movement in the urban area through this development plan.

**Lack of proper connection among the main transport centre**

*Figure 5. 29 Interconnection Between Main Transport nodes*

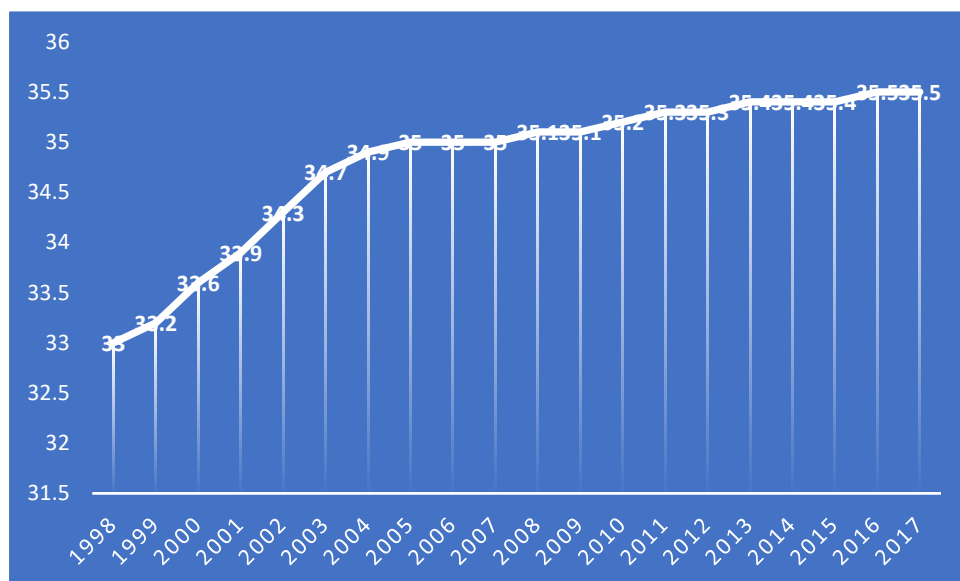


The bus stand of the new town, the bus stand of the old town, the railway station of the new town and main railway station of Anuradhapura can be highlighted as the main transport centres in Anuradhapura urban area. However, the lack of proper connectivity among these transport centres, which is widely used by the public, that is, long distance among those transport centres than the walking distance can be identified as a weakness. Here, there is 550 meters' distance between railway station of new town and bus stand of new town and 980 meters' distance between old bus stand and main railway station. Therefore, as people have to travel such a long distance by foot, it is very inconvenient for them. Daily, about 700 passengers use the railway station of new town while about 500 passengers use the main railway station. All these passengers have to walk the distance mentioned above. Therefore, these conditions are an obstacle for developing the Anuradhapura urban area as a comfortable place for the people. This development plan will help to provide a comfortable service to the public in avoiding this adverse situation. Below you can see the distances among those transport centres.

### **Temperature of the urban area**

This is also another weakness in the area. In the urban area where dry zone climatic conditions occur, there is a dry zone climate condition in the period of 9 months of the year. The average temperature is between 33 - 35 ° C and the analysis has confirmed that there is a gradual growth of the average temperature.

**Chart 5. 10 Incensement of temperature (0C)**



Source: Metrology Department

Increasing the environmental temperature by this way is a global phenomenon. But, the analyses conducted by the international institutions have shown that the feeling temperature in the Anuradhapura urban area is higher than the environmental temperature by 5 ° C. The following is the descriptions of those data.

**Table 5. 8 Difference of Environmental temperature and Feeling temperature**

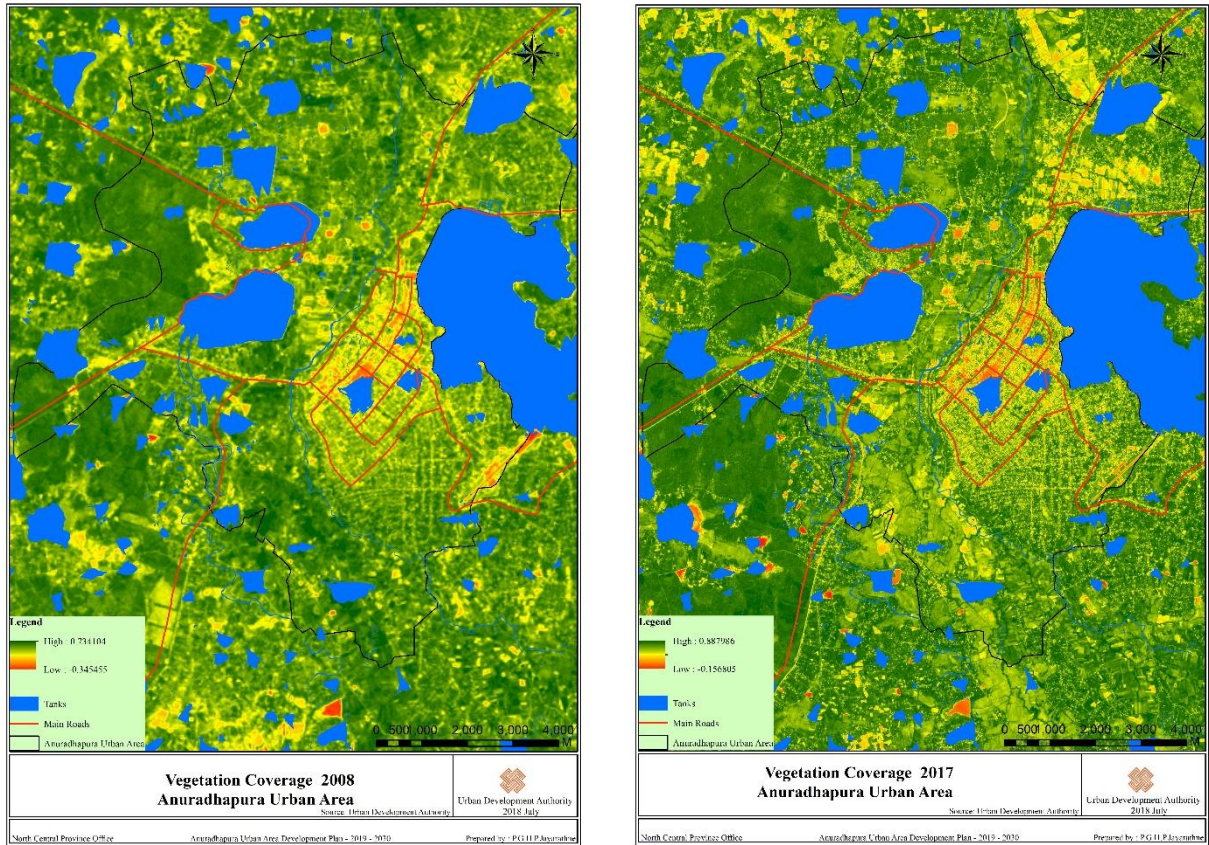
Environmental Temperature	33 <sup>0</sup>	35 <sup>0</sup>	34 <sup>0</sup>	32 <sup>0</sup>	31 <sup>0</sup>	29 <sup>0</sup>	28 <sup>0</sup>	27 <sup>0</sup>
Feeling Temperature	40 <sup>0</sup>	42 <sup>0</sup>	41 <sup>0</sup>	40 <sup>0</sup>	37 <sup>0</sup>	35 <sup>0</sup>	34 <sup>0</sup>	31 <sup>0</sup>

Source: <https://www.accuweather.com>

there are several reasons for above situations. The reasons are the gradual decline in the vegetation cover of the area, covering the wind gaps of the city due to the constructions of buildings, the increase of the heat generated by construction materials and other physical features. The main reason among these is the gradual decline in vegetation density in the area. It was clearly proven by the analysis about vegetation density carried out by using the satellite images. Here, the vegetation populations of 2008 and 2017 were analysed and this analysis

revealed that there is a 6% decline of vegetation population in 2017 comparatively to the year 2008. Below pictures show this decline of the vegetation population. (Map No. 18 and 19)

**Figure 5. 30 Changing of Vegetation Density 2008 – 2017**



Source: Urban Development Authority

### 5.3 Goal Three – SWOT Analysis

To Convert Historical & Cultural Values as a main income Source of the City Economy

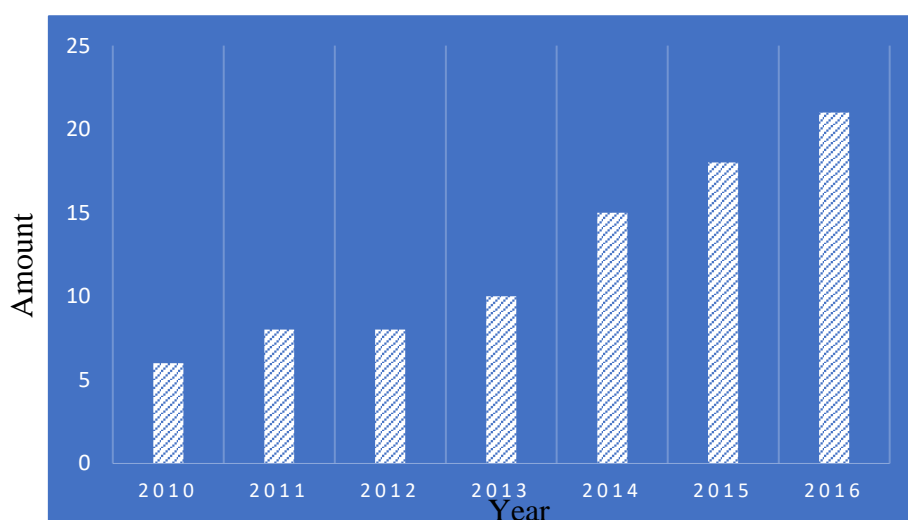


### 5.3.1 Strength

**There is a greater tendency for providing the accommodation for tourists who come to visit the historical and cultural values of the new town.**

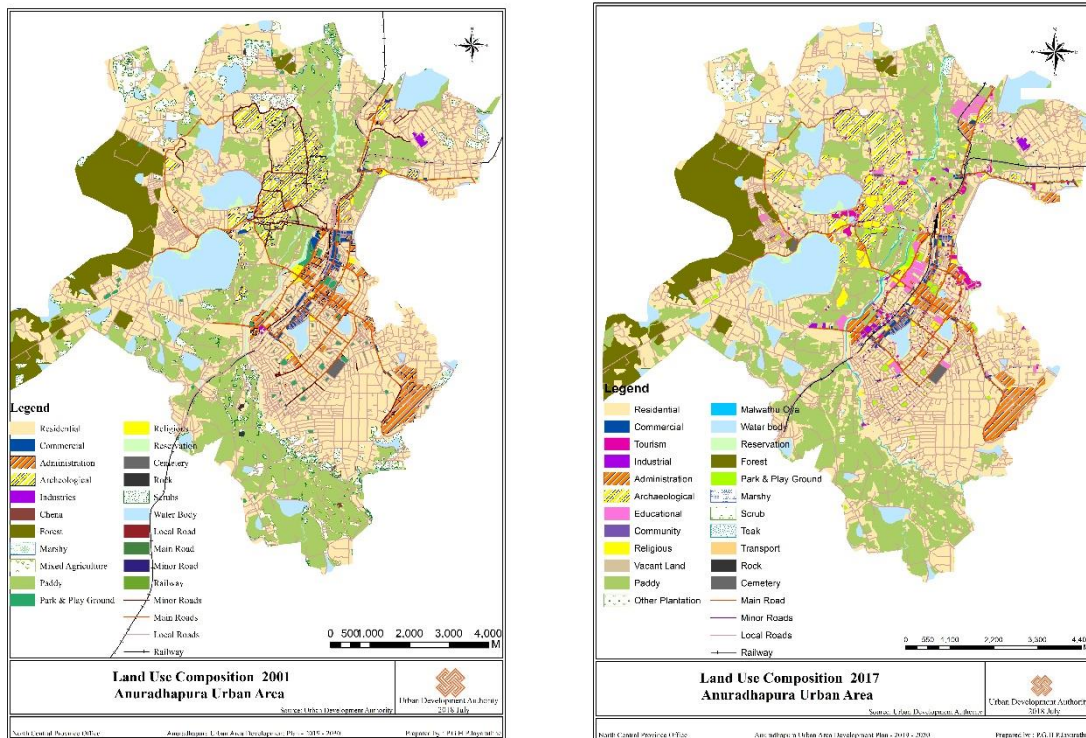
This situation can be identified as a very important strength of the area in order to achieve the third goal of the urban development plan. Here, the changes in land use patterns from 2001 to 2016 can be comprehensively realized through the analyses of these land patterns (Map No. 07 and 08). Although, in the year 2001, the allocated land extent from the entire land use of the urban area for the tourists was about 01 hectares which is low value, this amount has increased as 65 hectares in the year 2016. The important thing is that, the analyses of land use pattern of the urban area explain that the land use pattern has widely changed because of providing the required services for the tourism. The percentage of this change in the land use pattern is 1.56% which is the high value, and most residential uses have converted into the places that provide the required services for tourists. The decline of 9.9% of the residential uses of the urban area during last 15 years' period properly proves this situation. On the other hand, the number of hotels registered under the Tourist Board has increased from 2010 to 2016. This growth occurs at the high rate such as 20% per year. When analysing all these information, it is clear that an intensive change of the land use pattern in the urban area is occurring for tourism. The factors that confirm those analyses are as follows.

*Chart 5. 11 Incensement of Tourist Hotels Annually*



Source: Tourist Development Authority

Figure 5. 31 Changing of Land Use Pattern



Source: Urban Development Authority

Table 5. 9 Changing of Land Use Pattern

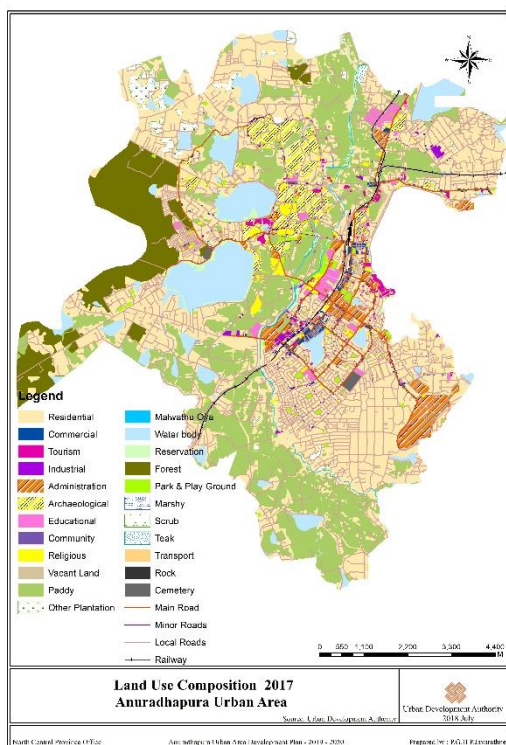
<i>Land Use</i>	<i>2001 Hec.</i>	<i>2001 %</i>	<i>2017 Hec.</i>	<i>2017 %</i>	<i>Difference</i>
<i>Administrative Activities</i>	257	6.27	270	6.58	+0.31
<i>Archeological Sites</i>	689	16.80	689	16.80	0
<i>Commercial Activities</i>	65	1.58	100	2.44	+0.86
<i>Technical Activities</i>	54	1.32	24	0.59	-0.73
<i>Park and Ground</i>	77	1.88	53	1.29	-0.59
<i>Residential</i>	1869	45.56	1463	35.67	-9.89

<i>Paddy</i>	694	16.92	678	16.53	-0.39
<i>Environment System</i>	477	11.63	475	11.58	-0.05
<i>Tourist Activities</i>	01	0.02	65	1.58	+1.56

Source: Urban Development Authority

**Availability of the land which can be used for traditional agriculture in the center of the city**

*Figure 5. 32 Distribution of Paddy lands within the Urban Area*



One of the inherent features of the Anuradhapura urban area is traditional agriculture. Early Anuradhapura settlements were started based on traditional agriculture linked with the Malwathu Oya. At the present, the agricultural lands that come since the ancient times can be found in the urban area and this can be identified as one of the most important factors in achieving the third goal of the development plan. By the year 2017, more than 670 hectares from entire land use have been allocated for agriculture and it can be identified as good factor.

Source: Urban Development Authority

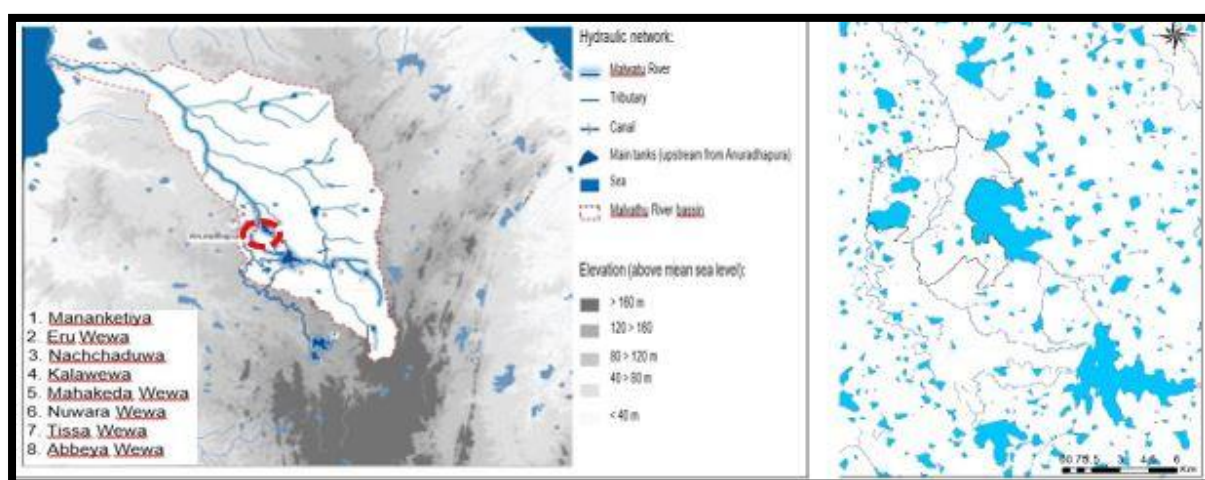
At the present, there is a potential that traditional agriculture would become a key component of the economy of the city based on the existing demand for traditional agricultural products (Map No.08).

And also, at present, the attention of the Government has been largely directed towards the promotion of non-poisonous foods and by using this development potential, existing agricultural lands of the area can be utilized for the traditional agriculture and non-poisonous cultivations. As a result, traditional agriculture can become a key component of the urban economy by providing the required facilities and resources to uplift then on-poisonous agriculture based on the existing demand for non-poisonous foods.

### Scattered unique irrigation system all over the city

This is also one of components that highlights the traditional heritage of the area to the world and is one of the factors that increases the value of the area. The beginning of the ancient city occurred based on irrigation civilization and the Malwathu Oya which was its invincible factor flows across the area. There are about 15 tributaries (water dividing points) in the area, which confirm the uniqueness of this irrigation system and about 179 tanks has connected with it. Among these tanks, the tanks such as Nuwara Wewa, Tisa Wewa and Basawak Kulama Wewa are important and one of the components that provide the evidences for the advance ancient irrigation civilization is to bring the water from the Thisa Wewa to Athpokuna through the underground system. By this way, there is a possibility to attract the lot of tourists to the Anuradhapura city by indicating to the local and foreign tourists that there were a proud culture and the engineering technology in Anuradhapura city as well as by creating space to experience and to see the characteristics of them for present tourists. Based on these situations, there is a possibility to improve the economy of the city directly and indirectly.

*Figure 5.33 Distribution Irrigation System*

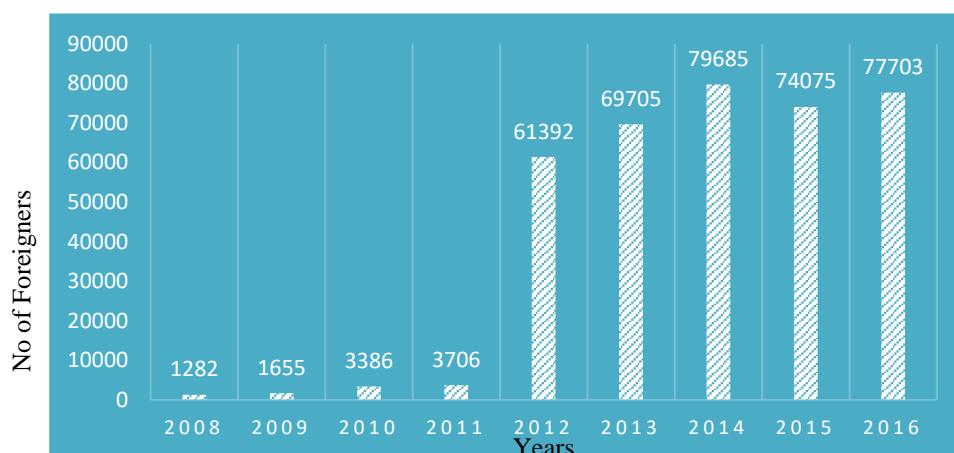


Source: Urban Development Authority

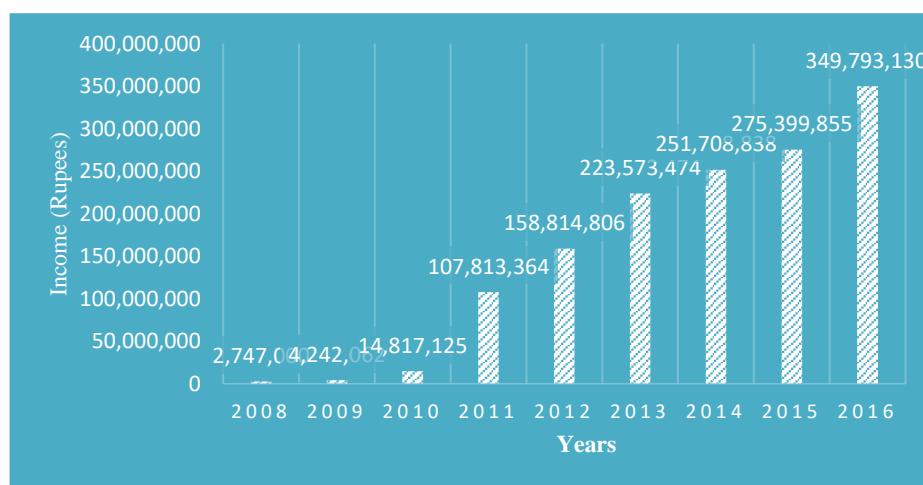
### Increase of annual revenue by 36% due to the arrival of foreign tourists

This can be identified as one of the most important features of the area in order to achieve the goal of making the traditional heritages a key part of the urban economy. Most of the foreigners come to the historical Anuradhapura city to see and experience the historical heritage that exists in the city. By this way, there is a gradual increase of the arrival of the foreign tourist to the Anuradhapura city from the year 2008 to year 2016. As a result, the direct revenue that was earned by this has increased. This is a 100% growth. This situation confirms that there is proper possibility in the area to make traditional heritages a key component of the urban economy. This confirms that the area is well placed to make the inheritance a key part of the urban economy. The analysis of the potentials can be shown as follows.

**Chart 5. 12 Foreign Tourist arrival 2008- 2016**



**Chart 5. 13 Direct revenue by arrival of foreign tourists**



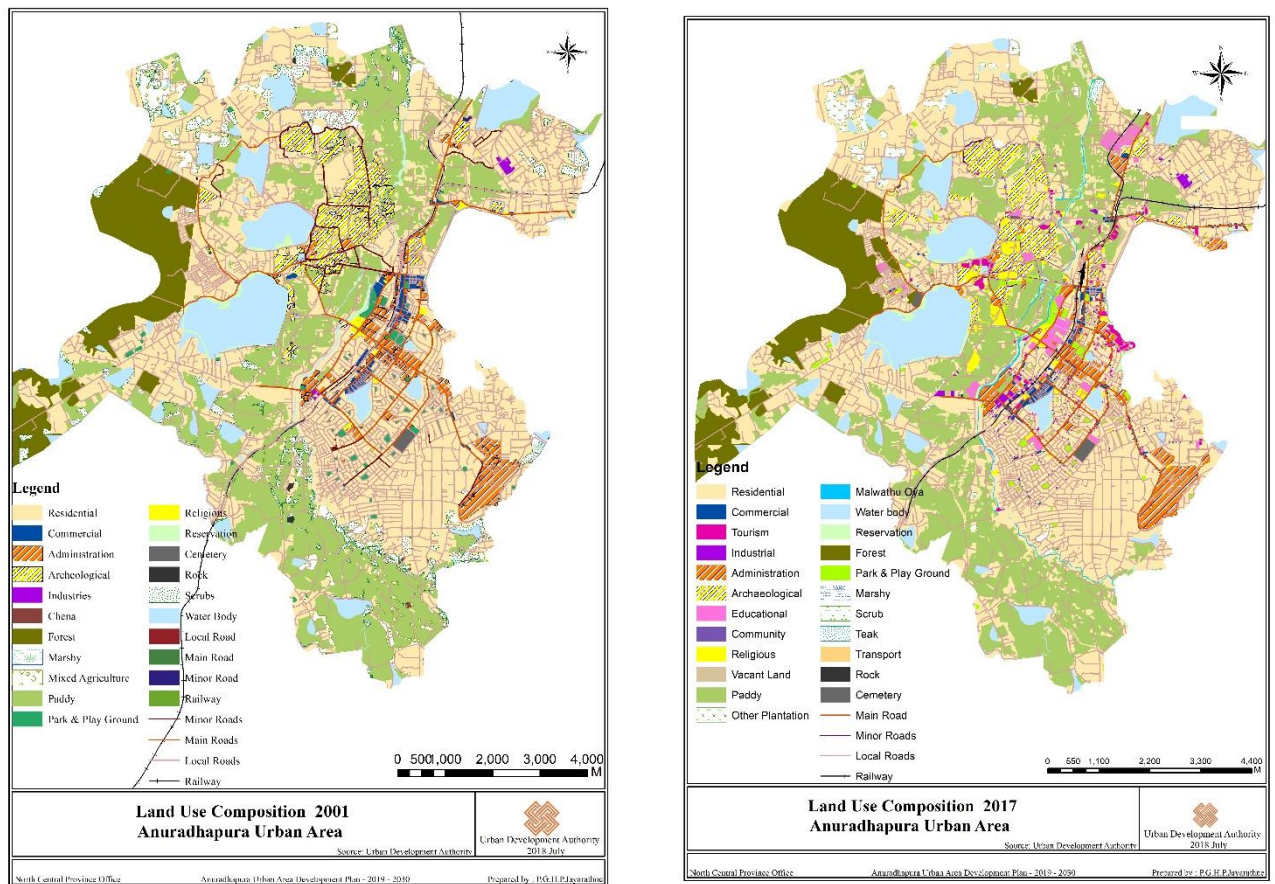
Source: Tourist Development Authority

### 5.3.2 Weakness

#### Gradual decrease of the extent of the paddy lands in area

This situation can also be described as one of the weaknesses of the area in achieving the vision and the goals of the Anuradhapura urban development plan. The impact on the environmental sensitive areas is gradually increased by the urbanization in area and this can be highlighted as a reason for above condition. The end result of this is to fill these traditional paddy lands by the people. In this way, the analyses of land use patterns confirm that the impact of development activities is reason to gradually decrease the extent of the paddy lands. (Map No. 07 and 08)

Figure 5. 34 Decreasing Quantity of Paddy Lands



Source: Urban Development Authority

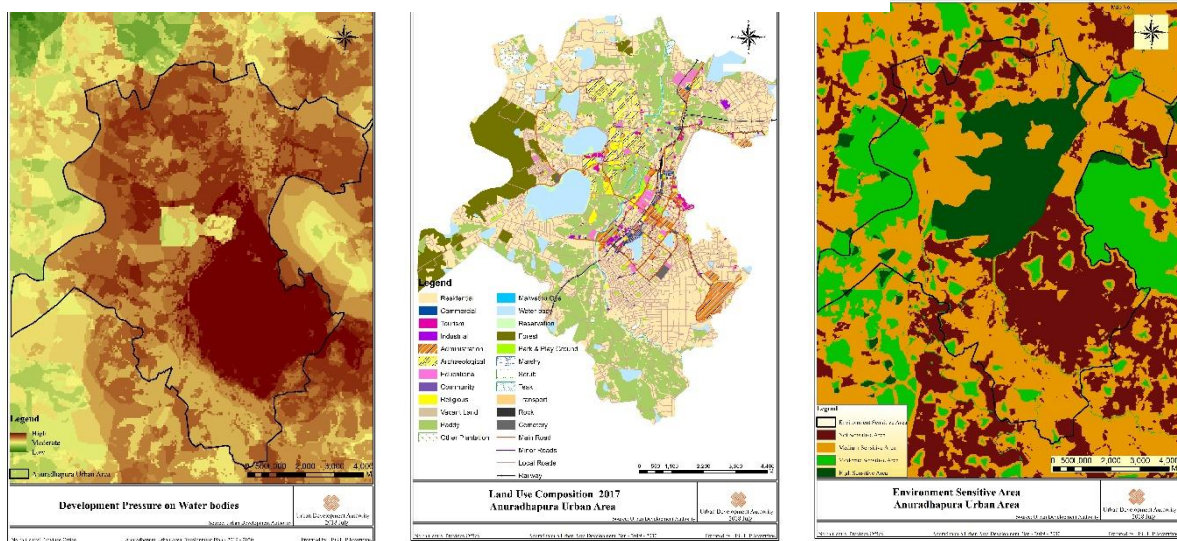
**Table 5. 10 Decreasing Quantity of Paddy Lands 2001- 2017**

<i>Land Use</i>	<i>2001 Hec.</i>	<i>2001 %</i>	<i>2017 Hec.</i>	<i>2017 %</i>	<i>Difference</i>
<i>Administrative Activities</i>	257	6.27	270	6.58	+0.31
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<i>Environment System</i>	477	11.63	475	11.58	-0.05
<i>Tourist Activities</i>	01	0.02	65	1.58	+1.56

Source: Urban Development Authority

There is a decrease of 16 hectares of the paddy lands in this period, and according to the present situation, the analysing of the impact that occurs due to the development activities confirms that there is a possibility to further decrease of this extent of the paddy lands. And also, the most important factor is that the analyses have confirmed that these areas should be preserved as environment sensitive areas. These conditions can be identified as one of the weaknesses of the area in order to achieve the goal of making the traditional heritages a key component of the urban economy. The relevant illustrations to the analysis can be shown as follows. (Map No. 13, 08 and 21).

