Preface

Bangladesh has been experiencing rapid urbanization in the last four decades where level of urbanization has reached from 7.6% to nearly 29% between 1970 and 2011. Multidimensional complex factors like; socio-economic, political, demographic and climatic are responsible for this higher growth of spatial transformation. The fast urbanization is putting pressure on the small towns' limited land, urban services and environment along with countries big cities. Whereas urbanization is also considered as an opportunity and an integral part of the development process. Proper development plans and guidelines with necessary legislative measures and appropriate institutional arrangement can help to achieve sustainable urban as well as rural development.

However, presently, the Paurashavas has the legal mandate to take initiatives of formulating development plans, providing infrastructure and other services and creating opportunities for people to initiate developments with sustainable and harmonic approach. In this regards, Swarupkati had initiated steps to frame its' Master Plan (Physical Development Plan) by taking technical assistance from the Local Government Engineering Department (LGED). LGED under the Local Government Division of the Ministry of Local Government, Rural Development and Cooperatives initiated a project titled 'Upazila Towns Infrastructure Development Project (UTIDP)' providing all sorts of technical assistances to prepare long term physical development plan titled 'Master Plan' for Swarupkati Paurashava.

Master Plan of Swarupkati Paurashva has been prepared following the pre-requisite of the Local Government (Paurashva) Act, 2009. To prepare the Master Plan, LGED engaged consulting firm named Sheltech Consultants (Pvt.) Ltd in association with Design Planning and Management Consultants Ltd. and set up a Project Management Office (PMO) deploying a Project Director, Deputy Project Director, experienced Urban Planners as Individual Consultant and support staffs. Regular monitoring, evaluation and feedback from PMO had also accelerate the pace and quality of the master plan preparation tasks. During formulation of the Master Plan, the Paurashava authority along with the project & the Consultant ensure people's opinion, observation and expectation in various ways: conducting sharing meetings, Public Hearing etc. At the end of the formulation process, the Paurashava completed all procedures necessary for its approval as per the related clauses and sub-clauses of the Local Government (Paurashava) Act, 2009. Paurashava Authority has submitted this Plan to the Local Government Division of the Ministry of Local Government, Rural Development and Cooperatives for final approval and gazette notification.

This Master Plan comprises of three tier of plan in a hierarchical order, these are: Structure Plan for 20 years, Urban Area Plan for 10 years and Ward Action Plan for 5 years. Urban Area Plan also comprises of three components namely; Land use plan, Traffic & Transportation Management plan and Drainage & Environmental Management Plan. This Master plan will serve as guidelines for the future infrastructure development of Swarupkati Paurashava together with land use control and effective management of service facilities.

The Paurashava Authority acknowledges the full support and all out cooperation from the consultant team, the Project Management office of UTIDP, LGED, Local Government Division of the Local Government, Rural Development and Cooperatives Ministry, public representatives, other stakeholders and civil society with deepest gratitude for accomplishing this remarkable assignment.

Cooperation and participation from national to local authorities, all government institutions, private entities and people of Swarupkati Paurashava will be necessary to implement this Master Plan successfully and make this Paurashava developed and livable. I hope Swarupkati Paurashava will be a model Paurashava in Bangladesh through building itself green and sustainable by successful implementation of this Master Plan.

(Md. Shafiqul Islam Farid)
Mayor
Swarupkati Paurahsava.

EXECUTIVE SUMMARY

The presentation of this Master Plan Report is in compliance to the Terms of Reference for the preparation of Master plan for Swarupkati Paurashava under the project titled “Upazila Town Infrastructure Development Project”. Swarupkati was upgraded as A category Paurashava. It occupies an area of 6.76 sq. km and consists of 9 wards and 5 mauzas. At present the total population is almost 20,019 of which 10,865 are male and 9,154 are female. Density of population is about 12 persons per acre and literacy rate is about 37.2%.

The plan aims of preparing the master plan is to identify the infrastructural facilities needed for socio economic and physical development and activities of the people living in the Paurashava so to improve their living condition.

The Master plan has the three components- the Structure Plan, the Urban Area Plan and the Ward Action Plan. The **Structure Plan** basically concerned with the physical development of broad strategies for managing and promoting efficient urban development over the long term (2011-2031) and attempts to integrate economic, physical and environmental objectives. It also identifies the basic strategic options available to accommodate the anticipated growth. The Structure Plan also outlines major sector wise policies to guide development in the desired manner over a longer period of time (for 20 years).

Second Component is the **Urban Area Plan** which is synthesized with upper tier of the Plan, the Structure Plan. The Urban Area plan provide an interim mid-term strategy for 10 years (2011-2021) for the development, of the Paurashava following the broad guidelines set by the longer term structure plan. The plans can be prepared for specific sections of the urban area identified in the structure plan for rapid development or for special projects and improvements. It gives detailed information on the preferred development pattern, showing location of roads, infrastructure, community facilities and land use zones. Considering the development growth trends, an estimated growth rate for Swarupkati Paurashava has been fixed at 1.11% using Exponential formula. Urban Area Plan is comprised of four components that is Land use Plan, Transportation and Traffic Management Plan, Drainage and Environmental Management Plan and Plan for Urban Services.

Land Use Plan is mainly confined to the land use zoning. Total 17 categories of landuse zones have been identified in Swarupkati Paurashava. About 23.54% lands are preserved for residential, 28.91% lands are reserved for water body purpose and about 5% of total built up area is reserved as Urban deferred. Relevant land development control regulations and necessary implementation guidelines have also been incorporated.

Transportation and Traffic Management Plan includes existing condition of transportation facilities, intensity of traffic volume, travel demand forecasting for next 20 years, future traffic volume and transportation development plan. In Transportation and Traffic Management Plan total 82.05 Km. road network have been proposed for circulation development of Swarupkati Paurashava Moreover transportation system management and plan implementation strategies are also described in this plan.

Drainage and Environmental Management Plan is third part and subdivided into two segments- Drainage and Environment. Existing drainage network, land level, plan for drainage management and flood control, plan implementation strategies are also described in this plan. Total 55.56 Km. drain has been proposed for drainage network development of Swarupkati Paurashava. Existing environmental condition, solid waste management, environmental pollution, plan for environmental

management and plan implementation strategies are also included. Projection on existing and proposed urban services, have been provided in this plan.

The Third component is **Ward Action Plan (WAP)** where ward wise priority schemes, phasing of the schemes is made. Prioritization of no. of wards based on existing development pattern and need of development is also identified.

It is also mentioned here that the draft plan has been prepared on the basis of comments made by the PMO and the Paurashava. It is suggested that to follow up the plan proposals and recommendations of different sectors to keep balance with demand and supply of citizens' requirements. The Master Plan will facilitate the agglomeration of people with the view to provide all facilities that will be help full for boosting up their socioeconomic condition. It should be kept in mind that master plan is a guideline for development and control of growth in a systematic manner. Without proper regulation or rules it would not be possible to manage the Master Plan. However appropriate authority must be obligatory for the execution of the Master Plan.

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List of Abbreviations and Acronyms

BBS	:	Bangladesh Bureau of Statistics
BDT	:	Bangladeshi Taka (Currency)
BM	:	Bench Mark
BTCL	:	Bangladesh Telecommunication Company Limited
BWDB	:	Bangladesh Water Development Board
CBO	:	Community Based organization
CS	:	Cadastral Survey
DGPS	:	Differential Global Positioning System
EMP	:	Environmental Management Plan
EPA	:	Environment Protection Authority
GCP	:	Ground Control Points
GIS	:	Geographic information System
Govt.	:	Government
GPS	:	Global Positioning System
H.Q.	:	Head Quarter
H/hold	:	Household
JICA	:	Japan International Cooperative Agency
KM/ km	:	Kilometer
LAN	:	Local Area Network
LCC	:	Lambert Conformal Conic
LGED	:	Local Government Engineering Department
LPG	:	Liquid Petroleum Gas
MV	:	Motorized Vehicle
NGO	:	Non-Government Organizations
NMV	:	Non Motorized Vehicle
O-D	:	Origin – Destination
Orgs.	:	Organizations
PCU	:	Passenger Car Unit
PD	:	Project Director
PMO	:	Project Management Office
R.F.	:	Representative Fraction
RHD	:	Roads and Highways Department
RoW	:	Right of Way
RS	:	Revenue Survey
RTK-GPS	:	Real Time Kinematics Global Positioning System
SoB	:	Survey of Bangladesh
SPSS	:	Statistical Package for Social Science
TCP	:	Temporary Control Point
TIN	:	Triangulated Irregular Network
ToR	:	Terms of Reference

Chapter-1
INTRODUCTION

1.1 Introduction

Local Government Engineering Department (LGED), Ministry of Local Government, Rural Development and Cooperatives, Government of the People's Republic of Bangladesh has taken a massive program to prepare master plan of 223 Paurashavas under the project titled Upazila Towns Infrastructure Development Project' (UTIDP) funded by the Government of Bangladesh. The aim of master plans for the Paurashavas is to identify the infrastructural facilitates needed for overall socio-economic and physical development and activities of the people living in the respective Paurashava so as improve their living conditions.

However, the main purpose of preparing master plan of Swarupkati Paurashava is to prepare Land Use Plan and related Infrastructural Plans as envisaged in the Terms of Reference (TOR). The Master Plan of Swarupkati Paurashava is to be prepared based on the topography survey, physical feature survey, land use survey, socio-economic survey and other different types of sector surveys/studies. However, the plan consists of three volumes known as Master Plan. These are:

- **Structure plan**
- **Urban Area Plan**
- **Ward Action Plan**

The following aspects have been addressed in preparing the master plan for Swarupkati Paurashava:

- Guide/regulate planned development of infrastructure and facilities
- Facilitate socio-economic development activities
- Ensure conservation of natural streams and addressing properly environmental concerns
- Arrest existing unplanned growth
- Stop further encroachment of the fertile agricultural lands and potential beach areas
- Proper and optimal use of land
- Facilitate provision of utilities, services and facilities for the resident population
- Spatial layout for public sector, private sector and public- private sector investments
- Facilitate conservation of bio-diversity

1.2 Philosophy of the Master Plan

The master plan will facilitate the agglomeration of people of a defined place with the view to provide all supportive facilities for them that will be helpful for boosting up their socio-economic condition. Moreover, considerable care has to be given to improve their quality of life through providing some other facilities such as recreational, municipal facilities etc. But it should be kept in mind that master plan is a guideline for development and control of growth in a systematic manner. Without proper regulation or rules it would not be possible to manage the master plan. However, appropriate authority will be obligatory for the execution of the master plan.

1.3 Objectives of the Master Plan

According to the Terms of Reference (TOR) the objectives of the Master Plan are as follows:

- Find out problems and potentialities of developing various sectors

- Facilitating the provision for all types of infrastructure and service facilities needed for development as well as socio-economic facilities and infrastructure for the local people
- Supporting protection of the local environment/ecology
- Preparing a 20-year Master Plan used as tool to guide and regulate planned physical growth and development
- Facilitating job opportunities for the local people so as to address the issue of poverty reduction in line with the national policy of poverty reduction
- Keeping provision for short, medium and long-term investment plans by the public sector, the private sector and the PPP in implementing the Swarupkati Paurashava plan.

1.4 Conceptualization

Structure Plan

The term Structure Plan includes a full analysis of the existing scenarios, highlight the existing condition of different sectoral infrastructures, identification of sectoral issues and interventions, prescription of solution for each sector and setting proposal and recommendations for the future action to be taken within the mentioned period, say 20 years. This is a longer-term plan.

Urban Area Plan

The term Urban Area Plan (UAP) is prepared for managing and promoting development over medium term on the basis of the strategies set by the longer-term structure plan. Basically the UAP is an interpretation of the Structure Plan over the medium term (10 years). The coverage of the UAP is existing urban areas and their immediate surroundings with the purpose of providing development guidance in these areas where most of the urban development activities are expected to take place over the next 10 years. Delineation of the Urban Area Plan should be based on the urban growth area as identified in the Structure Plan. It will contain more details about specific programs and policies that require to be implemented over the medium term. The UAP is consisted with the Land Use plan, Transportation and traffic Management plan, Drainage and Environmental Management Plan and Community Services Plan.

Ward Action Plan

This is called short-term plan, say 5 years. Individual Ward of the Pauashava is deserved scope of this plan. In the Paurashava, 9 Ward Action Plan is being prepared. The plan includes review of the existing situation of the Ward with respect to land use, community facilities, public services, utilities, infrastructures, etc. Problems need immediate attention and scope of development is the basis of this plan. The problems and their recommendations as prescribed in the Urban Area Plan are being emphasized for immediate implementation with the help of ward Action Plan

1.5 Approach and Methodology

The project is aimed for development of infrastructure and services for the Paurashava with optimum provision of opportunities for local people and extending services to surrounding areas.

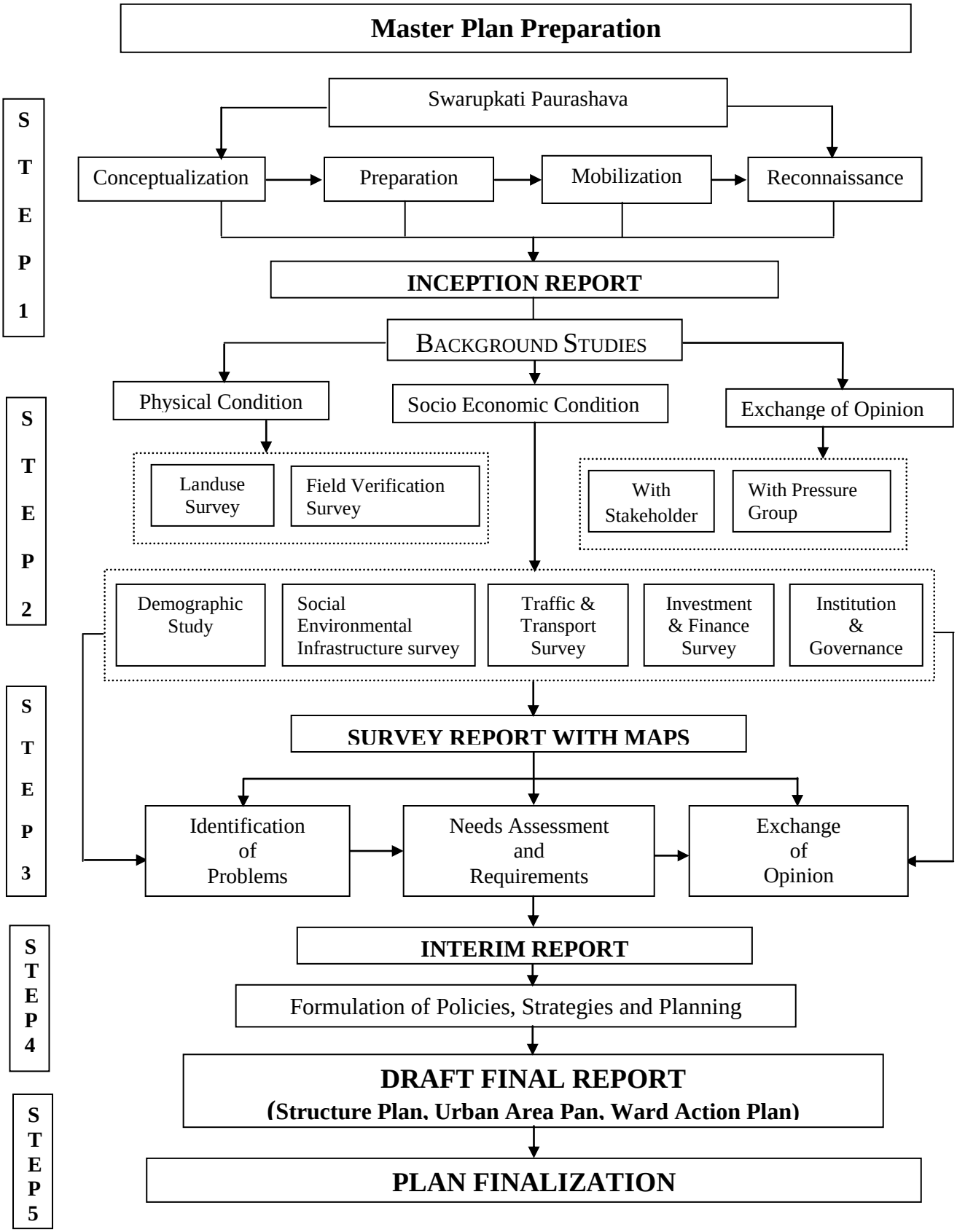


Figure 1.1 : Diagram of Master Plan Preparation

1.5.1 Demarcation of the Planning Area

The demarcation of the study area is an important task in order to gather information and data. As per TOR, the study area or the planning area is determined by the consultants reviewing its growth potential, geographical and geological context, tourism aspects and other relevant issues. Determining the planning area for Swarupkati Paurashava, the consultants had exercised above issues and fixed the area of the Paurashava. The total area of the Swarupkati Planning Area is 1,669.50 acres (6.76 sqkm) and there is no extended area in the structure plan. However, in demarcating the study area, the following aspects have been considered:

- the existing and future road linkages
- physical growth directions
- physical features of the area and the surrounding areas

1.5.2 Preparation of the Base Map

The following steps have been followed to prepare the base map:

- Collection of RS Mouza Maps
- Identification of GCP (TIC) on Digitized Maps
- Scanning of Mouza Maps
- Edge Matching and Preparation of Study Area Map
- Digitization of RS Mouza Maps
- Edit Plot Check of Digitized Coverage
- Geo-referencing of Mouza Maps

1.5.3 Surveys

1.5.3.1 Topographic Survey

Topography survey was conducted by using RTK-GPS and Total Station (TS) survey technique. Topographic survey has included the following features:

- Land levels/spot levels for contours at 50m intervals with denser intervals for undulations;
- Alignment and crest levels (not exceeding 50m) of roads, embankments, dykes and other drainage divides;
- Alignment of rivers, lake, canal, drainage channels etc;
- Outline of bazars, water body, swamps and forest, etc;
- Type, width, length and name of road above flood level;
- For closed boundary/outline of homestead, water bodies, swamps, forest etc. junctions, spot heights or land levels will be taken roughly at 10m intervals in normal cases and contour will be at 0.3 meter interval;
- Crest levels will not exceed 50m along all dyke, roads and drainage divide.

1.5.3.2 Physical Feature Survey

Physical feature surveys provided the basis for understanding many planning problems. To know existing information about physical features of Swarupkati Paurashava, physical feature survey was carried out. The physical features map was prepared on RS/CS map on 1''=165´ scale showing the following features:

- Cross Section, long section, type, width, length and name of road, road level above datum, slopes, flooding lands, slopes, borrow pit
- Identification of any bridge or culvert on the road with their length & width and span of the bridge, condition of abutments, condition of the deck, wing walls abutments;

- Type, size, inlet and outlet location of drain along with flow direction, width of the canal, place of encroachment;
- Type of sewer system, size, type and location of sewerage line, location of bins, identification of any other sewerage collection system;
- Identification of the water supply system, location of overhead water tank and its capacity, catchments area of overhead tank;
- Identification, location and capacity of electricity, telephone service;
- If any, new items identified during the survey period will also be surveyed;

1.5.3.3 Land use Survey

Utilizing the Base Map, (physical features survey overlay on survey map) the land use map was prepared indicating the broad categories of land uses. And it described using a suitable land use code reference. The characteristics of each land use area were described in the survey report. The Land Use Maps were prepared on the Base Map.

1.5.3.4 Socio-economic Survey

The planning is principally directed towards people and their needs concerning housing, shopping, recreational, employment, education, and health services, etc. The detailed information on population is, therefore, essential for deciding land requirement for these needs as well as allocating land between various competing uses.

A socio-economic survey for collection of primary data was conducted at Swarupkati Paurashava. The sample size of socio-economic survey was 5% as per ToR. It is clearly understood that the purpose of this socio-economic survey is to obtain the project related socio-economic data on households in the project area. All data were collected from the primary sources through a specially designed socio-economic questionnaire survey.

1.5.3.5 Drainage and Environmental Study

The consultants have undertaken a drainage survey and environmental study at Swarupkati Paurashava. The preparation of master plan for the next 20 years for the Paurashava seeks environmental investigation of development activities that will be undertaken in next 20 years. The issues/aspects that were investigated as per the TOR are as follows,

Existing Infrastructure

- Drainage
  - Man-made (drainage network, gradient, attachment area, out let)
  - Natural (flow direction, hydrology, usability)
- Water supply (network, coverage)
- Sewerage (location/network, condition)
- Solid waste management-existing system, location of garbage disposal, management aspect

Environmental Aspects

- Humidity, rainfall and temperature of the study area.
- Climatic and Disaster Condition, Soil and topographic Condition.
- Environmental Pollution (air, water and noise pollution).
- Identification of hazards.
- Existing mitigation/coping measures, if any.
- Identification of environmental protection laws/regulations.

1.5.4 Data and Information Management

All the data and information collected from the primary and secondary sources have been sorted/edited and computerized and analyzed. Projections were done in the case of populations so as to estimate the spatial requirements of different services and facilities for the resident

population. All these were accomplished in line with the objectives of the plan so as to estimate the land requirements for different service and facilities. Elaborate information regarding projection and estimation of land requirements are available in the following concern chapters.

1.5.5 Adopted Planning Standards

The planning standard provided by the PMO office of UTIDP has followed to prepare the Master Plan.

1.5.6 Stakeholders' Consultations

After preparation of a draft plan, a consultation meeting has conducted with the concerned authority and local people of Swarupkati Paurashava to acquire aspirations, demand, problem and prospects of the area and community as well as the views of service proving agencies and local administration and share the master plan with them. After incorporating their views and demands, the master plan has prepared.

1.6 Scope of Work

The scope of the work is to cover all aspects related to the preparation of Master Plan / Urban Area Plan which include Land Use Plan, Traffic Management Plan, Drainage and Environment Plan and Ward Action Plan. Prepare a plan to set out proposed Master Plan at three levels namely Structural Plan, Master Plan / Urban Area Plan and Ward Action Plan. In order to prepare these plans following activities has been conducted:

- Visits to the Swarupkati Paurashava have been made in different stages for the preparation of Master plan
- An inception meeting at the Paurashava level has been conducted to inform Paurashava about the scope of work for the preparation of Master Plan for 20years development vision.
- The study area has been determined on the basis of existing condition demand of the Paurashava and the potentiality for future development.
- Different types of survey activities have been conducted from primary and secondary source.
- A comprehensive drainage master plan for a period of 20 years has been prepared.
- Assessing existing condition an integrated transportation plan is proposed for next 20 years
- Ward action plan with list of priority schemes for the development of roads parks and other social facilities are proposed which need to implement during the first five years of the plan period.
- Two consultation meeting have been organized with the help of concerned Paurashava and local stakeholders.
- Master plan and report with required standard have been prepared and submitted as required TOR.

Chapter-2
STRUCTURE PLAN

2.1 Background of the Paurashava

Swarupkati upazila of Pirojpur zila was declared as Swarupkati Paurashava on 16th March, 1999. Swarupkati Paurashava is a A-Class Paurashava and covers 6 mouzas. The Paurashava is bounded on the north by Sutiakati Union and Nesarabad Union, on the west by Sohagdal Union, on the south by Sarengkati Union and Jalabari Union and on the east side by Nesarabad Union. However, Swarupkati Paurashava consists of 9 wards with an area 6.76 sq.km (Field Survey, 2010).

Local Government Engineering Department (LGED), Government of the People's Republic of Bangladesh has taken a massive programme to prepare master plan of 223 Paurashavas including Kuakata Tourism Centre located at the Upazila headquarters under Upazila Towns Infrastructure Development Project (UTIDP) funded by the Government of Bangladesh. The Master Plan has three components namely: Structure Plan, Urban Area Plan and Ward Action Plan. Part-A consists of Structure Plan of Swarupkati Paurashava. **Map 2.1** delineates the location of Swarupkati Paurashava.

2.2 Vision of the Structure Plan

The vision of the Structure Plan is oriented with the policy development for the project area in relation with national and regional policies or framework through close liaison between planning authority and government departments. In a word, it will provide the basis of Co-coordinating decisions. It will be considered as the upper level planning guideline component for next two levels of planning i.e. Urban Area Plan and Ward Action Plan. Structure Plan will identify the urban growth area based on which the Master Plan area will be delineated. It will set policy framework which will be more detailed in Urban Area Plan. Moreover, it will provide the basis of development control in pursuing the Urban Area Plan. Subsequently, the indication of action areas and the nature of treatment in different sectors will also be considered here. It will define the location of action areas but not the boundaries, also the priority, possible effect of actions proposed. Pertaining with Action Area Plan, the combination of Public and Private Agency or individuals' involvement to implement the proposed actions will be stated here.

2.3 Objectives of the Structure Plan

The main objectives of preparing master plan of Swarupkati Paurashava are to prepare Structure Plan, Urban Area Plan and Ward Action Plan as envisaged in the Terms of Reference (TOR). The structure plan has the following objectives:

- To identify the main development issues facing the Paurashava (town) with major opportunities and constraints
- To identify the growth and possible physical expansion of the city as foreseen considering economic base and Trend
- To provide a view of required and suitable lands for future physical expansion
- To develop the sector wise strategies pursuing the future development control in a desirable direction
- To identify the resources which are needed to strengthen the financial resources of the town
  - Establishment of intersectoral goals, policies and general proposals for urban spatial development
  - Provide framework for the next hierarchy of Swarupkati Paurashava Master Plan and Ward Action Plan

2.4 Content and Format of Structure Plan

As per Terms of References (TORs) the Structure Plan of Swarupkati Paurashava has been prepared for 20 years in long term. The Urban Area Plan (UAP) will be an interpretation of Structure Plan in Medium Term and Ward Action Plan in Short Term.

Demarcation of Structure Plan Area

The issues have been adopted for demarcating the study area for Swarupkati Paurashava comprises the following:

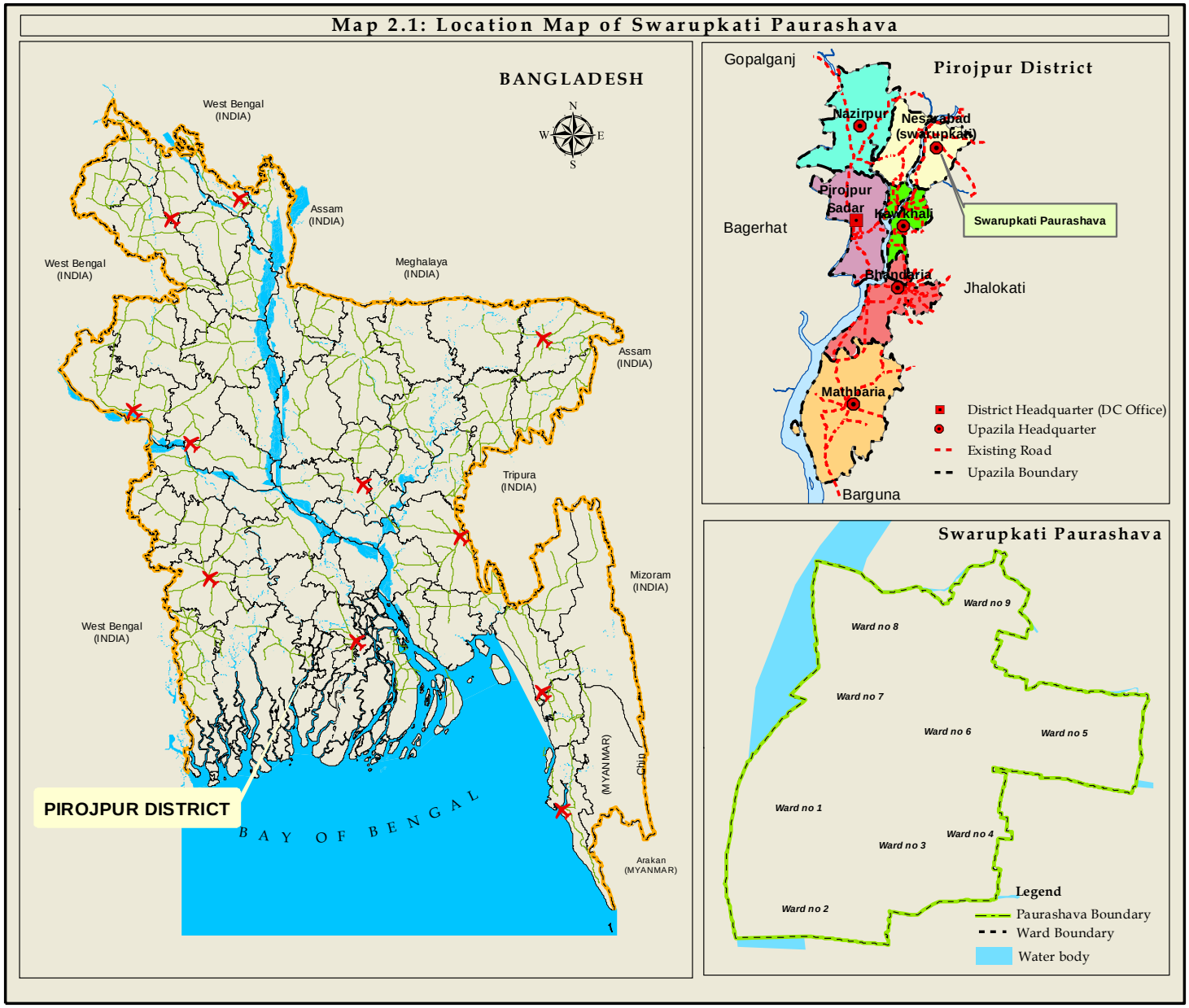
- Study the existing Paurashava boundary with existing growth trend and pattern Analysis of the physical development constraints and potentialities
- Study of the existing and future national, regional and local linkages with Swarupkati
- Consultation with local governments
- Consultation with local people, members of civil societies and other stakeholders

According to the gazette notification, the Swarupkati Paurashava comprises six mouzas (7 sheets) namely– Swarupkati, Akalam, Jagannathkati, Jayapatipatti, Sarshina and Sultanpur Alankarkati. The total Paurashava area is about 1669.50 acre (6.76 sq.km). The following table shows mouza wise area of Swarupkati Paurashava.

Table 2.1: Mouza Wise Area of Swarupkati Paurashava

Mouza Name	JL No	Sheet No	Area (sq m)	Area (sq km)	Area (Acre)
Akalam	28.00		1,029,788.94	1.03	254.51
Jagannathkati	29.00	1, 2	1,724,464.80	1.72	426.17
Jayapatipatti	30.00		739,835.62	0.74	182.84
Sarshina	10.00		771,983.09	0.77	190.77
Sultanpur Alankarkati	12.00		409,534.02	0.41	101.21
Swarupkati	31.00		2,079,798.82	2.08	514.01
Total			**6,755,405.29**	**6.76**	**1,669.50**

Source: Field Survey, 2010


Map 2.1: Location Map of Swarupkati Paurashava
BANGLADESH
N
W
E
S
West Bengal (INDIA)
Assam (INDIA)
Meghalaya (INDIA)
Tripura (INDIA)
Mizoram (INDIA)
Chin (MYANMAR)
Arakan (MYANMAR)
BAY OF BENGAL
PIROJPUR DISTRICT
Gopalganj
Pirojpur District
Nazirpur
Nesarabad (swarupkati)
Pirojpur Sadar
Kawkhali
Swarupkati Paurashava
Bagerhat
Bhandaria
Jhalokati
Mathbaria
Barguna
District Headquarter (DC Office)
Upazila Headquarter
Existing Road
Upazila Boundary
Swarupkati Paurashava
Ward no 9
Ward no 8
Ward no 7
Ward no 6
Ward no 5
Ward no 1
Ward no 4
Ward no 3
Ward no 2
Legend
Paurashava Boundary
Ward Boundary
Water body

Area Demarcation

Defining the area to be structured
Geographical Boundary Demarcation for 20 years

- Existing Paurashava Area Demarcation
- Possible New area Identification

Future

Projection of Growth for 2030
Demand Analyses between Present and Future Need

Adapted Policies & Strategies for Swarupkati

Identification of appropriate Strategies and Policies for Sectoral Development of the Paurashava

- Socio-Economic Sector
- Physical Infrastructure
- Environmental Issue

Existing Development Pattern

Analyses of Critical Planning Issues
Different Sectors of Paurashava is considered

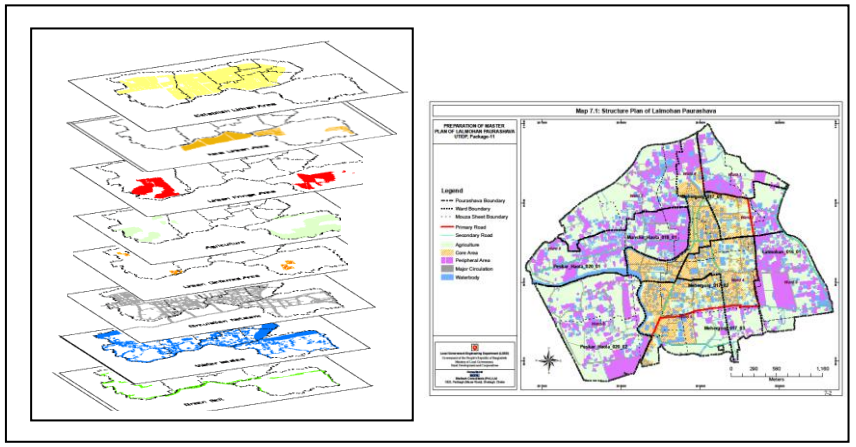
- Social Development
- Economic Base of the Paurashava
- Physical Infrastructure Development
- Environmental Growth
- Institutional Capacity
- Land use & Urban Service
- Role of Different Govt. Agencies

National Policy Review

Paurashava development related Policy Review and provide prescription as per Paurashava Context regarding Urban Management, Disaster Management, Environment, Land use Climate Change, Tourism, Agriculture, Forest, Water, Building Construction, Building Code etc.

Guidelines to formulate the Policies & Strategies

GIS Implication in preparing Structure Plan



Implementation

Implementation Issues

- Implementation Authority
- Opportunities and Constraints
- Resource Mobilization

Linkage with Adapted Policies

Fig 2.1: Content of Structure Plan

Chapter-3
EXISTING TREND AND GROWTH

3.1 Social Development

In Swarupkati Paurashava, more than 47.22% households concentrated in potential core area and 41.11% households live in the fringe area. This indicates that Swarupkati is a semi-urbanized area where mainly commercial development concentrated on core area, influential or affluent people live in the potential core area and the urban poor those are always likely to live in fringe area.

The educational status of an area is the major determinant of society building. As per BBS 2001, in Swarupkati Paurashava the literacy rate is about 68.2% where the national level the literacy rate is about 53.3%.

It is seen that almost all the wards have similarity in occupation and agriculture is dominant (52.94%) in every ward which is followed by small business (29.41%).

About 97.22% of the households at Swarupkati Paurashava have their own housing structures. Considering other assets it has been observed that according to field survey 2009, about 86.1% households own agricultural lands.

There are different types of income groups of people living at Swarupkati Paurashava area. About 52.2% of the households' incomes are within the range of Tk 5001.00 – Tk.10, 000.00 per month. Further, 31.1% of the household have income per month Tk. 2,500.00 – Tk. 5,000.00 and 5.0% Tk. 15,000.00 - Tk. 20,000.00.

About 91.11 % of the households' religion is Islam, and the rest 8.89% of the people are practicing Hinduism at Swarupkati Paurashava.

Survey report depict at Swarupkati Paurashava only 2.22% of the total households come from other places. 50% of the migrated households have come after 2000 to Swarupkati Paurashava area which means the migration phenomenon is of recent and the rest 50 % have come during 1990 -2000. The most common reason of the in-migration of the households to Swarupkati Paurashava is the workplace. Moreover, better education facilities and business have also significant contribution behind migration. All these issues have been given emphasis for attaining social development of the area.

3.2 Economic Development

In Bangladesh, the economy is composed of formal and informal sectors. But statistics on the size of the informal economy in Bangladesh are difficult to find out. Formal economic activities sector of Swarupkati Paurashava mainly comprises Trade and Commerce, Agriculture, Service Sector, Industry, Transport and so on. The major occupational group is involved in agricultural activity (Socio-economic Survey, 2010). About 49.28% of all the households' members irrespective of sexes of Swarupkati Paurashava are within the age group of 26-57 years. This indicates majority of the household members are economically active group. People of this area are mainly involved in agriculture and business activities. Swarupkati upazila has great agricultural potentiality. At present from Swarupkati Paurashava; various products are supplied to different district by water way and road. Also, various types of fishes especially shrimp are also available here. So, agro-based and fishing based industries can be developed for fostering economic development of the area.

3.3 Physical Infrastructure Development

As Barisal region is mainly dependent on agriculture, the Paurashava activities are still oriented with agriculture sector and the physical infrastructure development is hindered due to natural calamities. Some segmented and sporadic physical developments have been occurred over the years in different parts of the Swarupkati Paurashava. Most of the infrastructures have developed without maintaining any regulations or standards.

Physical feature survey depict that there are total 4274 structures at Swarupkati Paurashava. About 71.34% of the structures are kutcha which is followed by 17.17% semi-pucca. Pucca structure is very low percentage (11.49%).

At present, the road network of Swarupkati planning area shows lack of planning principles. From the physical feature survey it has been observed that in respect of road area about about 59.65 % of the roads are pucca which is followed by 7.61 % kutcha roads. So, it might be possible to develop the planning area considering the ward wise development to some extent.

At Swarupkati Paurashava, about 1.68 kilometers pucca drainage and 27.96 kilometers kutcha/natural drainage network have observed. Maximum pucca drains have observed at ward no 7 & 4. Most of these drains are not well connected with the river and khals.

3.4 Environmental Growth

Swarupkati Paurashava is located in the southern part of Bangladesh. It is very close to the Bay of Bengal. Morphological condition of this Paurashava is quite similar compared to the other district located in south-west region of the Bay of Bengal. The climate has hot summer and a mild winter. Temperature rises steadily from January to April, remains fairly steady from April to October and then falls to reach the lowest in January. The maximum average monthly temperature is 30.1^{o}c in April and minimum average monthly temperature is 17.5 ^{o}c in January in 2010. The monsoon starts from June and maximum rainfall is experienced in 2007 and lowest in 2003. Annual rainfall as recorded from 2000 to 2010, the maximum was 938.8 mm in 2008 and lowest in 2003 about 469.4 mm. Drinking water of the Paurashava is quite saline and also contaminated by iron. So, the establishment of Water Treatment Plant will be required for ensuring the good drinking water. In addition, it is possible to preserve the environment before any advanced development as industrial development is very low.

3.5 Population

Swarupkati Paurashava comprises around 20,019 numbers of people. Highest number of population has observed at ward no 7. The average population density of Swarupkati Planning area is 2961 person /sq.km. This indicates that Swarupkati is a high density area with respect to both national and district density. Average size of households of Swarupkati Paurashava is 5. This indicates the culture of having small nuclear families which shows urban life characteristics.

Table 3.1: Households and Population of Swarupkati Paurashava Area

Ward No.	Base Year Population	Projected Population at			
	2011	**2016**	**2021**	**2025**	**2031**
1	1744	1835	1931	2031	2137
2	1381	1453	1529	1609	1693
3	2126	2237	2354	2476	2606
4	2011	2116	2226	2342	2465
5	2718	2860	3009	3166	3331
6	1740	1831	1926	2027	2133
7	3190	3356	3532	3716	3910
8	3186	3352	3527	3711	3905
9	1923	2023	2129	2240	2357
Total	**20019**	**21063**	**22162**	**23318**	**24535**

Source: Community Report, Pirojpur District, 2012

3.6 Institutional Capacity

In Swarupkati Paurashava, the plan implementation and main power executing authority will be the Paurashava itself. Therefore, effective execution capacity in terms of revenue generation, manpower capacity of the Paurashava is required to evaluate to implement the plan. There are four major component of income generation. These are: 1) Revenue, 2) Development, 3) Capital and 4) Project.

Most of the income of Swarupkati Paurashava in the recent years has been generated from development section. It has been analyzed that in last 5 years the development sector has contributed about 62.33% on an average to the overall income of Paurashava. Besides, revenue sector contributes about 37.67 on an average to the overall income of Paurashava.

Moreover, in last 5 years the development sector has consumed about 39.75% whereas revenue sector has consumed about 60.25% on an average of overall income of Paurashava.

Analyses reveal that in the last four years the income was greater than expenditure but in 2010-11, the expenditure was greater than income.

Existing Manpower of Swarupkati Paurashava is comprised with 1 elected Mayor, 1 Chief Nirbahi Officer and 3 Departments. These are:

1. Engineering Department
2. Administrative Department
3. Health, Family Planning & Conservancy Department

On the basis of organogram, these three departments should comprise of 35, 35 and 19 persons respectively but at present there are 7, 6 and 2 persons respectively. The manpower of Swarupkati Paurashava is not so much capable to implement the Paurashava Master Plan. The Existing posts are not fulfilled by the required manpower. Besides, it may require more efficient, technical and experienced manpower to implement the master plan. It has been observed that in Engineering Department about 80% posts are vacant, in Administration Department about 83% posts are vacant and in Health, Family Planning and Conservancy Department the percentage of vacant posts are about 89%.

Moreover at present, there is no town planning unit at Swarupkati Paurashava. Engineering Department is responsible for monitoring the development control issues of this Paurashava.

3.7 Urban Growth Area

As per as the physical growth directions of Swarupkati Paurashava is concerned, the Paurashava is expanding along the khal on west east direction. There is no direct route which is connecting north and south part of the Paurashava. Commercial development is already expanding along with the khal. Moreover, a major portion of eastern part is remain agricultural land.

The existing growth agglomerations along core area accommodate mostly the residential areas. Specially for getting advantage of high lands, residential areas developed on these areas that are accelerating growth of the Paurashava on the east side. Besides, care should be given on undesirable encroachment of the agricultural lands which is one of the economic sources of planning area.

In considering the commercial and administrative land development, both sides of khal is the potential area for commercial development. At ward no 1, administrative zone can be develop considering Upazila Parishad as centre. Industrial development is mainly concentrated in ward no. 1, 4, 6 and 7. So, it is expected and required to concentrate the development in the existing rather than expanding towards other areas. The industrial development should not be mixed up with residential development. On the other hand, existing industrial area is mixed with the commercial area of the Paurashava. So, it is important to consider these features.

Other community facilities such as educational, religious and others should be provided in consideration of ward wise population distribution as explained in Chapter 4. The potentialities of zoning for important land use can be considered in determining the present growth of Paurashava. Moreover, the present and proposed Road network would be a major determinant for growth of the Paurashava.

3.8 Catchments Area

Catchments area of the Swarupkati Paurashava is calculated according to the agriculture commodities and movement of dwellers for rendering services. Swarupkati upazila has great agricultural potentiality. People of this area are mainly involved in agriculture and business activities. It has been analyzed that in Paurashava area about 36.17% households are involved in agricultural activities. At present from Swarupkati Paurashava; Betel leaf, coconut, guava, betel nut and amra, etc, products are supplied to different district by water way through Launch or trawler. Also, various types of fishes especially shrimp are also available here which are caught from Shandhya River which is adjacent to Swarupkati Paurashava. Theses fishes are also distributed to all over the country. Thus, this upazila is contributing to national economy.

Moreover, most of the trading activities are concentrated in the bazaar area of the Paurashava. People from different locations come here for daily bazaar. Here is an urgent need for preparing well defined master plans for all those Paurashavas to accommodate all physical developments enhancing socio-economic developmental activities so as to boost up living condition of the people living in the urban area.

3.9 Land Use and Urban Services

Land use is one of major determinant of planning especially in a developing country where technical component is being upgraded still. Suitable land use planning not only controls the development but also it can affect the traffic generation and degeneration of a particular area. At Swarupkati Paurashava, there is dominance of residential land (about 35.67% of the total) followed by water body land (about 29.64%) and agricultural land (about 27.04%).

About 595.50 acres areas are used for residential purposes. Ward no 5 has highest amount of residential land. About 16.49 acre lands are in commercial use at Swarupkati Paurashava and ward no 6 is the commercial zone of the planning area. From the land use survey it has been observed that about 2.05 acres areas are used for industrial/ processing and manufacturing purposes and ward no. 1, 4, 6 and 7 are the main industrial zone. About 16.14 acre land at Swarupkati Paurashava is devoted for government services and most of the government services are located at ward no. 1. Moreover, about 5.34 acre lands are devoted for community service and 0.84 acre lands are used for service activities. At Swarupkati Paurashava, about 34.09 acres land is occupied by road network.

The landuse pattern clearly indicates that land use pattern does not reveal much urbanized oriented land uses rather a semi-urbanized land use structures. Moreover, existing land proportions of different land uses is not in consistent with the principle of land allocation/distribution of an ideal town.

3.10 Paurashava Functional Linkage with Regional and National Network

Communication system of Swarupkati is not much satisfactory. A regional highway is gone through Pirojpur district. Swarupkati Paurashava is third largest Paurashava of Pirojpur district. A highway Pirojpur -Jhalokati –Barisal is gone through Pirojpur which is connected with Swarupkati by a connecting road. This highway is also used to reach Jhalokati, Barisal and Patuakhali and Dhaka which are situated in the east side of Swarupkati. Moreover, among six upazilas of Pirojpur district, almost all are connected by water ways.

3.11 Role of Agencies for Different Sectoral Activities

Swarupkati is an A Class Paurashava. The collaboration among different agencies is essential to execute the plan and make a linkage with national plan and investment. Therefore, the role of different agencies or organizations is required to identify and understand.

LGED

The major functions of LGED can be broadly categorized as follows:

- Rural infrastructure development
- Urban infrastructure development
- Small scale water resources development

Urban Infrastructure Development consists of Planning and implementation of integrated town centre (bus terminals, markets etc.), municipal roads, bridge/culverts, drainage, water supply and sanitation projects, solid waste management projects, slum upgrading projects, development of Land use plan, improve planning & management capacity and resources mobilization & management, Institutional development of municipalities through training and computerizations, preparation of district and upazila town master plan, Development of technical specifications and manuals for construction of urban infrastructures.

Map 3.1: Regional Linkage Map of Swarupkati Paurashava



RHD

RHD is responsible for the construction and the maintenance of the major road and bridge network of Bangladesh. It has a sustainable capacity to plan, manage and deliver its full range of responsibilities in respect of the main road and bridge network and to be accountable for these duties.

PWD

Public Works Department (PWD) plays a pivotal role in the implementation of government construction projects. It also undertakes projects for autonomous bodies as deposit works. The specific functions are:

- Construction of Buildings for Other Agencies on a Deposit Work Basis
- Maintenance of Public Parks
- Design and Construction of Public Buildings except those of RHD, T&T, Postal Department
- Construction of National Monuments
- Repair and Maintenance of Public Buildings
- Preparation of Book of Specifications and Code of Practice
- Acquisition and Requisition of Land for construction Work
- Procurement of Materials & Equipment Required for Construction Work
- Valuation of Land and Property and Fixing of Standard Rent

BWDB

Bangladesh Water Development Board (BWDB) is the principal agency of the government for managing water resources of the country. It was given the responsibility of accomplishing the tasks of executing flood control, drainage and irrigation projects to increase productivity in agriculture and fisheries.

DPHE

The Department of Public Health Engineering (DPHE) with its development partners is trying to ameliorate the sufferings caused by the lack of safe water. Alternative options for safe water supply are being catered in worse affected areas. Similarly for excreta and other waste management DPHE is implementing different projects to achieve an improved environment. Besides, ensuring water supply and sanitation services/ facilities during and after the natural disasters/ calamities is another major function of DPHE.

PDB

Major roles of Bangladesh Power Development Board (BPDB) are

- To deliver quality electricity at reasonable and affordable prices with professional service excellence.
- To make electricity available to all citizens on demand by the year 2020.
- To provide specialized skilled services in Operation and Maintenance with outstanding performance in Generation, Transmission and
- Distribution for promoting competition among various power sector entities
- To reach self sufficiency by increasing of its income and reduction of expenditure

BIWTA

An advisory committee has subsequently been constituted to advise the authority in respect of all matters related to development, maintenance and operation of inland water transport and of inland waterways in Bangladesh.

- Draw up programmers of dredging requirements and priorities for efficient maintenance of existing navigable waterways and for resuscitation of dead or dying rivers, channels, or canals, including development of new channels and canals for navigation

- Develop, maintain and operate inland river ports, landing/ferry ghats and terminal facilities in such ports or ghats
- Carry out removal of wrecks and obstruction in inland navigable waterways.
- Ensure co-ordination of Inland Water Transport with other forms of transport, with major sea ports, and with trade and agricultural interests for the optimum utilization of the available transport capacity

Regulatory functions

a) Fixation of maximum and minimum fares and freight rates for Inland Water Transport on behalf of the Government

b) Approve time tables for passenger launch services

c) Act as the Competent Authority of Bangladesh for the protocol on Inland Water Transit and Trade, looking after the use of waterways of Bangladesh on behalf of the Govt. of Bangladesh for the purpose of trade and transit between Bangladesh and India as provided in the Protocol

Land Registration Department

Land Registration Committee responsible for land registration. This Registration department records land mutations arising through sale, inheritance or other forms of transfer, reports changes to the Ministry of Land and collects the Immovable Property Transfer Tax.

Chapter-4
CRITICAL PLANNING ISSUES

4.1 Physical Infrastructure

Swarupkati Paurashava is located in a disaster prone area (Pirojpur district), its geographical location itself a constraint to develop the infrastructure in the area. There is a river slightly comprises Paurashava area. But in the middle of Paurashava there are canals. Most of the lands on the side of canal are developed as residential use areas. Moreover, most of the parts of ward 7, 8 and 9 are comparatively low wards and most of these lands have been used for agricultural purposes. These lands immerse when flash flood occurs.

The physical developments of Swarupkati Paurashava have encroached water bodies such as khals, ponds, ditches and the existing fertile land. This is very much detrimental for conserving biodiversity. Further, the existing physical developments are taking agricultural lands as much as possible which will create danger on the food security and also on the economic base of the planning area.

The Paurashava is a naturally developed area. Planning effort yet not been taken by the public authority. Therefore, there are some segmented and sporadic physical developments that have been occurred over the years in different parts of the Swarupkati Paurashava.

The internal roads are developed in an unplanned way and also most of the access roads are katcha and narrow. These roads are not capable to accommodate the future growth of this area. Moreover, there is no traffic management system and footpath facility which cause lack of planning in transport network development. This situation hinder the economic development but also the potentiality of physical development of Paurashava

The overall condition of utility / municipal services is unsatisfactory. Water supply network and electricity facility is not adequate for residents of this area. Moreover, there is no solid waste disposal facilities, sewerage facilities and gas supply facility. Low land elevation and the distribution of water bodies make it difficult to provide the utility services, road network development over the Paurashava and also hinder well investment to encourage any industrial development.

4.2 Socio-Economic

The overall condition of different available urban utilities/civic services at Swarupkati Paurashava area is not satisfactory. No gas supply facility is available for the households of Swarupkati Paurashava. At present there is no dustbin and waste disposal facility at Swarupkati Paurashava. It appears that wastes are thrown here and there which pollute the area and create environmental problems. The people of this area also suffer for disaster problems such as flood, water logging, cyclone, etc. people also face some pollution problems like water pollution, noise pollution, beach pollution, etc. There is also lack of recreational facility at the Swarupkati Paurashava. The households of Swarupkati Paurashava face some communication problems in their daily life such as narrow road problem, flood erosion problem, road jam problem and lacking of town bus service. However, this aspect needs vital consideration.

Most of the economic activities in Swarupkati area are rudimentary in nature. Poor technology, unskilled labor force, low investment makes such economic activities uncompetitive with other cities and towns. Public investment in Swarupkati area is not enough to generate growth impulses. Public investment in appropriate areas is a must for revitalizing its economy. The local people, particularly those who are rich usually apathetic toward investment. The main reason can be explained in two points: first, the investment is not safe and the second the rich must in big cities

where there investments are safe. Lack of availability of funding sources/agencies viz. bank, etc is also acting as hindrance for economic development.

4.3 Environment

Swarupkati Paurashava is located on the coastal belt, as a result the people of this area face cyclone almost every year. Devastating cyclones hit the area usually accompanied by high-speed winds, sometimes reaching 220 km/hr or more and 5-6m high waves, causing extensive damage to life, property and livestock. It has observed that Cyclone hit Swarupkati Paurashava in different years. But, in 1937, 1985, 2007 and 2009 year the extreme cyclone track is passed over the Swarupkati.

As the area is in coastal region, saline and iron have been contaminated the water. Agricultural production, fisheries and livestock are affected by higher salinity in the dry season.

At present, there is no solid waste management system at Swarupkati Paurashava. Most of the people threw garbage here and there, which causes serious environmental pollution and also some times clogged the existing drainage network.

In preparing the master plan for Swarupkati Paurashava, the above issues have dully been considered and proper steps have been taken to mitigate those effects.

4.4 Transport and Communication

Swarupkati Paurashava is connected with Barguna, Barisal, Pirojpur, Jhalakati and Dhaka with diverse regional roads. The inter-district movement is mostly done through motorized vehicles. Moreover, water transport network of Swarupkati Paurashava has significant importance for the movement of both people and commodity.

There is no public or private bus service available for intra-zonal movement among Swarupkati Paurashava. Intra-zonal movement among the Paurashava area is mostly done through the non-motorized vehicles such as rickshaw, bi-cycle, van, etc. People also use some motorized vehicles such as motorcycle, nochhimon, etc. Rickshaw is the most dominant transport for intra zonal movement. Peak Hour traffic has been observed from 8.00 to 12.00 and 16.00 to 20.00 because most of the educational and commercial movement has been accomplished within the time periods.

There is only one bus stand at Swarupkati Paurashava located at Ward no. 7 with the capacity of 20 vehicles (10 buses and 10 tempu/baby taxi).The area is not served by well defined road hierarchy and most of the roads are narrow. At present, the roads of Swarupkati Paurashava have free flow and transport density is low. But it is important to design a planned network with designated width to accommodate the future pressure of traffic.

4.5 Landuse Control

At the present time, there is no control over land development at Swarupkati Paurashava. The master plan is intended to prove a broad guideline to control the future development and to organize all types of development in a planned manner.

Major aim of the Landuse Policy 2001 was to prevent indiscriminate conversion of agricultural land in to non-agricultural use, because such conversion may be threatened for food security of the country. But for providing necessary services to the Paurashava agricultural land need to use which should be as small amount as possible. During implementation of Urban Area Plan / Ward Action Plan, necessary control should be imposed according to the following manner.

- High value agriculture land should be preserved only for agriculture purposes.
- Water body should be preserved to maintain the natural drainage system of the area.

- Easy accessibility with the surrounding upazila and regional linkage has to be ensured.
- Rural characteristics of the rural settlement have to be strictly maintained.
- All the municipal services have to be designed covering all the residents of the planning area.
- Land encroachment should be strictly outlawed.
- Agricultural lands can be used for other purposes considering the importance of the use and considering the quality of land in terms of its production.

4.6 Disaster

Swarupkati Paurashava is located on the coastal belt, as a result the people of this area face cyclone almost every year. Devastating cyclones hit the area usually accompanied by high-speed winds, sometimes reaching 220 km/hr or more and 5-6m high waves, causing extensive damage to life, property and livestock. It has observed that Cyclone hit Swarupkati Paurashava in different years. But, in 1937, 1985, 2007 and 2009 year the extreme cyclone track is passed over the Swarupkati. The cyclone SIDR and Aila were a big hazard for their natural climatic condition. It also damaged many lives, forests, agricultures and infrastructures.

4.7 Laws and Regulations

The laws and regulations prescribed (mentioned in Chapter 5 section 5.2) are not directly related with the physical development activities and their control. The East Bengal Building Construction Act, 1952 is called the mother regulation to control all type of physical development but no instruction is being included in the Paurashava Ordinance, 2009 regarding EBBC Act, 1952. The Paurashava authority approves the building plan and excavation of tank without any regulatory control.

The regulation prescribed in the Paurashava Ordinance, 2009 on the preparation of master plan is called traditional regulation. In the modern world, the concept of master plan became obsolete. In this project, the so called master plan, as mentioned in the Paurashava and Surrounding Area Ordinance, 2009 considered as a package and the plan included in this package named Structure Plan, Urban Area Plan and Ward Action Plan, though there is no regulation in the country on the preparation and implementation of those plans. However, eligible development authority will be required to exercise proper rules and regulations for controlling the development considering various related issues.

Chapter-5
PAURASHAVA DEVELOPMENT RELATED POLICIES, LAWS and REGULATIONS

5.1 General

Planning law must clearly define the extent and content of the rights of the Government and the people. Thus, legislative measures can help to frame policies for best use of land and its policies to control. Law should aim at a clear definition of the responsibilities and functions of various Government departments and its respective powers. For urban development, law has profound implications. It defines the system of urban Government, establishes the system of urban planning and regulation of urban development.

5.1.1 Local Government (Paurashava) Act, 2009

According to the Section 95, Paurashava, and if so required by the prescribed authority, shall draw up a Master Plan for the Municipality which shall, among other matters, provide for:

- A survey for the municipality including its history, statistics, public services and other prescribed particulars
- Development, expansion and improvement of any area within the municipality and
- Restrictions, regulations and prohibitions to be imposed with regard to the development of sites, and the erection and re-erection of buildings within the municipality

5.1.2 Urban Management Policy, 1999

The adopted policies under the policy statement are:

- Paurashavas shall provide and maintain the following services to their constituents: (i) Water supply, (ii) storm water drainage (iii) solid waste disposal, (iv) public sanitation, (v) roads and traffic control systems, (vi) public markets, (vii) public transport terminals, (viii) recreational parks and reserves, (ix) community centres, (x) street lighting, etc**.**
- Municipalities shall develop Public Investment Programs (PIP) which will reflect the priority infrastructure needs and appropriate fiscal practices needed to accomplish these.
- The capital budgeting process by municipalities and project selection shall be made transparent.
- Land use plans shall be prepared by Paurashavas in consultations with local communities and shall be periodically updated. Such plan shall form the basis for all property and land development and the assessment of taxes. Each Paurashava and Surrounding Area shall endeavor to appoint a full time qualified Urban Planner to its staff for this purpose, and until such appointment is executed; such services shall be contracted out.
- All external financing extended either directly to Paurashavas by multilateral or bilateral sources or on-lent via the MDF for municipal investments shall be provided on comparable terms.
- Paurashava and Surrounding Area will adopt as early as possible a double entry accounting system on a cash basis. Training and technical assistance shall be provided on a priority basis to facilitate computerization in the transition to double entry accounting.
- Paurashavas shall generate sufficient revenues from their own sources to meet, at a minimum, all of their operating expenses.

- The Government shall review in consultation with municipalities the current intergovernmental revenue transfer system and make appropriate changes to make it transparent, rational, and predictable and to some extent performance based.
- Paurashavas shall endeavor to contract out service provision in whole or in part to private providers in areas such as solid waste disposal, public sanitation, and road maintenance.
- Paurashavas shall conduct periodic public meetings to advise their constituents regarding their activities as well as to engage the public in consultations regarding investment choices, decisions and priorities. As part of this increased transparency.
- Maximizing the participation of women shall be accorded high priority.

5.1.3 National Housing Policy, 2008

The salient features of the housing strategy envisaged in the National Housing Policy are:

- The role of the government in housing will be to supply serviced land at reasonable price and to help create and promote housing financing institution
- Efforts will be made to increases affordability of the disadvantaged and the low income groups through providing credit for income generation
- Improvement and rehabilitation of the existing housing stock will be given priority by the government alongside new housing
- Encroachment on public land and unauthorized constructions will be discouraged
- Facilities incremental house building and ensure wider application resources
- Conservation of the natural environment and preservation of cultural heritage in new housing projects

In this policy, there are some specifications are illustrated for Urban and Rural Housing. As the urban and rural context in Bangladesh is different, so the strategies and policies of these sectors are also different. Though the context is different but rural area and urban area are economically, socially and environmentally dependent on each other.

Rural Housing

Clause 5.9 of the Housing Policy describes about the rural housing. In the Housing Policy, following measures are suggested to improve rural housing:

- Avoiding unnecessary displacement of rural settlements due to development projects and where unavoidable, makes proper rehabilitation of the households, with full community involvement.
- Encroachment on agricultural land by proliferation of homestead should be discouraged. Efforts should be made for planned densification of rural homesteads. Subject to availability of khas lands, programmes similar to 'Adarsha Gram' programme of the Ministry of land will be undertaken in rural areas.
- The coordinated provision of water supply, sanitation, electricity, roads and other basic infrastructure services to existing and new habitations.
- Providing assistance by way of providing credit, dissemination of appropriate technology and delivery system for promoting housing.
- Initiating schemes for increased employment opportunities and income generation by extending appropriate credits and advice, so that housing affordability is enhanced.
- Establishing suitable institutional structure including strengthening of existing organizations at district and local level, with the responsibility for planning, financing, implementation, supervision and monitoring of rural housing schemes, and with the full involvement of

beneficiaries, NGOs and CBOs, giving special attention to the needs of the poorest segments, specially women and disadvantaged persons.

- Linking the development of housing sites and the up gradation of rural housing with the activities under the Bangladesh Rural Development Board (BRDB) and other programmes for the creation of rural assets and employment.

5.1.4 Population Policy, 2004

The following strategies will be adopted to slow down the growth of urban population:

- Satellite towns and growth centers should be established with adequate facilities to provide alternative destinations to rural migrants. Roads and communication systems should be linked with the growth centers; along with health, education housing and other welfare services created in those places. Headquarters of important Government and non- Government Organizations, educational institutions and industrial units may also be shifted or relocated to other cities
- Relax rules relating to going abroad of skilled workers and make provision for dual citizenship
- Impart education and skill training to the young men and women to become competent and skillful to handle many new and emerging fields in the cities and towns
- Create skilled manpower for overseas employment

5.1.5 National Land Use Policy, 2001

Main Components of the Policy

- use as much as required for agriculture purposes and land use cannot be changed with permission of the appropriate authority
- ensure use of land owned by the land lord absentee
- keep limit the process of division of agricultural land into small pieces
- identification of zones for land uses by Paurashavas and other places of Upazilas
- provision of assistance by the Revenue Office of District Administration in preparing zoning maps by the local government organizations
- existence of zoning law in the country; Abide this law to implement the zoning map prepared by the local government organizations
- encouragement to construct multi-storied buildings instead of single storied in the rural and urban areas so as to ensure optimum use land for residential purposes
- identification of the forest land by the Ministry of Forest and Environment
- undertake measures for protection, maintenance and expansion of the existing forest land
- encouragement for development of the social forestry
- keep open the exiting water bodies and those are not to be filled in. Entrust the responsibility of maintaining small ponds by the owners and large water bodies such as river, channels, haor, baor and beel by the community people and the Government. To this effect, these water bodies are to be re-excavated regularly
- use of embankments for controlling flood as roads as far as possible
- planned tree plantation on the embankments
- use ditches and other water bodies for fish production and rearing ducks created during cutting of earth for constructing embankments. Not to dig new land as much as possible during constructing embankments rather re-excavate the existing filled in water bodies
- ensure not to create water-logging by constructing embankments
- no acquisition of land for the purpose of road construction other than/except national highways, regional and district to Upazila roads, Upazila to Upazila connecting roads. Avoid

human settlements and fertile agricultural land to acquire land wherever land acquisition is of utmost need. Construct inter and intra village roads in planned manner

- construct/establish industries in the designated places keeping view on the availability of support services for industrialization
- not to pollute/infect land or environment through discharging waste from the industries and follow strictly to treat industrial waste
- construct service roads along the main roads of the country so as to ensure safe movement of traffic as well as set aside 10 feet to 20 feet of land for plantation trees on the both sides of roads
- discourage construction of small and cottage industries within 10 kilometers of radius if industries are accommodated within the BSCIC industrial area
- protection of social rights of possessing land by the indigenous people living in the different parts of the country following their traditional laws

5.1.6 National Agriculture Policy, 1999

The following steps will be taken to ensure planned utilization of land for crop production:

- Land zoning programme will be taken up by the Soil Resources Development Institute (SRDI) on a priority basis. Integrated approach of SRDI will be further strengthened for this purpose
- To ensure maximum utilization of land, bottom up planning through people's participation and its implementation will be started from the mouza or village level
- In most areas the same land is suitable for more than one crop. Therefore, farmers will be encouraged to grow more profitable crops as an alternative to only rice-rice cropping pattern
- Fertile agricultural land is going out of cultivation due to its use for non-agricultural purposes such as private construction, house building, brickfield, etc. Appropriate measures will be taken to stop this trend in the light of the Land Policy of the government
- Maximum utilization of land will be ensured through promotion of inter-cropping with the main crops
- Acquisition of land in excess of requirement for non-agricultural purposes will be discouraged
- Programmes will be taken up to motivate the landowners not to keep their land unused without any acceptable reason

5.1.7 Transportation Policy

At present there is no standard design and national unit cost for construction and maintenance of various roads and bridges and culverts. As a result substantial cost difference has been proposed by the agencies for same type of road / bridges for the same area. Following tasks of a road projects will be adopted:

- The Committee reviewed the design standards for the Union, Upazila, Zila Roads, and concluded that the key design criteria for all roads should be traffic and axle loads, and not the classification of the roads.
- The six design standards agreed by the Committee to form a logical progression in terms of road width and pavement thickness, all based on traffic considerations. They are not directly related to road classification.
- The agreed design standards are to be used by all road agencies. Road agencies will be required to use appropriate standards for roads according to traffic criteria.
- Reconstruction- full pavement reconstruction on an existing embankment
- New road Construction - completely new embankment and road pavement, including bridges, culverts and any necessary slope protection. This is likely to prove a rare category of road project in Bangladesh

- Widening- road widening and upgrading, including full re-construction of the existing pavement
- Strengthening- removing existing road surfacing and providing a new base layer of Base Type-1 and surfacing.

5.1.8 Environment Policy

Bangladesh National Environment Policy was approved and published in 1992. Key elements of the Policy are –

- Maintain ecological balance and overall physical development progress of the country through protection and development of different sectors. Protection from natural disaster is one of them.
- Identification and regulation all type of activities which pollutes and degrade the environment.
- Ensuring proper Environment Impact Assessment prior to undertaking of industrial and other development projects.
- Ensuring sustainable use of natural resources.

5.1.9 Coastal Zone Policy, 2005

The following are the broad components of the policy:

Economic growth

- Efforts shall be made to enhance annual growth rate to a level required to achieve national goal for poverty reduction and economic growth;
- Available opportunities of the coastal zone will be used through sustainable management to enhance standard of living of coastal communities by investing in different sectors;
- A strategy shall be formulated covering all routes to development taking multidimensional nature of poverty.
- Emphasis will be given on building efficient power, transportation and telecommunication links, particularly with islands;
- Special emphasis will be given to utilize gas-based power, manufacturing and processing industries;
- Settled isolated chars and islands will be brought under ‘special rural development programs’;
- Necessary measures will be taken to increase the flow of investments in the coastal zone including direct foreign investment (DFI), especially by setting up more export processing zones (EPZ);
- Steps will be taken for medium and small private investments for coastal development.

Basic needs and opportunities for livelihoods

To meet basic needs of the coastal people and enhance livelihood opportunities, the Government policy will be as follows:

- Alleviation of poverty through creation of job opportunities and finding options for diversified livelihoods would be the major principles of all economic activities. Economic opportunities based on local resources will be explored to enhance income of the people;
- The intensity of coverage of primary education, health care, sanitation and safe drinking water facilities will be increased;
- Food production will be continued at the self-sufficiency level and of higher production of diversified high-value export goods;
- Private sector and the non-governmental organizations (NGO) will be encouraged to implement activities for the poor people;

- Collateral-free credit under easy terms will be arranged as part of all livelihood enhancement programs and activities;
- No alteration or stoppage of an existing employment opportunity shall be made without creating opportunities for alternative employment;
- Special measures will be taken during the period of disaster;
- *Khas* land will be distributed among the landless and a more transparent process of land settlement will be ensured;
- An effective program for land reclamation will be developed;
- Provide facilitate for the coastal navigation;
- An integrated network of communication including roads and waterways will be developed;
- The law and order situation will be improved by setting up police outposts in remote and far flung areas;
- Free flow of information for the people will be ensured.

Reduction of vulnerabilities

In order to reduce the vulnerabilities of the coastal poor from disasters like cyclone, drainage congestion, land erosion, drought, etc, the Government policy is as follows:

- Reduction to vulnerability to natural disasters would be an integral aspect of the national strategies for poverty reduction;
- Integration will be made with 'Comprehensive Disaster Management Plan' on aspects concerning the coastal zone;
- Effective measures will be taken to enhance coping capacity of the poor during the period of disaster and to initiate insurance scheme for improving their social security;
- Effective measures will be taken for protection against erosion and for rehabilitation of the victims of erosion;
- Safety measures will be enhanced by combining cyclone shelters, multi-purpose embankments, road system and disaster warning system. It should include special measures for children, women, the disabled and the old;
- Earthquake management will be strengthened and capacity to cope with earthquakes will be enhanced;
- Adequate provision will be made for safety of livestock during disaster and post-disaster period;
- Programs shall be taken to encourage all for tree plantation in a planned manner in the coastal zone. Emphasis will be given to social forestry and other forms of plantations, plant care and maintenance;
- The asset base of the poor, with special focus on women, shall be improved through ownership or access so that their coping capacity improves.

Sustainable management of natural resources

The Government policy to ensure sustainable management of both biotic and abiotic coastal resources will be as follows:

- Every possible steps shall be taken to secure just share from all international rivers reaching the coastal zone and the Bay of Bengal;
- Suitable measures will be taken for sustainable use of renewable resources and, to that end, limit harvesting, extraction or utilization to the corresponding cycles of their regeneration;

- Sustainable use of coastal resources shall be ensured. Combination of resource use, e.g. agriculture, forestry and fishing including aquaculture is often the major economic activity. Efforts will be given to make this sustainable;
- Optimum utilization of resources will be ensured by taking advantage of the complementarities and trade-offs between competing uses;
- Rigid enforcement of conservation regulations will affect the livelihoods of many people and such conservation efforts will be linked, as far as possible, with alternative opportunities of employment;
- Initiation of plan and its implementation will be ensured by participation of people of all sectors.

Land

- Planning will be done under land use policy to control unplanned and indiscriminate use of land resources. Strategies for new chars will be developed. Zoning regulations would be formulated and enforced in due course;
- Through its responsible agencies, the Government will proper plan and implement schemes for reclamation of balanced land from the sea and rivers.

Water

- Adequate upland flow shall be ensured in water channels to preserve the coastal estuary ecosystem threatened by the intrusion of soil salinity from the sea;
- Small water reservoirs shall be built to capture tidal water in order to enhance minor irrigation in coastal areas. Appropriate water management system within the polder utilizing existing infrastructures will be established for freshwater storage and other water utilization;
- Rainwater harvesting and conservation shall be promoted;
- Ponds and tanks will be excavated for conservation of water and local technology for water treatment (such as, pond sand filtering - P.S.F.) will be used for the supply of safe water;
- Step will be taken to ensure sustainable use and management of ground water.

Capture fisheries

- Comprehensive policies, as dealt in the National Fish Policy, in relation to exploitation, conservation and management of marine fisheries resources will be followed
- Fishers' right will be established on open water bodies for sustainable fisheries management

Aquaculture

- Environmentally adopted and socially responsive shrimp farming will be encouraged. In this regard, internationally accepted quality control measures will be introduced;
- All opportunities and potentials of aquaculture will be utilized in the coastal zone. Crab culture, pearl culture, sea grass will be encouraged.

Agriculture

- Programs for intensification of agriculture and crop diversification for improving the economic conditions of both male and female farmers and increasing food security at local and regional level shall be supported;
- Special development programs will be taken-up with a view to increasing the production of crops suitable for the coastal area with attention to maintenance of soil health;
- Use of chemical fertilizers and pesticides will be reduced, while organic manure and integrated pest management will be encouraged;
- Salt-tolerant crop varieties will be developed and extended along with possible measures to resist salinity;

- The scope of irrigation facilities will be explored and / or extended and a comprehensive water management for agriculture will be implemented.

Livestock

- Grazing land for livestock will be arranged. Facilities for livestock development will be enhanced;
- Facilities for rearing of poultry of different species including the local ones will be enhanced

Energy

- Assessments shall be made on the prospect of tidal and wave power in coastal areas' as potential energy source;
- An assessment of all types of energy resources (e.g., oil, gas, coal, nuclear minerals, hydropower, biomass fuels, solar, wind and tidal waves) will be undertaken on a regular/continuous basis by the appropriate authorities. Special measures will be undertaken for exploration and appraisal of petroleum resources in the offshore areas without undermining the nature;
- Potentials of area-based renewable sources of energy will be assessed;
- Remote and isolated areas including offshore islands, which are not likely to be brought under the networks of commercial fuels in a foreseeable future, are to be considered as potential sites for implementing renewable energy technologies, in spite of their high capital cost. Solar photovoltaic will be used for cyclone shelters;
- Special projects will be identified, for example power plants in the offshore islands. Plans for the generation of electricity in isolated and remote areas like offshore islands will be prepared separately.

Equitable distribution

To ensure right of the neglected and disadvantaged groups, the Government policy is as follows:

- Actions will be designed to reach the poorest and the remote rural areas (including the cyclone prone coastal regions, chars and river erosion affected areas), which are vulnerable to adverse ecological processes and those with high concentrations of socially disadvantaged;
- In order to ensure equitable distribution of national economic benefits, priority will be given to exposed Upazilas and coastal islands;
- In order to ensure equity, the thrust should be on human development of the poor for raising their capability through education, health, nutrition, employment-oriented skill training and social interventions;
- Measures will be adopted that increase access to natural resources for the poor and the disadvantaged (on which they are dependent for their livelihood)

Empowerment of communities

Mainstreaming of the coastal people will be done by enhancing their safety and capacity. In this context, Government policy will be as follows:

- Equal participation of all stakeholders shall be ensured and establishing effective co-operation between the government agencies, local government institutions and non-governmental organizations;
- Co-management procedures shall be established that will bring decision-making power to the grass root levels;
- Specific vulnerabilities of the coastal communities shall be addressed: like farmers in the saline zone, marine fishers, salt producers, dry fish processors, people living on forestry resources, ship breaking workers, vulnerable ethnic communities and so forth;

- Vesting on local government institutions, at the union, upazila and district levels, the power and responsibilities for design, formulation and implementation of local level development programs and projects;
- An awareness campaign shall be mounted about the long-term benefits of ICZM, recent initiatives in the coastal zone, and coastal development strategy among the NGOs, private sector, civil society and coastal communities;
- Initiatives will be taken to keep up the cultural heritage of different communities living in the coastal zone.

Women's development and gender equity

In this respect, the Government policy will be as follows:

- A gender sensitive and participatory approach will be adopted that focuses at the reduction of gender inequalities and that takes into account differences in needs and interests between men and women;
- Efforts will be made to close the gender gap, giving priority to women's education, training and employment and special support for broadening their coping capacity;
- Special attention will be paid towards employment generation for women, the promotion of women entrepreneurs as well as the removal of restrictions on women's employment and economic opportunities;
- During distribution of newly accreted khas lands, special attention will be paid to the allocation of land titles to women;
- Special projects will be implemented exclusively addressed to livelihoods enhancement and empowerment of disadvantaged women;
- Necessary institutional measures including mass awareness and motivation on violence against women will be taken.

Conservation and enhancement of critical ecosystems

The Government policy will be as follows:

Conserving the ecosystems

- Meaningful conservation shall be enforced of critical ecosystems including ECAs, heritage sites and marine reserves;
- Special measures will be taken for conservation and development of the natural environment of the Sundarbans
- The programs for institutional strengthening and capacity building shall be supported along with further development of the regulatory framework for the protection of the environment;
- The role of the Coast Guard will be acknowledged with emphasis and its capacity will be enhanced so that it can be used on behalf of all relevant institutions as a common resource for enforcement of different regulations applicable to the coastal zone;
- For activities that have direct adverse consequences on bio-diversity, steps will be taken to stop those activities and specific mitigation measures will be taken to minimize those effects;
- To protect the environment, all commitments shall be honored as signatory to different international protocols and guidelines in planning and implementation;
- Efforts shall be made to harmonize in the provisions of different existing laws and enact new laws, where required, to protect and preserve the coastal environment and its resources;
- Special measures will be taken for bio-diversity conservation;
- Measures will be taken for hill management including prohibition of hill cutting.

Pollution Control

- Zoning regulations will be established for location of new industries in consideration of fresh and safe water availability and effluent discharge possibilities;
- All industrial units will be required to install built-in safeguards against pollution within a given timeframe and will help them in obtaining financial support from international bodies to carry out the adjustments. Units failing to comply with the pollution standards will be required to pay "green tax" for cleanup of the environment polluted by them;
- Sewage treatment plants will be set up for the major cities like Chittagong, Khulna and Barisal and gradually in other urban centers;
- Steps will be taken to handle the issue of discharge of bilge water from ships and oil-spill according to international conventions to which Bangladesh is a signatory;
- A review of the desirability of supporting ship breaking as an industry `will be done and, in the event of its continuation, environmental standards will be prescribed under which it has to conduct its activities.

Climate Change

- Existing institutional arrangements for monitoring of climate change in Bangladesh will continue. Steps will be taken to support upgrading of technology and institutional strengthening for enhancing their capacity for generation of better data and more accurate long-term prediction and risk related to climate change
- Implementation of adaptive measures identified in relation to climate change for coastal zone and resources shall be gradually undertaken
- Efforts shall be made to continuously maintain sea-dykes along the coastline as first line of defense against predicted sea-level rise
- An institutional framework for monitoring/detecting sea level rise shall be made and a contingency plans for coping with its impact

5.1.10 Industrial Policy, 2005

Bangladesh is a developing country, and the present government is striving relentlessly to attain rapid economic development in the country. Despite a lack of resources faced by the Government, development programs in the key sectors have continued. Therefore, the Government in the Ministry of Industries has taken the role of a facilitator. In order to establish economically prospective industries in industrial sub-sectors, there are plans to set up industrial parks and special economic zones so that huge amount of unused and abandoned land can be utilized. All this is aimed at fostering industrialization and economic development and generating employment opportunities in the country. To reduce poverty and generate employment opportunities, more efforts are needed to establish agro-based industries as well as to raise agricultural production. This will ensure the protection and fair price of agricultural products and employment of a huge number of unemployed people. In order to create further employment opportunities beyond the agricultural sector, initiatives should be taken to set up small, medium and large industries across the country. In order to attain this growth in this sector, special importance has been given in the Industrial Policy on agro-based and agro - processing industries and on steps to overcome possible adverse conditions in the export-oriented garment sector. Importance has also been given on considering the SMEs and cottage industries as one of the major driving forces, providing assistance to women entrepreneurs on a priority basis, setting up special economic zones in different parts of the country, improving the quality of industrial products to world standard, marketing of goods at competitive prices, and enhancing productivity in the industrial sector.

5.1.11 Health Policy

National Health Policy was approved and published by the government in the year 2000. Aim of the Health Policy is:

- To develop a system to ensure easy and availability of health services for the people living in urban and rural areas.
- To ensure optimum quality, acceptance and availability of primary health care including government medical services at the Upazila and Union level.
- To adopt satisfactory measures for ensuring improved maternal and child health at the Union level and install facilities for safe child delivery in each village.
- To improve overall reproductive health resources and services.
- To ensure the presence of full-time doctors, nurses and other officers / staffs, provide and maintain necessary equipment and supplies at each of the Upazila Health Complexes and Union Health and Family Welfare Centres.
- To formulate specific policies for medical colleges and private clinics, and to introduce appropriate laws and regulations for the control and management of such institutions including maintenance of service quality.
- To explore ways to make the family planning program more acceptable, easily available and effective among the extremely poor and low-income communities.
- To arrange special health services for mentally retarded, physical disabled and for elderly population.

5.1.12 National Urban Policy

The major objectives of national urban policy will aim to:

- Ensure regionally balanced urbanization through diffused development and hierarchically structured urban system.
- Facilitate economic development, employment generation, reduction of inequality and poverty eradication through appropriate regulatory frameworks and infrastructure provisions.
- Ensure optimum utilization of land resources and meet increased demand for housing and urban services through public-private partnerships.
- Protect, preserve and enhance urban environment, especially water bodies.
- Devolve authority at the local urban level and strengthen local governments through appropriate powers, resources and capabilities so that these can take effective responsibility for a wide range of planning, infrastructure provision, service delivery and regulatory functions.
- Involve all sectors of the community, in participatory decision-making and implementation processes.
- Ensure social justice and inclusion by measures designed to increase the security of poor people through their access to varied livelihood opportunities, secure tenure and basic affordable services.
- Take in to account, particular needs of women, men, children, youth, elderly and the disabled in developing policy responses and implementation.
- Assure health, safety and security of all citizens through multifaceted initiatives to reduce crime and violence.
- Protect, preserve and enhance the historical and cultural heritage of cities and enhance their aesthetic beauty.
- Develop and implement urban management strategies and governance arrangements for enhancing complementary roles of urban and rural areas in sustainable development.
- Ensure good governance by enhancing transparency and establishing accountability.

5.1.13 Rural Development Policy

The projects and programs as mentioned in the Rural Development Policy of Bangladesh are:

(i) Food for Works Program, (ii) G.R Program (Gratuitous Relief Program), (iii) T.R Program (Test Relief Program), (iv)V.G.D Program (Vulnerable Group Development Program), (v)V.G.F Program (Vulnerable Group Feeding Program), (vi) Single-House Single-Farm Program, (vii) Back to home Program, (viii) Food for Education Program, (ix) Rural Occupational Project, (x) Poverty Reduction Project, (xi) Self-employment Program for Women, (xii) Women Empowerment Program, (xiii) Coordinated Women Development Program, (xiv) Peace Home Program, (xv)Shelter Support Program, (xvi) Educational Allowance Program, (xvii) Aged-allowance Program, (xviii) Micro-credit Program and (xix)Allowances for Widowed, Poor and Husband-renouncement Women Program, etc.