**Figure 5. 35 Affect for the Paddy Lands due to Development Activities**



Source: Urban Development Authority

**There are no opportunities to tourists to know about the value of the traditional agriculture.**

Traditional agriculture is an important factor that intensifies the invincibility of Anuradhapura urban area. There is no opportunity for the present public to know about the value of these heritages which come from the ancient era and it is a major weakness. Although there is a public museum in the area, it does not appropriately reveal the value of these traditional heritages. According to these factors, another weakness of area is that there is no an opportunity for local and foreign people to know about the technology and value of the traditional agriculture in proper manner.

**Less opportunities for tourists to experience about irrigation civilization.**

Existing of the distinguished irrigation civilization is a factor which intensifies the value of the area like the traditional agriculture. The colonization of the city begins based on the irrigation civilization and with the association of Malwathun Oya. At the present, there are about 15 sub water sheds under the Malwathu Oya water shed and these water sheds connect based on the tanks about 179. Since ancient times, the way of bringing the water from one reservoir to

another is unforgettable and there is a possibility to create the opportunity to know about significance and proud of the area to the world by opening the opportunities to see and study the above said values. Underutilization of these opportunities is a weakness of the area to reach the goal of the development plan.

### **Dry weather condition**

This situation basically affects to the functionality of the agricultural activities. There is a dry weather condition in the Anuradhapura urban area throughout the period of 9 months in the year and it has been reported that the agricultural cultivation lands have been destroyed by worst dry weather condition. Although there are major tanks and canals in the area, the water level of these aquatic areas also gradually decreases during the dry season, and therefore there is an issue in supplying the water system antically by using these tanks for agricultural purposes during the dry season. These tanks are used to provide drinking water which is a basic need of the people. In the dry season the priority is given to fulfil the need of the drinking water facilities more than to release the water for agricultural purposes. This condition is another weakness in achieving the goal of making the traditional heritages such as agricultural industry and its related products a key component of the urban economy.

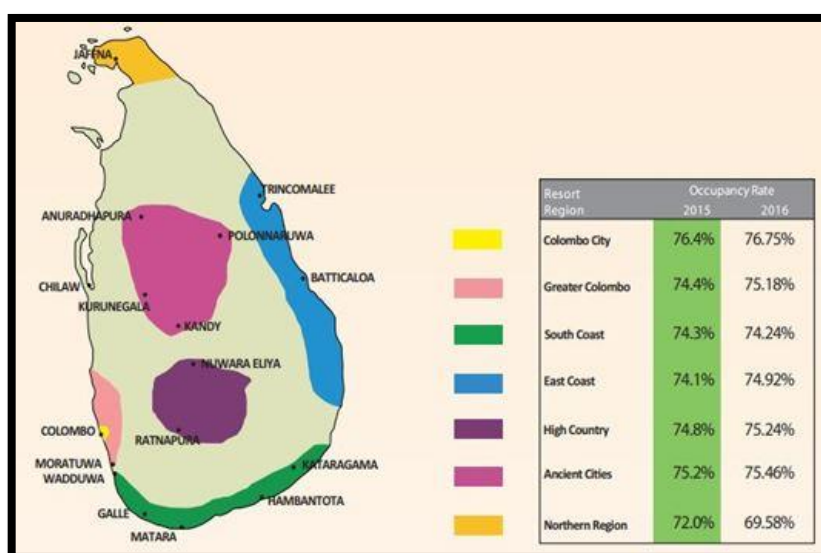
### **Flood Threat**

The major natural hazard in urban area is the flood situation that occurs due to the intensity of the rainfall. With the activation of the monsoon season, heavy rains receive to the area and, flood situation occurs because the water does not flow properly. The agricultural lands on both sides of the Malwathu Oya are strongly affected by this situation. The analysis done on the effect of flood situations which occurred during the period of 2002 to 2016 confirmed that most of the lands on both sides of Malwathu Oya remained as paddy lands in past. These agricultural lands are a jewel for the urban area and to achieve the vision of the development plan and this condition can be identified as another weakness in achieving the goal of making the traditional heritages a key component of the urban economy.

**The available amount of tourist hotels of year 2016 is insufficient to accommodate the estimated amount of tourists for the year 2030.**

Some of the inconveniences have arisen in developing and improving the tourist hotel industry and facilities of the tourist hotels in order to provide the required accommodation facilities for local and foreign tourists who arrival to the area due to the expiration of legal period of the previous development plan for Anuradhapura urban area by 2016. Therefore, this development plan which is implemented in the period of year 2018 to year 2030, makes required arrangements for providing the required accommodation facilities for 150,000 foreign tourists who are expected to be brought to the Anuradhapura city by the Sri Lanka Tourist Development Authority by 2030. On the other hand, according to the reports issued by the Sri Lanka Tourism Development Authority in 2016, there is also a tendency of staying and spending the night time in historical cities by the tourist. In year 2016, foreign tourists who came to the Anuradhapura city was about 77,703 and about 612 hotel rooms were available for providing the required accommodation facilities for them. Accordingly, about 1500 hotel rooms are required for the 150,000 foreign tourists who are expected to the Anuradhapura city by 2030 and required land use patterns for establishing this amount of hotel rooms are planned by this development plan.

**Figure 5. 36 Trend of staying Night time of Tourist at Historical Cities 2015 – 2016**



Source: Urban Development Authority

### **5.3.3 Opportunities**

#### **Being a city of cultural triangle**

The Cultural Triangle of Sri Lanka consists of cultural cities such as Anuradhapura, Polonnaruwa and Kandy. The main factors which intensify the value of Anuradhapura urban area are the rich culture and proud historical values and sub characteristics of them which are available in Anuradhapura city. According to the analysis of arrival of the tourist during the period of year 2008 to year 2016, it is clear that arrival of the tourist is gradually increase and there is a 100% growth in year 2016 comparatively 2008. Similarly, there is a gradual increase of the arrival of the local and foreign tourists, pilgrims and devotees in the other cultural cities such as Kandy and Polonnaruwa and due to the benefit of the location of the Anuradhapura city and its direct connectivity through the easy accessible road network with the other cities of the cultural triangle, there is a trend of arrival of the local and foreign tourists to the Anuradhapura city who come to the other cities of cultural triangle. There is a potential in the area to become the cultural heritages a key component of the urban economy by providing the required services and facilities for these foreign and local visitors.

#### **National trend for poison less food**

At the present, there is a great demand for poison free foods all over the world, and in Sri Lanka also, such demand exists for poison less foods. Around 300,000 local and foreign visitors come to Anuradhapura per year, and there is adequate agricultural land extent in the urban area for producing the poison less foods for these people. By cultivating the poison less foods in these agricultural lands and selling these cultivated agricultural products for the local and foreign visitors, residents of the area have an opportunity for economic benefits. This situation is a potential of the area in achieving the aspects of “to become the traditional agriculture a key component of the urban economy”.

**The traditional agriculture has not been a factor for tourist attraction in urban area.**

This situation is a strong potential to make the traditional inheritances a key component of the urban economy. Although there are agricultural based urban areas around Anuradhapura, they do not use the agricultural based culture and its sub characteristics for attracting the people. But the traditional agricultural-related heritages and cultures of the area can be used as a factor for tourists' attraction and this can be identified as a development potential of area.

## **06 The Plan**

The concept plan and physical structural plan for Anuradhapura urban area have been prepared with the purpose of establishing the sustainable development in the area by productively utilizing the possible development potentials for the area development and finding the solutions for identified issues through the descriptive data analysis in order to achieve the vision and the goals of the Anuradhapura urban development plan by 2030.

## 6.1 The Concept Plan

The future development of the Anuradhapura urban area is detailed by the concept plan which was prepared for the Anuradhapura urban area. Further, the concept plan roughly described the following basic goals of the development plan. Goals are 1) to become the sacred city a key partner of the balanced development of the area by considering it as a development potential of the area, 2) to strategically avoid the adverse situations of area which occur due to the environmental impacts and 3) to utilize the existing service and infrastructure facilities for the development of the area in systematic manner.

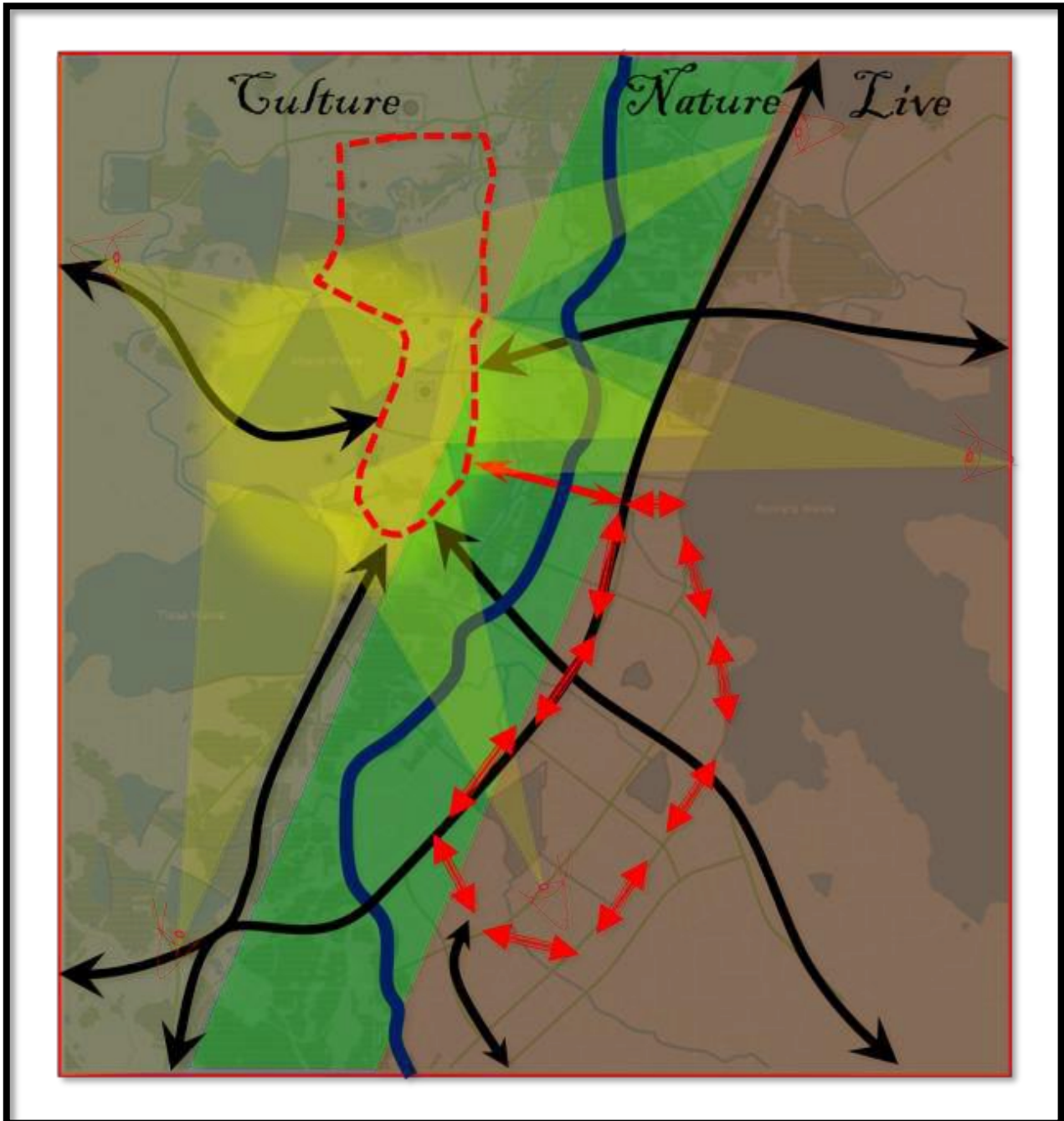
The proposed plan is prepared based on the three main concepts, the Cultural City, the Nature City, and the Livable City.

Based on the Anuradhapura sacred city which is great proud to the area, it is considered to carry out the required development activities in order to become Anuradhapura area the best place of the world where its Buddhist heritages and cultural values can be extensively experienced and seen. Based on this, the tourism industry of the area is converted to the main element of the economy of the area through the achievement of the goal of “to make an unforgettable city that the Buddhist heritages and cultural values have been secured”. Further, the improvement of the interconnection with the each other between the old town and new town is among the goals of this development plan.

And also, required actions will be taken to control the development activities in the low-laying areas in both sides of the Malwathu oya which is the flood prone area and to maintain this area as “the environmental urban area”. And also, the development in the area identified as the “residential urban area” in the concept plan will be taken place through managing the existing

infrastructure facilities and services in order to hand over these facilities to the public in future in comfortable and secure manner for better utilization.

*Figure 6. 1 The Concept Plan*



Source: Urban Development Authority

In order to achieve the goal of “To make Historical and cultural values the main element of the urban economy”, the required services and accommodation facilities for the locals and

foreigners who come to visit the Anuradhapura city, are provided in the new town that is called as “urban residential area” and this development plan and its concept plan has been prepared to maintain the “environmental urban area” for highlighting the invincibility of the traditional agriculture and to achieve the economic benefits of it.

## 6.2 Proposed Land Use Plan

The Anuradhapura development plan is developed required regulations and projects in order to achieve the vision of "The Capital of the World Buddhist Heritage" for the year 2030. This document explains how the urban area of Anuradhapura should be organized and developed in 2030 with these all the features and elements.

The visibility lines are prepared and maintained to Buddhist heritages and exhibit the significance of the Anuradhapura urban area by enforcing the planning and building regulations.

Further, this development plan helps to ensure the optimum utilization of the resources in order to show the importance of Anuradhapura urban area in the world. An information centre will be established at the entrance of the sacred city to educate all the visitors who enter the sacred city of Anuradhapura. This centre will provide detail information on significance of the sacred city, what are the visiting places and etc. And also, considering how to place Anuradhapura area among the other world heritage sites will be possible through the development of vehicle parks in the scared city, improving sanitary facilities in the sacred city, development of museums, beautification of the gardens, development of the foot paths, taking necessary actions to unveil the hidden ancient places for the public, establishment of eco-friendly Meditation Centre and the development of a number of other large projects in the city.

And also, the arrangements are made to ensure the efficiency in the transportation system of the urban area. For this purpose, this development plan provides the arrangement to prepare the plans for developing the identified new roads and for improving the conditions of existing roads and for developing and interconnecting the railway station and bus station in order to provide the comfortable and attractive service for the public.

This development plan proposes necessary projects to develop a rain water sewage system in the urban area and to prepare the existing natural canals of urban area in order to overcome the effects of the flood situation in the urban area which occur with the activation of the monsoon season.

In addition, to minimize the impact of the high temperature in Anuradhapura urban area, the plan provides necessary arrangements to establish the tree strips along the main roads and to develop the existing small tanks of area in more human friendly manner for public.

And also, the development activities are carried out to increase the value of Malwathu Oya which is one of strong factors that intensify the invincibility of the area.

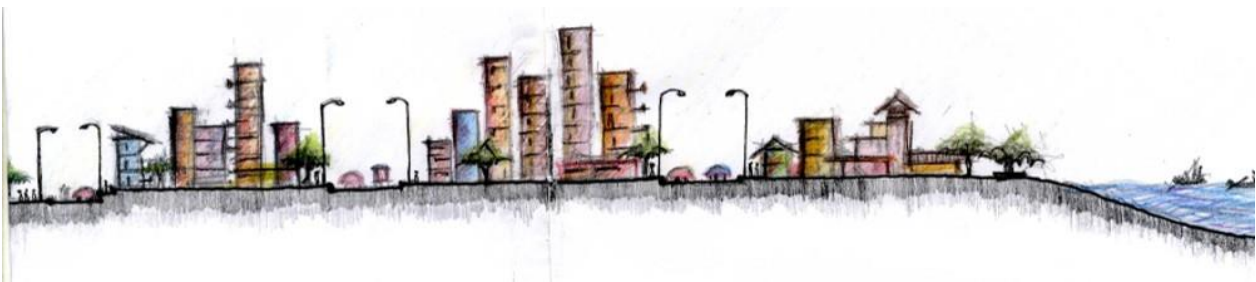
When paying attention to the expansion of the buildings in the area, the necessary laws and regulations are enforced to the construct high-rise buildings in the city centre and decrease the height of the buildings gradually towards Malwathu Oya. Further, law and regulations are enforced to reduce the building heights gradually from city centre towards Nuwara Wewa. The following figure depicts the expected distribution of height of buildings from Maithripala Senanayake Mawatha to Malwathu Oya by 2030.

Furthermore, required actions are taken to further improve the land use patterns such as commerce, services and tourism in the town centre and the area close to the Nuwara wewa is promoted as an attractive place for tourism. And also, while, the required arrangements are made to maintain the educational institutions in the Jayanthi road and its surrounding area, Malwathu Oya and its both sides are maintained as environmental zone. While only selected development activities are allowed in the sacred city, development activities are controlled in order to protect the features and characteristics of the sacred city and its surrounding area. Further, the required arrangements are made to promote the residential uses in the surrounding area of the urban centre of this Anuradhapura urban area. Below illustration shows expected appearance of the distribution of the heights and nature of the buildings by the year 2030.

*Figure 6. 2 Building Hierarchy from Main street towards Malwathu Oya*

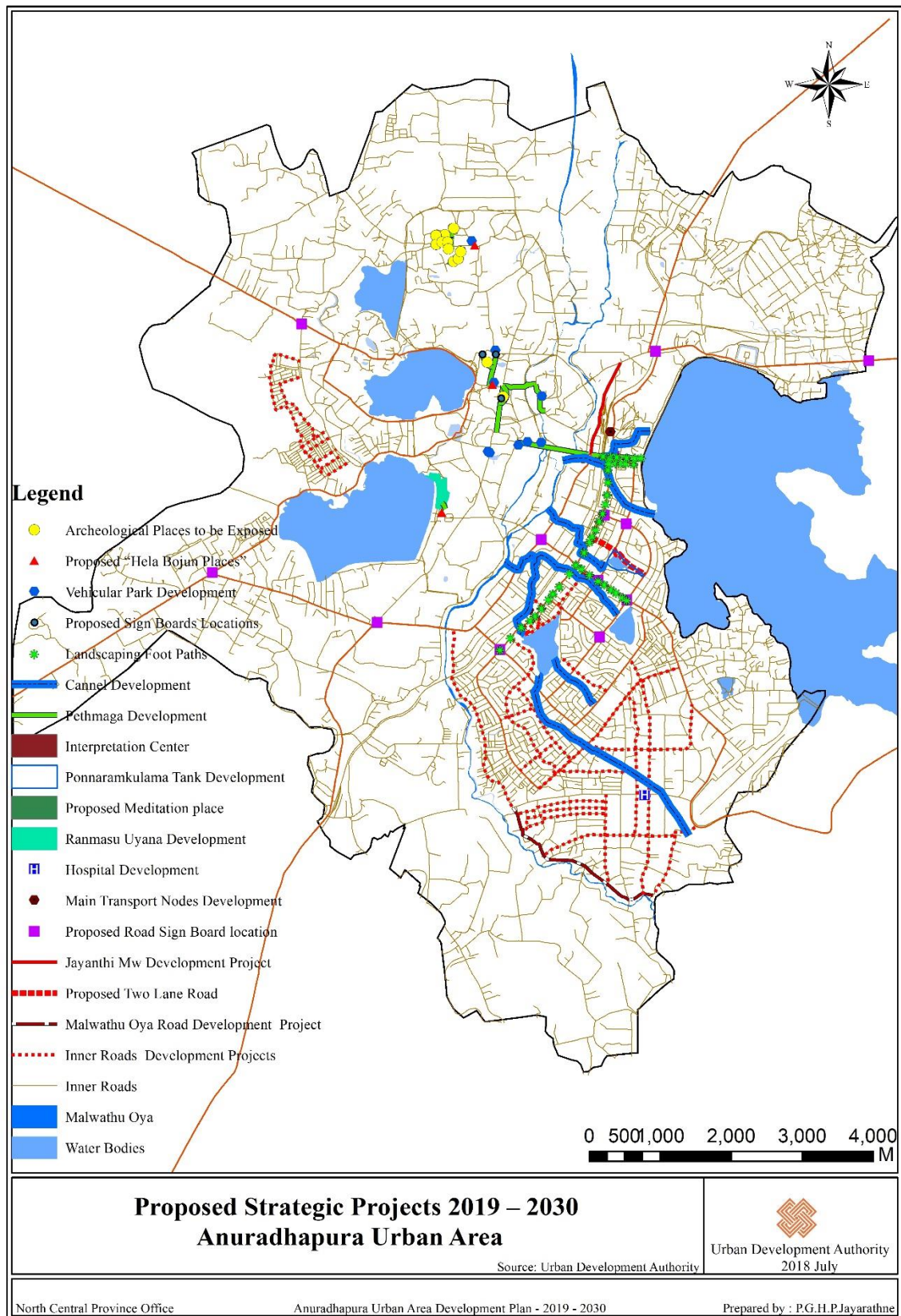


*Figure 6. 3 Building Hierarchy from Main street towards Nuwara wewa*



Below map shows how the Anuradhapura urban area is by the year 2030 and proposed active projects.

**Map 2 Proposed Strategic Projects for Development**



Source: Urban Development Authority

### **6.3 Social and physical infrastructure Development Strategies**

This physical and social infrastructure development plan can be introduced as the main strategy used to become Anuradhapura city a convenient, safe and people-friendly city by the year 2030. It is expected 0.5 million populations in Anuradhapura urban and its surrounding area by the year 2050 as per the proposed National Plan of National Physical Planning Department. This plan set ups the foundation to develop the Anuradhapura urban development area physically and socially as the main place to provide the services for this expected population. By the year 2030, it is expected about 115,400 populations in Anuradhapura urban area and it is estimated that about 280,000 population would come to the city from outside by year 2030. This development plan provides easy access for population to obtain the required services and for this purpose, this development plan uses development strategies under the different sectors. These are,

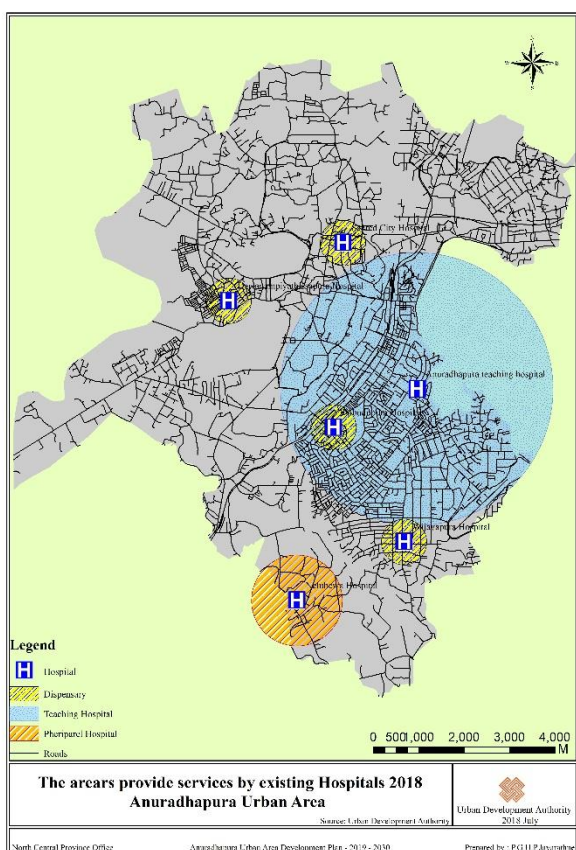
1. Public Service Facilities Development Plan
2. Public Transport Services Development plan
3. Water Supply Plan
4. Electricity and Communication Facility Plan
5. Drainage and Sewerage Management Plan
6. Solid Waste Management Plan

This development plan includes strategies identified through the descriptive analyses done about above mentioned each plan.

### 6.3.1 Proposed Service Plan

This plan describes the way of providing the services for persons who come to the city from outside (immigrants) and expected population in Anuradhapura urban area by 2030, in order to provide the guidelines for investment opportunities and the future plans for social and infrastructure facilities in Anuradhapura urban development area.

**Figure 6. 4 The areas provide services by existing Hospitals**



This strategic plan mainly focus on the health and education sectors according to the requirements of existing population. Though at the present the health and educational sectors has come to an acceptable level, it is expected to provide a better and more secure service in above said sectors to the growing population (Map No 15).

Basically, the schools and hospitals which have spread throughout the area were categorized according to their service level and the ability to easily access for their beneficiaries was identified. It was identified that at the present,

Source: Urban Development Authority

there is adequate health and educational facilities for people who live in the area. Therefore, it is intended to develop the existing schools and hospitals as needed by the growing population.

## Development of Hospitals

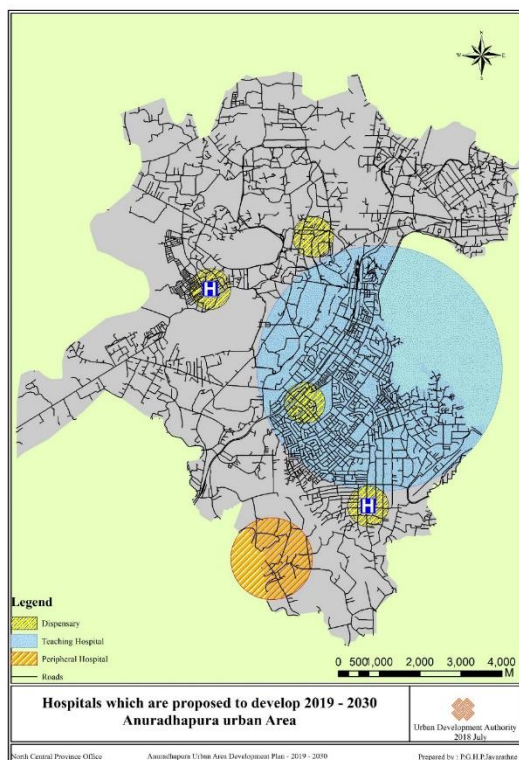
The Anuradhapura Teaching Hospital, a very valuable resource for Anuradhapura urban area, serves mainly in six districts. There is a 1.33 population growth in the entire district, and by the year 2030, it is expected that there would be a population of 108,900. It is proposed to develop Anuradhapura Teaching Hospital to provide a better service in according to the population growth and it is further proposed to develop the following hospitals as well.