Some of the aims and objectives of the Rural Development Policy is presented here:

- To increase the income and provision of jobs for the Villagers, especially for women and people under low-living standard in the rural areas.
- To confirm sustainable economic and social development through poverty reduction.
- To encourage self-employment opportunities in the rural areas.
- To emphasize for the development of rural wealth according to the equal distribution of economy and national development as prescribed in the Constitution of Bangladesh.
- To give confirmation to the rural people about infrastructural development, equal distribution of wealth and marketing of the agricultural production.
- To produce technologically efficient people about education, technical education and trainings in rural areas.
- Identification of demand and their fulfillment for socio-economic development of rural poor, persons involved with the production, especially small farmers and landless people.
- To reduce distances between towns and villages about services prevail through collective efforts and develop gradually.

5.1.14 Disaster Management and Climate Change Policy

The issues prescribed under Climate Change Policy are:

- Mitigation, adaptation and technology transfer is a must measure to fight climate change enhanced vulnerabilities of poor.
- The complementarily of current policy regime in relation to adapting to climate change should be analyzed in order to define which aspects of adaptation are already in place. This would not only advance national (also regional and local) development processes, but also would reduce vulnerability of people to climate change.
- A micro-level climate change risk reduction plan should be developed by the communities. The process should initiate local level action ensuring the participation of grassroots people, NGOs, civil societies, academic and research institutes etc.
- A community centered approach should be taken to develop policies which should address development as well. The policy action plan should also promote appropriate technologies such as resilient crop varieties, irrigation schemes, and renewable energy sources, so that they are available and affordable for low-income communities of Bangladesh.
- It's been believed by the economists that climate change is the greatest market failure of the history of mankind. Climate is natural, therefore a common property. For this reason, climate change related economic does not follow the prevailing market mechanism. Therefore, it should be understood that, the rich countries which are polluting should start paying for adaptation for the LDC and also start paying for mitigation within their countries. Bangladesh should make its position clear in favor of this logic in all negations and raise its voice.

5.2 Laws and Regulations

5.2.1 Urban Development Control

The president of Pakistan in the year of 1960 was enacted the Municipal Administration Ordinance, 1960. In the year 1977 through the Paurashava Ordinance, 1977 some of the Municipalities were upgraded as Paurashava and in the year 2009 Paurashava Ordinance is renamed as local government Ordinance 2009. The Paurashava may provide the function as prescribed in the Ordinance but no provision is being outlined to control and manage those functions. The Paurashava may enforce those regulations according to their capacity. The Ordinance proves that the Paurashava is independent and self regularity body, but due to absence of necessary man power technical support staff and the government initiative in financial matter, the Paurashava is dependent and control by central government.

5.2.2 Building Construction Rules 1996

Land use planning Rules

These are statutory rules to control land use according to planning standard. It is based on land use policies including Local Plans, such as residential density, road standard, provision of infrastructure and services. The relevant Acts (Local Government (Paurashava) Act, 2009, Building Construction Act, 1952 and BNBC, 1993) and Master Plans of the cities are the main legal instruments, which is in force with regard to exercise planning control and standards.

Control of public estates

Different government agencies have developed some housing, commercial and industrial estates in different urban areas and they have leased them out. Terms and conditions of lease deed reflected control provisions included in them.

Non-compliance of development control by some government and semi-government agencies

A portion of urban lands of the urban area are owned by different government and Autonomous agencies including universities, colleges. According to Building Construction Act, 1952 (amended in 1996, followed by Paurashava) each public building needs approval from the concerned development agencies. It is observed that most of the agencies are still ignoring the regulations and they construct their buildings within their premises.

Control of private housing estates

Large numbers of pockets of urban infill and privately owned low lying peripheral lands have been developed by private companies. In some cases small scale real estate development permission is obtained occasionally but deviations from the approved plan are most common practice of the developers.

Control of informal Development

A number of unregulated or informal settlements are taking place in urban area as urbanization proceeds. Paurashava can hardly control these haphazard development activities. The Slum Up-gradation Projects, Slum Improvement Projects (SIPs), provision of basic needs etc. are taken up at time when the problems had already overtaken the situation.

Density Control

Density Control is considered as an important development control tool. It includes the number of units, people allowed per parcel of plot size, unit limitation, height of the building etc. In the Government and Semi Government institutions, building permission is hardly obtained and therefore, density control rules and regulations are not in practice. At present, Paurashava follows Building Construction Rule, 1952 (amended in 1996) which restricts the height of Building in respect of adjacent road. Therefore, density control is possible to exercise in practical.

Taxation

Urban taxation is another effective development control tool. Different types of taxation policies may to change urban land use and urban character. As an example, the industrial estates are

encouraged to set up outside the city areas for tax holiday and other ancillary facilities. On the other hand, exemption of tax on urban vacant land encourages growing unauthorized settlements like slums and squatters.

Payment of Betterment fee

For every town planning scheme for an existing town, some owners of the property will be affected and as such they will have to be paid some amount as compensation. In the same time, some owners will be benefited by the proposed scheme. The share of increase in the value of the properties of such owners to be paid to the Paurashava is known as Betterment fees.

5.3 Strength and Weaknesses of the Existing Policies

Local Government (Paurashava) Act 2009

Although the Paurashava has been given the rights to prepare Master Plan and implement them, prepare development plans and projects for systematic development of Poura- city, building control, roads and streets plans etc. Besides, the replacement of Ordinance amended in 2008 by Local Government (Paurashava) Act 2009 ensures the citizen participation in a new way. But there are some drawbacks or weaknesses in this which are as follows:

- The engineering department has been given the responsibility to implement the Master Plan, but this department is not equipped enough to implement it properly
- To implement the Master Plan/ Land Use Plan, the staff requires professional training, but no one has received any training regarding implementation activities
- Central Government does not exert any pressure to implement the Land use Plan
- Paurashavas do not enjoy real autonomy to solve local problems
- More critical problem is the weak or even non-existent co-ordination amongst development partners

Urban Management Policy

The Policy statement recognized the decentralization could enhance efficiency of public expenditures by allowing local governments to be more responsive to local needs and preferences. The policy also envisions strengthening the beneficial aspects of urbanization and at the same time effectively dealing with its negative consequences so as to achieve sustainable urbanization, keeping in view the multi-dimensional nature of the urbanization process. On the other hand, the policy principles gave emphasis more on physical aspect of development rather than on social, environmental. Besides, issues on poverty reduction are missing in the policy outlines.

Land Use Policy, 2001

The National Land Use Policy, 2001 of the Ministry of Land highlights the Need, the importance and modalities of land zoning for integrated planning and management of land resources of the country. It also mentioned the need of formulating a Zoning Law and Village Improvement Act for materializing the identified land zoning area. The National Land Use Policy specially highlights the need for land zoning for the coastal area of Bangladesh. It describes about the need for definite guidelines and raises the possibility of doing coastal land zoning through an inter-ministerial task force. The policy observes that maximum utilization of lands and water resources depends on the effective land use plan. But there is no policy prescription for any specific area as context requires and also the proper methodology, technology to be used, institutional capacity are not designated. Besides, the policy is strong on conservation of khas lands but not clear on distribution of khas land distribution program.

Industrial Policy, 2005

One of the foremost objectives of the Industrial Policy 2005 is to set up planned industries considering the real domestic demand, prospect of exporting goods abroad, and discouraging unplanned industries in the light of past experience. The policy also encourages the agro-based industries and involvement of Women Entrepreneurs in Industrial sector, equal profit distribution among workers, owners and government. But the interests of small farmers, small business owners, artisans, and workers, are generally not well represented. This limits the benefits of trade expansion for small businesses, small farmers, artisans, and workers consequently create impacts on the key export industries. These groups are involved in import and export activities of the country indirectly. In addition, no specific mention has been made on protection of coastal environment from industrial pollution.

Coastal Zone Policy, 2005

The strong point of Coastal zone policy is that it provides integration among all sectoral policies such as land use, industrial, fisheries etc. It defines specific objectives for coastal development and the jurisdiction and extent of the coastal zone. The main stakeholders in coastal development are identified, along with their role in the development process.

Agriculture Policy, 1999

The key point of the National Agriculture Policy in relation to ICZM is its simultaneous recognition of the importance of shrimp farming as foreign exchange earning activity and its environmental consequences. However, the policy does not mention conflicts between farmer and shrimp-gher owners and thus fails to indicate any mitigation measures. Land use zoning may offer instruments to reduce conflicts. Bio-saline agriculture, practiced elsewhere, could be tried in the coastal zone.

Population Policy, 2004

It defines the strategy of population declination but no detailing has been given on the instruments that are required to reduce the population growth. Also, the responsible stakeholders that are directly and indirectly linked to this sector are not identified. A general policy prescription is given without specific group identification.

National Housing Policy, 2008

The policy provides prescription for urban and rural area individually considering the context. Though one of the major objectives of the Housing Policy was to ensure housing for all with particular emphasis on the disadvantaged, destitute, the shelter less poor and the low and middle-income groups of people, yet very little efforts have been taken on the part of the government in providing housing loans to the low-income strata of the population. Nationalized commercial banks introduced housing loans also limited for the high income group. There is virtually no credit financial mechanism for housing of low-income people in urban areas. Besides, there is no specification for private developers. No direction is given for future housing demand and supply.

Chapter-6
PROJECTION OF FUTURE GROWTH BY 2031

6.1 Introduction

Population growth rates in developing countries are much more than of the developed countries of the world. Moreover, migration to urban areas in the developing countries has been increasing over the years. Due to increased urbanization trend in the coming years, the cities in the developing country will face housing and settlement problems, infrastructural deficiencies for increased number of populations, slum and squatter settlements, environmental degradation, etc. In practical, it is difficult to attain the actual number of population but more accuracy in population projection will encourage the future investment as projection shows the population demand. It is assumed that Swarupkati Paurashava, as a Paurashava will face such influx of job seekers in the coming days. As such, besides natural population growth immigrants will increase the population significantly in the coming decades.

6.2 Projection of Population

According to BBS, 2001, there are total 3461 households at Swarupkati Planning area and average size of households is 5. Total population is 18083 whereas number of male is about 9780 and number of female is 8303. In order to get an idea about the population growth rate of Swarupkati Planning area, the urban population of Swarupkati upazila of 1991 (36958 population) has been compared to population data of 2001 (46826 population).

Basic Assumptions

- The characteristics of the more recent periods of development for the local are expected to continue into the future
- The existing density of population, major activities of Paurashava i.e., Trade, Commerce and Service and higher sex ratio reveals the flourishing economic development of the Paurashava in recent years

Methods Used

Population projection has been conducted on the basis of following determined methods and techniques:

- The base year for such above mentioned projection is 2001 as per available census data
- Future population is estimated for the future year 2015, 2020, 2025 and 2031 considering 20 year planning period
- Finally, Exponential Population Projection is used to conduct the Population Projection

Linear Projection

Linear population growth is the equal growth in an equal time period without any aspects such as food or disease to change it.

The key element missing from the linear growth model is compound rate. Put simply, compound rate means that the rate applies not only to the starting sum but also to the previously accumulated rate, for each successive period in which it is applied. Population growth is the increase in population in a particular area over time. Population growth is measured by a comparison of birth rate, death rate and the net rate of migration. Based on the Basic assumption of population

projection, Exponential Projection method is more appropriate and justified method rather than Linear Projection method.

Exponential Projection

Exponential population growth is the growth of the population based on the cumulative things in the environment affecting the population of the area. With exponential growth the birth rate alone controls how fast (or slow) the population grows.

Assumptions

- Population is assumed to grow at a geometric rate; i.e., with each unit of time
- the absolute addition of population continues to get larger and larger
- Exponential growth can be affected by modern medicine, quality and quantity of food and the overall standard of living for a species
- If humans continue to reproduce at the current rate, Earth's capacity for the species could be reached, or possibly exceeded
- Projecting areas will experience faster growth

By using exponential formula, it has observed that the growth rate of Swarupkati is 1.11%, detail calculation is placed here,

P_n = Population of Target year (2011) = 20019
P_o = Population of Base year (2001) = 18083
n = Target year (10)
r = Annual Growth Rate

Calculation using Exponential formula is given bellow,

$$\mathbf{P_n = P_o (1+r)^n}$$
$$20019 = 18083 (1+r)^{10}$$
$$r = 0.0111$$

Table 6.1 depicts the projected population during 2016 – 2031 respectively. It is to be mentioned here that the exponential growth formula has been taken into considered in projecting the population of Swarupkati Paurashava. According to the population projection, there will be 21063 populations in 2016, 22162 populations in 2021, 23318 populations in 2026 and 24535 populations in 2031. This population projection is the basis for all estimates needed for proposing different utilities, services and facilities in preparing the plan of Swarupkati Paurashava.

Table 6.1: Projected Population during the Year 2015-2031

Ward	**Projected Population at Different Years**				
	2011 (Base year)	**2016**	**2021**	**2026**	**2031**
Ward 1	1744	1835	1931	2031	2137
Ward 2	1381	1453	1529	1609	1693
Ward 3	2126	2237	2354	2476	2606
Ward 4	2011	2116	2226	2342	2465
Ward 5	2718	2860	3009	3166	3331
Ward 6	1740	1831	1926	2027	2133
Ward 7	3190	3356	3532	3716	3910
Ward 8	3186	3352	3527	3711	3905
Ward 9	1923	2023	2129	2240	2357
Total	**20019**	**21063**	**22162**	**23318**	**24535**

Source: Consultants Estimation

6.3 Identification of Future Economic Opportunities

The city of Swarupkati must thrive on its own potential natural resources. Fish resource and agricultural products are very much potential for the area. Food industries can be initialized based on fish resources. There are a number of areas where such prospects can be managed. First, catching fish has to be increased. Second, freezing facilities has to be enhanced. Third fish drugging facilities to be expanded and finally, small and low investment plants for processing fish resources can be initialized. Bangladesh Fisheries Development Corporation (BFDC) has taken effective projects aiming to develop the country's fisheries sector and boost export. Fish landing centers, fish preserving and fish marketing centers for traders would be set up. Warehouse facilities and ice supply for traders would also be extended under this project and ice factories would also be built.

About 27.04% of the total lands of Swarupkati Paurashava are devoted for agricultural purposes. So emphasize have to be given on the scientific procedure of agricultural production and these productions may be used as input of agro-based industries.

Economically active labor forces are not being properly used in production sector. This labor force can be utilized in those fishing or agro-based sector.

6.4 Projection of Land Uses

Future landuse of Swarupkati Paurashava has been calculated on the basis of projected population. After population projection, it has been observed that in the year of 2031, resident population will be around 24535. In some cases, landuse projection may vary considering landuse characteristics of the area.

At present, the landuse of Swarupkati Paurashava is not appropriate and has not developed following any standard. Therefore, this master plan has addressed the issue and efforts have been done to formulize required standards for various facilities that should be strictly followed in preparing an ideal master plan. The following table shows the standards provided by PMO office for calculating future demand of various types of land uses.

Table 6.2: Standard of Landuse for Future Projection and Projected Land Requirement for the Year of 2031

Sl. No.	Landuse Categories	Types of Landuse	Recommended Standard	Projected Required Land for 2031(Acre)	Existing Land (Acre)	Deficiency/ Surplus (Acre)
1	Residential	General residential	100 persons/1 acre	245.35	595.5	-350.15
		Real Estate – Public/Private	200 population/ 1 acre			
		Total		***245.35***	***595.50***	***-350.15***
2	Education and Research	Nursery	0.5 acre/10,000 population	1.23	30.05	26.96
		Primary School/ kindergarten	2.00 acres/5000 population	9.81		
		Secondary/High School	5.00 acres /20,000 population	6.13		
		College	10.00 acres/20,000 population	12.27		
		Vocational Training Centre	5 - 10 acres / Upazila	5		
		Other	5.00 acres / 20,000 population	8.97		
		Total		***43.41***	***30.05***	***26.96***
3	Open Space	Play field/ground	3.00 acres/20,000 population	3.68		3.68
		Park	1.00 acre /1000 population	24.54		24.54
		Neighborhood park	1.00 acre /1000	24.54		24.54

Sl. No.	Landuse Categories	Types of Landuse	Recommended Standard	Projected Required Land for 2031(Acre)	Existing Land (Acre)	Deficiency/ Surplus (Acre)
			population			
		Central Park				0.00
		Total		***52.75***	***0.00***	***52.75***
4	Recreational Facility	Stadium/sports complex	5 – 10 acres/ Upazila HQ	5.00		5.00
		Cinema/ Theatre	1.0 acre /20,000 population	1.23		1.23
				6.23	***0.00***	***6.23***
5	Health Service	Upazila health complex/ hospital	10 -20 acres/ Upazila HQ	10.00	0.87	9.13
		health centre/Maternity clinic	1.00 acre/ 5,000 population	4.91		4.91
		Total		***14.91***	***0.87***	***14.04***
6	Community Facilities	Mosque/Church/Temple	0.5 acre /20,000 population	0.61	5.34	-1.05
		Eidgah	1.0 acre/20,000 population	1.23		
		Graveyard	1.00 acre /20,000 population	1.23		
		Cremation Place	1.00 acre /20,000 population	1.23		
		Community centre	1.00 acre /20,000 population	1.23	0	
		Total		***5.52***	***5.34***	***-1.05***
7	Commercial	Wholesale market	1.0 acres/ 10000 population	2.45	16.49	11.50
		Retail market	1.0 acres/ 1000 population	24.54		
		Corner shops	0.25 acre/per corner shop			
		Neighborhood market	1.00 acre/per neighborhood market	1		
		Super Market	1.50 – 2.50 acres/per super market	2		
		Other (Slaughter House & others)				
		Total		***29.99***	***16.49***	***11.50***
8	Utility Services	Drainage	As per local requirement		1.75	12.77
		Water supply	1.00 acre /20,000 population	1.23		
		Gas	1.00 acre /20,000 population	1.23		
		Waste disposal site	4-10 acres/Upazila HQ	5		
		Waste transfer station	0.25 acres/per waste transfer station	2.25		
		Fire Service	1.00 acre/20,000 population	1.23		
		Telephone exchange	0.5 acre/20,000 population	0.61		
		Water Treatment Plant	1.00 acre/20,000 population	1.23		
		Others				
		Total		***12.77***	***1.75***	***12.77***
9	Industrial	Small scale	1.50 acres /1000 population	36.80	2.05	59.29
		Cottage/agro-based	1.00 acres /1000 population	24.54		
		Total		***61.34***	***2.05***	***59.29***

Sl. No.	Landuse Categories	Types of Landuse	Recommended Standard	Projected Required Land for 2031(Acre)	Existing Land (Acre)	Deficiency/ Surplus (Acre)
10	Transportation Facilities	Bus terminal	1.0 acre /20,000 population	1.23	1.48	2.95
		Truck terminal	0.50 acre /20,000 population	0.61		
		Launch/steamer terminal	1.00 acre /20,000 population	1.23		
		Railway station	4.00 acre / per Station			
		Baby taxi/tempo stand	0.25 acre /one baby taxi/tempo stand	0.5		
		Rickshaw/van stand	0.25 acre /one baby taxi/tempo stand	0.25		
		Passenger Shed	0.25 acre /one baby taxi/tempo stand			
		Others		0.61		
		Total		***4.43***	***1.48***	***2.95***
11	Administrative	Upazila complex	15.00 acres	15	12.88	10.73
		Paurashava office	3 – 5 acres	5		
		Police Station	3 – 5 acres/Upazila HQ	3		
		Police Box/outpost	0.5 acre/ per box			
		Post office	0.5 acre /20,000 population	0.61		
		Others (Ward office, Youth Development Center)				
		Total		***23.61***	***12.88***	***10.73***
12	Circulation Networks	Paurashava primary roads	100-80 feet		34.09	
		Paurashava secondary roads	60 – 40 feet			
		Paurashava local roads	40 - 20 feet			
		Total				
13	Agriculture	Agri-extension Farm	10 acres/Upazila HQ	10	451.42	-441.42
		Total		***10***	***451.42***	***-441.42***
14	Urban Deferred	Urban Deferred	10 percent of the total build up area	16.76	0	16.76
		Total		***16.76***	***0***	***16.76***

Source: Consultants Estimation

6.5 Housing

Housing areas in the Paurashava is the composition of an admixer of housing types. Mixed residential, poor dominated rural houses and semi-urban homesteads are found. Most housing areas have been developed in a spontaneous fashion. In the rural part of the Paurashava, with its rural-agricultural character, has a different housing type. The dwellings, comprising homesteads, encompass larger areas having low density. Highest gross population density in the Paurashava is only 15 persons per acre. Residential buildings in the Paurashava are dominated by katcha structure. No building is found approved from Paurashava. However, owners of the buildings have been found violated the setback rule by the construction. Except labor charge there is very little variation in building construction cost between Dhaka and Burhanuddin Paurashava .

Problems relating to the housing are mostly concerned with the poor community. Due to their low level of income a large number of poor are squatting on public land. They are not only deprived of minimum housing but also from the personal security that endanger their health and working

efficiency. Regular income can solve most of their housing problems. Apart from dwelling, pure water and transportation are real problems for the inhabitants. Utility services are highly inadequate. Drainage is major problem in rural part of the Paurashava. The Paurashava cannot solve the problems due to scarcity of fund.

Basis of housing projection

Future housing projection and demand have been estimated based on following assumptions:

- Most of the households are in permanent residence but new house or home will be required with the increasing of generation.

- Demand of housing is estimated considering the income-group and number of rental households who willing to buy a house.

- Non-permanent structures will not exist in future.

- Considering rapid growth of population, exponential population projection method is being used i.e. $P_n = P_o (1+r)^n$

Housing demand analysis

The provision of adequate housing in urban areas is necessary to attract and retain qualified and diverse labor force. Appropriate housing also plays an important role in contributing to residents' financial security, amenity and quality of life. The identification and analysis of housing demand assists Paurashava s ensuring that there is sufficient land for new housing and provides direction as to the types of housing that are likely to be needed in the future. Housing demand analysis can also be used as the basis for developing appropriate policies relating to housing mix, density and community form. Housing demand projections is an essential component to determine the associated land area required to accommodate future residents. This projection is also necessary to address national policies related to the housing provision.

The method for forecasting household number or analysis of housing demand is the aggregate method. The formula used for this projection is –

H = P/S

Where, H = Number of households
P = Forecasted population
S = Calculated average household size

At first, Ward-wise existing number of population and dwelling units in the year 2011 have been observed. Using these data, number of households has been projected for the years 2016, 2021, 2026 and 2031. This estimation will assist to estimate the need of dwelling units for future years.

Table-6.3: Projected Number of Households

Ward No.	Average household size (2011)	Number of Households			
		2016	2021	2026	2031
Ward 1	4.77	385	405	426	448
Ward 2	4.59	317	333	351	369
Ward 3	4.33	517	544	572	602
Ward 4	4.30	492	518	545	574
Ward 5	4.46	642	675	711	748
Ward 6	4.43	414	435	458	482
Ward 7	4.70	714	752	791	832
Ward 8	12.07	278	292	308	324
Ward 9	4.66	434	457	481	506
Total	**5.02**	**4193**	**4412**	**4642**	**4884**

Source: Estimated by the Consultant.

Chapter-7
LAND USE DEVELOPMENT STRATEGIES

7.1 Strategies for Optimum use of Urban Land Resources

Swarupkati Paurashava is peri-urban area with urban infrastructures and valuable agricultural lands, water resources. Therefore, in identifying the strategies or possible techniques for optimum use of Urban Land Resources, it is required to understand the urban land characteristics. According to town Improvement Act 1953 it is required to identify the strategies for optimum use of urban land resources as there exist competition amongst agriculture, urbanization and industrial development.

7.1.1 Land use Zoning

Land use Zoning is a planning tool as it permits the government to select which type of land use should be allowed. The term differs from the 'general plan' that Zoning plan regulates the private developments and general plan controls both public and private developers. Zoning plan is integral part of general plan.

Total area of Swarupkati Paurashava is segregated under some broad classes that will basically guide future growth with wide aspects. Definitions of the broad classes are given bellow for conceptualizing focus of the future magnitude as well as illustration of the policies and strategies.

A. Agriculture
B. Core Area
C. Peripheral Area
D. New Urban Area
E. Major Circulation Network
F. Water Body

Table 7.1: Broad Landuse Zones

Zoning	Description of Zones	Area (acre)	%
Agriculture	Agricultural land (also agricultural area) denotes the land suitable for agricultural production, both crops and livestock. It is one of the main resources in agriculture. The land under annual crops, such as cereals, other technical crops, potatoes, vegetables, and melons; also includes land left temporarily fallow; land under permanent crops (e.g., fruit plantations); areas for natural grasses and grazing of livestock.	173.60	10.40
Core Area	This area is also known as built-up area. This is defined as the area which has the highest concentration of services; it also has the highest population concentration and density. It will absorb most population growth during the Land use Plan (2011-2021) period.	150.62	9.02
Fringe Area	This zone is developing areas which will take further decades to reach the population densities of the urban core area. Low initial densities in these areas do not justify supply of a full range of services as they will initially be underused. However, it is essential that planning and reservation of rights of way, at least for primary networks, be undertaken soon to enable provision when justified by increased density levels and allowed by resources.	184.27	11.04

Zoning	Description of Zones	Area (acre)	%
New Urban Area	This zone will be the required additional area for future planned urban development as per population projection. New facilities and services like road, drains, footpath, waste transfer station and other civic services will be provided. This area is proposed to grow within 2031.	385.81	23.11
Peripheral Area	This is the zone where a slow trend of urbanization is continuing in unplanned manner. The area identified in the Structure Plan as the likely choice for new urban development beyond the core area. Ideally, it might be reasonable to provide primary infrastructure networks in this area to foster development and encouraged to enable a more rapid urbanization in a planned way	118.86	7.12
Major Circulation Network	Major circulation contains major road network and railways linkage with regional and national settings.	173.55	10.40
Water body	Water body containing an area equals to or more than 0.25 acres excluding those of khal, irrigation canal and river will be treated as this category.	482.80	28.92
Total		**1669.50**	**100**

Source: Consultants Estimation

Agriculture

173.60 acres land out of total 1669.50 acres is for agricultural use under structure plan in Swarupkati Paurashava.

Core Area

150.62 acres (9.02%) land out of total 1669.50 acres is proposed here as core area.

Fringe Area

184.27 acres (11.04%) land out of total 1669.50 acres is proposed here as fringe area.

New Urban Area

385.81 acres (23.11%) land out of total 1669.50 acres is proposed here as new urban area.

Peripheral Area

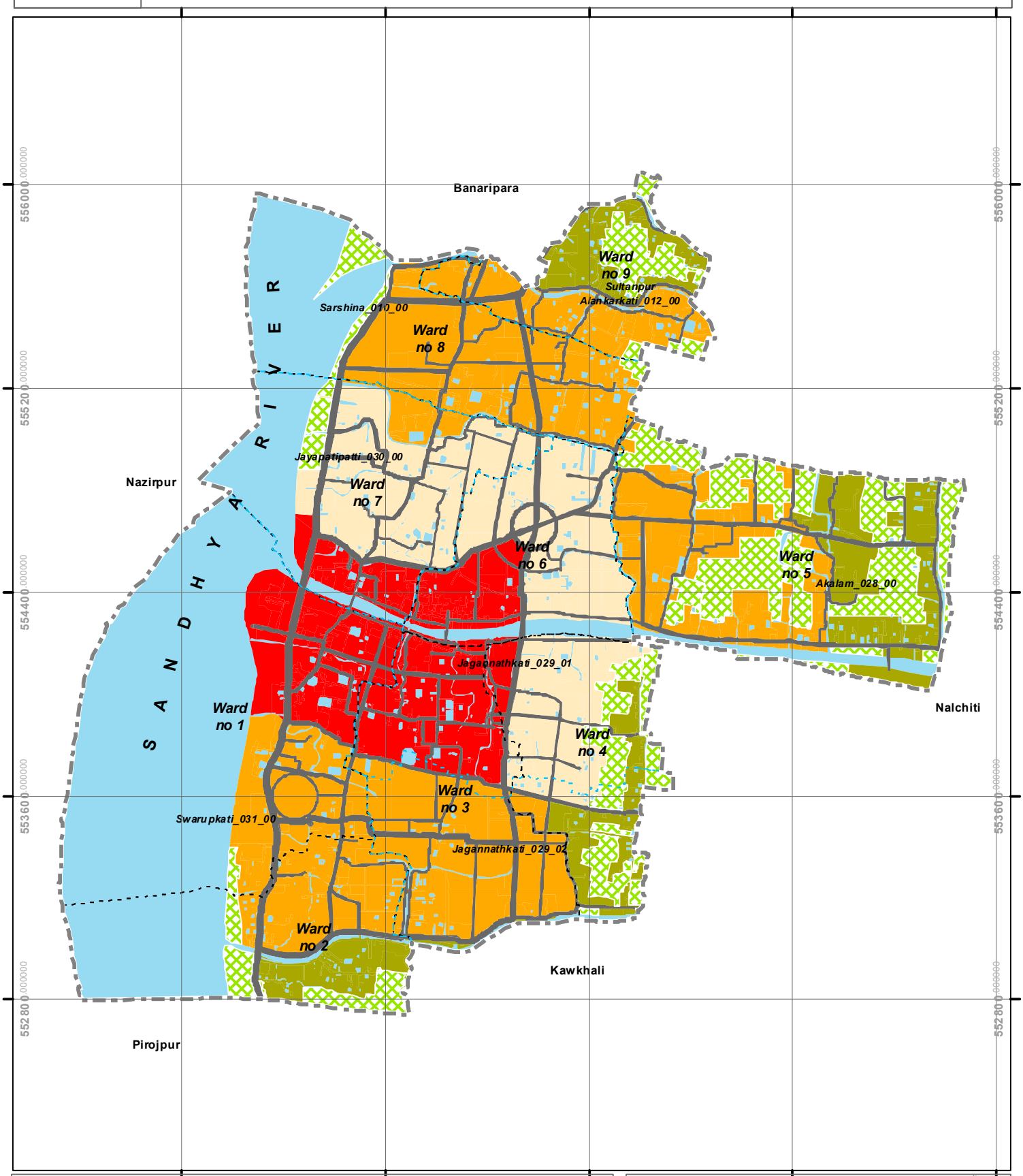
118.86 acres (7.12%) land out of total 1669.50 acres is proposed here as peripheral area.

Major Circulation Network

173.55 acres (10.40%) land out of total 1669.50 acres is proposed here as major circulation network.

Map 7.1 shows the structure plan of Swarupkati Paurashava.

Map: 7.1	Structure Plan of Swarupkati Paurashava



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

0 0.125 0.25 0.5 0.75 1 Kilometers

Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary

Policy Zones

- Agriculture
- Core Area
- Fringe Area
- Major Circulation
- New Urban Area
- Peripheral Area
- Water Body

Government of the People's Republic of Bangladesh
Ministry of Local Government,
Rural Development and Cooperatives
Local Government Division

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7.1.2 Land Acquisition and Requisition

Land acquisition is a process in which a public agency or non-profit land conservation organization purchase all the ownership rights vested to the land from a willing seller. In every case, land acquisition must mean the transfer of ownership. For implementation of any urban development program, availability of land and its control are necessary not only for future growth but also for a large number of public uses. In Bangladesh, Land Acquisition Act, 1894 is one of the most important legal tools. But as the law failed to meet the emergency needs for requisition of lands, the Acquisition and (emergency) Requisition of Immovable Property Ordinance, 1982 has been come in forth.

7.1.3 Policy Formulation

Apart from this the recommendations for Road networks can be adopted from the recommendation from national relevant policies. This will direct the future land use pattern.

7.1.3A Planned Development of undeveloped areas

Land Readjustment

It is a community building project of resident or for residents where: Land for public facilities is contributed fairly from land owners and lease holders. Where part of development benefits are provided by land owners to an implementing body to finance project cost, not in cash but in the form of reverse land.

Guided Land Development

It is a land management technique for accelerating the provision of serviced land through partnership between public sector and local communities. Its main objectives were to ensure;

1. fair return on investment to the private owner/developer;
2. a relatively large proportion of serviced sites for allotment to low income families; and at the same time,
3. recover at least part of offsite infrastructure cost for the public agency.

Site and Service

This sort of design provides the low-income people or target group with a plot and basic infrastructure. The beneficiaries either buy or lease the allocated land. Often they are provided with loan for the construction of houses.

7.1.3B Redevelopment of developed areas

Land Sharing

The principle behind this has been that the land is shared equitably between the land owner and the tenants (quasi). The land owner develops the land in such a manner that the original inhabitants in that area are given shelter in the very same area, lands for public facilities is made available to the planning agency and the remaining area is developed and sold freely in the market.

Slum Improvement

It provides land or housing to the urban poor near their work place. The scheme is also applicable to land reserved for public purposes on the condition that land on reduced scale is made available for the reserved purpose.

7.1.4 Different Fiscal measures

Property Tax

Property tax has been the principal tax related to land and buildings. This tax according to provisions of Paurashava Act, 2009 is levied on the annual ratable value which is to be determined on the basis of area of lands or buildings.

Betterment Levy

The policy measures which can achieve optimum use of urban land use in practice still remain to be sharpened and coordinated. The measures can be classified as a) direct government investment b) legal and regulatory; and c) fiscal. Examples of these are:

1) Direct government investment in land development for provision of infrastructure, housing or overall town development through large scale compulsory land acquisition or other land development scheme
2) Statutory provisions for compulsory acquisition of land at less than market price, regulations regarding land use zoning, development control and building codes for health and safety
3) Fiscal measures in the form of appropriate taxation that can help achieve the land policy

7.2 Plans for New Area Development

In Swarupkati Paurashava, 354.13 acres land will be developed as a new urban area. The policy regarding to the new area development is given in the table 7.2.

Table 7.2 Policy for New Area Development

Policy	Justification	Means of Implementation	Implementing Agency
Policy 7.2.1: Initiative for New Area Development.	New areas with their growing stages offer excellent opportunity for planned development by means of land subdivision and infrastructure development.	Land acquisition should be done through the initiative of Paurashava Authority, then land preparation, land subdivision, earthwork will be furnished. New facilities and services like road, drains, footpath, waste transfer station and other civic services will be provided by involving the concerned agencies. Involvement of public sector along with private sector and NGO's or PPP (Public Private Partnership) may be an innovative concept for financing in this respect.	- Swarupkati Paurashava - LGED - DPHE - PDB - REB - NGOs

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7.3 Areas for Conservation and Protection

To ensure livable environment in the planning area, different areas are conserved in various forms, namely agricultural land, low land, pond and natural drainage, green belt, historic and heritage areas. Details are given in the table 7.3.

Table 7.3: Areas for Conservation and Protection

Policies for Conservation and Protection	Means of Implementation	Implementing Agency
Policy 7.3.1: Protecting Productive Agricultural land: The high value agricultural land should be protected from conversion into inefficient and unproductive urban land. These areas will be conserved and promoted as areas of high intensity food production in order to ensure urban food security in close proximity to the town and improve the income level within agricultural sector of the Paurashava's economy.	The EIA Guideline of DOE emphasized on the evidence of productive agricultural land for any development project. Therefore, it will be wise to consider more economical use of land to avoid fertile lands. The town expansion and land acquisition should be based on the growth of population. According to the population projection for the year 2031, the present residential will grow with increasing density. So a large share of agricultural land can be spared at least for the time being	- Swarupkati paurashava - DOE - Department of Agricultural Extention
Policy 7.3.2: Protecting the Natural Landscape The ponds, lakes, canals, river, beels must be protected as water body from encroachment and conversion into other use. The permission for filling up of these ponds should not be given without any special case. These water bodies should be protected for the purpose of using them as retention pond and drainage channel.	A total of 480.32 acre land is declared as water body in the Master Plan. As per guideline of Wetland Conservation Act 200. This are will conserved as the water body.	- Swarupkati Paurashava - LGED - Bangldesh Water Development Board.

Chapter-8
STRATEGIES AND POLICIES FOR SECTORAL DEVELOPMENT OF THE PAURASHAVA

8.1 Socio- Economic Sectors

From the population projection it has been observed that about 11248 additional population has to be accommodated in the existing planning area during the plan period. Density of population is 12.93 persons per acre.

8.1.1 Population

Policy-01: Density Control

Justification: Swarupkati Paurashava is remote southern area. Its density is medium with respect to other Paurashava of southern region context about is 1488 person /sq.km. It is required to control the density of Paurashava through effective measures of planning.

Promotion: To make a successful implication of this policy, following strategies should be undertaken:

- Effective Land Use Plan for 2030 following standards and potentiality of land use under Urban Area Plan

Implementation Agency: Paurashava.

Policy-02: Densification of Residential areas through people's participation

Justification: Densification of population within the Paurashava area through zoning. Land price is comparatively high in central part of the Paurashava. Housing category need to be decentralized through effective measures of planning.

To make a successful implication of this policy, following strategies should be taken:

- Core area should be preserve for high income group through high land price. Core area comparatively highly dense area and vertical expansion is proposed for this area.
- Periphery portion where land price comparatively low can be declared for low income group.

Implementation Agency: Paurashava, Ministry of Planning

Policy03: Creation of trained grassroots level family planning workers for motivational works

Justification: Grassroots workers can give door-to-door motivational services to the local people.

Implementation Agency: Ministry of health and family planning, Ministry of Mass Education

8.1.2 Economic Development and Employment Generation

Swarupkati Upazila is dependent on Agriculture and Small Business through direct or indirect involvement. Cyclone, water logging and subsequently salinity problem is common in Swarupkati. Emphasis is required for accelerating the economic development trend by restoring the economic base of the Paurashava.

Policy 01: Promote Agro based Industries in the Growth Centers or Rural Areas

Justification: Growth centers are to become economic hub of their rural settlements. Provision of agro based industries will provide ready market of agricultural products of the rural community.

Implementation Agency: Ministry of Agriculture and Ministry of industry.

Policy 02: Light Industries need to be developed to flourish the industrial sector development[1]

Justification: To accelerate the economic development of Swarupkati Paurashava in long run, it is required encourage the industrial establishment within Paurashava area.

To control the haphazard industrial development some measures will be undertaken:

- Follow the category of industries as categorized by DOE (Green Category) and Bangladesh National Building Code (low and medium category hazards)
- Follow Bangladesh National Building Code, 1993 and Building Construction Regulation, 1952 (amendment in 1996) for providing Road, setback before construction of any industrial structures
- Following the Coastal Zone Management Policy, 2005 all industrial units will be required to install built-in safeguards against pollution within a given time-frame. Units failing to comply with the pollution standards will be required to pay "green tax" for cleanup of the environment polluted by them

Implementation Agency: DOE, BSCIC

Policy 03: Promotion of Rural Growth centers as trading hub of the rural community

Justification: If national Business can be encouraged to locate in promoting Paurashava, they will provide not only earning capacity for their locally recruited employees but the opportunity for services to be provide to support the business. The Paurashava will assist central government in promoting Paurashava as potential location for inward investment.

Implementation Agency: Paurashava**,** DOE, BSCIC.

Policy 04: Support SME for creation of jobs and economic upliftment

Justification: Short and medium size enterprises are essential for the promotion of economic activities. The SME sector will support the large investment in many ways which help the process of their development.

Implementation Agency: Ministry of Industry, Ministry of commerce, Private Sector initiative.

Policy 05: Employment Generation through development of potential sectors

Justification: To sustain economic activity of Paurashava people for longer period. The economic activity of existing Swarupkati Paurashava is oriented with mainly Agriculture, Fishing and Water-way Transport Sector in some extent. Proper planning and co-ordination among these sectors and future potential sectors it would be possible to engage active labor force.

Following measures will be encouraged to implement this policy implication:

- Industrial Zone declaration in Land Use Zone (mainly light industries)

[1] The policy has been formulated in light of National Industrial Policy, 1999 (Recommended Specially for Coastal region)

- Infrastructure development to flourish fishing industry (Market, Ice Factory, Storage facility, electricity supply etc.)
- Involvement of active labor force and community participation in different management activities of Paurashava such as solid waste management in transferring the wastes from Solid-waste transfer sites, road maintenance, public sanitation

Implementation Agency: Paurashava**,** DOA, Settlement Office (Land Office).

Policy 06: Declared new industrial zone

Reason: For economic improvement it is expected to increase industrial activities. At present only 3.08 acres land is devoted for industrial purpose which is very low. At least 10 acres of land is required for per Paurashava. But in case of Swarupkati, around 52.15 acres of land is given for industry.

Implementation Agency: Paurashava, BSCIC / Private Sector

8.1.3 Housing and Slum Improvement

Paurahava, NHA and other public agencies can pursue the following policies to develop the housing needs and planned development for housing units. But there is no local office of the NHA to execute housing program at upazila level. Paurashava can facilitate housing areas with site and services in designated housing zones.

Policy-01: Making provision of affordable housing for the low income people

Justification: Paurashava has to think about the housing facilities for the low income people. Private sector will be operated for profit earning, the low income people will not access to these scheme. Thus to reduce unplanned development, the development authority may take initiative for low income people. Also by providing services the general people can be encouraged to build their own houses.

Implementation Agency: Paurashava. NHA

Policy02: Planning interventions in the spontaneously developed areas.

Justification: Most of the housing areas in Bangladesh were developed within any planning intervention. Planning intervention must be undertaken for the improvement of residential and other areas. Authority must make some necessary intervention in these areas to provide basic services.

Following controlling measures will be considered in providing housing areas in Swarupkati Paurashava:

- Follow Private Residential Land Development Regulation, 2004 in Housing Development as mentioned in Land Use Plan under Urban Area Plan Section
- Conservation of the natural environment and preservation of cultural heritage in new housing projects
- Housing Schemes[2] will be proposed following different land development instruments such as:
    - Redevelopment schemes
    - Site and Service schemes
    - Guided Land Development schemes
    - Land Sharing schemes

Implementation Agency: Paurashava**,** NHA.

Policy03: Continuous monitoring of land and housing market

Justification: The authority should monitor the principle aspects of land and housing market through data base. The Paurashava and land registry office can maintain data base and can undertake studies from time to time using GIS data base.

Implementation Agency: The Paurashava and land Registry office

8.1.4 Social Amenities and Community Facilities

All social and community facilities like health, education, religious, community centre and other facilities are included in this category. In terms of number and size of facilities the allocation land with approximate location can be determined by analyzing the pattern of existing facilities and the calculation of the requirements in future. In addition some policies recommendations were made on health, education and other facilities.

Policy-01: Social Amenities and community facility will be provided as per requirement of existing and forecasted population.

Justification: To enhance access to land with secure tenure and to promote a social lively environment for an increasing population. Both Public and private sector investments are encouraged

Provision of standards, rules and regulations are followed in allocating Educational Religious, Community Centre and Other components in Land Use Plan of Urban Area Plan.

Implementation Agency: Paurashava, NGO, CBO

8.1.5 Recreational Facilities

Policy-01: Ensuring Community level Recreational facilities

Justification: To provide a livable environment for the Paurashava people, community level recreational facilities should be preserved. In long run, preservation of recreational lands for future generations should be ensured. At present, only 1.93 acre is devoted for Recreational facilities. Parks should be created at central and at neighborhood level through Master Plan and Ward Action plan.

Both public and private sectors investment is encouraged.

Standard wise recreational facilities such as Play ground, Neighborhood parks, Stadium, Cinema hall will be provided as described in Land Use Plan of Part-B.

Implementation Agency: Paurashava, Public / Private sector

8.1.6 Safety and Security

Considering the present law and order situation and its impact on the urban life it is necessary to face the challenge of restoring law and order. The major responsibility o these tasks rest with police department. Law and order in the Paurashava and its surrounding has to be ensured.

Policy01: Improvement of law and order services for all citizens

Justification: Improvement of law and order is a national issue. Anyway local level community policing can be organized for ensuring security at local level.

Implementation Agency: Paurashava, Home Ministry.

8.2 Physical Infrastructure Sectors

8.2.1 Traffic and Transportation

Traffic is the function of landuse. It is also mention here that traffic network and the traffic generated induces the growth of landuse. Road networks will play strategic role in opening up undeveloped areas of the future term and shape up its structure. There is a interrelation between road network and utility services which together play key role to guide physical development in the town and Paurashava.

Policy-01: Develop efficient inter town or inter Paurashava communication facilities

Justification: To avoid traffic congestion within the Paurashava the structure plan recommends new roads/bypasss to link with the Kuakata tourism centre.
Participatory approach will be developed to realize at least a part of the cost of the development from the beneficiaries. This will also help to reduce delay and cost involved in land accusation procedure.

Implementaion Agencies: Paurashava, RHD

Policy02: For better accessibility transport terminals should be located at major roads of the Paurashava.

Justification: To develop and facilitate easy means of transport consultant suggest the promotion of public transport.

Implementation Agencies: Paurashava, RHD

Policy03: Integration of existing road and water transportation network.

Justification: To develop an efficient Regional Transportation Network and flourish

Roadway Network: At present, Swarupkati Paurashava is connected with Barguna, Patuakhali, Kuakata, and Pirojpur with diverse regional roads. Thus, these networks develop the regional and national road network of Swarupkati Paurashava. Due to lack of infrastructure facilities, travelers often suffer from long and tedious journey by Road.

Water way Network: Water transport network of Swarupkati Paurashava has significant importance in carrying both people and goods. At present, nine launch and fifty trawlers serve Swarupkati Paurashava per day from the existing launch terminal that is operated by private operator in various routes.

Some measures will be taken to promote the Regional Transportation Network in Swarupkati:

- Multi modal integration of Water and Road Transport provides better service to Swarupkati region in respect of Time, Distance and Fare. Therefore, more launch and bus service will be required considering the Travel demand in 2031[3]
- Transportation Service will be upgraded such as Launch, Bus, Truck Terminal Capacity considering Travel demand in 2031
- Regular Dredging and Navigation of existing water-way route is required to provide launch service in future

In promoting Regional Transportation Network System, some controlling measures will be followed:

- Existing Swarupkati Highway Road should be widened considering the RHD Standard manual as per category of Roads and determined Level of Service (LOS) in up to 2031

Implementation Agency: RHD, LGED, BIWTA.

Policy-04: Functional and Hierarchical Road Network Development[4]

Justification: Road Network has been developed without following any planned pattern. **Controls:** Following the existing condition, of Swarupkati Paurashava, some strategies will be persuaded before incepting the Transportation Development Plan

- Make a priority for in Space Allocation of ROW for better space utilization and promoting non-motorized traffic avoiding interruption, ensuring speed with motorized traffic[5]
- 10-20 ft. plantation beside the Highway Road will be proposed `for ensuring safety of people of beside Highway Road
- The Road Hierarchy of Swarupkati Paurashava will be modified and proposed on the basis of Road width Standards as described Chapter 3.3, Transportation and Traffic Management Plan, Section-III.
- Follow up the basic rules mentioned in Building Construction Act, 1996 at Major Intersections of the Paurashava. Some basic rules are:

    - ✓ In each Corner plot of major intersection 1m×1m land area has to be open for traffic movement
    - ✓ At the cross section of two or three roads within 50 meter distance, construction of commercial complex, Cinema Hall etc. are prohibited. But, 500 square meter area in total is permitted for commercial purpose (Shopping Complex), road width is 23 meter or greater

- Promote efficient traffic management system within Paurashava by pursuing Regulatory measures (parking control and speed control in Highway Road, access control of trucks in Paurashava area,) and Design measures (Details of lay-out of Proposed Primary Road and Secondary Road in Paurashava area, use of lighting equipment etc.) in Paurashava Road Transportation System[6]

Implementation Agency: RHD, LGED, Paurashava.

8.2.1 Utility Services

Policy-01: Facilitating access for all citizens to basic level of services in water supply and sanitation[7]

Justification: To reduce the incidence of water borne diseases and increasing the present coverage of safe drinking water by lowering the average number of users per tube well.

- Facilitate safe drinking water supply and safe sanitation to each household as per demand in 2031[8] though various means, including:

    - Piped Water Supply System
    - Water treatment plant, Overhead Tank
    - Rainwater Harvesting and Conservation (especially south-western region)[9]

4 Policy has been formulated in light of National Land Transport Policy, 2004
5 Mentioned in Chapter 2.4 (pp-5,6), Transportation and Traffic Management Plan, Section -II
6 Strategies undertaken for Traffic Management in Daulatkhan Paurashava are described in Section 2.5), Transportation and Traffic Management Plan, Volume-II
7 Policy has been formulated in light of National policy for Safe Water Supply and Sanitation, 1998
8 Forecasted Water Supply Demand in 2030, Plan for Urban Services, Section-II
9 Following National Water Policy, 1999

Prescribed Standards have to be followed in providing facilities as mentioned in Urban Area Plan under Plan for Urban Services.

Implementation Agency: DPHE, Paurashava.

Policy-02: Facilitating access for all citizens to electricity and gas supply

Justification: According to BBS, community series-Swarupkati, 2006, at Swarupkati Paurashava, about 60.8% (1558 households) of the total households have electricity connection. Besides, to accelerate the industrial development (Agri-based, fishery) in Swarupkati Paurashava electricity, gas supply must be ensured.

Bhola gas field at Burhanuddin upazila will facilitate the gas supply provision in Paurashava.

Consumption of wood and other natural resources based fuel will be reduced. Also alternative energy sources will be encouraged (biomass, solar etc.)

Implementation Agency: PDB

8.2.3 Flood Control and Drainage

Policy-01: Incepting Drainage Network Plan in response of Water logging problems

Justification: Lack of adequate and planned drainage facility in Swarupkati cause Water logging problem. The depth of maximum internal inundation ranges from 2-5 ft and duration varies 3 to 4 hours.

Following strategies should be reflected in Drainage Network Plan:

- A planned Drainage network will be provided in Drainage and Environment management Plan considering the standards, appropriate method and formula[10]
- Regular maintenance of existing man-made and natural drainage network with Community involvement
- Illegal encroachment of Water bodies by Water Reservoir Conservation Act, 2000 ensuring storm water drainage
- Scattered throw of solid waste in water bodies by proper solid waste management activities

Implementation Agency: Paurashava, BWDB.

8.3 Environmental Issues

The Policies will strike a realistic balance between the existing livelihood requirements of the people and round environmental resources management that can ensure the livelihood in long term.

8.3.1 Natural Resources

Policy-01: Preservation of natural Water resources[11]

Justification: To ensure natural water bodies and fish resources which are crucial to sustain the livelihood and to retain the eco-system.

[10] Drainage and Environmental Management Plan, Volume-II
11 Environmental Policy & Implementation Plan, 1992

Small and large sale fisheries Communities/Groups will be given incentives, training program will be developed on new and modern fish harvest techniques, conservation, distribution, pursing. Permitted land use will be maintained in the demarcated areas that are as follows:

- Irrigation
- Provision of water way transportation in wet season
- Fishing/Fish Culture

Implementation Agency: BIWTA, BWDB, Paurashava, DOA.

8.3.2 Sanitation

Policy-01: Ensuring Safe Sanitation to Citizen [12]

Justification: In Swarupkati Paurashava, the sanitation condition of Paurashava is not so much satisfactory. There exist two types of latrine viz. katcha and Pucca. Besides, dumping of solid wastes in a scattered way is a common phenomenon.

Following strategies should be promoted in ensuring sanitation:

- Dumping Site and solid waste transfer sites demarcation in Land Use Plan of Paurashava area ensuring effective management including community participation
- Proposal of Solid Waste Dumping site
- Installing public toilets in schools, bus stations, launch Terminal, Markets, important public places and community latrines in densely populated poor communities or slums

The illegal connection of existing latrines with drains needs to be controlled through proper monitoring and in future

Implementation Agency: Paurashava, DPHE, LGED.

8.3.3 Hazards

Policy-01: Identifying the hazard risk zones

Justification: As Swarupkati Upazila is an island, Cyclone is the frequent hazard and flood is the secondary impact and most apparent impact accrued from Cyclone Hazard. During Cyclonic hazard the level of water is raised up to 8-10 ft (<=3.05 m) (maximum). Therefore, strengthening disaster preventing and mitigating mechanisms to enhance the coping capability to the Poor in times of natural disaster is vital in this Paurashava context

Environmental Management Plan will be prepared under Urban Area Plan for all possible hazards (Cyclone, Flood, River Erosion, etc.). The Plan will provide the adaptation, prevention (structural/non-structural measures), mitigation, Preparedness techniques against a natural disaster through comprehensive disaster risk management[13].

To reduce the impact of hazards same manures will be undertaken which are as follows:

- Embankment, flood control sluice gates and other structural measures
- Early Warning System
- providing of multi-purpose cyclone shelter

[12] Following National Water Policy, 1999
[13] Drainage and Environmental Management Plan, Volume-II

Implementation Agency: Paurashava, BWDB, LGED.

8.3.4 Environmental Aspects

Policy-01: Pollution Control

Justification: Pollution level such as water, air and soil pollution rate is very low. As the area is located in coastal region, saline and iron also contaminate the water but at negligible rate. Besides air and soil pollution rate is also negligible. But this should not allow increasing pollution rate. To ensure safe environment for the Paurashava area, maintenance of the surface water quality is vital.

To control pollution following measures will be required:

- Make free surface waters form domestic wastes and other types of wastes which require proper solid waste management
- Riverside dumping needs to be restricted and dumping site has to be located through prescribed land use planning
- Discourage the high hazarders industries (Only Green Category Industries of DOE)
- Excessive pesticides and fertilizers use in Agriculture field cause soil pollution, therefore it is required to follow the Pesticides law, 1985

Implementation Agency: Paurashava, DPHE, DOE, DOA.

Chapter-9
IMPLEMENTATION ISSUES

This chapter deals with the issues of implementation of the Master Plan. Here, recommendations have been made about capacity building and resource mobilization for the implementation of the plan.

9.1 Institutional Capacity Building of the Paurashava

In the present context of spatial and legal jurisdiction of the Paurashava for planned development of its area, some recommendations are made here. Also, observing the financial and Institutional strength of individual stakeholders in relation to their liabilities and identifying their shortages and absence of any perfect coordinating body, some suggestions have been made as remedial measures as a whole.

- All urban local governments including Upazila level Paurashavas must be given more independence and autonomy to perform their responsibilities. At the same time, their accountability to the government and people regarding their performance has to be ensured. For this purpose the legal framework of the urban local governments has to be reviewed and updated. The legal provisions have to be consolidated and simplified and make them compatible to changing circumstances. Opportunities must be created in the Act allowing scope for privatization of service providing activities.
- To avoid duplication of development functions, there should be clear line of separation between central government and the urban local government.
- A double entry cash accounting system has to be introduced to modernize the accounting system. For this purpose, massive training programme has to be arranged for the relevant municipal staff.
- To improve revenue collection, the urban local governments should be given more power and responsibilities. Measures should be taken for strengthening the Paurashava administration for municipal development.
- Section-50 of the Local Government (Paurashava) Act, 2009 needs to be revised and more power should be given to the Executive Officer for appointment of employees.

It cannot virtually function effectively as a Paurashava under such a stringent financial condition. To function, effectively, it must raise its revenue earning. But it is reported that the Paurashava cannot collect all its holding tax from the citizens. Holding tax is the most important source of its own revenue earning. It must take care to ensure 100% recovery of holding tax. The Paurashava cannot function effectively depending upon government grant only. The existing manpower position of the Engineering, Development control and Accounts should be substantially raised to handle future volume of work. Moreover, additional staff especially for the implementation of Master Plan will soon be required.

The present plan package imposes a large number of development projects on Swarupkati Paurashava for implementation. Paurashava will not only be the custodian of the plan, it will also directly implement much of the development projects. Besides, it will also be responsible for monitoring and implementation of the development projects by other urban development and service giving agencies. This situation calls for strengthening of the existing capability of Paurashava.

9.1.1 Staffing and Training

As a traditional system of the Paurashava, engineer and secretary are appointed directly by the Ministry of Local Government and other staffs are appointed locally through the approval of the Ministry after the advertisement on the newspapers. In Swarupkati Paurashava, the revenue income is too low. That’s why it is not capable to pay the salary of all the officials and staffs. The

salary is recovered from the government grant and BMDF allocation. This is the main reason for under staffing of the Paurashava.

There is no proper arrangement for staff training. As a result, the staffs are mostly unskilled. They cannot deliver proper service to the citizens. Besides, most of them are not qualified enough to render proper services.

9.1.2 Lack of Automation

Most works in the Paurashava are done manually. Such practice delays works and deprives the citizens from services. This is also a source of mal-practice and corruption. Modern office and working equipment should be installed. Use of modern technology will increase efficiency in planning and record keeping, finally expedite decision making process.

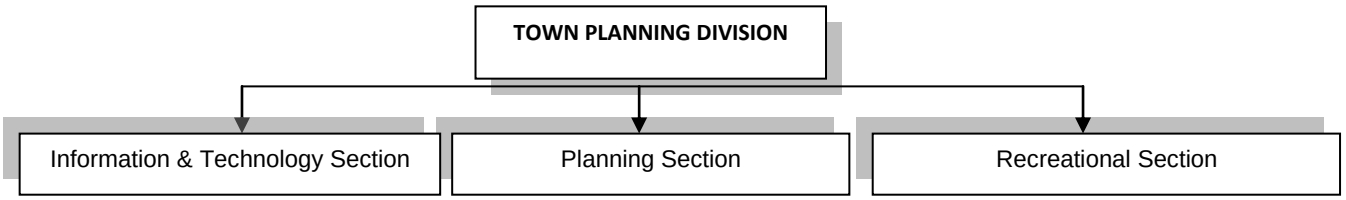
9.1.3 Town Planning Capacity

9.1.3.1 Institutional Framework

To rearrange the institutional framework for the Paurashavas recently the government has made a committee for the categorization of all the Paurashavas of Bangladesh. According to the clause no. 72-78 (Paurashava Officer & staff, provident fund etc) of Local Government (Paurashava) Act 2009 and on the basis of the type and category of works, the committee suggested appropriate section/units/divisions within the Paurashava framework. Planning unit or division will be necessary to set sequentially as the authority can perform its' mandatory responsibility 'town development and control' well and serve the inhabitants presently as well as in the future. The planning unit/division may have some sections that are as follows:

Planning Unit/Division: a) IT Section
b) Planning Section
c) Beautification and recreation Section

According to the division and its' relevant sections, what so ever appropriate with the necessity and capacity over time, it is recommended to set up necessary manpower for each category of Paurashava. Possible scope of proposed planning unit/division is given bellow:



Activities of Information Technology

-Information and Technology Management

Task to Execute Information and Technology Management

-Establishment of network system among all the divisions of the Paurashava

-Providing assistance and technical support (software and hardware support) for accounting, tax assessment, tax collection, preparing water supply bill etc.

-Establishing, marinating and updating of Paurashava website.

-Providing support for MIS.

-Establishing GIS set up and database for practicing in Paurashava activities.

Planning Functions

-Master Plan

-Planning Development Projects

-Land Development Projects

-Building Control

-Social Development Plan

-Commercial Projects

Steps to execute the functions

Master plan:

-Preparation of Master Plan, establishing legal basis of the Master Plan and execution of development control on the activities as per Master Plan

-Review of Master Plan on a regular interval.

-Controlling development projects in excess of land earmarked in the Master Plan.

-Preparing and implementing phase-wise development projects, social development projects, commercial projects etc.

-Undertaking development projects and controlling implementation of those projects in terms of transport network planning and drainage Master Plan and initiation of updating those projects on a regular basis each year.

Functions Concerning Recreation

-Govt. wetland, govt. fishing grounds, pond and low lands;

-Tree Plantation, Afforestation;

-Park, Playground, open spaces;

-Beautification (Landscaping)

Task to execute the works

Water Bodies and Low Lands:

-Take initiatives to establish infrastructure and facilities for recreational purpose by using govt. wetland, fishing ground, pond and ditch within the Paurashava.

-Hand over the responsibility to the appropriate private sector management and fix proper charge fee and ensure its collection which is require for maintaining and operational management of wetland facilities.

Landscaping

-Construction and maintaining aesthetic beautiful substance, sculpture, fountain etc in suitable place of the town which express the local heritage, art, culture, history and education.

-Take beatification activities, implementation and maintenance of road side area, major intersection, open space, Paurashava office premise area, in front of important establishment and open space in front of different govt. organizations.

-Initiate the activities for agreement with different private bank, insurance, mobile company and other different organizations for the beatification of the town.

Fig 9.1: Scope of Work for Planning Division

9.1.3.2 Lack of Paurashava Town Planning Capacity

At present, the Paurashava has no town planning section or any appropriate manpower to prepare and implement the Master Plan. For proper implementation of the Master Plan for each Paurashava under UTIDP, establishment of a separate planning unit is indispensable. The Paurashava must strengthen its capacity to implement its Master Plan when it will be completed. It will otherwise be in trouble for implementation, monitoring and updating the Master Plan.

After detail study the Bangladesh Institute of Planners (BIP) recently proposed an organogram of Planning Section/Division for different categories of Paurashavas. Analyzed this proposed organogram the consultant has suggested the following modified Organogram for Swrupkati as "A" class Paurashava. If we compare the existing manpower with the approved organogram we find that there is a huge gap between the two. Many positions have been vacant since the inception of Paurashava. However, strengthening of the Town Planning Division is a pre-requisite for successful implementation of the Master Plan. Paurashava authority supported with the line ministry should take necessary steps to set up planning unit and strengthen all units/division of the Paurashava for its better performance.

Distribution of Plans Including Report

The approved plans and report must be distributed among relevant government agencies. This will enable them to know about what town development projects are there in the plan. This will help them adjust their plans and programmes with the plans. Interested general public should be given easy access to the plans and reports as part of establishing good governance.

Support for Planned Urbanization

For creating planned urbanization, Paurashava may:

- Support for preparation of Computerized Infrastructure Database.
- Support for Preparation of Paurashava Base Map.
- Support for Preparation of Paurashava Infrastructure Development Plan.
- Orientation on preparation, use, update & implementation of Paurashava Master Plan.
- Assist preparation and execution of Community Development Plan by Community Based Organization (CBO).
- Introduce 3D-Modeling in Master Planning components.
- Beautification of Paurashava by 3D-Modeling.

Community Mobilization Program

Following are the community mobilization support activities:

- Support to establish Town Level Coordination Committee (TLCC) and make it functional
- Support to establish Ward Committee (WC) and make it functional.
- Support for preparation of Community Planning and implementation by forming Community Based Organization (CBO).
- Support to accelerate the Paurashava Standing Committee activities.

Urban Governance Improvement Action Programme (UGIAP)

It is stipulated in the 6th 5 year plan 'the Key constrains to the effective functioning of the Paurashavas and City Corporations are unclear mandate and service responsibilities; lack of accountability; weak finances and financial autonomy; poor coordination and control among service agencies and weak management'.

To overcome the challenges, the 6th Five year plan as well as Perspective Plan of Bangladesh, 2011-31 recommends the same issues mentioned below:

- the instructional reform and decentralization of responsibilities and resources to local authorities;
- participation of civil society including woman in the design, implementation and monitoring of local priorities;
- building capacity of all actors (Institutions, groups and individuals) to contribute fully to decision making an urban development process; and
- facilitate networking at all levels.

It is already tested, proven and accordingly recognized in the 6th Five year plan that urban infrastructure improvements have been proved very successful introducing governance and performance-based approach adapted by UGIIP in selected ULBs in the country. Among other suggestions the 6th Five year plan also includes nature for Urban Governance Improvement Action Progamme (UGIAP) and Capacity Building of Institutes at Municipality-level in particular.

Citizen Awareness and Participation

The Paurashava authority may initiate to buildup citizen awareness and to ensure peoples participation in plan initiation and implementation process. Initiatives may be as follows:

- Establishment of Civil Society Coordination Committee (CSCC) and make it functional
- Establishment of Ward Level Coordination Committee (WLCC) and make it functional
- Citizen Charter display at Poura Bhaban.
- Citizen Report Card Survey by the Paurashava.
- Establishment of Grievance Redress Cell and make it functional with specific TOR
- Establishment of Mass Communication Cell (MCC) and make it functional
- Establishment of Urban Development Coordination Unit with inclusion of other departments for inclusive development

Urban Planning and Environmental Improvement

Master plan is a guideline and detail urban planning activities are being prescribed in the plan. To produce a livable environment in the Paurashava premises, following initiatives should be taken:

- Recruitment of staffs and establish Planning Department related to administrative structure, meeting and meeting minutes preparation.
- Master Plan, Base Map verification and update landuse plan preparation.
- Approval of building plan and development control.
- Introduction of environment and public health activities.

Urban Poverty Reduction

Following initiatives can be taken by the Paurashava for urban poverty reduction:

- Establishment of Slum Improvement Committee (SIC) in selected slums and scattered area.
- Preparation of poverty reduction action plan with guideline and necessary budget allocation.

Income Generating Activities

The income generating activities include:

- Tax assessment software use and capacity development for staffs of assessment section.
- Continue reassessment activities regularly at 5 years interval.
- Continue interim assessment regularly in whole year.
- Introduction of computerized tax system and bill preparation.
- Increase collection by more than 5% annually (up to 85% collection efficiency).
- Increase non-tax own revenue source atleast by inflation rate.
- Introduction of computerized trade license system and computer bill/license prepared and report produced.
- Introduction of computerized Water bill (Tariff) system.
- Introduction of Computerized non-motorized vehicle management system.
- Identification of new income sources for increasing income.

Transparency and Accountability

Functions and activities perform by the Paurashava authority should be transparent and the persons responsible for performing activities for betterment of the society should maintain accountability to the Paurashava people as well as central government. Following guidelines may be followed for such performances:

- Administrative Reformation of Paurashava.
- Set Vision, Mission and functions for each department / section of the Paurashava.
- Functions to be decentralized, transfer and coordination with other authorities.
- Establishment of Capacity Development Committee in Paurashava-level.
- Establishment of Urban Information Services Center at Paurashava premises.
- Meet the Mass people of Poura-Parishad.

9.1.4 Legal Aspects

The drive to establish strong urban local governance in the Paurashava is yet to be legalized. The governance programs at present are operated project wise based on the formulated policies of the implementing agencies of the national government. The Laws that the country inherited are mostly prepared during the colonial rule to serve its own interests. Even after independence from the British, the issue of good governance was not infused into the new Acts formulated.

9.1.5 Good Governance in Legal Provisions

There is hardly any Act where the elements of good governance are clearly visible. The consultant has identified some Acts, where some elements of good governance can be traced.

The Paurashava/Municipal Act/Ordinances prepared at different times since 1960's have iterated for the preparation of Master Plan by the Paurashava/Municipality for its planned development. So far urban local government Ordinances/Acts made in 1967, 1977, 2008 and 2009, all suggested for planned development. The Local Government (Paurashava) Act, 2009 has made the provision of having a Master Plan prepared by a Paurashava within five years of its inception. The function of the Paurashava also includes that it ensures planned development following the rules of the Ordinance. But there is no provision for public participation in the Local Government (Paurashava) Act, 2009. In all these legal documents, people's role has been ignored which is the violation of the norms of good governance.

The constitution of the Peoples' republic of Bangladesh clearly spells out that the Government should work to minimize the gap between urban and rural areas. A planned Paurashava development in that pursuit can provide necessary services to improve quality of life in both urban and rural areas within the Upazila.

9.1.6 Financial Issues

Governance in Swarupkati Paurashava

Financial governance refers to transparency and accountability of financial matters. All financial matters must be transparent to all. People must know about the policies and programs of the Paurashava, how much revenue is collected each year and the amount of expenditure made on annual development. They must also be answerable to the people on how the public money is being spent and accounts being maintained.

The Ministry of LGRD and Cooperative has undertaken a number of projects in respect of establishing governance in upgrading Paurashava accounts system, like, UGIIP, STIFPP. Computer and accessories are supplied under these projects for automation of the accounts system. Besides, trainings are also offered to the Paurashava accounts staff for enabling introduction of automation in accounts system. But all these services have not yet reached Swarupkati Paurashava.

Revenue Management

The Paurashava still follows a traditional management system in tax collection and revenue management though a scheme of computerized automotive financial system has already been introduced in this Paurashava. Assessment section is responsible to assess the tax of the Paurashava and tax collection, and license and bazar section are responsible to collect the tax of the Paurashava. The public is mainly informed about tax collection during the presentation of annual budget. They may, however, get information from the councillor or Paurashava accounts office.

Paurashava's Financial Capacity and Plan Execution

The main focus of Paurashava financial governance is to establish automation in entire financial management. This includes computerization of accounts system, holding tax management, and billing of different service charges. Software for above functions have been supplied and installed

in the Paurashavas covered by financial automotive projects. The projects also provided training to the relevant staffs for functioning of the systems. With the implementation of these projects people can now instantly know about the status of their tax payment, bill payment, and licensing. This has not only made the functions of the Paurashava easy, but also has freed the citizens for paying bribe, and experiencing hassle.

The size of annual budgets of the Paurashavas indicates the poor financial status of the Paurashavas. With low income, Swarupkati Paurashava will have to depend substantially on the government funding for implementing the development projects. But the government has limitations of its resources. In such a situation, if the Paurashava cannot raise its own revenue adequately, it will not be able to execute much of the development projects under the Master Plan.

9.1.7 Monitoring, Evaluation and Updating

Monitoring and evaluation is a very important part of plan implementation. Monitoring helps check if the plan is being implemented properly. It also measures the level of implementation of the plan. If the plan implementation is not on track, corrective measures can be taken to put execution on the track. After expiry of any plan, evaluation is made about the errors and omissions. Such evaluation helps take corrective measures in the next plan. Such monitoring and evaluation must be carried out from within the Paurashava. But Swarupkati Paurashava is not equipped with qualified manpower to make such evaluation. Monitoring and evaluation of a plan is essentially, the responsibility of qualified and experienced planners. As there is no planner in the Paurashava, monitoring of plan implementation will be seriously affected. However, plan evaluation can be accomplished by means of out sourcing as and when it is required.

9.1.8 Periodic Review and Updating

The plan package needs to be updated regularly to make it respond to the spatial changes over time. But such updating would require relevant technical professionals and requisite fund that are highly lacking in Swarupkati Paurashava. As there is no planner or planning section in the Paurashava, review and updating of the Master Plan will require service of senior level planners that Paurashava might not be able to provide. This service will have to be procured by out sourcing and the Paurashava is not even capable to accomplish this financially either. This will create problem when the plans or its components gets obsolete or need to be changed. Another problem would arise when the duration of plans ends. It is necessary that the entire plan document (including all planning and land use proposals) should be reviewed every 4th year of the plan period and will come into execution from the 5th year. The aim of the review will be to analyze the status of implementation of plan provisions, the changing physical growth pattern, infrastructure development, and the trend of public and private physical development including growth direction.

A new set of plans will have to be prepared replacing the old ones. This problem, however, can be overcome by undertaking another planning project by LGED. So, for regular updating and changes, and plan implementation monitoring, the Paurashava should immediately set up a planning section with a number of planners and other staff. The section will not only look after planning, but will also be responsible for development control, estate management, and project preparation. Since the planners would be qualified and skilled in computer operation, they can also help achieving automation of the Paurashava functions.

9.2 Resource Mobilization

Resource mobilization will be one of the most challenging tasks in implementing the current plan package. Though the development proposals are said to be executed by a large number of development agencies, but it is beyond doubt that the heaviest burdens will have to be shouldered by the Paurashava. As a local government agency, it suffers from resource constraint due to low level of urbanization and investment by both public and private sectors. The land value will maintain perpetually low growth rate in the town. Therefore, prospect of mobilization of substantial resource from sale of serviced land is extremely meager. For the same reason, revenue earning from betterment fee, planning permission and other sources may also remain low. Paurashava is heavily dependent on the government for executing its development projects as it is unable to collect sufficient revenue from its tax and non-tax sources. Therefore, it is clear that execution of development projects under the current plan will depend heavily on the government response to supply adequate fund. This situation calls for increasing revenue earning by generating new revenue sources.

9.3 Concluding Remarks

From the past experience, it has been observed that plans are prepared for organized development, but development control has been subject to negligence. In most cases, execution has been piece-meal. It is unfortunate that town planning has not yet become a part of our urban development culture. Individuals develop lands and construct buildings with a little respect for planned development, and the concerned authority is also unable to exercise full control on development. Some strict measures are necessary to make stakeholders follow up plans and development rules. Awareness is to be built among the people to follow the Master Plan provisions and plan. Government agencies must be compelled to follow plans. Existing laws in this regard must be updated incorporating provisions of plan execution.

URBAN AREA PLAN

Introduction

Urban Area Plan is aimed to guide physical development of Swarupkati Paurashava including its economic and social activities. The plan adhere policy directives spelled out in the Structure Plan. The Urban Area Plan is akin to the traditional Master Plan approach prevalent in the country that designates plot-to-plot use of land apart from infrastructure development proposals. Thus it will also serve as a development control mechanism/instrument. Preparing landuse plan on a cadastral map, the Urban Area Plan considers more rigid. Once the plan on a cadastral map is drawn and accepted by the government and formalized, it gains a formal status and thus becomes a binding for all concerned.

The Terms of Reference (TOR) specify (Pg. 6. Article 4) that the Urban Area Plan (UAP) / Multi-sector Investment Plan (MSIP) will consist of the following plans:

- **Landuse Plan**

- **Transportation and Traffic Management Plan**

- **Drainage and Environmental Management Plan**

- **Plan for Urban Services**

The Urban Area Plan is presented in both, map and textual format. The plan map is presented in 1:1980 scale, super imposed on latest cadastral/revenue map having plot boundaries within mouzas. The plan is accompanied by an explanatory report supported by necessary figures, maps and data.

Urban area plan is broadly divided into two parts, plan map and explanatory report. The plan map depicts future landuse zoning, infrastructure development and other development proposals. Report elaborates all proposals proposed in the plan, including rules, regulations and recommendations for implementation of the plan.

The outline of the Urban Area Plan gives guidance to the Paurashava as to how it can develop the roles i.e. to promote development, to co-ordinate development and to control development.

The Urban Area Plan has been divided into four main parts. These are preceded by four introductory chapters which explain the scope of the report and provide background to the Urban Area Plan including its relationship with the Structure Plan.

The Landuse Plan identifies approaches of planning, existing and projected landuse and proposed landuse. Requirement of land for different purposes, landuse zoning and plan implementation strategies are also included here.

The Transportation and Traffic Management Plan includes existing conditions of transportation facilities, intensity of traffic volume, degree of traffic congestion and delay, analysis of existing deficiencies, travel demand forecasting for next 20 years, future traffic volume and level of services and transportation development plan. Moreover, transportation system management strategy and plan implementation strategies are also presented in this plan.

Drainage and Environmental Management Plan is the third chapter of the Urban Area Plan. The chapter again subdivided into two parts – drainage part and environment part. Existing drainage network, land level and topographic contour, plan for drainage management and flood control and plan implementation strategies are the components of the drainage part. Existing environmental

condition, solid waste and garbage disposal, environment pollution, water-logging, natural calamities and localized hazards, plan for environmental management and pollution control and plan implementation strategies are the key issues of the environment part.

Fourth part of this report is Plan for Urban Services. Existing condition and demand of the Services, projection on existing and proposed Urban Services, Proposals for Urban Services and Implementation, monitoring and Evaluation of the Urban Services Plan are the key issues of this part.

The total Paurashava area is about 1,669.50 acre (8.94 sq km) according to the gazette notification 2012. Urban Area Plan will cover existing Paurashava area. The reason behind choosing such area lies in fact that this is the most urbanized part of the Paurashava, where there is still scope and possibility of urban development in near future.

Paurashava operates all parts where it provides basic urban services and facilities. Considering future urbanization trend and potential development projected population is assumed 24,535 for 2031.

The Urban Area Plan covers nine Ward Action Plans also.

Chapter-10
LAND USE PLAN

10.1 Existing and Projected Land Use and Land Use Proposals

Land use Planning rules are statutory rules to control land use according to planning standard. It is based on land use policies including Local Plans, such as residential density, road standard, provision of infrastructure and services. The relevant Acts and Master Plans of the cities are the legal instruments, which is in force with regard to exercise planning control and standards. Therefore, future land use of Swarupkati Paurashava is shaped by intermingling relation between existing and proposed land use.

10.1.1 Existing Land Use

The existing land uses of the project area are shown in Table 10.1. In the land use pattern of the Paurashava, 16 types of land uses are found. It is clearly evident from the table that residential landuse (35.67%) dominates the Paurashava area, followed by water bodies (29.64%), agriculture (27.04%), circulation network (2.04%) and government services (0.97%).

Map 10.1 illustrates how the land uses are distributed at present in the Paurashava area. The information helps the preparation of Master Plan providing background information for selection of areas of different land uses.

Table 10.1: Existing Land use of Swarupkati Paurashava

Landuse	Area (acre)	%
Residential	595.5	35.67
Commercial	16.49	0.99
Industrial	2.05	0.12
Education and Research	35.4	2.12
Community Service	5.34	0.32
Service Activity	0.84	0.05
Governmental Services	16.14	0.97
Non Government Services	0.82	0.05
Transport & Communication	1.48	0.09
Agricultural	451.42	27.04
Miscellaneous	6.96	0.42
Urban Green Space	8.13	0.49
Circulation Network	34.09	2.04
Water body	494.86	29.64
Total	**1669.50**	**100.00**

Source: Land Use Survey, 2009-2010

10.1.2 Estimation on the Requirement of Different Land Uses

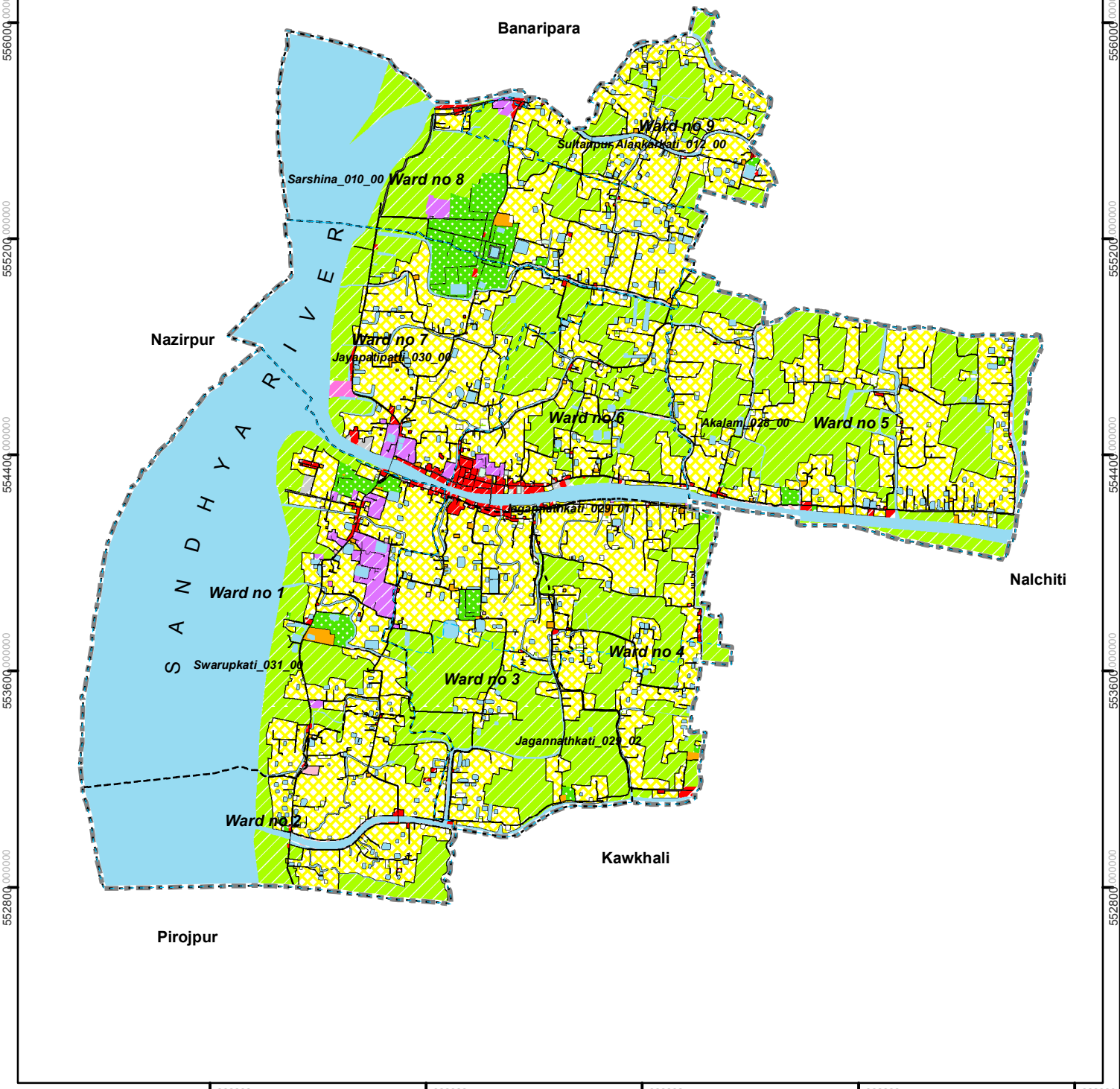
This section proposes land use zoning plan for different land uses of the future town. The estimations have been made according to the Planning Standard approved by the client.

10.1.2.1 Land Use Standards

According to the projected population density it has been observed that in 2031, this area will be a high density area. On the basis of projected population and considered the planning standard additional demands for land had been calculated for various facilities such as residential, commercial, industrial, educational, public land, etc.

Agricultural lands, Water bodies will be preserved as existed unless lack of land availability is observed in providing urban services. In that case, non-productive agricultural lands can be devoted for specific urban services and also to control the density of the Paurashava area.

MAP 10.1: EXISTING LANDUSE OF SWARUPKATI PAURASHAVA



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

Kilometers
0 0.1 0.2 0.4 0.6 0.8

Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary

Landuse

- Circulation Network
- Commercial
- Agriculture
- Community Facilities
- Education & Research
- Governmental Srevices
- Green Spaces
- Mixed Use
- Non_governmental Organization
- Recreational Facility
- Residential Area
- Inddustrial Area
- Rural Settlement
- Service Activity
- Transportation & Communication
- Water Body

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10.1.2.2 Land Requirement and Proposal

After the projection for the target year and analyses of existing Land Use, designation of different land uses is the foremost vital step to prepare Land Use Plan as the first component of Urban Area Plan. Before incepting the Land Use Plan for the year 2031, basic principles for different category of Land Uses have been considered. In precedence, future land use designation and land use zoning have been identified. Finally, Implementation, Monitoring and Evaluation issues have been discussed as the steps after the plan completion to make the Land Use Plan perpetual through plan period.

To allocate the land in Urban Area Plan, one uniform planning standards has been followed and also some basic assumptions have been identified considering Land use Category. The population growth, existing growth direction, economic sector and overall Paurashava Context have been emphasized in Urban Area Plan. The assumptions are mainly reflection of Building Construction Act, 1952 (amendment 1996) which is the practiced law in Swarupkati Paurashava for approving Building plan or site plan. Sixteen Landuse categories had been considered for Survey and interim phase but for Landuse plan seventeen categories have been considered. Detail analysis of required land based on the standard provided by PMO, LGED is presented in the Table 10.2.

Table 10.2 shows that the Landuse plan has prepared according to the standard and effort have been given to conserve high value agricultural land and water body. Moreover, urban deferred has been proposed for future development. Detail Landuse plan has presented on **Map 10.2** and Table 10.11.

Table 10.2: Proposed Major Landuse of Swarupkati Paurashava

Sl. No.	Land use Category	Remarks	Area (Acre)	%
1	Government Services	All Government Offices except large scale service based offices as Civil Surgeon Office, DC Office, Police Box, Police Fari, Police Station, LGED Office, Paurashava Office, Settlement Office, Union Parishad Office, Upazila Headquarter, BADC Office, Fisheries Office, Ansar/VDP Office, Agriculture Office, Zila Parishad Office, Post Office, Telephone Exchange Office and Other Government Offices.	15.67	0.94
2	Agricultural Zone	Agricultural land denotes the land suitable for agricultural production, both crops and livestock. It is one of the main resources in agriculture. It includes productive land (single, double and triple cropped), seed bed, fisheries, poultry farm, dairy farm, nursery, horticulture etc.	173.60	10.40
3	Circulation Network	Road and Rail communication	225.31	13.50
4	Commercial Zone	The land used for commercial activities is considered as commercial land use. These activities include the buying and selling of goods and services in retail businesses, wholesale buying and selling, financial establishments, and wide variety of services that are broadly classified as "business". Even though these commercial activities use only a small amount of land, they are extremely important to a community's economy. Commercial land includes established markets and areas earmarked for markets.	32.64	1.95
5	Community Facilities	All community facilities including funeral places and other religious uses	15.72	0.94

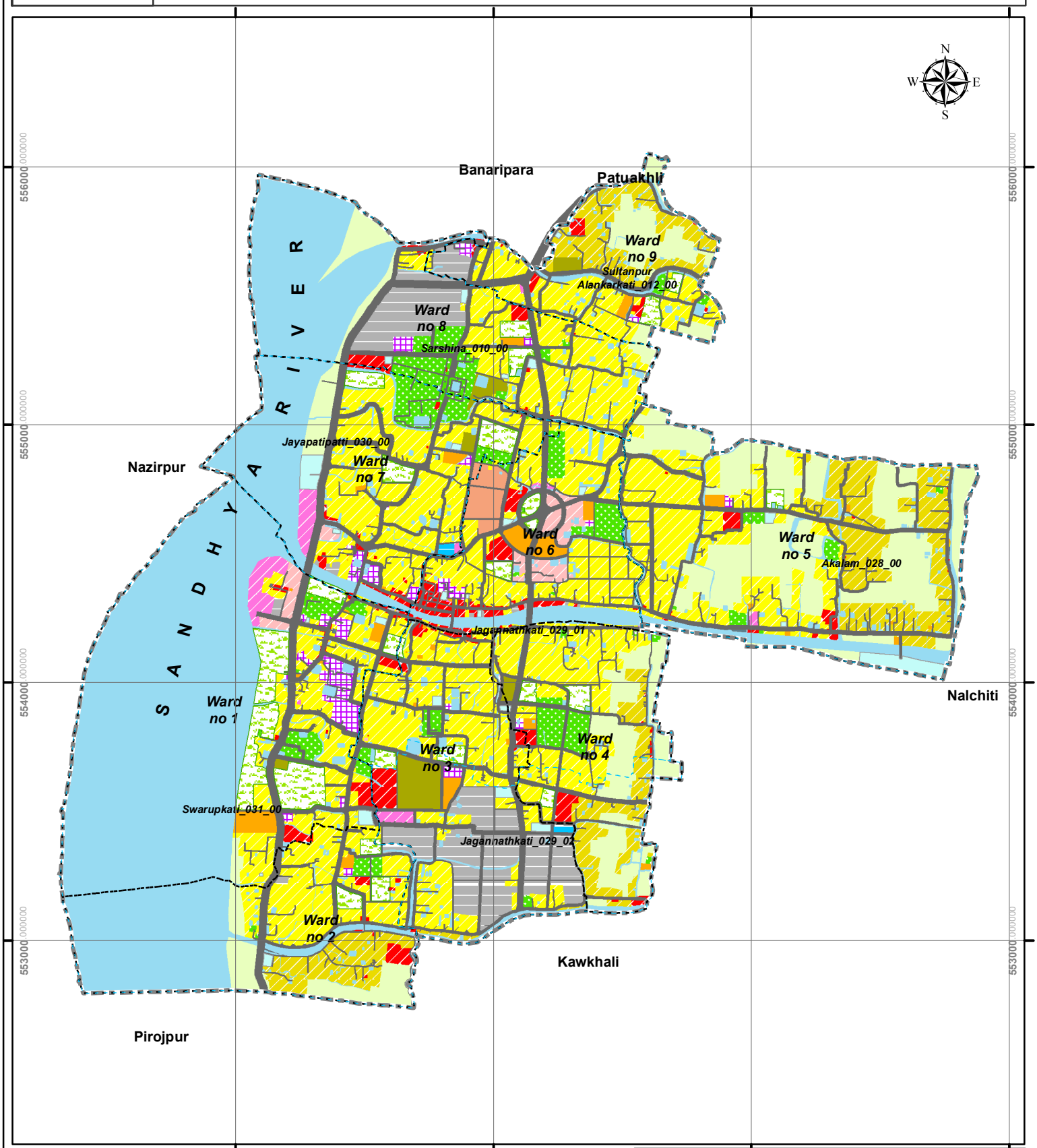
Sl. No.	Land use Category	Remarks	Area (Acre)	%
6	Education & Research Zone	All kinds of educational institutes like Primary/secondary/other Schools/ Colleges etc are mentioned to calculate the land use for education and research purpose.	52.18	3.13
7	Health Services	Health facilities include hospitals, health centers, maternity clinics, diagnostics centers, health care services etc.	13.30	0.80
8	General Industry Zone	Green and Orange A categories as per The Environment Conservation Rules, 1997	65.44	3.92
9	Mixed Use	Mixed land use refers to the area without dominant land use (Residential, commercial, industrial etc.).	11.30	0.68
10	Open Space	Playground, Botanical Garden, Stadium, Zoo etc. (Facilities without or with minimum building structure)	55.11	3.30
11	Recreational Facilities	Facilities other than those mentioned to Open Space and indoor based facilities with designated building structure i.e. Cinema Hall, Theater Hall etc.	1.21	0.07
12	Restricted Area	A Restricted Area is an area where no one but certain people can enter. Here the areas which are not accessible for the general public except some high ranked personnel are considered as restricted area.	-	-
13	Rural Settlement	Rural settlement includes the low dense residential area which is scattered and rural in nature. It may permit only low density uses. Aiming to control the growth in this zone, less service and facilities will be provided.	98.97	5.93
14	Transport Facilities	Under transport and communication land use both transport and communication services are considered. This category includes airport, bus terminal/ stand, ferry ghat, filling station, garage, launch terminal, post office, passenger shed, telephone exchange, ticket counter, transport office etc.	11.37	0.68
15	Urban Deferred	Optional depending on the Paurashava and the Consultant's judgment	7.41	0.44
16	Urban Residential Zone	Urban Residential area is a land use in which housing predominates. These include single family housing, multi-family residential, or mobile homes. Zoning for residential use may permit some services or work opportunities or may totally exclude business and industry. It may permit high density land use	392.92	23.54
17	Utility Services	Utility services include Overhead Tank, Power Office/Control Room, Public Toilet, Sewerage Office, Waste Disposal ,Fire Service, Water Pump House ,Water Reservoir, Water Treatment Plant etc.	13.07	0.78
18	Overlay Zone	If the consultant justify any area that should not be defined as other given definitions but the facility(s) may not be avoidable, they may use this category	Not applicable	
19	Forest	Forest Designated Forest Area	Not applicable	

Sl. No.	Land use Category	Remarks	Area (Acre)	%
20	Beach	Sea Beach	Not applicable	
21	Miscellaneous	Any other categories which are not related to above 23 categories.	1.48	0.09
22	Historical and Heritage Site	The entire mentionable historical and heritage site.	Not applicable	
23	Water Body	Equal or More than 0.25 acre and justification by the consultant and wet land will merge with water body	482.80	28.91
Total			**1669.50**	**100**

Source: Consultants Estimation

Map 10.2

Proposed Land Use Plan of Swarupkati Paurashava



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

0 0.125 0.25 0.5 0.75 1 Kilometers

Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary

Proposed Landuse

- Administrative
- Agriculture
- Water Body
- Circulation Network
- Commercial
- Community Facilities
- Education & Research
- Health Facility
- Industry
- Mixed Use
- Open Space
- Recreational Facility
- Restricted Area
- Rural Settlement
- Transport Facilities
- Urban Deferred
- Urban Residential
- Utility Services

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Table 10.3: Land Requirement, Existing and Proposed Landuse of Swarupkati Paurashava for the Year 2031

Sl. No.	Landuse Categories	Types of Landuses	Recommended Standard	Projected Required Land for 2031(Acre)	Existing Land (Acre)	Deficiency/Surplus (Acre)	Proposed Land (acre)
1	Residential	General residential	100 persons/1 acre	245.35	595.5	-350.15	373.88
		Real Estate – Public/Private	200 population/ 1 acre				10.52
		Resettlement Zone					8.52
		Total		***245.35***	***595.50***	***-350.15***	***392.92***
2	Education and Research	Nursery	0.5 acre/10,000 population	1.23	30.05	26.96	3.85
		Primary School/ kindergarten	2.00 acres/5000 population	9.81			16.96
		Secondary/High School	5.00 acres /20,000 population	6.13			
		College	10.00 acres/20,000 population	12.27			
		Vocational Training Centre	5 - 10 acres / Upazila	5			3.52
		Other	5.00 acres / 20,000 population	8.97			27.85
		Total		***43.41***	***30.05***	***26.96***	***52.18***
3	Open Space	Play field/ground	3.00 acres/20,000 population	3.68		3.68	18.73
		Park	1.00 acre /1000 population	24.54		24.54	5.28
		Neighborhood park	1.00 acre /1000 population	24.54		24.54	8.96
		Central Park				0.00	14.54
		Stadium	5 – 10 acres/ Upazila HQ	5.00		5.00	7.61
		Total		***57.75***	***0.00***	***52.75***	***55.11***
4	Recreational Facility	Cinema/ Auditorium	1.0 acre /20,000 population	1.23		1.23	1.18
		Total		***1.23***	***0.00***	***1.18***	***1.18***
5	Health Facilities	Upazila health complex/ hospital	10 -20 acres/ Upazila HQ	10.00	0.87	9.13	9.64
		Health centre/ Maternity clinic	1.00 acre/ 5,000 population	4.91		4.91	3.66
		Total		***14.91***	***0.87***	***14.04***	***13.30***
6	Community Facilities	Mosque/Church/ Temple	0.5 acre /20,000 population	0.61	5.34	-1.05	1.78
		Eidgah	1.0 acre/20,000 population	1.23			1.79
		Graveyard	1.00 acre /20,000 population	1.23			1.75
		Cremation Place	1.00 acre /20,000 population	1.23			3.33
		Community centre	1.00 acre /20,000 population	1.23	0		7.07
		Total		***5.52***	***5.34***	***-1.05***	***15.72***
7	Commercial	Wholesale market	1.0 acres/ 10000 population	2.45	16.49	11.50	5.07
		Retail market	1.0 acres/ 1000 population	24.54			11.05
		Corner shops	0.25 acre/per corner shop				0.68
		Neighborhood market	1.00 acre/per neighborhood market	1			3.69
		Super Market	1.50 – 2.50 acres/per super market	2			1.71

Sl. No.	Landuse Categories	Types of Landuses	Recommended Standard	Projected Required Land for 2031(Acre)	Existing Land (Acre)	Deficiency/Surplus (Acre)	Proposed Land (acre)
		Other (Slaughter House & others)					10.44
		Total		***29.99***	***16.49***	***11.50***	***32.64***
8	Utility Services	Waste disposal site	4-10 acres/Upazila HQ	5	1.75	12.77	4.64
		Waste transfer station	0.25 acres/per waste transfer station	2.25			3.68
		Fire Service	1.00 acre/20,000 population	1.23			0.64
		Telephone exchange	0.5 acre/20,000 population	0.61			
		Water Treatment Plant	1.00 acre/20,000 population	1.23			2.52
		Others					1.59
		Total		***12.77***	***1.75***	***12.77***	***13.07***
9	Industrial	Small scale	1.50 acres /1000 population	36.80	2.05	59.29	22.38
		Cottage/agro-based	1.00 acres /1000 population	24.54			43.06
		Total		***61.34***	***2.05***	***59.29***	***65.44***
10	Transportation Facilities	Bus terminal	1.0 acre /20,000 population	1.23	1.48	2.95	2.90
		Truck terminal	0.50 acre /20,000 population	0.61			1.41
		Launch/steamer terminal	1.00 acre /20,000 population	1.23			5.18
		Baby taxi/tempo stand	0.25 acre /one baby taxi/tempo stand	0.5			0.82
		Rickshaw/van stand	0.25 acre /one baby taxi/tempo stand	0.25			0.49
		Others (Bus Stand)		0.61			0.57
		Total		***4.43***	***1.48***	***2.95***	***11.37***
11	Administration	Upazila complex	15.00 acres	15	12.88	10.73	12.84
		Paurashava office	3 – 5 acres	5			
		Police Station	3 – 5 acres/Upazila HQ	3			
		Police Box/outpost	0.5 acre/ per box				
		Post office	0.5 acre /20,000 population	0.61			
		Others (Ward office, Youth Development Center)					2.83
		Total		***23.61***	***12.88***	***10.73***	***15.67***
12	Circulation Networks	Paurashava primary roads	100-80 feet		34.09		225.31
		Paurashava secondary roads	60 – 40 feet				
		Paurashava local roads	40 - 20 feet				
		Total					***225.31***
13	Agriculture	Agri-extension Farm	10 acres/Upazila HQ	10	451.42	-441.42	173.60
		Total		***10***	***451.42***	***-441.42***	***173.60***
14	Urban Deferred	Urban Deferred	10 percent of the total build up area	16.76	0	16.76	7.41
		Total		***16.76***	***0***	***16.76***	***7.41***

Source: The Consultants' Estimation (* Here – indicates surplus of land, * indicates estimated by the consultants)

A) Residential Zone

Residential zone refers to all categories of urban residential areas, including exiting ones and the residential land use proposed under the present Master Plan. Here, residential zone comprises urban residential area with 392.92 acres land. The consultants estimated the proposed urban residential area will cover the net density of 62.44 person/ acre up to the year 2031 whereas existing net density is about 31 person/ acre. A planed residendial area has been proposed with 10.52 acres of land in ward no 6 and 5. Resettlement zone also have been proposed in ward no 5 covering 8.52 acres of land. In order to accommodate the projected urban resident population in the study area, no additional land would be required up to the year 2031. This zone will allow commercial uses as listed in **Table-A.1, ANNEX-C**, and conditional uses as listed in **Table-A.2, ANNEX-C.**

Table 10.4: Development Proposal for Residential Zone

Type of facility	ID	Area (Acre)	Ward no	Plot No	Mouza Name_JL_Sheet	Phase-wise development		
						1st Phase (1st to 5th year)	2nd Phase (6th to 10th year)	3rd Phase 11th to last 10 year)
Planned Residential	UR-01	10.46	6	84, 85, 86, 89, 90, 91, 92, 93, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 122, 123, 124, 125, 126, 127, 128, 129, 135, 141, 142, 143, 144, 946	Jagannathkati_029_02	Land Acquisition and establish	Continue the development	
		0.06	5	99999	Akalam_028_00			
Super Market	UR-02	8.52	5	17, 26, 27, 28, 29, 30, 31, 38, 39, 40, 41, 44, 45, 46, 47, 49, 50, 51, 52, 53, 54, 55, 56, 57, 362, 378, 386	Akalam_028_00	Land Acquisition and establish	Continue the development	
Total		**19.04**						

B) Commercial Zone

The commercial zone is intended to provide locations, where commercial activities including retails and wholesale can be set up and function without creating hazards to surrounding land uses. Presently 16.49 acres land has already existed as commercial plots in the Swarupkati area. In order to accommodate the commercial land in the year 2031, no additional land will be required. As the distribution of commercial is centered mainly in ward no 6, 3 and in very crammed way, the total Paurashava is not being served evenly. The circulation network within the existing commercial zone also very narrow without maintain any standard. To provide proper circulation within city, some commercial land has been reduced and about additional 22.82 acres land has been proposed for wholesale market, super market, retail market, corner shops and slaughter house in different locations. Simultaneously, the existing commercial zones will serve as retail sale . Table 10.3 shows the distribution of commercial land in the study area. This zone will allow rural residential uses as listed in **Table-A.7, ANNEX-C**, and conditional uses as listed in **Table-A.8, ANNEX-C.**

Table 10.5: Development Proposal for Commercial Zone

Type of facility	ID	Area (Acre)	Ward no	Plot No	Mouza Name_JL_Sheet	Phase-wise development		
						1st Phase (1st to 5th year)	2nd Phase (6th to 10th year)	3rd Phase 11th to last 10 year)
Wholesale Market	CZ-01	1.54	1	601, 602, 606	Jagannathkati_029_02	Land Acquisiti	Continue the	

Type of facility	ID	Area (Acre)	Ward no	Plot No	Mouza Name_JL_Sheet	Phase-wise development		
						1st Phase (1st to 5th year)	2nd Phase (6th to 10th year)	3rd Phase 11th to last 10 year)
				272, 273, 276, 363, 364, 365, 366, 367, 368	Swarupkati_031_00	on and establish	development	
		3.54	3	340	Jagannathkati_029_01			
				601, 602, 603, 604, 605, 606, 608	Jagannathkati_029_02			
				276	Swarupkati_031_00			
Super Market	CZ-02	1.71	6	184, 192, 193, 196	Jagannathkati_029_01	Land Acquisition and establish	Continue the development	
Retail Market	CZ-14	1.22	1	358, 453, 454, 457, 458, 459, 671	Swarupkati_031_00	Land Acquisition and establish	Continue the development	
	CZ-15	1.78	2	451, 452, 453, 458, 487, 561, 566, 571, 572				
	CZ-04	0.51	3	433, 435, 452	Jagannathkati_029_01			
	CZ-04	1.79	4	433, 435, 448, 449, 450, 451, 452	Jagannathkati_029_01			
	CZ-05	0.60		643, 646, 647, 648, 654, 703	Jagannathkati_029_02			
	CZ-07	1.81	5	121, 122, 123, 124, 127, 153, 165, 166, 167, 168, 169, 170, 172, 196, 331, 333	Akalam_028_00			
	CZ-08	1.29	6	6, 7, 8, 9, 16, 17, 21, 930, 931	Jagannathkati_029_01			
	CZ-06	0.45	7	1, 2, 190, 196	Jayapatipatti_030_00			
				39, 330, 332, 348	Sarshina_010_00			
		1.61	8	1,2,190	Jayapatipatti_030_00			
				39, 328, 329, 330, 331, 332, 333, 334, 348	Sarshina_010_00			
Neighborhood Market	CZ-10	0.67	1	138, 139, 140, 141, 142, 143	Swarupkati_031_00	Land Acquisition and establish	Continue the development	
	CZ-09	0.48	2	411, 416, 417	Swarupkati_031_00			
	CZ-10	0.22	3	291	Jagannathkati_029_01			
				139	Swarupkati_031_00			
	CZ-11	0.90	8	405, 423, 424, 425, 426, 427	Sarshina_010_00			
	CZ-13	0.87	9	7, 8, 10, 11, 211, 213	Sultanpur Alankarkati_012_00			
	CZ-12	0.54	9	153, 179 22222	Sultanpur Alankarkati			
Slaughter House	CZ-18	0.61	6	136, 151, 154, 155, 157, 158, 159, 160, 161, 162, 170, 178	Jagannathkati	Land Acquisition and establish		
Corner	CZ-16	0.25	7	127, 133, 137, 142,	Jayapatipatti_	Land		

Type of facility	ID	Area (Acre)	Ward no	Plot No	Mouza Name_JL_Sheet	Phase-wise development		
						1st Phase (1st to 5th year)	2nd Phase (6th to 10th year)	3rd Phase 11th to last 10 year)
Shop				155, 156	030_00	Acquisition and establish		
	CZ-17	0.43	9	155, 22222	Sultanpur Alankarkati_012_00			
Total		22.82						

C) Industrial Zone

Swarupkati Paurashava is basically an agro-based urban area. Small business and agriculture are the main base of the economy of the area. The plan needs to accommodate such industries those have growth potentiality related to the base of economy of Swarupkati Paurashava. Due to the environmental and ecological condition, the plan discourages growth of heavy industries in the planning area. There are some light industries like saw mill, manufacturing & processing industries and wood based industries are available. So far in proposed landuse plan, 624.47 acres additional land for industrial development has been proposed. In this zone a complex line of industrial and supporting non-industrial land uses will be permitted as per **Table-A.3, ANNEX-C** and conditional permission will be given to a number of other land uses as specified on **Table-A.4, ANNEX-C**.

Table 10.6: Development Proposal for General Industrial Zone

Type of facility	ID	Area (Acre)	Ward no	Plot No	Mouza Name_JL_Sheet
Cottage/Agro-based Industry	GIS-01	1.06	2	620	Jagannathkati_029_02
				276, 394, 401, 403, 404, 405, 407, 408, 490, 491	Swarupkati_031_00
		1.06	3	613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 629, 630, 631, 632, 633, 634, 635, 637, 638, 648, 649, 650, 651, 652, 658, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 675, 686, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 701, 702, 703, 704, 705, 706, 717	Jagannathkati_029_02
				276	Swarupkati_031_00
Small Scale Industry	GIZ-02	18.85	8	39, 257, 258, 260, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 318, 321, 322, 323, 324, 325, 326, 327, 328, 329, 441, 526, 531	Sarshina_010_00
				167, 168, 169, 170, 171	Sultanpur Alankarkati_012_00
		3.53	9	300, 526	Sarshina_010_00
				161, 163, 164, 166, 167, 168, 169, 170, 171, 230	Sultanpur Alankarkati_012_00
Total		**24.5**			

D) Administrative

Government Office refers such areas encompass accommodation of the offices of various government authorities along with semi-government and autonomous bodies. A few number of private bodies formed especially for public services can also be accommodated in this zone.

According to the projection, about 28 acres land will be required for this purpose to meet the administrative demand of projected people in the year of 2031 whereas at present 12.88 acre land is used for government office purpose. But required government offices are already established here. Additional 2.82 acres land for 9 ward offices have been proposed in the landuse plan. Table 10.5 reveals the distribution of proposed land of government offices at Swarupkati Paurashava. The permitted uses in this zone are presented in **Table-A.15**, **ANNEX-C** and conditional uses as listed in **Table-A.16**, **ANNEX-C**.

Table 10.7: Development Proposal for Government Services

Type of facility	ID	Area (Acre)	Ward no	Plot No	Mouza Name	Phase-wise development		
						1st Phase (1st to 5th year)	2nd Phase (6th to 10th year)	3rd Phase 11th to last 10 year)
Ward Offices	AD-01	0.19	1	361, 362, 363, 374	Swarupkati_031_00	Land acquisition	Development Infrastructure	
	AD-02	0.24	2	418, 437	Swarupkati_031_00			
	AD-03	0.86	3	356, 356	Jagannathkati_029_01			
				609, 622, 639	Jagannathkati_029_02			
	AD-04	0.25	4	452, 453, 454	Jagannathkati_029_01			
	AD-05	0.30	5	172, 173, 175, 195, 196	Akalam_028_00			
	AD-06	0.18	6	76, 77, 88	Jagannathkati_029_01			
	AD-07	0.35	7	85, 86, 87, 88, 108, 191	Jayapatipatti_030_00			
	AD-08	0.24	8	402, 403, 404, 428	Sarshina_010_00			
	AD-09	0.21	9	213	Sultanpur Alankarkati_012_00			
	Total	**2.82**						

E) Education and Research Zone

Educational & Research zone refers to mainly education & research and other social service facilities as listed in **Table-A.13, ANNEX-C,** and conditional uses as listed in **Table-A.14, ANNEX-C**. Educational zone refers all kind of educational set up; School, Colleges, Madrasha and even such institutions operated for education like; training institutions, research institutions etc Table 10.8 presents the distribution of proposed land under education and research institutions.

Table 10.8: Development Proposal for Education and Research Zone

Type of facility	ID	Area (Acre)	Ward no	Plot No	Mouza Name	Phase-wise development		
						1st Phase (1st to 5th year)	2nd Phase (6th to 10th year)	3rd Phase 11th to last 10 year)
College	ER-01	3.62	6	56, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 950	Jagannathkati_029_01	Land Acquisition and establish	Continue the development	
Secondary	ER-03	1.39	1	269, 270, 271, 272, 270	Swarupkati_031_00	Land Acquisition	Continue the	

Type of facility	ID	Area (Acre)	Ward no	Plot No	Mouza Name	Phase-wise development		
						1st Phase (1st to 5th year)	2nd Phase (6th to 10th year)	3rd Phase 11th to last 10 year)
School			3	338, 339, 340	Jagannathkati_029_01	and establish	development	
	ER-02	1.08	2	395, 396, 411, 412, 413, 414, 415, 418, 437, 438, 439	Swarupkati_031_00			
	ER-06	3.14	4	440, 442, 443, 444, 445, 446, 462, 536, 537, 538, 539, 540, 541, 542, 543	Jagannathkati_029_01			
	ER-04	2.74	6	24, 26, 27, 28, 29, 33, 34, 37, 61, 63	Jagannathkati_029_01			
		0.20	7	27, 33	Jagannathkati_029_01			
				73	Jayapatipatti_030_00			
	ER-05	0.65	9	121, 216, 217, 218, 219,	Sultanpur Alankarkati_012_00			
Primary School	ER-07	0.77	2	395, 396, 397, 398, 399, 400, 401, 408, 412, 413, 588	Swarupkati_031_00	Land Acquisition and establish	Continue the development	
	ER-08	0.36	6	1, 3	Jagannathkati_029_01			
				80	Jayapatipatti_030_00			
		1.47	7	1,3	Jagannathkati_029_01			
				79, 80, 82, 87, 191	Jayapatipatti_030_00			
	ER-09	1.09	5	135, 320, 321, 322, 330	Akalam_028_00			
Vocational Training Center	ER-25	3.52	4	400, 441, 442, 443, 446, 447, 448, 449, 450, 451, 458, 459	Jagannathkati_029_01		Land acquisition and development all facilities	
Kindergarten	ER-11	0.63	1	277, 278, 279, 283, 284	Swarupkati_031_00	Land Acquisition and establish	Continue the development	
	ER-16	0.20	4	478, 479, 483	Jagannathkati_029_01			
	ER-17	0.07	4	504, 506, 507, 508, 574				
	ER-18	0.59	4	400, 401, 460, 461				
	ER-19	0.03	4	454, 457				
	ER-12	0.97	5	16, 31, 37, 79, 80, 163, 164, 165, 197, 198, 199, 200	Akalam_028_00			
	ER-13	0.73	6	71, 88, 89, 90, 91, 95, 96, 101, 159, 162, 187	Jagannathkati_029_01			
	ER-14, ER-15	0.08	7	21, 72, 73	Jayapatipatti_030_00			
	ER-20 ER-21 ER-22	0.56	8	313, 354, 355, 356, 357, 358, 433, 434, 505, 526	Sarshina_010_00			

Type of facility	ID	Area (Acre)	Ward no	Plot No	Mouza Name	Phase-wise development		
						1st Phase (1st to 5th year)	2nd Phase (6th to 10th year)	3rd Phase 11th to last 10 year)
Public Library	ER-24	0.39	8	428, 429, 444	Sarshina_010_00	Land Acquisition and establish	Continue the development	
	ER-23	0.06		175, 176	Swarupkati_031_00			
Total		**24.34**						

F) Agricultural Zone

Agricultural zone denotes the land suitable for agricultural production, both crops and livestock. It is one of the main resources in agriculture. Out of the total area (1669.50 acres) of Swarupkati Paurashava, the 173.11 acres areas need to preserve from unplanned development to fulfill objectives sited in various national policies along with the Master Plan. Agricultural zone covers activities related to agriculture and agriculture related production activities; farm, fisheries, pasture, horticulture etc. Details of land uses are presented in **Table-A.17, ANNEX-C** and conditional uses as listed in **Table-A.18, ANNEX-C**.

G) Water Body

Water body contains all natural streams; canals, khals, irrigation canal, depressions like; beel, wetland, low laying areas and ponds. No standard is being prescribed for water body from the UTIDP. The Paurashava is rural-based urban area. In the proposal about 479.85 acres of water body are preserving though existing total water body is 494.86 acres. The rest of the lands have been used to meet up the requirements of other facilities at Paurashava. These facilities should not be allowed to such that endanger their existence and use. In order to preserve them and keep them functional only the uses as suggested in **Table-A.21, ANNEX-C** will be permitted. Some other uses will be permitted on conditions as suggested in the list put in Table**-A.22, ANNEX-C**.

H) Open Space

Open space includes play field / play ground, park, neighborhood park, Stadium, etc. according to the standard about 57.05 acres of land is required for projected population in the year 2031 while at present no land is used for this purpose. There are no parks exist in Swarupkati Paurashava. A number of Neighborhood Parks are provided which are covering the wards no 1, 2, 3, 4, 6 and 8. About 46.00 acres land has been proposed for this purpose. Table 10.9 shows the proposed lands to meet up the demand of projected people. The details of permitted and conditional permits have been presented in **Table-A.19, ANNEX-C** and conditional uses as listed in **Table-A.20, ANNEX-C**.

Table 10.9: Development Proposal for Open Spaces

Type of facility	ID	Area (Acre)	Ward no	Plot No	Mouza Name	Phase-wise development		
						1st Phase (1st to 5th year)	2nd Phase (6th to 10th year)	3rd Phase 11th to last 10 year)
Central Park	OS-01	14.54	1	76, 77, 82, 144, 173, 174, 175, 177, 178, 179, 180, 181, 182, 183, 208, 218, 219, 223, 224, 225, 227, 228, 229, 230, 276, 280, 283, 287, 288, 289, 290, 322, 323, 324, 326, 327, 328, 329, 330, 331, 332, 336, 470, 472, 600	Swarupkati_031_00	Land acquisition and development all facilities	Full function Activity	
Neighborhood	OS-03	1.62	2	418, 419, 421, 425, 427	Swarupkati_031_00	Land acquisition	Development	Full function

Type of facility	ID	Area (Acre)	Ward no	Plot No	Mouza Name	Phase-wise development		
						1st Phase (1st to 5th year)	2nd Phase (6th to 10th year)	3rd Phase 11th to last 10 year)
Park	OS-07	1.16	4	399, 400, 401, 402, 403, 404	Jagannathkati_029_01	and development all facilities	Infrastructure	Activity
	OS-05	1.10	5	189, 190, 191, 200, 201, 202, 203, 208	Akalam_028_00			
	OS-04	2.14	7	19, 41, 113, 114, 115, 116, 191, 199	Jayapatipatti_030_00			
	OS-06	1.81	9	211, 212, 213, 214, 215, 216, 217	Sultanpur Alankarkati_012_00			
	OS-08	1.13	6	17, 64, 65, 66, 68, 101, 187, 188	Jagannathkati_029_01			
Park	OS-09	1.00	1	136, 138, 139, 586, 587	Swarupkati_031_00	Land acquisition and development all facilities	Development Infrastructure	Full function Activity
		0.35	3	139				
	0S-11	1.55	3	288, 290, 344, 345, 346, 347, 348, 349, 421, 424, 953	Jagannathkati_029_01			
				609, 610	Jagannathkati_029_02			
	OS-10	0.82	4	641, 643, 652, 654, 655, 656	Jagannathkati_029_02			
	OS-11	1.56	8	386, 387, 388, 392, 393, 394, 395, 398, 399, 400, 401, 402, 428, 429	Sarshina_010_00			
Play ground	OS-16	1.93	1	87, 88, 90, 91, 92, 93, 94, 109, 110, 111, 112, 113, 114, 115, 116, 117, 122, 127, 128, 272	Swarupkati_031_00	Land acquisition and development all facilities	Development Infrastructure	Full function Activity
	OS-12	2.76	2	276, 391, 392, 393, 394, 395, 400, 409, 410, 411, 412, 413, 414, 420, 421	Swarupkati_031_00			
		1.62	3	338, 339, 340, 341	Jagannathkati_029_01			
				601, 603, 604, 606, 608, 616	Jagannathkati_029_02			
	OS-14	2.11	4	460, 461, 462, 463, 464	Jagannathkati_029_01			
	OS-20	1.29	6	184, 196	Jagannathkati_029_01			
	OS-19	0.38		187				
	OS-18	3.43	7	70, 77, 78, 79, 80, 81, 82	Jayapatipatti_030_00			
	OS-17	2.28		1, 2, 3, 4, 6, 7, 196				
	OS-16	2.17		87, 91, 92, 113, 114, 128, 137				
	OS-15	1.77	8	403, 404, 405, 406, 423, 427	Sarshina_010_00			
	OS-13	0.92	9	121, 218, 219, 220, 221, 222	Sultanpur Alankarkati_012_00			
Stadium	OS-02	7.61	1	277, 284, 338, 339, 342, 343, 344, 345, 346, 347, 348, 349, 351, 352, 353, 358, 359, 360	Swarupkati_031_00	Land acquisition	Development Infrastructure	
Total		**57.05**						

I) Recreational Facilities

There is no significant recreation facilities has been found as exist. According to the standard required land for cinema hall and auditorium in the year 2031 will 1.13. Considering future need about 6.53 acre of land is proposed for recreational purpose. An international standard stadium with 5.40 acres of land is proposed at ward no 4

Table 10.10: Development Proposal for Recreational Facilities

Type of facility	ID	Area (Acre)	Ward no	Plot No	Mouza Name	Phase-wise development		
						1st Phase (1st to 5th year)	2nd Phase (6th to 10th year)	3rd Phase 11th to last 10 year)
Cinema/Theater	RF-01	0.53	3	648, 649, 650, 651, 703	Jagannathkati_029_02		Land acquisition and development all facilities	
Auditorium	RF-02	0.60	7	102, 103, 186	Jayapatipatti_030_00			
Total		**1.13**						

J) Circulation Network

Circulation Network refers all kind of public roads along with related facilities; footpaths, walkways etc. and embankment, railway (if exist in the area). According to the Traffic and Transportation Management Plan, about 233.80 acres of land have been proposed for circulation network at Swarupkati Paurashava area whereas at present only 34.08 acre land has been used for these purposes.

K) Transportation Facilities

Transportation facilities include Bus / Truck Terminals, Launch Terminal, Other Vehicle Parking Space, Gas/ Fuel Station, etc. Considering projected population in the year 2031, about 4.43 acres of land is required for various transportation and communication facilities whereas only 1.48 acres of land is used in recent. To accommodate unanticipated spatial requirement of transportation and communication sectors about 11.04 acres of land is proposed in the master plan including various facilities such as bus terminal, dockyard, other vehicle parking, etc. Table 10.11 shows the proposed lands to meet up the demand of projected people.

Table 10.11: Development Proposal for Transportation Facilities

Type of facility	ID	Area (Acre)	Ward no	Plot No	Mouza Name	Phase-wise development		
						1st Phase (1st to 5th year)	2nd Phase (6th to 10th year)	3rd Phase 11th to last 10 year)
Bus Terminal	TF-01	2.90	7	127, 128, 132, 133, 158, 159, 160, 161, 162, 163, 164, 197	Jayapatipatti_030_00	Land acquisition	Development Infrastructure	
Truck Terminal	TF-02	1.28	2, 3	606, 615, 616	Jagannathkati_029_02	Land acquisition	Development Infrastructure	
Dockyard	TF-03	5.18	1	7, 8, 71, 72, 74, 76, 77, 78, 79, 80, 81, 82, 86, 128	Swarupkati_031_00	Development all facilities		
Rickshaw Stand	TF-04	0.23	6	12, 17, 21, 63, 64, 65	Jagannathkati_029_01	Land acquisition and development all facilities		
	TF-05	0.21	7	101, 102	Jayapatipatti_030_00			
Tempu/ Baby Taxi Stand	TF-06	0.72	7	126, 128,129, 196	Jayapatipatti_030_00	Land acquisition and development all facilities		
	TF-07	0.10	9	153, 178	Sultanpur Alankarkati_0			

Type of facility	ID	Area (Acre)	Ward no	Plot No	Mouza Name	Phase-wise development		
						1st Phase (1st to 5th year)	2nd Phase (6th to 10th year)	3rd Phase 11th to last 10 year)
					12_00			
Bus Stand	TF-08	0.42	5	99, 102, 106	Akalam_028_00	Land acquisition	Development Infrastructure	
Total		**11.04**						

L) Utility Service

Utility Service includes Solid waste disposal site, waste transfer station, Water Treatment Plant and fire service. Considering projected population in the year 2031, about 12.57 acres of land is required for various Utility Services whereas 1.75 acres land is used in recent. To accommodate unanticipated spatial requirement of Utility Services about 12.57 acres of land is proposed in the master plan. Table 10.12 shows the proposed lands to meet up the demand of projected people.

Table 10.12: Development Proposal for Utility Services

Type of facility	ID	Area (Acre)	Ward no	Plot No	Mouza Name	Phase-wise development		
						1st Phase (1st to 5th year)	2nd Phase (6th to 10th year)	3rd Phase 11th to last 10 year)
Waste Transfer Station	US-05	0.28	1	131, 132, 133, 139, 370, 371, 372, 373	Swarupkati_031_00		Land acquisition and development all facilities	
	US-06	0.73						
	US-10	0.37	2	515, 516, 533	Swarupkati_031_00			
	US-03	0.14	3	420, 425	Jagannathkati_029_01			
	US-04	0.55		650, 651, 652, 653, 657, 659, 660, 661	Jagannathkati_029_02			
	US-03	0.06	4	425, 453, 455	Jagannathkati_029_01			
	US-02	0.49	5	138, 163, 200, 201, 208	Akalam_028_00			
	US-11	0.10						
	US-06	0.20	6	5, 129	Jagannathkati_029_01			
	US-07	0.10						
	US-01	0.21	7	48, 49, 50	Jayapatipatti_030_00			
	US-08	0.19	8	328, 333, 389, 391, 444, 455	Sarshina_010_00			
	US-09	0.28						
	US-12	0.10	9	8	Sultanpur Alankarkati_012_00			
Water Treatment Plant	US-14	2.52	7	125, 126, 196	Jayapatipatti_030_00		Land acquisition and development all facilities	
Over Head Tank	US-18	0.63	3	296, 298, 299, 352, 353, 354, 365, 430, 432	Jagannathkati_029_01			
	US-17	0.33		637, 638, 640	Jagannathkati_029_02			
	US-16	0.19	6	59, 60	Jagannathkati_029_01			
	US-15	0.14	7	153, 154, 155, 156	Jayapatipatti_030_00			
	US-16	0.32	8	303, 306	Sarshina_010_00			

Type of facility	ID	Area (Acre)	Ward no	Plot No	Mouza Name	Phase-wise development		
						1st Phase (1st to 5th year)	2nd Phase (6th to 10th year)	3rd Phase 11th to last 10 year)
Waste Disposal Site	US-13	4.64	5	108, 22222	Akalam_028_00		Land acquisition and development all facilities	
Total		**12.57**						

M) Health Facilities

Health Facilities includes hospitals, clinics, maternity clinic, health centers etc. Considering projected population in the year 2031, about 14.91 acres of land is required for various Health facilities whereas 0.87 acres land is used in recent. To accommodate unanticipated spatial requirement of Health facilities about 13.31 acres of land is proposed in the master plan. Table 10.13 shows the proposed lands to meet up the demand of projected people. . This zone will allow some uses as listed in **Table-A.9**, **ANNEX-C**, and conditional uses as listed in **Table-A.10**, **ANNEX-C**.

Table 10.13: Development Proposal for Health Facilities

Type of facility	ID	Area (Acre)	Ward no	Plot No	Mouza Name	Phase-wise development		
						1st Phase (1st to 5th year)	2nd Phase (6th to 10th year)	3rd Phase 11th to last 10 year)
Health Centre/ Maternity Clinic	HF-05	0.46	1	284, 341, 344, 345	Swarupkati_031_00	Land acquisition	Development Infrastructure	
	HF-06	0.86	7	48, 49, 55, 56, 81, 82, 83, 191	Jayapatipatti_030_00			
	HF-04	1.34	9	123, 128, 132, 133, 134, 137, 138, 139, 140, 147, 148	Sultanpur Alankarkati_012_00			
	HF-03	0.10	3	414, 415, 420, 425	Jagannathkati_029_01			
		0.91	4	403, 404, 405, 406, 407, 425	Jagannathkati_029_01			
Health Complex	HF-01	7.69	3	341	Jagannathkati_029_01	Land acquisition	Development Infrastructure	
				606, 607, 608, 609, 610, 611, 612	Jagannathkati_029_02			
	HF-02	0.21	7	61, 62, 65	Jayapatipatti_030_00			
		1.74	8	368, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 381, 386, 396, 530	Sarshina_010_00			
Total		**13.31**						

N) Community Facilities

Community Facilities includes Mosque/Temple/Church, Eidgah, Community Center and Graveyard. Considering projected population in the year 2031, about 5.52 acres of land is required for various Community Facilities whereas 5.34 acres land is used in recent. To accommodate unanticipated spatial requirement of Community Facilities about 14.01 acres of land is proposed in the master plan. Table 10.14 shows the proposed lands to meet up the demand of projected people.

Table 10.14: Development Proposal for Community Facilities

Type of facility	ID	Area (Acre)	Ward no	Plot No	Mouza Name	Phase-wise development		
						1st Phase (1st to 5th year)	2nd Phase (6th to 10th year)	3rd Phase 11th to last 10 year)
Central Eidgah	CF-01	1.84	6	184, 190, 192, 193, 194, 195, 196	Jagannathkati_029_01	Land acquisition	Development Infrastructure	
Central Graveyard	CF-02	1.76	6	100, 102, 103, 104, 105, 185, 186, 187	Jagannathkati_029_01	Land acquisition	Development Infrastructure	
Community Center	CF-11	0.82	1	131, 137, 138, 175, 176, 177, 239, 240	Swarupkati_031_00	Land acquisition	Development Infrastructure	
	CF-03	0.57	2	437, 438, 439, 442, 443	Swarupkati_031_00			
	CF-04	1.33	3	606, 609, 611, 612, 622, 634, 638, 639, 640	Jagannathkati_029_02			
	CF-08	0.44	4	447, 450, 451, 452, 453, 454	Jagannathkati_029_01			
	CF-06	0.93	5	150, 151, 153, 170, 171, 172, 173, 174, 175, 177	Akalam_028_00			
	CF-07	0.72	6	56, 75, 76, 77	Jagannathkati_029_01			
	CF-05	0.80	7	46, 47, 48, 51, 52, 83, 84, 191	Jayapatipatti_030_00			
	CF-10	0.65	8	398, 399, 400, 402, 403, 405	Sarshina_010_00			
	CF-07	0.82	9	208, 209, 210	Sultanpur Alankarkati_012_00			
Cremation Place	CF-13	3.33	1	333, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 476	Swarupkati_031_00	Land acquisition	Development Infrastructure	
	Total	**14.01**						

O) Urban Deferred

Urban deferred area includes potential land reserved for future use. Standard shows 10% of total built-up land should be used as Urban Deferred area. According to it, 7.32 acre land has been conserved for this purpose.

P) Mixed Use Zone

Mixed land use refers to the area without dominant land use (Residential, commercial, industrial etc.). In landuse plan, about 13.23 acres land is designated for mixed use. This zone will allow residential structures together with commercial uses as listed in **Table-A.11, ANNEX-C**, and conditional uses as listed in **Table-A.12, ANNEX-C**.

Q) Rural Settlement Zone

Rural settlement includes the low dense residential area which is scattered and rural in nature. It may permit only low density uses. In the proposal, about 98.61 is proposed as rural settlement zone.

R) Miscellaneous Zone

There are some lands of 1.48 acres area not related with the above categories or the any 23 categories of Planning standard provided by PMO.

10.2 Designation of Future Land Use

- **Urban Deferred Area:** Land currently demarcated as urban deferred and not yet developed. But it will be kept reserved for future development purpose.
- **Core Area:** The buildup area which has the highest concentration of services. Also has highest population concentration and density. Within the Paurashava area, there are difference in levels of provision, particularly between the formally developed and planned areas and the majority of unplanned areas. The Paurashava authority and various government organizations, LGED and Roads & Highway Department, etc are acting important role in this purpose.
- **Peripheral area:** Swarupkati Paurashava is rural based urban area. Peripheral area is the zone where slow trend of urbanization is continuing in unplanned manner. Beyond the core area, peripheral area is the choice for new urban development. Primary infrastructure networks in this area need to provide to foster development and encouraged to enable a more rapid urbanization in a planned way.
- Improve housing quality for various income groups. After preparation and implementation of the master plan, different types of government and private activities will be increased. Residential accommodation will be needed for those government and private employees. Besides a site should be reserved for government housing. National Housing authority is for performing this responsibility.
- Swarupkati has the high potential of agriculture based industry. Encourage government as well as private organization to develop agro based industry. Different authorities such as Agriculture Development Corporation, Small and Cottage Industries Corporation, Directorate of Livestock and Poultry may be the responsible authority.
- Provision of sites and services schemes for the low and lowest income groups. The Paurashava authority and Schedule Bank may be appropriate for performing these responsibilities. Housing for low-income group, distribution of khas land among the lowest-income group and loan with low-interest for house construction may be the appropriate schemes.
- Upgrading of slum and squatter settlements. It should be upgraded providing basic utility services. People living in the slum and squatters, rehabilitate them with the provisioning of housing for lowest-income group. The Paurashava and NGOs can perform such role.
- Monitoring the principal aspects of community facility provision in the Paurashava. Wholesale or retail market, specialized clinic, etc. are under this community facility. When any difficulties will be encountered in case of suitable site selection considering demand of the inhabitants, the Paurashava will perform the lead role.

10.3 Land Use Zoning

Zoning is a classification of landuse that limits what activities can or cannot take place on a parcel of land by establishing a range of development options. Zoning has been defined as an action through legislation provided to a development authority/Paurashava to control a) heights to which buildings may be erected; b) the area of lots that must be left un-built upon; and c) the uses to which buildings may be constructed.

10.3.1 Area / Use Zoning

The objective of area zoning is to specify which types of landuse are considered appropriate for different areas or 'zones', and it therefore indicates the planning control objectives of the authority or municipality for its administrative area. The authority is obliged under the planning acts to designate in its development plan objectives for the use solely and primarily of particular areas for particular purposes.

The zoning is defined as the regulation by law of the use of land and buildings and of the height and density of buildings in specific areas for the purpose of securing convenience, health, safety

and general welfare of the community. Thus, the term zoning is used to include two aspects of planning- allocation of land for specific purposes and control of the use, height and construction of the buildings.

Though the future land requirements are the first priority of planning for a city but considering the existing land use there should be provision of zoning. The zoning will demarcate specific land use for a specific zone or area. The zones are usually classified into the following four categories with suitable sub-divisions in each zone:

a. **Residential zone:** the character and location of this zone will depend on various factors such as nearness to the markets; freedom from nuisance, noise and smoke; nearness to parks and playgrounds etc.
b. **Commercial zone:** this zone should be near the centers of traffic and preferably it should about the roads. It includes the uses of land for banks, offices, godowns, shops etc.
c. **Industrial zone:** great care should be exercised in providing units of industrial zone in various part of the town. The light industries and factories running on electric power and causing no nuisance to nearby areas may be allowed to be set close to residential areas. On the other hand, the heavy industries giving out obnoxious gases and fumes and developing noisy atmosphere may be placed on the outskirts of the town.
d. **Recreational zone:** This zone includes mainly parks and playgrounds and in a broad sense, it may be considered to include various recreational centres such as cinemas, theatres, town halls, clubs, libraries, restaurants, stadium and other community needs.

Besides these any special land use can get special emphasis on the basis of its intensity, significance on local, national economy etc.

10.3.2 Density / Bulk Zoning

Aim of the density zoning is to provide an acceptable density which is related to the designed facilities and amenities especially for the residential areas. This will ensure a healthy community and enjoyable community life. In a particular area, how much number of buildings will be permitted and constructed, the decision is under the density zoning. Provisioning of setback rule and percent of land uses for different purposes is the prime consideration of density zoning. The proposed percentage mentioned in the landuse table is the only tool to control building density in the Paurashava.

10.3.3 Height Zoning

This zoning provides height limits for structures and objects of natural growth and standards for use of an area which encourage and promote the proper and sound development of areas. It is also applicable to height restrictions for flight safety around airports or other similar purposes.

For effective development control, in addition landuse zoning individual facility and the structures therein is complied certain regulations imposed to ensure desirable end. Relation between ground cover of buildings and the land parcel that house it, minimum setback of building from the adjoining plot boundaries and the maximum floor area that can be constructed in relation to plot size and the connecting road among many other details, are controlled by Building Construction Rules 1996.

According to the Building Construction Rule, 1996, minimum permissible road width for obtaining plan permission is to shown, construction is allowed on plots connected by narrow roads provided the plot owner leaves formally half of the addition area needed to make the road 6m for widening the road to the permitted minimum. Perhaps the intension behind this was that gradually the whole road would rise up to 6m in short time and it is true for new areas. But congested unplanned area represents an alarming picture. In commercial area, most of the plots are occupied almost entirely by pucca structures covering the property line connected by the narrow pathways. Those owners did not bother for Paurashava's plan permission and a handful of those who obtained plan permission did not care to follow them. It is suggested that existing rules need to be modified to tackle the environmental problems created by illegal building construction.

10.4 Plan Implementation Strategy

10.4.1 Land Development Regulations to Implement the Landuse Plan

Effective implementation of a plan is the most important part of the planning process. The process of Implementation needs to be carried out with care and efficiency in order to produce best outcomes. This chapter highlights various measures needed to be taken in order to implement the landuse plan proposals.

Implementation of the Landuse Plan depends on successful pursuit of the policies specified in the Structure Plan. Those policies represent a significant challenge face with the responsibility of planning and managing the development of the Paurahava area. However, at present no authority is responsible for planning and managing physical development activities in the Paurahava and no regulation except Local Government (Paurahava) Ordinance, 2009 for controlling physical development. This poses a serious constraint to the implementation of the Landuse Plan and in fact any other form of development plans.

The factors that have been taken into account in deciding the priority include such things as – the importance of the issue that the policy addresses, its potential impact on the lives of the population, the ease with which it can be implemented, its urgency and its interdependence with other policies.
Prior to introduction of the regulations to implement the landuse plan, legislative involvement is recommended here.

1. To control the air, water, noise and soil pollution, Conservation of Environment and Pollution Control Act, 1995 (Act No. I of 1995) was enacted. In the Paurashava, there is no authority for enforcing the provisions prescribed in the said Act. The pollution related with the implementation of landuse component may be controlled with this Act.
2. Impose control on all type of buildings in the Paurahava according to the setback rule prescribed in the Building Construction (Amendment) Rules, 1996 (Notification No. S. R. O. No. 112-L/96). Building permission for extended areas shall be according to the landuse provision prescribed in the plan. Any permission for building construction, front road width shall not be less than 16 ft. and the construction must follow the Building Construction (Amendment) Rules, 1996.
3. Haphazard development of commercial activities is the general scenario of the Paurahava. It is necessary to impose control on commercial activities provisioned in the Shops and Establishments Act, 1965 (Act No. VII of 1965).
4. In case of man-made canal, regulations prescribed in the Canal and Drainage Act, 1873 (Act No. VIII of 1873) is the best weapon. For the linking of canal with others and river considering drainage facilities the Act may be enforced.
5. For the conservation of archeological monuments or structures or historical development the Ancient Monuments Preservation Act, 1904 (Act No. VII of 1904) may be enforced. Archeological Department of Bangladesh and Paurahava authority through a partnership process may preserve such type of development.
6. To control air pollution due to brick burning with the establishment of brick field, Brick Burning Control Ordinance, 1989 (Ordinance No. VIII of 1989) is the appropriate regulation. The Paurashava authority may enforce this Ordinance with the authorization given by the government to him.
7. To control the medical practitioner, establishment of private clinics and pathological laboratories, the statute named Medical Practice, Private Clinics and Laboratories (Regulation) Ordinance, 1982 (Ordinance No. IV of 1982) was enacted. For efficient enforcement of the Ordinance, the Paurashava authority may execute the Ordinance with the authorization of government.
8. The Paurahava will have to exercise strictly Playfield, Open space, Garden and Natural Tank in Urban Areas Preservation Act, 2000 (Act No. XXXVI of 2000) to some specially important areas like, riverfront and water bodies, drainage channels, low land below certain level, designated open space, etc. Development restrictions are needed around security and key

point installations. The provision of restriction will strengthen the power of the plan to safeguard its development proposals and landuse provisions.

9. The government is authorized for establishment of hat and bazar with the acquisition of land through the statute named Hat and Bazar (Establishment and Acquisition) Ordinance, 1959 (No. XIX of 1959). In case of private hat and bazar, a management body is being empowered through the Bangladesh Hats and Bazars (Management) Order, 1973 (P.O. 73/72). The Paurahava authority is also empowered establishing hat and bazar in his jurisdiction through the Local Government (Paurahava) Ordinance, 2009. Coordination may be framed among the government (Upazila Parishad), Paurashava and private owner for the establishment, development and management of the hat and bazar located in the Paurashava premises.
10. In the Paurashava premises, industrial development is controlled by the Bangladesh Cottage Industries Corporation through Bangladesh Cottage Industries Corporation Act, 1973 (Act No. XXVIII of 1973), Industrial Development Corporation through East Pakistan Industrial Development Corporation Rules, 1965 (No. EPIDC / 2A-2/63/354) and Factory Inspector through Factories Act, 1965 (Act No. IV of 1965). Locational aspects and issuing of trade license is controlled by the Paurashava authority. A joint coordination cell among those four authorities may control the establishment of factories and industries in the Paurashava.
11. In the Paurashava, for rain water harvesting, some specific ponds / tanks will needed to be preserved. A number of derelict tanks may be improved through tank improvement project and in this case Tanks Improvement Act, 1939 (Act No. XV of 1939) will support the Paurahava is regulatory aspects.
12. Except Khas land, a considerable amount of public land in the Paurashava may be identified as fallow land or unproductive land. In regulatory term those lands are considered as cultivable waste land and those lands are being fallow during five consecutive years. Those lands may be utilized under the guidance of Cultivable Waste Land (Utilization) Ordinance, 1959 (Ordinance No. E.P. XIII of 1959).
13. The Paurahava should raise its efforts on the imposition and realization of betterment fees to raise its income. In this case, East Bengal Betterment Fees Act, 1953 may be enforced.

10.4.2 Implementation, Monitoring and Evaluation of the Landuse Plan

Implementation through Multi-Sectoral Investment Program: Major infrastructure development works such as primary roads, water supply, drainage, etc., will largely be controlled by Government. Public works requires efficient co-ordination through the Multi-Sectoral Investment Programme (MSIP).

Objective of a Multi-Sectoral Investment Programme (MSIP) will match a list of the development projects with the funding stream necessary to implement them. There are two basic activities that would determine the contents of MSIP. One activity would be to prioritize and schedule the investment projects of all public agencies so they will collectively help to achieve the development goals and objectives of the Landuse Plan. Second activity would be to analyze the source and availability of fund for the prioritized list of development projects.

Implementation through Action Plans and Projects: Action Plans and Projects will be the implementation plans to solve problems at the local level. Action plans will take a direct approach toward plan implementation with a minimum of research, reports or elaborate planning methods. These projects will be easily identifiable and will require minimum resource.

Implementation through Development Control: Landuse zoning is one of several methods of plan implementation to be considered. In all cases where some form of development, landuse control may be applied; careful consideration requires the following ideologies:

- purpose to be achieved by the development controls;
- where controls should be applied;

- what aspect of development needs to be controlled;
- what type of development controls are required;
- what degree or level of development control is required;
- who will be affected by the required control;
- who will be affected by the controls and in what manner;
- when the controls should be applied;
- what will be the likely impact of the controls;
- how and by whom will the controls be administered and enforced.

Development control as an instrument of plan implementation may be selectively applied within the Landuse Plan. Development controls would also be varied in intensity and detail to suit the particular circumstances. It is important that they should be clear and easily understood by all parties concerned. Since the entire Paurashava Master Plan 'package' has become statutory, development controls associated with its component plans would also be statutory.

Implementation by Facilitating Private Investment: Another approach that would be taken by government toward plan implementation will be to guide and facilitate investments made by the private sector. Government can achieve this with relative ease and at very low cost by setting up a legal and operational framework, coupled with suitable incentives, to facilitate land consolidation, plot boundary readjustment, efficient lay out of plots and provision of local infrastructure by the private sector. The benefits of this approach would be:

- increased efficiently of the urban land market would make, more private land available to urban households;
- would pass much of the development costs for local infrastructure to the private sector and land market mechanisms;
- would increase in land for development without large cash outlays by government to purchase land for development schemes; and
- would keep provision of land for community facilities virtually no cost to government.

Plan Monitoring

The Landuse Plan would simply be tools for guiding and encouraging the growth and development of the Paurahava in a preferred manner. In a rapidly changing urban environment, the Landuse Plan would require to keep up to date. If this is not done, within a few years it will be obsolete. Therefore, it is imperative that the requirement for regular updating of the Landuse Plan be made a legal requirement.

For implementation of the various programme components of the Landuse Plan appropriate administrative measures will have to be undertaken. This will essentially include project preparation and monitoring of their execution and evaluation. For carrying out all these activities appropriate institutional measures are also be needed.

Evaluation

Monitoring and evaluation of ongoing and implemented projects is essential to keep the future course of action on the right track. An ongoing project should be regularly monitored and handicaps identified to enable taking appropriate measures at the right time.

Post implementation evaluation is also needed to take appropriate measures correcting past errors-from project preparation to implementation.

The top level supervision has to be done by a high level supervisory committee headed by Paurahava Mayor, LGED representative and Local Government Ministry. Other members of the committee will be local Ward Councilors, local community leader/social workers and the Town

Planner of the Paurahava. The committee will supervise implementation works regularly and issue necessary instructions to expedite the works of implementation.

Co-ordination

A Planning Section of Paurahava should have close interaction with the citizen of Paurahava at large in order to make people aware of the benefits of a good plan and, therefore, their social responsibility to promote plan implementation in one hand and also resist contraventions on the other. A specific interactive cell is recommended to operate in this regard with following responsibilities:

- Provide pre-application advice to residents, consultants and developers about landuse management issues and application procedures for the submission of development applications.
- Enforce planning and landuse management related legislation and zoning scheme regulations.
- Issue of property zoning certificates.
- Investigate and resolve landuse management complaints, illegal landuse and prosecuting contraventions.

Such interactive windows may be opened in various convenient locations to ensure ease of the answers to commonly asked questions may be shown in the internet. Besides, those may be shown in the print and electronic media time to time.

In spontaneous areas, while all out people's co-operation is needed for project implementation; there will also be some elements of negotiation. Negotiation will be particularly needed in case of road widening projects. It will be a crucial task for Paurahava to convince the affected people to give up their land for road use. Efforts should be made to convince the land owners on the ground of enhancement of property value due to road widening. In case people refuse to offer land free of cost necessary arrangements may have to be made for payment of compensation. This process of negotiation will be very critical, cumbersome and time consuming, and therefore, has to be handled with utmost care and patience. The best results can be accrued only by wining people's confidence. In case the authority fails to get peoples co-operation they should exercise power of compulsory acquisition of land. Attempts may be made to engage NGOs / CBOs to work as catalysts in negotiation.

Chapter-11
TRANSPORTATION AND TRAFFIC MANAGEMENT PLAN

11.1 Introduction

Transportation occupies a high place in modern life. Transportation has great influence in the advancement of all spheres of life. Transport planning is a science that seeks to study the problems that arise in providing transportation facilities in an urban, regional or national setting and to prepare a systematic basis for planning such facilities. Town and country planning is a science that deals with the study of the urban or country "system" communications through channels. Transport planning is an important part of overall Town and Country Planning, since it deals with the transport network which is an important channel of a communication. Transportation and Traffic Management Plan is one of the Components of Urban Area Plan.

In Bangladesh, Transport Planning is not in practice still. Recently, government has developed the National Land Transport Policy, 2004 in order to provide a safe, integrated, effective transport system. Also, attempt has been taken to link relationship with land, economic activities and road network development. In preparing the Traffic and Transport Management Plan (Component-2) for Swarupkati Paurashava under Urban Area Plan (Volume-II), the Survey Phase and Interim phase has been completed successfully. In precedence of these activities, this plan is incepted.

11.2 Approach and Methodology

Transport study provides special attention to urban transportation planning as it greatly influences the location decisions and travel behavior of people, goods and services. Transportation is critical for the efficiency of towns contributing to their productivity and economic growth. A good network of roads and other transportation mode coupled with an efficient transport management system makes a substantial contribution to the "working efficiency" of cities and towns and enables them to become catalysts for social and economic development. On the other hand, the impact of a poorly designed urban transport system is manifested in terms of traffic congestion, delays, accidents, high energy consumption, high pollution of the environment and inequitable access to services. A well-planned transportation system results in orderly urban growth, greater use of urban public transport, lower vehicular pollution, and shorter auto trips.

A comprehensive transportation study is undertaken to investigate the existing transportation infrastructure, transportation modes and modal share scenario of Swarupkati Paurashava and to estimate the anticipated transportation needs of the town up to the year 2031. Accordingly, the transportation study is conducted to determine the present travel patterns and the characteristics of existing transportation facilities to forecast the future travel demand and develop a transportation plan.

Standard methodology was followed for traffic study in the project area as per the Terms of Reference. A nine hour traffic counting was conducted to assess the traffic volume at the most important traffic point, the zero point of the town at Swarupkati Paurashava. An origin destination (O-D) survey was also conducted at the same point where origin and destination of the traffic passing through this point of the town were recorded. Speed and Delay survey has been done at 6 points on major local roads.

Bus and tempo fleet data were collected from local transport owners' offices like, Bus Owners' Association, Tempo Owners' Association. They also provided information about routes, trips and movement data. Information about bus station and tempo station were collected from the respective owners' association and the Paurashava/District Administration. Year wise data of non-motorized traffic were collected from the Swarupkati Paurashava, where these vehicles are registered.

11.3 Existing Conditions of Transportation Facilities

This section describes existing transportation facilities namely roadway and water way characteristics, modal share of vehicular traffic, level of service which incorporate degree of traffic congestion and delay and analysis existing deficiencies in transport sector of Swarupkati Paurashava.

11.3.1 Road Network

11.3.1.1 Roadway Characteristics and Functional Classification

The primary roads are the urban highways whose function is to channelize the longer movement from one place to another and beyond. The primary road of Swarupkati Paurashava is well connected in north (Banaripara) and South (Pirojpur) directions and these roads maintain connectivity with the outside areas of Paurashava. Moreover, the primary roads are also connected with secondary and access roads and all these roads maintain good connectivity within the Paurashava area. Secondary road cannot provide access to individual buildings because the consequent frequency of interruptions would give rise to traffic dangers. Tertiary road connect secondary road with access road. But in Swarupkati Paurashava most of the roads cannot be defined according to road hierarchy.

From the physical feature survey it has been observed that about 48.73% (31.50 km) of the roads are Pucca, 11.93% (7.71 km) roads Kutcha and the rest of the roads are Semi-pucca (25.42 km). Swarupkati Paurashava has no embankment. There are 5 bridges at Swarupkati Paurashava. All the bridges are pucca and condition of pavement are good. There are 133 culverts and 25 bridges are exist at Swarupkati Paurashava. **Map 11.1** shows existing road network of Swarupkati Paurashava.

Table 11.1: Type Wise Length of Road

Types of Road	Length (in km)	%
Kutcha	7.71	11.93
Pucca	31.50	48.73
Semi pucca	25.42	39.34
Total	**64.63**	**100.00**

Source: Physical Feature Survey, 2011

From the origin-destination survey it has been observed that Swarupkati – Gariapara Road and Thana are the major traffic generation and congestion centers of Swarupkati Paurashava because these are the most important and activity generating locations of the study area. Growth centre, different educational institutions and offices are located in and around of these locations. Also from the traffic volume survey it has become clears that Akalam / Koreana Road has the highest average daily traffic volume

Moreover, water transport network of Swarupkati Paurashava has significant importance in carrying both passenger and goods. Launches and trawlers are used for carrying both passenger and commodity frequently.

11.3.1.2 Mode of Road Transport

There is no public or private bus service available for intra-zonal movement within Swarupkati Paurashava. Intra-zonal movement among the Paurashava area is mostly done through the non-motorized vehicles such as rickshaw, bi-cycle, van, etc. Additionally, people also use some motorized vehicles such as motorcycle, Auto Rickshaw, etc. Rickshaw is the most dominant transport for intra zonal movement. The average percentages of traffic composition are Truck 0.9%, Bus 0.5%, Car/micro-bus 0.8%, Auto rickshaw 5.1%, Motor cycle 5.8%, Rickshaw/van 64.2% and Bi-cycle 22.7%.

Moreover, water transport is also available to carry both passenger and commodity. In plan preparation land transportation has given significant importance and road network has designed considering the alternative mode (waterway network).

11.3.1.3 Intensity of Traffic Volume

Traffic volume survey has been conducted to find out total discharging traffic volume both in peak hour and off peak hour at there is no bus stand in Swarupkati Paurashava.

Peak Hour has been considered from 8.00 to 12.00 and 16.00 to 20.00 because most of the educational and commercial movement has been accomplished within the time periods and traffic characteristics of these time periods is different and higher than other time periods.

As there is a designated day as hat day in Swarupkati Paurashava, working day, weekend and Hat day traffic volume is counted for transportation survey. Survey result shows that non-motorized vehicle (86.9%) acts dominant role in Swarupkati Paurashava.

Figure 2.1 states that Akalam/ Koreana Road has the highest Off Peak Hour Traffic Volume (182.9PCUs) per hour and Swarupkati Union Parishad More to Launch Ghat Road has the lowest Off Peak Hour Traffic Volume (119.5 PCUs) per hour.

Analyzing the characteristics of Peak Hour and Off Peak Hour traffics, it has been observed that the Peak Hour Traffic is more than 2 times higher than Off Peak Hour Traffic in all of the surveyed road sections.

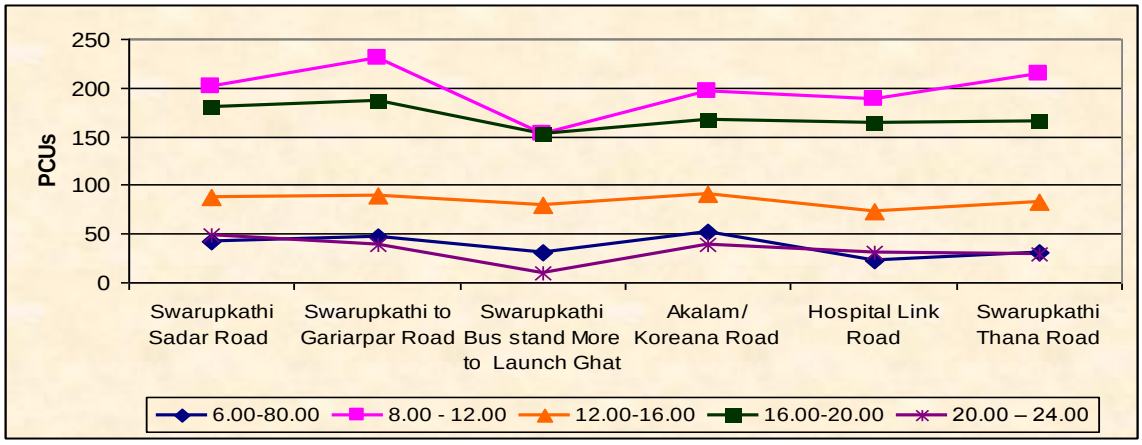


Fig 11.1: Variations of Peak Hour and Off-Peak Hour PCU's

There is also traffic volume variation at hat day and non-hat day. Generally hat time starts from afternoon. So, variation of traffic volume also exists. In case of hat day it has been observed that specially the five road links that are connected with bazaar area face peak hour traffic volume 8.00-12.00 and 16.00-20.00. Figure 11.2 shows the time wise variation of traffic volume at 6 different survey locations.

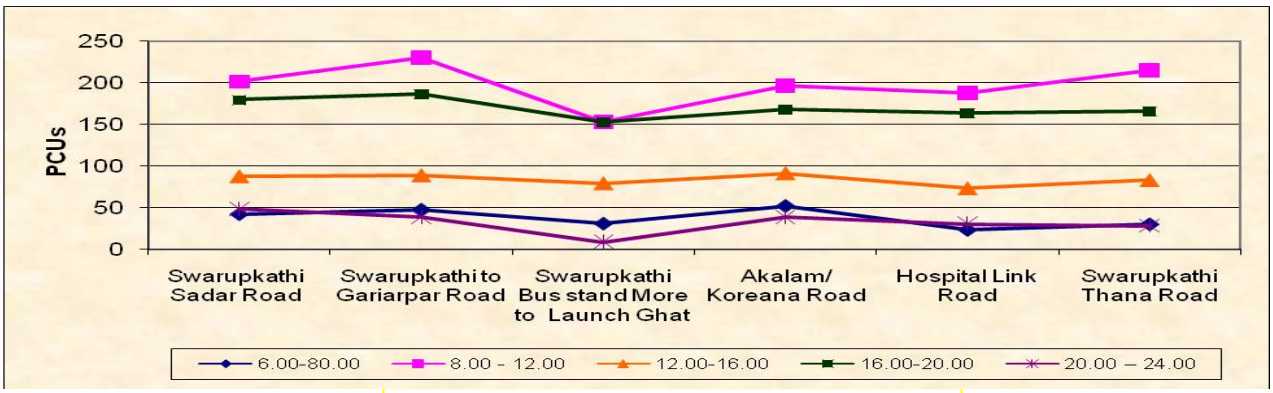


Fig 11.2: Time Wise Distributions of PCU's

11.3.1.4 Level of Service: Degree of Traffic Congestion and Delay

In order to prepare a fruitful traffic management plan, it is really important to evaluate the level of service of the road sections. Level of service of the surveyed road sections has been evaluated using the ratio of volume and capacity. The V/C ratio is defined as the ratio of maximum actual volume of traffic in the peak hour in a road way, expressed in PCUs per hour to capacity of that roadway expressed in PCUS per hour. Capacity of roadway largely depends on number of lane, road width and roadway condition. In Swarupkati Paurashava area all the surveyed road sections are one lane road.

In Swarupkati Paurashava all the roads have free flow and transport density is low. The major inter sections are not signalized so no delay is exist here.

11.3.1.5 Facilities of Pedestrians

Pedestrian facility is one of the Transportation facilities which are required to create a pedestrian friendly environment. In Swarupkati Paurashava, no footpath or pedestrian facility is available for the resident that is one of the vital needs for urban life.

11.3.1.6 Primary Considering Issues for Planning

Major deficiencies of transportation and traffic management are below:

- Present road network has developed without maintaining any hierarchy or planning rules
- Most of the vehicle are moved in this Paurashava are without fitness.
- Narrow road and lack of transport modes are another transportation problems of the area
- Absence of stand and proper parking spaces grounds haphazard condition and congestion.
- Absence of signalized crossing.
- Unbalanced relationship between traffic and landuse.
- The Paurashava has no pedestrian facility that directly hampers the safety of the people
- Lack of traffic control aids, street furniture, street lighting, etc.
- Water transport vehicles are not adequate and service quality is not satisfactory

Roadway Capacity Deficiency

Roadway Capacity deficiencies occur wherever the travel demand on a road is close to or higher than the vehicle capacity of that roadway. In order to identify the road capacity deficiency, it is required to make a comparison between existing Level of service (LOS) of major roads with the standard one. By comparing those it has observed that all the surveyed roads of Swarupkati Paurashava have free flow and transport density is low. Existing capacity of major roads are not consistent with standard capacity limit and the future traffic flow and demand may exceed the limit.

Moreover, the average width of the primary roads and secondary roads of Swarupkati Paurashava are from 7.62 meter 0.61 meter whereas according to the PMO standard the right of way of primary road, secondary road and access road will be 18-24 meter, 13-16 meter and 6-8 meter respectively. So these roads have designed without maintaining any standards. However, these roads have to be widened where possible and essential.

Operational, Safety, Signal and other Deficiencies

- At present, there is no selected authority for the management of traffic at Swarupkati Paurashava. Generally The Police Department's Traffic wings are the main eligible.
- As the roads of Swarupkati Paurashava have free flow of traffic and most of the traffic are non-motorized both in hat and non-hat day, road safety exists naturally in the Paurashava.
- Traffic signaling system is totally absent in the Paurashava. On some specific point of primary and secondary roads, traffic signaling may be needed.

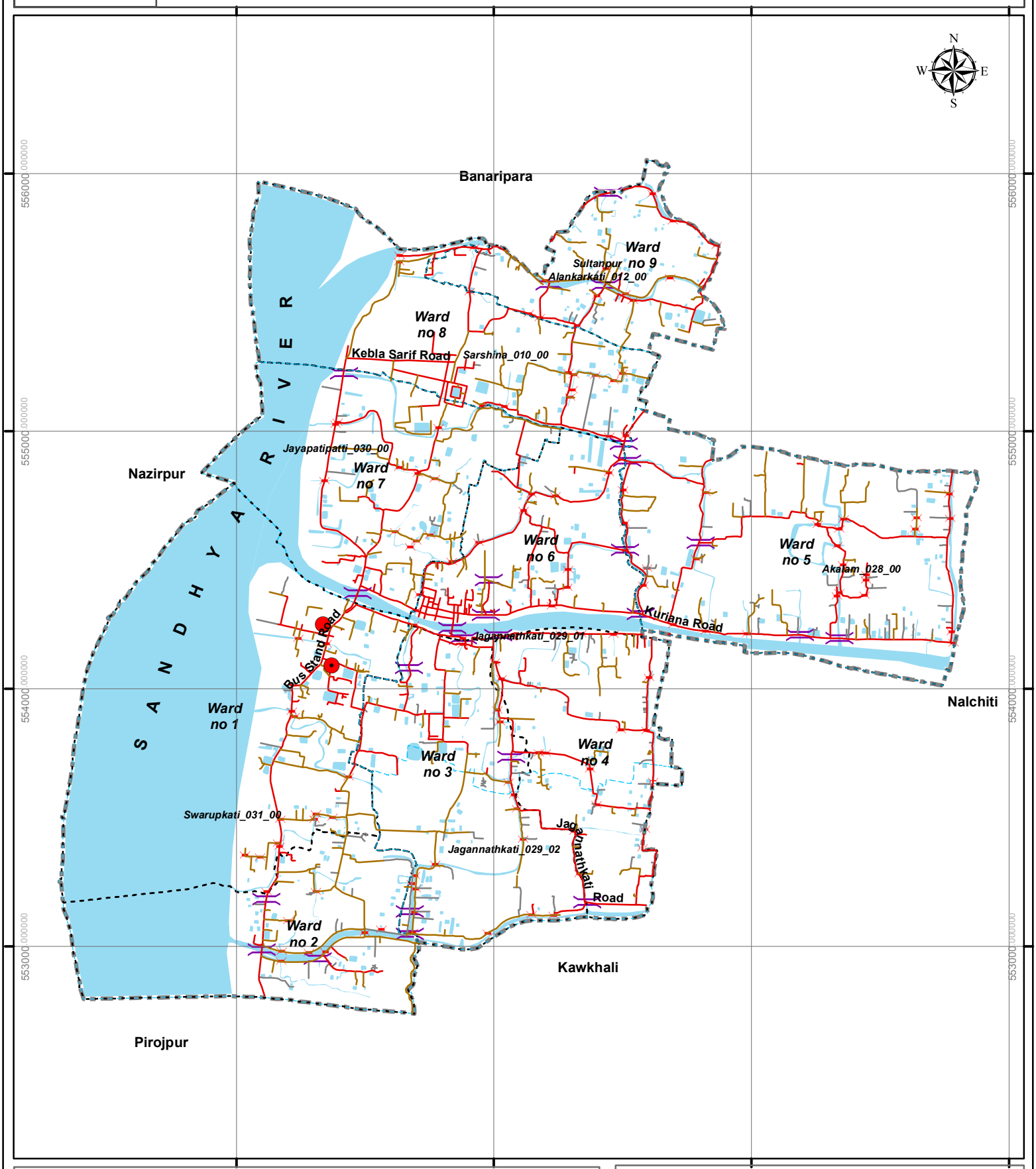
11.3.2 Condition of Water Transport

Water transport network of Swarupkati Paurashava has significant importance for carrying both passenger and commodity frequently. The launch service serves the route Swarupkati to Pirojpur, Barisal and Dhaka. There are two launch terminals at Swarupkati Paurashava. One launch terminal is located at west side of Bus Stand More and another is located at west side of Swarupkati to Gariapara road. Landing stage of launch terminal is made by iron. The condition of landing stage of launch terminal is good.

11.3.3 Condition of Other Transport

There is no existence of railway and airway network at Swarupkati Paurashava.

Map 11.1 Existing Road Network of Swarupkati Paurashava



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

0 0.15 0.3 0.6 0.9 1.2 Km

Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary
- Box_Culvert
- Bridge
- Waterbody
- Pouro Bhavan
- UP Office
- Pucca Road
- Semipucca Road
- Katcha Road

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Ministry of Local Government,
Rural Development and Cooperatives
Local Government Division

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11.4 Future Projections

With the increase of population, demand on travel will be increase with the time. Estimating the demand for transportation facilities and services is one of the most important analysis tasks in transportation planning. The demand includes not only passenger travel but also the movement of goods. Whether conducting a regional transportation planning study or examining the impacts of transportation of a new development site, estimating expected travel demand at some future date is critical point of departure for transportation planning.

11.4.1 Travel Demand Forecasting for Next 20 Years

At Swarupkati Paurashava, the existing road network is quite sufficient for accommodating present volume of traffic. At Swarupkati Paurashava about 11.93% of the roads are kutcha and needs to be constructed as pucca or at least semi-pucca. Moreover, most of the roads are narrow. Road Alignment should be straight in main road for improving transport quality. Widening of these roads and new construction of some roads will act as a vital role for accommodating future traffic volume. Moreover, the people of Swarupkati Paurashava depend on both road network and water transport network. This will also help to reduce pressure on road transport network. Forecasting travel demand requires variety of data such as historical data on traffic, missing link, economic importance, trip generation and distribution pattern, routes choice, modal spilt, etc. Growth direction is also a considerable component for the demand analysis of the road.

11.4.2 Transportation Network Considered

The primary road of Swarupkati Paurashava is well connected in both north south and east west directions within the Upazila areas and the primary roads are also connected with secondary and access roads and all these roads maintain good connectivity within the Paurashava area. But these roads are not wide enough on the basis of standard. So, the narrow roads have to be widened on the basis of standards and katcha roads will be improved with the time and also traffic management system will be improved. Besides, some new roads also have been proposed to accommodate the future travel demand. Moreover, footpath facilities have to be introduced to meet up the demand of pedestrians.

11.4.3 Future Traffic Volume and Level of Service

In the year 2001, the population of Swarupkati Paurashava is about 18083 and after 20 years it will be 35871 (2031). At present highest PCU/hr are about 416.8 at non-hat day and at hat day is about 2040. It means traffic congestion is not alarming.

It is expected that gradual implementation of the components prescribed in the Master Plan will increase traffic volume. But at the same time the roads will be widened and new roads will be constructed. So, the increase traffic will be accommodated by these roads.

After the improvement of roads, commercial and industrial activities will also be boost up. This may increase traffic volume of the area. The proposed transport network and traffic management system will make it possible to remain the traffic scenario stable for next 20 years.

11.5 Transportation Development Plan

The current chapter of the report is about Transport Development Plan covering its development plan proposals and management of the proposed project area up to the year 2031. The report describes existing transportation facilities and proposal on the important facilities such as, bus terminal, truck terminal, rickshaw/van stands, baby taxi/tempo stands and passenger sheds for local bus users.

11.5.1 Road Network Plan

The road network should be planned providing adequate access for vehicles and pedestrians and also be formed an efficient system of inter-communication among all parts of the area. To fulfill these requirements, the network should follow a standard hierarchy. The Road network Plan of Swarupkati Paurashava has been prepared by following the functional road hierarchy.