**Table 6. 1 The Hospitals which are proposed to develop**

Name of Hospital	Expecting Population	Proposed Development
<b>Dewanampiyatissapura Hospital</b>	14,200	Increase Facilities
<b>Wijayapura Hospital</b>	35,600	Develop as a based hospital

Source: Urban Development Authority

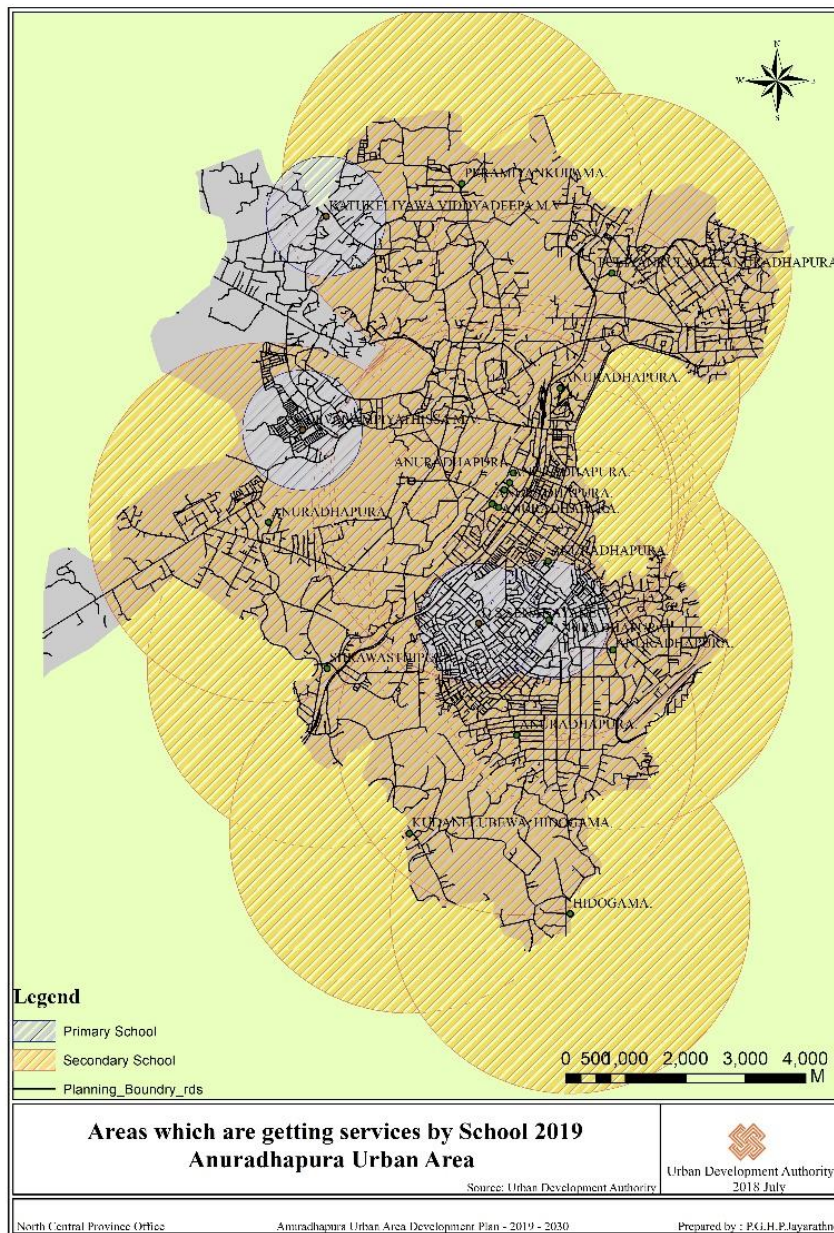
**Picture 1. The Hospitals which are proposed to develop**



Source: Urban Development Authority

## Development of School

Figure 6.5 The areas which are getting services by School



There is no need to propose the schools because existing schools are located with the easy access to the expected population in the Anuradhapura urban area by 2030 (Map No. 20). While expected amount of school students in the urban area by 2030 is approximately 34,500, the amount which expects from other areas of district to the urban area is approximately 9,500.

Source: Urban Development Authority

Therefore, it is proposed to improve the quality of existing schools in this area according to the approximate estimates. This indicates the distribution of the schools in the urban area and the information about the areas that are covered by the school according to the extent of the school. Following schools also are proposed to develop.

**Table 6. 2 The Schools proposed to develop**

Name of the School	Proposed Development
RathmaleTissaMaha Vidyalaya	Increase the facilities
KudaNelubewa Vidyalaya	Increase the facilities
MahaNelubewa Vidyalaya	Increase the facilities
VanniTammenewa Vidyalaya	Increase the facilities
K.B. Rathnayake Vidyalaya	Increase the facilities
Pothanegama Vidyalaya	Increase the facilities
Wijayapura Dhamma Thilaka Vidyalaya	Increase the facilities
Ashoka Vidyalaya	Increase the facilities
Hatharaswela Vidyalaya	Increase the facilities
St. Joshap Vidyalaya	Increase the facilities
Anuradhapura Madya Vidyalaya	Increase the facilities
Swarnapali Balika Vidyalaya	Increase the facilities
WalisingheHarischandra Vidyalaya	Increase the facilities
NiwanthakaChethiya Vidyalaya	Increase the facilities
Zahira Vidyalaya	Increase the facilities
Vivekananda Vidyalaya	Increase the facilities
D.S. Senanayake Primary School	Increase the facilities
KatukeliyawaVidyadeepa Vidyalaya	Increase the facilities
DewanamPiyatissa Vidyalaya	Increase the facilities

Source: Urban Development Authority

### **6.3.2 Proposed transportation plan**

The road network is one of the most potent elements in the development of the area. The transportation plan can be introduced as a most powerful strategy to be used in the development of Anuradhapura urban area. The proposed transportation plan intends to improve the efficiency and economic development of the area. Though the Anuradhapura area has a formal road network and transportation system, still there are some weaknesses. By 2017, 60% of the total amount of vehicles in circulation in the city is transport modes of the private sector, and 40% is in the category of public transport. By the year 2030, the number of the arrivals in the urban area is projected to be around 280,000 people, and by 2030, it is expected to maintain the same trend in the same percentages. According to the calculations of Passenger Car Unit (PCU) it was confirmed, if this current situation maintained as at the same level, there will not be any traffic congestion in the city by 2030. Accordingly, following strategies are used to improve the transport sector in order to achieve the stated goals and objectives of the development plan.

#### **6.3.2.1 Proposed strategies for transport plan**

- To develop and interconnect the existing two main transportation hubs together.
- To construct a small bus station near the main railway station and develop these transportation hubs by interconnecting them together.

The two bus stations and two railway stations will be interconnected in order to provide convenient and efficient service for the people who come to the area by bus and train. Here, the railway station and bus station of new town will be interconnected by locating the railway station of the new town near the bus station of the new town. On the other hand, required convenient service will be providing for the public by establishing the small bus station near the main railway station. Here, development of these two transportation hubs in the way of displaying each other is important. The below illustration shows how these transportation hubs should be developed

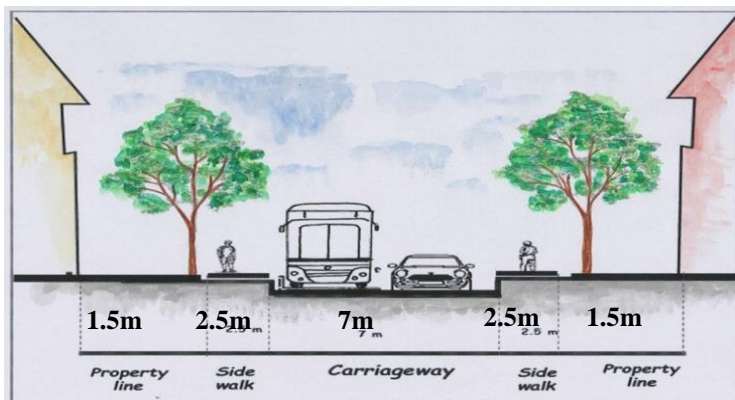
### Development of Agurumaduwa Road by connecting it with A12 Road

As this project was proposed by the Road Development Authority, the development activities will take place according to their directions.

### Development of the playground road and road behind the nature park as two lanes roads.

here, the part, up to the playground road meets the road behind the nature park and from the place where the road behind the nature park meets the Dharmapala road to the place where meets the Harischandra road will be developed with the purpose of ensuring the easy vehicle transportation. This will naturally turn the focus of the persons towards the nature park tank (Ponnaramkulama) and improve the access to easily reach to the hospital. And also, it is aimed to minimize the traffic congestion from the DS Circular at Bandaranaike Mawatha to Denzil Kobbekaduwa roundabout. It was confirmed by the analyses that the congestion can be minimized by developing this road. The illustration shows how that road should be developed.

*Figure 6. 6 Proposed Two Lane Road*



### Develop Malwathu Oya Mawatha up to Bandaranaike Mawatha.

This is presented as a new project proposal and this expects to mark the boundary of Malwathu Oya reserve, to provide the opportunities for the people to visit Malwathu Oya reserve and to properly develop the lands close to the Malwathu Oya.

## Development of by-roads

While most appropriate roads for transportation were identified through analyzes, it is proposed to improve the conditions of those roads.

**Table 6. 3 Development of Proposed by roads**

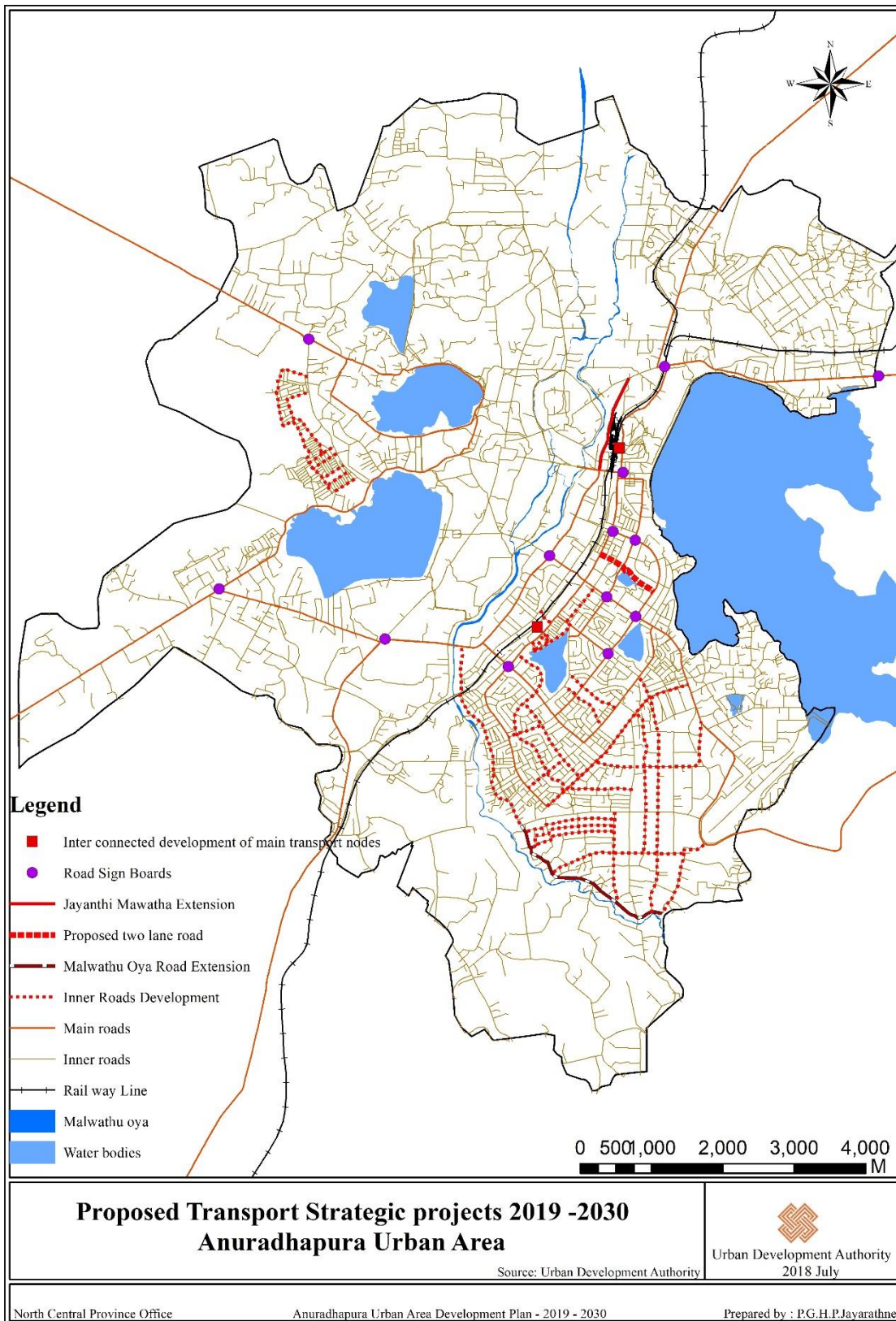
Name of the Road	Length (M)
Development of 07 <sup>th</sup> Lane, 6 <sup>th</sup> Lane, 5 <sup>th</sup> Lane, Mahajana Pola, 4 <sup>th</sup> lane and its by roads	1500
Development of Kumbichchankulamawewa road up to Bandaranayaka Mawatha	1500
Development of Lenine Mawatha up to A13 Road	2700
Development of MalwathuOya Road up to Jayanthi Mawatha	3600
Development of Shanthi Mawatha up to A13 Road	2900
Development of Vishaka Mawatha up to Lenin Road	2400
Development of Nagasena Mawatha up to Budhdhagaya Mawatha	2100
Development of Dharmaraja Mawatha up to Vishaka Mawatha and Pandukabhaya Mawatha up to Lenin Mawatha	2600
Development of ParakumUyana 9 <sup>th</sup> Lane up to Bandaranayake Mawatha	2100
Development of by road of DewanamPiyatassapura 1	1500
Development of by road of DewanamPiyatassapura 2	250
Development of by road of DewanamPiyatassapura 3	450
Development of by road of DewanamPiyatassapura 4	400
Development of by road of DewanamPiyatassapura 5	410
Development of DewanamPiyatissapura, 1 <sup>st</sup> and 2 <sup>nd</sup> roads parallel to Watawandana Road	3600
Development of Sagabo Mawatha and Kashyapa Mawatha up to PubudupuraMawatha	1200
Development of Agbopura 1 <sup>st</sup> Lane and Pandukabhayapura 14 <sup>th</sup> Lane	700
Development of Agbopura 8 <sup>th</sup> Lane and Pandukabhayapura 15 <sup>th</sup> Lane	800

Source: Urban Development Authority

**Establishing awareness boards included all road networks.**

The sign boards included the road network of urban area will be displayed at Matale junction, Jaffna Junction, Market Junction, Bank place, Dutugamunu roundabout, Ayurvedic roundabout, Jaynathi roundabout, St. Joseph's roundabout, DenzilKobbakaduwa roundabout, Dahaiyagama junction, 2 kanuwa junction, Pandulagama junction and Lolugaswewa junction.

**Map 3 Active project for City Development under proposed Transport Plan**



Source: Urban Development Authority

### 6.3.3 Proposed water supply plan

The water supply can be introduced as an essential component for the easy maintenance of the functionality of Anuradhapura urban area. At the present, the water is supplied by the National Water Supply and Drainage Board for the Anuradhapura urban area and the drinking water requirements are fulfilled through the Thisaawewa, Nuwara Weva, Thuruwila Reservoirs. Following is the projected water requirement of each zone of Anuradhapura urban area calculated based on the density of the land use patterning litres by year 2030. According to the data and information of National Water Supply and Drainage Board, based on the assumptions, per person uses 120 litres per day for domestic uses and per person uses 132 litres per day for commercial and other uses, the calculations was approximately done for each zone and it is as follows.

**Table 6. 4 Required Water Quantity per Day**

Zone	Water Quantity per Day (L)
Settlement zone	9,125,760
Active Zone	32,024,688
Attentive zone	15,372,540
Practicable zone	5,232,000
Monitoring zone	10,417,080
Nature zone	544,800
Spiritual zone	228,000

Source: Urban Development Authority

### 6.3.4 Electricity and Communication Facility Plan

Electricity is provided by the Ceylon Electricity Board for Anuradhapura urban development area. The Ceylon Electricity Board assures that, for Anuradhapura urban development area, they have ability to fulfil the required electricity coverage according to the expected land use pattern by the year 2030. However, by 2030, the electricity will be generated by using solar power in Anuradhapura urban development area.

### **6.3.5 Drainage and Sewerage Management Plan**

And also, it is proposed to construct a sustainable rain water drainage system for Anuradhapura urban area through the Urban Development Plan. To minimize the negative effect of flood threat with the activation of monsoon season, the well-connected rain water drainage system that covers the entire urban area is essential. This rain water drainage system is proposed by this development plan. And also, this plan proposes to properly mark the boundaries of the reserves belongs to the natural canals that spread throughout the area and develop these canals to ensure the proper flow of water.

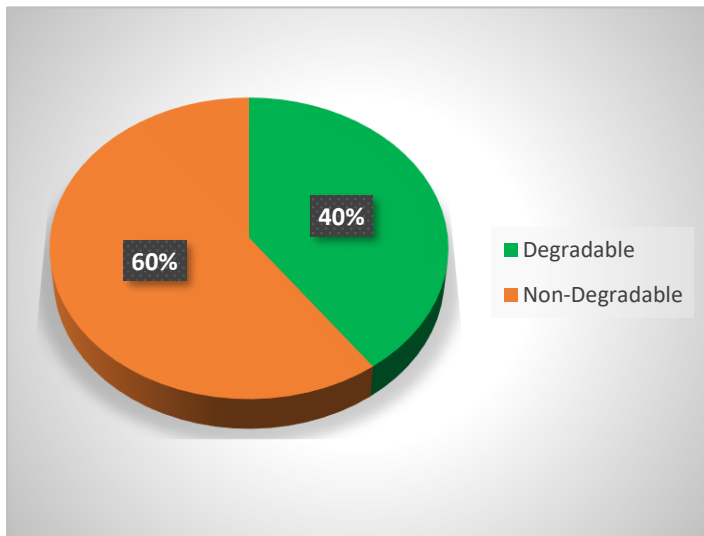
And also, expected population who will come to Anuradhapura urban area by 2030 for the variety of requirements is about 545,000. It is expected that out of this total expected population 44.5% represents the active zone and 24% represents the Hospitality zone. On the other hand, it is also expected that these areas will have land use patterns with higher density and, as a result, it is proposed to create a sewage system especially covering both these zones.

### **6.3.6 Solid Waste Management Plan**

The materials, other than the liquid that generate by domestic, commercial, agricultural, industrial and other common activities is considered as the solid wastes. Solid wastes combine with various type of waste such as food waste, paper wastes that removed from packaging, metals, plastic, glass, discarded clothes, waste in the gardens, waste that remove from factories, waste that generates due to the constructions. Solid waste management includes with waste generation, storage, collection, transportation, and final exclusion after converting it to environmental friendly disposal methods.

According to the census report of the 2017, the number of people in the Anuradhapura urban development area in 2017 is 96,399. Approximately 31 tons of waste is generated daily in the area. Accordingly, a single person generates about 320g solid waste per day. The estimated population of the Anuradhapura urban development area in the year 2030 is 115,435, and the projected total daily waste which is generated in that year is 37 tons. The percentage composition of degrading and non-degrading waste can be highlighted as follows.

**Chart 6. 1 Waste Composition degradable and non-degradable**

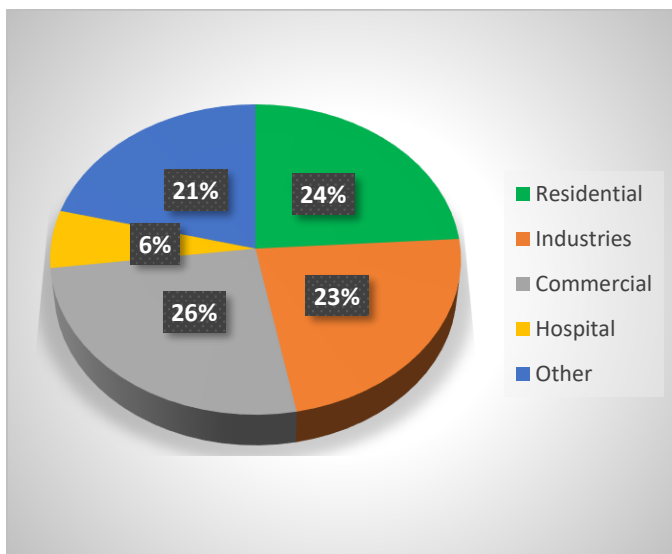


The 150,000 populations come to the Anuradhapura urban area a day the migration population is projected as 150,000 a day, and by the year 2030 it is predicted to be around 280,000. The daily solid waste generated by the migratory population will be about 163 kilograms.

Source: Local Authority

The waste collection and management Anuradhapura urban development area is undertaking by Anuradhapura Municipal Council. Collection of wastes splits into both sides of the roads and also collection of garbage runs from door to door. In commercial areas the collection is a regular task, that they collect waste daily and in resident areas garbage is collected twice a week. Residents, shops, hospital, factories, hotels and banks can be identified as the sources that garbage generates.

**Chart 6. 2 Quantity of Solid Waste according to source of generation**



Source: Local Authority

The garbage collected in the Anuradhapura Municipal area is disposed to a 15acre land in Keerikkulama which belongs to central government. A portion of the garbage is used to generate organic fertilizer production. The other portion of the waste is disposed on to an open area of that site. Non decaying garbage such as plastic waste takes to a recycling centre at a Nuwaragam Palatha East GN division for recycling them separately. It is expected to expand the existing 15acre land of Keerikkulama to 20 acre considering the future need for the waste management. The analysis revealed that there is a need for 03 compactors and 50 trained skill labours to improve the future and existing production of organic fertilizer based on future need of waste management.

### **Solid Waste Management Strategies**

Although the waste generation at Anuradhapura urban area is minimal in the existing waste management method, the garbage recycling centre is used for placing the garbage collecting bins in proper places to collect the garbage separately and recycling this garbage. This plan has identified the strategies for generating the income for Anuradhapura Municipal Council through the waste management and for reducing the waste generation.

#### **Strategy 01 - Minimization of Solid Waste generation**

1. Introducing methods to discourage the waste generation at domestic. trade, industrial fields.
2. Organize awareness and education programs in public places and schools and introduce 10 R concept and minimize the generation of solid waste.

#### **Strategy 02 - Separation at the waste generating site.**

Classify the waste as domestic waste, institutions' waste, wastes from trades and industrial wastes and also according to the nature of the waste and placing the bins that can be identified separately.

**Table 6. 5 The details of Waste Classification**

Type of the Waste	Basket Color
Organic	Green Color
Paper	Blue Color
Plastic	Orange Color
Metal	Brown Color
Glass	Red Color

Source: Urban Development Authority

1. Implementation of programs on waste management to households and shops by Local Authorities.
2. Not mixing biodegradable solid waste with the recyclable waste.
3. Organize education and awareness programs regularly and educate the general public about the methodology of no separation - no collection.

**Strategy 03: - Promoting the transformation of all short-term bio-degradable solid waste into organic fertilizer (compost), directing people towards it and introducing the cheap market for organic fertilizer.**

1. Transforming all bio-degradable solid wastes that are generated in the houses and the institutions into organic fertilizer at the same place where it was generated.

Examples: Introduce the methods such as compost bins, pit system, Jiwa Kotu

2. The places that generate bio-degradable solid waste in larger amounts

For example: producing compost using simple techniques at a place controlled by local authorities for the places such as houses, hospitals and hotels that composting is not done.

3. To encourage the use of a compost bins at every household or production of organic fertilizer by using the simple technique and thereby increasing the domestic organic vegetables, fruit cultivation and encouraging the organic vegetable market.

**Strategy 04 - Establishment of bio gas production in hospitals and government agencies.**

1. Bio-degradable food waste and agricultural waste can be used for the production of biogas, and encouraging the use of manufactured biogas for cooking, lighting and other day-to-day operations.

**Strategy 05 - Preparation of a program to release Bio-degradable food to animal farms.**

**Strategy 6 - Use of suitable techniques for the disposal of non-degradable solid waste (recyclable).**

1. Organizing attitudinal change workshops at school and institutional levels to promote the concept of "re-use of goods" at every level of the society.

2. Establishment of places where recyclable solid waste (glass, paper, metal) can be purchased and increase the market and entrepreneurs for promoting this methodology.

3. Registering the buyers of solid wastes which can be recycled by the local authorities and maintaining the continuous coordination with them and providing information to the public.

4. Implementation of garbage fair system for coconut shells, iron, plastics and electrical equipment among the collected garbage.

**Strategy 07 - Establishing an institutional structure to prevent the mixing of clinical and solid waste which is released from hospital with the municipal solid waste.**

1. Making compulsory the separation of clinical and solid waste
2. It is compulsory to transform wastes to the non-infective matter before disposing the clinical and solid waste.
3. Establishing a healthy system within the hospitals to ensure proper disposal of clinical and solid wastes.

**Strategy 08 - Introducing efficient method for waste collection and transportation.**

1. Implementing door to door collection method
3. Distribute the time table including the waste collecting dates and type of the solid waste (ex: plastic, coconut shells, glasses) collecting on each day among the houses through the local authorities
3. Provide the necessary equipment and services for the local authorities to construct and maintain compost yards.
4. Partition the vehicle that is used for collecting the waste
5. Collection of solid waste by using hand carts at the places where heavy vehicles cannot be reach.

**Strategy 09 –establishment of Sanitary Land Filling sites**

1. The non-degradable waste which cannot be used in the biological and recycling process are suitable for land filling. Since there can be financial problems, it is suggested to establish the sanitary land filling site by integrating with few local authorities together.

**Strategy 10 - Establishment of a Management Centre for Electric Waste (E-waste).**

1. The equipment such as discarded computer key boards, televisions and mobile phones should not be disposed of with municipal solid waste, and these wastes should be collected and provided to the registered buyers at Central Environmental Authority.

**Strategy 11 - Establishment of a follow-up committee.**

1. Establishing follow-up mechanism consisting of officials of relevant institutions.

**Responsible Institutions**

Relevant Local Authority

## **6.4 Economic development strategies**

### **6.4.1 The proposed Economic plan**

The economic growth of a city is a prime indicator that indicate the of the performance and the functionality of the city and a main component that affects to the development of that city and to ensure the better successful functionality in the city.

While It is expected to continue the “service provision as a main component of the urban economy” under the economy sector of the development plan prepared for the Anuradhapura urban area for the period of 2018 to 2030, required strategies are prepared to increase the economic growth of the urban area

While the North Central Province contributes to the Gross Domestic Product of Sri Lanka by 5.4%, this province remains as the 7th place in Sri Lanka among the other provinces. The unemployment rate in the district is 3.9% and this rate in the Anuradhapura urban area is around 9%. While Anuradhapura urban area functions as the main economic centre of the province, by 2017, its contribution to the primary, secondary and tertiary sectors is 8%, 19%, 73% respectively. 40 % from the labour force of area work for the privet sector, 33% work for the government sector, 8% engage in the self-employment and 9% are unemployed.

The development plan which was prepared for the Anuradhapura urban development area for the period of year 2018 to year 2030 intends to continue the service provision as a main component of the urban economic and by this way, further it is intended to improve the economic growth of the urban area.

The urban economy is mainly based on two sectors.

01. Service sector related to the Economic Sector
02. Tourism industry related economic sector.

There are about 160,000 people who come for their own needs in the Anuradhapura urban development area. 37% of them come for the purchasing purposes. While per day contribution of this for the economy of area is 42 million, by 2017, allocated land extent in the Anuradhapura urban development area for providing the services related to the commercial sector is 11 million square feet. About 23000 persons do their jobs in the space. The land use pattern is prepared with the purpose of increasing this space up to 19.25 million square feet through the development plan for the period of year 2018 to 2030.

according to the calculations, it is expected that the amount of persons who come to the urban area from the outside would be about 280,000 by 2030. Further, it is expected that 105000 from above amount would come to fulfil the commercial and its related needs and as a result, per day expected income is about Rs. 105 million. By allocating more than 19 million square feet for commercial uses and providing its related services, by year 2030, it is expected to create 17,220 new employment opportunities in the commercial sector and its related service sector.

Another aspect of the economy is tourism industry. While 150000 foreign tourists are expected to bring to the Anuradhapura city by year 2030, the land use pattern is prepared with the purpose of establishing the tourist hotels for providing the services and facilities for increasing amount of the foreign tourist through development plan for year 2018 to year 2030. Therefore, it is expected to increase the hotel room up to 1500 by 2030 and as a result, it is expected to create 1850 new job opportunities. In this manner, it is aimed to earn Rs. 1500 million by 2030 by preparing the land use pattern according to the requirement of improving the tourism industry.

The required actions such as the improvement of the condition of the road system, providing the water and electricity adequately, establishment of vehicle parks, making the pedestrian paths, planting the trees to control the temperature and development of existing small tanks of area, are taken for improving the economy of the area under the above mentioned main two sections.

## **6.5 Sustainable Environmental Development Strategies**

the sustainable environmental strategies can be introduced as one of the essential factors for maintaining the balanced development in area. In here, the development strategies are described in achieving the balanced development of physical and natural environments and protecting the environmental sensitive areas that have been affected due to the current development activities. This environmental plan mainly consists of three Strategies:

1. Environmental Conservation Plan.
2. Disaster Risk Reduction Plan
3. Special plan for Public outdoor recreational activities

### **6.5.1 Environmental Conservation Plan.**

While this Environmental Conservation Plan aims to protect the environmental areas that need to control the temperature of area and flood threat, the strategies are used to get the optimum contribution of these areas for area development process.

Here, the wetlands in the Anuradhapura urban development area can be categorized as follows.