Definition of different Road Hierarchy			
Primary Road	**Secondary Road**	**Tertiary road**	**Access road**
These are the urban highways (including arterial roads, ring roads and radial roads etc.) whose function is to channelize the longer movements from one part of the city to another and beyond. Dhaka Kuakata Road are this type road. The fundamental design requirements for this type of roads are: ▪ should have minimum number of intersections at which local traffic enters the Primary road ▪ they cannot be used for giving access to individual building or property	They lead off from the form the Primary Road and usually feed down to Tertiary roads. In proposed and existing roads are this types. ▪ they cannot be used for giving direct access to individual building because the consequent frequency of interruptions would give rise to traffic dangers ▪ High Speed cannot be permitted of the multiplicity of road junctions	They usually connect the Secondary Roads with the Access Roads. ▪ they collect and distribute traffic to and from access Roads, housing groups and even individual houses ▪ High speed traffic and through traffic is discouraged	The sole function of access roads is to provide access to houses and properties. They usually connect individual houses with Tertiary Roads.

Reviewing different previous planning proposals after discussions with experts and officials of this project a set of standard for basic infrastructure and services has been finalized, which are as follows:

Table 11.2: Standards of Roads Proposed by PMO

Landuse Category	**Hierarchy of Roads**	**Right of Way (ROW)**
Circulation Network	Primary Roads	150-100 feet
	Secondary Roads	100-60 feet
	Tertiary Road	20-40 feet

Source: UTIDP, PMO, LGED

Swarupkati is a small town with a very low volume of internal and external traffic movement. Considering traffic volume and discussion with Paurashava authority and local stakeholders consultants have established a road hierarchy based on the functional area within the Paurashava as well as the internal and external linkage. Existing Access roads will be connected with Tertiary and Secondary roads for better mobility. Following table shows the standard of future development of road network.

Table 11.3: Standard for Future Development of the Road Network of Swarupkati Paurashava

Landuse Category	**Hierarchy of Roads**	**Right of Way (ROW)**
Circulation Network	Paurashava Primary Roads	80-100 feet
	Paurashava Secondary Roads	40-60 feet
	Paurashava Local Roads	40 - 20 feet

Source: Proposed by Consultants

11.5.2 Design Principals and Standards

In preparing detail design some basic principals have been followed:

- Road Hierarchy Standards provided by PMO
- Relevant regulations of Building construction Act, 1952 (amendment in 1996), followed by Paurashava
- follow up the National Urban Land Transport Policy, 2004
- follow up the Transport planning relevant Books, articles and papers (Ref: Traffic Engineering and Transport Planning, Dr. L.R. Kadiyali)

A) Intersection improvement

This measures can be categorized into 2 types, are as follows:

a. Channelization
b. Improvement of Intersection geometry

a. Channelization

Channelization of intersection at grade is the separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians. Channelization is done for:



Fig 11.3: Channelization Measures at Major Intersections

- Separation of conflicts (by using roundabout, raised island, etc.)
- Reduction of conflict points
- Reduction of excessive pavement areas

b. Improvement of intersection geometry includes:

- Corner Plot widening
- Establishment of Traffic islands

According to Building Construction Act, 1996, in each Corner plot of major intersection, 1m×1m land area has to be open for traffic movement.

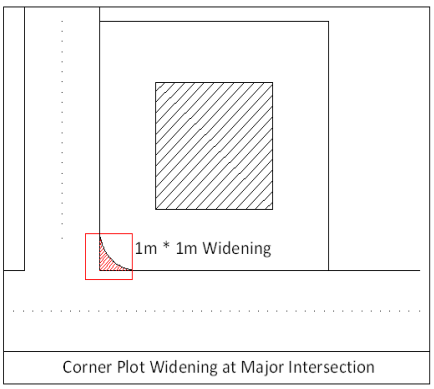


Fig 11.4: Corner Plot Widening at Intersections

B) Land use Proposals at the Major Intersections

According to Building Construction Act, 1996, the construction permission of Shopping Complex, Cinema Hall or similar type of buildings are restricted within 50 m (164 ft) from major road intersections to avoid traffic congestion.

C) Prioritization in ROW Space Allocation according to Road Hierarchy

In pertaining with the National Land Transport Policy, 2004, for promoting an efficient road transport system, provision of Motorized and Non-motorized vehicles is prioritized. Therefore, effective road space allocation and utilization is also emphasized in national policy. At first, a uniform priority has been fixed for designing the whole Road Network Development.

Basis of Prioritization

Prioritization has been formed in light of National Land Transport Policy, 2004.

- To promote the speed and mobilize the activities, motorized vehicles (especially Bus lane) are encouraged
- To make a environmental and economical balance (employment pattern and Income level), provision of non-motorized vehicles are kept
- To ensure safe movement of citizens, footway should be provided

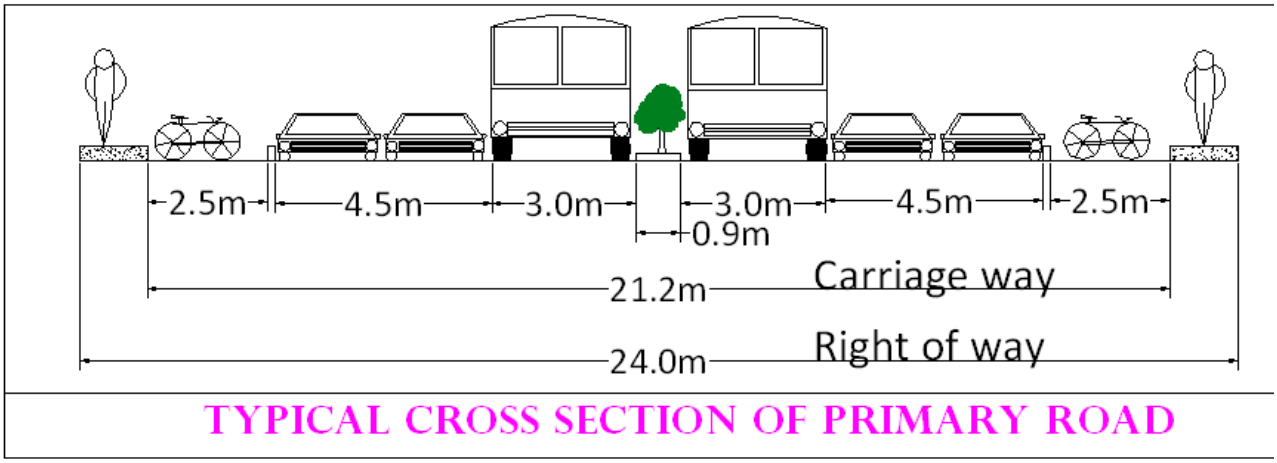
Though, uniform space allocation is formed but Right Of Way (ROW), land use and the demand of different type of vehicles are not same throughout the whole Paurashava area. So, the design priority has been differed at road hierarchy as follows:

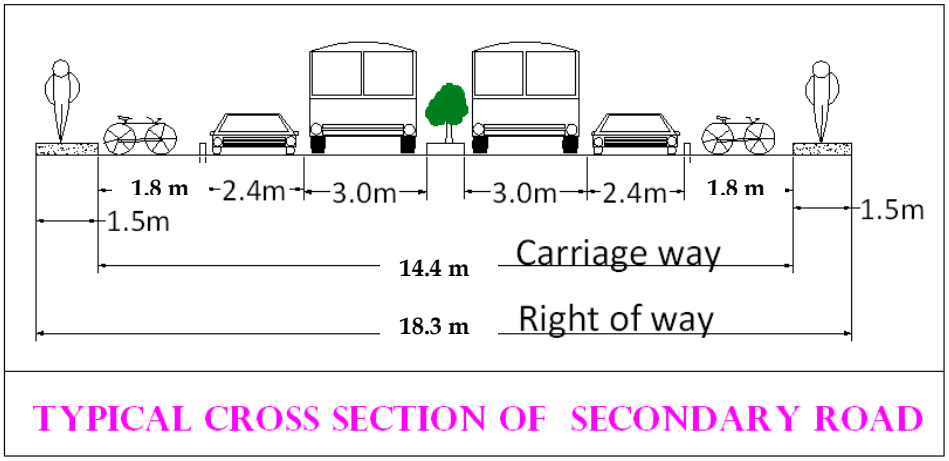
Space Allocation at ROW considering Road Hierarchy



Priority	Primary Road	Secondary Road	Tertiary Road	Access Road
1	Provide one lane (3.0m) for motorized vehicles including Bus, Car and Jeep etc. The width of each lane is minimum 3 m depending on the availability of space.	Provide one lane (3.0 m) for motorized vehicles including Bus, Car and Jeep etc. The width of each lane is minimum 2.5 m depending on the availability of space.	Provide one lane (3 m) for motorized and non-motorized vehicles including Car, Jeep, Motorcycle and Rickshaws etc. The width of each lane is minimum 2.5 m depending on the availability of space.	Provide one lane (3 m) for motorized and non- motorized vehicles including Car, Jeep, Motorcycle and Rickshaws etc. The width of each lane is minimum 2.5 m depending on the availability of space.
2	Non-motorized vehicle paths (Service lane), 2.5m wide in each direction with over-taking lane including physical segregation of .5ft wide and 1ft height concrete block.	Non-motorized vehicle paths (Service lane), 2.5m wide in each direction with over-taking lane including physical segregation of .5ft wide and 1ft height concrete block.	Pedestrian paths as per existing demand (minimum 1.5 m)	Pedestrian paths as per existing demand (minimum 1.5 m)
3	Pedestrian paths as per existing demand (minimum 1.5 m)	Pedestrian paths as per existing demand (minimum 1.5 m)	Provide one lane for motorized and non-motorized vehicles including Car, Jeep, Motorcycle and Rickshaws etc. depending on the availability of space.	
4	2 to 3 or more lanes for motorized vehicles. The width of each lane is minimum 2.5m depending on the availability of space.	2 to 3 lanes for motorized vehicles. The width of each lane is minimum 2.5m depending on the availability of space.		

Figure 11.5: shows the cross section of different types of roads.





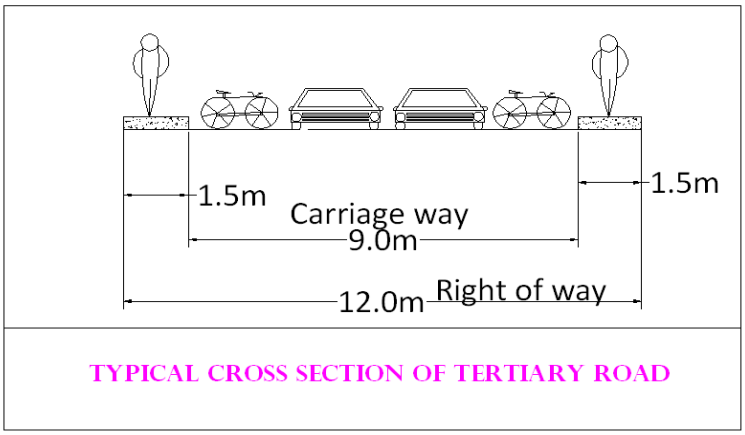


Fig 11.5: Typical Cross-Section of Various Types of Roads

11.5.3 Proposal for Improvement of the Existing Road Networks

The improvement plan for existing road network has been prepared considering two categories, which are as follows:

A. Roads connect Paurashava with Regional Road Network
B. Roads provide internal network of the Paurashava

All of the Road Should be Developed in 20 years implementation time. It will be done in three phases; 1st phase (1st 5 years), 2nd phase (2nd 5 year) and 3rd phase (last 10 year). In the master plan, about 64.76 kilometers roads have been proposed for widening. Phase wise road widening proposal has been shown in Annexure-E.

Table 11.4 Road Widening Proposal for Existing Road According to Hierarchy

Types of Road	Road Width (ft)	Length (KM)	Percentage
Primary Road	80	2.46	3.79
	100	2.49	3.85
Sub-total		**4.95**	**7.64**
Secondary Road	40	17.83	27.54
	50	2.49	3.85
	60	10.20	15.75
Sub-total		**30.52**	**47.13**
Local Road	20	29.29	45.23
Sub-total		**29.29**	**45.23**
Total		**64.76**	**100.00**

Source: Proposed by Consultants

A. Roads connect Paurashava with Regional Road Network

To avoid traffic congestion within the Paurashava, a new bypass road has been proposed from Banaripara to Pirojpur towards the North-South direction. This road has considered the primary entrance of the Paurashava. Secondary road has proposed to connect east west direction of the area.

Hierarchically, the following types of roads have been proposed in the plan:

- major road having rights of way from 80 to100 feet
- secondary road having rights of way from 40 to 60 feet of the right of way

B. Internal Network of the Paurashava

The above mentioned roads would be linked up with the proposed road so that eventually all parts of Swarupkati Paurashava would be well connected.

Here, two types of roads have been proposed to cater the needs of the internal circulation of the Paurashava area. These are:

- secondary road having rights of way from 40 to 60 feet
- local road having rights of way from 20 to 30 feet

Summary of road network proposal has been shown in Table 11.5 and details have been shown in **Annexure E**..

Table 11.5: Summary Proposed Roads of Swarupkati Paurashava According to Hierarchy

Types of Road	Road Width (ft)	Length (KM)	Percentage
Primary Road	80	3.56	4.31
	100	3.77	4.57
Sub-total		**7.33**	**8.89**
Secondary Road	40	21.27	25.78
	50	3.00	3.64
	60	14.82	17.96
Sub-total		**39.09**	**47.38**
Local Road	20	36.00	43.64
	30	0.08	0.10
Sub-total		36.08	43.73
Total		**82.50**	**100.00**

Source: Proposed by Consultants

Existing road network Swarupkati Paurashava covers most of the area of but not interconnected and in scattered condition. In the road network plan, consultants have tried to meet the problem with proper channelization and widening. As a result, proposed new roads (21.51% of total) will make a planned circulation network through the connection with existing roads (78.49% of total).

11.5.4 Proposals for New Roads

To accommodate the traffic volumes about 10-15% land has been considered of total planning area. About 17.75 kilometers new roads have been proposed to ensure accessibility in the area. Phase wise newly proposed Road has been shown in Annexure-E.

Proposed Road Network of Swarupkati Paurashava has been presented on **Map 11.2**.

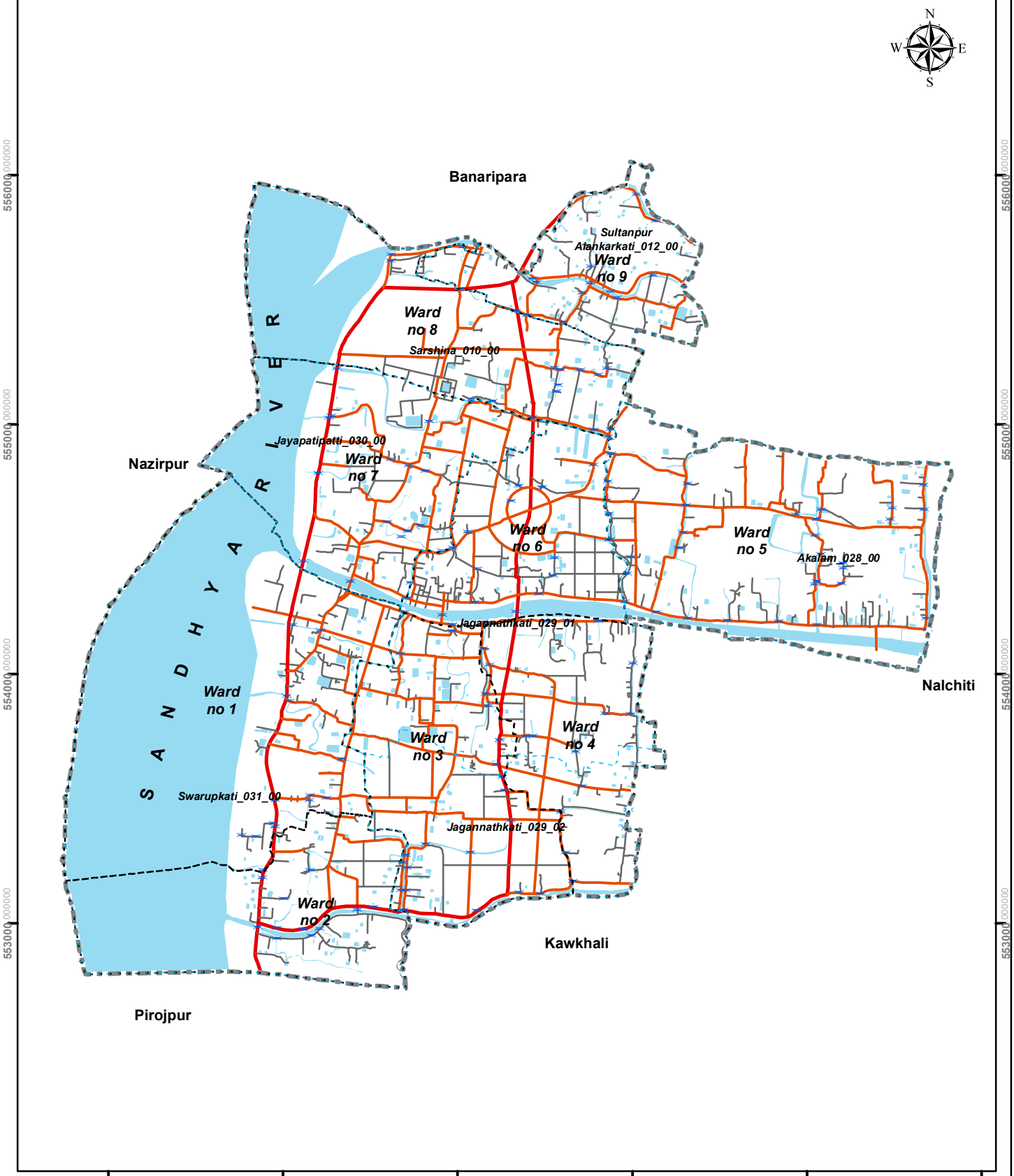
Table 11.6: Summary of New Road Proposal in Swarupkati Paurashava

Types of Road	Road Width (ft)	Length (KM)	Percentage
Primary Road	80	1.10	6.22
	100	1.28	7.21
Sub-total		**2.38**	**13.43**
Secondary Road	40	3.44	19.36
	50	0.51	2.88
	60	4.62	26.05
Sub-total		**8.57**	**48.29**
Local Road	20	6.71	37.83
	30	0.08	0.46
Sub-total		**6.79**	**38.28**
Total		**17.75**	**100.00**

Source: Proposed by Consultants

MAP 11.2

PROPOSED ROAD NETWORK OF SWARUPKATI PAURASHAVA



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

0 0.125 0.25 0.5 0.75 1 Kilometers

Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary
- Local Road
- Primary Road
- Secondary Road
- Waterbody
- Bridge

Government of the People's Republic of Bangladesh
Ministry of Local Government,
Rural Development and Cooperatives
Local Government Division

CONSULTANT
SCPL
Sheltech Consultants (Pvt.) Ltd.
In Association with

11.6 Plans for Other Transportation Facilities

In the field of transportation facilities, the consultant has proposed such facilities as, bus terminal, truck terminal, rickshaw stands, baby taxi/tempo stands and passenger shed for local bus users.

11.6.1 Parking and Terminal Facilities

A) Parking Facilities

Parking facilities at Swarupkati Paurashava has been provided considering two parameters:

- Individual Building: In this context, it is recommended to follow the Building Construction Rules, 1996 (Section-18).
- Area wise Parking Facilities: As per area wise context, it is recommended to provide parking facilities in Commercial and Industrial area. As per Building Construction Act 1996, total 1.26 acre land and 0.80 acre land will be declared as parking zone at commercial area and industrial area of Swarupkati Paurashava which is 5.75% land of respective areas.

B) Terminal Facilities

Considering future travel demand in next 20 years; Terminal facilities for Bus, Truck, Motorcycle, Rickshaw and other existing transports have been provided.

- **Bus Terminal and Bus Stand:** One bus terminals have been proposed at ward no 7. The proposed terminal will comprise about 2.90 acre areas. A bus stand in ward no 5 has been proposed which cover 0.42 acres land.
- **Truck Terminal:** One truck terminal have been proposed at ward no. 3 which cover 1.28 acres land
- **Dockyard:** Present launch terminal has been proposed as a dockyard with an area of 5.18 acres.
- **Other Vehicle Parking:** At Swarupkati Paurashava, a rickshaw stand proposed in ward 6 and 7 which will cover 0.43 acres land. Two Tempu / Baby Taxi stand has been proposed in ward 9 and 7 which will cover 0.10 and 0.72 acres respectively. Also every important intersection has sufficient on street parking area in rights of way.

Table 11.7: Development Proposal for Transportation Facilities

Type of facility	ID	Area (Acre)	Ward no	Plot No	Mouza Name	Phase-wise development		
						1st Phase (1st to 5th year)	2nd Phase (6th to 10th year)	3rd Phase 11th to last 10 year)
Bus Terminal	TF-01	2.90	7	127, 128, 132, 133, 158, 159, 160, 161, 162, 163, 164, 197	Jayapatipatti_030_00	Land acquisition	Development Infrastructure	
Truck Terminal	TF-02	1.28	2, 3	606, 615, 616	Jagannathkati_029_02	Land acquisition	Development Infrastructure	
Dockyard	TF-03	5.18	1	7, 8, 71, 72, 74, 76, 77, 78, 79, 80, 81, 82, 86, 128	Swarupkati_031_00	Development all facilities		
Rickshaw Stand	TF-04	0.23	6	12, 17, 21, 63, 64, 65	Jagannathkati_029_01	Land acquisition and development all facilities		
	TF-05	0.21	7	101, 102	Jayapatipatti_030_00			
Tempu/ Baby Taxi Stand	TF-06	0.72	7	126, 128,129, 196	Jayapatipatti_030_00	Land acquisition and development all facilities		
	TF-07	0.10	9	153, 178	Sultanpur Alankarkati_012_00			

Type of facility	ID	Area (Acre)	Ward no	Plot No	Mouza Name	Phase-wise development		
						1st Phase (1st to 5th year)	2nd Phase (6th to 10th year)	3rd Phase 11th to last 10 year)
Bus Stand	TF-08	0.42	5	99, 102, 106	Akalam_028_00	Land acquisition	Development Infrastructure	

11.6.2 Development of Facilities for Pedestrians, Bicycles and Rickshaws

A) Pedestrians

Proposals regarding pedestrian walkway have been already depicted in proposed road network plan by providing separate walkway as per priority of facilities. About 1.5m footpath has been already shown in primary and secondary roads.

B) Bicycles and Rickshaws

Facility provision of bicycles and rickshaws has been already depicted in space allocation of Right of Way (ROW). Separate Service lane of 2.5 m has been already shown in Primary road and 18.m lane in Secondary Roads in figure 2.5.

11.6.3 Other Transportation Facilities

One fuel station has been proposed at ward no 3 comprising about 0.48 acre of land.

11.7 Waterway Development / Improvement Options

At present, water transport facility has significant importance for carrying passenger and commodity. If waterway network can be developed, this will reduce pressure on road network and will also boost up the economic development of the area. Therefore, some measures should be taken to promote the water transport network in Swarupkati Paurashava area:

- Development of infrastructural facilities
- Dredging and maintenance of existing navigable waterways and for resuscitation of dead or dying rivers, channels, or canals, including development of new channels and canals for navigation
- Carry out removal of wrecks and obstruction in inland navigable waterways
- Ensure co-ordination of Inland Water Transport with other forms of transport and with trade and agricultural interests for the optimum utilization of the available transport capacity
- Promote good quality launch services
- Develop, maintain and operate landing/station and terminal facilities
- Prepare plans or schemes for carrying out any of the above mentioned functions by BIWTA.

11.8 Transportation System Management (TSM)

Fundamental traffic management (TM) regulations have been in practice from the very beginning for example, rules to use a particular side (left or right) of the road. However, the modern objectives of traffic management also include operational efficiency of traffic and improvement of environment.

The main purposes of traffic management are:

- To ensure safe movement of all vehicular and pedestrian traffic
- To improve operational efficiency (junction and network links) in terms of traffic flow

- To improve the environment

The most important aspect of traffic management is its major involvement in its efficient use of basically existing facilities. These may be in the form of:

- Rules and regulations governing the use of facilities. For example, right of use of a roadway, speed limit etc. and
- New works and improvements of limited scale like flow control and segregation measures and devices

11.8.1 Strategies for Facility Operations

a) Parking Management

In Swarupkati Paurashava, parking measures are considered for:

- Bus Stand
- Truck Terminal
- Multimodal Transport Terminal

To provide parking space, following regulations mentioned in Building Construction Rule, 1996 should be provided:

- Parking functions should be maintained with the Parking or Stand lot, Roads cannot used for maneuvering the vehicles
- For entrance and exit of Bus and Truck in the Terminal minimum 4.5 meter width should be provided
- On-Street Parking is applicable if:
    - Angular Parking should be provided within 45^{o}
    - Within 25 meter of Pedestrian Crossing or Intersection, no parking would be allowed
    - No parking will be allowed over the Highway

b) Petrol Pump/ CNG Stations

Location should be away from sensitive, frontages and where it is unlikely to be detrimental to road safety and likely to minimize adverse impacts on other traffic. One Petrol pump can be established in the mixed use zone at Swarupkati Paurashava in Ward no. 7.

11.8.2 Strategies for Traffic Flow and Safety

Following strategies will be adopted to implement circulation network in the planning area:

- A comprehensive road network plan has been prepared for the Paurashava using the hierarchy of road network. Implementation will also be followed following this hierarchy.
- Proposed roads in those areas will be chosen for immediate construction that is needed to promote growth in that area.
- Service roads will be constructed along with the major roads to allow free flow of long distance traffic.
- Bill board should be installed conveying road safety messages and instructions.
- Speed breaker should be provided at the in-front school, colleges and hospitals etc.

11.8.3 Strategies for Traffic Management

- Connect the missing links of primary, secondary and access roads on priority basis.

- Separate lane for non-motorized vehicles should be provisioned on the primary and secondary roads.
- Widen the narrow roads to make networks for efficient circulation.
- Right of Way (ROW) should be kept free from any type of development activities.
- Provide adequate pedestrian facilities and off-street parking wherever needed.
- If requires, tidal flow operation method can be applied in case of some roads. For instance, the morning peak results heavy flow of traffic towards city centre and evening peak results heavy flow towards the outside from the City Centre. In this case, half of other side lane can be utilized for one direction traffic during peak hour.

11.9 Plan Implementation Strategies

The section describes the plan implementation strategies of transportation plan of Swarupkati Paurashava. This also describes the regulation to implement transport pan, evaluation and coordination to implement the transport plan in the Paurashava.

Regulations to Implement the Transportation Plan

Following regulations will be needed for implementation of the plan.

Public Roads Act, 2004: Objectives of the Public Roads Act, 2004 is prescribed in the section 2. Those objectives are to:

(a) Establish ownership and responsibilities for roads;

(b) Establish the framework for managing the road network;

(c) Establish general principles for road management;

(d) Provide for general design and planning principles for roads;

(e) Confer powers and responsibilities on road authorities;

(f) Commit road authorities to provide and maintain safe roads, and to do so using resources efficiently;

(g) Provide for the establishment and classification of public roads;

(h) Provide for data bases of public roads, and public access to them;

(i) set out rights and duties of road users;

(j) Control activities on roads;

(k) Make special provision for restriction on access to roads;

(l) Identify characteristics of new road types;

(m) Provide a legal framework for private sector participation in road construction, operation and maintenance, including tolling of roads;

(n) Establish defenses for civil liabilities; and

(o) Create offences and provide for penalties.

Section 5 has defined public roads as-

(1) The Government may declare a public road.

(2) The declaration may be made in relation to land, whether or not it is currently used for passage by members of the public.

(3) In the declaration, the Government shall classify the public road as:

(a) a national road; (b) a regional road; (c) a Zila road; (d) an urban road; (e) an Upazila road; (f) a union road; (g) a village road.

Motor Vehicles Ordinance, 1983 (Ordinance No. LV of 1983) was enacted in 22nd September, 1983. The Ordinance will be needed mostly for the registration of motor vehicles and issuing of driving license.

Stage Carriages Act, 1861 (Act No. XVI of 1861) was enacted in 7thJuly 1861. Section 1 of the Act has defined the term Stage Carriage and said, "every carriage drawn by one or more horses which shall ordinarily be used for the purpose of conveying passengers for hire to or from any place in Bangladesh shall, without regard to the form or construction of such carriage, be deemed to be a Stage Carriages within the meaning of this Act." Again, according to the section 2, no carriage shall be used as a Stage Carriage unless licensed by a Magistrate.

The Paurashava may, in communication with the RHD and LGED and with the prime approval from the Government may enforce the regulations as mentioned above. Again, some of the relevant regulations of developed countries may be enforced by the appropriate authority for the betterment of accessibility, road safety and road management. In connection with this concept, **Highways Act of England and Wales** may be followed.

According to the section 70(1a) of the **Highways Act of England and Wales**, the owner or occupier of any structure and the owner or occupier of any land on which a structure is situated shall take all reasonable steps to ensure that the structure or the use of the structure is not a hazard or potential hazard to persons using a public road and that it does not obstruct or interfere with the safe use of a public road or the maintenance of a public road.

(b) Where a structure or the use of a structure is a hazard or potential hazard to persons using a public road or where it obstructs or interferes with the safe use of a public road or with the maintenance of a public road, a road authority may serve a notice in writing on the owner or occupier of the structure or on the owner or occupier of any land on which the structure is situated to remove, modify or carry out specified works in relation to the structure within the period stated in the notice.

(2 a) The owner or occupier of land shall take all reasonable steps to ensure that a tree, shrub, hedge or other vegetation on the land is not a hazard or potential hazard to persons using a public road and that it does not obstruct or interfere with the safe use of a public road or the maintenance of a public road.

(b) Where a tree, shrub, hedge or other vegetation is a hazard or potential hazard to persons using a public road or where it obstructs or interferes with the safe use of a public road or with the maintenance of a public road, a road authority may serve a notice in writing on the owner or occupier of the land on which such tree, shrub, hedge or other vegetation is situated requiring the preservation, felling, cutting, lopping, trimming or removal of such tree, shrub, hedge or other vegetation within the period stated in the notice.

Again, section 71(1a) said that, any person who, without lawful authority or the consent of a road authority-

(i) erects, places or retains a sign on a public road, or

(ii) erects, places or retains on a public road any caravan, vehicle or other structure or thing (whether on wheels or not) used for the purposes of advertising, the sale of goods, the provision of services or other similar purpose, shall be guilty of an offence.

Section 76(1) of the **Highways Act of England and Wales** have provisioned regulations for a road authority and said, a road authority may-

(a) construct and maintain drains in, on, under, through or to any land for the purpose of draining water from, or preventing water flowing onto, a public road,

(b) use any land for the temporary storage or the preparation of any gravel, stone, sand, earth or other material required for the construction or maintenance of a public road.

Implementation, Monitoring, Evaluation and Coordination of the Plan

Implementation through Multi-Sectoral Investment Program: Major infrastructure development works such as primary roads, secondary roads, transportation facilities etc., will largely be controlled by Government. Public works requires efficient co-ordination through the Multi-Sectoral Investment Program (MSIP).

Objective of a Multi-Sectoral Investment Program (MSIP) will match a list of the development projects with the funding stream necessary to implement them. There are two basic activities that would determine the contents of MSIP. One activity would be to prioritize and schedule the investment projects of all public agencies so they will collectively help to achieve the development goals and objectives of the Transportation and Traffic Management Plan. Second activity would be to analyze the source and availability of fund for the prioritized list of development projects.

Implementation through Action Plans and Projects: Action Plans and Projects will be the implementation plans to solve problems at the local level. Action plans will take a direct approach toward plan implementation with a minimum of research, reports or elaborate planning methods. These projects will be easily identifiable and will require minimum resource.

Implementation through Development Control: Landuse zoning is one of several methods of plan implementation to be considered. In all cases where some form of development, landuse control may be applied; careful consideration requires the following ideologies:

- the purpose to be achieved by the development controls;
- where controls should be applied;
- what aspect of development needs to be controlled;
- what type of development controls are required;
- what degree or level of development control is required;
- who will be affected by the required control;
- who will be affected by the controls and in what manner;
- when the controls should be applied;
- what will be the likely impact of the controls;
- how and by whom will the controls be administered and enforced.

Development control as an instrument of plan implementation may be selectively applied within the Urban Area Plans. Development controls would also be varied in intensity and detail to suit the particular circumstances. It is important that they should be clear and easily understood by all parties concerned. Since the entire Paurashava Master Plan 'package' has become statutory, development controls associated with its component plans would also be statutory.

Implementation by Facilitating Private Investment: Another approach that would be taken by government toward plan implementation will be to guide and facilitate investments made by the private sector. Government can achieve this with relative ease and at very low cost by setting up a legal and operational framework, coupled with suitable incentives, to facilitate land consolidation plot boundary readjustment, efficient lay out of plots and provision of local infrastructure by the private sector. The benefits of this approach would be:

- increased efficiently of the urban land market would make, more private land available to urban households;
- would pass much of the development costs for local infrastructure to the private sector and land market mechanisms;
- would increase in land for development without large cash outlays by government to purchase land for development schemes; and
- would keep provision of land for community facilities virtually no cost to government.

Plan Monitoring

The Transportation and Traffic Management Plan would simply be tools for guiding and encouraging the growth and development of an urban area in a preferred manner. In a rapidly changing urban environment, the Transportation and Traffic Management Plan would require to keep up to date. If this is not done, within a few years it will be obsolete. Therefore, it is imperative that the requirement for regular updating of the Transportation and Traffic Management Plan be made a legal requirement.

For implementation of the various program components of the Transportation and Traffic Management Plan appropriate administrative measures will have to be undertaken. This will essentially include project preparation and monitoring of their execution and evaluation. For carrying out all these activities appropriate institutional measures are also be needed.

Evaluation

Monitoring and evaluation of ongoing and implemented projects is essential to keep the future course of action on the right track. An ongoing project should be regularly monitored and handicaps identified to enable taking appropriate measures at the right time. Post implementation evaluation is also needed to take appropriate measures correcting past errors-from project preparation to implementation.

The top level supervision has to be done by a high level supervisory committee headed by the Paurashava Mayor, LGED representative, RHD and Local Government Ministry. Other members of the committee will be local Ward Councilors, local community leader/social workers and the Town Planner of the Paurashava. The committee will supervise implementation works regularly and issue necessary instructions to expedite the works of implementation.

Co-ordination

A Planning Section of Paurashava should have close interaction with the citizen of Paurashava at large in order to make people aware of the benefits of a good plan and, therefore, their social responsibility to promote plan implementation in one hand and also resist contraventions on the other. A specific interactive cell is recommended to operate in this regard with following responsibilities:

- Provide pre-application advice to residents, consultants and developers about landuse management issues and application procedures for the submission of development applications.
- Enforce planning and landuse management related legislation and zoning scheme regulations.
- Issue of property zoning certificates.
- Investigate and resolve landuse management complaints, illegal landuse and prosecuting contraventions.

Such interactive windows may be opened in various convenient locations to ensure ease of the answers to commonly asked questions may be shown in the internet. Besides, those may be shown in the print and electronic media time to time.
In spontaneous areas, while all out people's co-operation is needed for project implementation; there will also be some elements of negotiation. Negotiation will be particularly needed in case of road widening projects. It will be a crucial task for Paurashava to convince the affected people to give up their land for road use. Efforts should be made to convince the land owners on the ground of enhancement of property value due to road widening. In case people refuse to offer land free of cost necessary arrangements may have to be made for payment of compensation. This process of negotiation will be very critical, cumbersome and time consuming, and therefore, has to be handled with utmost care and patience. The best results can be accrued only by wining people's confidence. In case the authority fails to get peoples co-operation they should exercise power of compulsory acquisition of land through Acquisition of Requisition of Immovable Property Ordinance, 1982. Attempts may be made to engage NGOs / CBOs / RHD / LGED to work as catalysts in negotiation.

Chapter-12
DRAINAGE AND ENVIRONMENTAL MANAGEMENT PLAN

12.1 Drainage Management Plan

This chapter states about goals and objectives, and methodology of Drainage Development Plan. An inventory of the existing drainage system of Swarupkati has been made as a part of the comprehensive topographical survey to be taken-up under this project. While assessing the drainage conditions, the serviceability, structural conditions, obstruction, siltation, blockages are taken into consideration. And finally describe the drainage and environmental management plan, and its implementation strategies.

12.1.1 Goals and Objectives

Provision of drainage facilities are important concern to human settlements to create better living environment. Failure to provide the adequate drainage facilities results in flooding and detrimental environmental quality. Drainage of high rainfall region particularly in the context of Barishal region is very important. The objectives of drainage planning are described as follows:

- To analyze drainage aspects in the planning of the Paurashava.
- To study geological fault and lineament of the project area and its surroundings.
- To study the existing water development, flood protection and flood control project (if any) in the area and their impacts in the Paurashava plan.
- To present planning options for drainage of the future Paurashava area.
- To study conservation of the natural resources like parks, open space, water bodies, existing ponds etc.
- To conserve place of historical, architectural (if any) and agricultural importance including natural fisheries.

12.1.2 Methodology and Approach to Planning

Drainage Network Survey for Swarupkati Paurashava has been carried out through the guideline of ToR .In this survey explore the existing drainage network system at Swarupkati Paurashava. The main vision of this survey is explored the length, depth, flow direction, coverage area and satisfactory level of the Paurashava inhabitants. The information of drainage network gathered from topographic, socioeconomic and physical feature survey (detail was given in Chapter 6, Section 6.2 of Swarupkati Survey Report). Major feature of drainage and environment survey are as follow:

- Survey the main drainage channels from their heads to the outfalls and to estimate their capacity to discharge water.
- Collect and analyze meteorological data over time in the area to determine the meteorological conditions and predict storm surges.
- Determine the efficiency of the present drainage systems and make recommendation to government.
- Organize a public enlightenment campaign to expose the adverse effects of dumping refuse in drainage channels, through a mass media meeting.
- Drainage channels were surveyed by leveling from the head of the channels to the outfall using a surveyor's level. A zero datum was chosen at the head of each channel. This zero

height was then used to level the channel from the head to the toe or outfall. In areas where water flow was observed, the velocity of the flow was recorded. The flow velocity was calculated by timing the flow rate within a 3-5m length of channel. In areas where sediment or refuse was observed to accumulate in the bottom of the channel, the thickness of such sediment or refuse was measured.

- A questionnaire was administered to local residents to collect information about flooding, refuse disposal and drainage channel patterns from local residents along flood prone areas. The answers to the questionnaire were statistically analysed and use to decipher resident's opinion on the problem of flooding.

12.2 Existing Drainage System/ Network

12.2.1 Man Made Drains

Paurashava has only 1.68 Km of pucca drainage network at Swarupkati Paurashava office area. This drainage network served mainly within the area of beside Shitlar Khal and North-West Side of ward 6. Maximum people of the Paurashava deprived from drainage facility at Swarupkati Paurashava. Table 12.1 shows inventory of major drain in Swarupkati Paurashava.

Table 12.1: Existing Inventory of Drains

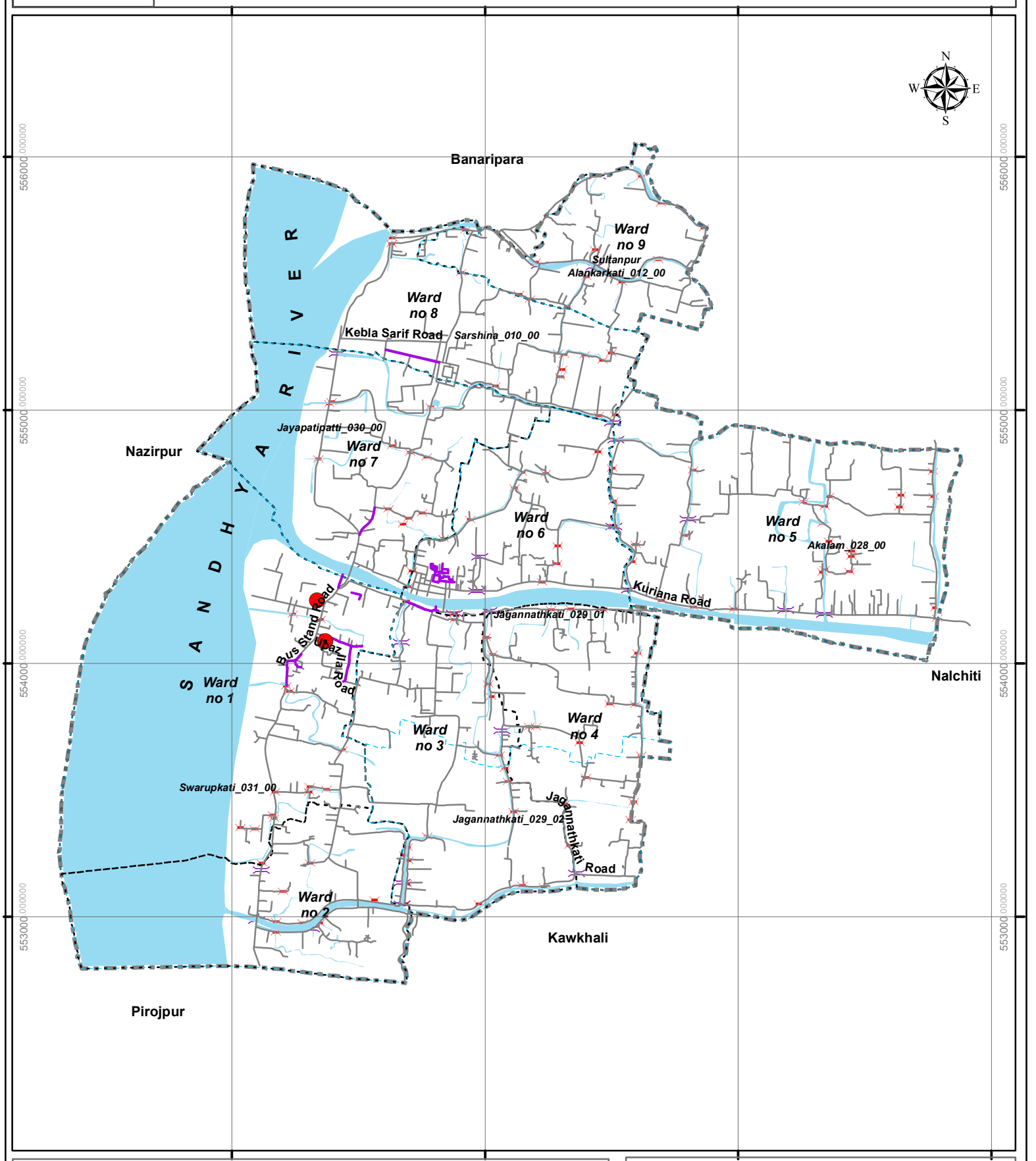
Id	Type	Width (in m)	Length(in m)	Ward no	Connectivity	
					Start	End
1	Pucca	0.50	128.73	Ward no 7	Ward-7	Ward-7
2	Pucca	0.50	46.31	Ward no 1	Ward-7	Ward-1
2	Pucca	0.50	8.06	Ward no 7	Ward-7	Ward-1
3	Pucca	0.50	56.74	Ward no 1	Ward-1	Ward-1
4	Pucca	0.50	376.91	Ward no 1	Ward-1	Ward-1
5	Pucca	0.50	203.64	Ward no 1	Ward-1	Ward-1
6	Pucca	0.50	217.06	Ward no 8	Ward-8	Ward-8
7	Pucca	0.50	382.52	Ward no 6	Ward-6	Ward-6
8	Pucca	0.50	81.66	Ward no 3	Ward-6	Ward-6
8	Pucca	0.50	65.30	Ward no 6	Ward-6	Ward-6
9	Pucca	0.50	111.37	Ward no 6	Ward-6	Ward-6

Source: Physical Feature Survey, 2010

Table 12.1 shows the ward wise manmade drainage coverage in Swarupkati Paurashava. Total man made drainage coverage in Swarupkati Paurashava for an area of 0.21 acres and it cover only Ward nos. 1, 3, 6, 4, 7 and 8. The highest drainage coverage concentrates in ward no. 1, total 0.09 acres drainage coverage exist in this ward. **Map 12.1** Shows the existing Drainage Network of Swarupkati Paurashava

Map 12.1

Existing Drainage Network of Swarupkati Paurashava



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

0 0.15 0.3 0.6 0.9 1.2 Km

Legend

- Pouro Bhavan
- UP Office
- Bridge
- Box Culvert
- Paura Boundary
- Ward Boundary
- Mouza Boundary
- Existing Road
- Existing Drain
- Primary Drain

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12.2.2 Natural Canal and River

General Description of Natural Canals

The existing natural canal network is spread like tree roots in total Paurashava area. In some portion of the area the condition of the khal and irrigation canal are being encroached by the local people and also by local authority and the situation is deteriorating day by day. So, it should be given much concern to sustain the natural canal.

Sandhya River passes western portion of the project area. It has been observed from the physical features survey that about 3.07 km of rivers and 27.97 km of khals/canals are passing through the project area. Table 12.2 shows the length and connectivity of Khals of Swarupkati Paurashava. and ward wise area coverage of the canals are presented in table 12.3.

Table 12.2: Drainage Coverage of Existing Khals in Swarupkati Paurashava

Name	Width (in m)	Length (in m)	Starting Point Connection	End Point Connection
Canal-1	5.56	4515.58	Ward-8	River
Canal-2	5.69	503.91	Ward-1	River
Canal-3	4.25	886.36	Ward-7	Ward-7
Canal-4	3.48	1317.55	Ward-6	Ward-7
Canal-5	4.34	816.15	Ward-1	River
Canal-6	6.71	2167.22	Ward-6	Ward-2 (shitlar Khal)
Canal-7	6.17	843.35	Ward-3	River
Gonoman Khal	9.71	4594.13	Ward-4	River
Mohamodkati Khal	5.43	1105.34	Ward-9	Ward-5 (Shitlar Khal)
Rahulkati Khal	8.86	2666.42	Ward-5	Ward-5 (Shitlar Khal)
Sarshina Khal	8.06	1529.95	Ward-6,8	Ward-7
Shitlar Khal	26.31	7021.54	Ward-5	River

Source: Physical Feature Survey, 2010

River

The Sandhya River passes through the western part of the paurashava. Due to river erosion the river has eroded the border of ward no. 01, 02, 07 and 08. Total length of the Sandhya River passing along the north and western border of Swarupkati Paurashava is 3.07 km.

Beel/Marshland

There is no existence of Beel/Marshland at Swarupkati Paurashava.

Other Water Bodies (Pond-Dighi-Ditch and Dyke)

At Swarupkati Paurashava, about 36.31 acre areas are under water bodies comprising ditch and pond. There are about 20 ditches covering 0.87 acre area and 479 ponds comprising 35.46 acre area. Among the all wards ward no. 7 has the highest number of ditches and ward no. 3 has the highest number of ponds.

Table 12.3: Ward-Wise Area Coverage of Existing water bodies at Swarupkati

	Ditch		Pond		Total	
Ward No.	Number	Area (acre)	Number	Area(acre)	Number	Area (acre)
W-1	4	0.18	41	4.41	45	4.59
W-2	3	0.11	43	2.34	46	2.45
W-3	2	0.09	76	5.93	78	6.02
W-4	0	0	43	2.35	43	2.35
W-5	2	0.12	57	4.2	59	4.32
W-6	1	0.01	43	3.83	44	3.84
W-7	4	0.27	57	5.3	61	5.57
W-8	0	0	45	3.68	45	3.68
W-9	4	0.07	74	3.42	78	3.49
Total	20	**0.85**	479	**35.46**	**499**	**36.31**

Source: Physical Feature Survey, 2010

12.2.3 Topographic Condition of Existing Drainage Network

Existing natural drainage network and direction of natural flow depends on the elevation of the area. The minimum and maximum ground level varies from 1.17m to 3.40m and average height is 1.67m. From the survey, it has been observed that ward no. 2, 3, 4 and 6 are the high land area in respect of other wards. The highest spot value (3.4m) location is at ward no. 2 and lowest value (1.17m) has observed at ward no 7. The flow of storm water will be from the high land to the lowlands and the ultimate destination is the river, cannels and ponds.

12.2.4 Analysis of Peak Hour Run Off Discharge and Identification of Drainage Outfalls

Drain as the structure is generally develops to free our living area from household waste water and rain water of storm water. The daily waste water discharge from a household is negligible so for the drainage design it is necessary to calculate the storm water. Urban storm drainage primarily concerns this surface run-off. The primary objective of urban drainage system design is to drain out this storm water either through open surface drains or through underground sewers. An important parameter for the design of storm water systems is the rate and volume of run-off to be conveyed through the system as a consequence of storms. Run-off estimates are carried out based on knowledge of the occurrences of heavy rainstorms and a relation between rainfall and the corresponding run-off. The quantity of run-off again depends on the geometry and physical properties of the catchments.

Rainfall occurs at irregular intervals, and intensities, and frequency and duration vary within catchments. Due to this random nature of occurrence of rain events, the storm drainage system is designed considering estimated run-off based on the analyses of past rainfall records. A widely used statistical description of heavy rainfall is that of intensity–duration–frequency curves that are developed by processing the data for a large number of storm events observed over a number of years, considering the time variation of the rainfall intensity.

Method Used

Storm and used water: The drains are designed to collect excess rainfall that comes as surface runoff from urban area, convey the runoff and finally discharge them to outfalls. The design of drains involves hydrological computations of rainfall intensity, its frequency of occurrence, duration etc., and the total run off of a particular area. The modified rational method shall be used for calculation of peak runoff for a definite frequency and duration from particular drainage basin. One limitation of this method is that it cannot be used for catchment area greater than 320 acres. The Natural Resources Conservation Service (NRCS) method formerly the US Soil Conservation Service (SCS) method shall be used.

In Modified Rational Method, the overall watershed is divided into zones that contribute to hydraulically significant points of concentration. The boundary of the zones is established based upon local topographic boundaries such as streets, existing drainage systems, etc., using good engineering practice. The design flow rate by Modified Rational Formula is

Q = CsC r IA

Q = Design runoff flow rate (cfs)

I = Rainfall intensity (in/hr)

Cs = Storage coefficient

Cr = Runoff coefficient

A = Drainage area (acres)

Rainfall Intensity (I): The rainfall intensity is the average rainfall rate for a particular drainage basin or sub-basin. The intensity is selected on the basis of the design rainfall duration and return period. The return period is established by design standards as a design parameter. Rainfall intensity with 5 years return period is generally employed for design of primary drains and canal improvement. Rainfall intensity with 3 years return period is employed for design of secondary

drains. The design duration is equal to the time of concentration for the drainage area under consideration. Time of concentration is a critical parameter both for the Modified Rational Equation and SCS method. Time of concentration is generally defined as the longest runoff travel time for contributing flow to reach the outlet or design point, or other point of interest. It is frequently calculated along the longest flow path physically.

Estimating the time of concentration involves identification of an appropriate flow path or paths and estimating runoff travel times along the flow paths. Where post-development conditions include significant pervious surfaces, the time of concentration for just impervious portions of the basin may be required to calculate and compare peak flow response for the basin as a whole against that of the more rapidly-draining impervious surfaces alone. The Time of Concentration composed of the Initial Time of Concentration, sometimes referred to as the Inlet Time or Time of Entry and the Travel Time. Initial Time of Concentration is that time required for runoff to travel from the most remote point in the drainage area to the first point of concentration. This can be determined using the Kirpitch equation. The Initial Time of Concentration must be five minutes or longer. In instances where Initial Times of Concentration are estimated to be shorter than five minutes, five minutes shall be applied.

The second part of the Time of Concentration is the Travel Time that takes the flow to travel along the drain. Channel flow occurs in channels carrying integrated flows, pipes (flowing partially full), and streams. Where storage is not significant, Travel Times can be estimated by applying Manning's Equation, and using estimates of channel characteristics and appropriate roughness values for pipe, channel, or stream features as tabulated in Table 3.4.

$V=[1.49/n] [R^{2/3}] [S^{1/2}]$

V = Velocity of flow, feet/second
N = Manning's roughness coefficient for channel flow
S = Slope, feet/foot
R = Hydraulic radius, feet

And

$T_t = V / (60L)$

T_t = Travel time, minutes
V = Velocity, feet/second
L = Length, feet

Table 12.4: Manning's "N" Values for Channel Flow

Conduit Material	**Manning's "n"**	**Conduit Material**	**Manning's "n"**
Closed conduits		Pipes	0.011-0.015
Asbestos-cement pipe	0.011-0.015	Liner plates	0.013-0.017
Brick	0.013-0.017	Open Channels	
Cement-lined & seal coated	0.011-0.015	Lined channels	
Concrete pipe	0.011-0.015	Asphalt	0.013-0.017
Helically corrugated metal pipe (12'' – 48'')	0.013-0.023	Brick	0.012-0.018
Paved invert	0.018-0.022	Vegetation	0.030-0.400
Spun asphalt lined	0.011-0.015	Earth, straight and uniform	0.020-0.030
Spiral metal pipe (smooth)	0.012-0.015	Earth, winding, fairly uniform	0.025-0.040
3 – 8 in. diameter	0.014-0.016	Rock	0.030-0.045
10 – 12 in. diameter	0.016-0.018	Un maintained	0.050-0.140
Larger than 12 in. diameter	0.019-0.021	Fairly regular section	0.030-0.070
Plastic pipe (smooth interior)	0.01.-0.015	Irregular section with pools	0.040-0.100

Source: Municipality of Anchorage. Drainage Design Guideline, March 2007 ver.4.08 pp-62.

Storage Coefficient (Cs): Due to very flat topography of Bangladesh, the runoff is significantly slow. The rainfall after evaporation and infiltration accumulates first in the depressions, until these have been reached their capacity and then runoff. To take these effects a storage coefficient is used. The value of the storage coefficient is based on average ground slope and the nature of the ground surface. Some of the storage coefficients are listed in Table 3.5

Table 12.5: Storage Coefficients for flat land

Characteristics of surface	Storage Coefficient		
	Slope < 1: 1000	Slope < 1: 500	Slope < 1: 500
Residential urban	0.70	0.80	0.90
Commercial	0.80	0.90	1.00
Industrial	0.70	0.80	0.90
Residential Rural nature	0.60	0.70	0.80
Agricultural	0.50	0.60	0.70
Forest/woodland	0.30	0.40	0.50
Aquatic land	0.30	0.40	0.50
Paved area/road	0.80	0.90	1.00

Source: Countywide Comprehensive Plan (Master Drainage Plan) Exhibit-VIII.

Runoff Coefficient (Cr): The runoff coefficient (Cr) values shall be assigned to the various land use zoning classifications. The runoff coefficient values are based on the slope of the land surface, degree of imperviousness and the infiltration capacity of the land surface. The type of land use can greatly affect the amount of runoff. The quantity of runoff and peak flow rates are increased when the land is developed because the impervious surface area increases with the addition of roads, driveways, roofs, etc. The values of the runoff coefficient (Cr) for each land use classification are listed in Table 3.6

Table 12.6: Modified Rational Method Runoff Coefficients

Land use designation	Runoff Coefficient Cr	Land use designation	Runoff Coefficient Cr
Residential rural	0.30	Agricultural exclusive	0.25
Residential semi urban	0.40	Forest and watershed	0.20-0.25
Residential urban	0.5-0.60	Public facilities	0.30-0.60
Apartment professional	0.70	Forest/ woodland	0.25
Neighborhood Commercial	0.85	Paved area/road	0.99
Community Commercial	0.85	Slum area	0.50-0.55
Industrial	0.70-0.75		

Source: Countywide Comprehensive Plan (Master Drainage Plan) Exhibit-VIII.

Catchment Area: The size and shape of the catchment or sub-catchment for each drain shall be determined by plan metering topographic maps and by field survey. In determining the total runoff of a catchment area the following assumptions to be made:

a. The peak rate of runoff at any point is a direct function of the average rainfall for the time of concentration to that point.

b. The recurrence interval of the peak discharge is same as the recurrence interval of the average rainfall intensity.

c. The Time of Concentration is the time required for the runoff to become established and flow from the most distant point of the drainage area to the point of discharge.

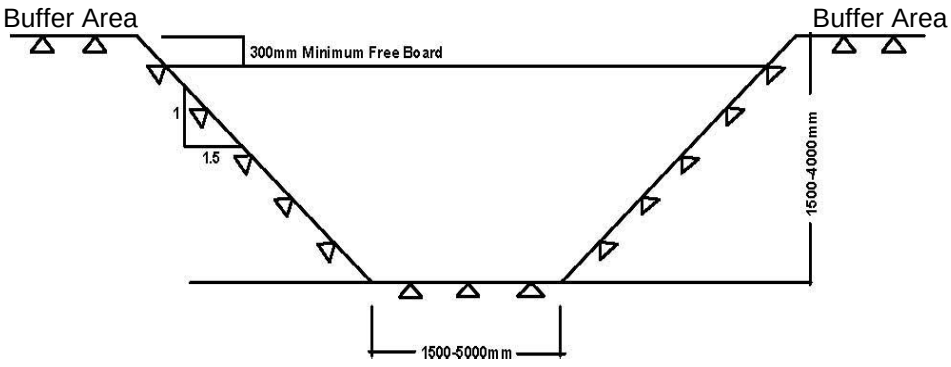
Projection

In implementing various infrastructures for development, drainage is generally given less priority and is normally considered to be the last or final steps for development. Such scenario is particularly true for Bangladesh; although different types of drainage infrastructures are among others by far the heaviest impact on physical infrastructure network. As a result, physical environment, health, hygiene and standard of living suffer seriously. In development projects, Government, Semi-government and Public sector allocated funds are mostly spent on buildings, roads and other more visible infrastructures and drainage comes as the last item of development. By the time, drainage development begins to start, there appears shortage of fund, consequently as a matter of policy-do little or do-nothing situation appears and as eyewash very little is done for drainage development. In case of urban development, if drainage is not given priority, sufferings of the inhabitants will continuously increase with the passage of time.

Drainage development for urbanization should start with drains. Drains can be classified as Plot drains, Block drains, Tertiary drains, Secondary drains and Primary drains. Other natural drainage infrastructure is lowland, outfall areas, khals and rivers. Man-made drains are Plot, Block, Tertiary, Secondary and Primary drains and others are natural drainage infrastructures. In planning for drainage network, care will be given on road network in terms of conflict of drainage and waterways with roads. In the following and subsequent sections major element, their principle, purpose and function of drainage infrastructures are discussed and presented in lower to higher order which will be considered as a method for drainage planning.

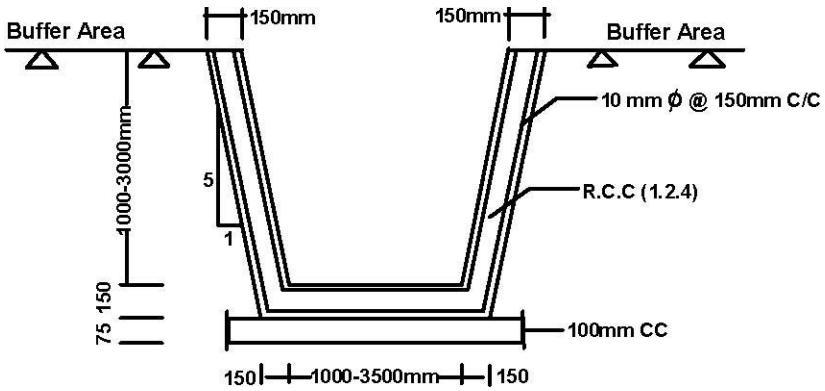
Primary Drain

Primary drains are called as the main drains. Primary drains cover larger storm drainage area than above discussed tertiary and secondary drains. In ascending order its position is third. Its cross-section is larger than other types; carrying capacity is high and is constructed of brick, cement concrete and sometimes reinforced concrete. Primary drains may be of earthen structure provided sufficient land is available and land value is low. Contributing drainage water comes from tertiary and secondary drains. Primary drains discharge its drainage water to outfall, natural khal, river or large lowland area/ Beels. Figure /figures below show the typical cross-section of the primary drains:



A Typical Earthen Primary Drain (Dimensions in mm)

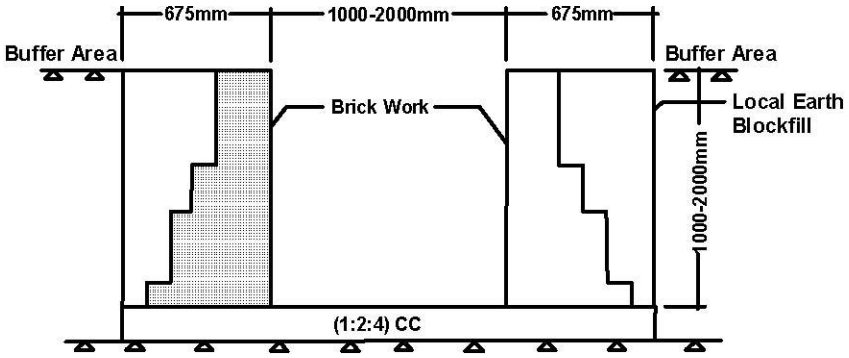
Figure 12.1: Earthen Primary Drain



A Typical RCC Primary Drain (Dimensions in mm)
Figure 12.2: Typical RCC Primary Drain

Secondary Drain

Secondary drains collect discharge from tertiary drains. One secondary drain may receive drainage discharges from several tertiary drains in its course. Size and capacity of secondary drain is much bigger than tertiary drains, its catchment area is also bigger than tertiary drains. Like tertiary drains, it may run parallel to bigger roads. Secondary drains may run along and through the middle of its storm water contributing area. The typical cross-section, size and shape, and its construction material are shown below:



A Typical Secondary Drain (Dimensions in mm)

Figure 12.3: A Typical Secondary Drain

Tertiary Drain

Tertiary drain carry run-off or storm water received from the above mentioned plot drains and block or Mohallah drains. Their catchment area or storm water contributing area is bigger than Mohallah drains. Tertiary drains generally are the under jurisdiction of municipality and city corporation. These drains or drainage networks are constructed and maintained directly by municipalities and City Corporation. These drains are constructed by brick, cement concrete and sometimes by excavating earth in their alignments. These drains may run parallel to road or across the catchment area. Sometimes borrow pits of the road serves as drains provided borrow pits are uniformly and continuously excavated. Borrow pits that serve as drains may be channeled or lined by brick works. Tertiary drains deliver its discharge usually to secondary drains. A typical tertiary drain is shown below:

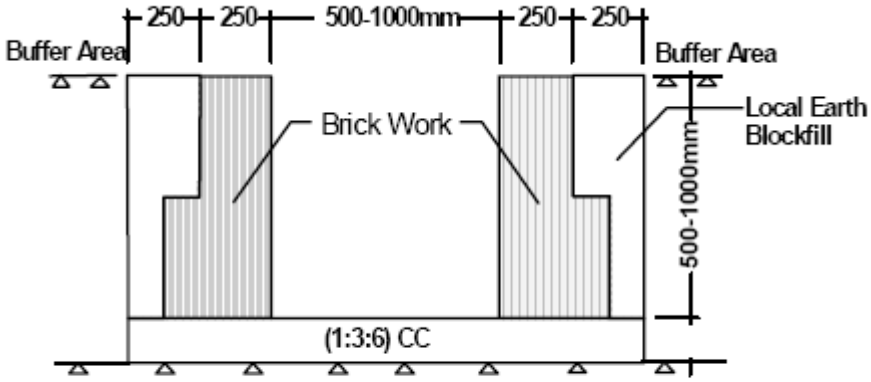


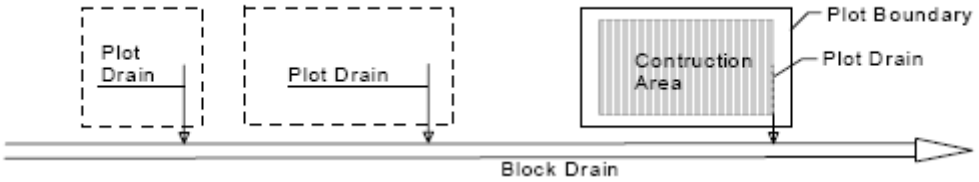
Figure 12.4: A Typical Tertiary Drain

Other kinds of drainage infrastructure are lowland, outfall areas, khals and rivers. Man made drains are Plot, Block, Tertiary, Secondary and Primary drains and others are natural drainage infrastructures. In planning for drainage network, care should be given for road network in terms of conflict of drainage and waterways with roads. In the following and subsequent sections major

element, their principle, purpose and function are discussed and presented in lower to higher order:

Plot Drains

Plot drains are provided around a building on a plot. In most cases, the drain is made of bricks and rectangular in shape that can carry storm water generated in the plot and from the building. Plot drain is connected to the Block or Mohallah drain. The sketch below gives an impression of plot drain usually constructed in a plot and block drains that follow plot drain.



A Sketch Showing Plot and Block Drain
Figure 12.5: Plot and Block Drain

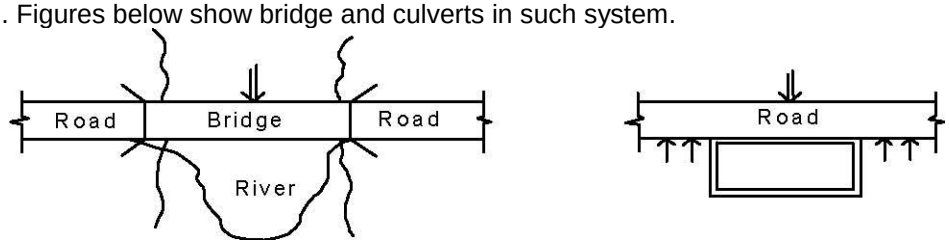
Block Drain

A block drain is provided at the outside of a block that accommodates several buildings of the block. The block drains are made of bricks like plots drains but bigger in size so that it can serve the storm water generated within the block and the buildings and open areas within the block. Sometimes the block drain may serve few neighboring blocks or Mohallahs. Block drains carry storm water coming from the plot drains. The shape of the block drain is also rectangular, but bigger than plot drains and its bottom is lower than plot drain. The sketch of the plot drain above also shows the block or Mohallah drain under plot drain.
Other Drainage Related Infrastructures
In order to facilitate or mitigate drainage issues some infrastructures are provided or used, these are namely

- Bridges, culverts, box culverts
- Drainage sluices, pipe sluices, siphons
- Flood protection embankments and flood walls
- Sluice gates, Regulators, Navigation lock
- Flood protection and drainage structures.

Bridges, Culverts and Box Culverts

These structures are provided at places wherever roads cross the drainage network system. Such structures are built on the roads to free passage of drainage water and sometimes to provide navigation/ boat passages. Consequently the conflict between drainage and road networks is mitigated. Figures below show bridge and culverts in such system.



Definition Sketch Bridge Definition Sketch Culvert
Figure 12.6: Bridge and Culvert

Drainage sluices, pipe sluices and siphons

Drainage sluices, pipe sluices and siphons are provided on the embankments. Embankments protect the area from floods coming from outside rivers and make the project area flood free.

However storm water from rainfall-runoff within the area causes localized flood, drainage congestion and submergence. A sketch below shows a few of such structures.

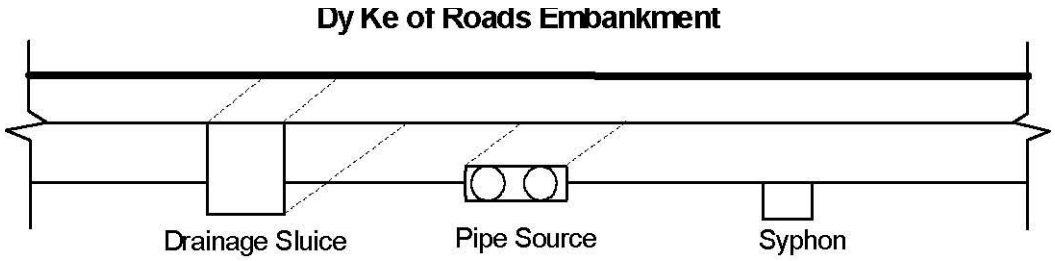


Figure 12.7: A Schematic View of Drainage Sluice, Pipe Sluice and Siphon on Embankment Which Relieve Drainage Congestion.

12.3 Plans for Drainage Management and Flood Control

12.3.1 Plan for Drain Network Development Drainage Network Plan

The Paurashava needs a hierarchical drainage system for easy and smooth discharge of storm and waste water comprising tertiary, secondary and primary drains. The existing natural khals will serve as primary drains.

12.3.2 Proposal for Improvement of the Existing Drain Networks

Paurashava has only 1.85 km pucca drainage network at western part of Swarupkati paurashava. A narrow portion of the paurashava is served by this network system. Based on the results of drainage study it is recommended for the existing drain that:

- Rehabilitate broken drains;
- Cover the open drains based on budget allocation.
- Construction of new channels and rehabilitation of old ones with enough drainage head.
- Construct a new pump drainage network for the area towards Paira River.
- Remove all un-authorized structures, which developed on drainage structures.
- Regular cleaning and maintenance by the concerned authorities.
- Embarking on a sustained public enlightenment to discourage residents from dumping their refuse into drainage channels.

12.3.3 Outfall of Drains

Maximum drainage out fall exists at Swarupkati Paurashava are in river and canal/ khals in different ward and low lying areas. 33 new outfall will be created through the establishment proposed drainage network.

12.3.3.1 List of Proposed New Drains

There is 55.56 km existing main khals will be served as primary drain. Based on this primary drain drainage network system of Swarupkati Paurashava will be established. Table 12.7 shows the summary of proposed drainage facilities at Swarupkati Paurashava. And Map 12.2 shows the drainage network proposal for Swarupkati Paurashava. In additional the Sandhya River flowing

through the western part of Swarupkati Paurashava will serve as the main out fall and main natural drainage network. Phasing of proposed drains has been shown in **Annexure F**.

Table 12.7: Summary of Proposed Drain

Type of Drain	Length (in M)	Length (in Km)	%
Secondary	20272.39	20.27	36.49
Tertiary	35288.21	35.29	63.51
Grand Total	**55560.60**	**55.56**	**100.00**

Source: Proposed by Consultants

12.3.3.2 List of Infrastructure Measures for Drainage and Flood Control Network

There will 4 (Box, Pipe) culvert will be established for drainage and flood control network of Swarupkati Paurashava.

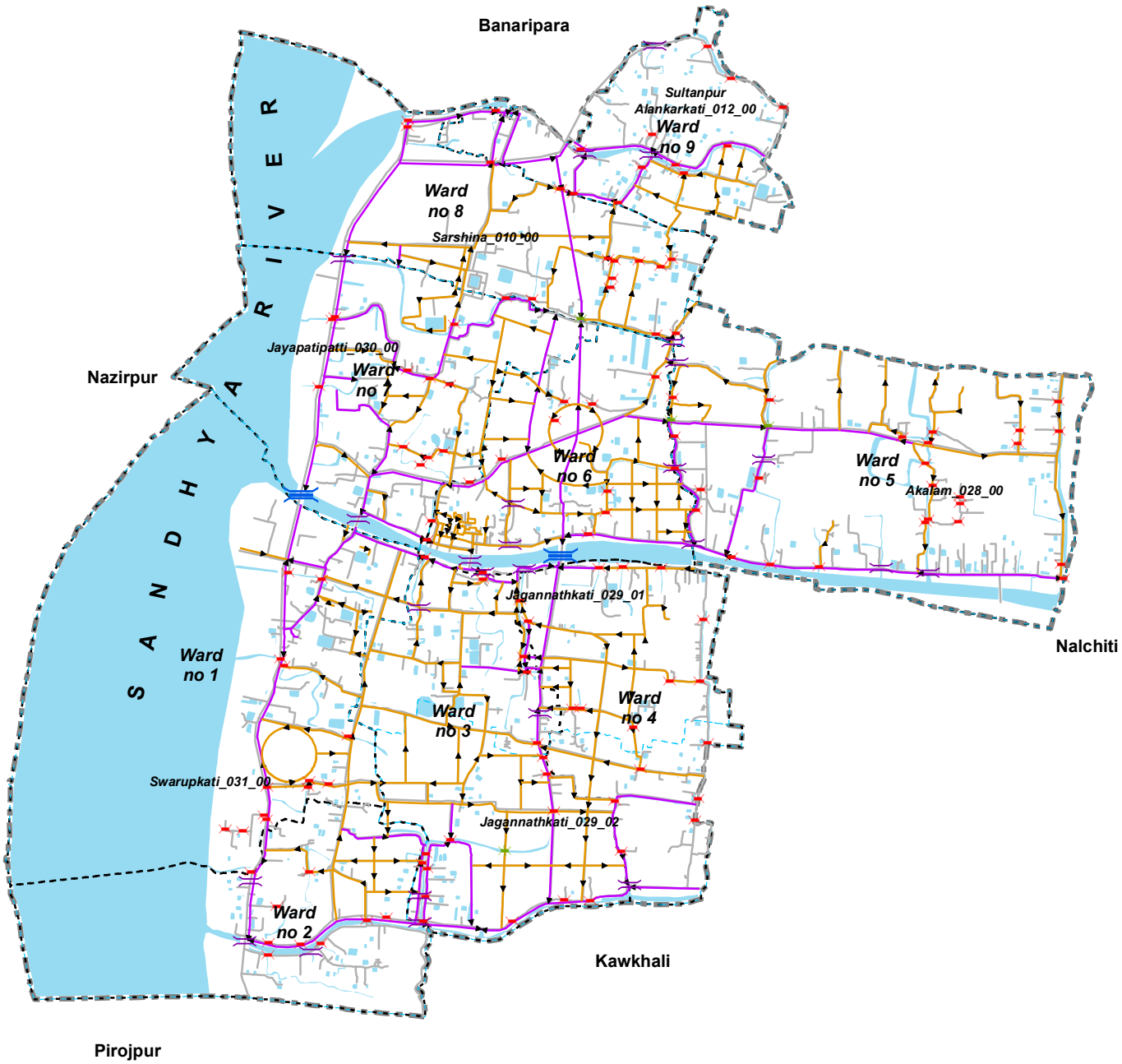
- **Plan Implementation Strategies**
- **Regulations to implement the drainage and flood plan**

Regulations in Bangladesh which are related to drainage and flood management:

1. **The Acquisition and Requisition of Immovable Property Ordinance, 1982,** for acquisition of land to construct drainage and flood control structures. The Bangladesh Water Development Board is main executing organization to implement drainage and flood control activities.
2. **National Water Policy (NWP)-1999,** regulatory policy to construct structures for flood control and drainage management. The Bangladesh Water Development Board is the executing and regulatory organization.
3. **National Water Management Plan (NWMP)-2004,** regulatory plan for management of flood, drainage and water resources of Bangladesh. The Bangladesh Water Development Board is the executing and regulatory organization. Local Government Engineering Department (LGED) is responsible for management of small scale water resources in Bangladesh.
4. **Canal and Drainage Act, 1872** has enacted for excavation of canal and removal of drainage congestion from agriculture land.
5. **Public Health (Emergency Provision) Ordinance, 1944** has enacted for the improvement of drainage and sanitation facilities. Department of Public Health Engineering (DPHE) is authorized to enforce the regulations.

MAP 12.2

PROPOSED DRAINAGE NETWORK OF SWARUPKATI PAURASHAVA



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

0 0.15 0.3 0.6 0.9 1.2 Kilometers

Legend

- Paurashava Boundary
- Ward Boundary
- Mouza Boundary
- Proposed Road Network

Existing

- Box Culvert
- Bridge
- Pipe Culvert

Proposed

- Box Culvert
- Proposed Bridge
- Proposed Water Body

Proposed Drains

- Secondary Drain
- Tertiary Drain

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In Association with

12.4 Environmental Management Plan

This section describes the goals and objectives, and methodology and approach to planning of environment management plan.

12.4.1 Goals and Objectives

Urban planners today are becoming ever more involved with environmental concerns. Environmental planning coordinates development to meet objectives for clean air and water; removal of toxic and other wastes; recycling of resources; energy conservation; protection of wetlands, beaches, hillsides, farmlands, forests, and floodplains; and preservation of wildlife, natural reserves, and rivers. Historic preservation strives to keep important buildings and places as part of the permanent environment and uses them to finance the maintenance costs.

Every development work has both positive and negative impacts on environment. It is wise to consider the environmental impacts and its mitigation at planning stage. Environmental consideration at planning process can make the project sustainable for long period. The objectives of Environmental Study of Swarupkati Structure Plan, Master Plan and Detailed Area Plan project are,

- to study the existing ecological system and environmental problems in the project area;
- to suggest the mitigation measures for all environmental problems;
- to provide the guidelines and assist the planners, engineers and consultants involved in this
- project in preparing environmentally sound Plan for Swarupkati Town and
- to prepare an Environmental Management Plan (EMP) for future environmental management in the area.

12.4.2 Methodology and Approach to Planning

In environmental study, a multi-disciplinary approach is used for studying development project. The present environmental study is based on data collection and sharing with drainage and geology, transport engineering, socio-economic, economic and topographical survey components. A structured questionnaire prepared by LGED for environmental survey has been followed. Environmental study has been carried out through survey of biodiversity of flora and fauna, water pollution, local air pollution problem, drinking water sources, renewable energy, diseases, and major local environmental issues.

Secondary data has been collected from BWDB, UP Offices, Civil Surgeon Office, Thana Fisheries Office, District Agriculture Extension Office and Meteorological Department. Reports of national organizations were also considered as secondary sources of information.

12.4.3 Existing Environmental Condition

With the increase of housing along with population will produce impact on the environment. Rapid urbanization and numerous human activities will deteriorate the environment, if the infrastructure is not developed as per requirement. So, before planning and designing of any development project, possible adverse environmental impact should be studied. The whole range of potential impacts of the project of various environmental components due to various project activities should be identified qualitatively and in quantities, where they are possible. After identification of significant impacts and issues arising out of them, mitigation measures or project modification/ alternatives will have to be proposed to address the environmental impact issues. An environmental management plan should also be formulated for mitigation and protection of adverse effect of the project on the environment. Environmental consideration in the planning process can make the project sustainable for a long period.

12.4.3.1 Geo-morphology Geology, Soil, Sub soil Condition

Swarupkati Paurashava has three main types of soils with different qualities. Calcareous grey floodplain soils are structured grey silt loams to silty clays. The northern part of the area has silty clay loam of the Ganges River. The southern part has grey silty clay of the Meghna River. However, soil condition of Swarupkati Paurashava comprises diversified characteristics.

12.4.3.2 Climate

The Climate of an area is comprised of its Temperature, Average Humidity (%), Rainfall, Wind Speed and Hydrology. This zila bears a hot summer and a mild winter. But almost all the area of the zila is occasionally affected by cyclonic storm surges and tidal bores that originate over the Bay of Bengal during monsoon.

12.4.3.3 Temperature

Temperature rises steadily from January to April, remains fairly steady from April to October and then falls to reach the lowest in January. The maximum average monthly temperature is 37.6°c in April in 2001 and minimum average monthly temperature is 7.3 °c in January in 2003. The summer starts from June and maximum temperature is experienced from April to September. Fig 3.8 present the temperature level (2000-2010) to convey the circumstances more obviously.

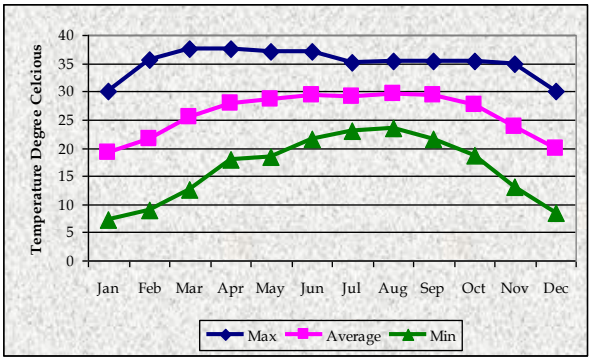


Fig 12.8: Monthly Average Temperature

12.4.3.4 Humidity

The weather of Swarupkati Planning area is not more contradictory from the natural weather of Bangladesh. But due to coastal characteristics, weather of this area has few special characteristics. The humidity is comparatively high in the coastal region rather than other districts of Bangladesh. Fig 3.9 shows the monthly average humidity of Swarupkati Paurashava.

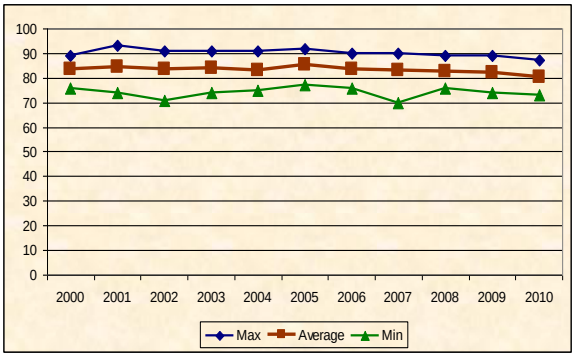


Fig 12.9: Monthly Average Humidity (%) for the year 2000-2010

12.4.3.5 Rainfall

The monsoon starts from June and maximum rainfall is experienced in 2004 and lowest in 2010. Annual rainfall as recorded from 2003 to 2010, the maximum was 180.72 mm in 2004 and lowest in 2010 about 93.08 mm. It is recorded that during June to October there are high volume of rainfall.

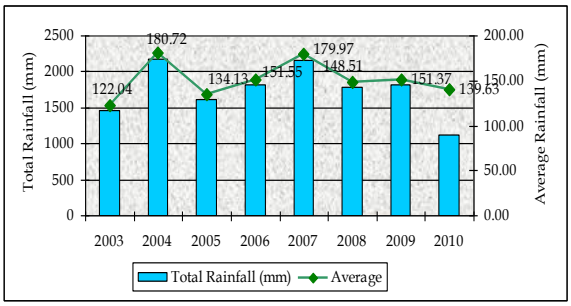


Fig 12.10 shows mean annual rainfall in Bangladesh

12.4.3.6 Wind directions

The general direction of the wind is the same as that in the Gangetic Delta: south-west, changing to east for the greater part of the year, with a north and north-west direction during the months of April and May. Nor-wasters are caused by outbreaks of cold air from Central Asia which enters Bangladesh from the northwest. This wind occurs at the interface between the advancing cold air and warm air already present in the region. The temperature difference across the interface is large enough to generate the large scale turbulence which, in turn, generates thunderstorms along the interface.