- 1 Fresh water reservoirs and waterways, wetlands and marsh lands
- 2 Abandoned paddy fields (Fallow paddy fields)
- 3 Paddy lands / meadow / Madiththa / Asliyaddha
- 4 Non-paddy wetland/agricultural areas
- 5 Water reservoirs and waterways

Zoning plan of wetland for the Anuradhapura urban development area is based on the followings.

01. Present Nature.
02. Requirement of food retention.
03. Possibility of using for economic purposes (for paddy cultivation, fisheries and other crops)
04. Good (positive) need of the residents in the Anuradhapura urban development area
05. Ecological value of wetlands.
06. Problem mitigation strategy.

**6.5.1.1 The institutions that should be obtained the general conditions, guidelines and recommendations.**

**Institutions to obtain clearance and recommendations.**

01. Sri Lanka Land Reclamation & Development Corporation
02. Department of Irrigation
03. Central Environmental Authority
04. Urban Development Authority
05. Relevant Local Government Institutions
06. Forest Department
07. Department of Wildlife Conservation
08. National Building Research Institute
09. Department of Agrarian Development
10. Department of Archeology

## Conditions

01. Maintenance of the capacity of flood and implementation of other developments activities should be carried out according to the decisions come through the coordination of the institutes mentioned under the No: 01,02,03,04,05,06 and 09 and by considering the changes of intensity of the surface runoff due to the construction in the wetlands and increase of the intensity of the marginal weather conditions due to climate changes.

02. According to the planning circular No: 13 issued on 24 September 1990 by the Urban Development Authority, the approval should be obtained from the below institutions mentioned under the Nos: 01,03,04, 05 and 09 before the development of any wetland (low lying land). Similarly, when the right of the wetlands comes under the scope of the relevant institutions through the different acts, the required recommendations / approvals of below institutions mentioned under the Nos: 02, 06, 08 and 10 and other relevant institutions should be obtained.

03. Environmental clearance certificate and environmental protection permit should be obtained for any development activity that affects to the wetland environment by the below institutions mentioned under the Nos: 03 and 05. These should be renewed annually.

04. The Approval (final clearance certificate) granted by the below Institution mentioned as NO: 01 for development of any wetland should be renewed annually according to the decisions of the planning committee.

05. The canals, reservoirs and reserves declared by Gazette Notification No: 1662/17 and dated 14.12.2010 by the above institutions mentioned as Nos. 1 and 02 should be maintained.

06. Any construction that obstructs to the runoff and flood containment capacity should not be implemented in the wetlands, water bodies or waterways.

07. Other organisms except external and aggressive plants and animals in environmental sensitive wetlands should not be removed.

08. Every approved construction in wetland should be constructed according to technical standards and green building concept.

09. When approved use is carried out especially in every wetland that need the water retention capacity, those water retention areas should be replaced as solution for reduction of water retention capacity due to the implementation of above approved use and environment conditions due to the other effects. The approval for this should be obtained from the relevant institutions. (9,10)

10. In the process of fishing and catching the other aquatic organisms, mechanical boats or other ships should not be used.

### **Guidelines**

01. Sustainable water drainage systems should be used for areas where it is recommended to be filled.

02. The proposed constructions for uses approved without any effect to the flood containment capacity and inundations and according to the preliminary plans of the initial projects or Advisory Guide Plan approved by the Urban Development Authority should be implemented under the approval of the institute mentioned as No:01 and other institutions mentioned from No:2 to 10.

03. The areas which can be clearly identified that the areas have biodiversity and cultural and archaeological values and a value for the landscaping, should be conserved.

04. When implementing the approved activities in wetland, the legal common foot path, common bathing places should be conserved or relocated in close other suitable area.
05. Approved building plans in the wetlands should be implemented according to the green building concept.
06. Developers should obtain the services of the Professionals of relevant Institutes who have the competencies in relevant field, in preparing the plans, designing and Monitoring.
07. Especially, it is needed to preserve all areas where fishes and other aquatic organisms are breeding.
08. It should not be allowed to dispose the garbage to the wetland areas. (Domestic, institutional, industrial, commercial, electrical, and clinical waste)
09. When releasing the waste water, only the purified water should be released under the approval of the Central Environmental Authority.
10. The boats only operating through the man power should be used for fishing.

**The institutions to get the approvals**

01. Sri Lanka Land Reclamation & Development Corporation
02. Irrigation Department
03. Central Environmental Authority
04. Urban Development Authority
05. Relevant Local Government Institutions

06. Forest Department
07. Department of Wildlife Conservation
08. National Building Research Organization
09. Department of Agrarian Development
10. Department of Archaeology

#### **6.5.1.2 Regulations for wet zone**

The special conditions can be applied for “Prescribed Projects” mentioned under the National Environmental Act by the Central Environmental Authority, Sri Lanka Land Reclamation and Development Corporation, Urban Development Authority, Department of Agrarian Development and the Irrigation Department when it is required.

The Urban Development Authority takes required legal actions under the institution’s powers if the following conditions for developing the any wetland are violated.

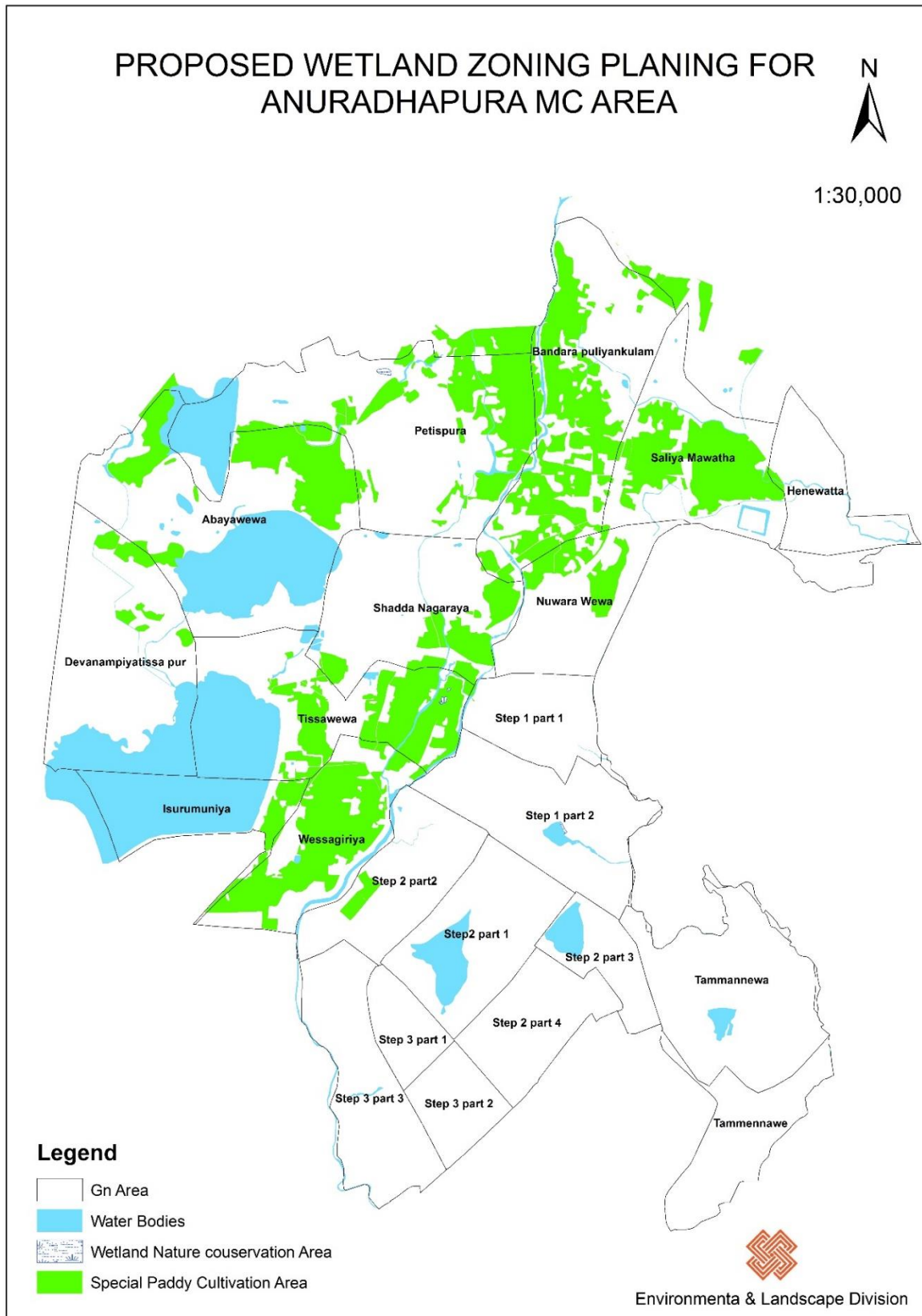
#### **For paddy land**

Only the approved uses aligned with the Agrarian Development Act and Circular No. 19/2018 can be implemented.

**Table 6. 6 Regulation for Wetland Zone**

	<b>Development Conditions</b>
<b>1. Flood containment capacity</b>	The development conditions for the approved cultivation practices can be implemented only in the Agrarian Development Act and Circular No. 19/2018.
<b>2. Minimum extent of land for building construction</b>	
<b>3. Limits permitted for maximum replacement</b>	
<b>4. Coverage of the maximum plot of land (Area under construction)</b>	
<b>5. Maximum Infrastructure Projects (Electricity, Water Supply, Telephone, Internal Roads etc.)</b>	
<b>6. The maximum floor area of the approved building height for approved building approvals</b>	
<b>7. Type of building</b>	
<b>8. Sub Division</b>	
<b>9. Limiting restrictions</b>	
<b>10. Loosen the above conditions in special cases</b>	

Map 4 Wetland Plan



Source: Urban Development Authority

### 6.5.2 Disaster risk reduction plan for the Anuradhapura urban development area

The flood situation which occurs with the activation of monsoon period can be identified as the main disaster risk of the Anuradhapura urban development area. Through this Strategic Plan, the required actions are carried out in order to minimize the flood risk and create a comfortable and safe urban area for residents and immigrants.

#### The existing disaster situation

The flood situation which occurs with the activation of monsoon period can be identified as the main disaster risk of the Anuradhapura urban development area. The information related this and collected from the Disaster Management Centre of Anuradhapura can be summarized as follows.

**Table 6. 7 Affection to the area due to flood situation**

<i>Date</i>	<i>Time period (Date)</i>	<i>Number of Affected Families</i>	<i>Number of affected people</i>	<i>Number of Houses</i>	<i>Number of damaged houses</i>
2016/05/17	1.5	97	405	01	04
2015/11/17	01	30	123	01	02
2014/05/21	10	1793	6032	33	42
2014/09/01	08	334	1360	21	67
2010/09/29	1.5	07	35	-	02
2007/12/23	06	179	863	08	15
20015/12/23	06	248	703	19	60
2009/12/12	05	01	05	-	-

Source: Disaster Management Centre

### **6.5.2.1 Guidelines for disaster prone areas in Anuradhapura urban development area**

#### **Reduction of construction**

Construction activities should be minimized in low lying areas and rain water drainage methodologies should be prepared. In addition, the following activities are proposed.

- 1) Cultivation of strong and well-rooted plants along the Malwathu Oya bank.
- 2) Maintenance of low-density settlement areas.
- 3) Forest cultivation in water catchment areas.
- 4) Increase water retention areas to reduce flood risk.
- 5) Establishment of liner parks in Oya / Tank Reserves
- 6) Encouraging the agricultural activities in vulnerable areas
- 7) Protection of water catchment areas
- 8) Maintenance of water flowing areas
- 9) Minimize the development activities at Malwathu Oya and from its reservation boundary to beyond 100 meters on both sides.
- 10) Protection of all marshy lands, paddy fields and low-lying areas for mitigating floods.

### **6.5.3 Proposed special plan for Public out-door recreational activities for the Anuradhapura urban development area**

This describes how the land use pattern should be changed for public outdoor recreational activities in the Anuradhapura urban development area.

According to the plans of the Urban Development Authority, at least 1.4 hectares per 1000 population should be allocated as a public open space in preparation of the development plan. According to the census reports, the population of the Anuradhapura urban development area in 2017 is 96,399 and according to the analysis of the development plan, it is predicted that the population would increase up to 115,435 by 2030. Accordingly, by the year 2030, at least 161.6 hectares should be allocated as public outdoor open spaces.

#### **Present public outdoor open spaces of Anuradhapura urban development area**

The recreational facilities are considered under the main two components namely direct and indirect recreational facilities. Under the direct recreational facilities, it is required an adequate space for active participation of community in recreational activities such as playing, swimming, running, walking.

There are several places in the Anuradhapura Municipal area which can be used to fulfil above requirements and these places are described in table No: 6. 8

**Table 6. 8 Public out-door space -2017**

No.	Type	Extent (Hec.)
<b>01</b>	Pocket Park	0.3
<b>02</b>	Mini Park	18.6
<b>03</b>	Local Park	22.2
<b>04</b>	Community Park	11.0
	<b>Total</b>	<b>52</b>

Source: urban Development Authority

According to the Table 6.8 at the present, 52 hectares are open spaces in the Anuradhapura urban development area. According to the projected population, 161.6 hectares are required for proposed public outdoor open spaces by 2030.

But there are (6.5.3.1.4) 708.8 hectares in Anuradhapura urban development area that can be proposed for public outdoor open spaces. According to the table No: 6.8, 6.9, 6.10 and 6.11 the analyses have explained that there are adequate lands for public open spaces in Anuradhapura urban development area for the present population and projected population of year 2030.

The special plan about public outdoor recreational activities prepared by including the reserves such as tanks of the Anuradhapura urban development area, both side of the Malwathu Oya and canal, and existing developed and developing spaces in Anuradhapura Urban area is shown in table No: 6.8, 6.9, 6.10 and 6.11.

**Table 6. 9 Proposed Open Spaces in the Urban Development Area**

No.	Type	Area (H)
<b>01</b>	Proposed Pocket Park	1.9
<b>02</b>	Proposed Mini Park	5.7
<b>03</b>	Proposed Local Park	1.3
<b>04</b>	Proposed Linear parks	699.9
	<b>Total</b>	<b>708.8</b>

Source: Urban Development Authority

### **6.5.3.2 Strategies for development of the public outdoor open spaces**

#### **Reforming and landscaping the existing tanks both side of Malwathu Oya in Anuradhapura urban development area**

here, it is aimed to protect the tank reserve, increase the vegetation coverage of area, use the public open spaces for recreational and leisure activities. Usually, it will be better to use open spaces for passive recreation.

Here, it is allowed to create the recreational places integrated with the natural environment of the surrounding of the tanks such as allocated spaces for the recreational activities, camping sites, areas for physical exercises and jogging tracks. Further, it is proposed that other proposed gardens of city are suitable for developing according to the landscape design as leisure areas for the public.

here, proposed components are visitors' places, pedestrian lines, green strips, open spaces with the seating arrangement for leisure and recreational activities and conservation of reserves.

#### **Reforming existing sports grounds in the Anuradhapura urban development area.**

It is aimed to reform the existing play grounds with the facilities for active recreations and passive recreations.

It is proposed that improvement of facilities of the play grounds and preparing the schedules and procedures for maintaining them, construction of new stadiums, indoor stadiums and infrastructure facilities of stadiums according to the correct direction are required.

### **Improvement of Social Recreational Facilities.**

This plan proposes that sports clubs, tourist hotels, holiday resorts and tourist bungalows should be established in a suitable standard to fulfil the needs of the local foreign tourists.

### **Improvement of Facilities for Tourism and Pilgrims**

while public transport facilities which are reason for the development of the tourism industry should be developed, the places that provide the facilities with regard to the accommodations, lodging, goods, foods, vehicles and equipment need to be increased.

Establishment and development of the high standard holiday resorts with the health centers, Ayurveda Centers and swimming pools.

developing the attractive places according to the requirement of the local and foreign tourists and explorers who come for the environmental and archaeological studies, is a reason for their long stay in the area. Therefore, it is proposed to improve the surrounding areas of the tanks of Anuradhapura with the required facilities and identify and develop the other direct and indirect facilities such as tourist bungalows, hotels, indigenous carnival activities.

### **Tree strips**

the plant species that are suitable for the existing space of both side of the main road can be identified and used for this purpose. After zoning the city and selecting the different plant categories that ensure the identity of each zone, planting the trees in the way of highlighting the biodiversity is a reason for beauty of the city. Suitable plant varieties for planting tree can be shown as follows. And also, the possible roads for tree planting can be summarized as follows. Development projects related to the road development activities should be implemented after selecting the systematic landscaping plan according to the urban development concepts. In the development of roads, proper landscape designs should be selected according to the city development concepts in road development and development projects should be implemented.

### **6.5.3.3 Possible roads for Tree planting**

1. Mithrapala Senanayake road
2. Anuradhapura, Rambewa road
3. Anuradhapura Puttalam road
4. Priman Mawatha
5. Jayanthi Mawatha
6. Dharmapala Mawatha
7. Harischandra Mawatha
8. Airport Road
9. Bodh Gaya Mawatha

### **6.5.3.4 Suitable plants for tree planting**

#### **Largescale Plants**

01. Tamarindus indicus
02. Dialiumavoideum
03. Bombax ceiba
04. Mimosups indicus
05. Tamarindus indicus
06. Tamarindus
07. Cassia siamea
08. Sterculiafoetida
09. Berryacordifolia

**Medium Size Plants**

01. Azadirachtaindica
02. Cassine glauca
03. Albizialebbeck
04. Butea mosperma
05. Ponganiapinnata
06. Cassia roxburghii
07. Naucleaorientalis
08. Gmelina arborea
09. Cassine glauca
10. Erythrina variegata

**Small scale Plants**

01. Bauhinia tomentosa
02. Morinda tinctorial
03. Cochlospermum religiosum
04. Cordia dichtoma
05. Aegle marmelos
06. Bauhinia racemose
07. Bauhinia variegata
08. Saracaindica
09. Hibiscus tiliceus
10. Phyllanthus acidus

### 6.5.3.5 Common Open Areas with Anuradhapura Urban Area

*Table 6. 10 Common Open Areas with Anuradhapura Urban Area*

No	Type	Area (H)	Present Use	GN Division
	<b>Pocket Park</b>			
01	EPP1	0.1	Ground/ Mini Park	Step 2 - 1
02	EPP2	0.1	Ground/ Mini Park	Step 3 - 1
03	EPP3	0.1	Ground/ Mini Park	Step 3 - 3
	<b>Mini Park</b>			
04	EMP1	0.2	Ground/ Mini Park	Step 2-1
05	EMP2	0.3	Ground/ Mini Park	Step 2-1
06	EMP3	0.4	Ground/ Mini Park	Step 2-1
07	EMP4	0.5	Ground/ Mini Park	Step 2-1
08	EMP5	0.5	Ground/ Mini Park	Step 2-1
09	EMP6	0.6	Ground/ Mini Park	Step 2-4
10	EMP7	0.9	Ground/ Mini Park	Step 2-3
11	EMP8	0.5	Ground/ Mini Park	Step 2-4
12	EMP9	0.8	Ground/ Mini Park	Step 2-4
13	EMP10	0.3	Ground/ Mini Park	Step 2-4
14	EMP11	0.2	Ground/ Mini Park	Step 3-2
15	EMP12	0.2	Ground/ Mini Park	Step 3-1
16	EMP13	0.3	Ground/ Mini Park	Step 3-1
17	EMP14	0.6	Ground/ Mini Park	Step 3-3
18	EMP15	0.6	Ground/ Mini Park	Devanampiyatissapura (Redevelopment)
19	EMP16	0.5	Ground/ Mini Park	Devanampiyatissapura (Redevelopment)
20	EMP17	0.7	Ground/ Mini Park	Step 1-1
21	EMP18	0.9	Ground/ Mini Park	Step 1-2

22	EMP19	0.4	Ground/ Mini Park	Step 1-2
23	EMP20	0.3	Ground/ Mini Park	Step 1-2
24	EMP21	0.6	Ground/ Mini Park	Step 2-2 Jayasiripura Ground
25	EMP22	0.3	Ground/ Mini Park	Step 2-2 Mini Ground
26	EMP23	0.7	Ground/ Mini Park	Wessagiriya
27	EMP20	0.4	Ground/ Mini Park	Step2-3
28	EMP25	0.7	Ground/ Mini Park	Step2-3
29	EMP26	0.3	Ground/ Mini Park	Thammannawa
30	EMP27	0.7	Ground/ Mini Park	WanniThammannawa
31	EMP28	0.8	Ground/ Mini Park	Wannikulama Step 06
32	EMP29	0.4	Ground/ Mini Park	Wannikulama Step 01
33	EMP30	0.8	Ground/ Mini Park	Wannikulama Step 03
34	EMP31	0.5	Ground/ Mini Park	RannamaleShawasthipura
35	EMP32	0.2	Ground/ Mini Park	Pothanegama
36	EMP33	0.4	Ground/ Mini Park	Pandulagama
37	EMP34	0.8	Ground/ Mini Park	Pandulagama
38	EMP35	0.9	Ground/ Mini Park	Abhayawewa
39	EMP36	0.4	Ground/ Mini Park	Henewatta
	<b>Total</b>	<b>18.6</b>		
<b>Local Park</b>				
40	ELP1	1.2	Ground	Step2-4
41	ELP2	1.7	Ground	Step2-4
42	ELP3		Ground	Step3-2
43	ELP4	1.6	Ground	Step3-2
44	ELP5	1.7	Ground	Step3-1
45	ELP6	2.7	Ground	Step3-3
46	ELP7	1.3	Ground	Abhayawewa
47	ELP8	1.5	Ground	Step2-1 Dadly Senanayake Mawata
48	ELP9	2.0	Ground	Step1-2 Salgadu Ground
49	ELP10	2.4	Ground	Wessagiriya

<b>50</b>	ELP11	1.1	Ground	Thammannawa
<b>51</b>	ELP12	1.1	Ground	Wanniyankulama
<b>52</b>	ELP13	1.1	Ground	Pandulagama
<b>53</b>	ELP14	1.2	Ground	Pandulagama
<b>54</b>	ELP15	1.6	Ground	Pandulagama
	<b>Total</b>	<b>22.2</b>		
<b>Community Park</b>				
<b>55</b>	ECP1	6.0	Park	Step1-1 WalisingheHarischandra Ground
<b>56</b>	ECP2	5.0	Ground	Public Ground
	<b>Total</b>	<b>11.0</b>		
	<b>Total</b>	<b>52.0</b>		

Source: Urban Development Authority

**Table 6. 11 Proposed Common Open Areas Plan for Anuradhapura Urban Area**

No	Type	Area (H)	Proposed Use	GN Division
<b>Proposed Pocket Park</b>				
	PPP1	0.1	Pocket Park	Step 2-1
	PPP2	0.1	Pocket Park	Step 2 - 1
	PPP3	0.1	Pocket Park	Step 2 - 4
	PPP4	0.1	Pocket Park	Step 2 - 4
	PPP5	0.1	Pocket Park	Step 2 - 3
	PPP6	0.2	Pocket Park	Step 2 - 4
	PPP7	0.1	Pocket Park	Step 3 - 2
	PPP8	0.2	Pocket Park	Step 2 - 1
	PPP9	0.1	Pocket Park	Step 3 - 3
	PPP10	0.2	Pocket Park	Step 3 - 3
	PPP11	0.1	Pocket Park	Step 3 - 3
	PPP12	0.1	Pocket Park	Step 3 - 3
	PPP13	0.2	Pocket Park	ThisaWewa
	PPP14	0.1	Pocket Park	Step 2 - 3
	Total	1.9	Pocket Park	
<b>Proposed Mini Park</b>				
	PMP1	0.7	Mini Park	Step 2 - 1
	PMP2	0.2	Mini Park	Step 2 - 1
	PMP3	0.3	Mini Park	Step 2 - 1
	PMP4	0.2	Mini Park	Step 2 - 4
	PMP5	0.2	Mini Park	Step 2 - 4
	PMP6	0.3	Mini Park	Step 2 - 4
	PMP7	0.2	Mini Park	Step 3 - 1
	PMP8	0.2	Mini Park	Step 3 - 3
	PMP9	0.4	Mini Park	Step 3 - 1
	PMP10	0.4	Mini Park	Step 3 - 3
	PMP11	0.3	Mini Park	Step 3 - 3
	PMP12	0.2	Mini Park	Step 3 - 3

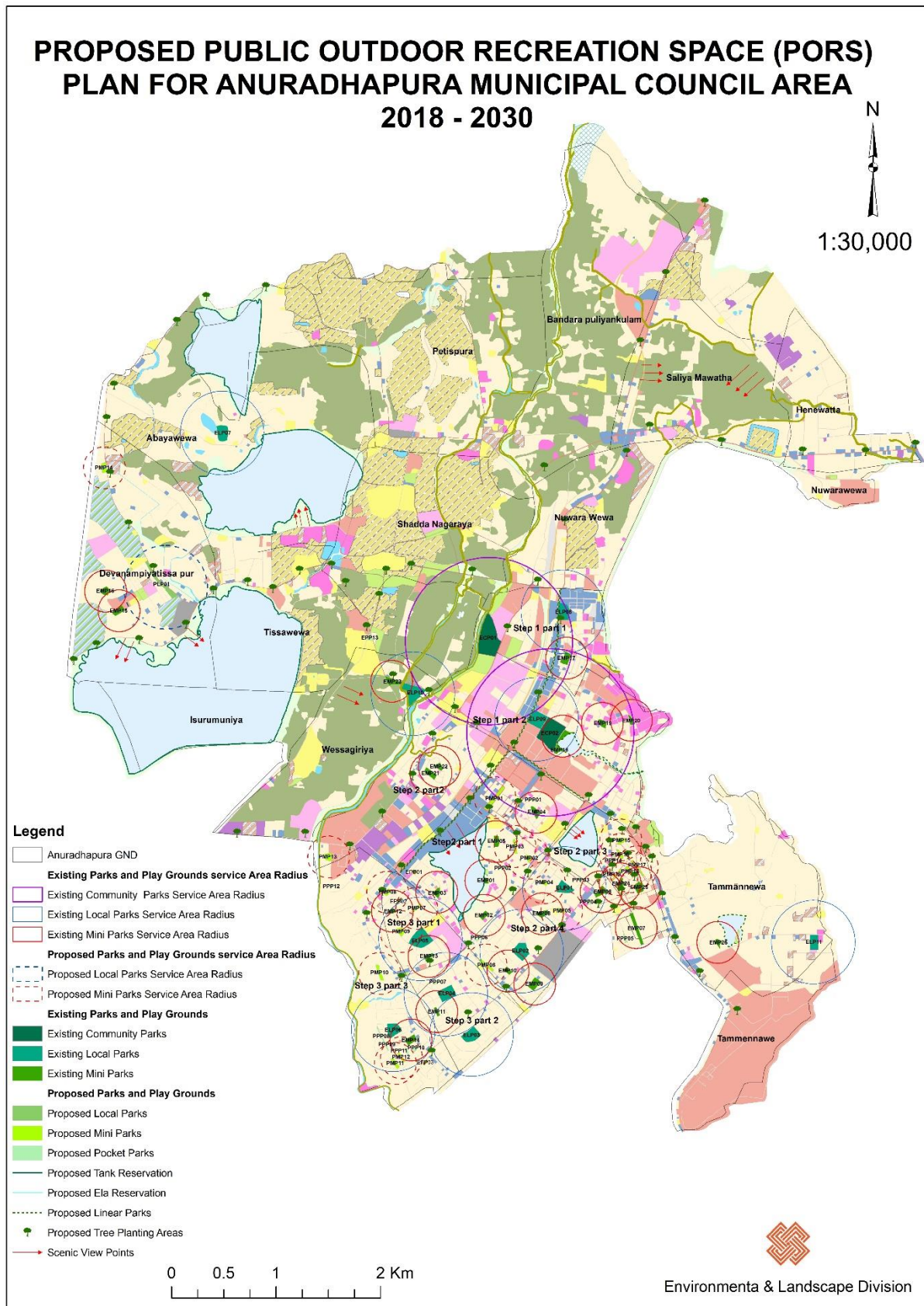
	PMP13	0.5	Mini Park	Step 2 - 2
	PMP14	0.4	Mini Park	Devanampiyatissapura
	PMP15	0.3	Mini Park	Step 2 - 2
	PMP16	0.2	Mini Park	Step 2 - 3
	PMP17	0.2	Mini Park	Step 2 - 3
	PMP18	0.3	Mini Park	Step 2 - 3
	PMP19	0.2	Mini Park	Step 2 - 3
	<b>Total</b>	<b>5.7</b>		
Proposed Local Parks				
	PLP1	1.3	Local Park	Dewanampiyatissapura
	<b>Total</b>	<b>5.7</b>		
Proposed Liner Parks (PLi.P)				
	PLiP1 MalwatuOya Reservation -60m	261.0	Liner Parks	
	PLiP2 Canal Reservation -20m	34.0	Liner Parks	
	PLiP3 Tank Reservation -50m	400.0	Liner Parks	
	PLiP4 Tank Reservation -5m	0.5	Liner Parks	Thammannawa
	PLiP5 Tank Reservation -5m	1.0	Liner Parks	Step 1 - 2
	PLiP6 Road Reservation -60m	3.4	Liner Parks	Police Rounder Bound and Both side of the Hospital road, Anuradhapura fair and Both side of the Dahaiyagama road
	<b>Total</b>	<b>699.9</b>		
	<b>Total of All</b>	<b>708.8</b>		

Source: Urban Development Authority

**Table 6. 12 Permissible Uses for Proposed Common Open Areas Plan of Anuradhapura Urban Area**

No	Type of the Park	Area	Permissible Uses
01	Pocket Park	Below 0.2h (0.5 Acres)	<ul style="list-style-type: none"> <li>• Scatted Ground Areas</li> <li>• Relaxing Area</li> <li>• Home Garden</li> </ul>
02	Mini Park	Between 0.2- 1.0h (0.5 - 2.5 Acres)	<ul style="list-style-type: none"> <li>• Ground for Children</li> <li>• Small Ground</li> <li>• Liner Forest Park</li> <li>• Relaxing Park</li> </ul>
03	Local Park	Between 1.0 – 3.0h (2.5 – 7.5 Acres)	<ul style="list-style-type: none"> <li>• Football ground with Children Park</li> <li>• .....place</li> <li>• Small Forest Park</li> <li>• .....</li> </ul>
04	Liner Park	Liner park decide according to existing reservation of Oya/ Canal/ Tanks	<ul style="list-style-type: none"> <li>• Walking</li> <li>• For Exercise</li> <li>• Cycling</li> <li>• Natural lanes</li> </ul>

Map 5 Public Outdoor Open Spaces



Source: Urban Development Authority

## **6.6 Heritage management strategies**

The sacred city of Anuradhapura is the main factor that intensifies the value and invincibility of Anuradhapura city. The sacred city which was identified as a strongest development potential by the urban development plan which is prepared for the Anuradhapura urban development area consists of 16000 acres' land extent adjoined and situated in the west of the Malwathu Oya which flows across the city.