More specifically Swarupkati paurashava's most of the time wind is calm (61.5 %) which is followed by 1-2.5 m/s wind speed (21.9%) and 2.5-5 m/s wind speed (14.7%).

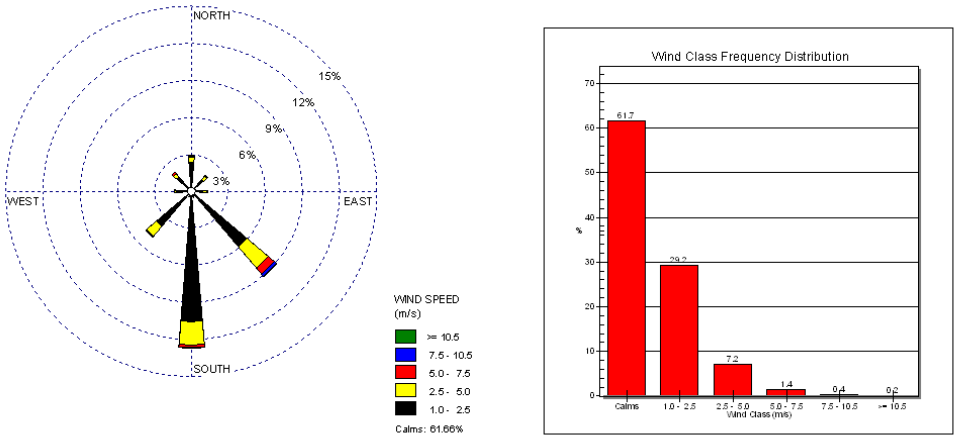


Figure 12.11: Wind Speed Data of Several Years in Bhola
Source: Bangladesh Metrological Department, 2011.

12.4.3.7 Hydrology

Hydrology can be defined as the scientific study of the waters of the earth, especially with relation to the effects of precipitation and evaporation upon the occurrence and character of water in streams, lakes, and on or below the land surface. The hydrological condition of Swarupkati Planning area is getting of inferior quality day by day.

12.4.4 Solid Waste and Garbage disposal

Condition of solid waste management at Swarupkati Paurashava is very poor. According to the opinion of surveyed households, there is no dustbin at Swarupkati Paurashava. Most of the people throw their garbage here and there and especially dump to the river, canal and khal which cause serious environmental pollution and also sometimes clogged the existing drainage network. From the field survey it is also found that there is no clinical waste management system.

House Hold Waste

There is no dustbin at Swarupkati Paurashava. Most of the people throw their garbage here and there and especially dump to the river, canal and khal. There is lack of awareness among the town dwellers.

Industrial waste

There is no such mentionable industry within the Swarupkati Paurashava causing massive environmental problem.

Clinical/ Hospital waste

There is no clinical waste management system.

Existing Waste Management System

At present, there is no solid waste management system at Swarupkati Paurashava. Most of the people threw garbage here and there, which causes serious environmental pollution and also sometimes clogged the existing drainage network.

12.4.5 Brick Field

There is no brick field at Swarupkati Paurashava.

12.4.6 Pollutions

Water Pollutions

Water pollution is one of the major phenomenon in Swarupkati Paurashava. Many causes have been identified for surface water pollution. Maximum surface water are polluted by domestic source and chemical fertilizer used in agriculture field. However, as the area is in coastal region, saline and iron have been contaminated the water. Marine vehicles are also responsible for water pollution of rivers and khals.

Sound Pollution

Noise pollution is a minor phenomenon in Swarupkati Paurashava. However such type of pollution problem is occurring by the road vehicles. But it has been identified that this is not a major problem for all over the area. It is a problem for some particular road side areas.

Air Pollution

The households of Swarupkati Paurashava face the little problem of air pollution. There are fourteen mills inside the Swarupkati Paurashava. These mills have been identified as main source of air pollution. No treatment plant is available in the Paurashava. A number of heavy vehicles (Highway bus and truck) move through the road and extract some pollutant particle that also causes air pollution.

Land Pollution

Land pollution is not found as problem in Swarupkati Paurashava.

Arsenic

There is no arsenic pollution so far has been identified by DPHE or by other study to the ground water of Swarupkati Paurashava.

12.4.7 Natural Calamities and Localized Hazards

Water Logging

Another undesirable phenomenon is water logging. It refers to as both man-made and natural. Ground may be regarded as waterlogged when the water table of the ground water is too high to conveniently permit an anticipated activity. Different causes are responsible for water logging. Poor drainage system is one of the most important causes of water logging in the study area. There is no fixed location where water logged frequently. Most of the areas suffer water logging during heavy rainfall.

Flood

Flood is not common natural disaster at Swarupkati Paurashava. A flood occurs when water covers a large section of land that is normally not covered in water. Naturally floods are occurring in every rainy season but it not stay for more time. Sometimes it overflows the embankment and

causes many losses of property and lives. During flood low lying settlements are mainly affected. Fig 12.11 shows flood situation in Swarupkati.

Cyclone

Cyclone is most common disaster at Swarupkati Paurashava. Every year Swarupkati Paurashava is affected by cyclone. Among them the identifiable disaster was cyclone SIDR in 2007 and Aila in 2009. The disaster SIDR and Aila were a big hazard for their natural climatic condition. It also damages many lives, forests, agricultures and infrastructures. For the help of cyclone affected peoples and livestock during and after cyclone there are cyclone centers at Swarupkati Paurashava. Mainly primary schools are serving as cyclone centers. Fig 3.11shows the cyclone affected year of Swarupkati Paurashava

Earthquake

Earthquake is a natural hazard and the southern area of Bangladesh is not so vulnerable. So, Swarupkati Paurashava is not vulnerable for earthquake. Fig 3.11 shows that Swarupkati is not situated in the vulnerable zone of earthquake.

Fire Hazard

The residents of Swarupkati Paurashava do not normally face the problem of fire.

Land Filling

Land filling creates problem in natural runoff and drainage system. The soil removed by runoff from the land accumulates below the eroded areas, in severe cases blocking roadways or drainage channels and inundating buildings.

Encroachment

Amount of land encroachment at Swarupkati is very little but land encroachment by the side of the canals interrupts the natural drainage system. This may be responsible for the inundation of the Paurashava.

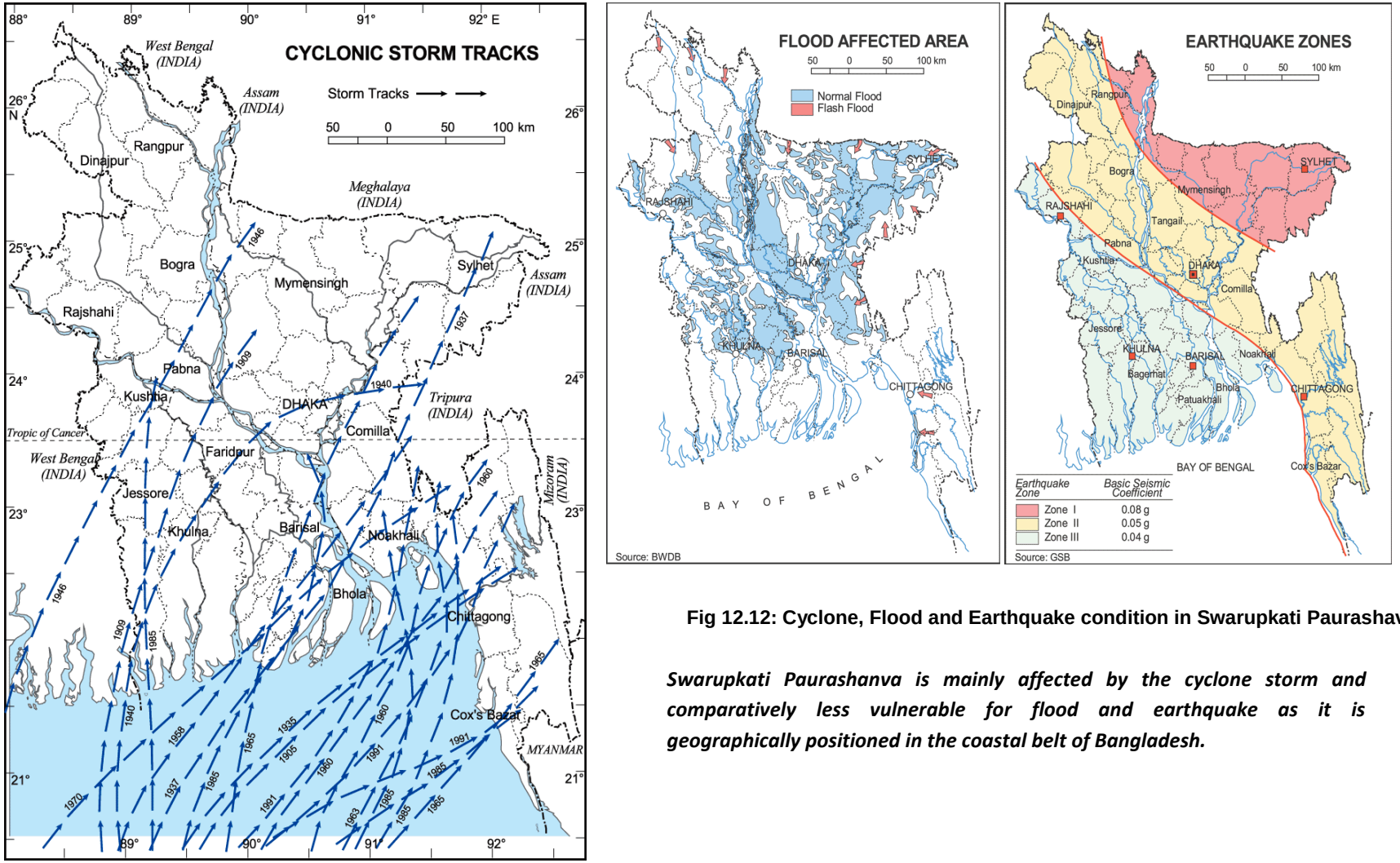


Fig 12.12: Cyclone, Flood and Earthquake condition in Swarupkati Paurashava

Swarupkati Paurashanva is mainly affected by the cyclone storm and comparatively less vulnerable for flood and earthquake as it is geographically positioned in the coastal belt of Bangladesh.

12.5 Plans for Environmental Management and Pollution Control

The urban environment of Swarupkati Paurashava includes both built and natural environment. Urbanization has some increased hazard on natural environment. Where the built environment overburdens the natural environment urbanization cannot be sustainable. The urbanization is vital for countries economic growth. Urban centers concentrate services, infrastructure, labor, knowledge, entrepreneurship and markets. Marketing cities are key generators of economic activities. The urban economics are critically important in national growth and the achievement of development goal. Urbanization is unavoidable. So in every phase of planning processes all these environmental issues shall be evaluated and proper measure shall be taken to minimize the adverse environmental impacts on land pollution, water and air quality, biodiversity resources and marine resources by energy usage, transport network, waste management, slum improvement, disaster etc.

12.5.1 Proposals for Environmental Issues

12.5.1.1 Solid Waste Management Plan

An improved sanitary and sewage system consists of a network of sewers for collection of sewage from the service areas of town and conveying those to the treatment plant. Paurashava has got limited resource and affordability to maintain such a system, as such low-cost sanitary system comprising sanitary/unsanitary latrine is being followed all over the area. To identify the most suitable types of low-cost sanitary latrines for the community; to identify the constraints in installation and use of sanitary latrines and to monitor the behavioral changes as well as the health improvement after providing some sanitary facilities with the intensive motivational work for practicing appropriate defecation systems.

Criteria for Selection of Solid Waste Dumping Site

Usually the Paurashava does not have its own solid waste disposal site. For selection of solid waste dumping site, the following criteria should be considered.

- Site should not be situated just beside any river and canal
- Site should be located to minimum fuel distance
- Site should not create any nuisance to the residential areas as well as to the commercial and administrative areas.
- Site should be connected with main road and have sufficient width for truck movement.
- Infiltration of water into the dump should be prevented by covering the wastes with a layer of soil and sloping surface of the dump.

12.5.1.2 Open Space, Wet-land and Relevant Features Protection Plan

The river Paira is a great asset of Swarupkati that plays multifaceted role for the town. It could be a navigation route to some extent, a source of water and also a source of recreation. Detail land use information of Open spaces is given in Table 1.11, Chapter 1, and Volume II of this report.

Mitigation Measures:

- The river should be preserved for future sustainable source of surface water supply for the City when the city's ground water would be depleted.
- Its banks can serve as breathing space and recreation for the town dwellers.
- The river should be kept pollution free applying regulatory measures based on environmental regulations
- No industry should be allowed within 100 m of the river bank.

Loss of Wetlands

Wetlands are mainly affected first by the urbanization process. Earth filling fills up the ponds and ditches. Waste water affects the aquatic ecosystem and makes the ponds and ditches unproductive and as a result the aquatic plants, fishes and animals have to die or migrate to other places. There is no strict regulation on earth filling of ponds. The Paurashava can fine only Tk.500 if someone fills the ponds. However, Wetlands Conversation Act exists in Bangladesh, which is applicable only to natural beels and khals. Wetlands play an important role as a reservoir of rain and flood water. They are also important to maintain the balance of ecosystems and for replenishing the ground water level through seepage.

Mitigation Measures:

- Designate all ponds in Master Plan Map and protect the large ones according to the ecological importance and public interest.
- Protect the ponds as per regulatory framework of Master Plan.
- Avoiding wetlands during road alignment fixation.
- Stopping housing, industries and other development works in wetlands through earth filling.
- Stopping earth filling of ponds in the area through creation of public awareness.
- Strict implementation of Wetland Conversation Act, 2000.
- Strict implementation of Environment Conversation Act(ECA), 1885
- Create new laws if existing one fails to stop land filling of ponds.

12.5.1.3 Ground Water Pollution

Though ground water is not a major source of drinking water supply in the study area, yet ground water pollution by salinity and arsenic is a serious problem for future water supply. It is reported that over 90% of the tube wells are affected by arsenic which is a major threat to health for those who use ground water for drinking purpose. Arsenic is geological problem. But experts view that it arises due excessive extraction of ground water. So in future, when population rises further excessive ground water extraction will aggravate contamination situation.

Mitigation Measures:

- Expand use of surface water by protecting existing ponds and excavating new ponds.
- Introduce and popularize rain water harvesting system.
- Reduce dependency on ground water.

12.5.1.4 Surface Water Pollution

Various surface water sources of the town are regularly polluted by deliberate drainage of waste water in respect of pH, turbidity and coli form bacteria when compared with national standard. But present pollution level is low due to low density of population and no industrial agglomeration. The main sources of surface water pollution are, urban waste water, sanitary sewage and solid waste dumping. With the implementation of this plan the pollution level may further increase as population and activity will increase leading to increase in waste water, sanitary sewage and solid waste dumping.

Mitigation Measures:

- Abolish katcha and hanging latrines.
- Encourage practice of sanitary latrines.
- Take measures against indiscriminate dumping of solid waste.
- Improve sanitation conditions of slaughter house, fish market and katcha bazar.

- Propaganda for public awareness.
- In future set up sewerage treatment plant to treat waste water.

12.5.1.4 Industrial Pollution

There is no proposal for heavy industrial development. Though no significant industrial development has been marked in this Paurashava, provision for cottage or agro-based industries have been designated in the plan. For this reason, no effluent industrial waste treatment plant is required here.

12.5.2 Natural calamities and regular hazard mitigation proposals

12.5.2.1 Cyclone

Cyclone is a regular natural calamity in the study area. It affects the poor people mostly who can not build houses with permanent materials. Cyclones also destroy trees and other establishments causing economic losses. It is not possible to prevent cyclones, but it is possible to reduce the losses by cyclones.

Mitigation Measures:

- Provide housing loan to build houses with permanent materials.
- Take measures to promote employment and reduce poverty.
- Take appropriate measures for post disaster loss mitigation.

12.5.2.2 Flood Protection

The Paira River is subject to bank erosion, but it is not continuous. The road along the river has eroded to some extent. With implementation of Master Plan (MP) Project, the whole project area will be protected from flooding.

Enhancement Activities:

- Arrangement of pump drainage to Paira during high flood when gravitational drainage fails.
- Pump of excess water will save the area from internal flooding.

Responsible Organizations: BWDB and Paurashava

12.5.2.3 Earthquake

Although Swarupkati is not Earthquake prone area, however unplanned and unregulated urbanization and disregard to BNBC rules in building construction may cause it vulnerable in future. With the implementation of SMP the planned urbanization will strictly follow the actual zoning plan and following of BNBC rule will minimize the earthquake damage. In DMDP Urban Area Plan Volume-II, (Part-3, Interim Planning Rules) development restriction considering the geological fault line areas states **"**Structures above 2 storeys situated within 500 meters of a geological fault is not allowed unless built to the BNBC standards for Seismic Zone 3 (BNBC Section 6 Chapter 2.25)"**.**

Enhancement Activities:

- Ensure all new buildings are designed and constructed following the guideline of BNBC.
- Development of a comprehensive plan for managing post-earthquake situation.
- Train community workers who would carry out the initial search and rescue efforts.
- Launch a massive public awareness campaign.

Responsible Organizations: Paurashava, MOFDM, Civil Defense, Fire Service and DO

12.5.2.4 Fire Hazard

Though fire hazard is low in the town it might increase in future with increased urbanization. Fire hazard will be severe when katcha housing will be built by low income poor people of the town. To avoid fire hazard following mitigation measures are recommended.

Mitigation Measures:

- Set up modern fire extinguishing devises.
- Discourage people from using low quality electrical wire in building and industries.
- Ensure periodical checking of electrical lines.
- Advise low income dwellers about cooking safety.
- Create awareness among people about the dangers of fire hazard.

12.5.2.5 Protection Plan addressing encroachment and other relevant issues

Implementation of SMP activities like roads, drainage, bridge/culvert, housing and industrial estates and bazars will radically change the natural topography and land use pattern of the area. The agricultural area will be converted into urban and semi-urban area. The present green scenic beauty will disappear, water bodies will be lost due to rapid urbanization.

Mitigation Measures:

- Careful planning to minimize the change of the area.
- Avoid water bodies during construction of roads, housing and industrial estates.
- Practice good architectural/engineering design during planning of housing estates, buildings and the intersections of main roads.
- Enhancement of plantation and gardening to increase the scenic beauty of the town.
- Preserve the ponds, chhoras and large water bodies.
- Strict implementation of Environment Conversation Act(ECA), 1885
- Propaganda for public awareness

Responsible Organizations: Paurashava, DOE and Forest Department

12.6 Plan Implementation Strategies

12.6.1 Regulations to Implement the Environment Management Plan

Related rules and regulations for urban environment management to protect environment for sustainable urban development:

1. **Local Government (Paurashava) Ordinance 2009**, Paurashava's responsibility to concern solid wastes and sustainable development.

2. **Environmental Conservation Act 1995**, to concern water quality, air quality, noise abatement and solid wastes etc. The Department of Environment is the law enforcing organization.

3. **Environmental Conservation Rules 1997,** to concern water quality, air quality, noise abatement and solid wastes etc. The Department of Environment is the law enforcing organization.

4. **Acquisition and Requisition of Immovable Property Ordinance, 1982** is needed for acquisition of land in view to construct environmental components. The authority, according to the demand, will apply to the Deputy Commissioner for such acquisition.

5. **Conservation of Environment Act, 1995** have prescribed duties and responsibilities of the Director. Most of those responsibilities are on the control of pollution.

6. **Playfield, Open space, Garden and Natural Tank in Urban Areas Preservation Act, 2000** will be needed for the preservation of playfield, garden, open space and natural tank of the Paurashava.

7. **Water Hyacinth Act, 1936** was enacted for preventing the spread of water hyacinth in Bangladesh and for its destruction. It is said in the section 5 that, no person shall grow or cultivate water hyacinth in any garden or in any ornamental water or receptacle. Again, according to the section 8(1) said, with a view to facilitating the discovery or destruction of water hyacinth, an Authorized Officer may, subject to any rules made under this Act, by a notice served in the prescribed manner, direct an occupier of any land, premises or water within a notified area to cause-
   (a) any branches of trees or shrubs on any such land or premises which overhang the edge of any river, stream, waterway, ditch, marsh, bil, lake, tank, pond, pool or pit to be cut back and any undergrowth or jungle thereon to be removed from such edge, within a distance specified in the notice, or

   (b) any vegetation appearing above the surface of any such water to be removed from the water, within such period as may be specified in the notice.

12.6.2 Implementation, Monitoring, Evaluation and Coordination of the Plan

Implementation through Multi-Sectoral Investment Programme: Major infrastructure development works such as primary roads, water supply, drainage, etc., will largely be controlled by Government. Public works requires efficient co-ordination through the Multi-Sectoral Investment Programme (MSIP).
Objective of a Multi-Sectoral Investment Programme (MSIP) will match a list of the development projects with the funding stream necessary to implement them. There are two basic activities that would determine the contents of MSIP. Firstly, activity would be to prioritize and schedule the investment projects of all public agencies so they will collectively help to achieve the development goals and objectives of the Urban Area Plan. Second activity would be to analyze the source and availability of fund for the prioritized list of development projects.
Implementation through Action Plans and Projects: Action Plans and Projects will be the implementation plans to solve problems at the local level. Action plans will take a direct approach toward plan implementation with a minimum of research, reports or elaborate planning methods. These projects will be easily identifiable and will require minimum resource.
Implementation through Development Control: Landuse zoning is one of several methods of plan implementation to be considered. In all cases where some form of development, landuse control may be applied; careful consideration requires the following ideologies:

- The purpose to be achieved by the development controls;
- Where controls should be applied;
- What aspect of development needs to be controlled?
- What type of development controls are required;
- What degree or level of development control is required?
- Who will be affected by the required control?
- Who will be affected by the controls and in what manner?
- When the controls should be applied;
- What will be the likely impact of the controls?
- How and by whom will the controls be administered and enforced?

Development control as an instrument of plan implementation may be selectively applied within the Urban Area Plans. Development controls would also be varied in intensity and detail to suit the particular circumstances. It is important that they should be clear and easily understood by all parties concerned. Since the entire Paurashava Master Plan 'package' has become statutory, development controls associated with its component plans would also be statutory.

Implementation by Facilitating Private Investment: Another approach that would be taken by government toward plan implementation will be to guide and facilitate investments made by the private sector. Government can achieve this with relative ease and at very low cost by setting up a legal and operational framework, coupled with suitable incentives, to facilitate land consolidation, plot boundary readjustment, efficient layout of plots and provision of local infrastructure by the private sector. The benefits of this approach would be:

- increased efficiently of the urban land market would make, more private land available to urban households;
- would pass much of the development costs for local infrastructure to the private sector and land market mechanisms;
- would increase in land for development without large cash outlays by government to purchase land for development schemes; and
- would keep provision of land for community facilities virtually no cost to government.

Plan Monitoring

The Urban Area Plan would simply be tools for guiding and encouraging the growth and development of an urban area in a preferred manner. In a rapidly changing urban environment, the Urban Area Plan would require to keep up to date. If this is not done, within a few years it will be obsolete. Therefore, it is imperative that the requirement for regular updating of the Urban Area Plan be made a legal requirement.

For implementation of the various programme components of the Urban Area Plan appropriate administrative measures will have to be undertaken. This will essentially include project preparation and monitoring of their execution and evaluation. For carrying out all these activities appropriate institutional measures are also be needed.

Evaluation

Monitoring and evaluation of ongoing and implemented projects is essential to keep the future course of action on the right track. An ongoing project should be regularly monitored and handicaps identified to enable taking appropriate measures at the right time.

Post implementation evaluation is also needed to take appropriate measures correcting past errors-from project preparation to implementation.

The top level supervision has to be done by a high level supervisory committee headed by Paurashava Mayor, LGED representative and Local Government Ministry. Other members of the committee will be local Ward Councilors, local community leader/social workers and the Town Planner of the Paurashava. The committee will supervise implementation works.

Co-ordination

A Planning Section of Paurashava should have close interaction with the citizen of Paurashava at large in order to make people aware of the benefits of a good plan and, therefore, their social responsibility to promote plan implementation in one hand and also resist contraventions on the other. In this way it will be possible to ensure governance at Paurashava level. A specific interactive cell is recommended to operate in this regard with following responsibilities:

- Provide pre-application advice to residents, consultants and developers about landuse management issues and application procedures for the submission of development applications.
- Enforce planning and landuse management related legislation and zoning scheme regulations.
- Issue of property zoning certificates.
- Investigate and resolve landuse management complaints, illegal landuse and prosecuting contraventions.

Such interactive windows may be opened in various convenient locations to ensure ease of the answers to commonly asked questions may be shown in the internet. Besides, those may be shown in the print and electronic media time to time.

In spontaneous areas, while all out people's co-operation is needed for project implementation; there will also be some elements of negotiation. Negotiation will be particularly needed in case of road widening projects. It will be a crucial task for Paurashava to convince the affected people to give up their land for road use. Efforts should be made to convince the land owners on the ground of enhancement of property value due to road widening. In case people refuse to offer land free of

cost necessary arrangements may have to be made for payment of compensation. This process of negotiation will be very critical, cumbersome and time consuming, and therefore, has to be handled with utmost care and patience. The best results can be accrued only by wining people's confidence. In case the authority fails to get peoples co-operation they should exercise power of compulsory acquisition of land. Attempts may be made to engage NGOs / CBOs to work as catalysts in negotiation.

Chapter-13
PLAN FOR URBAN SERVICES

13.1 Introduction

Urban planning is critical to the healthy growth of cities. Unplanned growth leads a number of problems, creating misery for urban dwellers and making remedying of those difficulties. Yet flawed urban planning is little better, or perhaps worse, than no urban planning at all. It is thus important, when taking on such an enormous task as the drafting of an Urban Area Plan for a Paurashava, to ensure that the plan is well considered and likely to be conducive to good health and well-being of the urban dwellers.

13.2 Consideration for the Preparation of Urban Service

- Specify whether the urban service will be provided in the future by a city, county, district, authority or a combination of one or more cities, counties, districts or authorities.
- Set forth the functional role of each service provider in the future provision of the urban service.
- Determine the future service area for each provider of the urban service.
- Assign responsibilities for:
    - Planning and coordinating provision of the urban service with other urban services;
    - Planning, constructing and maintaining service facilities; and
    - Managing and administering provision of services to urban users.

13.3 Range and Content of the Urban Service

The Plan for Urban Services covers planning area of Swarupkati Paurashava for ten years' time-frame (from 2011 to 2021). It also comprises with report and maps.

The Plan in concerned where services will be located (expected development). It also indicates how the Structure Plan policies will govern the areas and the standard for services calculated based on the population projection.

Outline of the Plan gives guidance to the Paurashava how the urban services will be developed and be promoted, maintained with a coordinated manner.

This chapter describes the urban basic services development proposals for future development of the Paurashava. The proposals have been made at the town level, under the urban area plan. The local level development proposals will be addressed in the Ward Action Plan. The development proposals deal with the basic urban services, like, water supply, drainage, sanitation, solid waste, telecommunication, electricity and community facilities, education and health.

13.3.1 Water Supply

According to BBS, it has been observed that about 0.41% households of Swarupkati Paurashava is connected to Paurashava supplied water supply system whereas about 88.62% households use well as a source of drinking water. Additionally, about 9.65% households have well and the rest of the households use pond water for their drinking purpose.
Quality of the supply system is not so satisfactory. About 94.4% of the surveyed households affirmed that there is no water supply facility available for them. About 5.6% of the household reported that the water supply facilities of the area are moderate.

Considering the above issues a water treatment plant has been proposed in ward no.07 with an area of 2.52 acre. This location is the most suitable place according to consultant because surface water is available here. For proper transmission of water supply network four over head tanks covering 1.61 acres land have been proposed in the ward no. 3, 6, 7 and 8. Details have been given in **Table10.11, Chapter 10, Landuse Plan, Part-B.**

13.3.2 Solid Waste

There will be 14 waste transfer stations with an area of 3.80 acres for collection of solid waste located at suitable locations. A dumping site will be developed over an area of 4.64 acres for final disposal of the solid waste. The waste dumping site is located in Ward no. 05 at the north-east side of Shitlar Khal. Details have been given in **Table10.11, Chapter 10, Landuse Plan, Part-B.**

13.3.3 Sanitation

The BBS data shows that about 86.21% of the households have other types of toilet such as kutcha toilet, hanging toilet, etc whereas about 10.26% households have sanitary toilet facilities. Furthermore, about 3.53% of the households have no toilet facilities.

The socio-economic survey results indicate that about 98.3% of the toilets are Pucca and the rest 1.7 % are Kutcha. However, the condition of toilet is not so bad since about 1.7% households has katcha toilet. Due to prohibitive expenditure one should not expect establishing network and treatment plant based sewerage system in the town by the Paurashava. So, for long the sanitary system of the Paurashava will remain on site. To promote healthy sanitation, Paurashava should promote low cost sanitary latrines in the town together with awareness building for healthy sanitation. It is proposed to set up public toilets in public gathering areas, like, existing and proposed bus stand, bazar and the main town center.

13.3.4 Open Space and Recreation

Total necessity of open spaces is projected as 57.75 acres. Considering the limited land and conservation of agricultural land as an economical source about 55.11 acres have been proposed for this purpose. Total necessity of recreational facilities is projected as 1.23 acres, 1.18 acres have been proposed for this purpose. Details have been given in **Table 10.8 and 10.9, Chapter 10, Landuse Plan, Part-B**.

13.3.5 Market Facilities

A super market will be developed in ward no. 06 with an area of 1.71 acre. There is scope of established local market as per the local demands of Swarupkati Paurashava. Detailed will be given in Ward Action Plan. Details have been given in **Table 10.3, Chapter 10, Landuse Plan, Part-B.**

Map 13.1 shows the proposed Utility Services in Swarupkati Paurashava.

13.4 Regulations to Address the Proposals

Local Government (Paurashava) Act, 2009 (Act No. XLXVIII of 2009)

According to the 2nd Schedule, Sl. No. 10, the Paurashava may provide supply of water sufficient for public and private purposes. Frame and execute water supply scheme for the construction and maintenance of such works for storage and distribution of water. In case of private sources of water supply, it is said that, all private sources of water supply within the Paurashava shall be subject to control, regulation and inspection by the Paurashava. No new well, water pump or any other source of water for drinking purposes will be dug, constructed or provided except with the sanction of the Paurashava.

The regulations, as discussed above, will be needed for provisions of drinking water supply both Paurashava and private sources in the Paurashava.

The sewerage facilities may be provided by the Paurashava and Department of Public Health Engineering (DPHE). According to the 2nd Schedule, Sl. No. 12, of the Local Government

(Paurashava) Act, 2009, Paurashava provide an adequate system of public drains and all such drains shall be constructed, maintained, kept, cleared and emptied with due regard to the heal and convenience of the public. All private drains shall be subject to control, regulation and inspection by the Paurashava.

Public Health (Emergency Provisions) Ordinance, 1944 (Ordinance No. XXI of 1944)

According to the **s**ection 2(e) "public health services" and "public health establishment" include respectively sanitary, water-supply, vaccination, sewage disposal, drainage and conservancy services and establishment maintained for the purposes of such services, and any other service or establishment of a local authority which the Government may by notification in the Official Gazette declare to be a public health service or public health establishment for any purpose of this Ordinance.

The Department of Public Health Engineering (DPHE) is performing activities for drinking water supply. At Paurashava level If DPHE likes to render their service according to the water supply network as presented in this plan, the regulation will be the safeguard for them.

East Pakistan Water and Power Development Authority Rules, 1965 (No. 4-1(E)

The Power Development Board (PDB) is empowered for power generation under the guidance of Electricity Act, 1910. At present, PDB and Rural Electrification Board (under the Rural Electrification Board Ordinance, 1977) is performing the role relevant with the electrification of the Paurashava. The existing authorities will be needed for electrification of the Paurashava according to the guidelines presented in the plan.

Telegraph and Telephone Board Ordinance, 1975 (Ordinance No. XLVII of 1975)

A Telegraph and Telephone Board (T&T Board) was composed through this Ordinance. Section 6(1) of the Ordinance has prescribed the functions of the Board and said, it shall be the function of the Board to provide efficient telegraph and telephone services and to do all acts and things necessary for the development of telegraphs and telephones. In the Paurashava, at present, a T & T Board is performing the functions prescribed in the section 6(1). T & T Board is the sole authority for performing the same and it will be continued in future also. But, the Mobile telephone system generates a revolution in the society. Most of the people are depended on the Mobile phone system. The plan does not consider this system.

East Pakistan Water and Power Development Authority Rules, 1965 (No. 4-1(E)

The Power Development Board (PDB) is empowered for power generation under the guidance of Electricity Act, 1910. At present, PDB and Rural Electrification Board (under the Rural Electrification Board Ordinance, 1977) is performing the role relevant with the electrification of the Paurashava. The existing authorities will be needed for electrification of the Paurashava according to the guidelines presented in the plan.

13.5 Implementation, Monitoring and Evaluation

Regulations to Address the Proposals

Local Government (Paurashava) Act, 2009 (Act No. XLXVIII of 2009) was enacted in 6thOctober 2009. According to the 2nd Schedule, Sl. No. 10, the Paurashava may provide supply of wholesome water sufficient for public and private purposes. Frame and execute water supply scheme for the construction and maintenance of such works for storage and distribution of water. In case of private sources of water supply, it is said that, all private sources of water supply within the Paurashava shall be subject to control, regulation and inspection by the Paurashava. No new well, water pump or any other source of water for drinking purposes shall be dug, constructed or provided except with the sanction of the Paurashava.

The regulations, as discussed above, will be needed for provisioning of drinking water supply both Paurashava and private sources in the Paurashava.

The sewerage facilities may be provided by the Paurashava and Directorate of Public Health Engineering (DPHE). According to the 2nd Schedule, Sl. No. 12, of the Local Government (Paurashava) Ordinance, 2009, Paurashava may provide an adequate system of public drains and all such drains shall be constructed, maintained, kept, cleared and emptied with due regard to the heal and convenience of the public. All private drains shall be subject to control, regulation and inspection by the Paurashava.

Public Health (Emergency Provisions) Ordinance, 1944 (Ordinance No. XXI of 1944) was enacted in 20thMay 1944. According to the section 2(e) "public health services" and "public health establishment" include respectively sanitary, water-supply, vaccination, sewage disposal, drainage and conservancy services and establishment maintained for the purposes of such services, and any other service or establishment of a local authority which the Government may by notification in the Official Gazette declare to be a public health service or public health establishment for any purpose of this Ordinance.

Based on the regulation, the Directorate of Public Health Engineering (DPHE) is performing activities for drinking water supply. If DPHE likes to render their service according to the water supply network as presented in this plan, the regulation will be the safeguard for them.

East Pakistan Water and Power Development Authority Rules, 1965 (No. 4-1(E) was prepared and notified in 12th July 1965. The Power Development Board (PDB) is empowered for power generation under the guidance of Electricity Act, 1910. At present, PDB and Rural Electrification Board (under the Rural Electrification Board Ordinance, 1977) is performing the role relevant with the electrification of the Paurashava. The existing authorities will be needed for electrification of the Paurashava according to the guidelines presented in the plan.

Telegraph and Telephone Board Ordinance, 1975 (Ordinance No. XLVII of 1975) was enacted in 30thAugust 1975. A Telegraph and Telephone Board (T&T Board) was composed through this Ordinance. Section 6(1) of the Ordinance has prescribed the functions of the Board and said, it shall be the function of the Board to provide efficient telegraph and telephone services and to do all acts and things necessary for the development of telegraphs and telephones. In the Paurashava, at present, a T & T Board is performing the functions prescribed in the section 6(1). T & T Board is the sole authority for performing the same and it will be continued in future also. But, the Mobile telephone system generates a revolution in the society. Most of the people are depended on the Mobile phone system. The plan does not consider this system.

Implementation, Monitoring and Evaluation of the Urban Services Plan

Implementation through Multi-Sectoral Investment Program: Major infrastructure development works such as primary roads, water supply, drainage, etc., will largely be controlled by Government. Public works requires efficient co-ordination through the Multi-Sectoral Investment Program (MSIP).

Objective of a Multi-Sectoral Investment Program (MSIP) will match a list of the development projects with the funding stream necessary to implement them. There are two basic activities that would determine the contents of MSIP. One activity would be to prioritize and schedule the investment projects of all public agencies so they will collectively help to achieve the development goals and objectives of the Urban Services Plan. Second activity would be to analyze the source and availability of fund for the prioritized list of development projects.

Implementation through Action Plans and Projects: Action Plans and Projects will be the implementation plans to solve problems at the local level. Action plans will take a direct approach toward plan implementation with a minimum of research, reports or elaborate planning methods. These projects will be easily identifiable and will require minimum resource.

Implementation through Development Control: Landuse zoning is one of several methods of plan implementation to be considered. In all cases where some form of development, landuse control may be applied; careful consideration requires the following ideologies:

- the purpose to be achieved by the development controls;

- where controls should be applied;
- what aspect of development needs to be controlled;
- what type of development controls are required;
- what degree or level of development control is required;
- who will be affected by the required control;
- who will be affected by the controls and in what manner;
- when the controls should be applied;
- what will be the likely impact of the controls;
- how and by whom will the controls be administered and enforced.

Development control as an instrument of plan implementation may be selectively applied within the Urban Services Plans. Development controls would also be varied in intensity and detail to suit the particular circumstances. It is important that they should be clear and easily understood by all parties concerned. Since the entire Paurashava Master Plan 'package' has become statutory, development controls associated with its component plans would also be statutory.

Implementation by Facilitating Private Investment: Another approach that would be taken by government toward plan implementation will be to guide and facilitate investments made by the private sector. Government can achieve this with relative ease and at very low cost by setting up a legal and operational framework, coupled with suitable incentives, to facilitate land consolidation, plot boundary readjustment, efficient lay out of plots and provision of local infrastructure by the private sector. The benefits of this approach would be:

- increased efficiently of the urban land market would make, more private land available to urban households;
- would pass much of the development costs for local infrastructure to the private sector and land market mechanisms;
- would increase in land for development without large cash outlays by government to purchase land for development schemes; and
- would keep provision of land for community facilities virtually no cost to government.

Plan Monitoring

The Urban Services Plan would simply be tools for guiding and encouraging the growth and development of an urban area in a preferred manner. In a rapidly changing urban environment, the Urban Services Plan would require to keep up to date. If this is not done, within a few years it will be obsolete. Therefore, it is imperative that the requirement for regular updating of the Urban Services Plan be made a legal requirement.

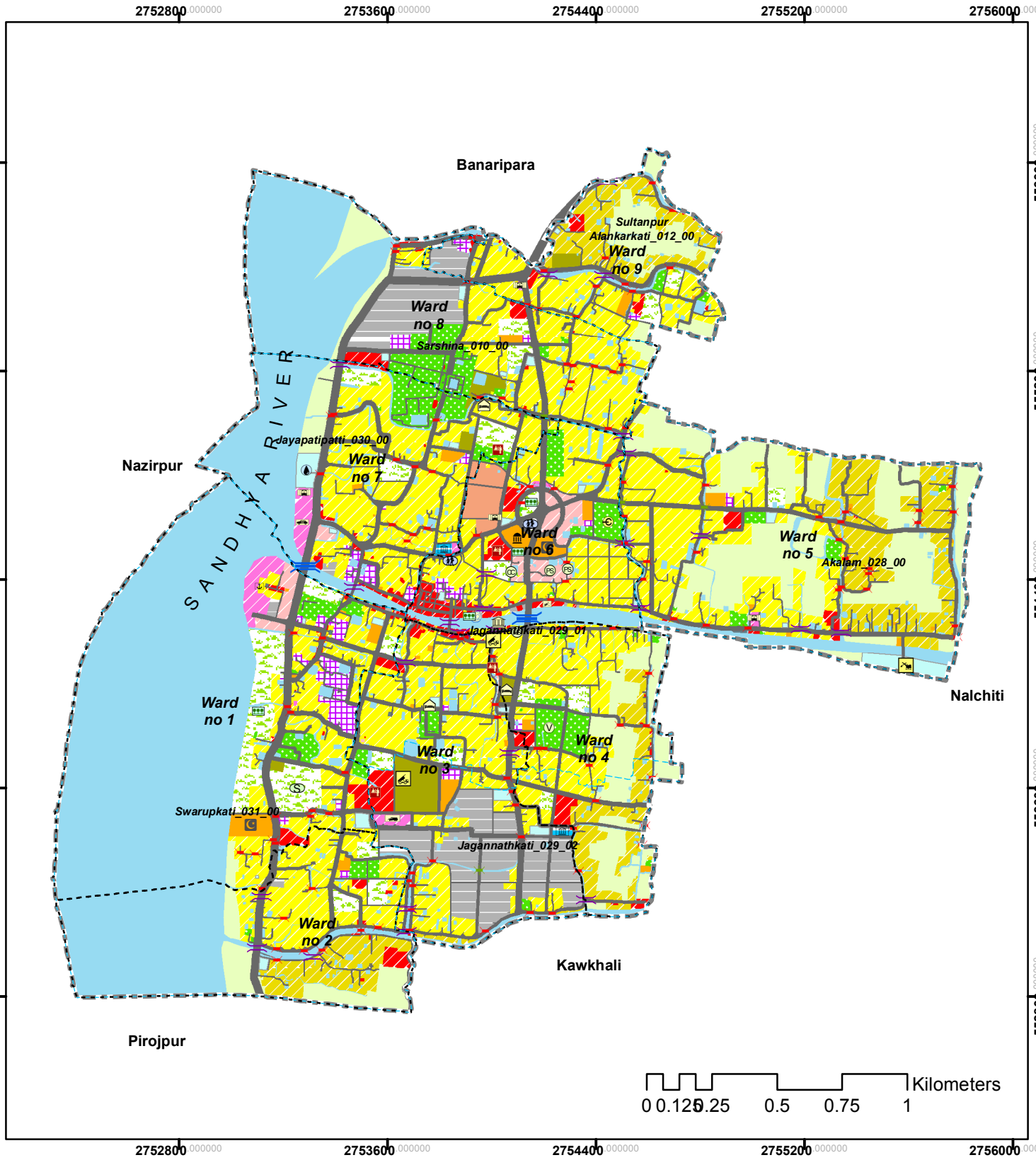
For implementation of the various program components of the Urban Services Plan appropriate administrative measures will have to be undertaken. This will essentially include project preparation and monitoring of their execution and evaluation. For carrying out all these activities appropriate institutional measures are also be needed.

Evaluation

Monitoring and evaluation of ongoing and implemented projects is essential to keep the future course of action on the right track. An ongoing project should be regularly monitored and handicaps identified to enable taking appropriate measures at the right time.
Post implementation evaluation is also needed to take appropriate measures correcting past errors-from project preparation to implementation.

The top level supervision has to be done by a high level supervisory committee headed by the Paurashava Mayor, representatives of the service giving agencies and Local Government Ministry. Other members of the committee will be local Ward Councilors, local community leader/social workers and the Town Planner of the Paurashava. The committee will supervise implementation works regularly and issue necessary instructions to expedite the works of implementation.

MAP 13.1 : PROPOSALS FOR URBAN SERVICES



Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary
- Proposed Road

Proposed Landuse

- Administrative
- Commercial
- Community Facilities
- Education & Research
- Health Facility
- Mixed Use
- Open Space
- Recreational Facility
- Rural Settlement
- Transport Facilities
- Utility Services
- Waterbody

Name

- Bus Terminal
- Central Eidgah
- Graveyard/Cremation Place
- Park/Neighborhood park
- Cinema Hall/Auditorium
- College
- Community Center
- Dockyard
- Health Centre/Complex
- High School
- Kindergarten
- Market (Retail/Neighborhood/Wholesale)
- Over Head Tank
- Playground
- Primary School
- Slaughter House
- Waste Disposal Site
- Stadium
- Tempu/Taxi/Bus/Rickshaw Stand
- Truck Terminal
- Vocational Training Institute
- Ward Office/Center
- Waste Transfer Station
- Water Treatment Plant
- PS_Road_Inventory2_Buffer

Chapter-14
WARD ACTION PLAN

14.1 Introduction

This chapter contains Ward Action Plan of each individual Ward. First, the issues prevailing in different Wards have been briefly described followed by description of Development Proposals in first ward action plan (1st to 5th year of planning period) for each Ward.

14.1.1 Background

The Ward Action Plans are prepared under the framework of Structure Plan and Urban Area Plan. The Ward Action Plans contain details of development proposals at Ward level including the problems and opportunities existing therein and also include the proposals made in the upper level plan that is in the Urban Area Plan. The Ward Action Plans have been formulated for execution within a period of 5 years.

Ward Action Plan is a vital part of the current plan package as far as spatial development and development control is concerned. Absence of Ward Action Plan not only hampers undertaking of development projects by planning authority, but also leads to uncontrolled and unwanted spatial development in the private sector. Land use zoning is also provided in the Ward Action Plan to enable detailed view of proposed land use and development.

14.1.2 Content and Form of Ward Action Plan

The Ward Action Plan is detailed area plan based on the policy framework, guideline indication of Structure Plan and more detailed guideline of Urban Area Plan. The provision of Ward Action Plan is inherent in the Structure Plan with some specific purposes. The Ward Action Plan is to:

a. Provide basic micro level infrastructure and services in the study area through systematic planning, under the framework of Structure Plan and proposals of the Urban Area Plan;
b. Create congenial environment to promote economic activities;
c. Improve drainage system and protect natural water channels from encroachment; and
d. Create service centers to promote urban growth.

14.1.3 Linkage with Structure and Urban Area Plan

Ward Action Plan is the 3rd component of the Master Plan package. The other two upper level components are Structure Plan and Urban Area Plan. Structure Plan lay down the framework of the future plan including strategy and the sectoral policies. The Urban Area Plan and the Ward Action Plan detail out development proposals under the framework of Structure Plan.

14.2 Derivation of Ward Action Plan

The Ward Action Plan is derived from the conceptual framework, and guidelines and strategies for development under Structure Plan and detailed proposals of Urban Area Plan. Ward Action Plan is aimed to provide detailed infrastructure plan to guide the physical development of Swarupkati town including its all economic and social activities. This plan adheres to the policy directives spelled out in the Structure Plan.

14.2.1 Revisiting Structure Plan and Urban Area Plan

To guide long term growth of the Paurashava, potential locations of major development areas are identified and the Structure Plan Area is broadly classified into nine categories, namely Established Urban Area, Sub Urban Area, New Urban Area, Recreational Facility, Circulation Network, Restricted Area, Urban Peripheral Area, Agriculture Area and Water Retention Area. The Urban Area Plan is prepared under the framework of Structure Plan and the infrastructure identified for improvement and development are listed as proposals in the Urban Area Plan. The broad classification of lands in the Structure Plan and detailed proposals in the Urban Area Plan form the basis for Ward Action Plan.

14.2.2 Prioritization

The prioritization of project proposals in Ward wise Action Plan are made on the basis of urgency for development depending on the needs of people and the town's requirement for infrastructure development.

14.2.3 Ward Wise Action Plan

The Ward Action Plan is prepared for each of the nine Wards and is presented in order of their serial number. The Ward Action Plans are a series of detailed spatial development plans of different use and facilities. The plans comprise maps of appropriate scale supported by explanatory report. The Ward Action Plans have been formulated for execution within a period of 5 years. They do not initially cover the entire Structure Plan area. While all sub-areas will eventually require Ward Action Plan, only priority areas are to be dealt with initially. The aim of a Ward Action Plan is to prevent haphazard urban development and ensure livable environment in areas that are likely to be urbanized soon. Initially Detailed Area Plan should be covered for only those areas where action is needed immediately or where development pressure is high.

14.3 Ward Action Plan for Ward No. 01

14.3.1 Demography

Ward No.1 is located on the south-east part of the Paurashava. It has least density of population. Population projection shows 2031 population for the year 2031. For the same year, it has a density of about 4 persons per acre and it will be 6 persons per acre in 2031. Table 14.1 shows the detail.

Table 14.1: Population Statistics of Ward No. 01

Item	Year			
	2016	2021	2026	2031
Area (acre)	352.33	352.33	352.33	352.33
Population	1744	1835	1931	2031
Density of Population (acre)	5	5	5	6

14.3.2 Ward Action Plan Proposals

14.3.2.1 Review of Existing Land Use

Ward no. 01 is more or less rural in character. Out of total 352.33 acres of land of this ward, 40.67 acres of land i.e. 11.54% is used in agriculture. The residential use with 57.52 acres, occupies 16.33% of total land, water bodies 65.07% and circulation network 1.14%. The LGED road from Banaripara enters to Swarupkati through this ward. Only .38 % of land is used as community facilities. The availability of urban green space and recreational facilities is negligible.

14.3.2.2 Proposed Land Use Zoning

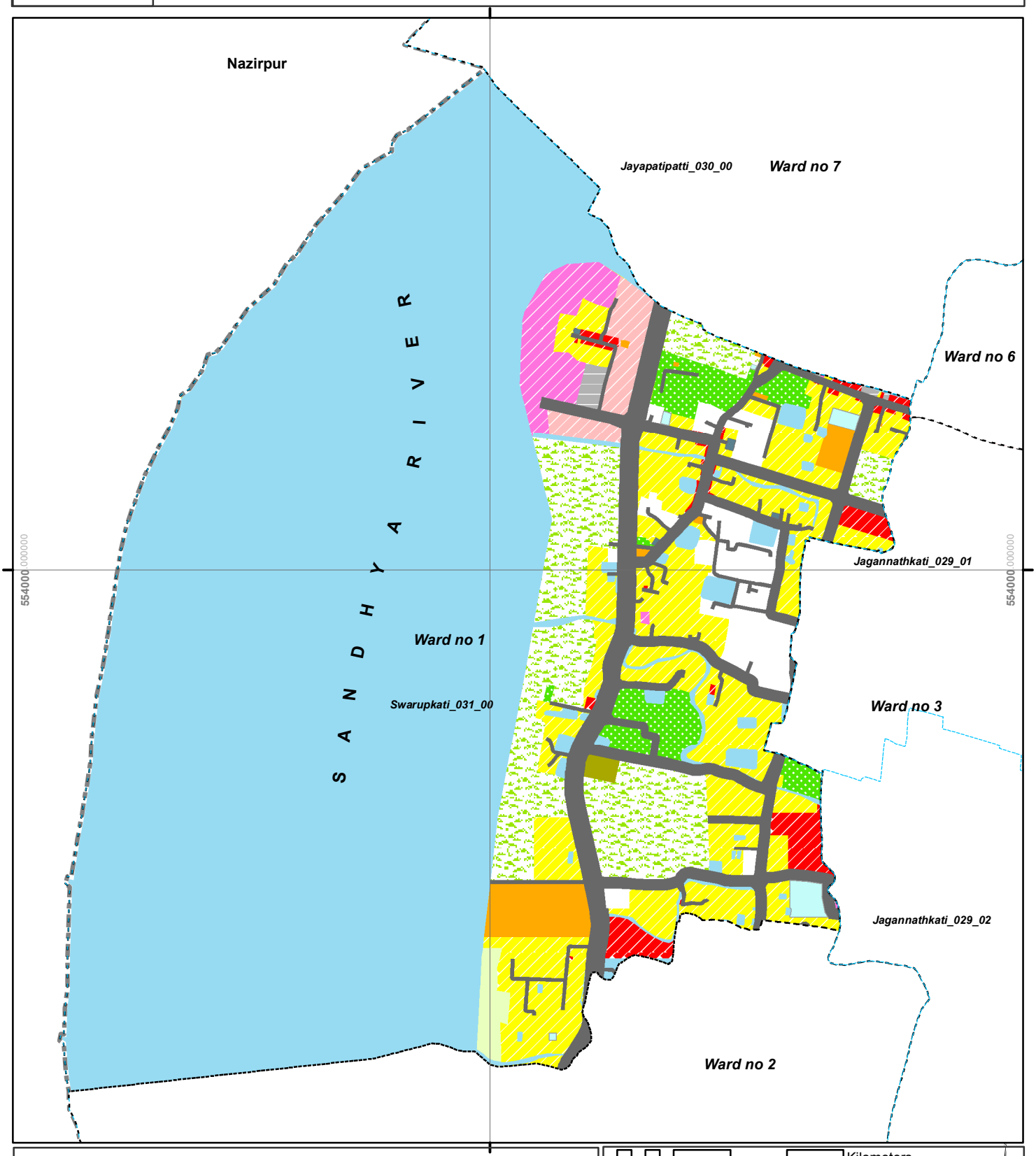
The category wise proposals are presented here. Table 1.2 shows the amount of land existing and proposed uses in Ward no. 1. **Map 14.1** shows proposed land use of Ward 01.Table 14.2 shows the detail.

Table 14.2: Comparative Scenario of Existing and Proposed Land Uses of Ward No. 01

Sl. No.	Landuse (Existing)	Area (Acre)	%	Sl. No.	Landuse (Proposed)	Area (Acre)	%
1	Administrative	9.33	2.65	1	Administrative	7.99	2.27
2	Agricultural	40.67	11.54	2	Agriculture	1.58	0.45
3	Circulation Network	4.01	1.14	3	Circulation Network	26.38	7.49
4	Commercial	1.89	0.54	4	Commercial Zone	4.26	1.21
5	Community Service	1.33	0.38	5	Community Facilities	4.29	1.22
6	Education & Research	6.82	1.94	6	Education and Research Zone	7.01	1.99
7	Industrial	0.79	0.22	7	General Industrial Zone	0.66	0.19
8	Miscellaneous/others	0.11	0.03	8	Health Service	0.46	0.13
9	Non-Governmental Service	0.26	0.07	9	Miscellaneous	0.13	0.04
10	Residential	57.52	16.33	10	Mixed Use	3.35	0.95
11	Service Activity	0.22	0.06	11	Open Space	25.07	7.12
12	Transport & Communication	0.08	0.02	12	Transportation Facilities	5.27	1.49
13	Urban Green Space	0.05	0.01	13	Urban Residential	36.68	10.41
14	Waterbody	229.25	65.07	14	Utility Services	1.14	0.32
				15	Water body	228.06	64.73
Total		**352.33**	**100.00**	**Total**		**352.33**	**100.00**

Map:14.1

Proposed land use of ward No. 01



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

0 0.045 0.09 0.18 0.27 0.36 Kilometers

Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary

Proposed Landuse

- Administrative
- Agriculture
- Water Body
- Circulation Network
- Commercial
- Community Facilities
- Education & Research
- Health Facility
- Industry
- Mixed Use
- Open Space
- Recreational Facility
- Restricted Area
- Rural Settlement
- Transport Facilities
- Urban Deferred
- Urban Residential
- Utility Services

Government of the People's Republic of Bangladesh
Ministry of Local Government,
Rural Development and Cooperatives
Local Government Division

CONSULTANT
SCPL
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a. Urban Residential Zone

In existing land uses, both the urban residential and rural homestead has been considered as residential use as a whole. In Ward Action Plan, more than 36.68 acre of land has been earmarked for urban residential use which will occupy 10.41% of the total land.

b. Education and Research

In Ward Action Plan, one secondary school and one kindergarten have been. Including existing educational facilities, about 7.01 acre areas have been proposed covering1.99% of total land in Ward no. 01 of this Paurashava.

c. Commercial Activity

About 4.26 acres of land has been proposed for this purpose which will occupy 1.21 % of total land. Retail market, neighborhood market, wholesale market and corner spaces have been proposed. Additionally, other commercial functions are provided at mixed use zone, along with administrative and community facilities for this ward.

d. Mixed Use Zone

A total of 3.35 acres of land will be used as mixed use. A ward center will be established which will serve this ward having administrative, commercial and community facilities.

e. Circulation network

For any type of development, circulation network is an important facility. To improve the efficiency of transport network of the ward, more roads are proposed which will consume almost 26.38 acres of land and more than 7.49% of the total area.

f. Transport and Communication

One Dockyard with 5.18 acres land has been proposed which is covering 1.49% total land of the ward.

g. Community Facilities

Land for community facilities will be 4.29 acres including a community center and a central cremation place.

h. Agricultural Area

The total area under this use has been estimated 1.58 acres of land covering 0.45% of the total land. Rural homestead will also perform some agricultural activities as farm, poultry or horticulture. This zone will serve as the hinterland for the town.

i. Open Space& Recreational Facilities

Land for Open space will be 25.07 acre which includes open recreational facilities playground, Local Park and central park. A Stadium with 7.61 acres land has been proposed in this ward.

j. Water bodies

The plan suggests for preserving most of the water bodies for two purposes, first, to serve as source of water, second to serve as water retention area during monsoon. The proposed retention area covers 228.06 acres of land which covers almost 64.73% of the total ward area.

k. Utility Services

A total of 1.14 acre of land covering 0.32% of total land is earmarked as Utility Services zone at Ward no. 01. Proposals are made for the establishment of two waste transfer stations in this zone.

14.3.2.3 Proposed Road Infrastructure Development

A total of 7.76 km of road development has been proposed in first ward action plan for Ward no. 01 of Swarupkati Paurashava. Length of the local road will be 3.11 km and width of these roads will be 20-30 ft. Total length of secondary road will be 3.13 km in this ward and width of these roads will be 40-60 ft. The rest 1.63 km primary road will be developed. The detailed scenario of road network development proposal is given in Table 14.3.

Table 14.3: Road Network Proposal at Ward no. 01

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-950	Primary Road	100	748.39	Road Widening	1st Phase
W-967	Secondary Road	50	329.20	Road Widening	2nd Phase
W-74	Local Road	20	11.92	Road Widening	3rd Phase
W-79	Local Road	20	47.76	Road Widening	3rd Phase
W-88	Local Road	20	34.81	Road Widening	3rd Phase
W-90	Local Road	20	59.62	Road Widening	3rd Phase
W-91	Local Road	20	99.62	Road Widening	3rd Phase
W-92	Local Road	20	70.39	Road Widening	3rd Phase
W-96	Local Road	20	56.27	Road Widening	3rd Phase
W-105	Secondary Road	40	2.26	Road Widening	2nd Phase
W-106	Local Road	20	1.28	Road Widening	3rd Phase
W-107	Local Road	20	62.48	Road Widening	3rd Phase
W-108	Secondary Road	60	72.17	Road Widening	2nd Phase
W-109	Local Road	20	13.86	Road Widening	3rd Phase
W-118	Local Road	20	68.08	Road Widening	3rd Phase
W-120	Secondary Road	60	8.50	Road Widening	2nd Phase
W-123	Primary Road	60	177.01	Road Widening	1st Phase
W-124	Secondary Road	60	46.43	Road Widening	2nd Phase
W-126	Local Road	20	19.15	Road Widening	3rd Phase
W-129	Local Road	20	21.11	Road Widening	3rd Phase
W-139	Local Road	20	0.08	Road Widening	3rd Phase
W-140	Secondary Road	60	40.60	Road Widening	2nd Phase
W-142	Local Road	20	45.88	Road Widening	3rd Phase
W-176	Local Road	20	27.22	Road Widening	3rd Phase
W-179	Local Road	20	29.77	Road Widening	3rd Phase
W-186	Local Road	20	35.39	Road Widening	3rd Phase
W-206	Secondary Road	40	146.88	Road Widening	2nd Phase
W-208	Local Road	20	67.96	Road Widening	3rd Phase
W-209	Local Road	20	82.04	Road Widening	3rd Phase
W-221	Secondary Road	40	125.61	Road Widening	2nd Phase
W-229	Local Road	20	27.07	Road Widening	3rd Phase
W-237	Local Road	20	9.79	Road Widening	3rd Phase
W-238	Local Road	20	10.54	Road Widening	3rd Phase
W-240	Local Road	20	17.81	Road Widening	3rd Phase
W-247	Local Road	20	28.72	Road Widening	3rd Phase
W-251	Secondary Road	60	16.95	Road Widening	2nd Phase
W-255	Local Road	20	40.53	Road Widening	3rd Phase
W-260	Local Road	20	28.93	Road Widening	3rd Phase
W-263	Local Road	20	6.98	Road Widening	3rd Phase
W-265	Local Road	20	13.99	Road Widening	3rd Phase
W-267	Local Road	20	14.05	Road Widening	3rd Phase
W-270	Local Road	20	14.26	Road Widening	3rd Phase
W-272	Local Road	20	10.02	Road Widening	3rd Phase
W-274	Local Road	20	20.77	Road Widening	3rd Phase
W-277	Local Road	20	40.45	Road Widening	3rd Phase
W-280	Local Road	20	31.14	Road Widening	3rd Phase
W-287	Local Road	20	49.75	Road Widening	3rd Phase
W-288	Local Road	20	60.91	Road Widening	3rd Phase
W-290	Local Road	20	27.10	Road Widening	3rd Phase
W-293	Local Road	20	110.23	Road Widening	3rd Phase
W-301	Local Road	20	91.93	Road Widening	3rd Phase
W-302	Local Road	20	1.23	Road Widening	3rd Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-304	Local Road	20	45.89	Road Widening	3rd Phase
W-306	Local Road	20	4.70	Road Widening	3rd Phase
W-307	Local Road	20	26.21	Road Widening	3rd Phase
W-308	Local Road	20	30.18	Road Widening	3rd Phase
W-309	Local Road	20	10.47	Road Widening	3rd Phase
W-310	Local Road	20	45.35	Road Widening	3rd Phase
W-311	Local Road	20	17.91	Road Widening	3rd Phase
W-312	Local Road	20	13.92	Road Widening	3rd Phase
W-317	Local Road	20	19.03	Road Widening	3rd Phase
W-318	Local Road	20	26.16	Road Widening	3rd Phase
W-319	Local Road	20	61.00	Road Widening	3rd Phase
W-323	Local Road	20	28.85	Road Widening	3rd Phase
W-333	Local Road	20	54.70	Road Widening	3rd Phase
W-338	Local Road	20	41.15	Road Widening	3rd Phase
W-344	Local Road	20	26.96	Road Widening	3rd Phase
W-352	Local Road	20	18.73	Road Widening	3rd Phase
W-354	Primary Road	100	28.75	Road Widening	1st Phase
W-369	Local Road	20	12.72	Road Widening	3rd Phase
W-370	Secondary Road	60	57.37	Road Widening	2nd Phase
W-371	Local Road	20	51.91	Road Widening	3rd Phase
W-372	Local Road	20	30.03	Road Widening	3rd Phase
W-373	Local Road	20	5.94	Road Widening	3rd Phase
W-374	Secondary Road	60	51.54	Road Widening	2nd Phase
W-376	Local Road	20	117.47	Road Widening	3rd Phase
W-377	Local Road	20	3.06	Road Widening	3rd Phase
W-378	Local Road	20	8.23	Road Widening	3rd Phase
W-379	Local Road	20	36.36	Road Widening	3rd Phase
W-380	Secondary Road	60	18.69	Road Widening	2nd Phase
W-381	Local Road	20	0.86	Road Widening	3rd Phase
W-386	Local Road	20	24.10	Road Widening	3rd Phase
W-388	Secondary Road	60	59.75	Road Widening	2nd Phase
W-389	Local Road	20	18.98	Road Widening	3rd Phase
W-390	Local Road	20	4.35	Road Widening	3rd Phase
W-396	Primary Road	100	28.05	Road Widening	1st Phase
W-398	Secondary Road	60	93.65	Road Widening	2nd Phase
W-403	Local Road	20	88.02	Road Widening	3rd Phase
W-453	Local Road	20	55.31	Road Widening	3rd Phase
W-466	Local Road	20	137.29	Road Widening	3rd Phase
W-474	Local Road	20	47.70	Road Widening	3rd Phase
W-507	Local Road	20	75.93	Road Widening	3rd Phase
W-952	Secondary Road	40	124.57	Road Widening	2nd Phase
W-790	Secondary Road	40	42.38	Road Widening	2nd Phase
W-791	Secondary Road	40	129.54	Road Widening	2nd Phase
W-792	Secondary Road	40	99.26	Road Widening	2nd Phase
W-803	Primary Road	60	25.20	Road Widening	1st Phase
W-804	Primary Road	60	66.85	Road Widening	1st Phase
W-805	Primary Road	60	46.35	Road Widening	1st Phase
W-806	Primary Road	60	145.61	Road Widening	1st Phase
W-807	Secondary Road	60	198.64	Road Widening	2nd Phase
W-808	Secondary Road	60	115.55	Road Widening	2nd Phase
W-809	Secondary Road	60	86.15	Road Widening	2nd Phase
W-810	Secondary Road	60	38.82	Road Widening	2nd Phase
W-811	Secondary Road	60	61.99	Road Widening	2nd Phase
W-812	Secondary Road	60	65.94	Road Widening	2nd Phase
W-817	Secondary Road	60	47.43	Road Widening	2nd Phase
W-872	Local Road	20	40.50	Road Widening	3rd Phase
W-873	Local Road	20	61.58	Road Widening	3rd Phase
W-891	Local Road	20	139.26	Road Widening	3rd Phase
W-892	Local Road	20	79.37	Road Widening	3rd Phase
N-28	Secondary Road	60	288.86	New Road	2nd Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
N-30	Secondary Road	60	236.97	New Road	2nd Phase
N-31	Secondary Road	60	103.65	New Road	2nd Phase
W-909	Secondary Road	40	54.63	Road Widening	2nd Phase
W-910	Secondary Road	60	1.13	Road Widening	2nd Phase
N-39	Local Road	30	80.85	New Road	3rd Phase
W-940	Local Road	20	2.90	Road Widening	3rd Phase
W-941	Local Road	20	4.42	Road Widening	3rd Phase
W-942	Secondary Road	60	6.82	Road Widening	2nd Phase
N-40	Primary Road	100	362.76	New Road	1st Phase
W-954	Secondary Road	60	255.71	Road Widening	2nd Phase
W-955	Secondary Road	40	43.97	Road Widening	2nd Phase
N-73	Secondary Road	40	12.41	New Road	2nd Phase
N-75	Secondary Road	40	41.54	New Road	2nd Phase
W-165	Local Road	20	0.52	Road Widening	3rd Phase
W-807	Secondary Road	60	0.52	Road Widening	2nd Phase
Total			**7,864.81**		

- "n" for new proposed road and "w" for proposed widening of existing road

14.3.2.4 Drainage Development Plan

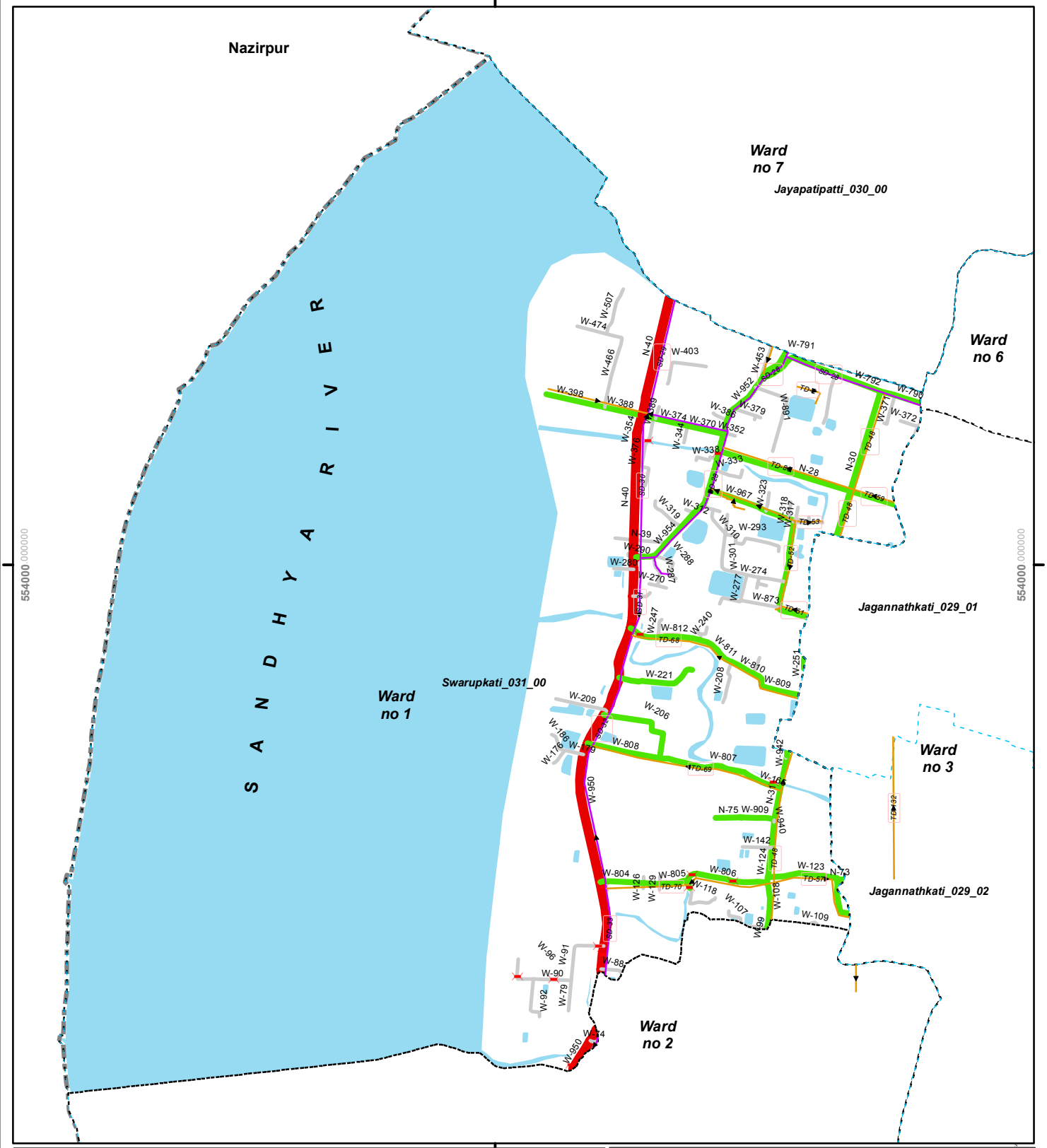
There is about 0.67 km of drainage system at Ward no. 01. The existing drainage of the ward mainly depends on the natural drainage facilities. 1.92 km of secondary drain and 3.46 km tertiary drains are proposed for manmade drainage facilities in first Ward Action Plan. The proposed drainage facilities will be developed based on these natural channels. Table 14.4 shows the details. **Map 14.2** represents the proposed road and drainage network for Swarupkati Paurashava.

Table14.4: Drainage Development Plan Proposals for ward 01

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing
TD-1	Tertiary Drain	2-2.5	0.64-1.25	46.31	2nd Phase
TD-2	Tertiary Drain	2-2.5	0.64-1.25	56.74	2nd Phase
TD-48	Tertiary Drain	2-2.5	0.64-1.25	502.15	3rd Phase
SD-28	Secondary Drain	2.5-3.5	1.25-2.25	588.59	1st Phase
TD-50	Tertiary Drain	2-2.5	0.64-1.25	17.07	3rd Phase
TD-51	Tertiary Drain	2-2.5	0.64-1.25	44.53	3rd Phase
TD-52	Tertiary Drain	2-2.5	0.64-1.25	147.28	2nd Phase
TD-53	Tertiary Drain	2-2.5	0.64-1.25	45.81	2nd Phase
TD-54	Tertiary Drain	2-2.5	0.64-1.25	59.41	2nd Phase
TD-55	Tertiary Drain	2-2.5	0.64-1.25	123.67	2nd Phase
SD-29	Secondary Drain	2.5-3.5	1.25-2.25	311.69	1st Phase
TD-56	Tertiary Drain	2-2.5	0.64-1.25	162.99	3rd Phase
SD-30	Secondary Drain	2.5-3.5	1.25-2.25	228.89	1st Phase
SD-31	Secondary Drain	2.5-3.5	1.25-2.25	193.22	1st Phase
SD-32	Secondary Drain	2.5-3.5	1.25-2.25	431.76	1st Phase
SD-33	Secondary Drain	2.5-3.5	1.25-2.25	169.61	1st Phase
TD-57	Tertiary Drain	2-2.5	0.64-1.25	167.17	3rd Phase
TD-59	Tertiary Drain	2-2.5	0.64-1.25	65.48	3rd Phase
TD-68	Tertiary Drain	2-2.5	0.64-1.25	292.12	3rd Phase
TD-69	Tertiary Drain	2-2.5	0.64-1.25	306.94	3rd Phase
TD-70	Tertiary Drain	2-2.5	0.64-1.25	269.29	3rd Phase
TD-86	Tertiary Drain	2-2.5	0.64-1.25	216.54	3rd Phase
TD-129	Tertiary Drain	2-2.5	0.64-1.25	308.94	3rd Phase
TD-131	Tertiary Drain	2-2.5	0.64-1.25	12.41	3rd Phase
TD-146	Tertiary Drain	2-2.5	0.64-1.25	105.04	3rd Phase
TD-129	Tertiary Drain	2-2.5	0.64-1.25	252.78	3rd Phase
TD-130	Tertiary Drain	2-2.5	0.64-1.25	252.78	3rd Phase
Total				**5379.19**	

Map 14.2

Proposed Road and Drainage Network of ward No. 01



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

0 0.05 0.1 0.2 0.3 0.4 Kilometers

Legend

Existing

- Paurashava Boundary
- Ward Boundary
- Mouza Boundary
- Box Culvert
- Bridge
- Pipe Culvert

Proposed

- Box Culvert
- Proposed Bridge

Proposed Drains

- Secondary Drain
- Tertiary Drain

Proposed Road

- Local Road
- Primary Road
- Secondary Road
- Proposed Water Body

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14.3.2.5 Urban Services

a. Solid Waste Management

Solid waste management is an important urban service. As density of population increases the volume of solid waste also increases proportionately. This ward will be developed as an industrial area. However, the income level is also another major factor influencing the volume of solid waste. Population and the volume of waste in the town is yet to be large enough to become a problem for it. But the present management system is not satisfactory and it might be led to problem in future. The consultant proposes two solid waste transfer stations in this ward at on an area of 0.93 acre. It is recommended that home collection system is introduced in the ward by creation of local CBOs. This will cause organized collection of waste and prevent indiscriminate littering.

b. Water Supply

It is proposed to install a network based water supply system by exploring fresh water from the canal connected with the Sandhya River. A water treatment plant will be established on the bank of canal connected with the Sandhya River. And water supply lines with 5.29 km in this ward will be established along all categories of roads as per the growth of the settlement from this water treatment plant. Water supply network supply will be established at 2nd phase of water supply installation at Swarupkati Paurashava.

c. Sanitation

It is apprehended that the government would not be able to provide network and treatment based sanitation system for the town. So the present system of sanitation will continue. However, the Paurashava must try to promote hygienic sanitation to ensure better public health. There is hardly any public toilet in the town to serve the visitors and the local people. The existing toilet of bus terminal area has to be developed as public toilet is required for the town people and as well as for the passengers waiting for departure.

Table14.5: Development Proposals for ward 01

ID	Type of facility	Ward no	Mouza Name	Plot no	Area (Acre)
CZ-01	Wholesale Market	1 & 3	Jagannathkati_029_02	601, 602, 606	1.54 (Partial)
			Swarupkati_031_00	272, 273, 276, 363, 364, 365, 366, 367, 368	
CZ-14	Retail Market	1	Swarupkati_031_00	358, 453, 454, 457, 458, 459, 671	1.22
CZ-10	Neighborhood Market	1	Swarupkati_031_00	138, 139, 140, 141, 142, 143	0.67
AD-01	Ward Office	1	Swarupkati_031_00	361, 362, 363, 374	0.19
ER-03	Secondary School	1 & 3	Swarupkati_031_00	269, 270, 271, 272, 270	1.39 (Partial)
ER-11	Kindergarten	1	Swarupkati_031_00	277, 278, 279, 283, 284	0.63
OS-01	Central Park	1	Swarupkati_031_00	76, 77, 82, 144, 173, 174, 175, 177, 178, 179, 180, 181, 182, 183, 208, 218, 219, 223, 224, 225, 227, 228, 229, 230, 276, 280, 283, 287, 288, 289, 290, 322, 323, 324, 326, 327, 328, 329, 330, 331, 332, 336, 470, 472, 600	14.54
OS-09	Park	1 & 3	Swarupkati_031_00	136, 138, 139, 586, 587	1.00
OS-16	Play ground	1	Swarupkati_031_00	87, 88, 90, 91, 92, 93, 94, 109, 110, 111, 112, 113, 114, 115, 116, 117, 122, 127, 128, 272	1.93
OS-02	Stadium	1	Swarupkati_031_00	277, 284, 338, 339, 342, 343, 344, 345, 346, 347, 348, 349, 351, 352,	7.61

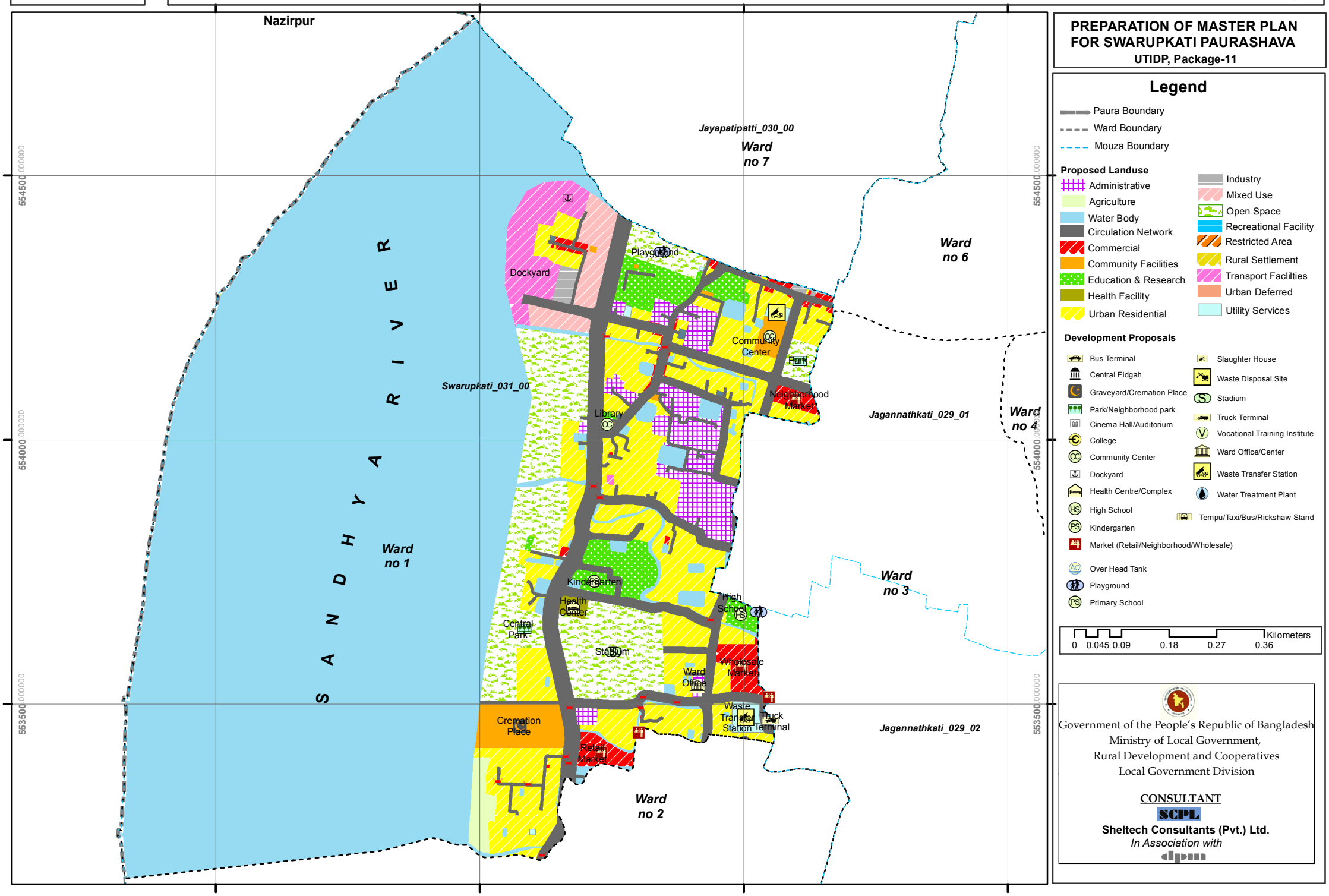
ID	Type of facility	Ward no	Mouza Name	Plot no	Area (Acre)
				353, 358, 359, 360	
TF-03	Dockyard	1	Swarupkati_03 1_00	7, 8, 71, 72, 74, 76, 77, 78, 79, 80, 81, 82, 86, 128	5.18
US-05	Waste Transfer Station	1	Swarupkati_03 1_00	131, 132, 133, 139, 370, 371, 372, 373	0.28
US-06	Waste Transfer Station	1			0.73
HF-05	Health Centre/ Maternity Clinic	1	Swarupkati_03 1_00	284, 341, 344, 345	0.46
CF-11	Community Center	1	Swarupkati_03 1_00	131, 137, 138, 175, 176, 177, 239, 240	0.82
CF-13	Cremation Place		Swarupkati_03 1_00	333, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 476	3.33

d. Ward Center

A ward center will be established north-eastside Ward no. 01. The ward center having park, neighborhood market, ward office and community center will serve this ward and people in the adjoining areas.

Map 14.3

Development Proposals of ward No. 01



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

UTIDP, Package-11

Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary

Proposed Landuse

- Administrative
- Agriculture
- Water Body
- Circulation Network
- Commercial
- Community Facilities
- Education & Research
- Health Facility
- Urban Residential
- Industry
- Mixed Use
- Open Space
- Recreational Facility
- Restricted Area
- Rural Settlement
- Transport Facilities
- Urban Deferred
- Utility Services

Development Proposals

- Bus Terminal
- Central Eidgah
- Graveyard/Cremation Place
- Park/Neighborhood park
- Cinema Hall/Auditorium
- College
- Community Center
- Dockyard
- Health Centre/Complex
- High School
- Kindergarten
- Market (Retail/Neighborhood/Wholesale)
- Over Head Tank
- Playground
- Primary School
- Slaughter House
- Waste Disposal Site
- Stadium
- Truck Terminal
- Vocational Training Institute
- Ward Office/Center
- Waste Transfer Station
- Water Treatment Plant
- Tempu/Taxi/Bus/Rickshaw Stand

0 0.045 0.09 0.18 0.27 0.36 Kilometers

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14.4 Ward Action Plan for Ward No. 02

14.4.1 Demography

Ward no. 02 is located on the souther part of the town. It has a very low density of population. Table 14.6 shows the detail.

Table 14.6: Population Statistics of Ward No. 02

Item	Year			
	2016	2021	2026	2031
Area (acre)	161.68	161.68	161.68	161.68
Population	1381	1453	1529	1609
Density of Population (acre)	9	9	9	10

14.4.2 Ward Action Plan Proposals

14.4.2.1 Review of Existing Land Use

The maximum land of this ward at present is used for Residential purpose. It occupies 60.50 acres of agricultural land covering 37.42% of the total land. Water bodies occupy about 42.96% of the land of the ward. About .27 acres of land is under non-government uses, .15% is used for education, 1.57% for circulation network and only .06% of land is used as community facilities. Table 1.8 shows the existing land use pattern of Swarupkati Paurashava.

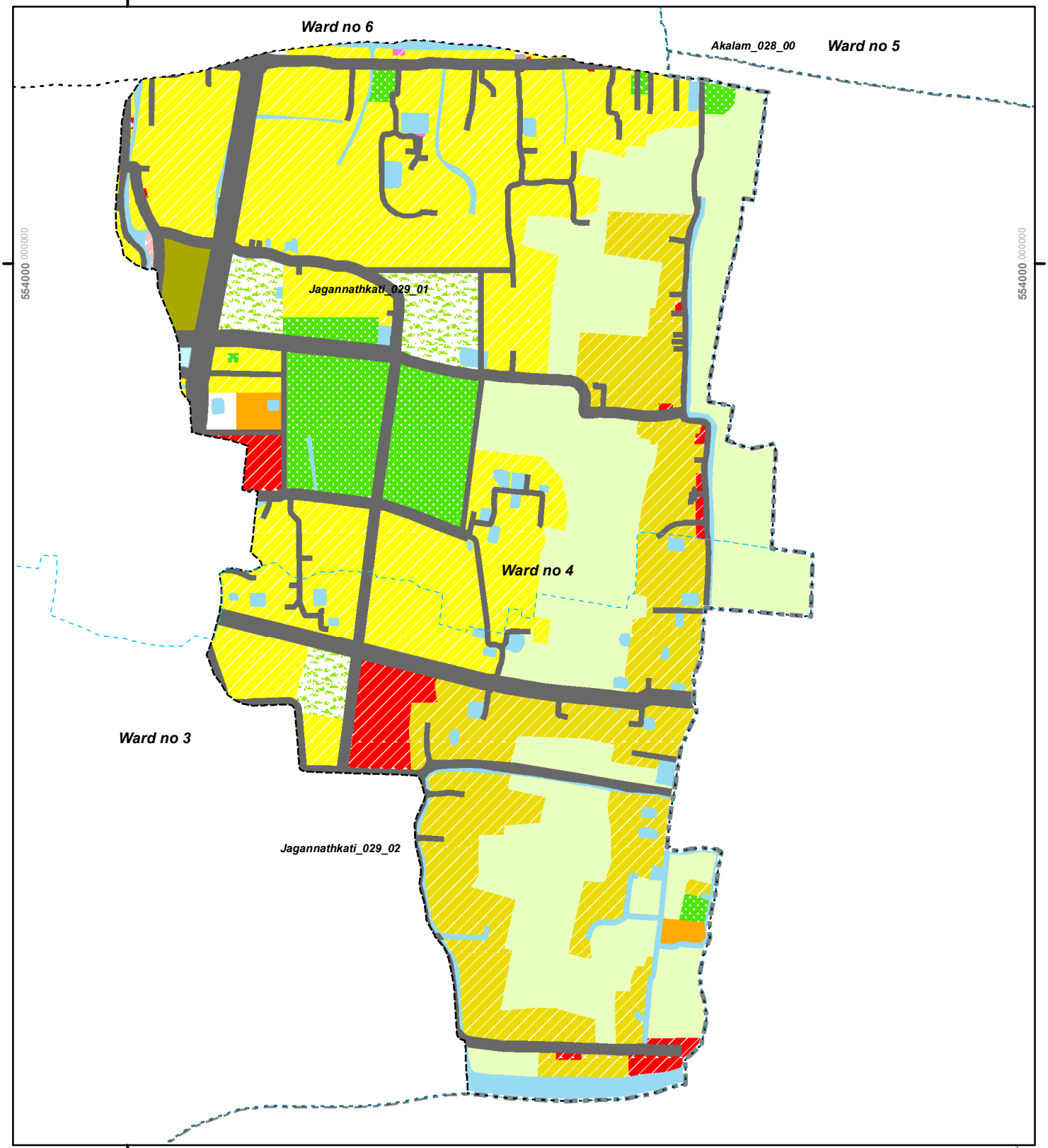
14.4.2.2 Proposed Land Use Zoning

The category wise proposals are presented here. Table 14.7 shows the amount of land existing and proposed uses in Ward no. 2. **Map 14.4** shows proposed land use of Ward 02.

Table 14.7: Comparative Scenario of Existing and Proposed Land Uses of Ward No. 02

Sl. No.	Landuse (Existing)	Area (Acre)	%	Sl. No.	Landuse (Proposed)	Area (Acre)	%
1	Agricultural	25.74	15.92	1	Administrative	0.24	0.15
2	Circulation Network	2.53	1.57	2	Agriculture	17.07	10.55
3	Commercial	0.72	0.45	3	Circulation Network	14.53	8.99
4	Community Service	0.09	0.06	4	Commercial Zone	2.70	1.67
5	Education & Research	0.24	0.15	5	Community Facilities	0.59	0.37
6	Miscellaneous/others	0.87	0.54	6	Education and Research Zone	2.04	1.26
7	Non-Governmental Service	0.43	0.27	7	General Industrial Zone	1.06	0.66
8	Residential	60.50	37.42	8	Miscellaneous	0.15	0.09
9	Service Activity	0.03	0.02	9	Open Space	4.38	2.71
10	Urban Green Space	1.06	0.66	10	Rural Settlement	17.03	10.54
11	Water body	69.45	42.96	11	Urban Residential	32.86	20.32
				12	Utility Services	0.37	0.23
				13	Water body	68.65	42.46
Total		**161.68**	**100.00**	**Total**		**161.68**	**100.00**

Map:14.4 Proposed land use of ward No. 02



a. Urban Residential Zone

In the Ward Action Plan for Ward no. 02, 32.86 acres of land has been earmarked for urban residential use, which will occupy 22.32% of the total land. Table 14.8 shows the details about the existing and proposed land uses of Ward no. 2.

b. Education and Research

A total of 2.04 acres land with secondary school, primary school and kindergarten is proposed for education and research.

c. Commercial Activity

At present, commercial activity and also the density of population is very low in this ward. Only 2.70 acre of land has been proposed for this purpose, which occupies only 1.67% of total land.

d. Mixed Use Zone

No land will be used as mixed use in this area.

e. Circulation network

To improve the efficiency of the Ward, more roads are proposed, which will consume about 14.53 acres of land covering about 8.99% of the total area. For the improvement of road network, widening of existing roads, link road and new roads are proposed for phase wise development within the first five years.

f. Community Facilities

A total of 0.59 acre of land will be used for community facilities covering 0.37 % of the total land of this ward.

g. Open Space

About 4.38 acre of land is allocated for open space. This land will be used for establishment of one play ground and one neighborhood park.

h. Water Bodies

The total land proposed for water retention area covers 68.65 acres.

14.4.2.3 Proposed Road Infrastructure Development

A total of 5.85 km of road development proposal have been made for Ward no. 02 of Swarupkati Paurashava. Length of the local roads is 3.63 km and width of these roads will be 20 ft. The total length of secondary road will be1.73 km and width of these roads will be 40-60 ft for this Ward. Primary road is covering 0.50 km and width is 80-100 ft. The detailed scenario of road network development proposal is given in Table 14.8.

Table 14.8: Road Network Proposal at Ward no. 02

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-950	Primary Road	100	496.79	Road Widening	1st Phase
W-1	Local Road	20	63.74	Road Widening	3rd Phase
W-2	Local Road	20	145.95	Road Widening	3rd Phase
W-3	Local Road	20	43.04	Road Widening	3rd Phase
W-4	Local Road	20	59.50	Road Widening	3rd Phase
W-5	Local Road	20	33.82	Road Widening	3rd Phase
W-6	Local Road	20	46.40	Road Widening	3rd Phase
W-7	Local Road	20	53.23	Road Widening	3rd Phase
W-8	Local Road	20	31.70	Road Widening	3rd Phase
W-9	Local Road	20	35.61	Road Widening	3rd Phase
W-10	Local Road	20	7.97	Road Widening	3rd Phase
W-11	Local Road	20	9.54	Road Widening	3rd Phase
W-12	Local Road	20	8.37	Road Widening	3rd Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-13	Local Road	20	13.40	Road Widening	3rd Phase
W-14	Local Road	20	9.15	Road Widening	3rd Phase
W-15	Local Road	20	1.38	Road Widening	3rd Phase
W-16	Local Road	20	95.08	Road Widening	3rd Phase
W-17	Local Road	20	21.20	Road Widening	3rd Phase
W-18	Local Road	20	5.47	Road Widening	3rd Phase
W-19	Local Road	20	8.64	Road Widening	3rd Phase
W-20	Local Road	20	3.60	Road Widening	3rd Phase
W-21	Local Road	20	16.63	Road Widening	3rd Phase
W-22	Local Road	20	62.80	Road Widening	3rd Phase
W-23	Local Road	20	84.41	Road Widening	3rd Phase
W-24	Local Road	20	133.65	Road Widening	3rd Phase
W-25	Local Road	20	54.06	Road Widening	3rd Phase
W-26	Local Road	20	41.24	Road Widening	3rd Phase
W-27	Local Road	20	44.46	Road Widening	3rd Phase
W-28	Local Road	20	143.24	Road Widening	3rd Phase
W-29	Local Road	20	304.33	Road Widening	3rd Phase
W-30	Local Road	20	15.02	Road Widening	3rd Phase
W-31	Local Road	20	22.89	Road Widening	3rd Phase
W-32	Local Road	20	40.71	Road Widening	3rd Phase
W-33	Local Road	20	32.26	Road Widening	3rd Phase
W-34	Local Road	20	137.82	Road Widening	3rd Phase
W-35	Local Road	20	76.53	Road Widening	3rd Phase
W-36	Local Road	20	18.44	Road Widening	3rd Phase
W-38	Secondary Road	40	2.04	Road Widening	2nd Phase
W-39	Local Road	20	90.39	Road Widening	3rd Phase
W-40	Local Road	20	32.56	Road Widening	3rd Phase
W-41	Secondary Road	50	157.30	Road Widening	2nd Phase
W-44	Local Road	20	29.53	Road Widening	3rd Phase
W-45	Secondary Road	60	37.53	Road Widening	2nd Phase
W-53	Local Road	20	151.58	Road Widening	3rd Phase
W-55	Local Road	20	21.43	Road Widening	3rd Phase
W-57	Local Road	20	38.89	Road Widening	3rd Phase
W-60	Secondary Road	50	79.82	Road Widening	2nd Phase
W-63	Local Road	20	24.31	Road Widening	3rd Phase
W-64	Local Road	20	9.42	Road Widening	3rd Phase
W-65	Local Road	20	15.03	Road Widening	3rd Phase
W-66	Local Road	20	99.97	Road Widening	3rd Phase
W-67	Local Road	20	30.76	Road Widening	3rd Phase
W-70	Secondary Road	40	320.25	Road Widening	2nd Phase
W-71	Local Road	20	12.35	Road Widening	3rd Phase
W-72	Local Road	20	86.19	Road Widening	3rd Phase
W-73	Secondary Road	60	194.39	Road Widening	2nd Phase
W-74	Local Road	20	60.55	Road Widening	3rd Phase
W-77	Secondary Road	60	76.80	Road Widening	2nd Phase
W-78	Local Road	20	28.01	Road Widening	3rd Phase
W-80	Local Road	20	26.71	Road Widening	3rd Phase
W-81	Local Road	20	15.94	Road Widening	3rd Phase
W-84	Local Road	20	23.65	Road Widening	3rd Phase
W-88	Local Road	20	52.48	Road Widening	3rd Phase
W-93	Secondary Road	60	20.10	Road Widening	2nd Phase
W-95	Secondary Road	60	22.54	Road Widening	2nd Phase
W-97	Local Road	20	42.73	Road Widening	3rd Phase
W-99	Secondary Road	60	26.77	Road Widening	2nd Phase
W-100	Local Road	20	45.19	Road Widening	3rd Phase
W-101	Local Road	20	20.30	Road Widening	3rd Phase
W-105	Secondary Road	40	57.97	Road Widening	2nd Phase
W-107	Local Road	20	13.19	Road Widening	3rd Phase
W-109	Local Road	20	19.11	Road Widening	3rd Phase
W-802	Secondary Road	40	125.94	Road Widening	2nd Phase
W-900	Local Road	20	65.50	Road Widening	3rd Phase
W-901	Secondary Road	80	608.62	Road Widening	2nd Phase
N-76	Local Road	20	146.36	New Road	3rd Phase
N-77	Local Road	20	180.73	New Road	3rd Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
N-78	Local Road	20	282.55	New Road	3rd Phase
N-85	Local Road	20	36.77	New Road	3rd Phase
		Total	**5854.34**		

- "n" for new proposed road and "w" for proposed widening of existing road

14.4.2.4 Drainage Development Plan

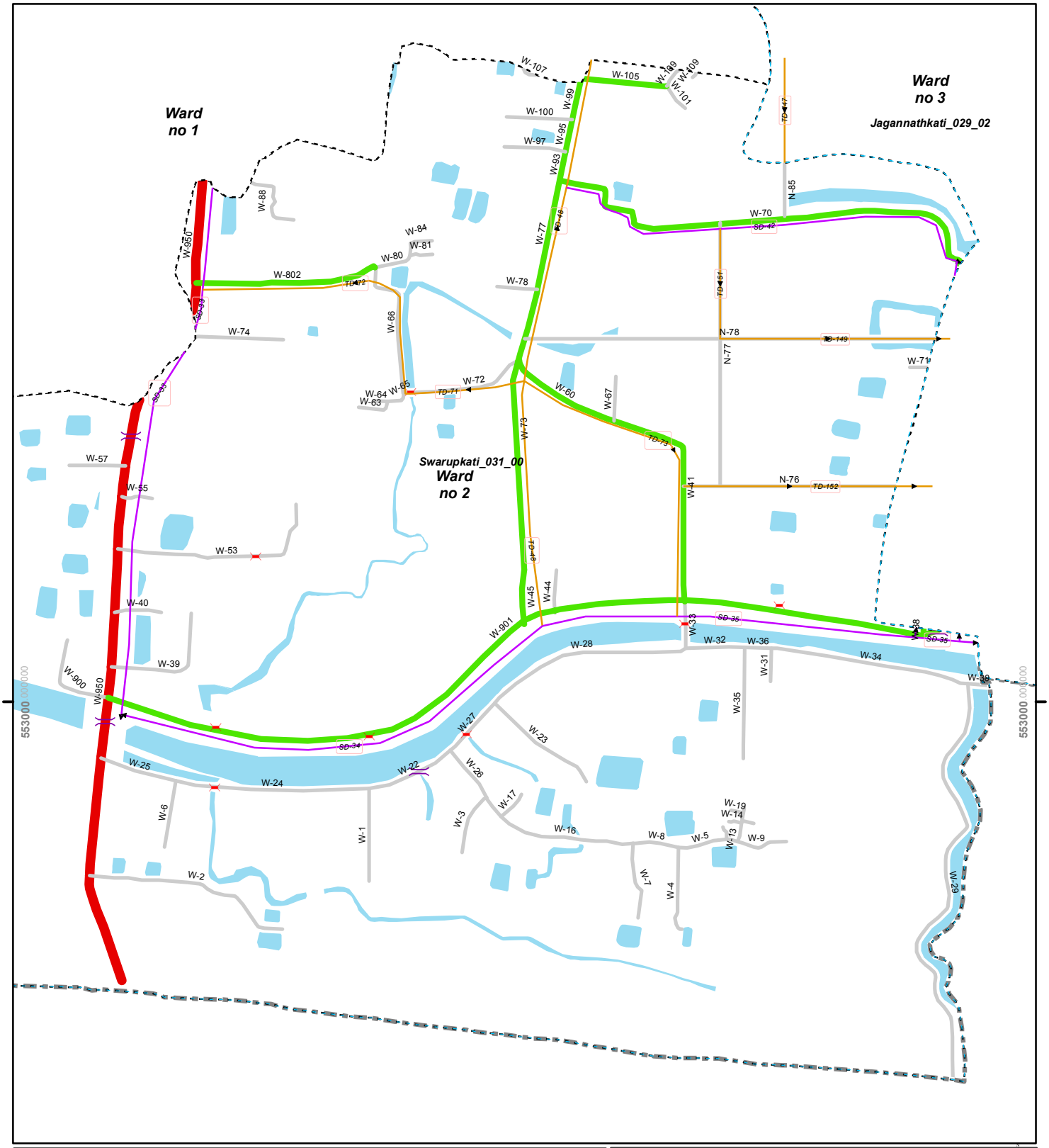
There is no man-made drainage facility at Ward no. 02. Existing drainage is mostly depending on natural drainage facilities. The proposed drainage facilities will be developed based on these natural channels. Sandhya River and canals will serve as primary drains for this ward and will be connected by 1.31 km secondary drain and 1.56 km tertiary drain. Table 14.9 shows the details.

Table 14.9: Drainage Development Plan Proposals for ward 02

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing
TD-48	Tertiary Drain	2-2.5	0.64-1.25	396.05	3rd Phase
SD-33	Secondary Drain	2.5-3.5	1.25-2.25	359.42	1st Phase
SD-34	Secondary Drain	2.5-3.5	1.25-2.25	320.25	1st Phase
SD-35	Secondary Drain	2.5-3.5	1.25-2.25	301.97	1st Phase
TD-71	Tertiary Drain	2-2.5	0.64-1.25	78.12	3rd Phase
TD-72	Tertiary Drain	2-2.5	0.64-1.25	210.53	3rd Phase
TD-73	Tertiary Drain	2-2.5	0.64-1.25	230.48	3rd Phase
SD-42	Secondary Drain	2.5-3.5	1.25-2.25	305.48	1st Phase
SD-43	Secondary Drain	2.5-3.5	1.25-2.25	16.94	1st Phase
SD-45	Secondary Drain	2.5-3.5	1.25-2.25	5.30	1st Phase
TD-147	Tertiary Drain	2-2.5	0.64-1.25	42.75	3rd Phase
TD-148	Tertiary Drain	2-2.5	0.64-1.25	128.73	3rd Phase
TD-149	Tertiary Drain	2-2.5	0.64-1.25	148.67	3rd Phase
TD-150	Tertiary Drain	2-2.5	0.64-1.25	100.46	3rd Phase
TD-151	Tertiary Drain	2-2.5	0.64-1.25	75.78	3rd Phase
TD-152	Tertiary Drain	2-2.5	0.64-1.25	146.36	3rd Phase
Total				**2867.31**	

Besides, it will be necessary to re-excavate all the encroached khals that serve as primary drains. The consultants have identified all existing khals that need to be re-excavated to allow smooth flow of water through them. **Map 14.5** represents proposed Road and Drainage Network of Ward 2.

Map 14.5	Proposed Road and Drainage Network of ward No. 02



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

0 0.02 0.04 0.08 0.12 0.16 Kilometers

Legend

Existing

- Paurashava Boundary
- Ward Boundary
- Mouza Boundary
- Box Culvert
- Bridge
- Pipe Culvert

Proposed

- Box Culvert
- Proposed Bridge

Proposed Drains

- Secondary Drain
- Tertiary Drain

Proposed Road

- Local Road
- Primary Road
- Secondary Road
- Proposed Water Body

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14.4.2.5 Urban Services

a. Solid Waste Management

The present management system as in the other wards is not satisfactory and it might lead to problem in future. One solid waste transfer station with 0.37 acres is proposed in this ward. It is recommended that home collection system is introduced in the ward by creation of local CBOs. This will cause organized collection of waste and prevent indiscriminate littering.

b. Water Supply

It is proposed to install a network based water supply system by exploring fresh water from the Sandhya River for the entire Paurashava. The proposed water supply network is 3.32 km in ward no. 02.

c. Sanitation

The Paurashava must try to promote hygienic sanitation for the whole Paurashava to ensure better public health.

Table 14.10: Development Proposals for ward 02

ID	Type of facility	Ward no	Mouza Name	Plot no	Area (Acre)
CZ-15	Retail Market	2	Swarupkati_031_00	451, 452, 453, 458, 487, 561, 566, 571, 572	1.78
CZ-09	Neighborhood Market	2	Swarupkati_031_00	411, 416, 417	0.48
GIS-01	Cottage/Agro-based Industry	2	Jagannathkati_029_02	620	1.06
			Swarupkati_031_00	276, 394, 401, 403, 404, 405, 407, 408, 490, 491	1.06
AD-02	Ward Office	2	Swarupkati_031_00	418, 437	0.24
ER-02	Secondary School	2	Swarupkati_031_00	395, 396, 411, 412, 413, 414, 415, 418, 437, 438, 439	1.08
ER-07	Primary School	2	Swarupkati_031_00	395, 396, 397, 398, 399, 400, 401, 408, 412, 413, 588	0.77
OS-03	Neighborhood Park	2	Swarupkati_031_00	418, 419, 421, 425, 427	1.62
OS-12	Play ground	2	Swarupkati_031_00	276, 391, 392, 393, 394, 395, 400, 409, 410, 411, 412, 413, 414, 420, 421	2.76
TF-02	Truck Terminal	2, 3	Jagannathkati_029_02	606, 615, 616	1.28
US-10	Waste Transfer Station	2	Swarupkati_031_00	515, 516, 533	0.37
CF-03	Community Center	2	Swarupkati_031_00	437, 438, 439, 442, 443	0.57

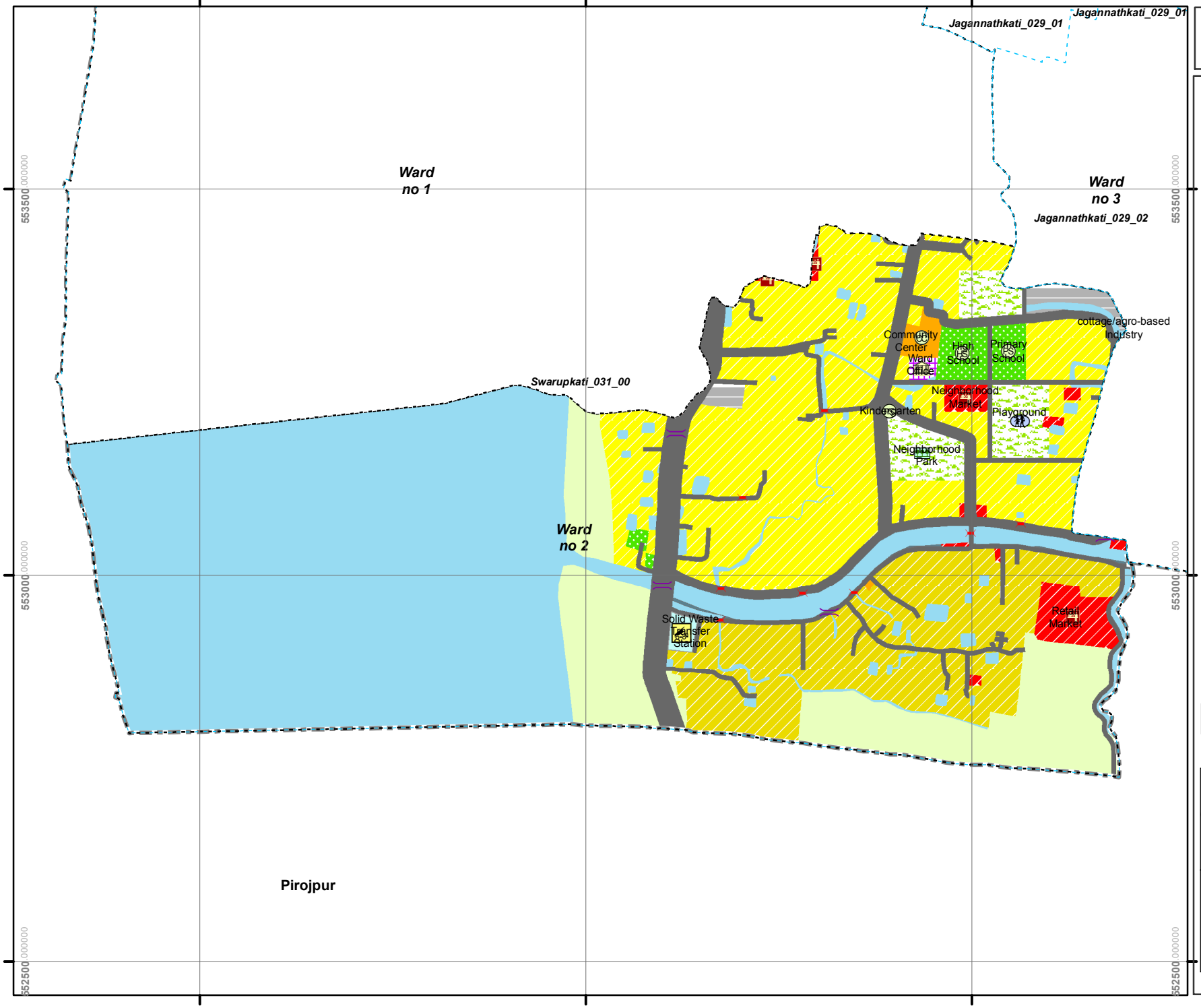
d. Ward Center

A ward center will be established in Ward no. 02. A total of .1.22 acres of area will be used for ward center at Ward no. 02. The ward center having community center, park, playground and market will serve this ward and people in the adjoining areas.

Map 14.6 represents development proposals for ward 2.

Map 14.6

Development Proposals of ward No. 02



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA
UTIDP, Package-11

Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary

Proposed Landuse

- Administrative
- Agriculture
- Water Body
- Circulation Network
- Commercial
- Community Facilities
- Education & Research
- Health Facility
- Urban Residential
- Industry
- Mixed Use
- Open Space
- Recreational Facility
- Restricted Area
- Rural Settlement
- Transport Facilities
- Urban Deferred
- Utility Services

Development Proposals

- Bus Terminal
- Central Eidgah
- Graveyard/Cremation Place
- Park/Neighborhood park
- Cinema Hall/Auditorium
- College
- Community Center
- Dockyard
- Health Centre/Complex
- High School
- Kindergarten
- Market (Retail/Neighborhood/Wholesale)
- Over Head Tank
- Playground
- Primary School
- Slaughter House
- Waste Disposal Site
- Stadium
- Truck Terminal
- Vocational Training Institute
- Ward Office/Center
- Waste Transfer Station
- Water Treatment Plant
- Tempu/Taxi/Bus/Rickshaw Stand

0 0.035 0.07 0.14 0.21 0.28 Kilometers

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14.5 Ward Action Plan for Ward No. 03

14.5.1 Demography

Ward No. 03 is located on the Southern part of the town. It has a high density of population. Estimated population for the year 2031 will be 2476 in this ward with a density of 15 persons per acre. Table 14.11 shows the detail.

Table 14.11: Population Statistics of Ward No. 03

Item	Year			
	2016	2021	2026	2031
Area (acre)	169.87	169.87	169.87	169.87
Population	2126	2237	2354	2476
Density of Population (acre)	13	13	14	15

14.5.2 Ward Action Plan Proposals

14.5.2.1 Review of Existing Land Use

The maximum land of this ward at present is used for Residential purpose. It occupies 77.07 acres of residential land covering more than 45.37% of the total land. Water bodies occupy about 7.28% of the land of the ward. About 70 acres of land is under agricultural uses, 1.46% is used for commercial facilities, and 2.58% circulation network.0.01 acres of land in this ward is utilized for service activity. Only 0.76 acres of land is used as community facilities with negligible percentage of urban green space (.55%).

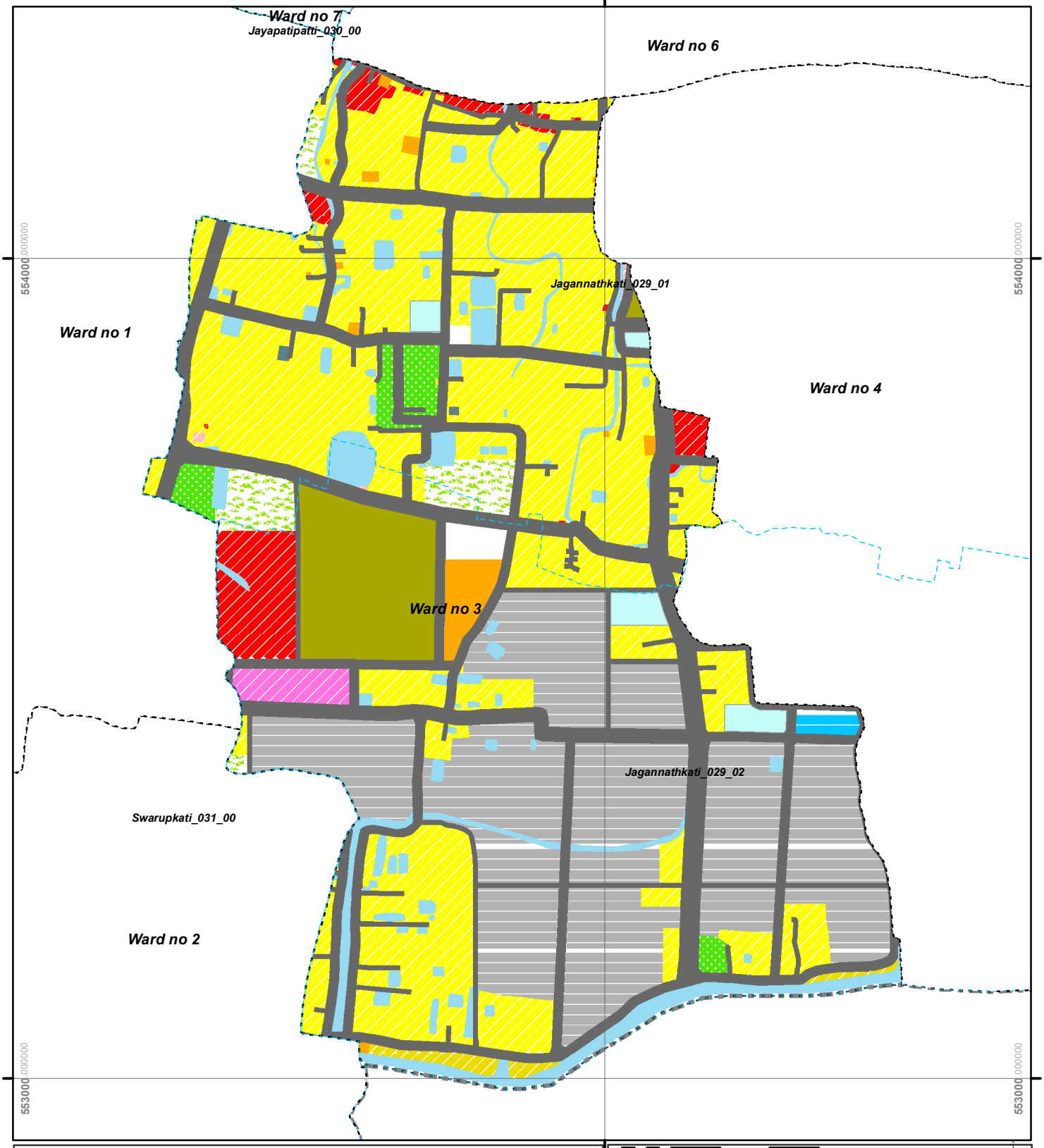
14.5.2.2 Proposed Land Use Zoning

The category wise proposals are presented here. Table 14.12 shows the amount of land existing and proposed uses in Ward no. 03. **Map 14.7**shows proposed land use of Ward 03.

Table14.12: Comparative Scenario of Existing and Proposed Land Use of Ward No. 03

Sl. No.	Landuse (Existing)	Area (Acre)	%	Sl. No.	Landuse (Proposed)	Area (Acre)	%
1	Administrative	0.21	0.13	1	Administrative	0.86	0.51
2	Agricultural	69.91	41.15	2	Circulation Network	34.21	20.14
3	Circulation Network	4.39	2.58	3	Commercial Zone	5.21	3.06
4	Commercial	1.46	0.86	4	Community Facilities	1.77	1.04
5	Community Service	0.76	0.45	5	Education and Research Zone	2.35	1.38
6	Education & Research	2.44	1.44	6	General Industrial Zone	40.26	23.70
7	Miscellaneous/others	0.22	0.13	7	Health Service	7.79	4.59
8	Non-Governmental Service	0.09	0.05	8	Miscellaneous	0.09	0.06
9	Residential	77.07	45.37	8	Mixed Use	0.08	0.05
10	Service Activity	0.02	0.01	9	Open Space	3.51	2.07
11	Urban Green Space	0.93	0.55	10	Recreational	0.53	0.31
12	Waterbody	12.36	7.28	11	Rural Settlement	0.98	0.58
				12	Transportation Facilities	1.40	0.82
				13	Urban Residential	58.34	34.35
				14	Utility Services	1.66	0.98
				15	Water body	10.83	6.37
Total		**169.87**	**100.0**	**Total**		**169.87**	**100.0**

Map:14.7 Proposed land use of ward No. 03



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

0 0.03 0.06 0.12 0.18 0.24 Kilometers

Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary

Proposed Landuse

- Administrative
- Agriculture
- Water Body
- Circulation Network
- Commercial
- Community Facilities
- Education & Research
- Health Facility
- Industry
- Mixed Use
- Open Space
- Recreational Facility
- Restricted Area
- Rural Settlement
- Transport Facilities
- Urban Deferred
- Urban Residential
- Utility Services

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a. Urban Residential

In Ward Action Plan more than 58.34 acre of land has been earmarked for urban residential use which will occupy 34.35% of the total land.

b. Education and Research

In ward no. 03, 2.35 acre of land including a new secondary school has been proposed for education and research.

c. Commercial Activity

Total 5.21 acre of land is allocated for commercial use where a retail market, a neighborhood market and a wholesale market will be established.

d. Mixed Use

Total 0.08 acres of land is earmarked as mixed use zone in this ward where commercial and residential uses will be permitted.

e. General Industrial Zone

Total 40.26 acres of land has been proposed for the establishment of different cottage or agro-based industries or small scale industries.

f. Circulation network

To improve the efficiency of the ward more roads are proposed which will consume 34.21 acres of land and almost 20.14% of the total area. For network improvement widening of existing road, link road and new roads are proposed which will be done phase wise within 2031.

g. Community Facilities

1.77 acres of land are proposed for community facilities in ward no. 03 which is 1.03% of total ward area.

h. Agriculture

No remarkable will be available if the industrial zone will fully operate in this ward.

i. Water Body

The total land proposed for water retention area covers 10.83 acres.

j. Utility Services

1.66 acre land will be used for Utility Services which include the Overhead Tank for water supply and solid waste transfer station.

14.5.2.3 Proposed Road Infrastructure Development

Total 12.22 km road development proposal have been proposed for Ward no. 03. Length of the local road will be 3.63 km and width of these roads will be not less than 20 ft. Total length of secondary road will be 6.99 km and width of these roads will be varied from 40ft to 60ft for this ward. There is a primary road proposal in ward no. 03 which length is 1.29 km. Detail scenario of road network development proposal is given in table 14.13.

Table 14.13: Road Network Proposal at Ward no. 03

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-956	Secondary Road	50	93.28	Road Widening	2nd Phase
W-965	Secondary Road	40	152.96	Road Widening	2nd Phase
W-967	Secondary Road	50	6.27	Road Widening	2nd Phase
N-4	Primary Road	60	153.92	New Road	1st Phase
N-5	Secondary Road	40	389.90	New Road	2nd Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
N-6	Secondary Road	40	84.33	New Road	2nd Phase
N-7	Secondary Road	40	337.64	New Road	2nd Phase
N-8	Secondary Road	60	34.11	New Road	2nd Phase
N-9	Secondary Road	50	162.95	New Road	2nd Phase
N-17	Secondary Road	60	103.91	New Road	2nd Phase
N-18	Secondary Road	40	73.04	New Road	2nd Phase
W-37	Local Road	20	23.18	Road Widening	3rd Phase
W-38	Secondary Road	40	30.34	Road Widening	2nd Phase
W-42	Secondary Road	40	150.81	Road Widening	2nd Phase
W-43	Local Road	20	21.99	Road Widening	3rd Phase
W-46	Secondary Road	40	63.95	Road Widening	2nd Phase
W-47	Local Road	20	75.82	Road Widening	3rd Phase
W-48	Primary Road	80	413.95	Road Widening	1st Phase
W-49	Local Road	20	8.89	Road Widening	3rd Phase
W-50	Local Road	20	41.96	Road Widening	3rd Phase
W-51	Local Road	20	69.63	Road Widening	3rd Phase
W-52	Local Road	20	59.77	Road Widening	3rd Phase
W-54	Secondary Road	40	25.24	Road Widening	2nd Phase
W-58	Local Road	20	92.25	Road Widening	3rd Phase
W-59	Secondary Road	40	52.06	Road Widening	2nd Phase
W-68	Local Road	20	59.74	Road Widening	3rd Phase
W-69	Secondary Road	40	38.91	Road Widening	2nd Phase
W-70	Secondary Road	40	71.53	Road Widening	2nd Phase
W-71	Local Road	20	14.45	Road Widening	3rd Phase
W-76	Local Road	20	0.06	Road Widening	3rd Phase
W-82	Secondary Road	40	144.54	Road Widening	2nd Phase
W-83	Local Road	20	106.07	Road Widening	3rd Phase
W-86	Secondary Road	40	11.25	Road Widening	2nd Phase
W-98	Local Road	20	0.10	Road Widening	3rd Phase
W-102	Local Road	20	30.93	Road Widening	3rd Phase
W-103	Secondary Road	60	50.20	Road Widening	2nd Phase
W-110	Local Road	20	0.15	Road Widening	3rd Phase
W-112	Local Road	20	0.17	Road Widening	3rd Phase
W-113	Secondary Road	40	119.63	Road Widening	2nd Phase
W-114	Local Road	20	0.11	Road Widening	3rd Phase
W-115	Primary Road	60	171.82	Road Widening	1st Phase
W-117	Local Road	20	29.14	Road Widening	3rd Phase
W-121	Local Road	20	33.69	Road Widening	3rd Phase
W-123	Primary Road	60	224.28	Road Widening	1st Phase
W-127	Local Road	20	50.72	Road Widening	3rd Phase
W-149	Local Road	20	8.56	Road Widening	3rd Phase
W-150	Local Road	20	11.81	Road Widening	3rd Phase
W-155	Local Road	20	6.14	Road Widening	3rd Phase
W-156	Local Road	20	7.73	Road Widening	3rd Phase
W-157	Local Road	20	1.22	Road Widening	3rd Phase
W-158	Local Road	20	7.88	Road Widening	3rd Phase
W-160	Local Road	20	7.30	Road Widening	3rd Phase
W-161	Local Road	20	8.19	Road Widening	3rd Phase
W-163	Local Road	20	6.73	Road Widening	3rd Phase
W-164	Local Road	20	2.36	Road Widening	3rd Phase
W-166	Local Road	20	10.82	Road Widening	3rd Phase
W-169	Secondary Road	60	102.22	Road Widening	2nd Phase
W-170	Local Road	20	37.45	Road Widening	3rd Phase
W-171	Secondary Road	40	252.29	Road Widening	2nd Phase
W-172	Secondary Road	60	86.64	Road Widening	2nd Phase
W-177	Local Road	20	25.46	Road Widening	3rd Phase
W-178	Local Road	20	22.88	Road Widening	3rd Phase
W-182	Local Road	20	35.39	Road Widening	3rd Phase
W-187	Local Road	20	11.62	Road Widening	3rd Phase
W-191	Local Road	20	12.37	Road Widening	3rd Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-192	Secondary Road	40	70.39	Road Widening	2nd Phase
W-193	Local Road	20	34.01	Road Widening	3rd Phase
W-194	Local Road	20	0.04	Road Widening	3rd Phase
W-195	Local Road	20	1.76	Road Widening	3rd Phase
W-197	Secondary Road	40	66.32	Road Widening	2nd Phase
W-205	Secondary Road	60	148.27	Road Widening	2nd Phase
W-212	Secondary Road	40	110.30	Road Widening	2nd Phase
W-213	Local Road	20	73.45	Road Widening	3rd Phase
W-214	Secondary Road	60	36.72	Road Widening	2nd Phase
W-215	Secondary Road	40	22.54	Road Widening	2nd Phase
W-216	Secondary Road	40	135.53	Road Widening	2nd Phase
W-217	Secondary Road	40	7.05	Road Widening	2nd Phase
W-218	Secondary Road	40	66.47	Road Widening	2nd Phase
W-219	Local Road	20	33.44	Road Widening	3rd Phase
W-220	Secondary Road	40	17.22	Road Widening	2nd Phase
W-223	Local Road	20	76.05	Road Widening	3rd Phase
W-226	Local Road	20	54.57	Road Widening	3rd Phase
W-227	Local Road	20	24.48	Road Widening	3rd Phase
W-228	Secondary Road	40	51.07	Road Widening	2nd Phase
W-230	Local Road	20	31.11	Road Widening	3rd Phase
W-232	Local Road	20	41.49	Road Widening	3rd Phase
W-235	Local Road	20	111.27	Road Widening	3rd Phase
W-236	Secondary Road	40	34.83	Road Widening	2nd Phase
W-239	Secondary Road	40	13.35	Road Widening	2nd Phase
W-241	Secondary Road	40	69.34	Road Widening	2nd Phase
W-242	Secondary Road	40	7.91	Road Widening	2nd Phase
W-246	Local Road	20	11.98	Road Widening	3rd Phase
W-248	Local Road	20	13.29	Road Widening	3rd Phase
W-251	Secondary Road	60	109.44	Road Widening	2nd Phase
W-254	Local Road	20	44.04	Road Widening	3rd Phase
W-261	Local Road	20	111.29	Road Widening	3rd Phase
W-262	Local Road	20	24.72	Road Widening	3rd Phase
W-264	Local Road	20	21.52	Road Widening	3rd Phase
W-269	Local Road	20	2.90	Road Widening	3rd Phase
W-271	Local Road	20	6.63	Road Widening	3rd Phase
W-273	Local Road	20	31.37	Road Widening	3rd Phase
W-275	Secondary Road	40	67.89	Road Widening	2nd Phase
W-276	Secondary Road	40	81.02	Road Widening	2nd Phase
W-278	Local Road	20	66.12	Road Widening	3rd Phase
W-282	Secondary Road	40	28.03	Road Widening	2nd Phase
W-283	Local Road	20	20.49	Road Widening	3rd Phase
W-284	Local Road	20	1.81	Road Widening	3rd Phase
W-289	Local Road	20	38.99	Road Widening	3rd Phase
W-295	Secondary Road	40	14.01	Road Widening	2nd Phase
W-299	Local Road	20	27.24	Road Widening	3rd Phase
W-303	Secondary Road	60	55.68	Road Widening	2nd Phase
W-305	Secondary Road	40	85.87	Road Widening	2nd Phase
W-321	Local Road	20	76.14	Road Widening	3rd Phase
W-335	Local Road	20	110.93	Road Widening	3rd Phase
W-339	Local Road	20	3.07	Road Widening	3rd Phase
W-347	Local Road	20	24.87	Road Widening	3rd Phase
W-349	Local Road	20	118.81	Road Widening	3rd Phase
W-357	Local Road	20	12.57	Road Widening	3rd Phase
W-366	Local Road	20	21.30	Road Widening	3rd Phase
W-369	Local Road	20	17.89	Road Widening	3rd Phase
W-387	Secondary Road	40	230.44	Road Widening	2nd Phase
W-390	Local Road	20	28.78	Road Widening	3rd Phase
W-787	Secondary Road	40	21.60	Road Widening	2nd Phase
W-793	Secondary Road	40	13.88	Road Widening	2nd Phase
W-809	Secondary Road	60	7.27	Road Widening	2nd Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-813	Secondary Road	50	30.16	Road Widening	2nd Phase
W-814	Secondary Road	50	64.87	Road Widening	2nd Phase
W-815	Secondary Road	50	8.20	Road Widening	2nd Phase
W-816	Secondary Road	50	47.19	Road Widening	2nd Phase
W-818	Secondary Road	50	56.59	Road Widening	2nd Phase
W-819	Secondary Road	50	22.83	Road Widening	2nd Phase
W-820	Secondary Road	50	15.61	Road Widening	2nd Phase
W-821	Secondary Road	50	28.89	Road Widening	2nd Phase
W-822	Secondary Road	50	78.99	Road Widening	2nd Phase
W-823	Secondary Road	50	32.60	Road Widening	2nd Phase
W-824	Secondary Road	60	27.41	Road Widening	2nd Phase
W-893	Local Road	20	103.04	Road Widening	3rd Phase
W-894	Local Road	20	22.68	Road Widening	3rd Phase
W-895	Secondary Road	40	51.39	Road Widening	2nd Phase
W-896	Secondary Road	40	29.81	Road Widening	2nd Phase
W-897	Secondary Road	40	25.52	Road Widening	2nd Phase
W-901	Secondary Road	80	454.72	Road Widening	2nd Phase
W-957	Secondary Road	40	7.73	Road Widening	2nd Phase
W-905	Primary Road	60	30.42	Road Widening	1st Phase
W-906	Local Road	20	0.07	Road Widening	3rd Phase
W-958	Secondary Road	40	93.97	Road Widening	2nd Phase
W-958	Secondary Road	40	0.00	Road Widening	2nd Phase
W-959	Secondary Road	40	28.99	Road Widening	2nd Phase
W-959	Secondary Road	40	0.00	Road Widening	2nd Phase
W-907	Secondary Road	50	7.44	Road Widening	2nd Phase
N-28	Secondary Road	60	44.57	New Road	2nd Phase
N-29	Secondary Road	60	119.42	New Road	2nd Phase
W-908	Secondary Road	60	41.02	Road Widening	2nd Phase
N-30	Secondary Road	60	104.53	New Road	2nd Phase
W-910	Secondary Road	60	54.12	Road Widening	2nd Phase
N-33	Secondary Road	60	278.08	New Road	2nd Phase
W-915	Local Road	20	68.73	Road Widening	3rd Phase
N-34	Secondary Road	60	31.12	New Road	2nd Phase
N-37	Secondary Road	40	346.81	New Road	2nd Phase
N-38	Secondary Road	40	22.55	New Road	2nd Phase
W-960	Primary Road	80	88.83	Road Widening	1st Phase
W-966	Primary Road	80	209.10	Road Widening	1st Phase
W-947	Secondary Road	60	286.61	Road Widening	2nd Phase
N-44	Secondary Road	40	35.03	New Road	2nd Phase
N-45	Secondary Road	60	62.77	New Road	2nd Phase
W-961	Secondary Road	40	74.32	Road Widening	2nd Phase
W-961	Secondary Road	40	0.01	Road Widening	2nd Phase
N-73	Secondary Road	40	147.12	New Road	2nd Phase
N-74	Local Road	20	161.91	New Road	3rd Phase
N-76	Local Road	20	29.71	New Road	3rd Phase
N-78	Local Road	20	10.56	New Road	3rd Phase
N-80	Local Road	20	0.36	New Road	3rd Phase
N-85	Local Road	20	80.61	New Road	3rd Phase
N-86	Local Road	20	221.64	New Road	3rd Phase
N-87	Local Road	20	500.60	New Road	3rd Phase
N-88	Local Road	20	200.24	New Road	3rd Phase
N-89	Local Road	20	177.40	New Road	3rd Phase
N-90	Local Road	20	93.90	New Road	3rd Phase
N-93	Secondary Road	50	23.28	New Road	2nd Phase
W-173	Local Road	20	0.04	Road Widening	3rd Phase
N-33	Secondary Road	60	0.04	New Road	2nd Phase
		Total	**12220**		

- “n” for new proposed road and “w” for proposed widening of existing road

14.5.2.4 Drainage Development Plan

There is only 0.08 km manmade drainage facility in this ward. Existing drainage is mostly depending on natural drainage facilities. The proposed drainage facilities will be developed based on these natural channels. These will serve as primary drain for the ward which will be connected by 3.16 km secondary drain and 7.24 km tertiary drain. Table 14.14 shows the detail.

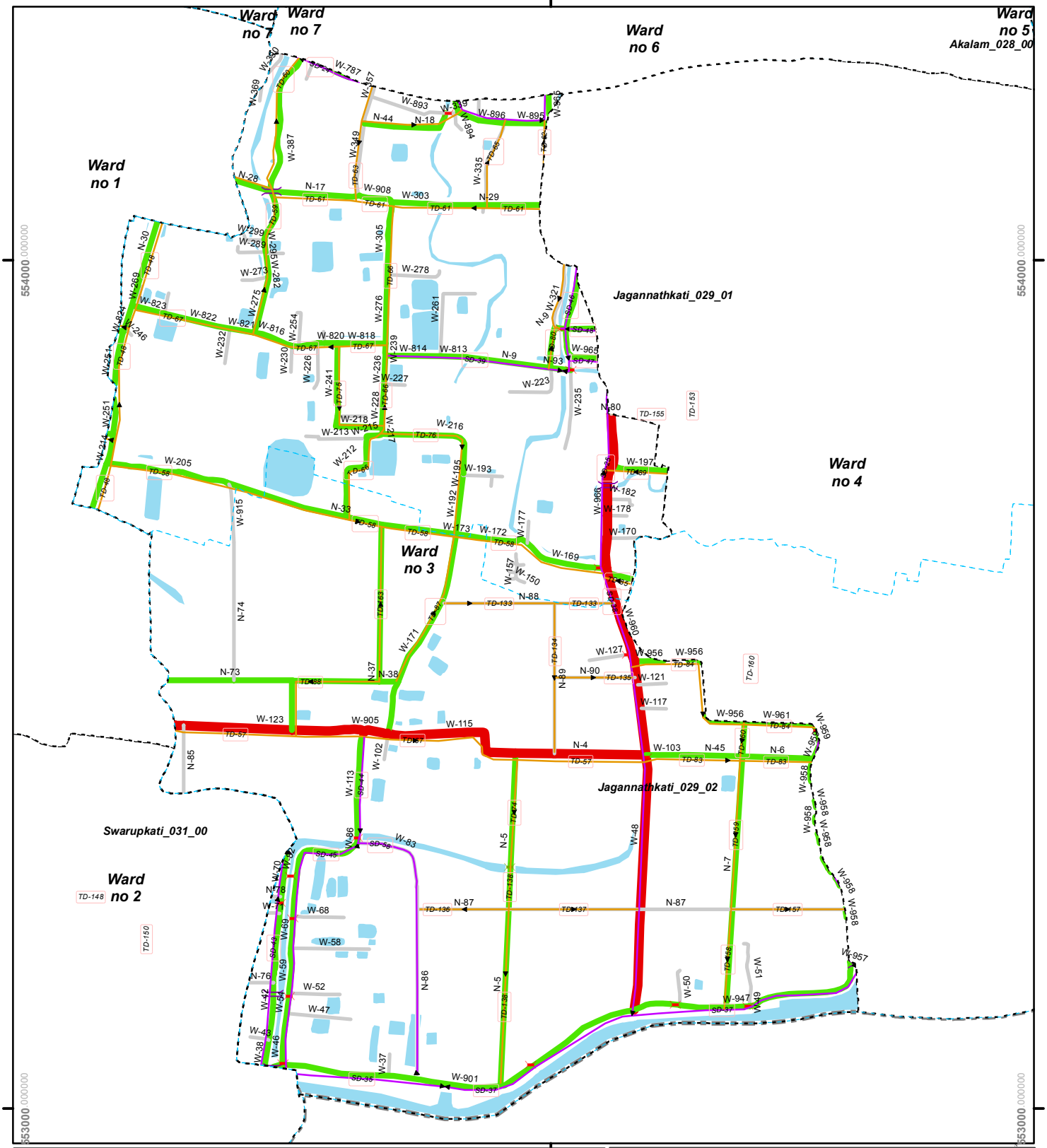
Table 14.14: Drainage Development Plan Proposals for ward 03

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing
SD-24	Secondary Drain	2.5-3.5	1.25-2.25	81.66	1st Phase
TD-48	Tertiary Drain	2-2.5	0.64-1.25	349.74	3rd Phase
SD-25	Secondary Drain	2.5-3.5	1.25-2.25	209.04	1st Phase
TD-51	Tertiary Drain	2-2.5	0.64-1.25	11.77	3rd Phase
SD-35	Secondary Drain	2.5-3.5	1.25-2.25	175.06	1st Phase
SD-37	Secondary Drain	2.5-3.5	1.25-2.25	525.80	1st Phase
SD-38	Secondary Drain	2.5-3.5	1.25-2.25	536.53	1st Phase
TD-57	Tertiary Drain	2-2.5	0.64-1.25	568.37	3rd Phase
TD-58	Tertiary Drain	2-2.5	0.64-1.25	599.32	3rd Phase
SD-39	Secondary Drain	2.5-3.5	1.25-2.25	208.51	1st Phase
TD-59	Tertiary Drain	2-2.5	0.64-1.25	222.73	3rd Phase
TD-60	Tertiary Drain	2-2.5	0.64-1.25	165.80	3rd Phase
TD-61	Tertiary Drain	2-2.5	0.64-1.25	313.97	3rd Phase
SD-40	Secondary Drain	2.5-3.5	1.25-2.25	140.58	1st Phase
TD-62	Tertiary Drain	2-2.5	0.64-1.25	51.61	3rd Phase
TD-63	Tertiary Drain	2-2.5	0.64-1.25	138.67	3rd Phase
TD-64	Tertiary Drain	2-2.5	0.64-1.25	123.35	3rd Phase
TD-65	Tertiary Drain	2-2.5	0.64-1.25	109.43	3rd Phase
TD-66	Tertiary Drain	2-2.5	0.64-1.25	395.83	3rd Phase
TD-67	Tertiary Drain	2-2.5	0.64-1.25	302.74	3rd Phase
TD-68	Tertiary Drain	2-2.5	0.64-1.25	11.94	3rd Phase
SD-42	Secondary Drain	2.5-3.5	1.25-2.25	5.49	1st Phase
SD-43	Secondary Drain	2.5-3.5	1.25-2.25	243.98	1st Phase
SD-44	Secondary Drain	2.5-3.5	1.25-2.25	114.08	1st Phase
SD-45	Secondary Drain	2.5-3.5	1.25-2.25	336.33	1st Phase
TD-74	Tertiary Drain	2-2.5	0.64-1.25	123.86	3rd Phase
TD-75	Tertiary Drain	2-2.5	0.64-1.25	144.98	3rd Phase
TD-76	Tertiary Drain	2-2.5	0.64-1.25	212.84	3rd Phase
SD-46	Secondary Drain	2.5-3.5	1.25-2.25	112.56	1st Phase
TD-79	Tertiary Drain	2-2.5	0.64-1.25	83.92	3rd Phase
TD-80	Tertiary Drain	2-2.5	0.64-1.25	50.12	3rd Phase
SD-47	Secondary Drain	2.5-3.5	1.25-2.25	54.43	1st Phase
SD-48	Secondary Drain	2.5-3.5	1.25-2.25	41.76	1st Phase
TD-83	Tertiary Drain	2-2.5	0.64-1.25	198.45	3rd Phase
TD-84	Tertiary Drain	2-2.5	0.64-1.25	277.71	3rd Phase
TD-85	Tertiary Drain	2-2.5	0.64-1.25	33.15	3rd Phase
SD-49	Secondary Drain	2.5-3.5	1.25-2.25	48.29	1st Phase
TD-87	Tertiary Drain	2-2.5	0.64-1.25	186.33	3rd Phase
TD-88	Tertiary Drain	2-2.5	0.64-1.25	163.94	3rd Phase
TD-89	Tertiary Drain	2-2.5	0.64-1.25	74.40	3rd Phase
TD-131	Tertiary Drain	2-2.5	0.64-1.25	147.12	3rd Phase
TD-132	Tertiary Drain	2-2.5	0.64-1.25	225.32	3rd Phase
TD-133	Tertiary Drain	2-2.5	0.64-1.25	199.78	3rd Phase
TD-134	Tertiary Drain	2-2.5	0.64-1.25	176.07	3rd Phase
TD-135	Tertiary Drain	2-2.5	0.64-1.25	92.38	3rd Phase
SD-58	Secondary Drain	2.5-3.5	1.25-2.25	328.73	1st Phase
TD-136	Tertiary Drain	2-2.5	0.64-1.25	105.40	3rd Phase
TD-137	Tertiary Drain	2-2.5	0.64-1.25	152.43	3rd Phase
TD-138	Tertiary Drain	2-2.5	0.64-1.25	258.07	3rd Phase

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing
TD-147	Tertiary Drain	2-2.5	0.64-1.25	72.42	3rd Phase
TD-149	Tertiary Drain	2-2.5	0.64-1.25	10.56	3rd Phase
TD-152	Tertiary Drain	2-2.5	0.64-1.25	25.44	3rd Phase
TD-155	Tertiary Drain	2-2.5	0.64-1.25	4.59	3rd Phase
TD-156	Tertiary Drain	2-2.5	0.64-1.25	108.56	3rd Phase
TD-157	Tertiary Drain	2-2.5	0.64-1.25	133.38	3rd Phase
TD-158	Tertiary Drain	2-2.5	0.64-1.25	119.04	3rd Phase
TD-159	Tertiary Drain	2-2.5	0.64-1.25	175.48	3rd Phase
TD-160	Tertiary Drain	2-2.5	0.64-1.25	46.25	3rd Phase
TD-162	Tertiary Drain	2-2.5	0.64-1.25	87.31	3rd Phase
TD-163	Tertiary Drain	2-2.5	0.64-1.25	182.71	3rd Phase
TD-137	Tertiary Drain	2-2.5	0.64-1.25	0.82	3rd Phase
TD-156	Tertiary Drain	2-2.5	0.64-1.25	0.82	3rd Phase
Total				**10401.74**	

Map 14.8 represents Road and Drainage Network for ward 3.

Map 14.8	Proposed Road and Drainage Network of ward No. 03



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

0 0.0375 0.075 0.15 0.225 0.3 Kilometers

Legend

Existing

- Paurashava Boundary
- Ward Boundary
- Mouza Boundary
- Box Culvert
- Bridge
- Pipe Culvert

Proposed

- Box Culvert
- Proposed Bridge

Proposed Drains

- Secondary Drain
- Tertiary Drain

Proposed Road

- Local Road
- Primary Road
- Secondary Road
- Proposed Water Body

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14.5.2.5 Urban Services

a. Solid Waste Management

The consultant proposes two waste transfer stations with 0.69 acre. It is recommended that home collection system is introduced in the ward by creation of local CBOs. This will create organized collection of waste and prevent indiscriminate littering.

b. Water Supply

It is proposed to install a network based water supply system by exploring fresh water from the Sandhya River for the entire Paurashava. 6.14km piped water network is proposed in ward no. 03.

c. Sanitation

The Paurashava must try to promote hygienic sanitation for the whole Paurashavsa to ensure better public health.

Table 14.15: Development Proposals for ward 03

ID	Type of facility	Ward no	Mouza Name	Plot no	Area (Acre)
CZ-01	Wholesale Market	1 & 3	Jagannathkati_029_02	601, 602, 603, 604, 605, 606, 608	3.54 (Partial)
			Swarupkati_031_00	276	
CZ-04	Retail Market	3	Jagannathkati_029_01	433, 435, 452	0.51
CZ-10	Neighborhood Market	3	Jagannathkati_029_01	291	0.22
			Swarupkati_031_00	139	
GIS-01	Cottage/Agro-based Industry	3	Jagannathkati_029_02	613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 629, 630, 631, 632, 633, 634, 635, 637, 638, 648, 649, 650, 651, 652, 658, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 675, 686, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 701, 702, 703, 704, 705, 706, 717	1.06
			Swarupkati_031_00	276	
AD-03	Ward Office	3	Jagannathkati_029_01	356, 356	0.86
			Jagannathkati_029_02	609, 622, 639	
ER-03	Secondary School	1 & 3	Jagannathkati_029_01	338, 339, 340	1.39 (Partial)
OS-09	Park	1 & 3	Swarupkati_031_00	139	0.35 (Partial)
OS-12	Play ground	2 & 3	Jagannathkati_029_01	338, 339, 340, 341	1.62 (Partial)
RF-01	Cinema/Theater	3	Jagannathkati_029_02	648, 649, 650, 651, 703	0.53
TF-02	Truck Terminal	2, 3	Jagannathkati_029_02	606, 615, 616	1.28
US-03	Waste Transfer Station	3	Jagannathkati_029_01	420, 425	0.14
US-04	Waste Transfer Station	3	Jagannathkati_029_02	650, 651, 652, 653, 657, 659, 660, 661	0.55
US-18	Over Head Tank	3	Jagannathkati_029_01	296, 298, 299, 352, 353, 354, 365, 430, 432	0.63
US-17	Over Head Tank	3	Jagannathkati_029_02	637, 638, 640	0.33
HF-03	Health Centre/ Maternity Clinic	3	Jagannathkati_029_01	414, 415, 420, 425	0.10
HF-01	Health Complex	3	Jagannathkati_029_01	341	7.69
			Jagannathkati_029_02	606, 607, 608, 609, 610, 611,	

ID	Type of facility	Ward no	Mouza Name	Plot no	Area (Acre)
				612	
CF-04	Community Center	3	Jagannathkati_029_02	606, 609, 611, 612, 622, 634, 638, 639, 640	1.33

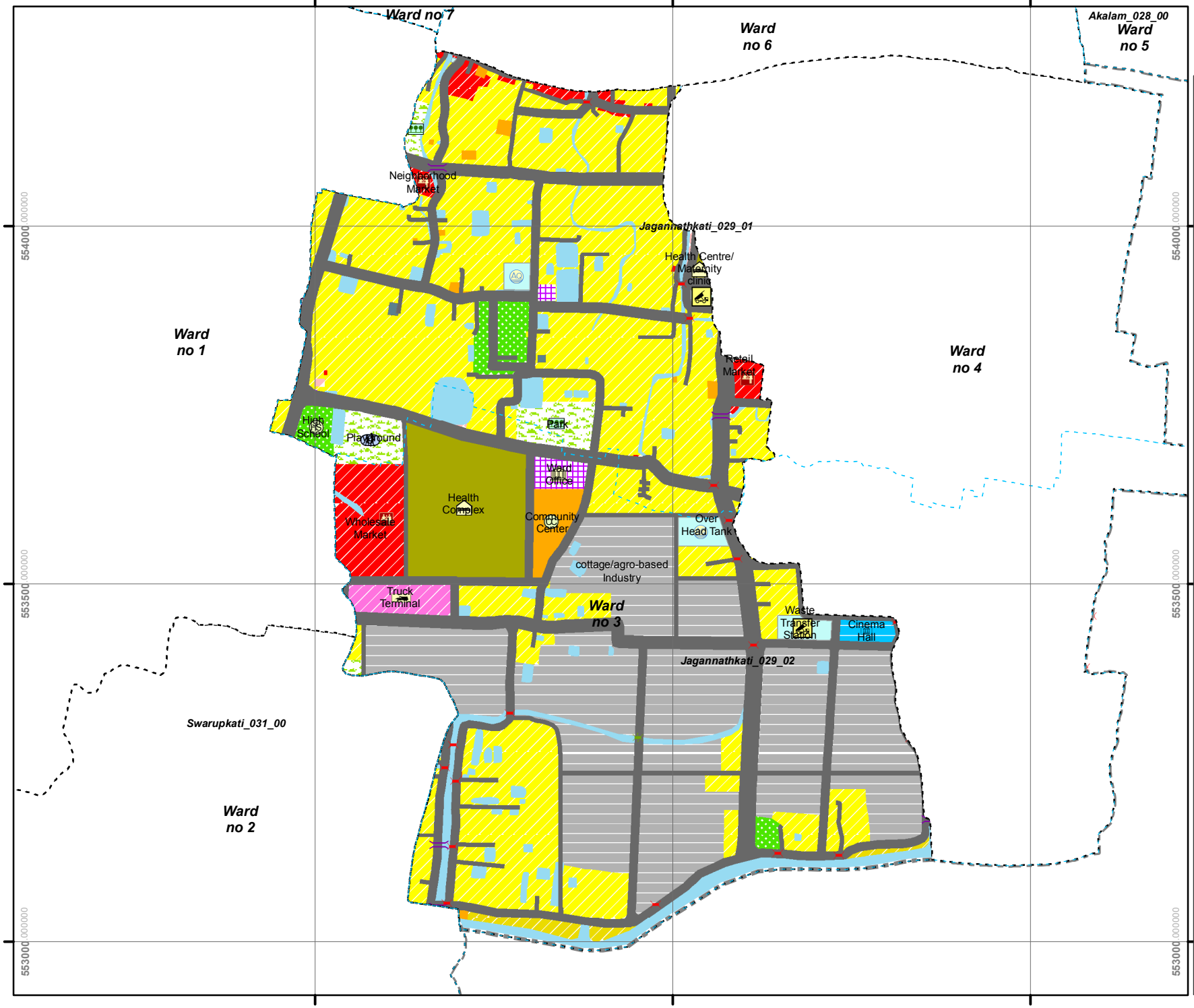
d. Ward Center

A ward center will be established in ward no. 03. It will be used for ward office, health complex, park, playground, wholesale market, truck terminal etc.

Map 14.9 represents physical development for ward 3.

Map 14.9

Development Proposals of ward No. 03



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA
UTIDP, Package-11

Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary

Proposed Landuse

- Administrative
- Agriculture
- Water Body
- Circulation Network
- Commercial
- Community Facilities
- Education & Research
- Health Facility
- Urban Residential
- Industry
- Mixed Use
- Open Space
- Recreational Facility
- Restricted Area
- Rural Settlement
- Transport Facilities
- Urban Deferred
- Utility Services

Development Proposals

- Bus Terminal
- Central Eidgah
- Graveyard/Cremation Place
- Park/Neighborhood park
- Cinema Hall/Auditorium
- College
- Community Center
- Dockyard
- Health Centre/Complex
- High School
- Kindergarten
- Market (Retail/Neighborhood/Wholesale)
- Over Head Tank
- Playground
- Primary School
- Slaughter House
- Waste Disposal Site
- Stadium
- Truck Terminal
- Vocational Training Institute
- Ward Office/Center
- Waste Transfer Station
- Water Treatment Plant
- Tempu/Taxi/Bus/Rickshaw Stand

Kilometers
0 0.0375 0.075 0.15 0.225 0.3

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14.6 Ward Action Plan for Ward No. 04

14.6.1 Demography

Ward no. 4 is located on the south-eastern part of the town. It has a very high density of population. Population projection shows that 2342 people would be living in the ward in the year 2031 with a density of 18 persons per acre. Table 14.16 shows the detail.

Table 14.16: Population Statistics of Ward No. 04

Item	Year			
	2016	2021	2026	2031
Area (acre)	133.16	133.16	133.16	133.16
Population	2011	2116	2226	2342
Density of Population (acre)	15	16	17	18

14.6.2 Ward Action Plan Proposals

14.6.2.1 Review of Existing Land Use

Out of total 133.16 acre of land 40.50%i.e. 53.94 acre is used as agricultural use. The next use is residential; 65.90 acres are used in this purpose. It occupies more than 49.49% of total land. Water bodies occupy 4.45% land of the ward. Almost .5 acre of land is used for educational purpose. At present only .94 acres of land are used in commercial purpose. About 2.48% is used as circulation network.

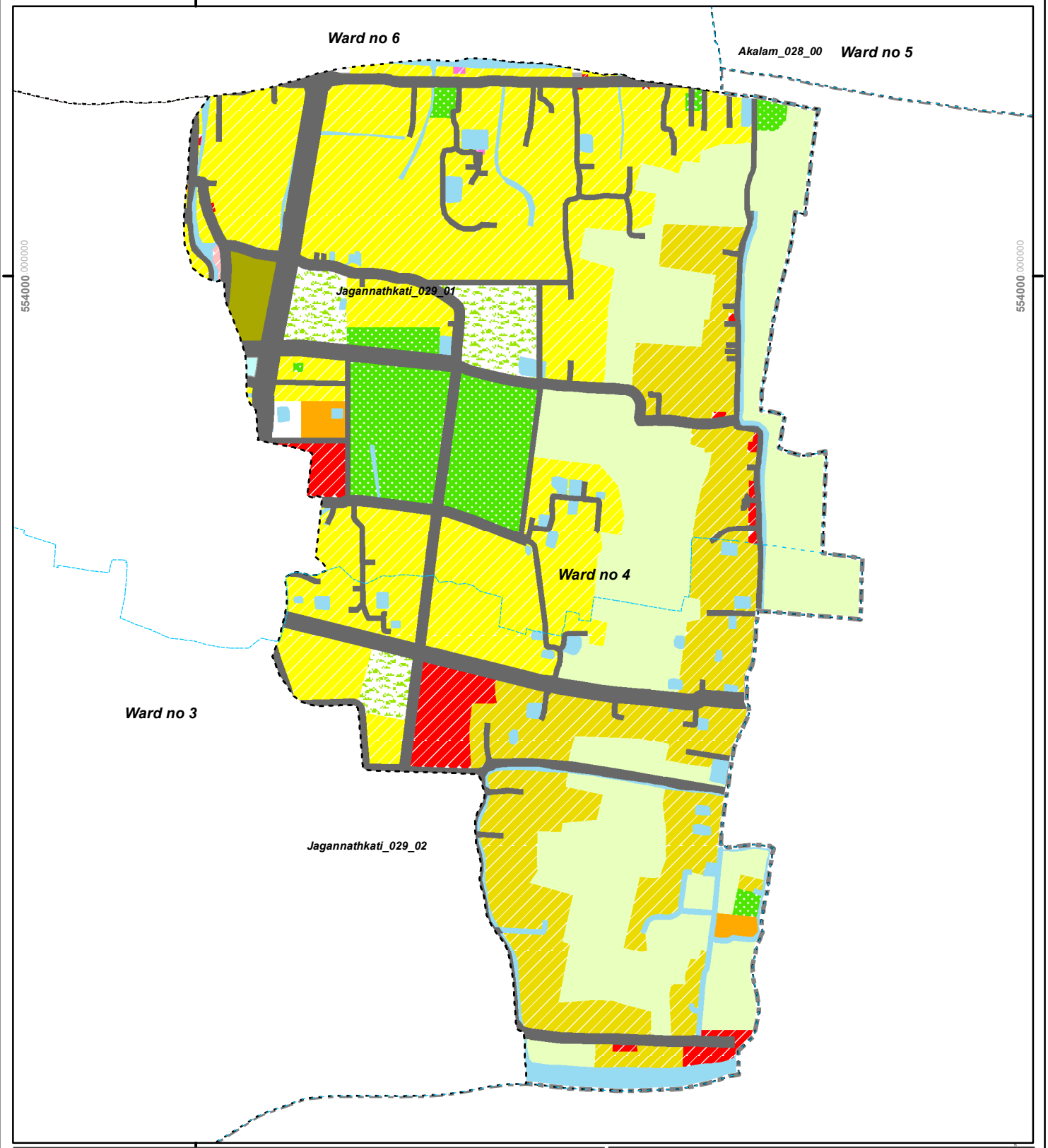
14.6.2.2 Proposed Land Use Zoning

The category wise proposals are presented here. Table 14.17 shows the amount of land existing and proposed uses in Ward no. 04. **Map 14.10** shows proposed land use of Ward 04.

Table 14.17: Comparative Scenario of Existing and Proposed Land Uses of Ward No. 04

Sl. No.	Landuse (Existing)	Area (Acre)	%	Sl. No.	Landuse (Proposed)	Area (Acre)	%
1	Agricultural	53.94	40.50	1	Administrative	0.25	0.19
2	Circulation Network	3.30	2.48	2	Agriculture	32.32	24.28
3	Commercial	0.94	0.71	3	Circulation Network	19.24	14.45
4	Community Service	0.70	0.52	4	Commercial Zone	3.05	2.29
5	Education & Research	0.47	0.35	5	Community Facilities	0.71	0.53
6	Industrial	0.08	0.06	6	Education and Research Zone	7.97	5.99
7	Miscellaneous/others	0.40	0.30	7	General Industrial Zone	0.04	0.03
8	Residential	65.90	49.49	8	Health Service	0.91	0.68
9	Transport & Communication	0.04	0.03	9	Miscellaneous	0.05	0.04
10	Urban Green Space	1.46	1.10	10	Mixed Use	0.05	0.04
11	Waterbody	5.93	4.45	11	Open Space	3.83	2.88
				12	Rural Settlement	19.98	15.01
				13	Transportation Facilities	0.03	0.02
				14	Urban Residential	38.24	28.73
				15	Utility Services	0.06	0.04
				16	Water body	6.39	4.80
Total		**133.16**	**100.0**	**Total**		**133.16**	**100.0**

Map 14.10 Proposed land use of ward No. 04



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

0 0.025 0.05 0.1 0.15 0.2 Kilometers

Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary

Proposed Landuse

- Administrative
- Agriculture
- Water Body
- Circulation Network
- Commercial
- Community Facilities
- Education & Research
- Health Facility
- Industry
- Mixed Use
- Open Space
- Recreational Facility
- Restricted Area
- Rural Settlement
- Transport Facilities
- Urban Deferred
- Urban Residential
- Utility Services

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a. Urban Residential Zone

In Ward Action Plan more than 38.24 acres of land has been earmarked for urban residential use which will occupy about 28.73 % of the total land.

b. Education and Research

More than 7.97 acres of land has been proposed to make available more education and research facilities to the ward and its vicinity. One vocational training institute, one secondary school and one kindergarten will be established in this ward.

c. Commercial Activity

2.29% land is allocated specially for this purpose. Two retail markets will serve the future commercial activities in this ward.

d. Mixed Use

Only 0.05 acres of land is earmarked as mixed use zone in this ward where commercial and residential uses will be permitted.

e. Circulation network

To improve the efficiency of the ward more roads are proposed which will consume 19.24 acres of land and 14.45% of the total area. For network improvement widening of existing road, link road and new roads are proposed which will be done phase wise within 2031.

f. Community Facilities

Proposed land for community service will cover 0.71 acre of land.

g. Open Space

There is 3.83 acre of land for Open Space treated as open recreational facilities like park, playground and Neighborhood Park.

h. Agricultural Area

The Paurashava including Ward No. 04 has a vast area of agricultural land that demands formation of a separate zone like, agriculture zone. Maximum land of the Ward will remain as agricultural use up to the year 2031. The total area under this use has been estimated at about 32.32 acre of land and about 24.28% of the total land. Some portion of land of rural homestead will also utilize as some sort of agricultural activities as farm, poultry or horticulture use. This zone will serve as the hinter land for the town.

i. Water Body

The proposed retention area occupies about 6.39 acres of land which will cover more than 4.80% of the total land of the ward.

14.6.2.3 Proposed Road Infrastructure Development

Total 8.87 km road development proposal have been proposed for Ward no. 04. 5.23 km long local road will be 20 ft wide roads. Total length of secondary road will be 3.24 km and width of these roads will be varied from 40ft to 60 ft for this ward. 0.41 km of primary roads are proposed in the Paurashava width 80 feet. Detail scenario of road network development proposal was given in Table 14.18.

Table 14.18: Road Network Proposal at Ward no. 04

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
N-19	Local Road	20	4.70	New Road	3rd Phase
N-22	Local Road	20	0.01	New Road	3rd Phase
W-146	Local Road	20	0.00	Road Widening	3rd Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-956	Secondary Road	50	99.31	Road Widening	2nd Phase
W-965	Secondary Road	40	231.79	Road Widening	2nd Phase
N-7	Secondary Road	40	450.76	New Road	2nd Phase
N-8	Secondary Road	60	235.25	New Road	2nd Phase
N-19	Local Road	20	1.44	New Road	3rd Phase
N-20	Local Road	20	16.60	New Road	3rd Phase
N-21	Local Road	20	77.78	New Road	3rd Phase
N-22	Local Road	20	41.15	New Road	3rd Phase
N-23	Local Road	20	262.08	New Road	3rd Phase
W-56	Local Road	20	32.42	Road Widening	3rd Phase
W-61	Local Road	20	80.82	Road Widening	3rd Phase
W-62	Local Road	20	15.25	Road Widening	3rd Phase
W-75	Local Road	20	117.74	Road Widening	3rd Phase
W-76	Local Road	20	67.31	Road Widening	3rd Phase
W-85	Local Road	20	101.86	Road Widening	3rd Phase
W-87	Local Road	20	12.34	Road Widening	3rd Phase
W-89	Local Road	20	49.65	Road Widening	3rd Phase
W-94	Local Road	20	108.10	Road Widening	3rd Phase
W-98	Local Road	20	30.92	Road Widening	3rd Phase
W-104	Local Road	20	39.73	Road Widening	3rd Phase
W-110	Local Road	20	42.91	Road Widening	3rd Phase
W-111	Local Road	20	11.12	Road Widening	3rd Phase
W-116	Local Road	20	40.31	Road Widening	3rd Phase
W-119	Local Road	20	51.24	Road Widening	3rd Phase
W-122	Local Road	20	39.35	Road Widening	3rd Phase
W-125	Local Road	20	33.32	Road Widening	3rd Phase
W-128	Local Road	20	1.77	Road Widening	3rd Phase
W-130	Secondary Road	60	88.90	Road Widening	2nd Phase
W-131	Secondary Road	60	49.40	Road Widening	2nd Phase
W-132	Local Road	20	0.30	Road Widening	3rd Phase
W-133	Local Road	20	7.06	Road Widening	3rd Phase
W-134	Secondary Road	60	68.32	Road Widening	2nd Phase
W-135	Local Road	20	43.23	Road Widening	3rd Phase
W-136	Local Road	20	0.84	Road Widening	3rd Phase
W-137	Local Road	20	38.43	Road Widening	3rd Phase
W-138	Secondary Road	60	12.15	Road Widening	2nd Phase
W-141	Local Road	20	2.85	Road Widening	3rd Phase
W-143	Local Road	20	19.03	Road Widening	3rd Phase
W-144	Local Road	20	2.88	Road Widening	3rd Phase
W-145	Local Road	20	134.26	Road Widening	3rd Phase
W-146	Local Road	20	35.48	Road Widening	3rd Phase
W-147	Local Road	20	43.79	Road Widening	3rd Phase
W-148	Local Road	20	21.09	Road Widening	3rd Phase
W-151	Local Road	20	6.11	Road Widening	3rd Phase
W-152	Local Road	20	8.50	Road Widening	3rd Phase
W-153	Local Road	20	55.79	Road Widening	3rd Phase
W-154	Local Road	20	3.03	Road Widening	3rd Phase
W-159	Local Road	20	19.34	Road Widening	3rd Phase
W-162	Local Road	20	33.76	Road Widening	3rd Phase
W-167	Local Road	20	15.42	Road Widening	3rd Phase
W-168	Local Road	20	11.16	Road Widening	3rd Phase
W-170	Local Road	20	34.77	Road Widening	3rd Phase
W-174	Local Road	20	13.94	Road Widening	3rd Phase
W-175	Local Road	20	29.00	Road Widening	3rd Phase
W-180	Local Road	20	57.12	Road Widening	3rd Phase
W-181	Secondary Road	40	196.97	Road Widening	2nd Phase
W-183	Local Road	20	91.22	Road Widening	3rd Phase
W-184	Local Road	20	16.10	Road Widening	3rd Phase
W-185	Local Road	20	90.42	Road Widening	3rd Phase
W-188	Local Road	20	10.92	Road Widening	3rd Phase
W-189	Local Road	20	14.69	Road Widening	3rd Phase
W-190	Local Road	20	8.01	Road Widening	3rd Phase
W-196	Local Road	20	24.86	Road Widening	3rd Phase
W-197	Secondary Road	40	12.85	Road Widening	2nd Phase
W-198	Local Road	20	0.52	Road Widening	3rd Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-199	Local Road	20	7.30	Road Widening	3rd Phase
W-200	Local Road	20	11.42	Road Widening	3rd Phase
W-201	Local Road	20	30.47	Road Widening	3rd Phase
W-202	Local Road	20	71.80	Road Widening	3rd Phase
W-203	Secondary Road	40	23.48	Road Widening	2nd Phase
W-204	Local Road	20	52.49	Road Widening	3rd Phase
W-207	Local Road	20	19.12	Road Widening	3rd Phase
W-210	Local Road	20	35.87	Road Widening	3rd Phase
W-211	Local Road	20	11.10	Road Widening	3rd Phase
W-222	Secondary Road	40	88.98	Road Widening	2nd Phase
W-224	Local Road	20	77.35	Road Widening	3rd Phase
W-225	Local Road	20	63.24	Road Widening	3rd Phase
W-231	Local Road	20	40.93	Road Widening	3rd Phase
W-233	Secondary Road	40	123.67	Road Widening	2nd Phase
W-234	Local Road	20	107.65	Road Widening	3rd Phase
W-243	Local Road	20	27.88	Road Widening	3rd Phase
W-244	Local Road	20	12.46	Road Widening	3rd Phase
W-245	Local Road	20	7.84	Road Widening	3rd Phase
W-249	Local Road	20	14.57	Road Widening	3rd Phase
W-250	Local Road	20	7.47	Road Widening	3rd Phase
W-252	Local Road	20	13.28	Road Widening	3rd Phase
W-253	Local Road	20	22.39	Road Widening	3rd Phase
W-256	Secondary Road	40	170.24	Road Widening	2nd Phase
W-257	Local Road	20	20.84	Road Widening	3rd Phase
W-258	Local Road	20	14.78	Road Widening	3rd Phase
W-259	Local Road	20	11.94	Road Widening	3rd Phase
W-266	Local Road	20	15.71	Road Widening	3rd Phase
W-268	Local Road	20	56.00	Road Widening	3rd Phase
W-279	Local Road	20	14.65	Road Widening	3rd Phase
W-281	Secondary Road	40	134.26	Road Widening	2nd Phase
W-285	Secondary Road	40	44.90	Road Widening	2nd Phase
W-286	Local Road	20	8.18	Road Widening	3rd Phase
W-291	Secondary Road	40	31.09	Road Widening	2nd Phase
W-292	Primary Road	80	199.13	Road Widening	1st Phase
W-294	Local Road	20	176.90	Road Widening	3rd Phase
W-296	Local Road	20	13.06	Road Widening	3rd Phase
W-297	Local Road	20	13.75	Road Widening	3rd Phase
W-298	Local Road	20	19.57	Road Widening	3rd Phase
W-300	Secondary Road	40	72.34	Road Widening	2nd Phase
W-313	Local Road	20	59.22	Road Widening	3rd Phase
W-314	Local Road	20	34.10	Road Widening	3rd Phase
W-315	Local Road	20	123.55	Road Widening	3rd Phase
W-316	Local Road	20	51.52	Road Widening	3rd Phase
W-320	Local Road	20	14.35	Road Widening	3rd Phase
W-321	Local Road	20	116.88	Road Widening	3rd Phase
W-322	Local Road	20	11.22	Road Widening	3rd Phase
W-324	Local Road	20	15.15	Road Widening	3rd Phase
W-325	Local Road	20	5.87	Road Widening	3rd Phase
W-326	Local Road	20	14.03	Road Widening	3rd Phase
W-327	Local Road	20	31.83	Road Widening	3rd Phase
W-328	Local Road	20	18.23	Road Widening	3rd Phase
W-329	Local Road	20	2.94	Road Widening	3rd Phase
W-330	Local Road	20	14.06	Road Widening	3rd Phase
W-331	Local Road	20	148.71	Road Widening	3rd Phase
W-332	Local Road	20	36.46	Road Widening	3rd Phase
W-334	Local Road	20	61.55	Road Widening	3rd Phase
W-336	Local Road	20	37.40	Road Widening	3rd Phase
W-337	Local Road	20	42.53	Road Widening	3rd Phase
W-358	Local Road	20	45.12	Road Widening	3rd Phase
W-361	Local Road	20	92.59	Road Widening	3rd Phase
W-362	Local Road	20	77.27	Road Widening	3rd Phase
W-363	Local Road	20	71.74	Road Widening	3rd Phase
W-364	Local Road	20	40.94	Road Widening	3rd Phase
W-365	Local Road	20	86.13	Road Widening	3rd Phase
W-368	Local Road	20	18.51	Road Widening	3rd Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
N-26	Primary Road	80	5.55	New Road	1st Phase
W-797	Secondary Road	40	78.19	Road Widening	2nd Phase
W-798	Secondary Road	40	81.66	Road Widening	2nd Phase
W-800	Secondary Road	40	49.52	Road Widening	2nd Phase
W-801	Secondary Road	40	138.37	Road Widening	2nd Phase
W-895	Secondary Road	40	2.30	Road Widening	2nd Phase
W-898	Local Road	20	51.61	Road Widening	3rd Phase
W-899	Secondary Road	40	44.86	Road Widening	2nd Phase
W-957	Secondary Road	40	233.24	Road Widening	2nd Phase
W-906	Local Road	20	25.37	Road Widening	3rd Phase
W-958	Secondary Road	40	0.00	Road Widening	2nd Phase
W-958	Secondary Road	40	155.22	Road Widening	2nd Phase
W-959	Secondary Road	40	0.00	Road Widening	2nd Phase
W-959	Secondary Road	40	13.20	Road Widening	2nd Phase
N-29	Secondary Road	60	5.55	New Road	2nd Phase
N-34	Secondary Road	60	293.13	New Road	2nd Phase
N-41	Primary Road	80	151.78	New Road	1st Phase
W-966	Primary Road	80	52.29	Road Widening	1st Phase
W-961	Secondary Road	40	0.01	Road Widening	2nd Phase
W-961	Secondary Road	40	6.63	Road Widening	2nd Phase
N-79	Local Road	20	157.43	New Road	3rd Phase
N-80	Local Road	20	95.45	New Road	3rd Phase
N-81	Local Road	20	165.02	New Road	3rd Phase
N-82	Local Road	20	109.10	New Road	3rd Phase
N-83	Local Road	20	171.97	New Road	3rd Phase
N-20	Local Road	20	1.75	New Road	3rd Phase
W-141	Local Road	20	1.75	Road Widening	3rd Phase
		Total	**8870.43**		

- n for new proposed road and w for proposed widening of existing road

14.6.2.4 Drainage Development Plan

There is no manmade drainage facility at Ward no. 04 of Swarupkati Paurashava. Existing drainage is mostly depending on natural drainage facilities. The proposed drainage facilities will be developed based on these natural channels. These will serve as primary drain for the ward which will be connected by 1.36 km secondary drain and 3.90 km tertiary drain. Table 14.19 shows the detail.