The heritages belong to Anuradhapura urban area can be described 03 sections

1. Historical Buddhist heritage
2. related heritages to the irrigation civilization
3. Colonial heritages

it is aimed to properly manage these three heritages by the vision of “The capital city of the world Buddhist Heritages” which was developed for the Anuradhapura urban area and to promote the values and importance of the existing heritages of the urban area not only locally but also internationally.

In order to create this situation and to achieve the vision of the development plan, the goal of “to become an unforgettable city which was rich from the Buddhist heritages and cultures”, highly contributes.

In here, the required strategies are formulated with the purpose of increasing the values of existing heritages of the area, increasing the attention of the public for the existing heritages of the area and eliciting the hidden heritages which are spread throughout area to the public.

These strategies can be described under the 3 sections

1. Conservation
2. Security
3. Re-use in the way of increasing the value

while the required actions are organized to open the 13 hidden places with archaeological value which are spread throughout the area to worship to the public by conserving them, the roads are created and developed to connect these places with other main places. The opportunity is created for people to obtain the relevant information accurately and easily by locating the information boards properly.

It will also provide the necessary facilities to secure and maintain the places where attention is highly paid by local and foreign people. In order to obtain the proper description and realization about these heritages, a centre that can be obtained the all information about the heritages of Anuradhapura is established at the main place to enter into the old town. Through this initiation, this development plan provides the opportunities for people to enter into the sacred city with the proper realization and knowledge about the historicity of the Anuradhapura city.

And also, the development plan aims to incorporate the tourism industry into the economy of the city. For this purpose, while a tourist area has been identified through the zoning plan for providing the required services and facilities for local and foreign persons, it is aimed to develop a commercial area near to the main entrance of the sacred city and close proximity to the information and service centre for purchasing the souvenirs and commemorative plaques that have been mentioned the values of the Anuradhapura city.

And also, under the Heritage Management strategies, the museums in the sacred city are improved by using modern technology. The special features of the culture such as the ancient heritages of Anuradhapura city, the irrigation technology and the life style of the ancient people are prepared in digital form to present to the local and foreign people. It is also proposed to develop the museums in the area to provide practical experience on the historical irrigation civilization and life of the civilian which are main heritages of the Anuradhapura.

While it is expected to enforce these laws and regulations to ensure proper management of these heritages, as the areas in which these heritages remain, are very sensitive areas, the required laws and regulations would be prepared to further preserve and secure these places. The required laws and regulations will be prepared to maintain the five visibility lines which create the possibility to see the Buddhist heritages when someone just enter into the city as well

as he is in the city. These five visibility lines will be maintained by limiting the heights of the building and as an objective to achieve the goal of “to become Anuradhapura city an unforgettable city which consists of Buddhist heritages”, which is one of goals of the development plan.

while, under these heritage management strategies, required actions will be obtained to create the required land use patterns in urban area in order to generate over 800 employment opportunities related to the tourism industry, it is aimed to earn over Rs 1500 million from the tourism industry by 2030.

And also, the required actions will be obtained to create the better comfortable and safe environmental system in the urban area by avoiding the existing harmful torrid condition and specially to create a green pathway with greenery in connecting the sacred places and historical sites.

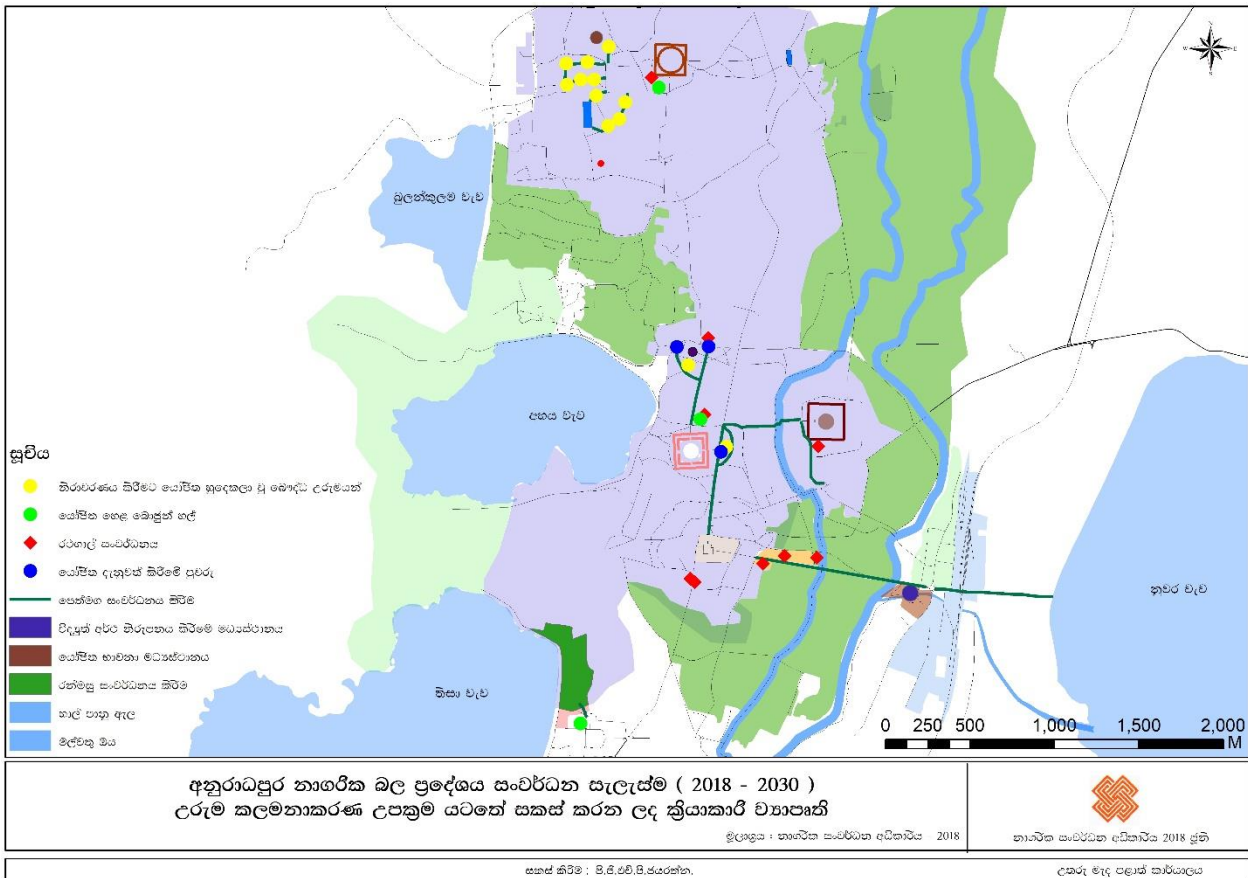
#### **6.6.1 Functioning Projects prepared under Heritage Management Strategies**

1. Prepare the border of the sacred by beautifying through the landscaping.
2. Establishment of an interpretative centre that can be obtained the all information about sacred city by using the modern technology near the Bandaranaike Museum.
3. Landscaping and lighting the Sri Mahabodhi road and the road from Sinha Kanuwa junction to Sri Mahabodhiya by vegetation cover.
4. Developing and lightening the below said vehicle parks with the vegetation cover.
5. Developing and lightening the five vehicle parks near the Sri Mahabodiya, Ruwanwalisaya Vehicle Park, Mirisawatiya Vehicle Park, Vehicle Park near the Jethawanaramaya, Vehicle Park near the Thuparamaya, and Vehicle Park near the Abayagiriya by beatification by the vegetation cover.

6. Development of foot paths from Sri Mahabodhiya to Ruwanmalisaya and from Ruwanmalisaya to Thuparamaya by doing the landscaping, lightening and beautification by vegetation cover.
7. Development of a foot path from Ruwalasseeka to Jethawanaramaya and landscaping, lightening and beautification by vegetation cover.
8. Landscaping and lightening the archeological latrine system in front of the Ruwanwalisaya in order to increase the value of historical heritage.
9. Doing the Landscape and lightening in the archaeological Thuparama hospital near the Thuparamaya in order to display the majesty of proud history.
10. Fixing the notice boards with a plan including the historical facts in front of Ruwanmassiwa and Thuparamaya  
.
11. Development of the foot path linking the historical Thuparama hospital and connect it with the foot path which runs from Ruwanmaliya to Thuparama.
12. Develop a foot path with the purpose of eliciting the historical latrine system in front of the Ruwanwalisaya and connect it with the foot path which extends from Sri Mahabodiya to Ruwanwalisaya.
13. Construction of units with drinking water facilities and latrine and urinal facilities at all the vehicle parks to be developed.
14. Jethawanarama Museum  
Establishment of the digital museum to convey all the information about the places of Sri Mahabodiya, Ruwanwalisaya, Thuparamaya, Jethawanaramaya and its surrounding area, Lowamahapaya, historicala latrine and urinal system in front of the Ruwanwalisaya, Tuparama hospital and do landscape to increase the historical values in surrounding of the museum.

15. Landscaping and lightening the foot path from Jethawanaramaya to Jathawanarama Museum which is a portion of the foot path to be developed from Ruwanwalisaya to Jethawanaramaya
16. Develop the Public Museum and Archaeological Museum as the places where can be visited the historical irrigation technology, engineering technology and evolution of the historical settlements and where can be practically experimented these technologies and beautify the surrounding of these museums with the landscaping in the manner of increasing its' historical values.
17. Establishment of drinking water facilities and latrine and urinal facilities near the Public Museum and Archaeological Museum.
18. Create the interrelationship among the historical places such as Bisokotuwa, Sadakadapahana, RathnaPrasadaaya, MahasenMaligaya, PrasadhaSthupaya, Thewana Samadhi Buddha Prathimawa, Dewana Samadhi Buddha Prathimawa, AthPokuna, iii WanaBodhigaraya, UththaraMulaya in the manner of preserving the historical importance of these places by developing the foot path in installing the vegetation cover and by making the bicycle lanes.
19. To create a meditation canter by utilizing the 100% natural environment for meditation purposes of the laymen and monks near to Abhayagiriya and Sadakadapahana.
20. Developing the RanmuruUyanaas a garden in order to preserve its historical value as well as increase the value of it and also irradiating the foot path from Ranmura garden to Isurumuniyaby developing the vegetation cover.
21. Establishment of Hela Bojunsal near the vehicle parks of Ruwanweliseya, Isurumuniya, Abhayagiriya.

Map 6 Active projects under the Heritage Management Strategy



Source: Urban Development Authority

## **6.7 Implementation strategies**

### **6.7.1 Strategic projects**

#### **6.7.1.1 Projects to be implemented at the first stage**

1. Development and merger of transport centers
2. Development of Jayanthi Mawatha up to Jaffna road
3. Development of the canals and the proper identification of the cemeteries and provision of GC coordinates to the Urban Development Authority
4. Marking the boundaries of the sacred city boundary and granting the GPS coordinates to the Urban Development Authority
5. Creation of an interpretation center at the entrance to the sacred city
6. To expose the isolated Buddhist heritage to the people
7. In the sacred city, develop the moat
8. Preparation of Rain Water Drainage System

#### **6.7.1.2 Projects to be implemented during the second stage.**

1. Development of the first road from natureba road towards Haridagama junction
2. Development of byroads
3. Development of the Ponnaramkulama tank as a public rest area
4. Extension of the MalwathuOya Road
5. Development of parking lot at Pooja town

#### **6.7.1.3 Projects to be implemented in stage three.**

1. Development of Ranmushu garden
2. Establishment of Halawi Eating Utensils in Sacred City
3. A meditation center using the natural environment
4. Landscaping of museums.

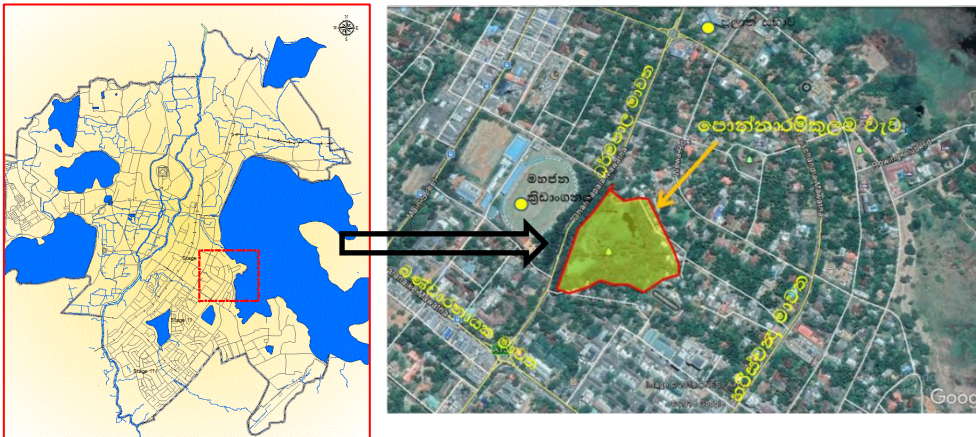
5. Installation of Awareness Boards on the Road Network
6. Establishing guides in the sacred city
7. Development of mysteries in digital media
- 8 Development of drainage system
- 9 Construction of bicycle lanes in the sacred city.

### 6.7.1.1 Public Open Area Development Project at Ponnamkulama Wewa

#### Project Identification

<b>Project Title</b>	Public Open Area Development Project at PonnamkulamaWewa
<b>Project</b>	Optimum utilization of the Environmental Importance places of Anuradhapura City
<b>Project Proposal</b>	Development of the small abandoned tanks of the Anuradhapura city for utilizing for the recreational activities and as water retention areas during the occasional flood situations.

#### Project Location

Location	Province	North Central	District	Anuradhapura
	DS Division	NuwaragamPlatha East	LA	Anuradhapura MC
Boundary	North	East	South	West
	Housing Lands	Unauthorized Settlement	Based Hospital & Unauthorized Settlement	Dharmapala Mawatha
Access	Dharmapala Mawatha			
Location Map				

Adjacent Land Uses (explain with map)	Residential Areas and institutional buildings such as Based Hospital, Public Ground, Court and Ayurwedaya are located.

### Project Justification

<b>Project Type</b>	New		Improvement	√	Extension		Land Development only	√
<b>Project Category</b>	Conservation	Commercial	Landscape	Heritage	Housing	Relocation	Infrastructure	
			√				√	
<b>Project Aspect</b>	Environment	√	Economic	√	<b>Social</b>			√
<b>Project Objective</b>	<ul style="list-style-type: none"> <li>• Create a resting Places where the residents and tourist can spend their leisure time freely and conveniently.</li> <li>• Optimum utilization of the underutilized lands of Anuradhapura city</li> <li>• Establishment of temporary rain water retention area at Anuradhapura city</li> <li>• Increasing the natural beauty of Anuradhapura city</li> <li>• Increase the efficiency of real estate market in Anuradhapura</li> </ul>							
<b>Rational of project</b>	<p>Although sufficient land extent has been allocated in the land use for leisure and recreational facilities for the residents of the Anuradhapura city and foreign and local tourists, they have not been properly developed. On the other hand, as these lands have been encroached, different environmental issues are there due to the blockage of the water drainage system. The time period which is spent in the city by the local and foreign tourists, is very less due to the absence of the diversified places for the local and foreign tourists. The city had a relationship with the natural</p>							


	environment since the ancient time and now it is gradually declining. And also, this project expects to create the unforgettable memories in the local and foreign tourists about the city and make the regular arrival of them to the city and increase the time period they spend in the city. The project also aims to reduce the feeling temperature that increases due to the effects of the global warming.
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### Property Description

<b>Present Land Ownership</b>	Private				State	√	Other		
<b>Free Encumbrances</b>	Yes		No	√	If it is No, please specify	A part is blocked due to unauthorized constructions			
<b>Details of the Ownership</b>	The lands belong to the divisional secretary of Nuwaragam Palatha East and the boundaries need to be identified Specifically.								
<b>Survey Plan Detail</b>	Survey Plan No.		Name of the Surveyor			Date	Land Extent		
							.....A	...R	.....P

### Project Description

<b>Project Period</b>	Short term (1 year)		Mid Term (1-3 year)		Long term (3 year)	√	Total Estimated Cost (Rs. Mn)	
<b>Financing Method</b>	UDA Funding							
<b>Description of the Project (with map)</b>	<ol style="list-style-type: none"> <li>1. Development of lands</li> <li>2. Tree Planting</li> <li>3. Development of lanes and constructing the benches</li> <li>4. Landscaping</li> </ol>							

						
<b>Zone</b>	Active Zone	compatibility with zoning regulations	Yes	√	No	

### 6.7.1.2 Development of Jayanthi Mawatha up to Jaffna Junction

#### Project Identification

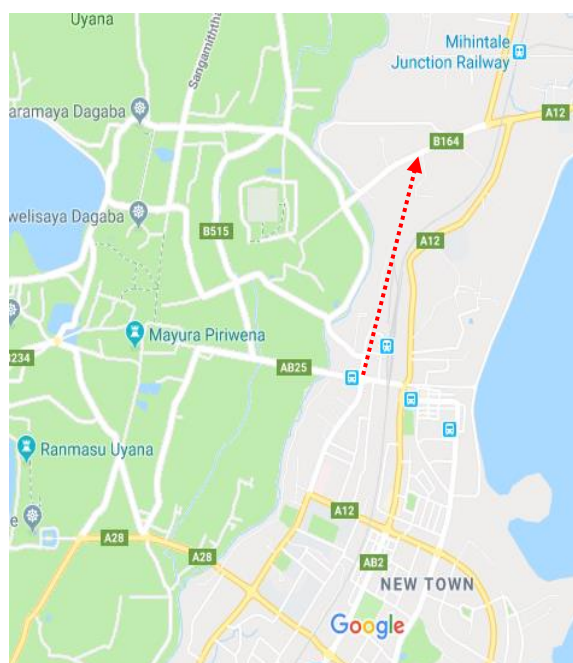
<b>Project Title</b>	Development of Main Roads
<b>Project</b>	Developing and lightning the Jayanthi Mawatha and the road from Roundabout of SingheKanuwa to Jaffna Junction
<b>Project Proposal</b>	

#### Project Location

<b>Location</b>	Province	North Central	District	Anuradhapura
	DS Division	NuwaragamPlatha East	LA	Anuradhapura MC
<b>Boundary</b>	North	East	South	West
	Agricultural Land	-	-	-

**Access** Jayanthi Mawatha

#### Location Map



<b>Adjacent Land Uses</b>	Agricultural Lands and lands of railway department
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### Project Justification

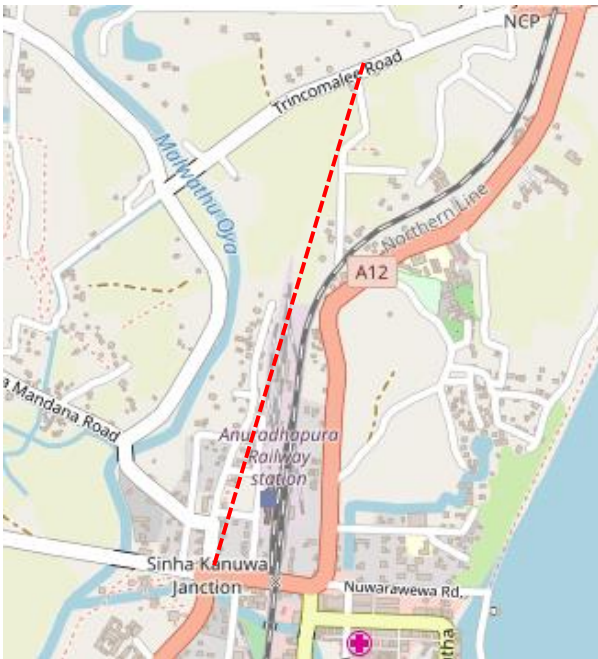
<b>Project Type</b>	New		Improvement		Extension	√	Land Development only	
<b>Project Category</b>	Conservation	Commercial	Landscape	Heritage	Housing	Relocation	Infrastructure	√
<b>Project Aspect</b>	Environment	√	Economic		Social			√
<b>Project Objective</b>	This project was proposed with the purpose of creating the easy access for the vehicles which are driven to the west across the town center. After the project, the vehicles can be driven directly across the city without entering to the town center.							
<b>Rational of project</b>	Anuradhapura is main capital of the north central province. The amount of people who arrives to the city from the different areas is about 160,000. It is expected that this amount would increase up to the 280,000 by 2030. Therefore, this project is implemented as an alternative for the long service transport network which travels across the city and obstruct to the daily functionality of the city. It is aimed to maintain the traveling speed of the vehicles on the main roads at the level of 25 per hour kilometers by 2030.							

### Property Description

<b>Present Land Ownership</b>	Private		State	√	Other	√
<b>Free Encumbrances</b>	Yes	No	√	If it is No, please specify		
<b>Details of the Ownership</b>	The Road Development Authority is acquiring the ownership of the land connected with this road.					
	Survey Plan No.	Name of the Surveyor		Date	Land Extent	

<b>Survey Detail</b>	<b>Plan</b>				.....A	...R	....P
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**Project Description**

<b>Project Period</b>	Short term (1 year)		Mid Term (1-3 year)	√	Long term (3 year)		Total Estimated Cost (Rs. Mn)
<b>Financing Method</b>							
<b>Description of the Project (with map)</b>	<p>1. Lighting both sides of the Road                  2. Create of vegetation coverage both sides of the road</p> 						
<b>Zone</b>			Zoning compatibility	Yes	√	No	

### 6.7.1.3 Development Project of RanmasuUyana of Anuradhapura

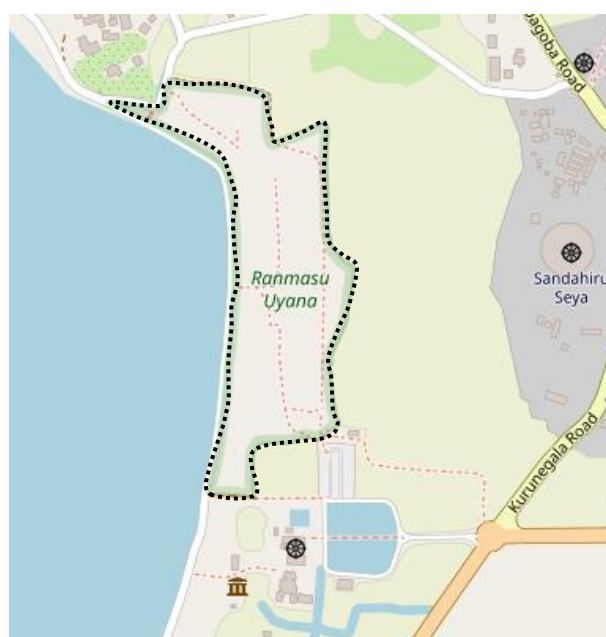
#### Project Identification

<b>Project Title</b>	Development Project of RanmasuUyana of Anuradhapura
<b>Project</b>	Direct the attention for proud history of Anuradhapura in developing the environmental beauty.
<b>Project Proposal</b>	Landscaping the project impact area, development of leisure and recreational places for leisure and recreational activities and make aware about the historical heritages.

#### Project Location

<b>Location</b>	Province	North Central	District	Anuradhapura
	DS Division	NuwaragamPlatha Central	LA	Anuradhapura MC
<b>Boundary</b>	North	East	South	West
	Old Puttam Road	Agricultural Lands	Isurumuniya	ThisaWewa
<b>Access</b>	Near the Isurumuniyascared area			

#### Location Map



<b>Adjacent Land Uses (explain with map)</b>	It is located between Old Puttlam Road, Isurumuniya Temple and Thisa Wewa bond
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### Project Justification

<b>Project Type</b>	New	√	Improvement	Extension		Land Development only	
<b>Project Category</b>	Conservation	Commercial	Landscape	Heritage	Housing	Relocation	Infrastructure
	√		√	√			
<b>Project Aspect</b>	Environment	√	Economic	√	Social		√
<b>Project Objective</b>	<p>Protect the historical heritages and make local and foreign tourists aware about these heritages.</p> <p>It is contributed to the economic growth of the of the urban development area through the development of the tourism industry.</p>						
<b>Rational of project</b>	<p>By developing the WanaRanmasu Uyana, this proposed project aims to develop the hidden beautiful areas which consist of natural environmental features and therefore should be opened for the foreign and local tourists.</p> <p>This proposed project was identified under the strategies for cultural and heritage management of the conservation plan for archeological sites in order to develop the tourism industry and develop as an unforgettable place for immigrants by 2030 through the Anuradhapura urban development plan.</p> <p>This project expects the economic growth of the area through the development of physical and environmental aspects and the re-establishment of ancient environmental beauty.</p>						

**Property Description**

<b>Present Land Ownership</b>	Private				State	√	Other		
<b>Free Encumbrances</b>	Yes		No	√	If No give details				
<b>Details of the Ownership</b>	Archeological Department								
<b>Survey Plan Detail</b>	Survey Plan No.		Name of the Surveyor			Date	Land Extent		
							.....A	...R	....P

**Project Description**

<b>Project Period</b>	Short term (1> year)	√	Mid Term (1-3 year)		Long term (3< year)		Total Estimated Cost (Rs. Mn)	
<b>Financing Method</b>	Treasury Fund							
<b>Description of the Project (with map)</b>	This Ranmasu Uyana Development Project aims to prepare the relevant lands with the different types of grasses and to develop the foot paths by laying the stones, development of visiting places, development of areas by laying the sand and development of the places for rest. Further it is expected to reestablish the garden which exists in the pre historical era by setting up the indigenous trees and flower bushes.							
<b>Zone</b>		Zoning compatibility			Yes	√	No	

## Project Identification

<b>Project Title</b>	Heritage Management
<b>Project</b>	Development of Parking areas with facilities within the Sacred City (Drinking Water, Sanitation, street lamps and Landscaping)
<b>Project Proposal</b>	Development of existing parking facilities nearby the Sri MahaBodhiya, Ruwanweliseya, Thuparamaya, Jethawanaramaya, Mirisawetiya, Abhayagiriya

## Project Location

### History

While the king Mutaseewali discovered the Ranmasu Uyana in the period of 310-251 B.C, the history of This Begins form the pre historical era. This is a delightful place like royal garden which consists of the ponds, flower bushes, resting areas, arbors and stone seats. This was popular as Ranmasu Uyana because this place was dense with the gold Fishes. According to the definitions of the various scholars, there is a belief that the special stone slab which has a carved shape is a gateway between the earth and outer space.