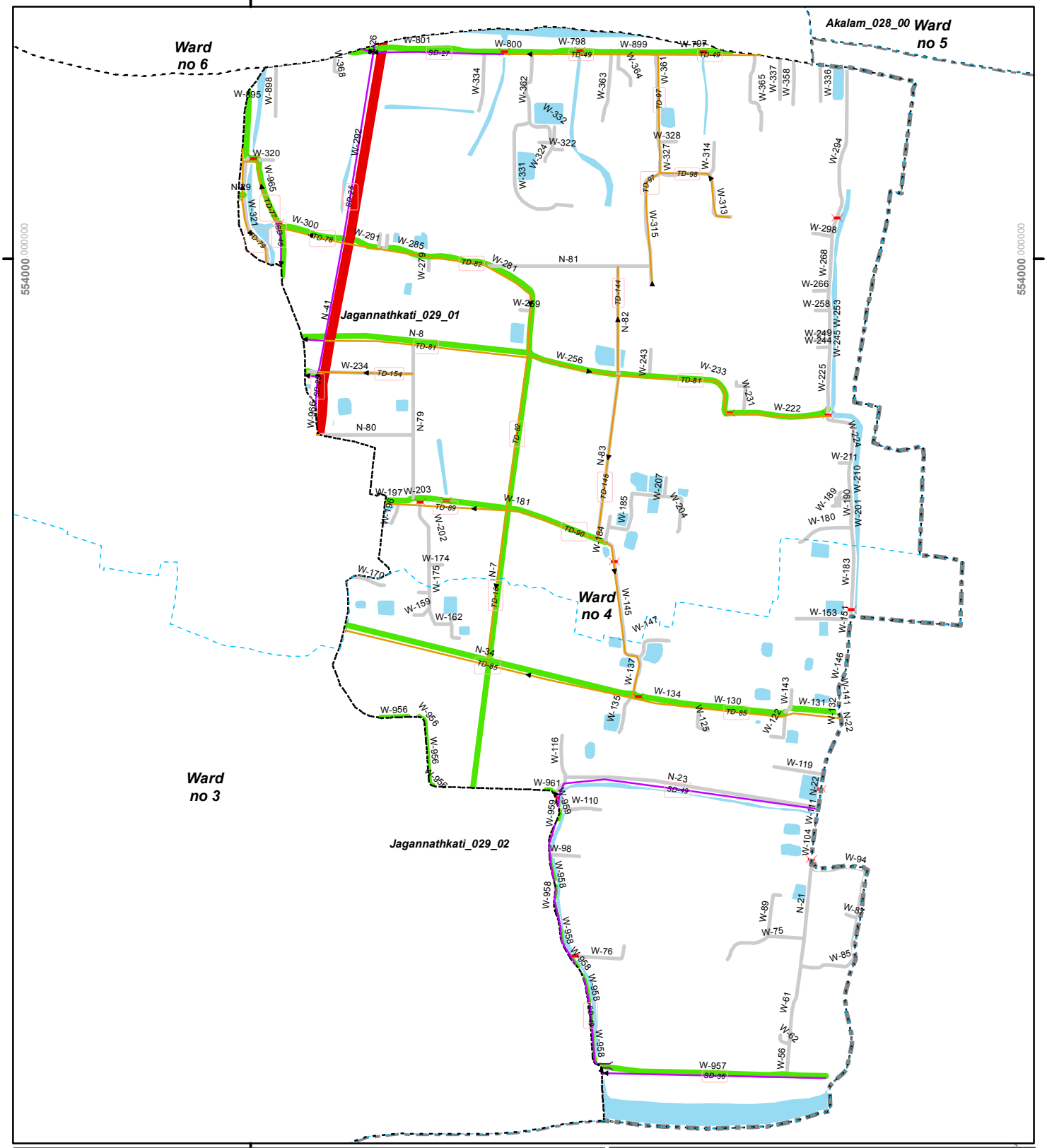
Table 14.19: Drainage Development Plan Proposals for ward 04

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing
SD-25	Secondary Drain	2.5-3.5	1.25-2.25	378.50	1st Phase
SD-27	Secondary Drain	2.5-3.5	1.25-2.25	134.54	1st Phase
TD-49	Tertiary Drain	2-2.5	0.64-1.25	264.25	3rd Phase
SD-36	Secondary Drain	2.5-3.5	1.25-2.25	229.00	1st Phase
SD-37	Secondary Drain	2.5-3.5	1.25-2.25	2.94	1st Phase
TD-61	Tertiary Drain	2-2.5	0.64-1.25	3.98	3rd Phase
SD-41	Secondary Drain	2.5-3.5	1.25-2.25	13.15	1st Phase
TD-62	Tertiary Drain	2-2.5	0.64-1.25	52.92	3rd Phase
TD-77	Tertiary Drain	2-2.5	0.64-1.25	77.99	3rd Phase
SD-46	Secondary Drain	2.5-3.5	1.25-2.25	46.96	1st Phase
TD-78	Tertiary Drain	2-2.5	0.64-1.25	67.10	3rd Phase
TD-79	Tertiary Drain	2-2.5	0.64-1.25	72.98	3rd Phase
SD-47	Secondary Drain	2.5-3.5	1.25-2.25	12.87	1st Phase
SD-48	Secondary Drain	2.5-3.5	1.25-2.25	22.34	1st Phase
TD-81	Tertiary Drain	2-2.5	0.64-1.25	550.23	3rd Phase
TD-82	Tertiary Drain	2-2.5	0.64-1.25	428.00	3rd Phase

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing
TD-83	Tertiary Drain	2-2.5	0.64-1.25	3.12	3rd Phase
TD-84	Tertiary Drain	2-2.5	0.64-1.25	5.58	3rd Phase
TD-85	Tertiary Drain	2-2.5	0.64-1.25	521.35	3rd Phase
SD-49	Secondary Drain	2.5-3.5	1.25-2.25	524.69	1st Phase
TD-89	Tertiary Drain	2-2.5	0.64-1.25	124.90	3rd Phase
TD-90	Tertiary Drain	2-2.5	0.64-1.25	282.26	3rd Phase
TD-97	Tertiary Drain	2-2.5	0.64-1.25	243.49	3rd Phase
TD-98	Tertiary Drain	2-2.5	0.64-1.25	108.86	3rd Phase
TD-143	Tertiary Drain	2-2.5	0.64-1.25	165.02	3rd Phase
TD-144	Tertiary Drain	2-2.5	0.64-1.25	110.25	3rd Phase
TD-145	Tertiary Drain	2-2.5	0.64-1.25	169.43	3rd Phase
TD-153	Tertiary Drain	2-2.5	0.64-1.25	164.94	3rd Phase
TD-154	Tertiary Drain	2-2.5	0.64-1.25	97.47	3rd Phase
TD-155	Tertiary Drain	2-2.5	0.64-1.25	95.45	3rd Phase
TD-160	Tertiary Drain	2-2.5	0.64-1.25	129.75	3rd Phase
TD-161	Tertiary Drain	2-2.5	0.64-1.25	157.30	3rd Phase
Total				**5261.61**	

Besides, it will be necessary to re-excavate the khals that serve as primary drains. **Map 14.11** represents proposed Road and Drainage Network for Ward 4.

Map 14.11	Proposed Road and Drainage Network of ward No. 04



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

0 0.0325 0.065 0.13 0.195 0.26 Kilometers

Legend

Existing

- Paurashava Boundary
- Ward Boundary
- Mouza Boundary
- Box Culvert
- Bridge
- Pipe Culvert

Proposed

- Box Culvert
- Proposed Bridge

Proposed Drains

- Secondary Drain
- Tertiary Drain

Proposed Road

- Local Road
- Primary Road
- Secondary Road
- Proposed Water Body

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14.6.2.5 Urban Services

a. Solid Waste Management

The consultant proposes one solid waste transfer stations in this ward in second Ward Action Plan

b. Water Supply

It is proposed to install a network based water supply system by exploring fresh water from the Sandhya River for the entire Paurashava. In ward no. 04 3.91km of piped water supply network has been proposed.

c. Sanitation

The Paurashava must try to promote hygienic sanitation for the whole Paurashavsa to ensure better public health.

Table 14.20: Utility Service Development Proposals for ward 04

ID	Type of facility	Ward no	Mouza Name	Plot no	Area (Acre)
CZ-04	Retail Market	4	Jagannathkati_029_01	433, 435, 448, 449, 450, 451, 452	1.79
CZ-05			Jagannathkati_029_02	643, 646, 647, 648, 654, 703	0.60
AD-04	Ward Office	4	Jagannathkati_029_01	452, 453, 454	0.25
ER-06	Secondary School	4	Jagannathkati_029_01	440, 442, 443, 444, 445, 446, 462, 536, 537, 538, 539, 540, 541, 542, 543	3.14
ER-25	Vocational Training Center	4	Jagannathkati_029_01	400, 441, 442, 443, 446, 447, 448, 449, 450, 451, 458, 459	3.52
ER-16	Kindergarten	4	Jagannathkati_029_01	478, 479, 483	0.20
ER-17	Kindergarten	4	Jagannathkati_029_01	504, 506, 507, 508, 574	0.07
ER-18	Kindergarten	4	Jagannathkati_029_01	400, 401, 460, 461	0.59
ER-19	Kindergarten	4	Jagannathkati_029_01	454, 457	0.03
OS-07	Neighborhood Park	4	Jagannathkati_029_01	399, 400, 401, 402, 403, 404	1.16
OS-10	Park	4	Jagannathkati_029_02	641, 643, 652, 654, 655, 656	0.82
OS-14	Play ground	4	Jagannathkati_029_01	460, 461, 462, 463, 464	2.11
US-03	Waste Transfer Station	4	Jagannathkati_029_01	425, 453, 455	0.06
HF-03	Health Centre/ Maternity Clinic	4	Jagannathkati_029_01	403, 404, 405, 406, 407, 425	0.91
CF-08	Community Center	4	Jagannathkati_029_01	447, 450, 451, 452, 453, 454	0.44

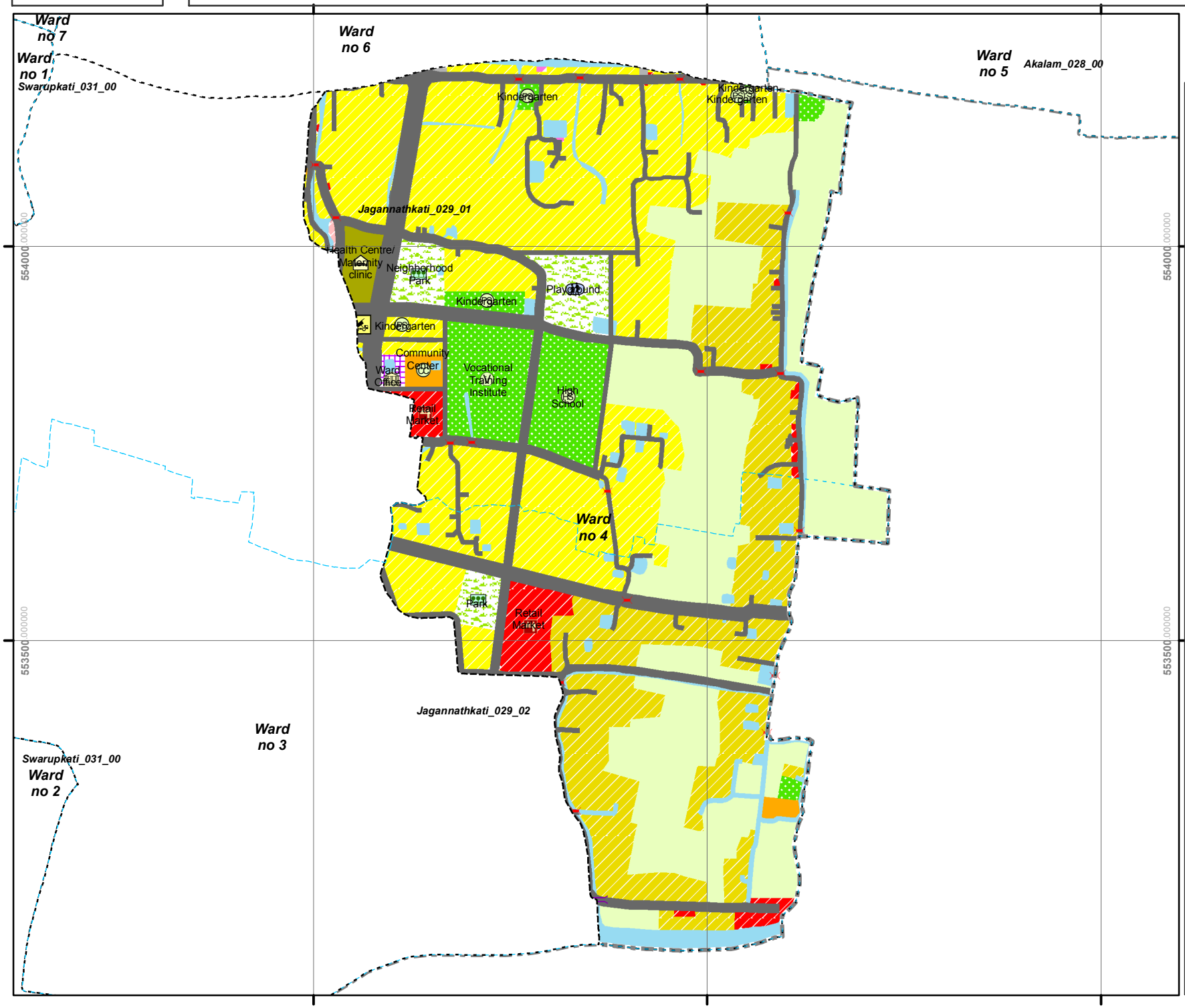
d. Ward Center

A ward center will be established in Ward no.04. The ward center having ward office, retail market, playground, park, training institute and community center will serve this ward and people in the adjoining areas.

Map 14.12 represents proposed physical development of ward 04.

Map:14.12

Development Proposals of ward No. 04



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

UTIDP, Package-11

Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary

Proposed Landuse

- Administrative
- Agriculture
- Water Body
- Circulation Network
- Commercial
- Community Facilities
- Education & Research
- Health Facility
- Urban Residential
- Industry
- Mixed Use
- Open Space
- Recreational Facility
- Restricted Area
- Rural Settlement
- Transport Facilities
- Urban Deferred
- Utility Services

Development Proposals

- Bus Terminal
- Central Eidgah
- Graveyard/Cremation Place
- Park/Neighborhood park
- Cinema Hall/Auditorium
- College
- Community Center
- Dockyard
- Health Centre/Complex
- High School
- Kindergarten
- Market (Retail/Neighborhood/Wholesale)
- Over Head Tank
- Playground
- Primary School
- Slaughter House
- Waste Disposal Site
- Stadium
- Truck Terminal
- Vocational Training Institute
- Ward Office/Center
- Waste Transfer Station
- Water Treatment Plant
- Tempu/Taxi/Bus/Rickshaw Stand

Kilometers
0 0.0325 0.065 0.13 0.195 0.26

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14.7 Ward Action Plan for Ward No. 05

14.7.1 Demography

Ward No. 05 is located on the western part of the town. It has a high density of population. Estimated population for the year 2031 will be 3166 in the ward with a density of 12 persons per acre. Table 14.21 shows the detail.

Table 14.21: Population Statistics of Ward No. 05

Item	Year			
	2016	2021	2026	2031
Area (acre)	254.51	254.51	254.51	254.51
Population	2718	2860	3009	3166
Density of Population (acre)	11	11	12	12

14.7.2 Ward Action Plan Proposals

14.7.2.1 Review of Existing Land Use

In ward no. 05, out of total 254.51 acre of land 40.85% is used as agricultural use. Though the percentage only 44.43% the next use is residential, more than 113.07 acres are used in this purpose. Water bodies occupy 9.82% land of the ward. At present only 1.22 acres of land are used in commercial purpose where as only.2.05% is used as circulation network. Only .32 acre of land is used as community facilities with .72% of urban green space. Other categories of activities are totally absent in this ward.

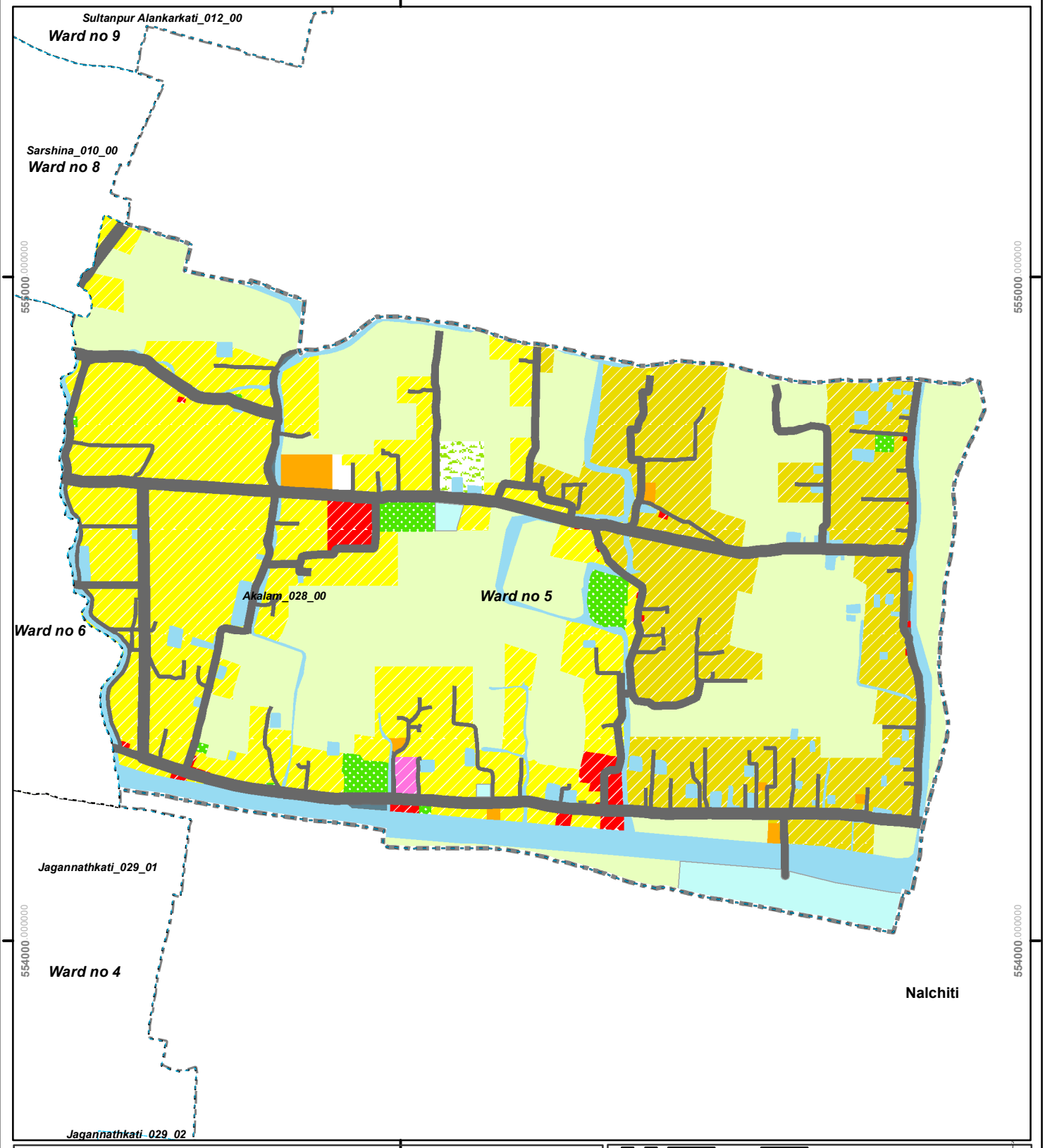
14.7.2.2 Proposed Land Use Zoning

The category wise proposals are presented here. Table 14.22 shows the amount of land existing and proposed uses in Ward no. 5. **Map 14.13** shows proposed land use of Ward 05.

Table 14.22: Comparative Scenario of Existing and Proposed Land Use of Ward No. 05

Sl. No.	Landuse (Existing)	Area (Acre)	%	Sl. No.	Landuse (Proposed)	Area (Acre)	%
1	Agricultural	103.97	40.85	1	Administrative	0.30	0.12
2	Circulation Network	5.22	2.05	2	Agriculture	87.42	34.35
3	Commercial	1.22	0.48	3	Circulation Network	32.59	12.80
4	Community Service	0.81	0.32	4	Commercial Zone	2.37	0.93
5	Education & Research	1.33	0.52	5	Community Facilities	1.46	0.57
6	Miscellaneous/others	2.04	0.80	6	Education and Research Zone	3.19	1.26
7	Non-Governmental Service	0.03	0.01	7	Miscellaneous	0.37	0.14
8	Residential	113.07	44.43	8	Open Space	1.10	0.43
9	Urban Green Space	1.83	0.72	9	Rural Settlement	40.00	15.72
10	Water body	25.00	9.82	10	Transportation Facilities	0.42	0.16
				11	Urban Residential	57.24	22.49
				12	Utility Services	5.11	2.01
				13	Water body	22.93	9.01
Total		**254.51**	**100.00**	**Total**		**254.51**	**100.00**

Map 14.13 Proposed land use of ward No. 05



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

Kilometers
0 0.035 0.07 0.14 0.21 0.28

Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary

Proposed Landuse

- Administrative
- Agriculture
- Water Body
- Circulation Network
- Commercial
- Community Facilities
- Education & Research
- Health Facility
- Industry
- Mixed Use
- Open Space
- Recreational Facility
- Restricted Area
- Rural Settlement
- Transport Faclilties
- Urban Deferred
- Urban Residential
- Utility Services

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a. Urban Residential Zone

In Ward Action Plan more than 57.24 acres of land has been earmarked for urban residential use which will occupy about 22.49% of the total land.

b. Education and Research

Total 3.19 acre land with one primary school and one kindergarten is proposed for education and research use for this ward. It covers 1.26% of total land.

c. Commercial Zone

Only 2.37 acres of land is allocated specially for this purpose. Small amount of future commercial use will also be done within the mixed use zone.

d. Circulation network

To improve the efficiency of the ward more roads are proposed which will consume 32.59 acre of land and more than 12.80% of the total area. For network improvement widening of existing road, link road and new roads are proposed which will be done phase wise within 2031.

e. Community Facilities

Proposed land for community service will be 1.46 acre.

f. Open Space

Total 1.10 acre of land which covers 0.43% will be used for recreational facilities.

14.7.2.3 Proposed Road Infrastructure Development

Total 12.12 km road development proposal have been proposed in first Ward Action Plan for Ward no. 05. 4.28 km local roads are proposed and width will be 20 ft. 4.82 km secondary road network of 60 ft width are also proposed. Detail scenario of road network development proposal was given in table 14.23.

Table 14.23: Road Network Proposal at Ward no. 05

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-963	Secondary Road	60	1187.09	Road Widening	2nd Phase
N-13	Secondary Road	60	8.49	New Road	2nd Phase
N-14	Secondary Road	60	330.87	New Road	2nd Phase
W-340	Local Road	20	43.18	Road Widening	3rd Phase
W-341	Local Road	20	126.84	Road Widening	3rd Phase
W-342	Local Road	20	53.46	Road Widening	3rd Phase
W-343	Local Road	20	84.15	Road Widening	3rd Phase
W-345	Local Road	20	80.64	Road Widening	3rd Phase
W-346	Local Road	20	98.94	Road Widening	3rd Phase
W-348	Local Road	20	94.25	Road Widening	3rd Phase
W-350	Secondary Road	40	145.65	Road Widening	2nd Phase
W-351	Local Road	20	44.80	Road Widening	3rd Phase
W-355	Local Road	20	217.44	Road Widening	3rd Phase
W-356	Local Road	20	65.35	Road Widening	3rd Phase
W-359	Local Road	20	8.61	Road Widening	3rd Phase
W-360	Local Road	20	66.47	Road Widening	3rd Phase
W-367	Local Road	20	116.76	Road Widening	3rd Phase
W-375	Local Road	20	36.11	Road Widening	3rd Phase
W-382	Secondary Road	40	56.84	Road Widening	2nd Phase
W-383	Local Road	20	44.27	Road Widening	3rd Phase
W-384	Local Road	20	137.08	Road Widening	3rd Phase
W-385	Local Road	20	20.78	Road Widening	3rd Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-391	Local Road	20	59.70	Road Widening	3rd Phase
W-392	Secondary Road	40	132.98	Road Widening	2nd Phase
W-393	Secondary Road	40	22.15	Road Widening	2nd Phase
W-394	Local Road	20	22.25	Road Widening	3rd Phase
W-395	Local Road	20	41.65	Road Widening	3rd Phase
W-397	Local Road	20	17.93	Road Widening	3rd Phase
W-399	Local Road	20	10.13	Road Widening	3rd Phase
W-405	Local Road	20	104.99	Road Widening	3rd Phase
W-407	Local Road	20	161.83	Road Widening	3rd Phase
W-417	Local Road	20	7.11	Road Widening	3rd Phase
W-418	Local Road	20	52.71	Road Widening	3rd Phase
W-419	Secondary Road	40	62.51	Road Widening	2nd Phase
W-420	Local Road	20	14.41	Road Widening	3rd Phase
W-422	Local Road	20	7.76	Road Widening	3rd Phase
W-423	Local Road	20	24.09	Road Widening	3rd Phase
W-424	Local Road	20	55.59	Road Widening	3rd Phase
W-431	Secondary Road	40	48.79	Road Widening	2nd Phase
W-434	Local Road	20	6.87	Road Widening	3rd Phase
W-435	Local Road	20	24.45	Road Widening	3rd Phase
W-440	Local Road	20	20.83	Road Widening	3rd Phase
W-452	Local Road	20	19.16	Road Widening	3rd Phase
W-468	Local Road	20	19.33	Road Widening	3rd Phase
W-471	Secondary Road	40	31.20	Road Widening	2nd Phase
W-472	Secondary Road	40	16.91	Road Widening	2nd Phase
W-473	Secondary Road	40	62.96	Road Widening	2nd Phase
W-475	Local Road	20	6.75	Road Widening	3rd Phase
W-476	Local Road	20	0.68	Road Widening	3rd Phase
W-477	Local Road	20	40.86	Road Widening	3rd Phase
W-478	Secondary Road	40	169.25	Road Widening	2nd Phase
W-486	Secondary Road	40	132.61	Road Widening	2nd Phase
W-487	Local Road	20	15.24	Road Widening	3rd Phase
W-488	Local Road	20	56.05	Road Widening	3rd Phase
W-490	Local Road	20	2.35	Road Widening	3rd Phase
W-492	Local Road	20	14.46	Road Widening	3rd Phase
W-500	Local Road	20	26.49	Road Widening	3rd Phase
W-506	Local Road	20	43.17	Road Widening	3rd Phase
W-508	Secondary Road	40	26.36	Road Widening	2nd Phase
W-509	Local Road	20	42.09	Road Widening	3rd Phase
W-510	Local Road	20	4.21	Road Widening	3rd Phase
W-511	Local Road	20	133.78	Road Widening	3rd Phase
W-512	Local Road	20	100.67	Road Widening	3rd Phase
W-513	Local Road	20	32.23	Road Widening	3rd Phase
W-517	Local Road	20	50.71	Road Widening	3rd Phase
W-518	Local Road	20	73.03	Road Widening	3rd Phase
W-524	Local Road	20	34.60	Road Widening	3rd Phase
W-525	Secondary Road	40	42.83	Road Widening	2nd Phase
W-526	Local Road	20	17.96	Road Widening	3rd Phase
W-530	Local Road	20	33.47	Road Widening	3rd Phase
W-531	Local Road	20	49.07	Road Widening	3rd Phase
W-533	Local Road	20	12.28	Road Widening	3rd Phase
W-535	Local Road	20	45.35	Road Widening	3rd Phase
W-538	Local Road	20	56.28	Road Widening	3rd Phase
W-539	Local Road	20	35.83	Road Widening	3rd Phase
W-541	Local Road	20	17.68	Road Widening	3rd Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-542	Secondary Road	40	156.36	Road Widening	2nd Phase
W-544	Local Road	20	31.15	Road Widening	3rd Phase
W-545	Secondary Road	40	61.52	Road Widening	2nd Phase
W-546	Local Road	20	2.96	Road Widening	3rd Phase
W-548	Local Road	20	21.54	Road Widening	3rd Phase
W-549	Local Road	20	14.12	Road Widening	3rd Phase
W-552	Local Road	20	12.91	Road Widening	3rd Phase
W-553	Secondary Road	40	10.27	Road Widening	2nd Phase
W-555	Local Road	20	89.16	Road Widening	3rd Phase
W-556	Secondary Road	40	30.32	Road Widening	2nd Phase
W-557	Local Road	20	26.68	Road Widening	3rd Phase
W-558	Secondary Road	40	241.98	Road Widening	2nd Phase
W-560	Secondary Road	40	64.50	Road Widening	2nd Phase
W-561	Secondary Road	40	51.99	Road Widening	2nd Phase
W-567	Secondary Road	40	29.81	Road Widening	2nd Phase
W-568	Secondary Road	60	126.26	Road Widening	2nd Phase
W-571	Local Road	20	163.11	Road Widening	3rd Phase
W-572	Secondary Road	40	98.28	Road Widening	2nd Phase
W-578	Secondary Road	40	31.20	Road Widening	2nd Phase
W-581	Local Road	20	23.39	Road Widening	3rd Phase
W-582	Local Road	20	78.54	Road Widening	3rd Phase
W-583	Local Road	20	94.82	Road Widening	3rd Phase
W-584	Secondary Road	60	43.27	Road Widening	2nd Phase
W-585	Local Road	20	42.66	Road Widening	3rd Phase
W-586	Secondary Road	40	139.87	Road Widening	2nd Phase
W-590	Secondary Road	40	18.06	Road Widening	2nd Phase
W-591	Secondary Road	40	46.35	Road Widening	2nd Phase
W-592	Secondary Road	60	37.89	Road Widening	2nd Phase
W-593	Secondary Road	40	61.69	Road Widening	2nd Phase
W-594	Secondary Road	40	46.94	Road Widening	2nd Phase
W-595	Local Road	20	77.47	Road Widening	3rd Phase
W-596	Secondary Road	40	199.81	Road Widening	2nd Phase
W-597	Secondary Road	60	5.15	Road Widening	2nd Phase
W-599	Secondary Road	60	55.46	Road Widening	2nd Phase
W-600	Secondary Road	40	160.71	Road Widening	2nd Phase
W-601	Secondary Road	60	29.65	Road Widening	2nd Phase
W-602	Local Road	20	91.35	Road Widening	3rd Phase
W-603	Secondary Road	40	19.20	Road Widening	2nd Phase
W-604	Secondary Road	60	92.35	Road Widening	2nd Phase
W-605	Secondary Road	40	188.98	Road Widening	2nd Phase
W-606	Secondary Road	40	230.77	Road Widening	2nd Phase
W-607	Local Road	20	53.67	Road Widening	3rd Phase
W-608	Local Road	20	45.15	Road Widening	3rd Phase
W-609	Local Road	20	8.61	Road Widening	3rd Phase
W-610	Local Road	20	48.88	Road Widening	3rd Phase
W-613	Secondary Road	40	56.55	Road Widening	2nd Phase
W-614	Local Road	20	189.79	Road Widening	3rd Phase
W-615	Local Road	20	18.21	Road Widening	3rd Phase
W-616	Local Road	20	39.59	Road Widening	3rd Phase
W-617	Secondary Road	40	44.01	Road Widening	2nd Phase
W-618	Local Road	20	20.54	Road Widening	3rd Phase
W-619	Local Road	20	49.28	Road Widening	3rd Phase
W-620	Secondary Road	40	161.23	Road Widening	2nd Phase
W-624	Secondary Road	40	136.23	Road Widening	2nd Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-627	Secondary Road	40	53.71	Road Widening	2nd Phase
W-630	Secondary Road	40	31.80	Road Widening	2nd Phase
W-631	Local Road	20	53.68	Road Widening	3rd Phase
W-632	Local Road	20	93.19	Road Widening	3rd Phase
W-638	Secondary Road	40	25.93	Road Widening	2nd Phase
W-639	Local Road	20	21.10	Road Widening	3rd Phase
W-640	Secondary Road	40	67.78	Road Widening	2nd Phase
W-645	Local Road	20	164.30	Road Widening	3rd Phase
W-648	Local Road	20	44.12	Road Widening	3rd Phase
W-649	Secondary Road	40	90.36	Road Widening	2nd Phase
W-655	Secondary Road	40	58.76	Road Widening	2nd Phase
W-656	Local Road	20	23.73	Road Widening	3rd Phase
W-657	Local Road	20	0.28	Road Widening	3rd Phase
W-659	Local Road	20	47.96	Road Widening	3rd Phase
W-662	Local Road	20	94.19	Road Widening	3rd Phase
W-663	Secondary Road	40	23.37	Road Widening	2nd Phase
W-665	Local Road	20	27.15	Road Widening	3rd Phase
W-667	Secondary Road	60	303.48	Road Widening	2nd Phase
W-670	Secondary Road	60	26.12	Road Widening	2nd Phase
W-677	Secondary Road	60	110.23	Road Widening	2nd Phase
W-916	Secondary Road	40	65.15	Road Widening	2nd Phase
W-917	Secondary Road	40	13.80	Road Widening	2nd Phase
W-918	Secondary Road	40	57.11	Road Widening	2nd Phase
W-919	Secondary Road	60	101.20	Road Widening	2nd Phase
N-35	Secondary Road	60	123.08	New Road	2nd Phase
N-36	Secondary Road	60	183.20	New Road	2nd Phase
W-920	Secondary Road	60	36.09	Road Widening	2nd Phase
W-921	Secondary Road	60	132.84	Road Widening	2nd Phase
N-47	Local Road	20	12.68	New Road	3rd Phase
N-49	Local Road	20	18.19	New Road	3rd Phase
N-51	Local Road	20	11.55	New Road	3rd Phase
N-52	Local Road	20	4.40	New Road	3rd Phase
N-91	Secondary Road	40	92.86	New Road	2nd Phase
W-963	Secondary Road	40	48.16	Road Widening	2nd Phase
N-94	Secondary Road	60	411.68	New Road	2nd Phase
N-95	Secondary Road	40	96.12	New Road	2nd Phase
Total			**12122.23**		

- "n" for new proposed road and "w" for proposed widening of existing road

14.7.2.4 Drainage Development Plan

There is no manmade drainage facility at ward no. 05. Existing drainage is mostly depending on natural drainage facilities; the proposed drainage facilities will be developed based on this natural channel. These two khals will be served as primary drain which will be connected with 2.96 km secondary drain and 4.29 km tertiary drain in first Ward Action Plan. Table 14.24 shows the detail.

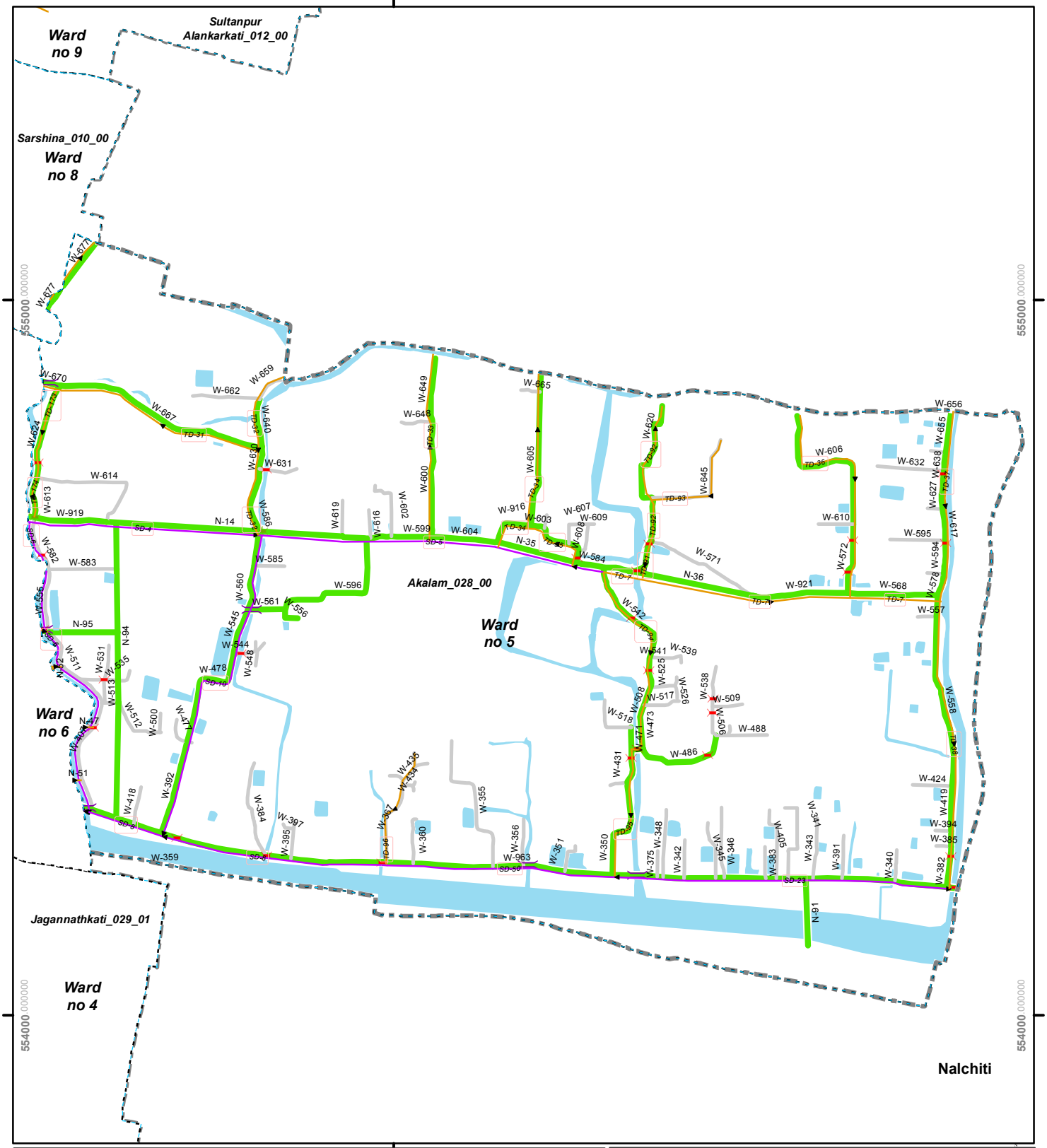
Table 14.24: Drainage Development Plan Proposals for ward 05

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing
SD-4	Secondary Drain	2.5-3.5	1.25-2.25	323.81	1st Phase
SD-5	Secondary Drain	2.5-3.5	1.25-2.25	486.64	1st Phase
TD-7	Tertiary Drain	2-2.5	0.64-1.25	477.81	3rd Phase
SD-6	Secondary Drain	2.5-3.5	1.25-2.25	447.55	1st Phase
SD-8	Secondary Drain	2.5-3.5	1.25-2.25	418.34	1st Phase
SD-9	Secondary Drain	2.5-3.5	1.25-2.25	7.26	1st Phase

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing
SD-10	Secondary Drain	2.5-3.5	1.25-2.25	475.04	1st Phase
TD-30	Tertiary Drain	2-2.5	0.64-1.25	78.84	3rd Phase
TD-31	Tertiary Drain	2-2.5	0.64-1.25	322.91	3rd Phase
TD-32	Tertiary Drain	2-2.5	0.64-1.25	247.75	3rd Phase
TD-33	Tertiary Drain	2-2.5	0.64-1.25	264.44	3rd Phase
TD-34	Tertiary Drain	2-2.5	0.64-1.25	281.18	3rd Phase
TD-35	Tertiary Drain	2-2.5	0.64-1.25	102.57	3rd Phase
TD-36	Tertiary Drain	2-2.5	0.64-1.25	334.44	3rd Phase
TD-37	Tertiary Drain	2-2.5	0.64-1.25	268.57	3rd Phase
SD-23	Secondary Drain	2.5-3.5	1.25-2.25	439.30	1st Phase
TD-38	Tertiary Drain	2-2.5	0.64-1.25	405.93	3rd Phase
TD-91	Tertiary Drain	2-2.5	0.64-1.25	40.66	3rd Phase
TD-92	Tertiary Drain	2-2.5	0.64-1.25	214.98	3rd Phase
TD-93	Tertiary Drain	2-2.5	0.64-1.25	165.65	3rd Phase
TD-94	Tertiary Drain	2-2.5	0.64-1.25	283.11	3rd Phase
TD-95	Tertiary Drain	2-2.5	0.64-1.25	200.34	3rd Phase
TD-96	Tertiary Drain	2-2.5	0.64-1.25	173.11	3rd Phase
SD-50	Secondary Drain	2.5-3.5	1.25-2.25	359.55	1st Phase
TD-109	Tertiary Drain	2-2.5	0.64-1.25	14.91	3rd Phase
TD-110	Tertiary Drain	2-2.5	0.64-1.25	12.68	3rd Phase
TD-113	Tertiary Drain	2-2.5	0.64-1.25	10.57	3rd Phase
TD-114	Tertiary Drain	2-2.5	0.64-1.25	4.40	3rd Phase
TD-116	Tertiary Drain	2-2.5	0.64-1.25	10.27	3rd Phase
TD-172	Tertiary Drain	2-2.5	0.64-1.25	189.79	3rd Phase
TD-173	Tertiary Drain	2-2.5	0.64-1.25	128.95	3rd Phase
TD-174	Tertiary Drain	2-2.5	0.64-1.25	56.55	3rd Phase
Total				**7247.89**	

Besides, it will be necessary to re-excavate the khals that serve as primary drains. **Map 14.14** represents proposed road and drainage network for ward 5.

Map 14.14	Proposed Road and Drainage Network of ward No. 05



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

0 0.0425 0.085 0.17 0.255 0.34 Kilometers

Legend

Existing

- Paurashava Boundary
- Ward Boundary
- Mouza Boundary
- Box Culvert
- Bridge
- Pipe Culvert

Proposed

- Box Culvert
- Proposed Bridge

Proposed Drains

- Secondary Drain
- Tertiary Drain

Proposed Road

- Local Road
- Primary Road
- Secondary Road
- Proposed Water Body

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14.7.2.5 Urban Services

a. Solid Waste Management

Twowaste transfer station and one waste disposal site will be established in first ward action plan of ward no. 05. It also is recommended that home collection system is introduced in the ward by creation of local CBOs.

b. Water Supply

It is proposed to install a network based water supply system by exploring fresh water from the Sandhya River for the entire Paurashava. 5.34km piped water supply network is proposed in this ward.

c. Sanitation

The Paurashava must try to promote hygienic sanitation for the whole Paurashava to ensure better public health.

Table 14.25: Development Proposals for ward 05

ID	Type of facility	Ward no	Mouza Name	Plot no	Area (Acre)
UR-01	Planned Residential	5 & 6	Akalam_028_00	99999	0.06 (partial)
UR-02	Super Market	5	Akalam_028_00	17, 26, 27, 28, 29, 30, 31, 38, 39, 40, 41, 44, 45, 46, 47, 49, 50, 51, 52, 53, 54, 55, 56, 57, 362, 378, 386	8.52
CZ-07	Retail Market	5	Akalam_028_00	121, 122, 123, 124, 127, 153, 165, 166, 167, 168, 169, 170, 172, 196, 331, 333	1.81
AD-05	Ward Office	5	Akalam_028_00	172, 173, 175, 195, 196	0.30
ER-09	Primary School	5	Akalam_028_00	135, 320, 321, 322, 330	1.09
ER-12	Kindergarten	5	Akalam_028_00	16, 31, 37, 79, 80, 163, 164, 165, 197, 198, 199, 200	0.97
OS-05	Neighborhood Park	5	Akalam_028_00	189, 190, 191, 200, 201, 202, 203, 208	1.10
TF-08	Bus Stand	5	Akalam_028_00	99, 102, 106	0.42
US-02	Waste Transfer Station	5	Akalam_028_00	138, 163, 200, 201, 208	0.49
US-11					0.10
US-13	Waste Disposal Site	5	Akalam_028_00	108, 22222	4.64
CF-06	Community Center	5	Akalam_028_00	150, 151, 153, 170, 171, 172, 173, 174, 175, 177	0.93

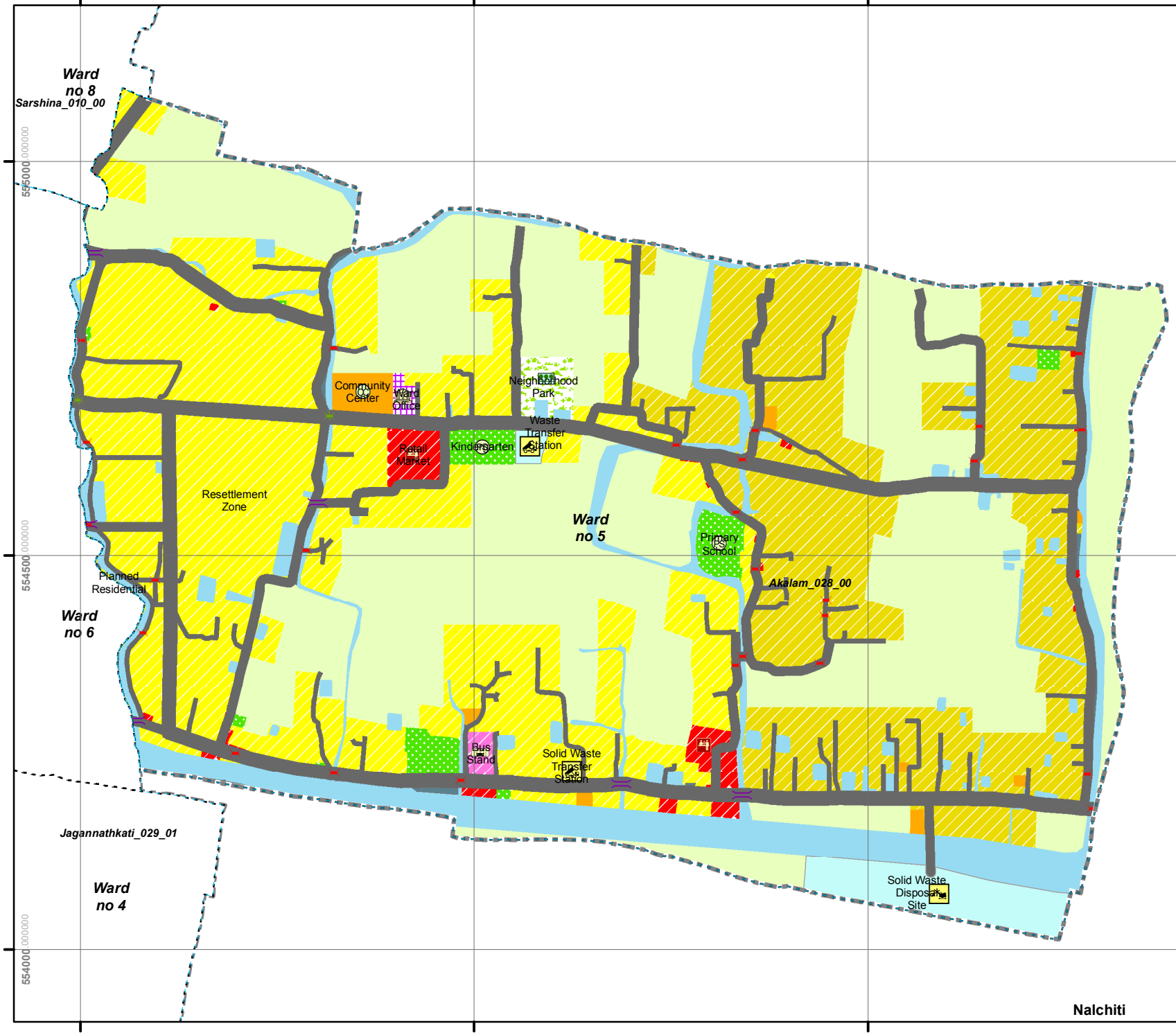
d. Ward Center

A ward center will be established in Ward no. 05. The ward center having ward office, retail market, park and community center will serve this ward and people in the adjoining areas.

Map 14.15 represents proposed physical development of ward 5

Map 14.15

Development Proposals of ward No. 05



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA
UTIDP, Package-11

Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary

Proposed Landuse

- Administrative
- Agriculture
- Water Body
- Circulation Network
- Commercial
- Community Facilities
- Education & Research
- Health Facility
- Urban Residential
- Industry
- Mixed Use
- Open Space
- Recreational Facility
- Restricted Area
- Rural Settlement
- Transport Facilities
- Urban Deferred
- Utility Services

Development Proposals

- Bus Terminal
- Central Eidgah
- Graveyard/Cremation Place
- Park/Neighborhood park
- Cinema Hall/Auditorium
- College
- Community Center
- Dockyard
- Health Centre/Complex
- High School
- Kindergarten
- Market (Retail/Neighborhood/Wholesale)
- Over Head Tank
- Playground
- Primary School
- Slaughter House
- Waste Disposal Site
- Stadium
- Truck Terminal
- Vocational Training Institute
- Ward Office/Center
- Waste Transfer Station
- Water Treatment Plant
- Tempu/Taxi/Bus/Rickshaw Stand

0 0.035 0.07 0.14 0.21 0.28 Kilometers

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14.8 Ward Action Plan for Ward No. 06

14.8.1 Demography

Ward No. 6 is located on the Center part of the town. In 2031, the population will be 3473 and density in this ward will be 28. Table 14.26 shows detail.

Table 14.26: Population Statistics of Ward No. 06

Item	Year			
	2016	2021	2026	2031
Area (acre)	123.16	123.16	123.16	123.16
Population	1740	1831	1926	2027
Density of Population (acre)	14	15	16	16

14.8.2 Ward Action Plan Proposals

14.8.2.1 Review of Existing Land Use

In ward no. 06, Out of total area 48.24 acre of land i.e. about 39.17% is used as agricultural use. Being36.41% the next use is residential. Water bodies occupy more than 13% land of the ward. At present 4.91 acres of land are used in commercial purpose. About 3.44% is used as circulation network. Only .15 acre of land is used as community facilities.

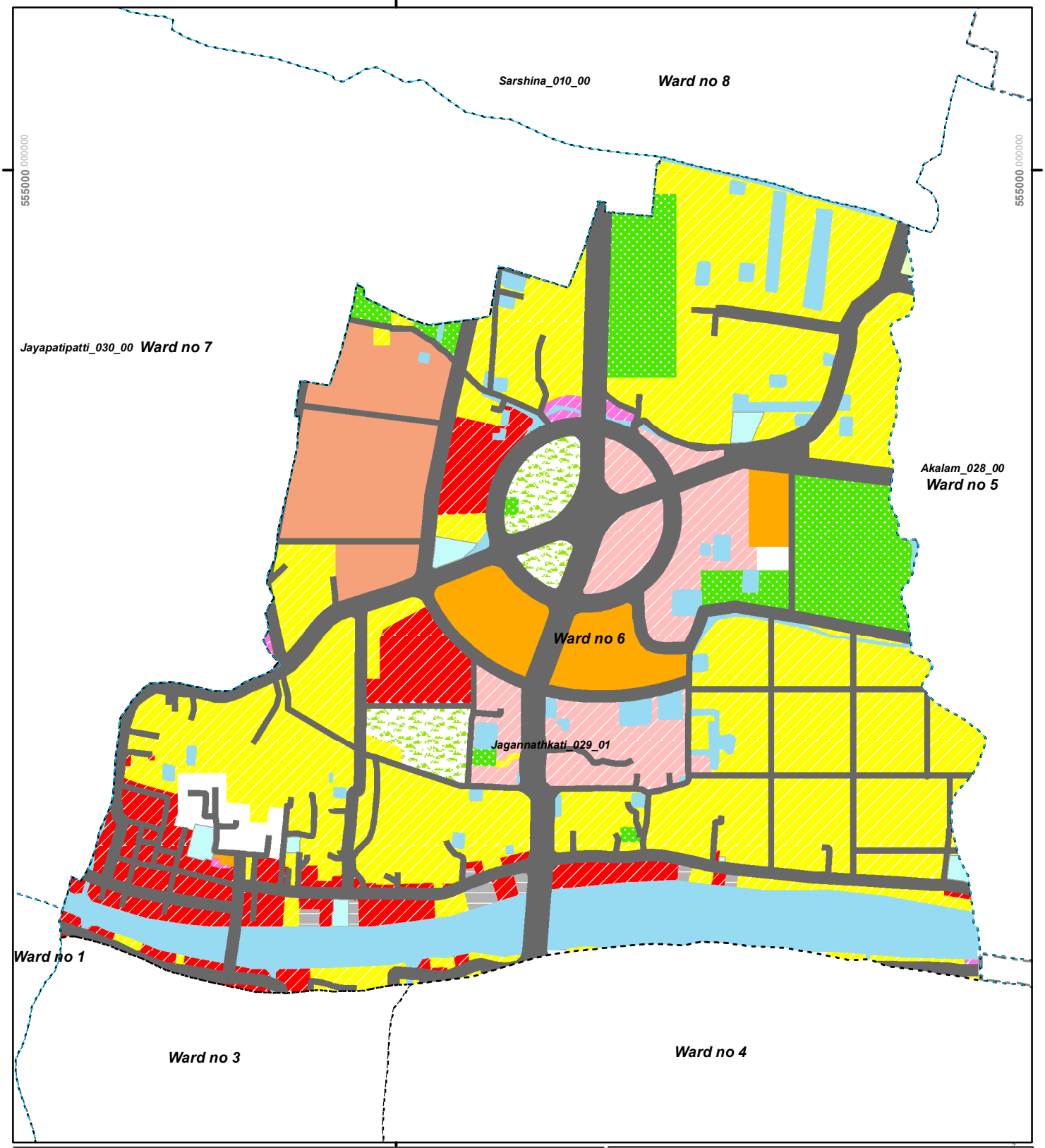
14.8.2.2 Proposed Land Use Zoning

The category wise proposals are presented here. Table 14.27 shows the amount of land existing and proposed uses in Ward no. 06. **Map 14.16** shows proposed land use of Ward 06.

Table 14.27: Comparative Scenario of Existing and Proposed Land Uses of Ward no. 06

Sl. No.	Landuse (Existing)	Area (Acre)	%	Sl. No.	Landuse (Proposed)	Area (Acre)	%
1	Administrative	1.23	1.00	1	Administrative	1.22	1.00
2	Agricultural	48.24	39.17	2	Agriculture	0.05	0.04
3	Circulation Network	4.24	3.44	3	Circulation Network	27.70	22.49
4	Commercial	6.05	4.91	4	Commercial Zone	7.61	6.18
5	Community Service	0.19	0.15	5	Community Facilities	4.30	3.49
6	Education & Research	0.11	0.09	6	Education and Research Zone	7.55	6.13
7	Industrial	0.60	0.49	7	General Industrial Zone	0.46	0.38
8	Miscellaneous/others	0.57	0.46	8	Mixed Use	7.05	5.72
9	Residential	44.85	36.41	9	Open Space	2.80	2.27
10	Service Activity	0.39	0.32	10	Transportation Facilities	0.30	0.24
11	Transport & Communication	0.06	0.05	11	Urban Deferred	7.01	5.69
12	Urban Green Space	0.61	0.49	12	Urban Residential	41.80	33.94
13	Water body	16.03	13.01	13	Utility Services	0.84	0.68
				14	Water body	14.48	11.76
Total		**123.16**	**100.0**	**Total**		**123.16**	**100.0**

Map 14.16 Proposed land use of ward No. 06



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

0 0.025 0.05 0.1 0.15 0.2 Kilometers

Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary

Proposed Landuse

- Administrative
- Agriculture
- Water Body
- Circulation Network
- Commercial
- Community Facilities
- Education & Research
- Health Facility
- Industry
- Mixed Use
- Open Space
- Recreational Facility
- Restricted Area
- Rural Settlement
- Transport Facilities
- Urban Deferred
- Urban Residential
- Utility Services

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a. Urban Residential Area

In Ward Action Plan more land is allocated as residential use. More than 41.80 acres of land has been earmarked for urban residential use which will occupy about 33.94% of the total land. A planned residential with 10.46 acre land has been proposed here.

b. Education and Research

Total 7.55 acres land including a college, secondary school, primary school and kindergarten have been proposed to make available for education purpose for the ward and its vicinity.

c. Commercial Zone

It will comprise of 7.61 acres including a super market, retail market and a slaughter house. Some amount of future commercial use will be done within the mixed use zone where residential use will also be permitted.

d. Mixed Use

About 7.05 acres land in the ward is allocated for mixed use zone. Most of them will be commercial based residential area.

e. General Industrial Zone

No new industrial zone has been proposed here.

f. Circulation network

To improve the efficiency of the ward more roads are proposed which will consume about 27.70 acres of land and more than 22.49% of the total area. For network improvement widening of existing road, link road and new roads are proposed which will be done phase wise within 2031.

g. Community Facilities

A central eidgah, central graveyard and a community center have been proposed land for covering 4.30 acres land.

h. Open Space

At present this ward is lacking for any type of recreational facility included within the Open Space category. About 2.80 acre of land is proposed for this use. One playground will be established at the heart of this ward.

i. Agricultural Area

Only 0.05a cres land will remain as agricultural use up to the year 2031. The total area under this use has been estimated as 0.04% of the total land.

j. Water Body

The water bodies with an area equal to or more than 14.48 acres will be preserved as the water retention ponds.

k. Urban Deferred

In this ward about 7.01 acres of land will remain as urban deferred area.

14.8.2.3 Proposed Road Infrastructure Development

Total 11.15 km road development proposal have been proposed for Ward no. 06. Among the proposed roads 5.58 km are local roads and width of these roads will be 20ft, 4.33km secondary road 40 to 60 feet and 1.25 km primary road of 80 feet. Detail scenario of road network development proposal was given in table 14.28.

Table 14.28: Road Network Proposal at Ward no. 06

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-965	Secondary Road	40	39.07	Road Widening	2nd Phase
N-2	Secondary Road	50	264.25	New Road	2nd Phase
N-3	Primary Road	80	297.13	New Road	1st Phase
N-10	Primary Road	60	21.97	New Road	1st Phase
N-12	Secondary Road	60	161.08	New Road	2nd Phase
N-13	Secondary Road	60	148.83	New Road	2nd Phase
N-15	Secondary Road	40	3.92	New Road	2nd Phase
N-16	Local Road	20	150.18	New Road	3rd Phase
N-24	Local Road	20	64.81	New Road	3rd Phase
N-25	Local Road	20	60.17	New Road	3rd Phase
W-337	Local Road	20	5.91	Road Widening	3rd Phase
W-347	Local Road	20	54.93	Road Widening	3rd Phase
W-353	Local Road	20	0.49	Road Widening	3rd Phase
W-357	Local Road	20	4.80	Road Widening	3rd Phase
W-358	Local Road	20	6.46	Road Widening	3rd Phase
W-365	Local Road	20	2.64	Road Widening	3rd Phase
W-366	Local Road	20	2.08	Road Widening	3rd Phase
W-368	Local Road	20	7.84	Road Widening	3rd Phase
W-387	Secondary Road	40	2.51	Road Widening	2nd Phase
W-390	Local Road	20	5.31	Road Widening	3rd Phase
W-400	Local Road	20	18.44	Road Widening	3rd Phase
W-401	Local Road	20	18.53	Road Widening	3rd Phase
W-402	Local Road	20	16.98	Road Widening	3rd Phase
W-404	Local Road	20	144.25	Road Widening	3rd Phase
W-406	Secondary Road	40	34.28	Road Widening	2nd Phase
W-408	Local Road	20	22.64	Road Widening	3rd Phase
W-409	Local Road	20	55.36	Road Widening	3rd Phase
W-410	Local Road	20	48.21	Road Widening	3rd Phase
W-411	Local Road	20	10.36	Road Widening	3rd Phase
W-412	Secondary Road	40	63.74	Road Widening	2nd Phase
W-413	Local Road	20	15.23	Road Widening	3rd Phase
W-414	Local Road	20	10.10	Road Widening	3rd Phase
W-415	Local Road	20	16.27	Road Widening	3rd Phase
W-416	Local Road	20	22.35	Road Widening	3rd Phase
N-26	Primary Road	80	95.85	New Road	1st Phase
W-421	Secondary Road	40	3.08	Road Widening	2nd Phase
W-425	Secondary Road	40	43.56	Road Widening	2nd Phase
W-426	Local Road	20	20.49	Road Widening	3rd Phase
W-427	Local Road	20	66.12	Road Widening	3rd Phase
W-428	Local Road	20	31.19	Road Widening	3rd Phase
W-429	Local Road	20	16.94	Road Widening	3rd Phase
W-430	Local Road	20	20.78	Road Widening	3rd Phase
W-432	Local Road	20	44.41	Road Widening	3rd Phase
W-433	Local Road	20	15.21	Road Widening	3rd Phase
W-436	Local Road	20	9.72	Road Widening	3rd Phase
W-437	Local Road	20	17.10	Road Widening	3rd Phase
W-438	Local Road	20	22.28	Road Widening	3rd Phase
W-439	Local Road	20	36.67	Road Widening	3rd Phase
W-441	Local Road	20	5.84	Road Widening	3rd Phase
W-442	Local Road	20	19.10	Road Widening	3rd Phase
W-443	Local Road	20	17.35	Road Widening	3rd Phase
W-444	Local Road	20	53.23	Road Widening	3rd Phase
W-445	Local Road	20	3.83	Road Widening	3rd Phase
W-446	Local Road	20	40.35	Road Widening	3rd Phase
W-447	Local Road	20	3.47	Road Widening	3rd Phase
W-448	Local Road	20	36.49	Road Widening	3rd Phase
W-449	Local Road	20	39.54	Road Widening	3rd Phase
W-450	Local Road	20	71.63	Road Widening	3rd Phase
W-451	Local Road	20	24.85	Road Widening	3rd Phase
W-454	Local Road	20	25.78	Road Widening	3rd Phase
W-455	Local Road	20	13.54	Road Widening	3rd Phase
W-456	Local Road	20	84.20	Road Widening	3rd Phase
W-457	Local Road	20	55.72	Road Widening	3rd Phase
W-458	Local Road	20	27.39	Road Widening	3rd Phase
W-459	Local Road	20	49.72	Road Widening	3rd Phase
W-460	Local Road	20	24.16	Road Widening	3rd Phase
W-461	Local Road	20	19.47	Road Widening	3rd Phase
W-462	Local Road	20	19.99	Road Widening	3rd Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-463	Secondary Road	40	38.27	Road Widening	2nd Phase
W-464	Local Road	20	9.84	Road Widening	3rd Phase
W-465	Local Road	20	50.00	Road Widening	3rd Phase
W-467	Local Road	20	55.18	Road Widening	3rd Phase
W-469	Secondary Road	40	60.38	Road Widening	2nd Phase
W-470	Local Road	20	20.34	Road Widening	3rd Phase
W-479	Local Road	20	15.93	Road Widening	3rd Phase
W-480	Local Road	20	22.97	Road Widening	3rd Phase
W-481	Primary Road	80	41.46	Road Widening	1st Phase
W-482	Local Road	20	68.25	Road Widening	3rd Phase
W-483	Local Road	20	32.65	Road Widening	3rd Phase
W-484	Local Road	20	28.53	Road Widening	3rd Phase
W-485	Local Road	20	108.87	Road Widening	3rd Phase
W-489	Secondary Road	40	32.56	Road Widening	2nd Phase
W-491	Local Road	20	15.23	Road Widening	3rd Phase
W-493	Local Road	20	14.16	Road Widening	3rd Phase
W-495	Local Road	20	39.04	Road Widening	3rd Phase
W-498	Local Road	20	174.75	Road Widening	3rd Phase
W-499	Primary Road	80	218.05	Road Widening	1st Phase
W-501	Local Road	20	30.86	Road Widening	3rd Phase
W-502	Local Road	20	15.54	Road Widening	3rd Phase
W-503	Secondary Road	40	147.94	Road Widening	2nd Phase
W-504	Secondary Road	40	12.22	Road Widening	2nd Phase
W-505	Local Road	20	64.07	Road Widening	3rd Phase
W-515	Local Road	20	4.43	Road Widening	3rd Phase
W-516	Secondary Road	40	10.28	Road Widening	2nd Phase
W-519	Local Road	20	35.30	Road Widening	3rd Phase
W-523	Local Road	20	31.28	Road Widening	3rd Phase
W-529	Local Road	20	23.52	Road Widening	3rd Phase
W-532	Local Road	20	16.66	Road Widening	3rd Phase
W-534	Local Road	20	44.66	Road Widening	3rd Phase
W-537	Primary Road	60	347.99	Road Widening	1st Phase
W-543	Local Road	20	77.60	Road Widening	3rd Phase
W-547	Local Road	20	42.66	Road Widening	3rd Phase
W-553	Secondary Road	40	247.52	Road Widening	2nd Phase
W-554	Secondary Road	40	100.12	Road Widening	2nd Phase
W-566	Local Road	20	26.11	Road Widening	3rd Phase
W-574	Local Road	20	35.00	Road Widening	3rd Phase
W-623	Local Road	20	22.79	Road Widening	3rd Phase
W-625	Local Road	20	162.17	Road Widening	3rd Phase
W-626	Local Road	20	22.70	Road Widening	3rd Phase
W-628	Local Road	20	15.17	Road Widening	3rd Phase
W-629	Local Road	20	47.44	Road Widening	3rd Phase
W-633	Local Road	20	22.37	Road Widening	3rd Phase
W-634	Local Road	20	37.23	Road Widening	3rd Phase
W-635	Local Road	20	18.43	Road Widening	3rd Phase
W-636	Local Road	20	16.02	Road Widening	3rd Phase
W-637	Local Road	20	100.38	Road Widening	3rd Phase
W-651	Local Road	20	24.86	Road Widening	3rd Phase
W-652	Local Road	20	80.49	Road Widening	3rd Phase
W-653	Secondary Road	60	58.82	Road Widening	2nd Phase
W-654	Local Road	20	122.34	Road Widening	3rd Phase
W-658	Secondary Road	40	132.27	Road Widening	2nd Phase
W-660	Local Road	20	24.19	Road Widening	3rd Phase
W-666	Local Road	20	27.13	Road Widening	3rd Phase
W-668	Local Road	20	22.23	Road Widening	3rd Phase
W-670	Secondary Road	60	26.61	Road Widening	2nd Phase
W-671	Secondary Road	60	63.53	Road Widening	2nd Phase
W-673	Local Road	20	27.03	Road Widening	3rd Phase
W-683	Local Road	20	0.79	Road Widening	3rd Phase
W-778	Secondary Road	40	68.84	Road Widening	2nd Phase
W-779	Secondary Road	40	41.27	Road Widening	2nd Phase
W-780	Secondary Road	40	22.11	Road Widening	2nd Phase
W-781	Secondary Road	40	21.63	Road Widening	2nd Phase
W-782	Secondary Road	40	123.22	Road Widening	2nd Phase
W-964	Local Road	20	127.35	Road Widening	3rd Phase
W-786	Secondary Road	40	41.06	Road Widening	2nd Phase
W-787	Secondary Road	40	56.87	Road Widening	2nd Phase
W-788	Secondary Road	40	15.06	Road Widening	2nd Phase
W-789	Secondary Road	40	25.39	Road Widening	2nd Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-790	Secondary Road	40	14.30	Road Widening	2nd Phase
W-793	Secondary Road	40	58.42	Road Widening	2nd Phase
W-794	Secondary Road	40	63.15	Road Widening	2nd Phase
W-795	Secondary Road	40	18.68	Road Widening	2nd Phase
W-796	Secondary Road	40	13.84	Road Widening	2nd Phase
W-797	Secondary Road	40	23.51	Road Widening	2nd Phase
W-799	Secondary Road	40	26.61	Road Widening	2nd Phase
W-801	Secondary Road	40	15.88	Road Widening	2nd Phase
W-898	Local Road	20	8.22	Road Widening	3rd Phase
W-903	Secondary Road	40	25.04	Road Widening	2nd Phase
W-904	Secondary Road	40	41.92	Road Widening	2nd Phase
W-914	Secondary Road	60	122.45	Road Widening	2nd Phase
W-946	Primary Road	80	43.11	Road Widening	1st Phase
N-42	Secondary Road	60	60.02	New Road	2nd Phase
N-43	Primary Road	60	115.86	New Road	1st Phase
W-948	Primary Road	80	70.90	Road Widening	1st Phase
N-47	Local Road	20	279.71	New Road	3rd Phase
N-48	Local Road	20	257.43	New Road	3rd Phase
N-49	Local Road	20	231.65	New Road	3rd Phase
N-50	Local Road	20	249.85	New Road	3rd Phase
N-51	Local Road	20	102.25	New Road	3rd Phase
N-52	Local Road	20	81.58	New Road	3rd Phase
N-53	Local Road	20	52.60	New Road	3rd Phase
N-54	Local Road	20	149.83	New Road	3rd Phase
N-55	Secondary Road	60	550.93	New Road	2nd Phase
N-56	Secondary Road	40	153.65	New Road	2nd Phase
N-57	Secondary Road	40	157.11	New Road	2nd Phase
N-58	Local Road	20	43.92	New Road	3rd Phase
N-59	Local Road	20	111.60	New Road	3rd Phase
N-60	Secondary Road	40	97.97	New Road	2nd Phase
N-62	Local Road	20	148.40	New Road	3rd Phase
N-63	Local Road	20	40.83	New Road	3rd Phase
N-84	Local Road	20	5.76	New Road	3rd Phase
N-92	Local Road	20	86.52	New Road	3rd Phase
W-949	Secondary Road	40	41.61	Road Widening	2nd Phase
W-963	Secondary Road	40	729.68	Road Widening	2nd Phase
Total			**11152.93**		

- n for new proposed road and w for proposed widening of existing road

14.8.2.4 Drainage Development Plan

The proposed drainage facilities will be 9.15 km, served as 2.51 km secondary drain and 6.64 km tertiary drain in first Ward Action Plan. Table 14.29 shows the detail.

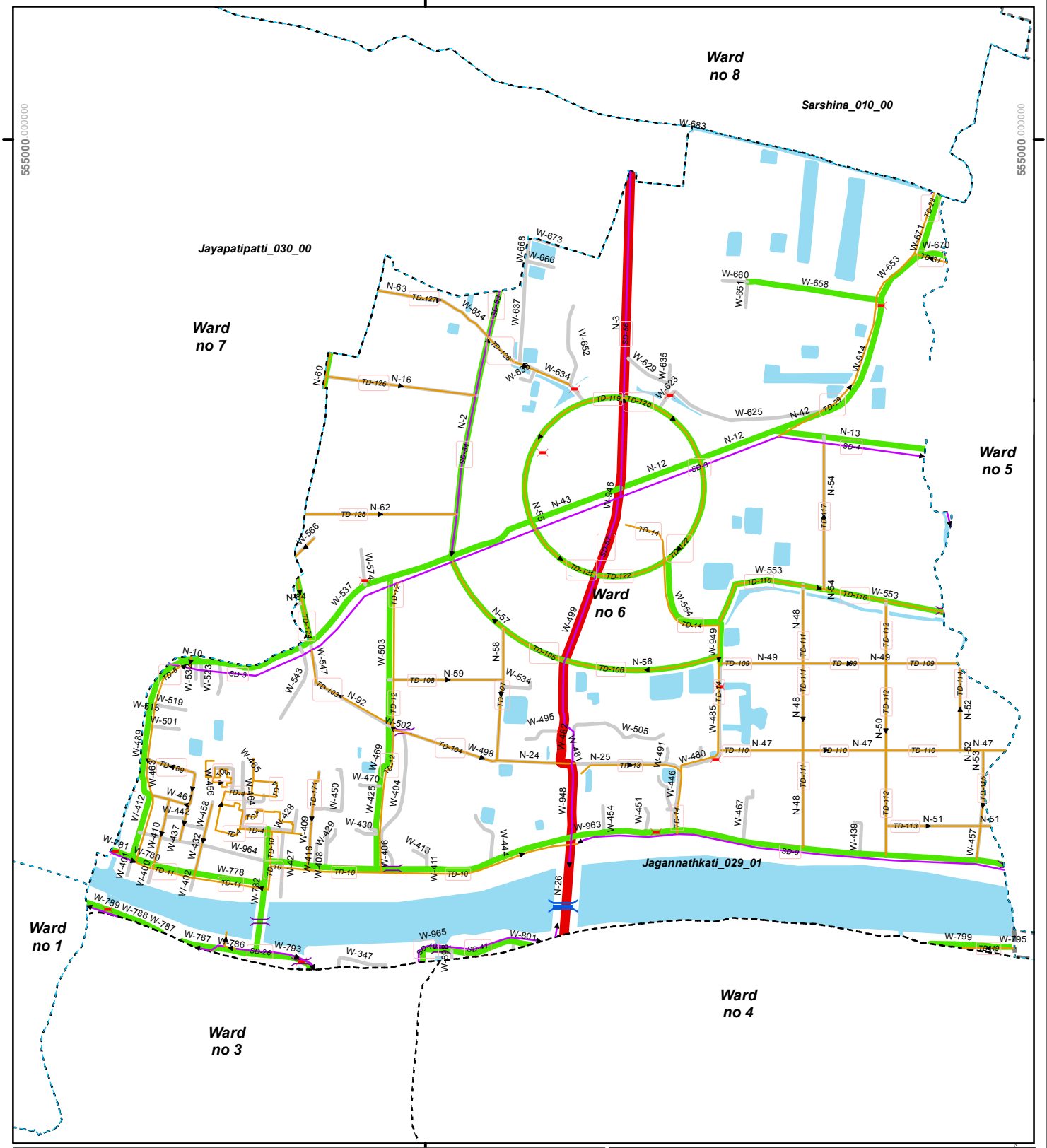
Table 14.29: Drainage Development Plan Proposals for ward 06

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing
TD-4	Tertiary Drain	2-2.5	0.64-1.25	382.52	2nd Phase
TD-5	Tertiary Drain	2-2.5	0.64-1.25	111.37	2nd Phase
SD-3	Secondary Drain	2.5-3.5	1.25-2.25	654.35	1st Phase
SD-4	Secondary Drain	2.5-3.5	1.25-2.25	144.13	1st Phase
SD-6	Secondary Drain	2.5-3.5	1.25-2.25	14.16	1st Phase
TD-8	Tertiary Drain	2-2.5	0.64-1.25	205.14	3rd Phase
SD-7	Secondary Drain	2.5-3.5	1.25-2.25	27.08	1st Phase
TD-10	Tertiary Drain	2-2.5	0.64-1.25	362.57	3rd Phase
TD-11	Tertiary Drain	2-2.5	0.64-1.25	132.59	3rd Phase
TD-12	Tertiary Drain	2-2.5	0.64-1.25	287.43	3rd Phase
TD-13	Tertiary Drain	2-2.5	0.64-1.25	103.34	3rd Phase
SD-9	Secondary Drain	2.5-3.5	1.25-2.25	421.07	1st Phase
TD-14	Tertiary Drain	2-2.5	0.64-1.25	396.53	3rd Phase
TD-29	Tertiary Drain	2-2.5	0.64-1.25	299.12	3rd Phase
TD-31	Tertiary Drain	2-2.5	0.64-1.25	33.01	3rd Phase
TD-42	Tertiary Drain	2-2.5	0.64-1.25	11.56	3rd Phase
TD-44	Tertiary Drain	2-2.5	0.64-1.25	26.49	3rd Phase
TD-45	Tertiary Drain	2-2.5	0.64-1.25	11.13	2nd Phase
TD-46	Tertiary Drain	2-2.5	0.64-1.25	0.18	2nd Phase
SD-24	Secondary Drain	2.5-3.5	1.25-2.25	39.00	1st Phase
TD-47	Tertiary Drain	2-2.5	0.64-1.25	14.99	2nd Phase

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing
SD-25	Secondary Drain	2.5-3.5	1.25-2.25	13.48	1st Phase
SD-26	Secondary Drain	2.5-3.5	1.25-2.25	62.81	1st Phase
TD-49	Tertiary Drain	2-2.5	0.64-1.25	51.63	3rd Phase
SD-28	Secondary Drain	2.5-3.5	1.25-2.25	23.74	1st Phase
SD-40	Secondary Drain	2.5-3.5	1.25-2.25	50.26	1st Phase
SD-41	Secondary Drain	2.5-3.5	1.25-2.25	103.34	1st Phase
TD-63	Tertiary Drain	2-2.5	0.64-1.25	1.19	3rd Phase
TD-103	Tertiary Drain	2-2.5	0.64-1.25	118.88	3rd Phase
TD-104	Tertiary Drain	2-2.5	0.64-1.25	183.67	3rd Phase
TD-105	Tertiary Drain	2-2.5	0.64-1.25	159.87	3rd Phase
TD-106	Tertiary Drain	2-2.5	0.64-1.25	144.88	3rd Phase
TD-107	Tertiary Drain	2-2.5	0.64-1.25	127.76	3rd Phase
TD-108	Tertiary Drain	2-2.5	0.64-1.25	106.76	3rd Phase
TD-109	Tertiary Drain	2-2.5	0.64-1.25	231.65	3rd Phase
TD-110	Tertiary Drain	2-2.5	0.64-1.25	279.71	3rd Phase
TD-111	Tertiary Drain	2-2.5	0.64-1.25	252.48	3rd Phase
TD-112	Tertiary Drain	2-2.5	0.64-1.25	244.27	3rd Phase
TD-113	Tertiary Drain	2-2.5	0.64-1.25	102.25	3rd Phase
TD-114	Tertiary Drain	2-2.5	0.64-1.25	80.57	3rd Phase
TD-115	Tertiary Drain	2-2.5	0.64-1.25	107.95	3rd Phase
TD-116	Tertiary Drain	2-2.5	0.64-1.25	247.52	3rd Phase
TD-117	Tertiary Drain	2-2.5	0.64-1.25	142.68	3rd Phase
SD-53	Secondary Drain	2.5-3.5	1.25-2.25	62.89	1st Phase
SD-54	Secondary Drain	2.5-3.5	1.25-2.25	201.36	1st Phase
SD-56	Secondary Drain	2.5-3.5	1.25-2.25	318.75	1st Phase
SD-57	Secondary Drain	2.5-3.5	1.25-2.25	374.38	1st Phase
TD-119	Tertiary Drain	2-2.5	0.64-1.25	190.78	3rd Phase
TD-120	Tertiary Drain	2-2.5	0.64-1.25	107.69	3rd Phase
TD-121	Tertiary Drain	2-2.5	0.64-1.25	75.80	3rd Phase
TD-122	Tertiary Drain	2-2.5	0.64-1.25	176.66	3rd Phase
TD-124	Tertiary Drain	2-2.5	0.64-1.25	97.97	3rd Phase
TD-125	Tertiary Drain	2-2.5	0.64-1.25	148.40	3rd Phase
TD-126	Tertiary Drain	2-2.5	0.64-1.25	147.17	3rd Phase
TD-127	Tertiary Drain	2-2.5	0.64-1.25	121.46	3rd Phase
TD-128	Tertiary Drain	2-2.5	0.64-1.25	94.56	3rd Phase
TD-164	Tertiary Drain	2-2.5	0.64-1.25	122.40	3rd Phase
TD-165	Tertiary Drain	2-2.5	0.64-1.25	69.85	3rd Phase
TD-166	Tertiary Drain	2-2.5	0.64-1.25	74.93	3rd Phase
TD-167	Tertiary Drain	2-2.5	0.64-1.25	36.49	3rd Phase
TD-168	Tertiary Drain	2-2.5	0.64-1.25	35.69	3rd Phase
TD-169	Tertiary Drain	2-2.5	0.64-1.25	47.80	3rd Phase
TD-170	Tertiary Drain	2-2.5	0.64-1.25	32.33	3rd Phase
TD-171	Tertiary Drain	2-2.5	0.64-1.25	99.33	3rd Phase
Total				**9151.79**	

Map 14.17 represents proposed Road and Drainage Network Map of Ward 6.