### Existing Situation



### Proposed Projects

1. Landscaping
2. Preparing the foot pathways with the vegetation coverage
3. Lightning

**6.7.1.4 Development of Parking Areas with Facilities within Sacred City**

<b>Location</b>	Province	North Central	District	Anuradhapura
	DS Division	NuwaragamPlatha Central	LA	Anuradhapura MC
<b>Boundary</b>	Boundary of the Sacred City			
<b>Access</b>	through the Sacred City			
<b>Location Map</b>				
<b>Adjacent Land Uses (explain with map)</b>	Archeological area			

**Project Justification**

<b>Project Type</b>	New		Improvement	√	Extension		Land Development only	
<b>Project Category</b>	Conservation	Commercial	Landscape	Heritage	Housing	Relocation	Infrastructure	
							√	
<b>Project Aspect</b>	Environment	√	Economic		Social		√	
<b>Project Objective</b>	Provide the facilities for every person who comes to the scared city in convenient manner.							
<b>Rational of project</b>	The goals and objectives of the development plan							

**Property Description**

<b>Present Land Ownership</b>	Private		State		Other	√
<b>Free Encumbrances</b>	Yes	No	√	If No give details		
<b>Details of the Ownership</b>						
<b>Survey Plan Detail</b>	Survey Plan No.	Name of the Surveyor			Date	Land Extent
					.....A	.....R
					.....P	

**Project Description**

<b>Project Period</b>	Short term (1> year)		Mid Term (1-3 year)	√	Long term (3< year)		Total Estimated Cost (Rs. Mn)	
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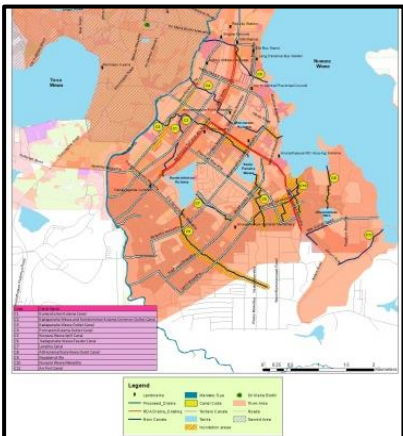
<b>Financing Method</b>	Treasury Fund					
<b>Description of the Project (with map)</b>	Renovating the existing vehicle parking areas, drinking water facilities, sanitation facilities, street lamps for the devotees who comes to worship the popular holy places such as Udimaluwa, Tuparamaya, Jethawanaramaya, Mirisawatiya, Abayagirita in Anuradhapura sacred city.					
<b>Zone</b>		Zoning compatibility	Yes	√	No	

### 6.7.1.5 Development project for rain water sewerage canal system

#### Project Identification

<b>Project Title</b>	Development project for rain water sewerage canal system
<b>Project</b>	Development of main canal system in Anuradhapura City
<b>Project Proposal</b>	Control the periodically flood situation of the city through developing of main canal system in Anuradhapura City

#### Project Location

<b>Location</b>	Province	North Central	District	Anuradhapura
	DS Division	NuwaragamPlatha East	LA	Anuradhapura MC
<b>Boundary</b>	North	East	South	West
	-	-	-	-
<b>Access</b>				
<b>Location Map</b>	<p><b>Main Canals located center of the Anuradhapura city</b></p> <ul style="list-style-type: none"> <li>• Nuwara Wewaspill canal</li> <li>• Nayabedi Ela</li> <li>• Wanniyankulamaspill canal</li> <li>• Kanaththa Ela</li> <li>• Kubichchankulamaspill Canal</li> <li>• Ponnaramkulama spill</li> <li>• Anthikulama spill</li> </ul>			
				

<b>Adjacent Land Uses (explain with map)</b>	Residential, Commercial, Tourist activities
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### Project Justification

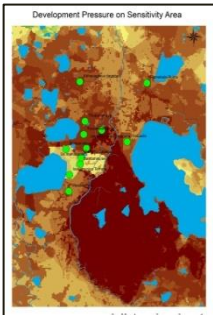


<b>Project Type</b>	New	√	Improvement		Extension		Land Development only
<b>Project Category</b>	Conservation	Commercial	Landscape	Heritage	Housing	Relocation	Infrastructure
			√				√
<b>Project Aspect</b>	Environment	√	Economic	√	Social		√
<b>Project Objective</b>	<ul style="list-style-type: none"> <li>• Control periodically flood condition in Anuradhapura City</li> <li>• make the water flowing cannel of Anuradhapura as healthy places for the people</li> <li>• directing the lands in underutilization for the optimum utilization</li> <li>• increase the beauty of the nature in Anuradhapura city</li> <li>• Marking the boundaries of canal reserves properly.</li> </ul>						
<b>Rational of project</b>	The effects of the rapid urbanization of the Anuradhapura city has been a threat for small scale tanks and the drainage system in the town centre. The urban residents have to face to the flood situation and denguedisease because of absence of the proper development for this drainage system.						

### Property Description

<b>Present Land Ownership</b>	Private			State	√	Other	
<b>Free Encumbrances</b>	Yes	No	√	If No give details			

<b>Details of the Ownership</b>	The lands belong to the divisional secretary of NuwaragamPalatha East and the boundary need to be identified Specified					
<b>Survey Plan Detail</b>	Survey Plan No.	Name of the Surveyor	Date	Land Extent		
				.....A	.....R	.....P

**Project Description**

<b>Project Period</b>	Short term (1> year)	√	Mid Term (1-3 year)		Long term (3< year)		Total Estimated Cost (Rs. Mn)	
<b>Financing Method</b>	Anuradhapura integrated urban development project / Anuradhapura MC							
<b>Description of the Project (with map)</b>	<p>The effects of the rapid urbanization of the Anuradhapura city has been a threat for small scale tanks and the drainage system in the town centre. The urban residents have to face to the flood situation and dengue disease because of absence of the proper development and maintenance of this drainage system. Here, it is proposed to develop the canals and mark the boundaries of canal, Malwathu oya and tank reserves.</p> <div style="display: flex; justify-content: space-around;">    </div>							
<b>Zone</b>		Zoning compatibility	Yes	√	No			

## 6.7.2 Projects and Relevant Institutions

Projects to be implemented in the urban area in order to achieve Vision in Anuradhapura City and relevant institutes are given below.

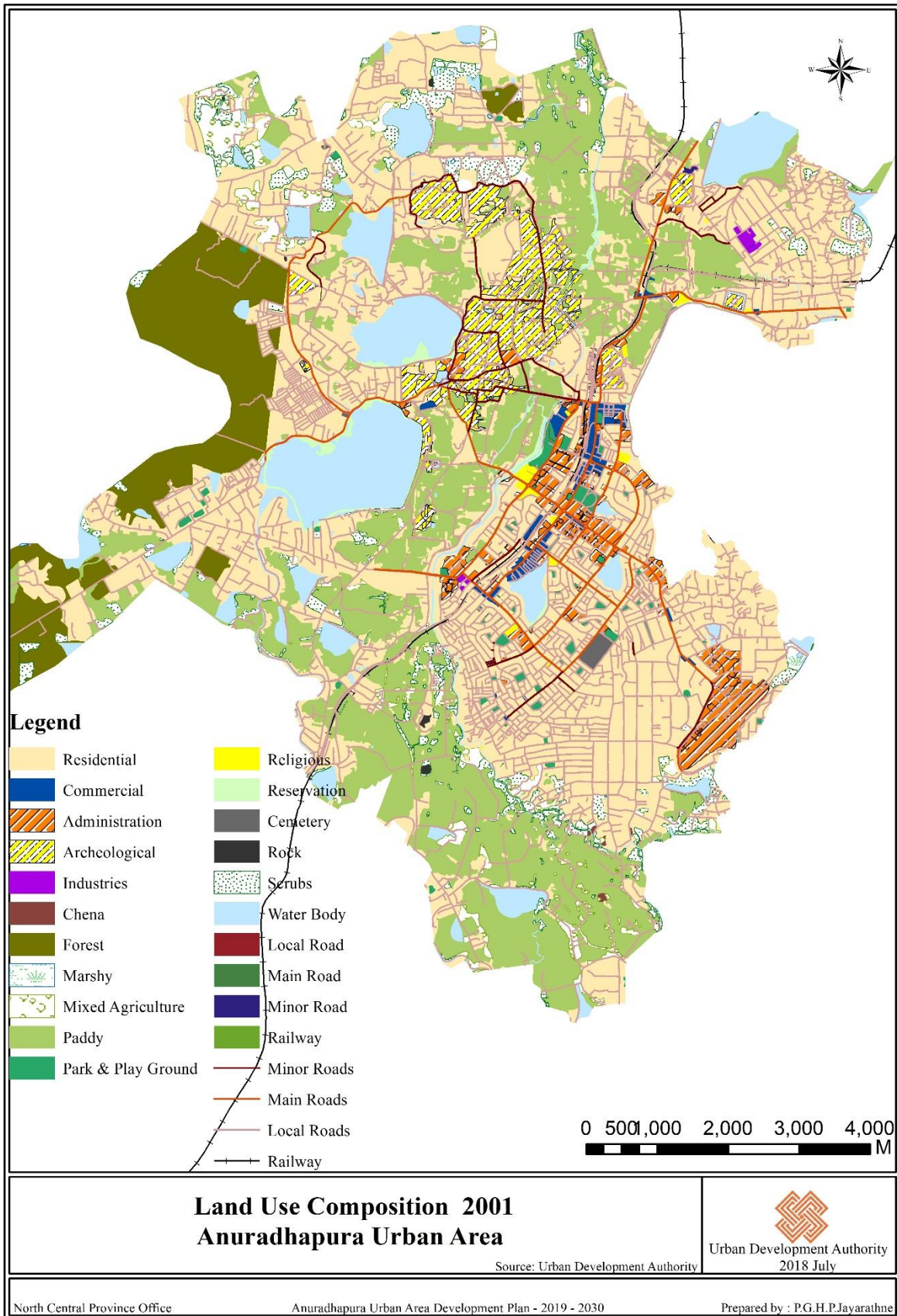
No	Development project	Relevant Institute	Responsibility
01	Integrated development for the transport Center	Municipal Council, railway department, Urban Development Authority, Strategic Cities development project	Financial Allocation and Project Implementation
02	Development of Inner Roads	Relevant Local Authority	Financial Allocation and Project Implementation
03	Development of Jayanthi Mw up to Yapanaya Junction	Road development Authority	Financial Allocation and Project Implementation
04	Development of the playground road across the road behind the nature park up to the Harischandra road as two lanes roads.	Municipal Council	Financial Allocation and Project Implementation
05	Extension of Malwathru Oya Road	Relevant Local Authority	Financial Allocation and Project Implementation
06	Establishment of boards which make aware about the road system	Municipal Council	Financial Allocation and Project Implementation
07	Opening the isolated Buddhist Heritages in Sacred City for the Public by Landscaping Them	Archeological Department, Central Cultural Fund, Urban development Authority	Financial Allocation and Project Implementation
08	Constructions of "Hela Bojun Hal" with in Sacred City	Archeological Department, Central Cultural Fund, Urban development Authority	Financial Allocation and Project Implementation
09	Development of parking Places within Sacred City	Archeological Department, Central Cultural Fund, Urban	Financial Allocation and Project Implementation

		development Authority	
10	Establishment of Sign Boards in Sacred City	Archeological Department, Central Cultural Fund	Financial Allocation and Project Implementation
11	Development of Foot Paths in Sacred City	Archeological Department, Central Cultural Fund	Financial Allocation and Project Implementation
12	Development of Canals and Mark the reservation on the Ground and giving GPS point of those reservations to the Urban Development Authority	Irrigation Department, Urban Development Authority, provincial irrigating Department, Municipal Council	Financial Allocation and Project Implementation
13	Preparation of Rain water Sewerage System	Municipal Council	Financial Allocation and Project Implementation
14	Mark Boundaries of the sacred city and give GPS points the UDA	Archeological Department, Central Cultural Fund, Urban Development Authority	Financial Allocation and Project Implementation
15	Ponnaramkulama wewa development as Common rest Area	Urban development Authority	Financial Allocation and Project Implementation
16	Development of museum using Digital Form	Archeological Department , Central cultural Fund	Financial Allocation and Project Implementation
17	Establishment of the information Center at the entrance of the Sacred City	Archeological Department , Central cultural Fund, irrigating Department, Municipal Council ,Urban Development Authority, Strategic Cities development project	Financial Allocation and Project Implementation
18	Establishment of Meditation Center in the Sacred City by using the Natural Environment	Archeological Department, Central cultural Fund, Urban Development Authority.	Financial Allocation and Project Implementation
19	Ranmasu Uyana Development	Archeological Department, Central cultural Fund, Urban Development Authority.	Financial Allocation and Project Implementation

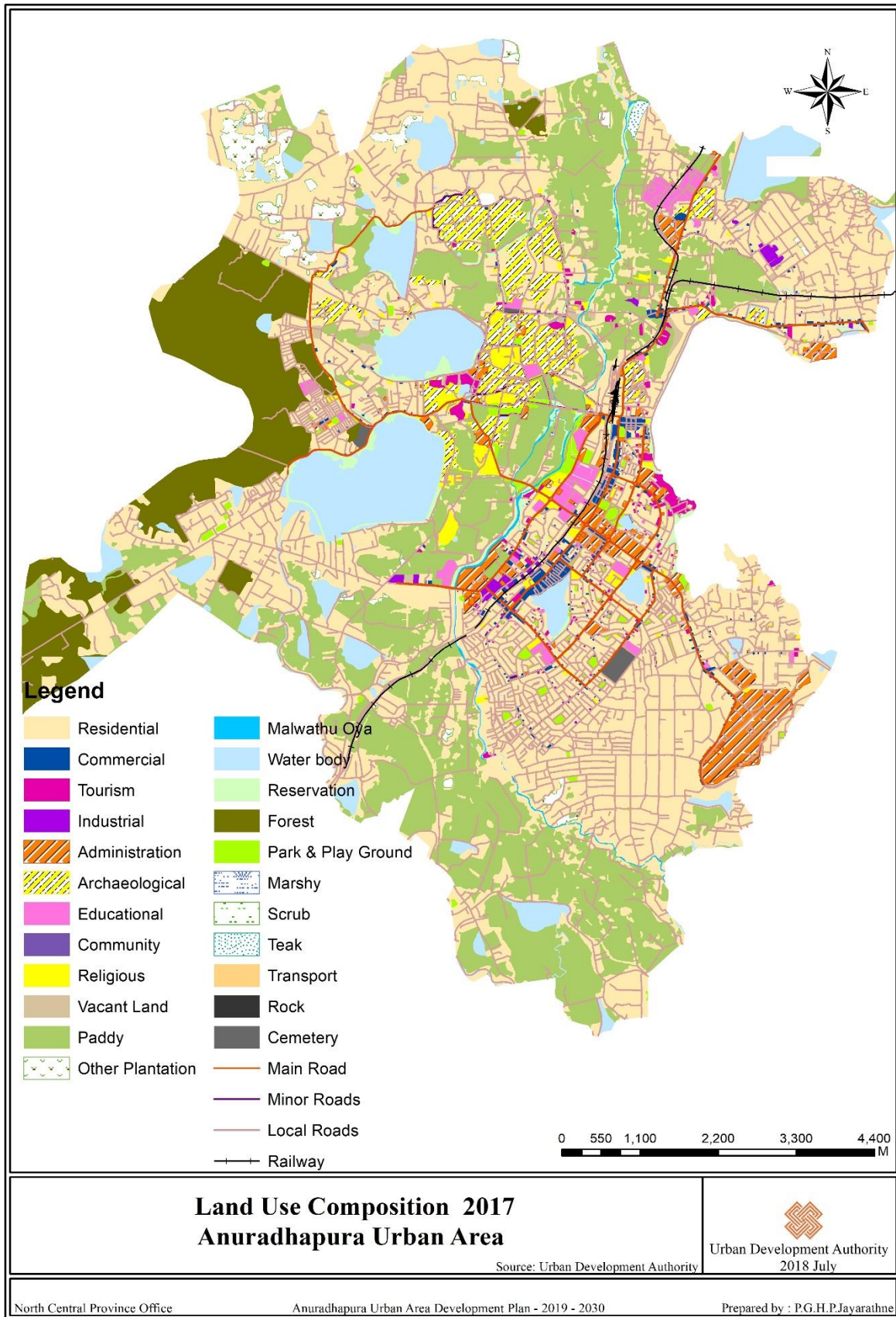
20	Develop Bicycle lane in Sacred City	Archeological Department, Central cultural Fund, Urban Development Authority, Strategic Cities Development Project	Financial Allocation and Project Implementation
21	Landscaping the premises of the Museum in Sacred City	Archeological Department, Central cultural Fund, Urban Development Authority,	Financial Allocation and Project Implementation
22	Development of Sewerage system	Municipal Council , National Water supply and Drainage Board	Financial Allocation and Project Implementation
23	Town Center redevelopment Project	Urban Development Authority	Financial Allocation and Project Implementation
24	Hospital Developments	Health Department	Financial Allocation and Project Implementation
25	Schools development	Education department	Financial Allocation and Project Implementation
26	Singhe kanuwa Landscaping project	Strategic Cities development Project	Financial Allocation and Project Implementation
27	Develop Public Space at Main Railway Station	Strategic Cities development Project	Financial Allocation and Project Implementation
28	Public fair Development	Strategic Cities development Project	Financial Allocation and Project Implementation
29	Dharmapala Mawatha redevelopment Project	Strategic Cities development Project	Financial Allocation and Project Implementation
30	Maitripala Senanayake mawatha and Bandaranayake Mawatha Development Project	Strategic Cities development Project	Financial Allocation and Project Implementation
31	Develop Folk museum and Archeological Museum to get Practical understand about Ancient irrigation system,	Archeological Department, Central cultural Fund, Urban Development Authority,	Financial Allocation and Project Implementation

	Engineering System, Evaluation of the City, Ancient Agriculture Techniques		
32	Develop a road from panduloagama to Saliyapura via Galpalama and develop Bridges	Archeological Department, Central cultural Fund and relevant local Authority	Financial Allocation and Project Implementation
33	Develop Entrance Gates of places which are provide access to the City	relevant local Authority	Financial Allocation and Project Implementation
34	Develop Sanitary system in Urban Area	relevant local Authority	Financial Allocation and Project Implementation
35	Develop day Cares and Gardens	relevant local Authority	Financial Allocation and Project Implementation

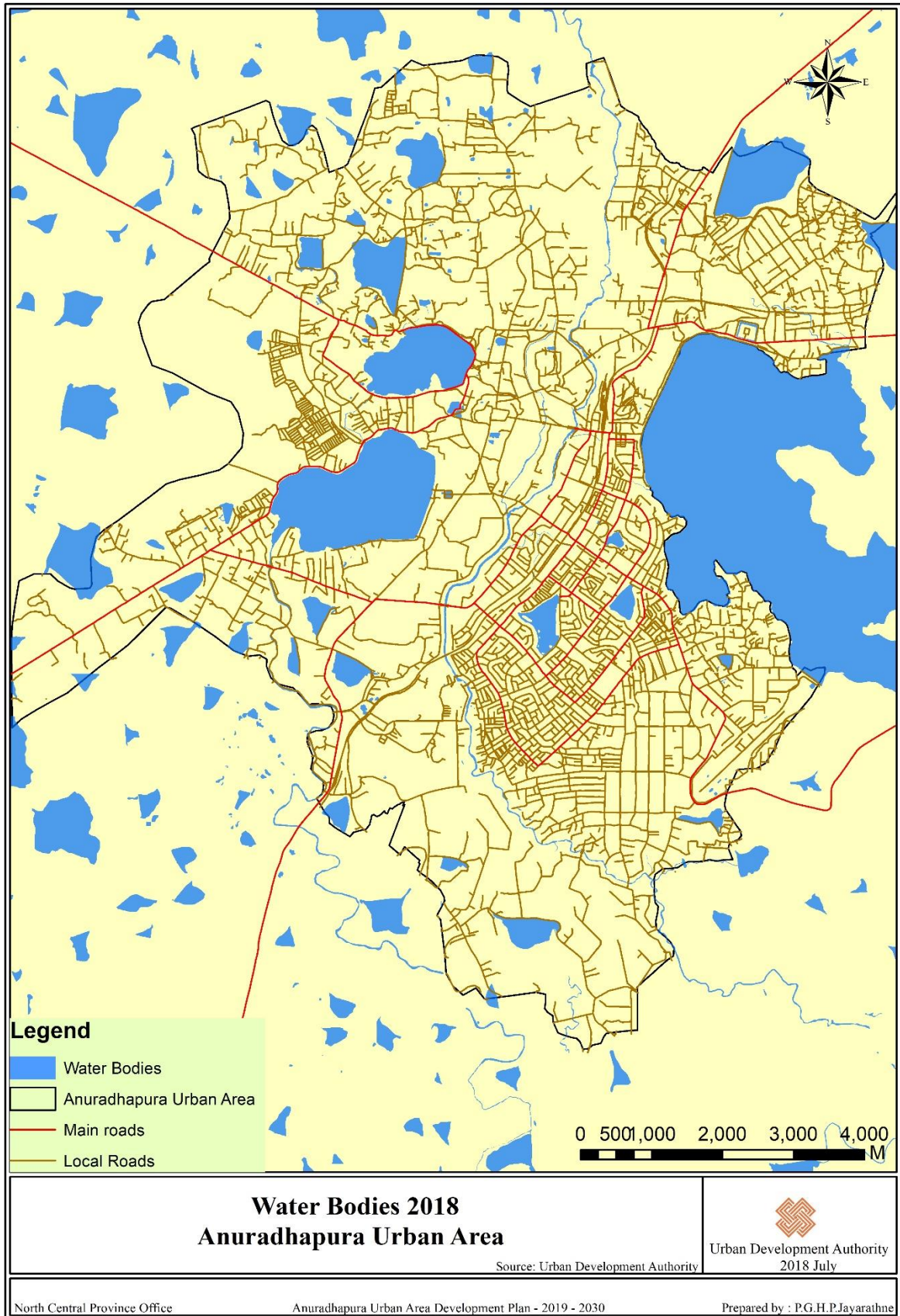
Map 7. Land Use Pattern 2001



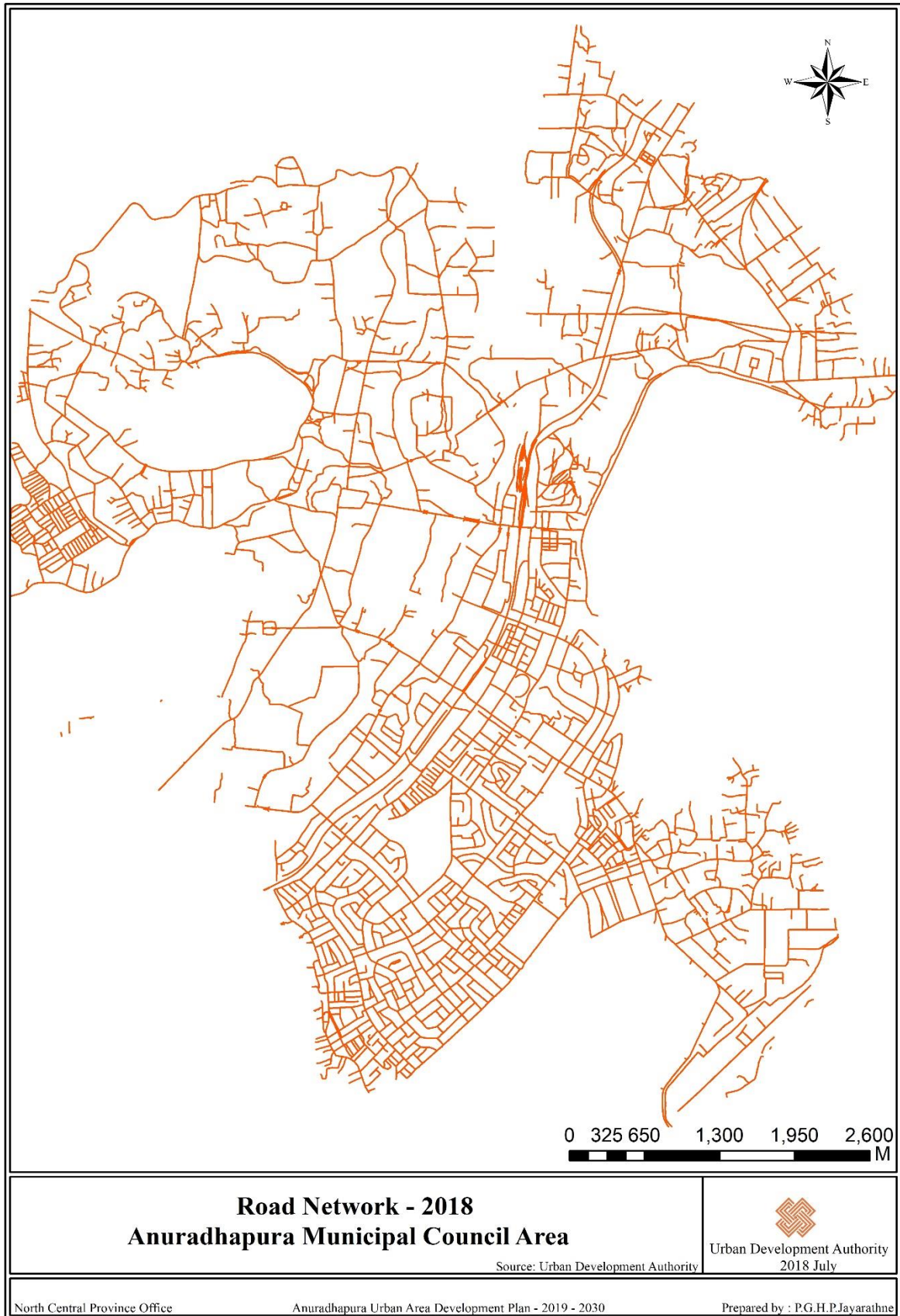
Map 8. Land Use Pattern 2017



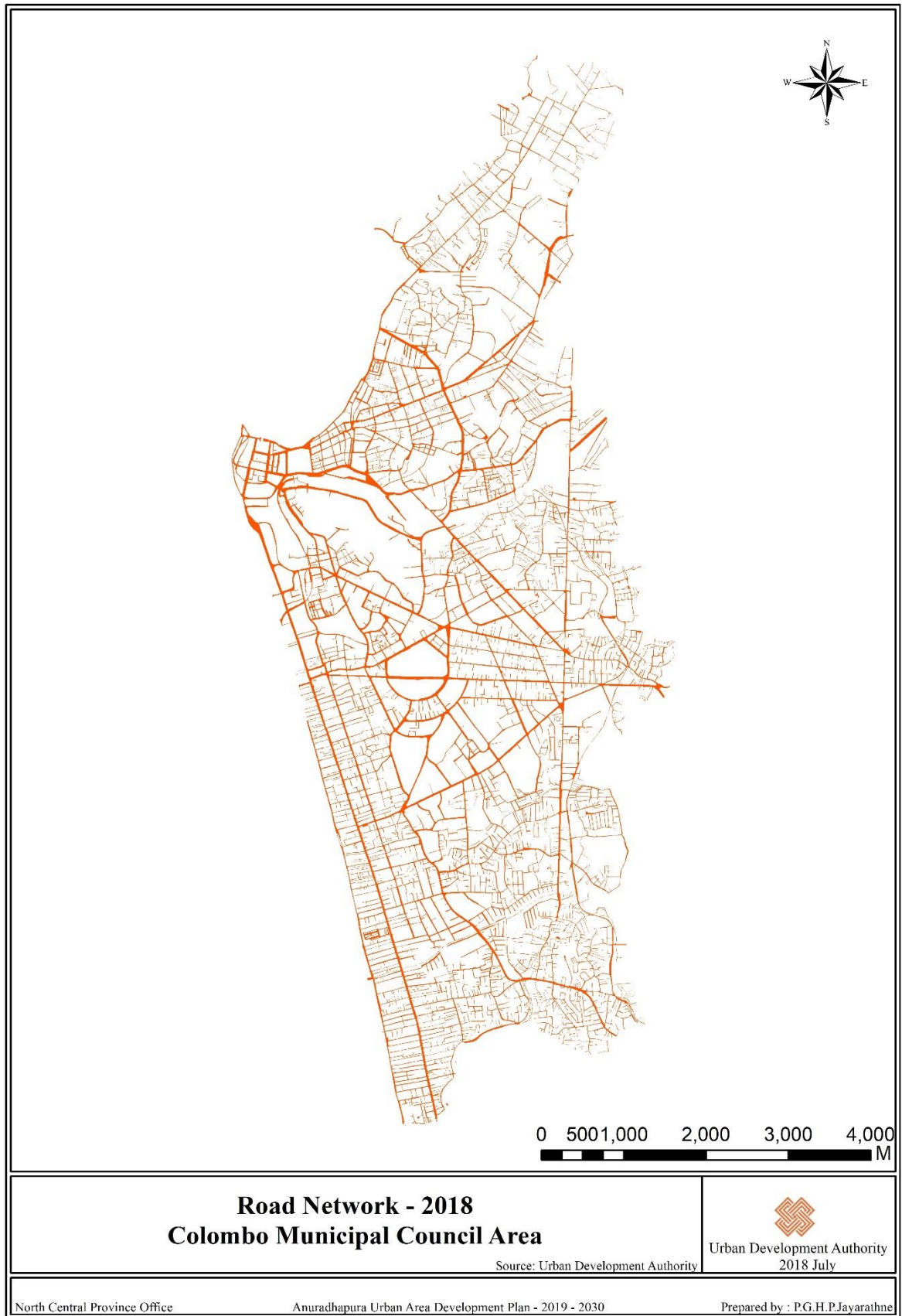
Map 9. Water Areas of Urban Development Area 2018



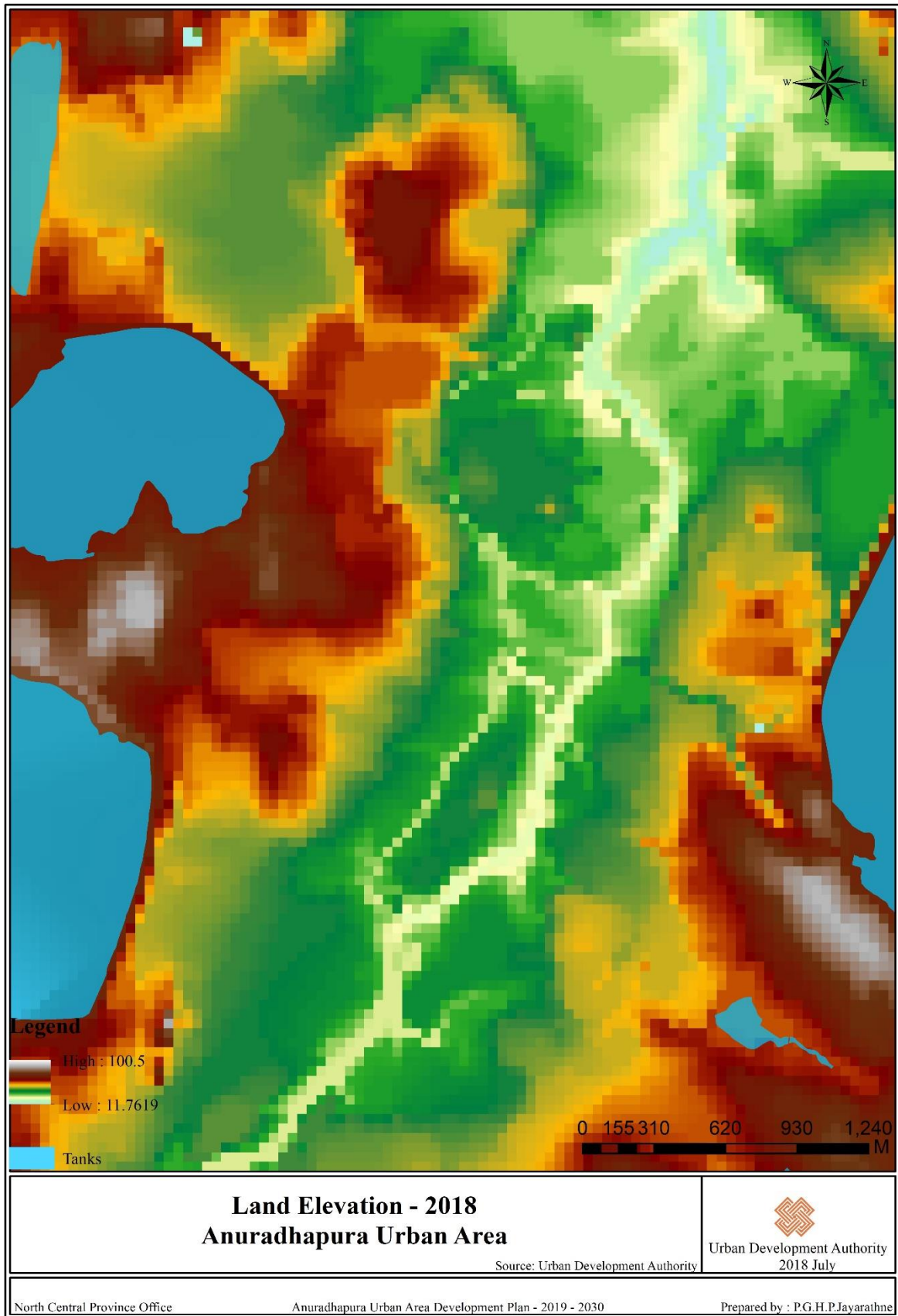
**Map 10. Road System of Anuradhapura Municipal Council Area 2018**



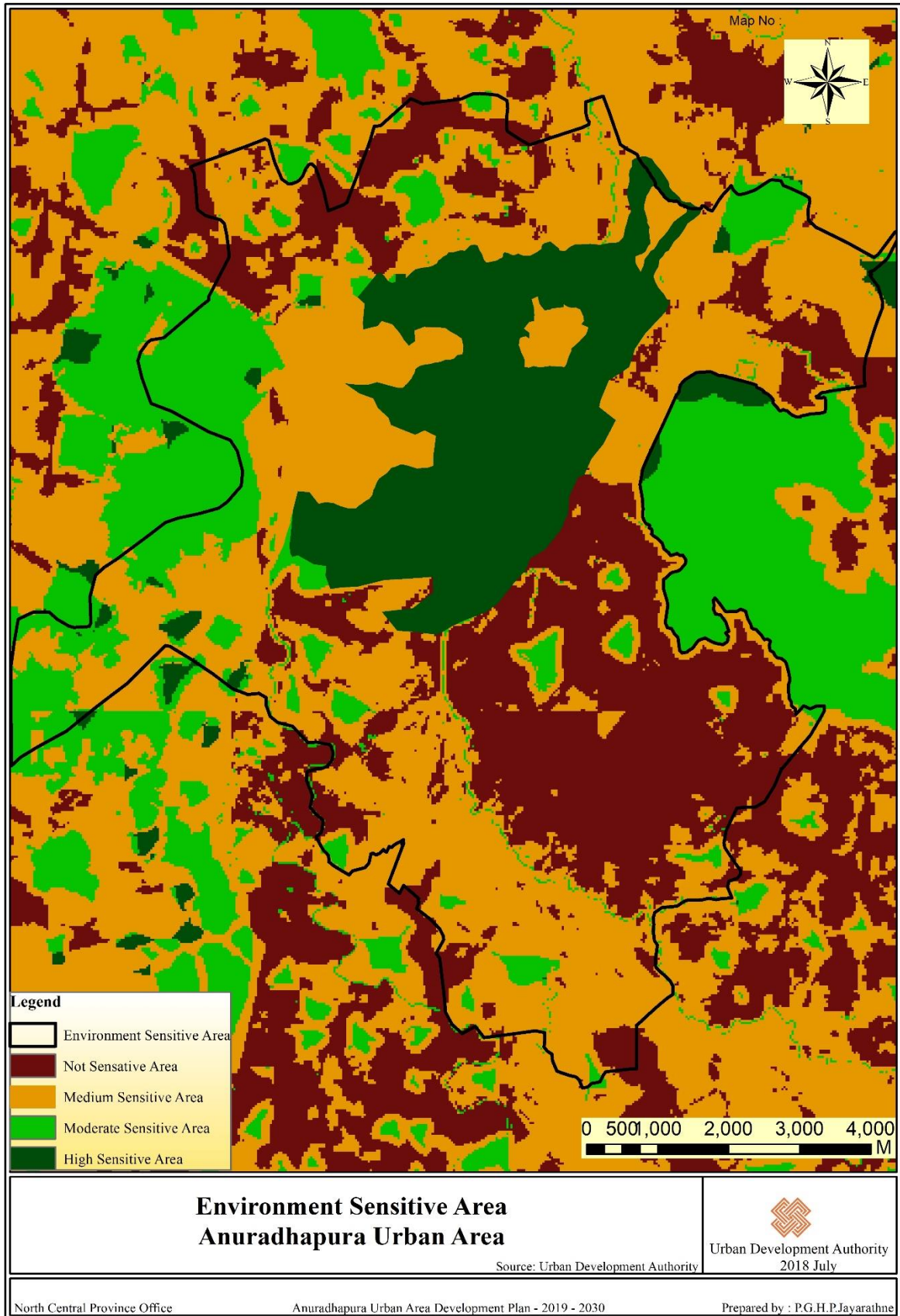
**Map 11. Road System of Colombo Municipal Council Area 2018**



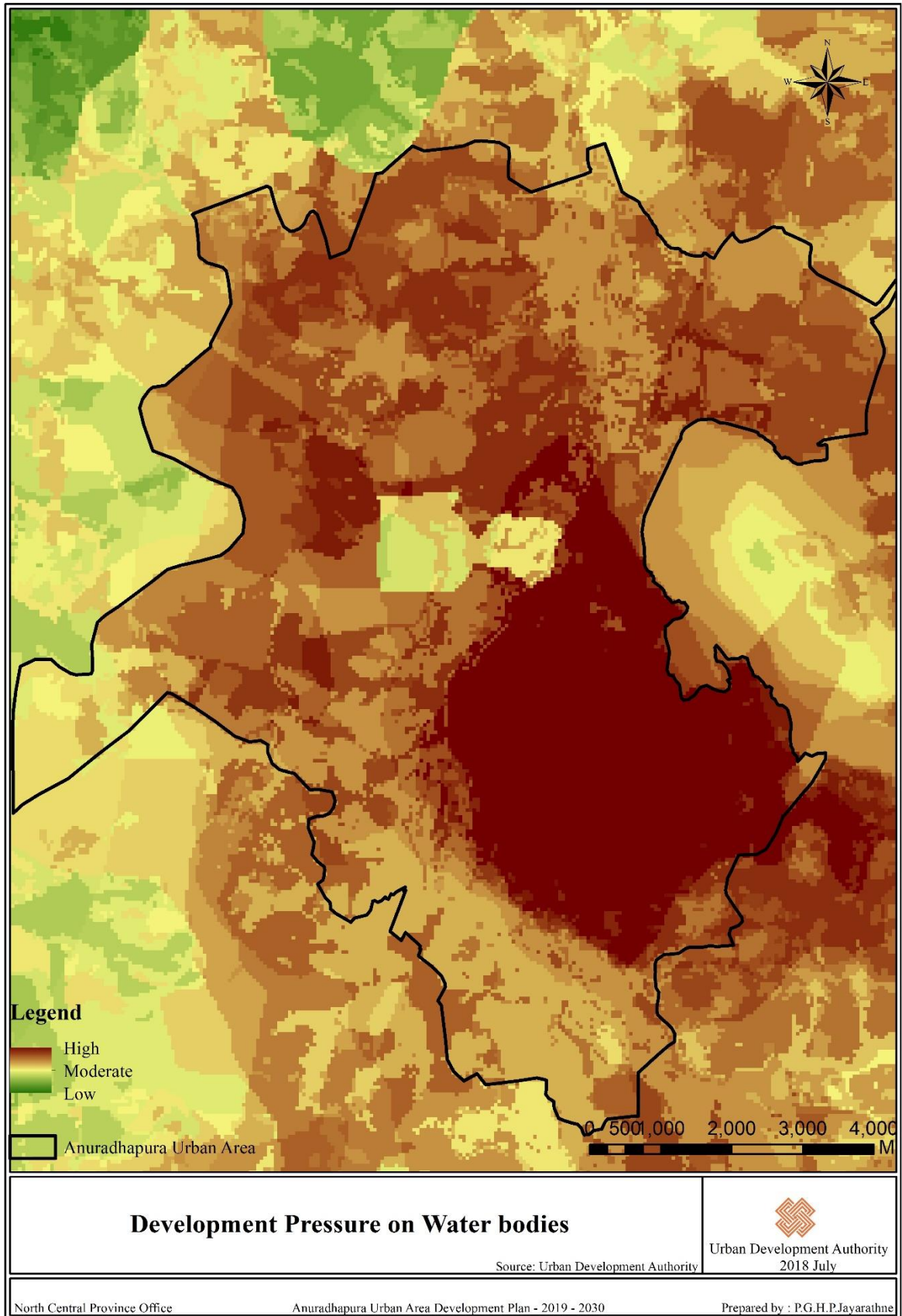
Map 12. Elevation of Land



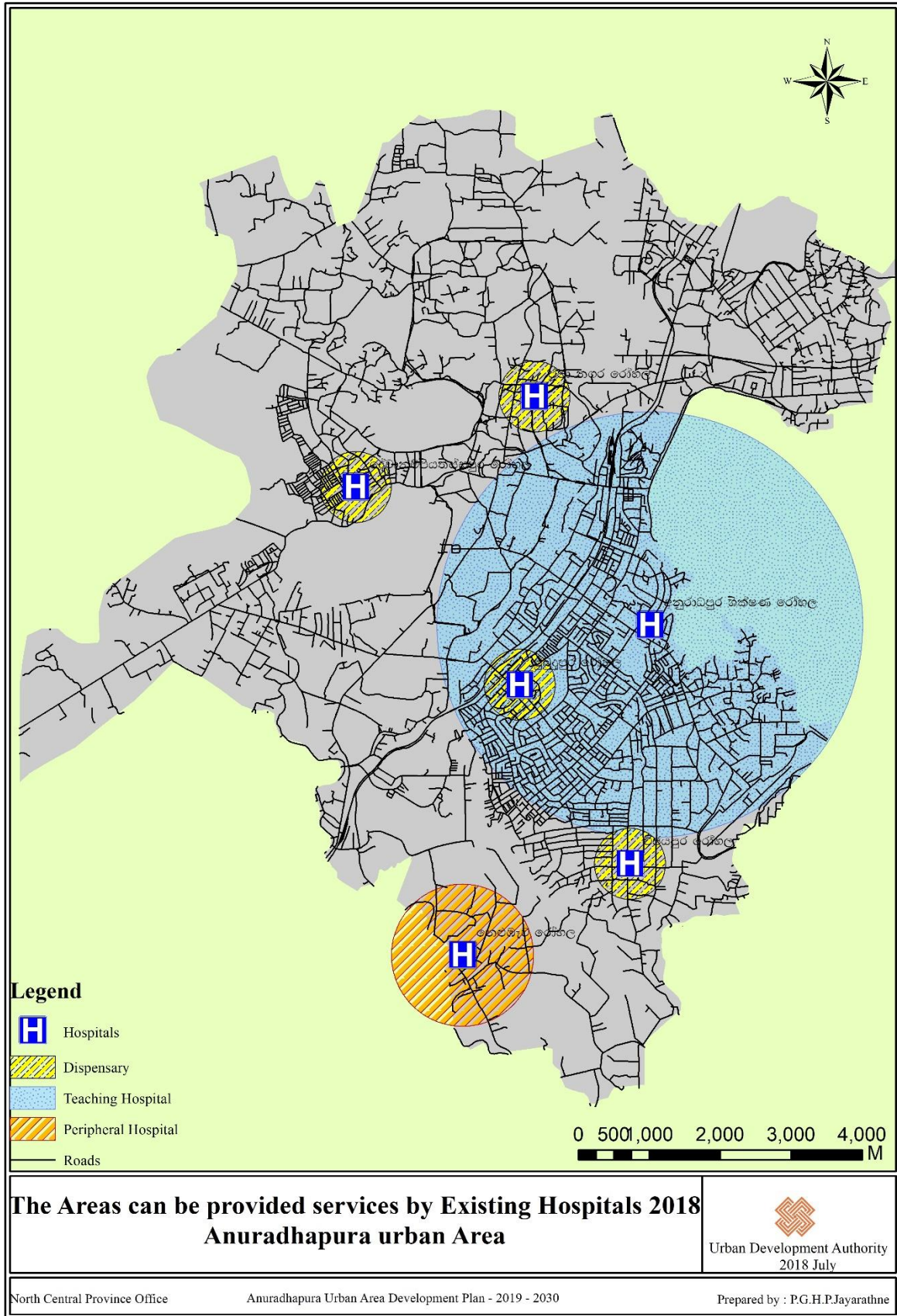
Map 13. Impact of Development Activities to the Environment Sensitive Area 2018



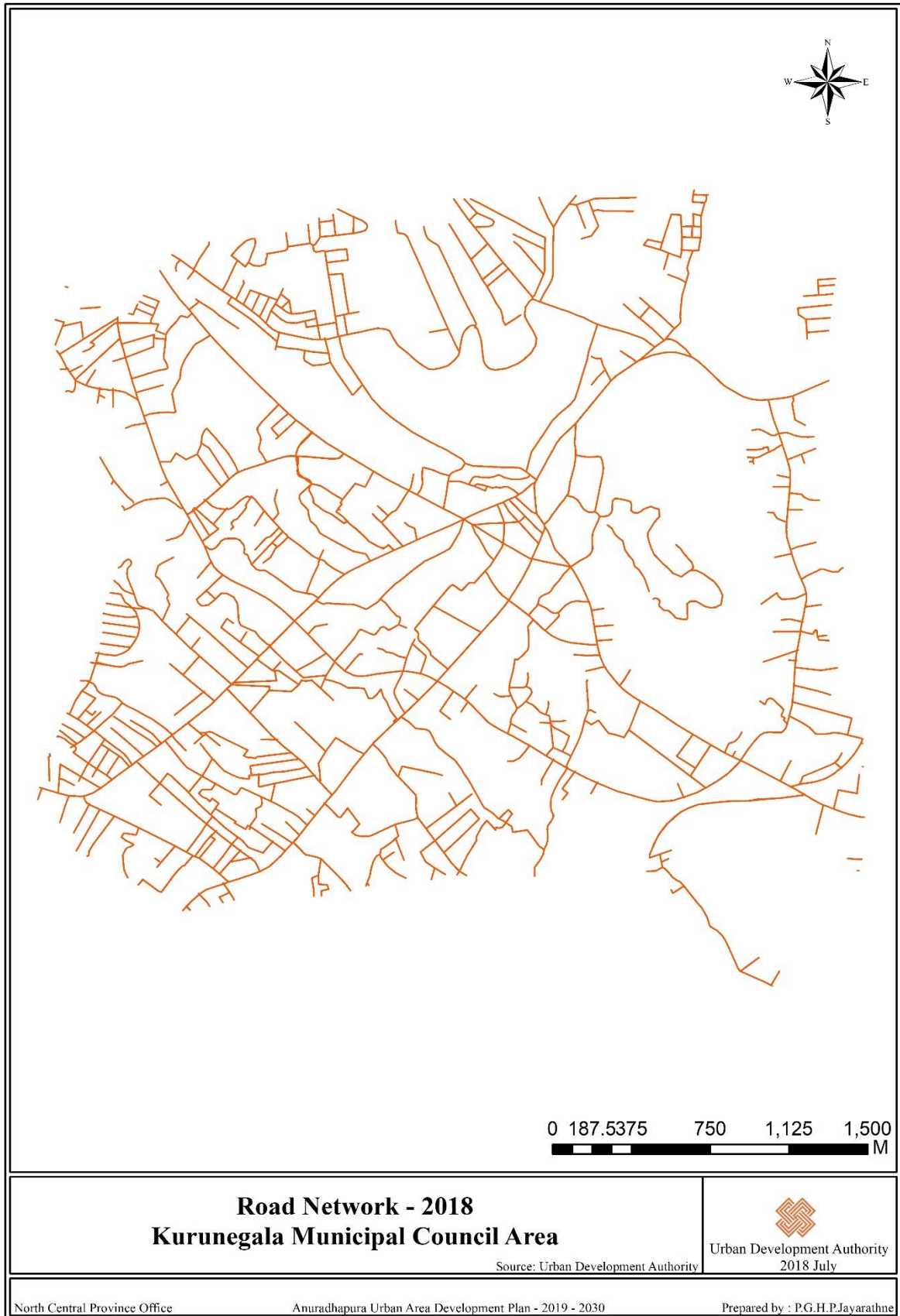
Map 14. Impact of Development Activities to the Environment Sensitive Area 2018



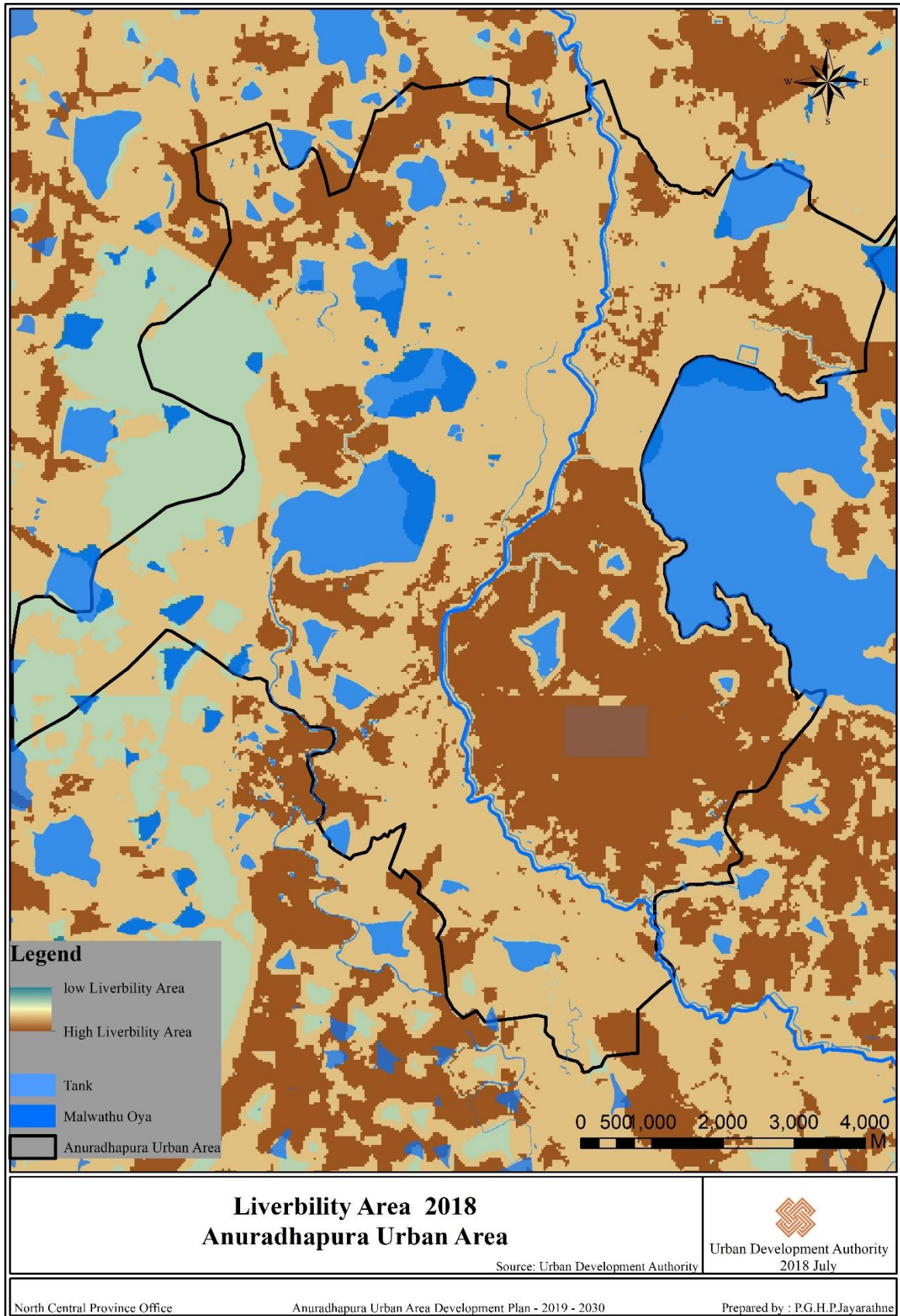
Map 15. The Areas can be provided services by Existing Hospitals 2018



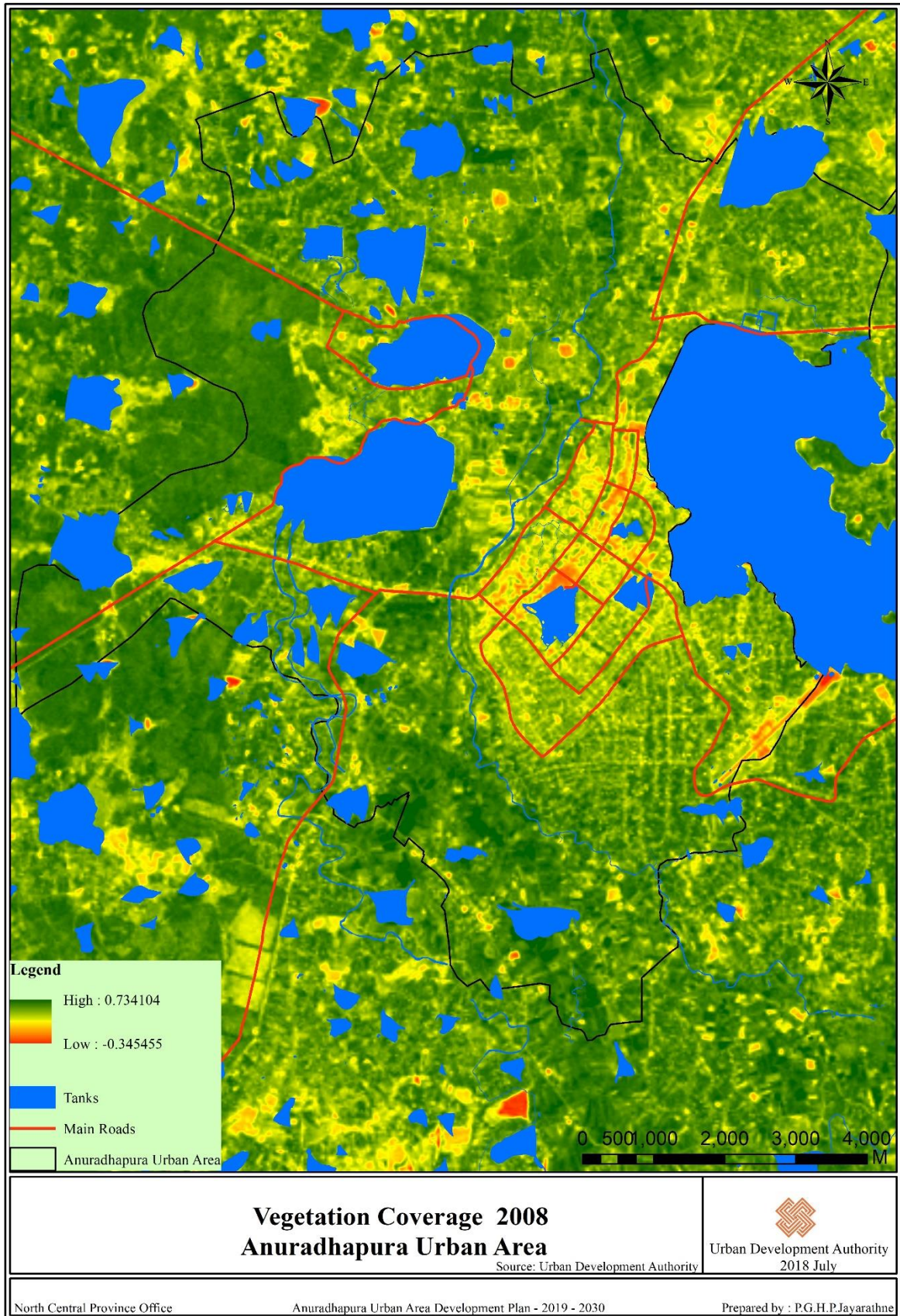
**Map 16. Road System of Kurunegala Municipal Council Area 2018**



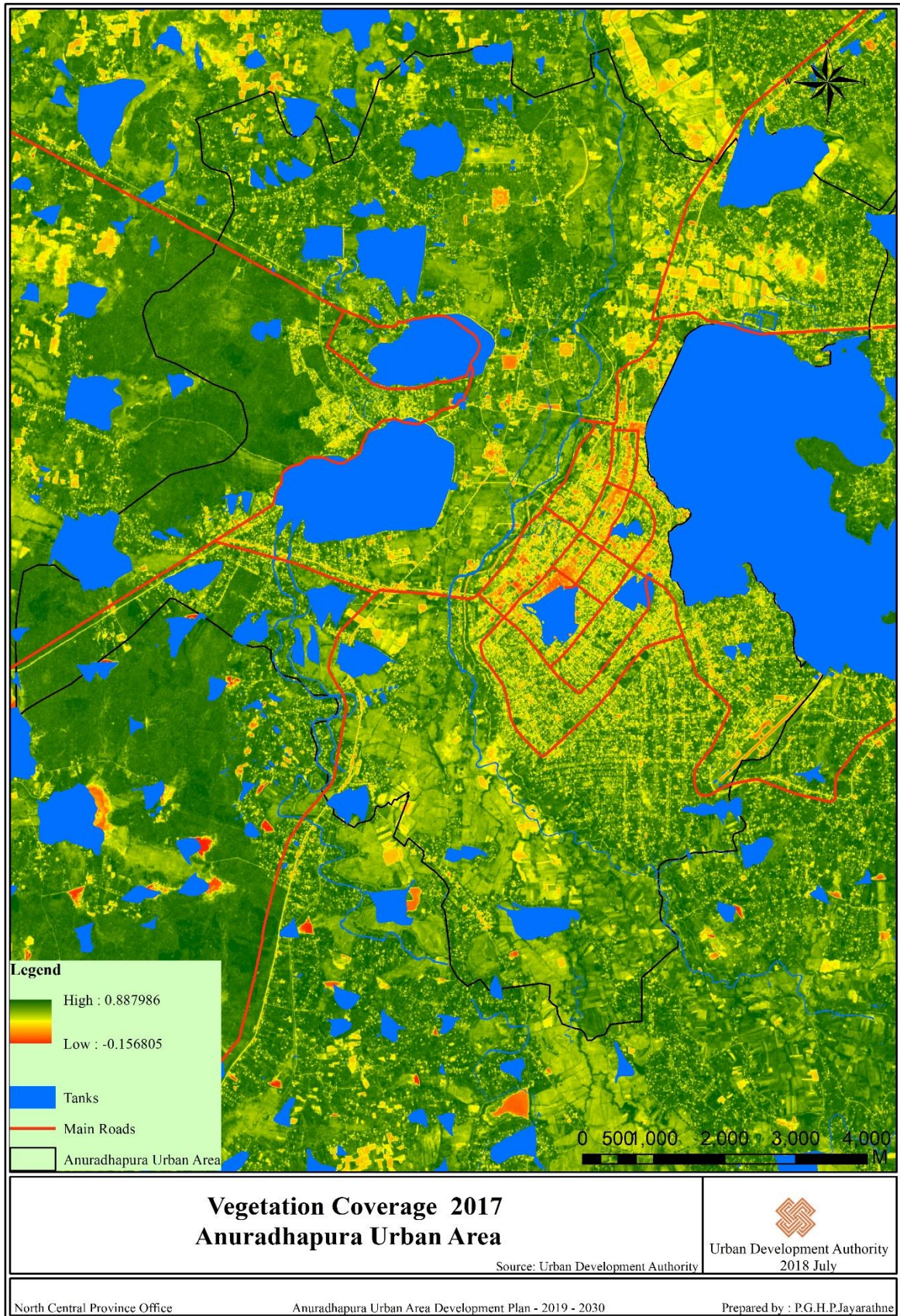
Map 17. Most Suitable Area for living 2018



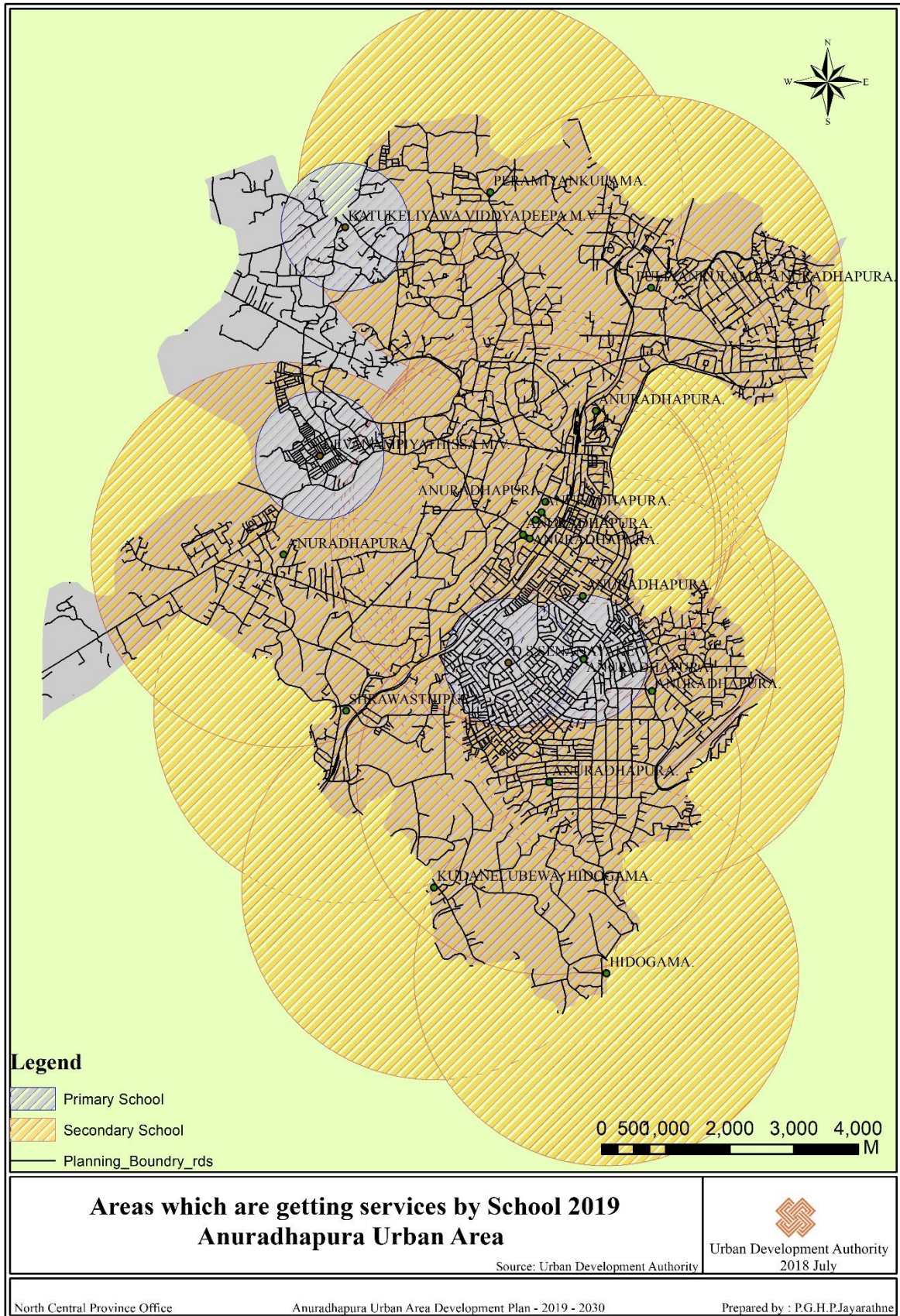
Map 18. Changing of Vegetation Cover 2008



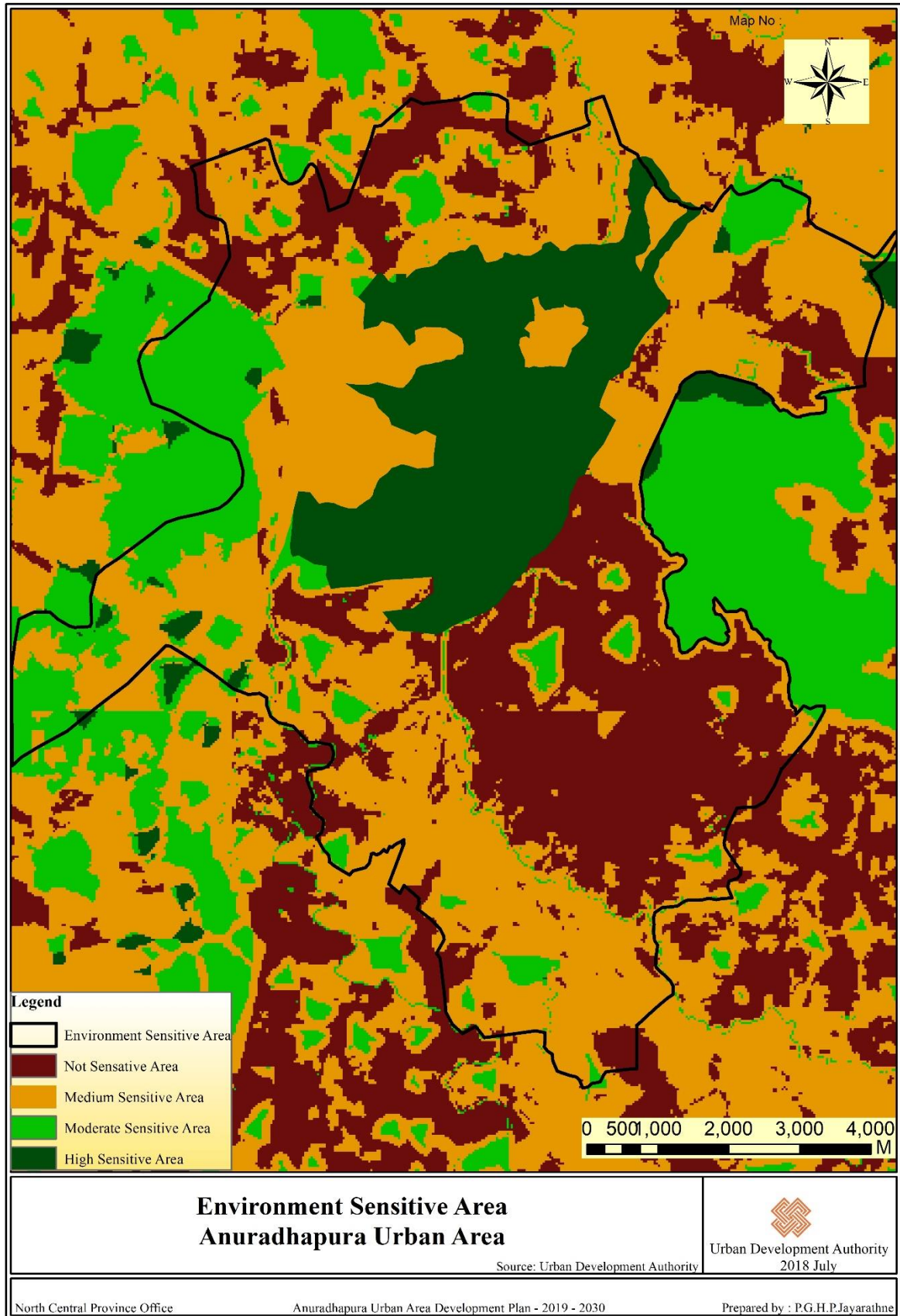
Map 19.Changing of vegetation Cover 2017



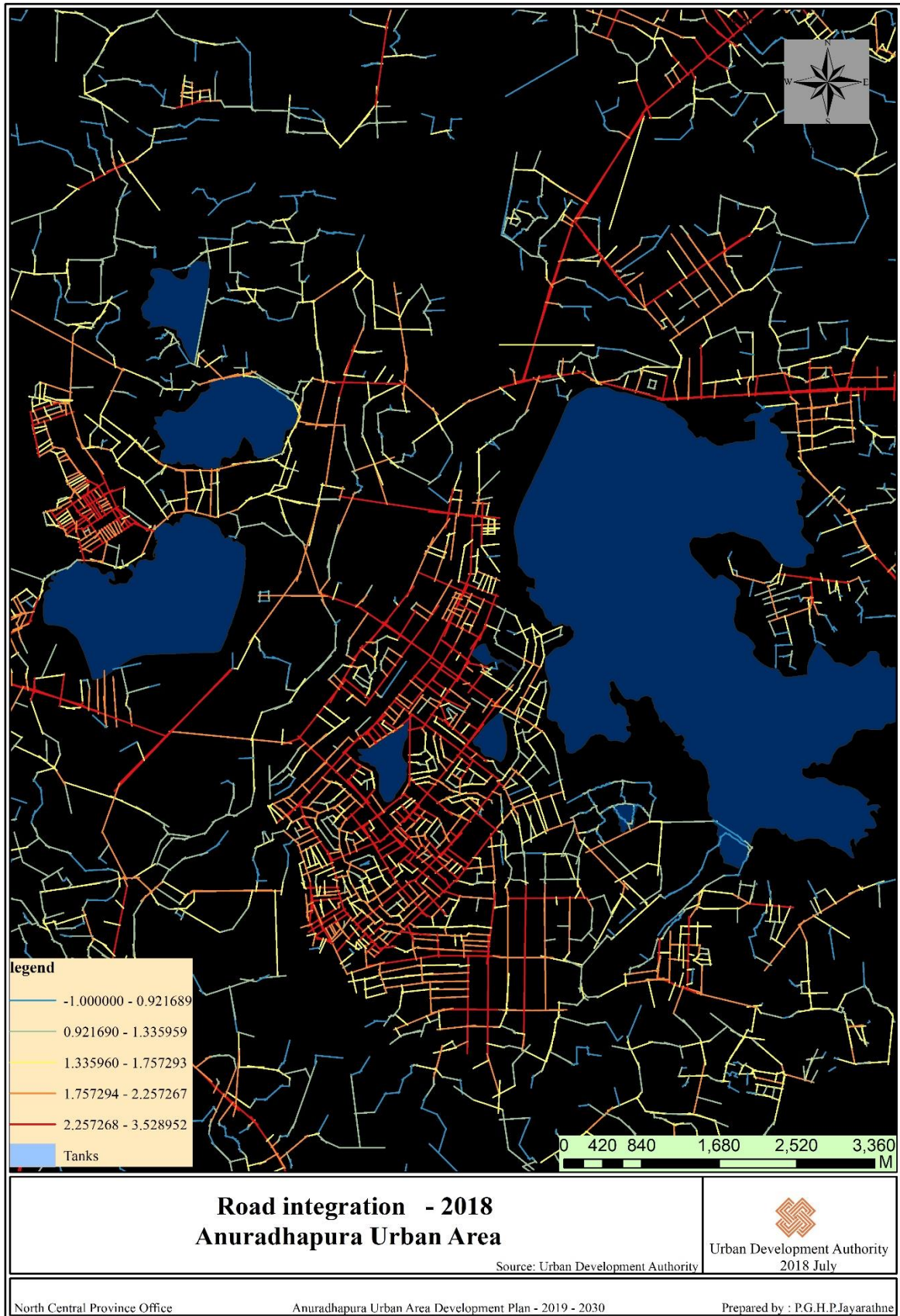
Map 20. The Areas can be provided services by Existing Schools 2018



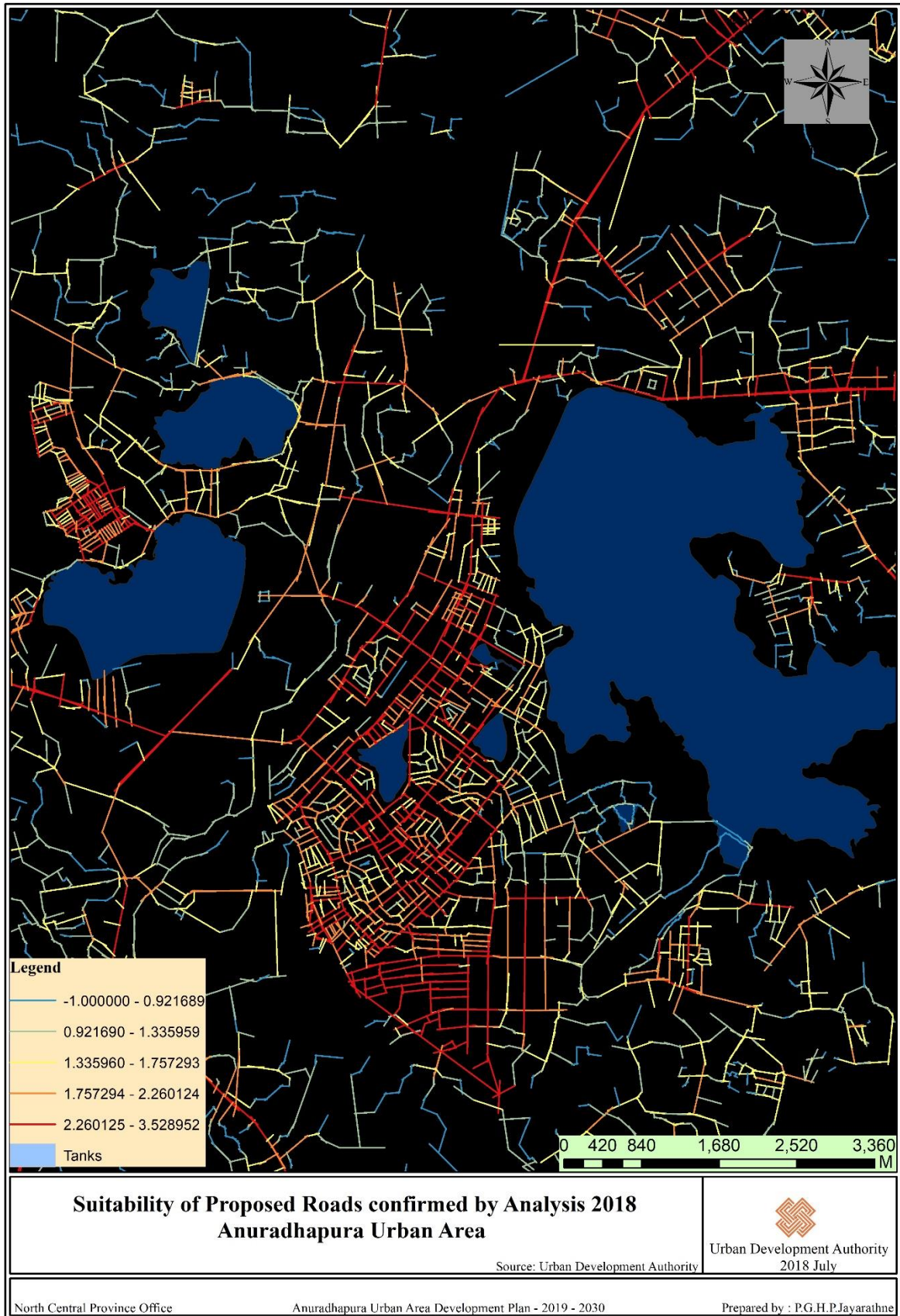
Map 21. Environment Sensitive Area



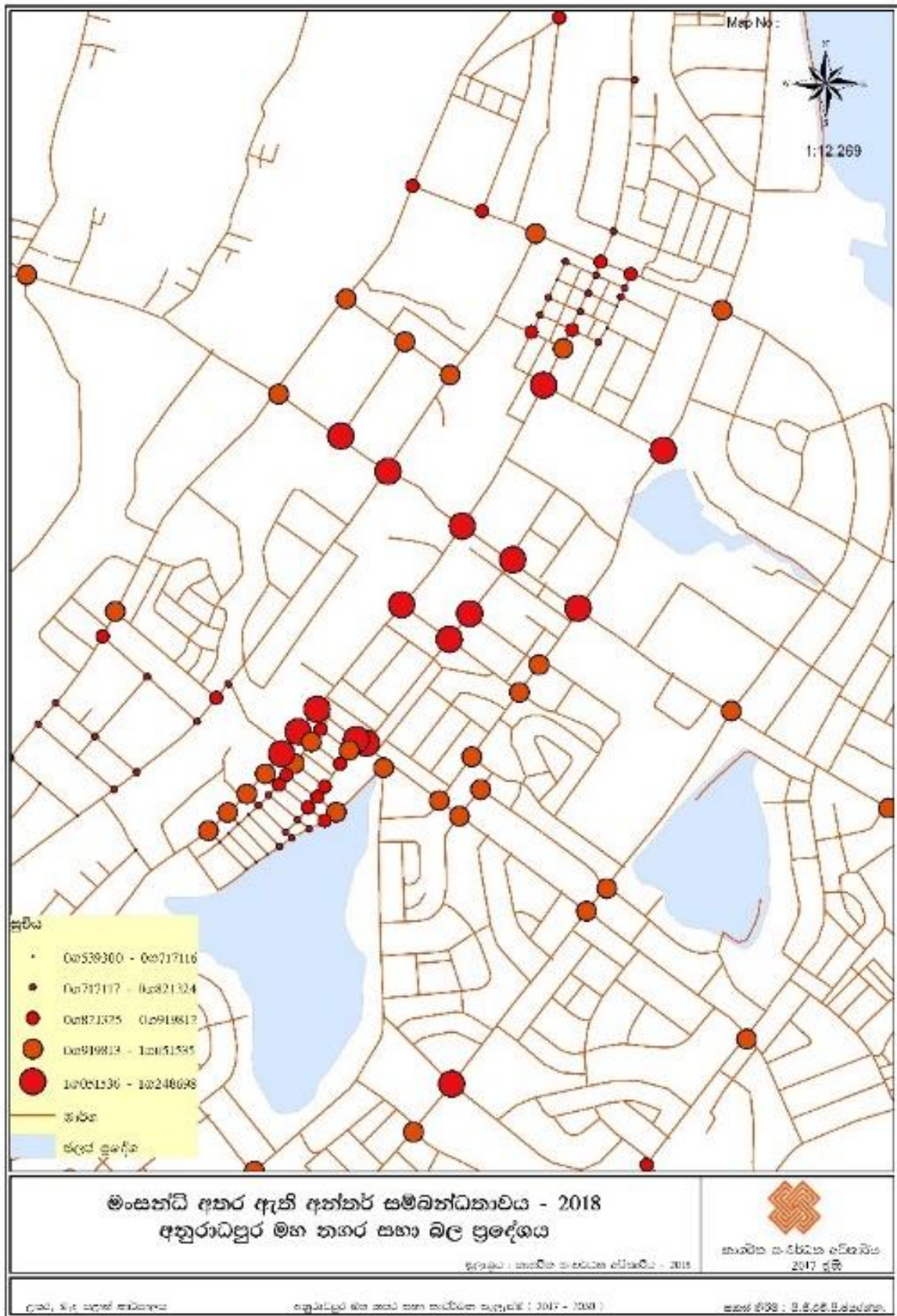
Map 22. Intergration of Road System



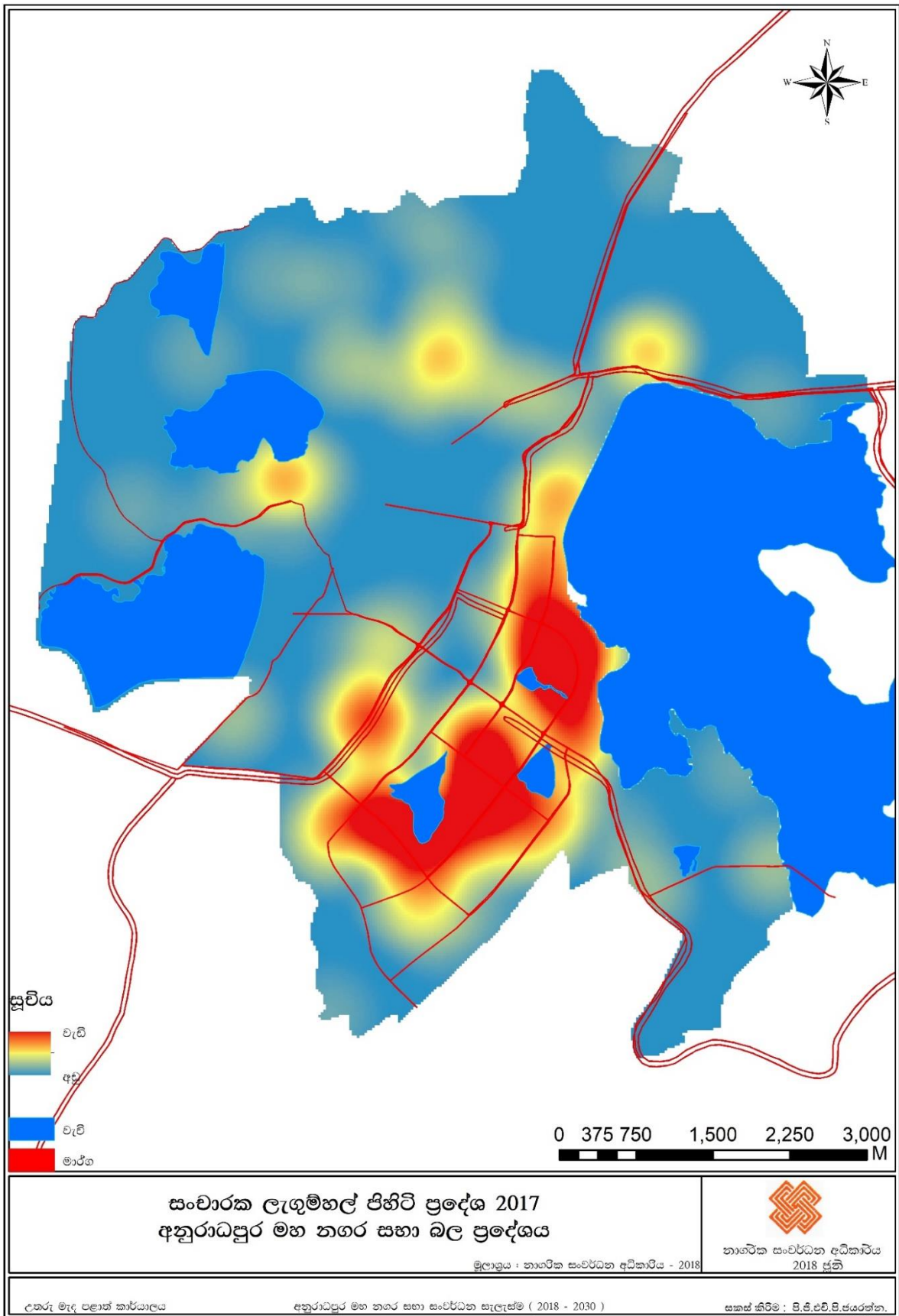
**Map 23. Suitability of Proposed Roads confirmed by Analysis 2018**



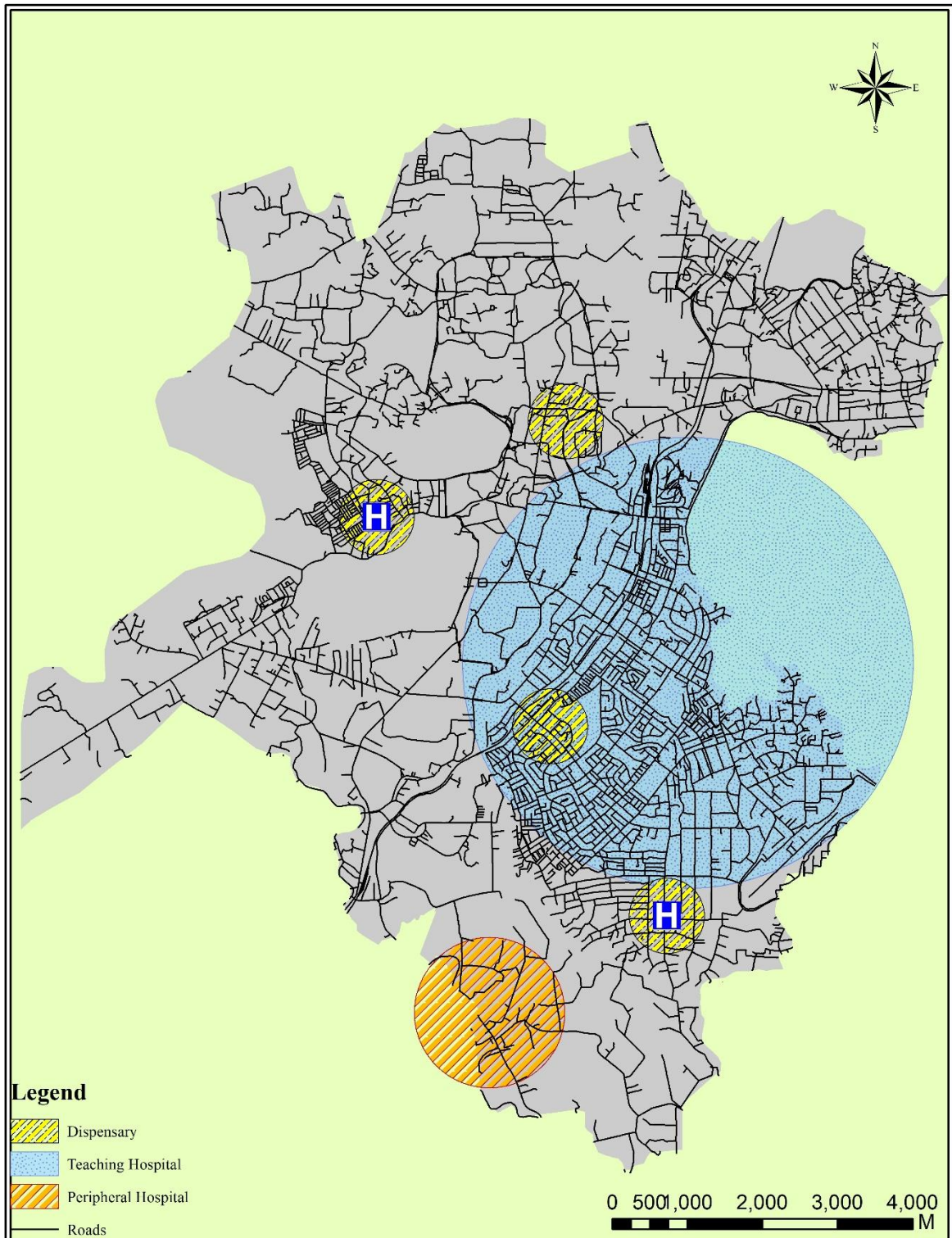
Map 24. Interconnection Between Road junctions 2018



Map 25. The Areas Tourist Rest house are Locate



**Map 26. Proposed Hospitals for Development**



**Hospitals which are proposed to develop 2019 - 2030  
Anuradhapura urban Area**