Map 14.17	Proposed Road and Drainage Network of ward No. 06



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

0 0.03 0.06 0.12 0.18 0.24 Kilometers

Legend

Existing

- Paurashava Boundary
- Ward Boundary
- Mouza Boundary
- Box Culvert
- Bridge
- Pipe Culvert

Proposed

- Box Culvert
- Proposed Bridge

Proposed Drains

- Secondary Drain
- Tertiary Drain

Proposed Road

- Local Road
- Primary Road
- Secondary Road
- Proposed Water Body

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14.8.2.5 Urban Services

a. Solid Waste Management

The consultant proposes two waste transfer stations in ward no. 07. It is recommended that home collection system is introduced in the ward by creation of local CBOs. Table 1.34 shows the detail.

b. Water Supply

It is proposed to install a network based water supply system by exploring fresh water from the Sandhya River for the entire Paurashava. For water supply one over head tank and 6.44km piped water supply network is proposed.

c. Sanitation

The Paurashava must try to promote hygienic sanitation for the whole Paurashava to ensure better public health.

Table 14.30: Development Proposals for ward 06

ID	Type of facility	Ward no	Mouza Name	Plot no	Area (Acre)
UR-01	Planned Residential	5 & 6	Jagannathkati_029_02	84, 85, 86, 89, 90, 91, 92, 93, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 122, 123, 124, 125, 126, 127, 128, 129, 135, 141, 142, 143, 144, 946	10.46 (partial)
CZ-02	Super Market	6	Jagannathkati_029_01	184, 192, 193, 196	1.71
CZ-08	Retail Market	6	Jagannathkati_029_01	6, 7, 8, 9, 16, 17, 21, 930, 931	1.29
CZ-18	Slaughter House	6	Jagannathkati	136, 151, 154, 155, 157, 158, 159, 160, 161, 162, 170, 178	0.61
AD-06	Ward Office	6	Jagannathkati_029_01	76, 77, 88	0.18
ER-04	Secondary School	6	Jagannathkati_029_01	24, 26, 27, 28, 29, 33, 34, 37, 61, 63	2.74
ER-08	Primary School	6 & 7	Jagannathkati_029_01	1, 3	0.36 (Partial)
			Jayapatipatti_030_00	80	
ER-13	Kindergarten	6	Jagannathkati_029_01	71, 88, 89, 90, 91, 95, 96, 101, 159, 162, 187	0.73
OS-08	Neighborhood Park	6	Jagannathkati_029_01	17, 64, 65, 66, 68, 101, 187, 188	1.13
OS-20	Playground	6	Jagannathkati_029_01	184, 196	1.29
OS-19	Playground	6	Jagannathkati_029_01	187	0.38
TF-04	Rickshaw Stand	6	Jagannathkati_029_01	12, 17, 21, 63, 64, 65	0.23
US-06	Waste Transfer Station	6	Jagannathkati_029_01	5, 129	0.20
US-07		6	Jagannathkati_029_01	5, 129	0.10
US-16	Over Head Tank	6	Jagannathkati_029_01	59, 60	0.19
CF-01	Central Eidgah	6	Jagannathkati_029_01	184, 190, 192, 193, 194, 195, 196	1.84
CF-02	Central Graveyard	6	Jagannathkati_029_01	100, 102, 103, 104, 105, 185, 186, 187	1.76
CF-07	Community Center	6	Jagannathkati_029_01	56, 75, 76, 77	0.72

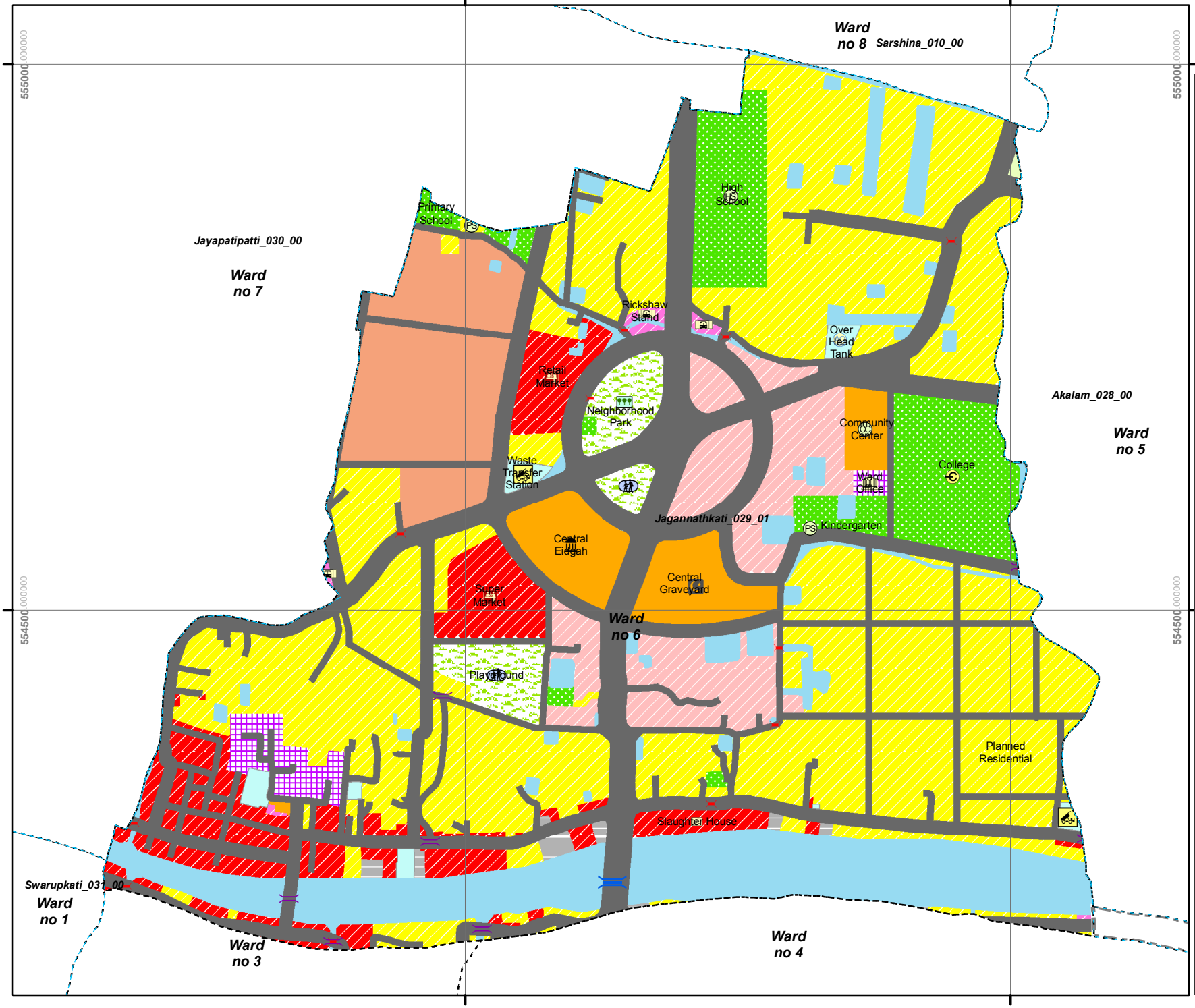
d. Ward Center

A ward center will be established in Ward no. 06. The ward center having ward office, college and community center will serve this ward and people in the adjoining areas.

Map 14.18 represents proposed physical development map of ward 6

Map:14.18

Development Proposals of ward No. 06



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

UTIDP, Package-11

Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary

Proposed Landuse

- Administrative
- Agriculture
- Water Body
- Circulation Network
- Commercial
- Community Facilities
- Education & Research
- Health Facility
- Urban Residential
- Industry
- Mixed Use
- Open Space
- Recreational Facility
- Restricted Area
- Rural Settlement
- Transport Facilities
- Urban Deferred
- Utility Services

Development Proposals

- Bus Terminal
- Central Eidgah
- Graveyard/Cremation Place
- Park/Neighborhood park
- Cinema Hall/Auditorium
- College
- Community Center
- Dockyard
- Health Centre/Complex
- High School
- Kindergarten
- Market (Retail/Neighborhood/Wholesale)
- Over Head Tank
- Playground
- Primary School
- Slaughter House
- Waste Disposal Site
- Stadium
- Truck Terminal
- Vocational Training Institute
- Ward Office/Center
- Waste Transfer Station
- Water Treatment Plant
- Tempu/Taxi/Bus/Rickshaw Stand

Kilometers
0 0.0225 0.045 0.09 0.135 0.18

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14.9 Ward Action Plan for Ward No. 07

14.9.1 Demography

Ward no.7 is located on the eastern part of the town. It is the smallest ward of Swarupkati Paurashava. Population projection shows that 3716 people would be in the ward in the year 2031. The density of population will be the highest in this ward with 20 persons per acre. Table 14.31 shows the details.

Table 14.31: Population Statistics of Ward No. 07

Item	Year			
	2016	2021	2026	2031
Area (acre)	182.83	182.83	182.83	182.83
Population	3190	3356	3532	3716
Density of Population (acre)	17	18	19	20

14.9.2 Ward Action Plan Proposals

14.9.2.1 Review of Existing Land Use

Out of total ward area, 73.28 acres of land about 40% is used as residential use. The next use is agricultural; more than 32 acres of land are used in this purpose. Water bodies occupy about 30% land of the ward. More than 2.17% is used as circulation network.

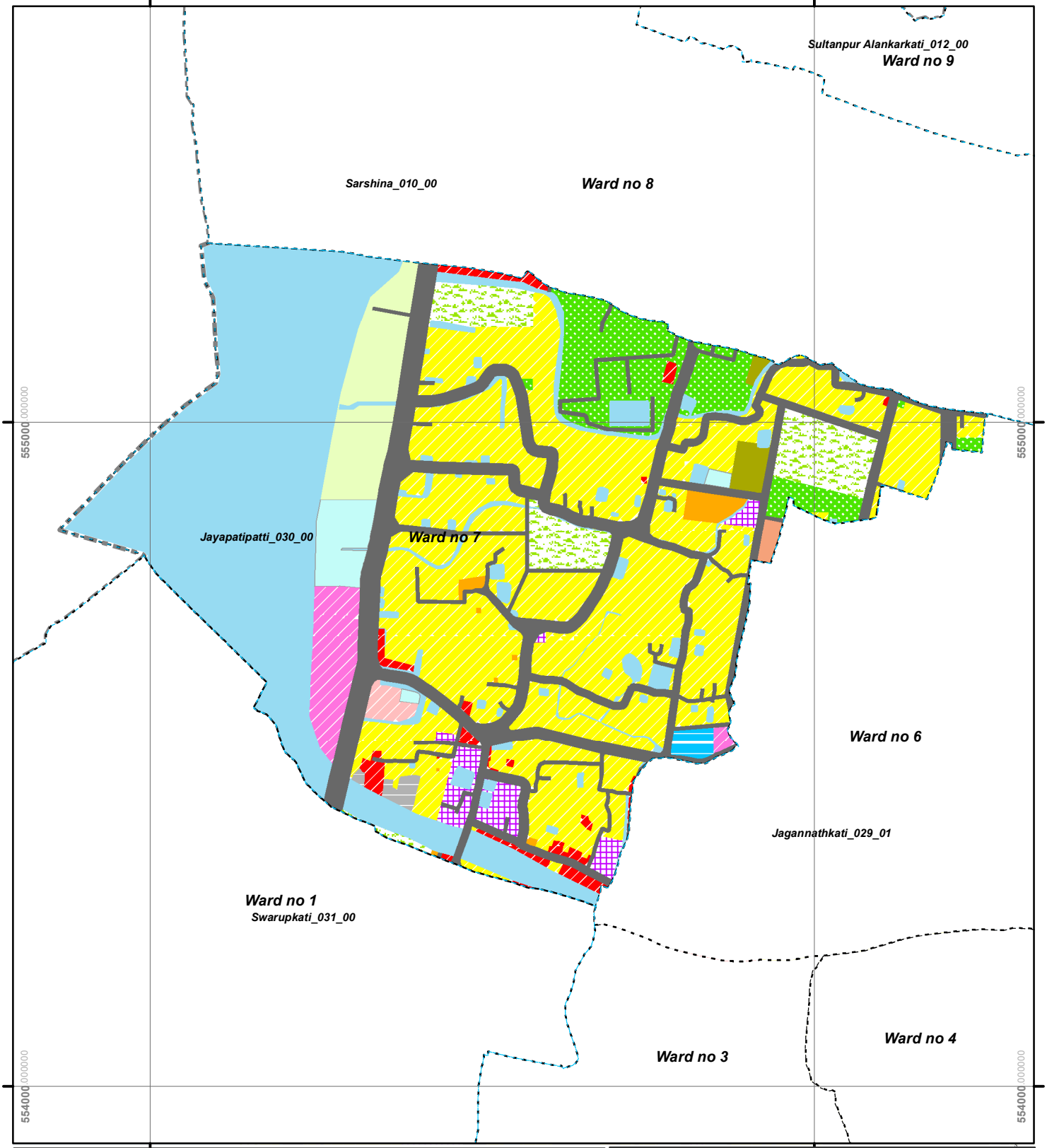
14.9.2.2 Proposed Land Use Zoning

The category wise proposals are presented here. Table 14.32 shows the amount of land existing and proposed uses in Ward no. 7. **Map 14.19** shows proposed land use of Ward 07

Table 14.32: Comparative Scenario Existing and Proposed Land Use of Ward No. 07

Sl. No.	Landuse (Existing)	Area (Acre)	%	Sl. No.	Landuse (Proposed)	Area (Acre)	%
1	Administrative	2.93	1.61	1	Administrative	2.62	1.43
2	Agricultural	32.32	17.68	2	Agriculture	6.44	3.52
3	Circulation Network	3.97	2.17	3	Circulation Network	29.01	15.87
4	Commercial	2.62	1.43	4	Commercial Zone	2.40	1.31
5	Community Service	0.56	0.31	5	Community Facilities	1.09	0.60
6	Education & Research	9.16	5.01	6	Education and Research Zone	9.88	5.40
7	Industrial	0.57	0.31	7	General Industrial Zone	0.57	0.31
8	Miscellaneous/others	0.56	0.31	8	Health Service	1.06	0.58
9	Residential	73.28	40.08	9	Mixed Use	0.77	0.42
10	Service Activity	0.00	0.00	10	Open Space	8.10	4.43
11	Transport & Communication	1.30	0.71	11	Recreational	0.65	0.35
12	Urban Green Space	0.71	0.39	12	Transportation Facilities	3.86	2.11
13	Water body	54.85	30.00	13	Urban Deferred	0.41	0.22
				14	Urban Residential	60.72	33.21
				15	Utility Services	2.86	1.57
				16	Water body	52.39	28.65
Total		**182.83**	**100.00**	**Total**		**182.83**	**100.00**

Map 14.19 Proposed land use of ward No. 07



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

Kilometers
0 0.0375 0.075 0.15 0.225 0.3

Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary

Proposed Landuse

- Administrative
- Agriculture
- Water Body
- Circulation Network
- Commercial
- Community Facilities
- Education & Research
- Health Facility
- Industry
- Mixed Use
- Open Space
- Recreational Facility
- Restricted Area
- Rural Settlement
- Transport Facilities
- Urban Deferred
- Urban Residential
- Utility Services

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a. Urban Residential Area

In Ward Action Plan more land is allocated as residential use. Total 60.72 acres of land has been earmarked for urban residential use which will occupy about 32.21% of the total land.

b. Commercial Zone

In Ward Action Plan about 2.40 acres of land has been earmarked for commercial zone which will occupy about 1.31% of the total land by retail market and corner shops.

c. Mixed Use

More than 0.77% of the total area of the ward is allocated for mixed use zone. This mixed use land will use for commercial and community facilities.

d. Circulation network

To improve the efficiency of the ward more roads are proposed which will consume about 29.01 acres of land and more than 15.87% of the total area. For network improvement widening of existing road, link road and new roads are proposed which will be done phase wise within 2031.

e. Community Facilities

Total 1.09 acre area which cover 0.60% of total land of this ward will use for community facilities.

f. Open Space & Recreational Facilities

Total 8.10 acre land will use for open space by a linear park, playground and a neighborhood park. For recreational purpose an auditorium with 0.60 acres land has been proposed in this ward.

g. Water Body

The proposed water retention area covers about 52.39 acre of land.

h. Education & Research

About 9.88 acres land comprises with existing educational facilities and new primary and high have been proposed in this ward.

14.9.2.3 Proposed Road Infrastructure Development

Total 9.17 km road development proposal have been proposed in first ward action plan for ward no. 07. Length of the local road will be 20ft wide 3.18 km. Total length of secondary road will be 4.62 km and width of these roads will be 40 to 60ft for this ward. There is 1.37 km primary road proposal. Detail scenario of road network development proposal was given in table 14.33.

Table 14.33: Road Network Proposal at Ward no. 07

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
N-2	Secondary Road	50	60.73	New Road	2nd Phase
N-3	Primary Road	80	50.60	New Road	1st Phase
N-10	Primary Road	60	182.65	New Road	1st Phase
N-15	Secondary Road	40	96.28	New Road	2nd Phase
N-16	Local Road	20	26.50	New Road	3rd Phase
W-453	Local Road	20	3.10	Road Widening	3rd Phase
W-494	Local Road	20	28.41	Road Widening	3rd Phase
W-496	Local Road	20	6.96	Road Widening	3rd Phase
W-497	Local Road	20	25.99	Road Widening	3rd Phase
W-514	Local Road	20	45.33	Road Widening	3rd Phase
W-515	Local Road	20	37.30	Road Widening	3rd Phase
W-520	Local Road	20	138.03	Road Widening	3rd Phase
W-521	Local Road	20	51.68	Road Widening	3rd Phase
W-522	Local Road	20	35.65	Road Widening	3rd Phase
W-527	Local Road	20	20.19	Road Widening	3rd Phase
W-528	Local Road	20	113.77	Road Widening	3rd Phase
W-536	Local Road	20	21.86	Road Widening	3rd Phase
W-550	Local Road	20	45.55	Road Widening	3rd Phase
W-551	Local Road	20	63.85	Road Widening	3rd Phase
W-559	Secondary Road	60	36.36	Road Widening	2nd Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-562	Local Road	20	27.22	Road Widening	3rd Phase
W-563	Local Road	20	17.63	Road Widening	3rd Phase
W-564	Local Road	20	1.19	Road Widening	3rd Phase
W-565	Local Road	20	6.62	Road Widening	3rd Phase
W-566	Local Road	20	27.30	Road Widening	3rd Phase
W-569	Local Road	20	27.84	Road Widening	3rd Phase
W-570	Local Road	20	41.18	Road Widening	3rd Phase
W-573	Secondary Road	60	20.13	Road Widening	2nd Phase
W-575	Local Road	20	17.73	Road Widening	3rd Phase
W-576	Local Road	20	54.44	Road Widening	3rd Phase
W-577	Local Road	20	22.81	Road Widening	3rd Phase
W-579	Secondary Road	40	253.36	Road Widening	2nd Phase
W-580	Secondary Road	60	76.26	Road Widening	2nd Phase
W-587	Secondary Road	40	41.08	Road Widening	2nd Phase
W-588	Local Road	20	48.24	Road Widening	3rd Phase
W-589	Local Road	20	20.22	Road Widening	3rd Phase
W-598	Local Road	20	22.22	Road Widening	3rd Phase
W-611	Secondary Road	40	98.28	Road Widening	2nd Phase
W-612	Secondary Road	60	218.09	Road Widening	2nd Phase
W-621	Local Road	20	167.50	Road Widening	3rd Phase
W-622	Local Road	20	78.51	Road Widening	3rd Phase
W-641	Secondary Road	40	183.13	Road Widening	2nd Phase
W-642	Local Road	20	6.04	Road Widening	3rd Phase
W-643	Local Road	20	59.86	Road Widening	3rd Phase
W-644	Local Road	20	54.70	Road Widening	3rd Phase
W-646	Secondary Road	40	137.12	Road Widening	2nd Phase
W-647	Secondary Road	60	15.35	Road Widening	2nd Phase
W-650	Secondary Road	40	111.43	Road Widening	2nd Phase
W-661	Local Road	20	54.78	Road Widening	3rd Phase
W-664	Local Road	20	23.51	Road Widening	3rd Phase
W-668	Local Road	20	1.96	Road Widening	3rd Phase
W-669	Local Road	20	29.43	Road Widening	3rd Phase
W-672	Local Road	20	29.46	Road Widening	3rd Phase
W-673	Local Road	20	5.09	Road Widening	3rd Phase
W-674	Secondary Road	50	138.87	Road Widening	2nd Phase
W-679	Local Road	20	23.42	Road Widening	3rd Phase
W-680	Local Road	20	44.72	Road Widening	3rd Phase
W-683	Local Road	20	38.58	Road Widening	3rd Phase
W-684	Secondary Road	40	105.33	Road Widening	2nd Phase
W-688	Local Road	20	28.01	Road Widening	3rd Phase
W-690	Local Road	20	54.55	Road Widening	3rd Phase
W-691	Local Road	20	48.70	Road Widening	3rd Phase
W-692	Secondary Road	40	424.67	Road Widening	2nd Phase
W-693	Local Road	20	38.37	Road Widening	3rd Phase
W-699	Local Road	20	378.39	Road Widening	3rd Phase
W-700	Local Road	20	27.53	Road Widening	3rd Phase
W-701	Local Road	20	14.43	Road Widening	3rd Phase
W-702	Local Road	20	0.32	Road Widening	3rd Phase
W-703	Secondary Road	60	21.75	Road Widening	2nd Phase
W-708	Local Road	20	46.18	Road Widening	3rd Phase
W-709	Local Road	20	50.88	Road Widening	3rd Phase
W-716	Local Road	20	72.41	Road Widening	3rd Phase
W-724	Local Road	20	99.76	Road Widening	3rd Phase
W-736	Local Road	20	7.96	Road Widening	3rd Phase
W-777	Local Road	20	131.74	Road Widening	3rd Phase
W-951	Primary Road	100	603.36	Road Widening	1st Phase
W-952	Secondary Road	40	192.22	Road Widening	2nd Phase
W-781	Secondary Road	40	41.49	Road Widening	2nd Phase
W-783	Secondary Road	40	107.67	Road Widening	2nd Phase
W-784	Secondary Road	40	27.49	Road Widening	2nd Phase
W-785	Secondary Road	40	56.06	Road Widening	2nd Phase
W-825	Secondary Road	50	81.91	Road Widening	2nd Phase
W-826	Secondary Road	50	77.69	Road Widening	2nd Phase
W-827	Secondary Road	60	59.95	Road Widening	2nd Phase
W-828	Secondary Road	60	151.89	Road Widening	2nd Phase
W-829	Secondary Road	60	390.95	Road Widening	2nd Phase
W-888	Secondary Road	60	539.58	Road Widening	2nd Phase
W-889	Primary Road	60	76.44	Road Widening	1st Phase
N-27	Secondary Road	60	40.87	New Road	2nd Phase
W-890	Secondary Road	60	19.29	Road Widening	2nd Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-912	Local Road	20	16.28	Road Widening	3rd Phase
N-40	Primary Road	100	229.88	New Road	1st Phase
W-953	Primary Road	60	225.90	Road Widening	1st Phase
N-60	Secondary Road	40	431.39	New Road	2nd Phase
N-61	Secondary Road	40	197.72	New Road	2nd Phase
N-62	Local Road	20	5.85	New Road	3rd Phase
N-63	Local Road	20	34.40	New Road	3rd Phase
N-64	Secondary Road	40	168.05	New Road	2nd Phase
N-70	Local Road	20	239.29	New Road	3rd Phase
N-71	Local Road	20	107.14	New Road	3rd Phase
N-72	Local Road	20	65.11	New Road	3rd Phase
N-84	Local Road	20	88.55	New Road	3rd Phase
W-536	Local Road	20	2.85	Road Widening	3rd Phase
W-540	Local Road	20	2.85	Road Widening	3rd Phase
Total			**9169.18**		

- n for new proposed road and w for proposed widening of existing road

14.9.2.4 Drainage Development Plan

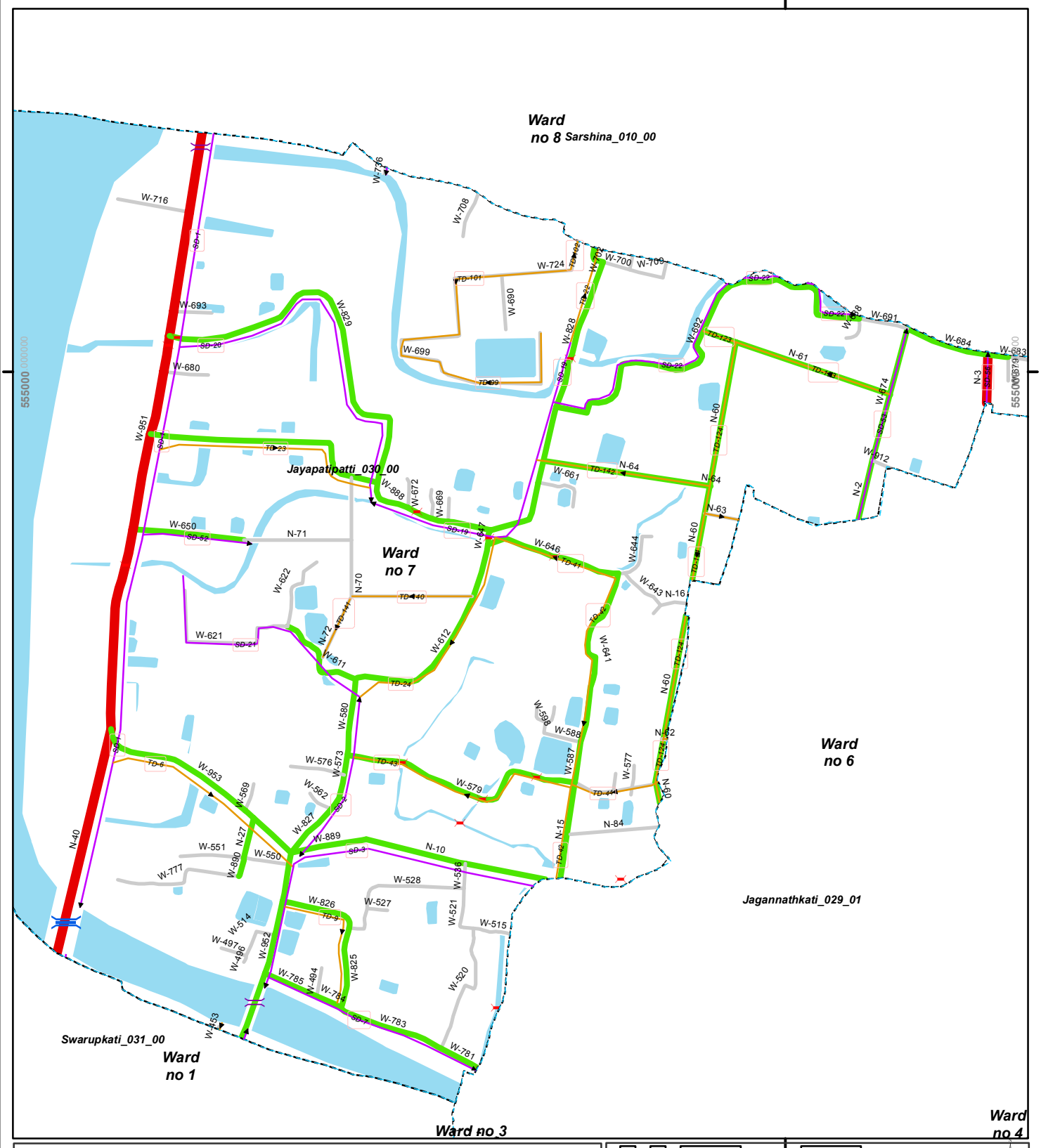
There is only 0.12 km drainage facility at ward no. 07. Existing drainage is mostly depending on natural drainage facilities. Sandhya River which is passing southern border of the ward .The proposed drainage facilities will be developed based on these natural channels and served as primary drain for the ward and will be connected with 3.32 km secondary drain and 3.30 km tertiary drain. Table 14.34 shows the detail. Besides, it will be necessary to re-excavate the khals that serve as primary drains flowing of Water through them. **Map 14.20** represents proposed Road and Drainage Network for Ward 7.

Table 14.34: Drainage Development Plan Proposals for ward 07

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing
TD-1	Tertiary Drain	2-2.5	0.64-1.25	8.06	2nd Phase
SD-1	Secondary Drain	2.5-3.5	1.25-2.25	784.89	1st Phase
TD-6	Tertiary Drain	2-2.5	0.64-1.25	217.50	3rd Phase
SD-2	Secondary Drain	2.5-3.5	1.25-2.25	115.41	1st Phase
SD-3	Secondary Drain	2.5-3.5	1.25-2.25	373.13	1st Phase
TD-9	Tertiary Drain	2-2.5	0.64-1.25	144.73	3rd Phase
SD-7	Secondary Drain	2.5-3.5	1.25-2.25	226.93	1st Phase
TD-22	Tertiary Drain	2-2.5	0.64-1.25	97.19	3rd Phase
SD-19	Secondary Drain	2.5-3.5	1.25-2.25	346.04	1st Phase
SD-20	Secondary Drain	2.5-3.5	1.25-2.25	388.32	1st Phase
TD-23	Tertiary Drain	2-2.5	0.64-1.25	232.45	3rd Phase
SD-21	Secondary Drain	2.5-3.5	1.25-2.25	341.71	1st Phase
TD-24	Tertiary Drain	2-2.5	0.64-1.25	230.64	3rd Phase
SD-22	Secondary Drain	2.5-3.5	1.25-2.25	363.77	1st Phase
TD-41	Tertiary Drain	2-2.5	0.64-1.25	127.15	3rd Phase
TD-42	Tertiary Drain	2-2.5	0.64-1.25	313.77	3rd Phase
TD-43	Tertiary Drain	2-2.5	0.64-1.25	241.02	3rd Phase
TD-44	Tertiary Drain	2-2.5	0.64-1.25	89.96	3rd Phase
SD-28	Secondary Drain	2.5-3.5	1.25-2.25	11.24	1st Phase
SD-29	Secondary Drain	2.5-3.5	1.25-2.25	3.18	1st Phase
TD-99	Tertiary Drain	2-2.5	0.64-1.25	204.50	3rd Phase
TD-101	Tertiary Drain	2-2.5	0.64-1.25	235.87	3rd Phase
TD-102	Tertiary Drain	2-2.5	0.64-1.25	29.91	3rd Phase
SD-51	Secondary Drain	2.5-3.5	1.25-2.25	7.55	1st Phase
SD-52	Secondary Drain	2.5-3.5	1.25-2.25	109.16	1st Phase
SD-53	Secondary Drain	2.5-3.5	1.25-2.25	196.91	1st Phase
SD-56	Secondary Drain	2.5-3.5	1.25-2.25	50.60	1st Phase
TD-123	Tertiary Drain	2-2.5	0.64-1.25	196.87	3rd Phase
TD-124	Tertiary Drain	2-2.5	0.64-1.25	431.39	3rd Phase
TD-125	Tertiary Drain	2-2.5	0.64-1.25	4.20	3rd Phase
TD-127	Tertiary Drain	2-2.5	0.64-1.25	34.40	3rd Phase
TD-139	Tertiary Drain	2-2.5	0.64-1.25	96.85	3rd Phase
TD-140	Tertiary Drain	2-2.5	0.64-1.25	120.54	3rd Phase

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing
TD-141	Tertiary Drain	2-2.5	0.64-1.25	65.11	3rd Phase
TD-142	Tertiary Drain	2-2.5	0.64-1.25	174.60	3rd Phase
Total				**6615.53**	

Map 14.20	Proposed Road and Drainage Network of ward No. 07



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

0 0.03 0.06 0.12 0.18 0.24 Kilometers

Legend

Existing

- Paurashava Boundary
- Ward Boundary
- Mouza Boundary
- Box Culvert
- Bridge
- Pipe Culvert

Proposed

- Box Culvert
- Proposed Bridge

Proposed Drains

- Secondary Drain
- Tertiary Drain

Proposed Road

- Local Road
- Primary Road
- Secondary Road
- Proposed Water Body

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14.9.2.5 Urban Services

a. Solid Waste Management

The consultant proposes solid waste transfer stations in some suitable locations for the management of solid waste. It is recommended that home collection system is introduced in the ward by creation of local CBOs. This will cause organized collection of waste and prevent indiscriminate littering.

b. Water Supply

It is proposed to install a network based water supply system by exploring fresh water from the Sandhya River for the entire Paurashava.

c. Sanitation

The Paurashava must try to promote hygienic sanitation for the whole Paurashava to ensure better public health.

Table 14.35: Development Proposals for ward 07

ID	Type of facility	Ward no	Mouza Name	Plot no	Area (Acre)
CZ-06	Retail Market	7 & 8	Jayapatipatti_030_00	1, 2, 190, 196	0.45 (Partial)
			Sarshina_010_00	39, 330, 332, 348	
CZ-16	Corner Shop		Jayapatipatti_030_00	127, 133, 137, 142, 155, 156	0.25
AD-07	Ward Offices		Jayapatipatti_030_00	85, 86, 87, 88, 108, 191	0.35
ER-04	Secondary School	6 & 7	Jagannathkati_029_01	27, 33	0.20 (Partial)
			Jayapatipatti_030_00	73	
ER-08	Primary School	6 & 7	Jagannathkati_029_01	1,3	1.47 (Partial)
			Jayapatipatti_030_00	79, 80, 82, 87, 191	
ER-14	Kindergarten		Jayapatipatti_030_00	21, 72, 73	0.08
OS-04	Neighborhood Park		Jayapatipatti_030_00	19, 41, 113, 114, 115, 116, 191, 199	2.14
OS-18	Playground		Jayapatipatti_030_00	70, 77, 78, 79, 80, 81, 82	3.43
OS-17	Playground		Jayapatipatti_030_00	1, 2, 3, 4, 6, 7, 196	2.28
OS-16	Playground		Jayapatipatti_030_00	87, 91, 92, 113, 114, 128, 137	2.17
RF-02	Auditorium		Jayapatipatti_030_00	102, 103, 186	0.60
TF-01	Bus Terminal		Jayapatipatti_030_00	127, 128, 132, 133, 158, 159, 160, 161, 162, 163, 164, 197	2.90
TF-05	Rickshaw Stand		Jayapatipatti_030_00	101, 102	0.21
TF-06	Tempu/ Baby Taxi Stand		Jayapatipatti_030_00	126, 128,129, 196	0.72
US-01	Waste Transfer Station		Jayapatipatti_030_00	48, 49, 50	0.21
US-14	Water Treatment Plant		Jayapatipatti_030_00	125, 126, 196	2.52
US-15	Over Head Tank		Jayapatipatti_030_00	153, 154, 155, 156	0.14
HF-06	Health Centre/ Maternity Clinic		Jayapatipatti_030_00	48, 49, 55, 56, 81, 82, 83, 191	0.86
HF-02	Health Complex		Jayapatipatti_030_00	61, 62, 65	0.21
CF-06	Community Center		Akalam_028_00	150, 151, 153, 170, 171, 172, 173, 174, 175, 177	0.93

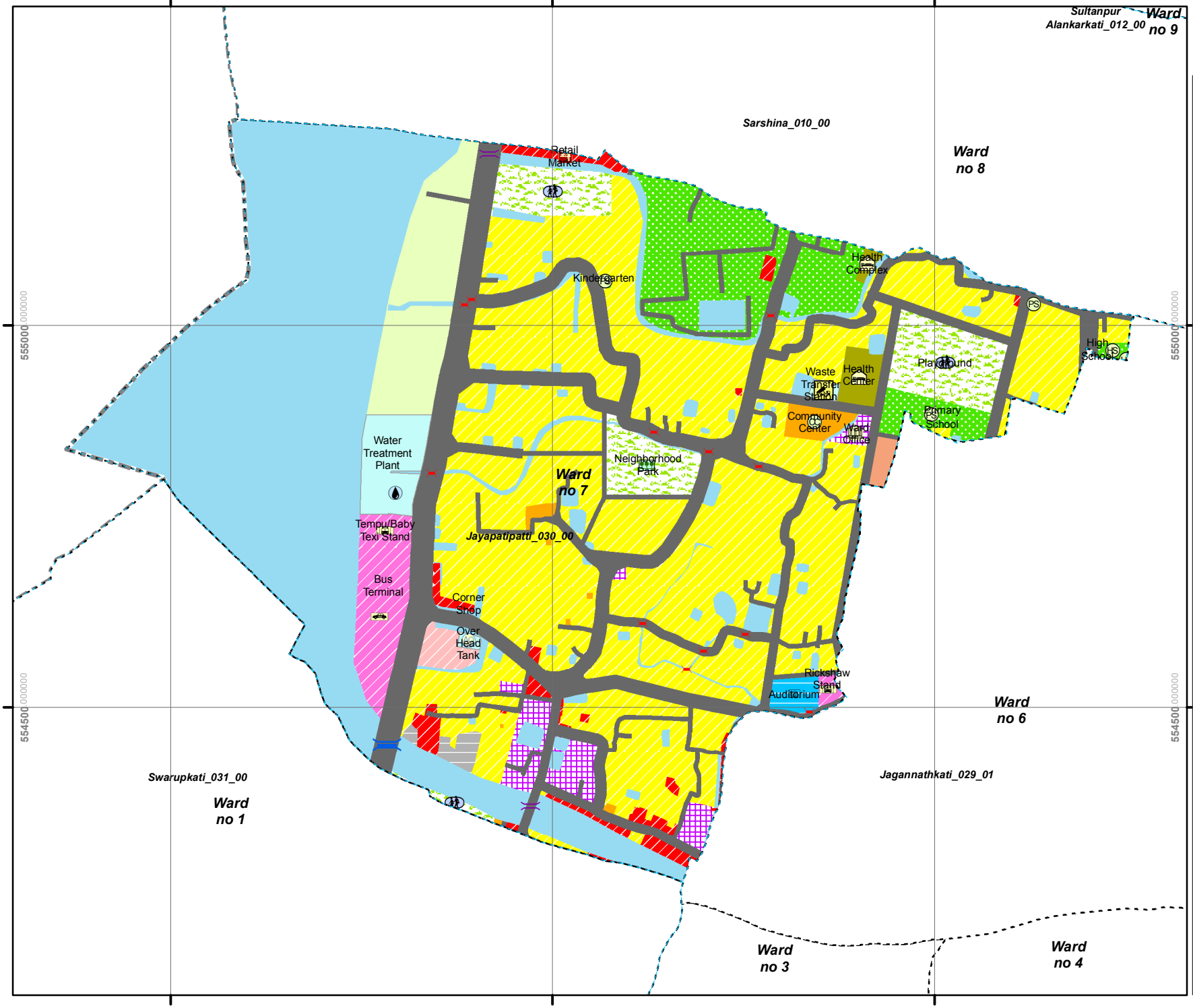
d. Ward Center

A ward center will be established in Ward no. 07. The ward center having ward office, health center, community center, playground and primary school will serve this ward and people in the adjoining areas.

Map 14.21 represents proposed physical development for ward 7.

Map:14.21

Development Proposals of ward No. 07



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UTIDP, Package-11

Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary

Proposed Landuse

- Administrative
- Agriculture
- Water Body
- Circulation Network
- Commercial
- Community Facilities
- Education & Research
- Health Facility
- Urban Residential
- Industry
- Mixed Use
- Open Space
- Recreational Facility
- Restricted Area
- Rural Settlement
- Transport Facilities
- Urban Deferred
- Utility Services

Development Proposals

- Bus Terminal
- Central Eidgah
- Graveyard/Cremation Place
- Park/Neighborhood park
- Cinema Hall/Auditorium
- College
- Community Center
- Dockyard
- Health Centre/Complex
- High School
- Kindergarten
- Market (Retail/Neighborhood/Wholesale)
- Over Head Tank
- Playground
- Primary School
- Slaughter House
- Waste Disposal Site
- Stadium
- Truck Terminal
- Vocational Training Institute
- Ward Office/Center
- Waste Transfer Station
- Water Treatment Plant
- Tempu/Taxi/Bus/Rickshaw Stand

0 0.035 0.07 0.14 0.21 0.28 Kilometers

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14.10 Ward Action Plan for Ward No. 08

14.10.1 Demography

Ward No. 8 is located on the north-western part of the town. The estimated population for the year 2031 will be 3711 with a density of 19 persons per acre. Table 14.36 shows the detail.

Table 14.36: Population Statistics of Ward No. 08

Item	Year			
	2016	2021	2026	2031
Area (acre)	190.80	190.80	190.80	190.80
Population	3186	3352	3527	3711
Density of Population (acre)	17	18	18	19

14.10.2 Ward Action Plan Proposals

14.10.2.1 Review of Existing Land Use

In ward no. 08, out of total190.80 acre of land of this ward more than 40 acre i.e. 22% is used as agriculture. The next use is residential; 51.13 acres are used as residential purpose. It occupies almost 29% of total land. Water bodies occupy about 39% land. More than 2.20% is used as circulation network. Only .40 % of land is used as Community facilities.

14.10.2.2 Proposed Land Use Zoning

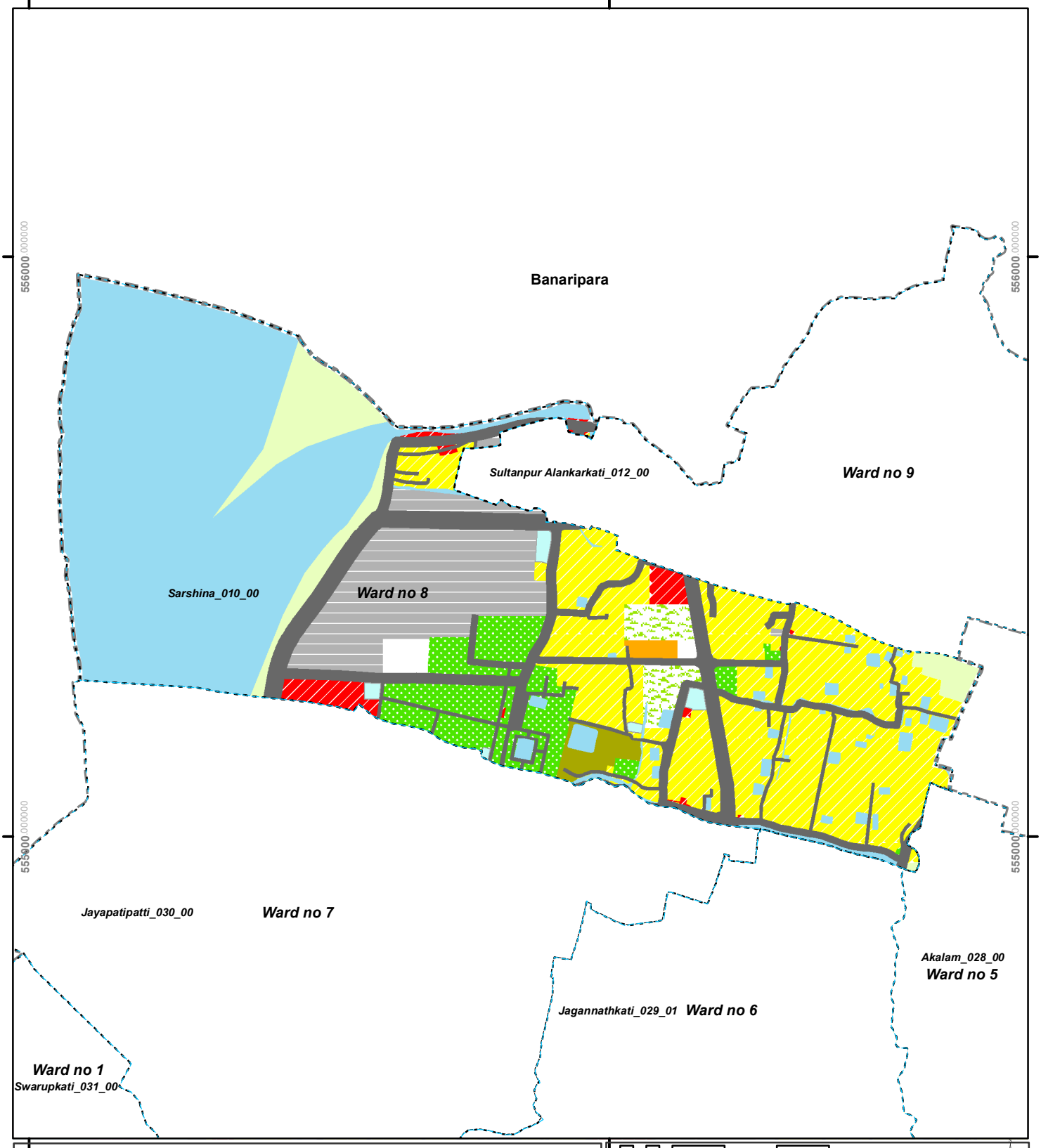
The category wise proposals are presented here. Table 14.37 shows the amount of land existing and proposed uses in Ward no. 8. **Map 14.22** shows proposed land use of Ward 08

Table 14.37: Comparative Scenario of Existing and Proposed Land Use of Ward No. 08

Sl. No.	Landuse (Existing)	Area (Acre)	%	Sl. No.	Landuse (Proposed)	Area (Acre)	%
1	Administrative	1.61	0.85	1	Administrative	1.38	0.72
2	Agricultural	41.99	22.01	2	Agriculture	9.78	5.12
3	Circulation Network	4.19	2.20	3	Circulation Network	24.14	12.65
4	Commercial	0.94	0.49	4	Commercial Zone	2.92	1.53
5	Community Service	0.77	0.40	5	Community Facilities	0.65	0.34
6	Education & Research	14.50	7.60	6	Education and Research Zone	11.26	5.90
7	Miscellaneous	0.77	0.40	7	General Industrial Zone	18.86	9.88
8	Residential	51.13	26.80	8	Health Service	1.74	0.91
9	Service Activity	0.18	0.09	9	Open Space	3.33	1.75
10	Urban Green Space	0.37	0.19	10	Urban Residential	42.53	22.29
11	Waterbody	74.36	38.97	11	Utility Services	0.94	0.49
				12	Water body	73.27	38.40
Total		**190.80**	**100.00**	**Total**		**190.80**	**100.00**

Map 14.22 shows proposed land use of Ward 08

Map 14.22 Proposed land use of ward No. 08



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

Kilometers
0 0.045 0.09 0.18 0.27 0.36

Legend

Paura Boundary
Ward Boundary
Mouza Boundary

Proposed Landuse

- Administrative
- Agriculture
- Water Body
- Circulation Network
- Commercial
- Community Facilities
- Education & Research
- Health Facility
- Industry
- Mixed Use
- Open Space
- Recreational Facility
- Restricted Area
- Rural Settlement
- Transport Facilities
- Urban Deferred
- Urban Residential
- Utility Services

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a. Urban Residential

In Ward Action Plan more than 42.53 acre of land has been remained as rural settlement which will occupy about 22.29% of the total land.

b. Education and Research

The area for education and research will cover 11.26 acres land by a new public library, kindergarten and existing facilities.

c. Circulation network

To improve the efficiency of the ward more roads are proposed which will consume almost 24.14 acres of land and about 12.65% of the total area. For network improvement widening of existing road, link road and new roads are proposed which will be done phase wise within 2031.

d. Community Facilities

Proposed land for community service will be 0.65 acre.

e. General Industrial Zone

Cottage based and small-scale industries have been proposed with an area of 18.86 acres which will cover 9.88% of this ward.

f. Agricultural Zone

The Paurashava including Ward no. 08 has a vast area of agricultural land that demands formation of a separate zone like, agriculture zone. About 5.12% of the total land of the ward will remain as agricultural use up to the year 2031. Some portion of land of rural settlement will also utilize as some sort of agricultural activities as farm, poultry or horticulture use. This zone will serve as the hinter land for the town.

g. Water Bodies

The proposed water retention area covers 73.27 acres of land.

14.10.2.3 Proposed Road Infrastructure Development

Total 7.77 km road development proposal have been proposed for this ward. Length of the local road will be 3.10 km and width of these roads will be 20ft. Total length of secondary road will be 3.56 km and width of these roads will be 40 to 60ft for this ward and length of proposed primary road is 1.11km of 80 to 100 ft. Detail scenario of road network development proposal was given in table 14.38.

Table 14.38: Road Network Proposal at Ward no.08 of Swarupkati Paurashava

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-962	Secondary Road	60	423.25	Road Widening	2nd Phase
N-3	Primary Road	80	10.17	New Road	1st Phase
N-11	Primary Road	100	310.45	New Road	1st Phase
W-671	Secondary Road	60	15.29	Road Widening	2nd Phase
W-674	Secondary Road	50	13.20	Road Widening	2nd Phase
W-675	Secondary Road	60	15.61	Road Widening	2nd Phase
W-676	Secondary Road	40	68.67	Road Widening	2nd Phase
W-677	Secondary Road	60	18.72	Road Widening	2nd Phase
W-678	Secondary Road	40	100.72	Road Widening	2nd Phase
W-681	Secondary Road	40	86.73	Road Widening	2nd Phase
W-682	Local Road	20	220.84	Road Widening	3rd Phase
W-685	Local Road	20	53.54	Road Widening	3rd Phase
W-686	Secondary Road	40	58.92	Road Widening	2nd Phase
W-687	Secondary Road	40	41.29	Road Widening	2nd Phase
W-689	Secondary Road	50	53.08	Road Widening	2nd Phase
W-694	Local Road	20	180.43	Road Widening	3rd Phase
W-695	Secondary Road	50	51.48	Road Widening	2nd Phase
W-696	Local Road	20	52.21	Road Widening	3rd Phase
W-697	Primary Road	80	54.93	Road Widening	1st Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-698	Local Road	20	113.46	Road Widening	3rd Phase
W-701	Local Road	20	14.67	Road Widening	3rd Phase
W-703	Secondary Road	60	68.35	Road Widening	2nd Phase
W-704	Local Road	20	29.02	Road Widening	3rd Phase
W-705	Local Road	20	38.72	Road Widening	3rd Phase
W-706	Local Road	20	110.54	Road Widening	3rd Phase
W-707	Local Road	20	26.38	Road Widening	3rd Phase
W-708	Local Road	20	41.35	Road Widening	3rd Phase
W-709	Local Road	20	36.01	Road Widening	3rd Phase
W-710	Local Road	20	17.74	Road Widening	3rd Phase
W-711	Local Road	20	35.23	Road Widening	3rd Phase
W-712	Secondary Road	50	31.40	Road Widening	2nd Phase
W-713	Local Road	20	19.32	Road Widening	3rd Phase
W-714	Local Road	20	65.51	Road Widening	3rd Phase
W-715	Local Road	20	81.30	Road Widening	3rd Phase
W-717	Local Road	20	104.66	Road Widening	3rd Phase
W-718	Local Road	20	12.35	Road Widening	3rd Phase
W-719	Local Road	20	64.90	Road Widening	3rd Phase
W-720	Local Road	20	29.74	Road Widening	3rd Phase
W-721	Local Road	20	36.25	Road Widening	3rd Phase
W-722	Secondary Road	60	11.76	Road Widening	2nd Phase
W-723	Local Road	20	0.01	Road Widening	3rd Phase
W-724	Local Road	20	65.38	Road Widening	3rd Phase
W-725	Local Road	20	14.13	Road Widening	3rd Phase
W-726	Local Road	20	100.58	Road Widening	3rd Phase
W-727	Local Road	20	105.35	Road Widening	3rd Phase
W-728	Local Road	20	90.22	Road Widening	3rd Phase
W-729	Secondary Road	40	87.56	Road Widening	2nd Phase
W-730	Secondary Road	40	147.13	Road Widening	2nd Phase
W-731	Secondary Road	40	15.69	Road Widening	2nd Phase
W-732	Secondary Road	40	14.95	Road Widening	2nd Phase
W-733	Local Road	20	38.77	Road Widening	3rd Phase
W-734	Local Road	20	121.67	Road Widening	3rd Phase
W-735	Secondary Road	40	106.50	Road Widening	2nd Phase
W-736	Local Road	20	36.98	Road Widening	3rd Phase
W-737	Local Road	20	101.12	Road Widening	3rd Phase
W-738	Local Road	20	7.11	Road Widening	3rd Phase
W-739	Local Road	20	88.05	Road Widening	3rd Phase
W-740	Local Road	20	25.16	Road Widening	3rd Phase
W-741	Local Road	20	46.54	Road Widening	3rd Phase
W-742	Local Road	20	9.97	Road Widening	3rd Phase
W-743	Local Road	20	33.05	Road Widening	3rd Phase
W-744	Local Road	20	31.98	Road Widening	3rd Phase
W-748	Local Road	20	139.32	Road Widening	3rd Phase
W-752	Local Road	20	7.54	Road Widening	3rd Phase
W-753	Local Road	20	2.41	Road Widening	3rd Phase
W-754	Local Road	20	1.33	Road Widening	3rd Phase
W-755	Local Road	20	21.98	Road Widening	3rd Phase
W-776	Primary Road	100	322.36	Road Widening	1st Phase
W-951	Primary Road	100	44.93	Road Widening	1st Phase
W-830	Secondary Road	60	131.67	Road Widening	2nd Phase
W-831	Secondary Road	60	154.39	Road Widening	2nd Phase
W-832	Secondary Road	60	81.01	Road Widening	2nd Phase
W-834	Secondary Road	40	20.88	Road Widening	2nd Phase
W-840	Secondary Road	40	59.02	Road Widening	2nd Phase
W-858	Local Road	20	14.89	Road Widening	3rd Phase
W-860	Local Road	20	52.99	Road Widening	3rd Phase
W-861	Local Road	20	63.24	Road Widening	3rd Phase
W-864	Local Road	20	1.15	Road Widening	3rd Phase
W-874	Secondary Road	60	136.13	Road Widening	2nd Phase
W-875	Secondary Road	60	137.18	Road Widening	2nd Phase
W-876	Secondary Road	60	79.51	Road Widening	2nd Phase
W-877	Secondary Road	60	25.23	Road Widening	2nd Phase
W-878	Secondary Road	60	47.05	Road Widening	2nd Phase
W-881	Secondary Road	60	17.18	Road Widening	2nd Phase
W-882	Secondary Road	60	1.50	Road Widening	2nd Phase
W-911	Secondary Road	40	38.78	Road Widening	2nd Phase
N-32	Primary Road	80	368.91	New Road	1st Phase
W-913	Secondary Road	50	150.56	Road Widening	2nd Phase
W-923	Secondary Road	40	32.05	Road Widening	2nd Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-924	Local Road	20	103.91	Road Widening	3rd Phase
W-925	Secondary Road	40	151.40	Road Widening	2nd Phase
W-926	Secondary Road	40	76.46	Road Widening	2nd Phase
W-927	Local Road	20	133.99	Road Widening	3rd Phase
W-928	Secondary Road	40	268.99	Road Widening	2nd Phase
W-929	Secondary Road	40	167.13	Road Widening	2nd Phase
W-930	Local Road	20	127.83	Road Widening	3rd Phase
W-931	Local Road	20	26.73	Road Widening	3rd Phase
W-932	Secondary Road	40	48.63	Road Widening	2nd Phase
W-933	Secondary Road	40	91.83	Road Widening	2nd Phase
W-934	Local Road	20	4.30	Road Widening	3rd Phase
W-935	Local Road	20	39.73	Road Widening	3rd Phase
W-936	Local Road	20	6.34	Road Widening	3rd Phase
W-937	Secondary Road	40	60.47	Road Widening	2nd Phase
W-938	Secondary Road	40	153.24	Road Widening	2nd Phase
W-939	Local Road	20	40.69	Road Widening	3rd Phase
W-943	Local Road	20	10.29	Road Widening	3rd Phase
W-944	Local Road	20	2.33	Road Widening	3rd Phase
W-945	Primary Road	80	0.61	Road Widening	1st Phase
Total			**7774.22**		

- n for new proposed road and w for proposed widening of existing road

14.10.2.4 Drainage Development Plan

There is only 0.22 drainage facility at ward no. 08 of Swarupkati Paurashava. Existing drainage is mostly depending on natural drainage facilities. The proposed drainage facilities will be developed based on this natural channel adjoining 1.69 km proposed secondary drain and 3.63km proposed tertiary drain. Table 14.39 shows the detail.

Table 14.39: Drainage Development Plan Proposals for ward 08

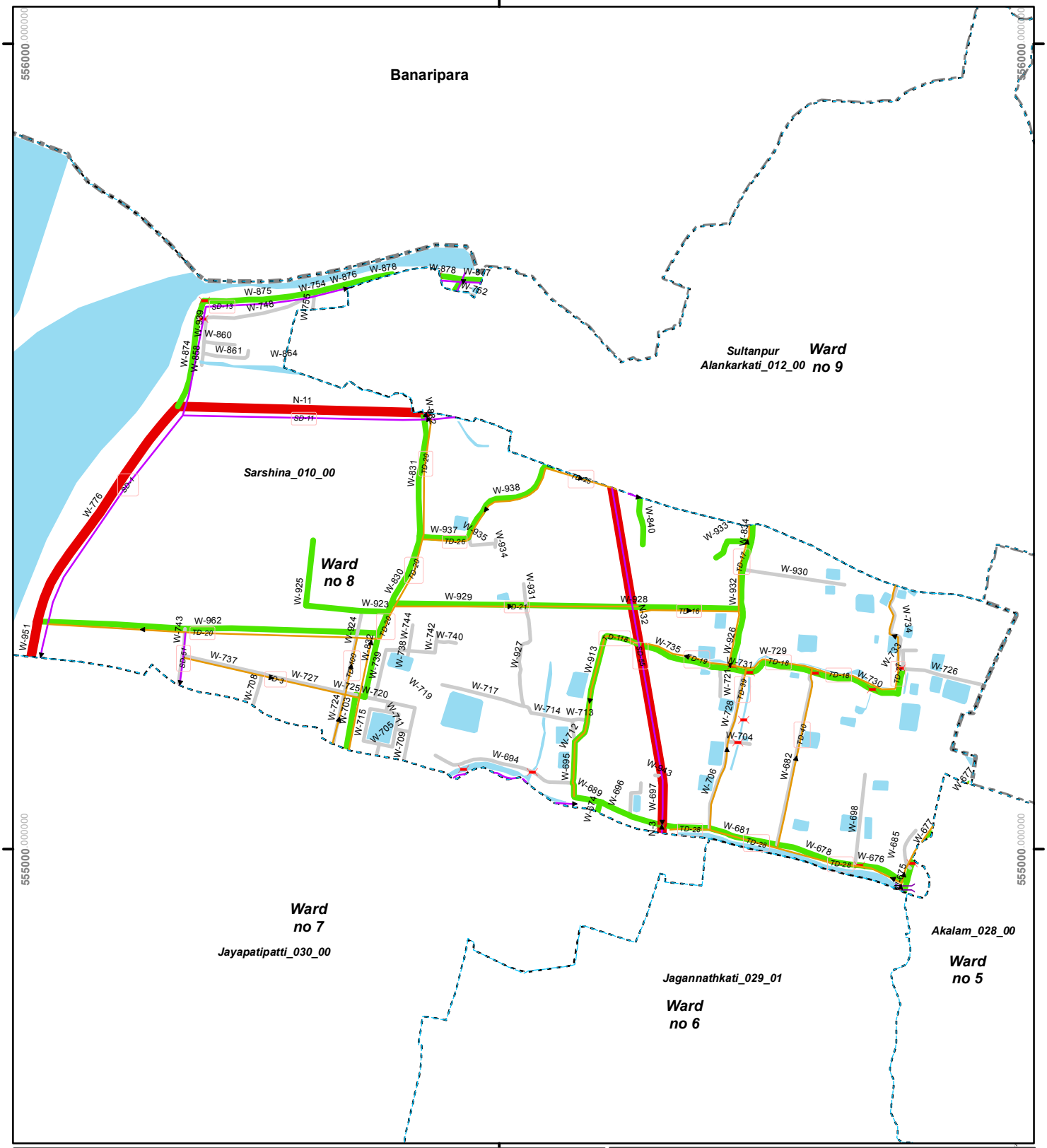
Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing
TD-3	Tertiary Drain	2-2.5	0.64-1.25	224.30	2nd Phase
SD-1	Secondary Drain	2.5-3.5	1.25-2.25	353.98	1st Phase
SD-11	Secondary Drain	2.5-3.5	1.25-2.25	338.98	1st Phase
SD-12	Secondary Drain	2.5-3.5	1.25-2.25	34.68	1st Phase
SD-13	Secondary Drain	2.5-3.5	1.25-2.25	342.80	1st Phase
SD-14	Secondary Drain	2.5-3.5	1.25-2.25	24.58	1st Phase
SD-17	Secondary Drain	2.5-3.5	1.25-2.25	17.49	1st Phase
TD-16	Tertiary Drain	2-2.5	0.64-1.25	123.29	3rd Phase
TD-17	Tertiary Drain	2-2.5	0.64-1.25	176.54	3rd Phase
TD-18	Tertiary Drain	2-2.5	0.64-1.25	218.44	3rd Phase
TD-19	Tertiary Drain	2-2.5	0.64-1.25	108.14	3rd Phase
TD-20	Tertiary Drain	2-2.5	0.64-1.25	698.62	3rd Phase
TD-21	Tertiary Drain	2-2.5	0.64-1.25	303.34	3rd Phase
TD-22	Tertiary Drain	2-2.5	0.64-1.25	141.75	3rd Phase
SD-22	Secondary Drain	2.5-3.5	1.25-2.25	80.18	1st Phase
TD-25	Tertiary Drain	2-2.5	0.64-1.25	92.29	3rd Phase
TD-26	Tertiary Drain	2-2.5	0.64-1.25	201.20	3rd Phase
TD-27	Tertiary Drain	2-2.5	0.64-1.25	139.57	3rd Phase
TD-28	Tertiary Drain	2-2.5	0.64-1.25	298.65	3rd Phase
TD-29	Tertiary Drain	2-2.5	0.64-1.25	9.64	3rd Phase
TD-30	Tertiary Drain	2-2.5	0.64-1.25	72.10	3rd Phase
TD-39	Tertiary Drain	2-2.5	0.64-1.25	207.65	3rd Phase
TD-40	Tertiary Drain	2-2.5	0.64-1.25	228.89	3rd Phase
TD-100	Tertiary Drain	2-2.5	0.64-1.25	72.26	3rd Phase
TD-102	Tertiary Drain	2-2.5	0.64-1.25	62.84	3rd Phase

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing
SD-51	Secondary Drain	2.5-3.5	1.25-2.25	66.32	1st Phase
TD-118	Tertiary Drain	2-2.5	0.64-1.25	251.69	3rd Phase
SD-55	Secondary Drain	2.5-3.5	1.25-2.25	424.44	1st Phase
SD-56	Secondary Drain	2.5-3.5	1.25-2.25	10.17	1st Phase
Total				**5324.83**	

Besides, it will be necessary to re-excavate the khals that serve as primary drains. The consultants have identified existing whole of the khals need to be re-excavated to allow smooth flow of water through them.

Map 14.23 represents proposed Road and Drainage Map of ward 8.

Map 14.23	Proposed Road and Drainage Network of ward No. 08



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

0 0.0375 0.075 0.15 0.225 0.3 Kilometers

Legend

Existing

- Paurashava Boundary
- Ward Boundary
- Mouza Boundary
- Box Culvert
- Bridge
- Pipe Culvert

Proposed

- Box Culvert
- Proposed Bridge

Proposed Drains

- Secondary Drain
- Tertiary Drain

Proposed Road

- Local Road
- Primary Road
- Secondary Road
- Proposed Water Body

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14.10.2.5 Urban Services

a. Solid Waste Management

Solid waste management is a major urban service. As density of population increases the volume of solid waste also increases proportionately. However, the income level is also a major factor influencing the volume of solid waste. Population and the volume of waste in the Paurashava are yet to be large enough to become a problem for the city. But the present management system is not satisfactory and it might to lead to problem in future. The consultant proposes solid waste transfer stations in a suitable location. It is recommended that home collection system is introduced in the ward by creation of local CBOs. This will cause organized collection of waste and prevent indiscriminate littering.

b. Water Supply

It is proposed to install a network based water supply system by exploring fresh water from the Sandhya Riverand supplying that through overhead tank for the entire Paurashava. 6.1km piped water supply network has been proposed in ward no 08.

c. Sanitation

The Paurashava must try to promote hygienic sanitation for the whole Paurashava to ensure better public health.

Table 14.40: Development Proposals for ward 08

ID	Type of facility	Ward no	Mouza Name	Plot no	Area (Acre)
CZ-06	Retail Market	7 & 8	Jayapatipatti_030_00	1,2,190	1.61 (Partial)
			Sarshina_010_00	39, 328, 329, 330, 331, 332, 333, 334, 348	
CZ-11	Neighborhood Market		Sarshina_010_00	405, 423, 424, 425, 426, 427	0.90
GIZ-02	Small Scale Industry	8 & 9	Sarshina_010_00	39, 257, 258, 260, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 318, 321, 322, 323, 324, 325, 326, 327, 328, 329, 441, 526, 531	18.85 (Partial)
			Sultanpur Alankarkati_012_00	167, 168, 169, 170, 171	
AD-08	Ward Office		Sarshina_010_00	402, 403, 404, 428	0.24
ER-20 ER-21 ER-22	Kindergarten		Sarshina_010_00	313, 354, 355, 356, 357, 358, 433, 434, 505, 526	0.56
ER-24	Public Library		Sarshina_010_00	428, 429, 444	0.39
ER-23	Public Library		Swarupkati_031_00	175, 176	0.06
OS-11	Park		Sarshina_010_00	386, 387, 388, 392, 393, 394, 395, 398, 399, 400, 401, 402, 428, 429	1.56
OS-15	Play ground		Sarshina_010_00	403, 404, 405, 406, 423, 427	1.77
US-08	Waster Transfer Station		Sarshina_010_00	328, 333, 389, 391, 444, 455	0.19
US-09			Sarshina_010_00		0.28
US-16	Overhead Tank		Sarshina_010_00	303, 306	0.32
HF-02	Health Complex	7 & 8	Sarshina_010_00	368, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 381, 386, 396, 530	1.74 (Partial)
CF-10	Community Center		Sarshina_010_00	398, 399, 400, 402, 403, 405	0.65

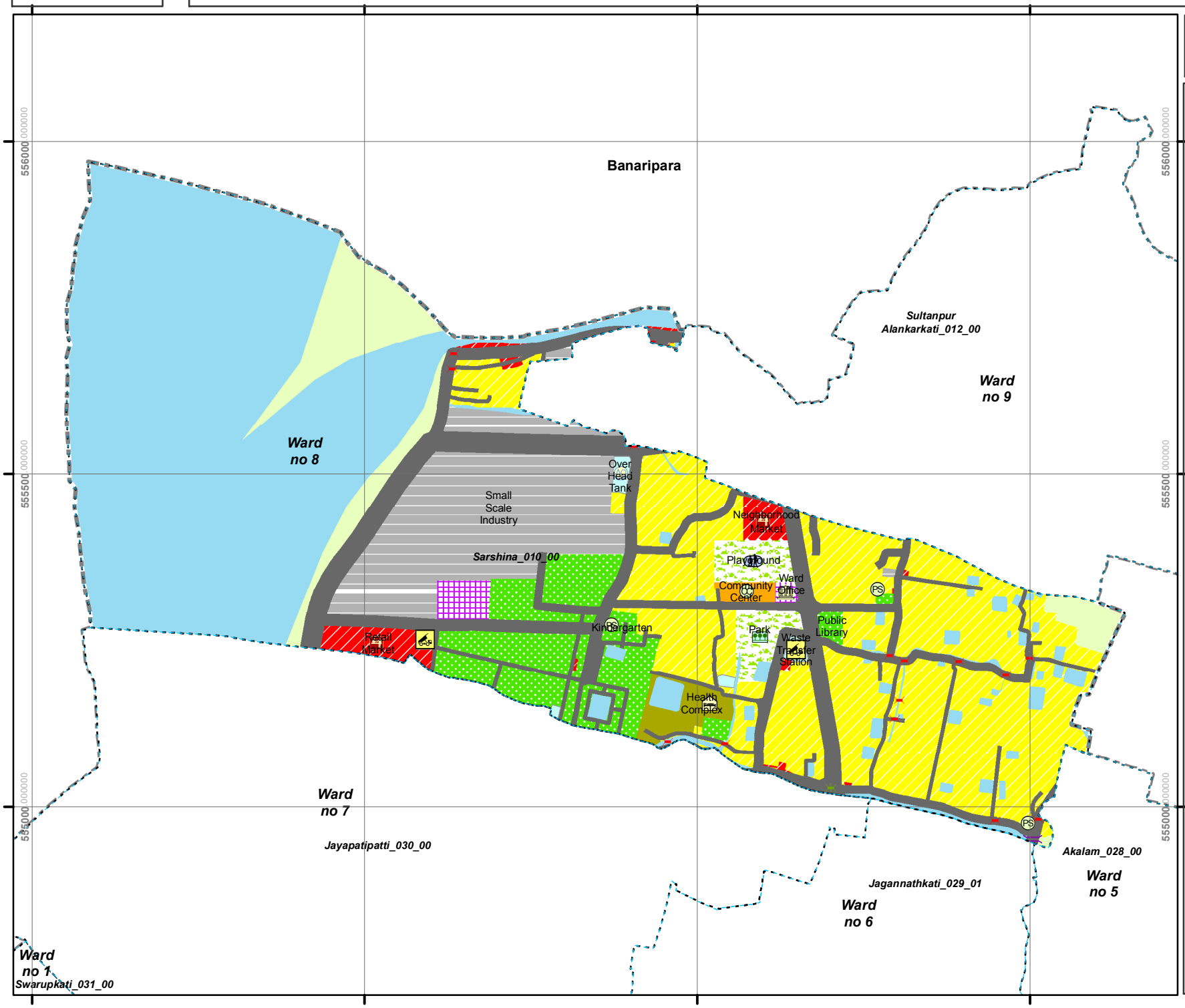
d. Ward Center

A ward center will be established in Ward no. 08. The ward center having ward office, public library, park, neighborhood market, high school and community center will serve this ward and people in the adjoining areas.

Map 14.24 represents proposed development map if ward 8

Map:14.24

Development Proposals of ward No. 08



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

UTIDP, Package-11

Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary

Proposed Landuse

- Administrative
- Agriculture
- Water Body
- Circulation Network
- Commercial
- Community Facilities
- Education & Research
- Health Facility
- Urban Residential
- Industry
- Mixed Use
- Open Space
- Recreational Facility
- Restricted Area
- Rural Settlement
- Transport Facilities
- Urban Deferred
- Utility Services

Development Proposals

- Bus Terminal
- Central Eidgah
- Graveyard/Cremation Place
- Park/Neighborhood park
- Cinema Hall/Auditorium
- College
- Community Center
- Dockyard
- Health Centre/Complex
- High School
- Kindergarten
- Market (Retail/Neighborhood/Wholesale)
- Over Head Tank
- Playground
- Primary School
- Slaughter House
- Waste Disposal Site
- Stadium
- Truck Terminal
- Vocational Training Institute
- Ward Office/Center
- Waste Transfer Station
- Water Treatment Plant
- Tempu/Taxi/Bus/Rickshaw Stand

Kilometers
0 0.04 0.08 0.16 0.24 0.32

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14.11 Ward Action Plan for Ward No. 09

14.11.1 Demography

Ward No. 9 is located on the northern part of the town. The estimated population for the year 2031 will be 2240 with a density of 22 person per acre.

Table 14.41: Population Statistics of Ward No. 09

Item	Year			
	2016	2021	2026	2031
Area (acre)	101.20	101.20	101.20	101.20
Population	1923	2023	2129	2240
Density of Population (acre)	19	20	21	22

14.11.2 Ward Action Plan Proposals

14.11.2.1 Review of Existing Land Use

Ward no. 09 is mainly rural in character. Out of total about 101.20 acre of land of this ward almost 52.17 acre of land i.e. half of the total land is under residential use. Water bodies occupy 7.63% land of the ward.

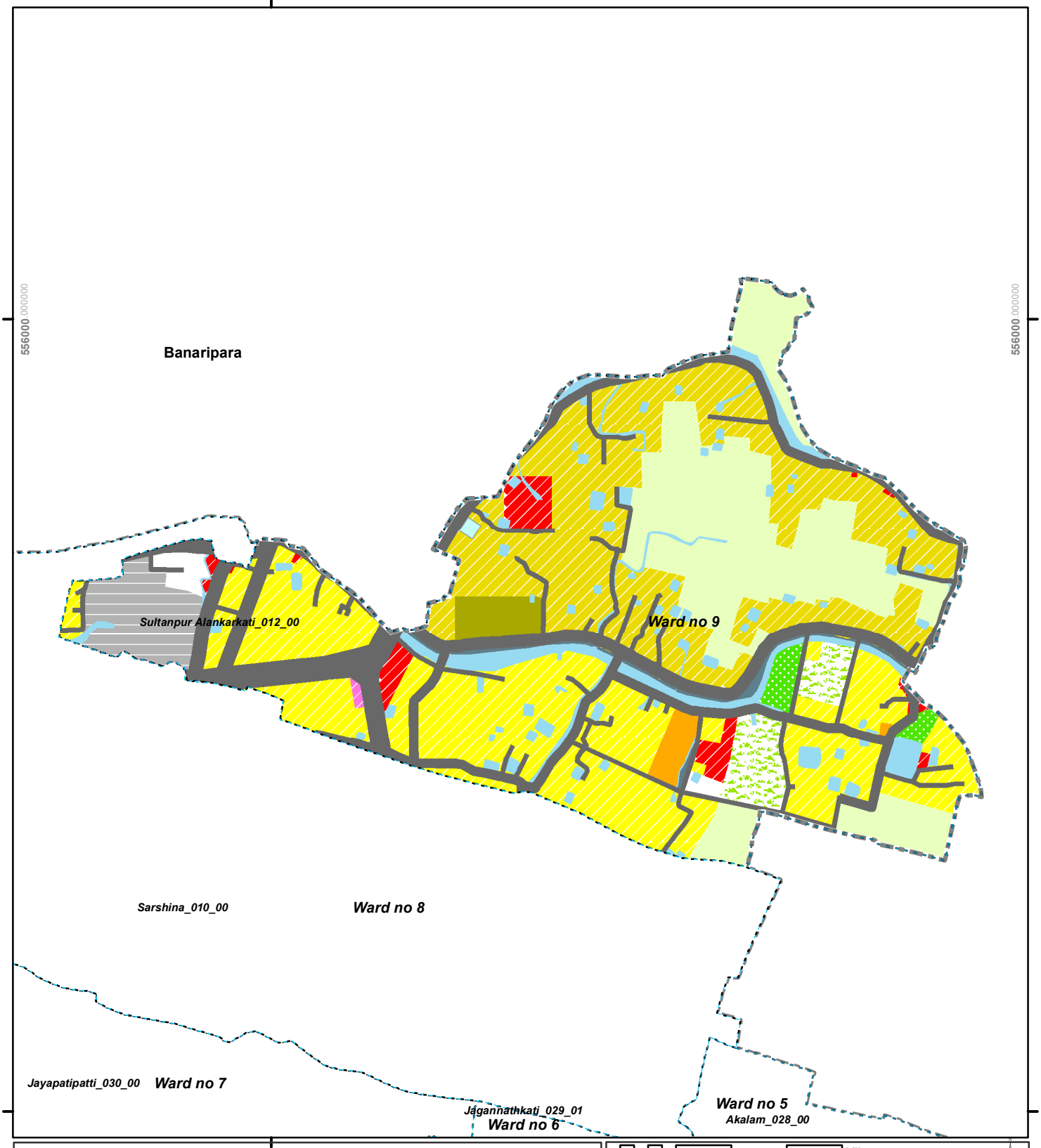
14.11.2.2 Proposed Land Use Zoning

The category wise proposals are presented here. Table 14.42 shows the amount of land existing and proposed uses in Ward no. 9. **Map 14.25** shows proposed land use of Ward 09

Table 14.42: Comparative Scenario of Existing and Proposed Land Use of Ward no. 09

Sl. No.	Landuse (Existing)	Area (Acre)	%	Sl. No.	Landuse (Proposed)	Area (Acre)	%
1	Governmental Service	0.81	0.80	1	Administrative	0.81	0.80
2	Agricultural	34.69	34.28	2	Agriculture	18.75	18.53
3	Circulation Network	2.23	2.21	3	Circulation Network	17.56	17.35
4	Commercial	0.65	0.65	4	Commercial Zone	2.12	2.09
5	Community Service	0.13	0.12	5	Community Facilities	0.86	0.85
6	Education & Research	0.35	0.34	6	Education and Research Zone	0.94	0.93
7	Miscellaneous	1.42	1.41	7	General Industrial Zone	3.53	3.49
8	Residential	52.17	51.55	8	Health Service	1.34	1.33
9	Urban Green Space	1.11	1.10	9	Miscellaneous	0.68	0.67
10	Water body	7.63	7.54	10	Open Space	2.73	2.70
				11	Rural Settlement	21.03	20.78
				12	Transportation Facilities	0.10	0.09
				13	Urban Residential	24.01	23.72
				14	Utility Services	0.10	0.10
				15	Water body	6.65	6.57
Total		**101.20**	**100.00**	**Total**		**101.20**	**100**

Map 14.25 Proposed land use of ward No. 09



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

0 0.035 0.07 0.14 0.21 0.28 Kilometers

Legend

Paura Boundary
Ward Boundary
Mouza Boundary

Proposed Landuse

- Administrative
- Agriculture
- Water Body
- Circulation Network
- Commercial
- Community Facilities
- Education & Research
- Health Facility
- Industry
- Mixed Use
- Open Space
- Recreational Facility
- Restricted Area
- Rural Settlement
- Transport Facilities
- Urban Deferred
- Urban Residential
- Utility Services

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a. Urban Residential

In Ward Action Plan 24.01 acres land is proposed for rural homestead up to the year 2031. Table 1.46 shows in detail the existing and proposed land uses of the ward.

b. Commercial Zone

About 2.12% will propose as commercial zone including a neighborhood market and corner shops for this ward. Other commercial facilities will be allocated in mixed use zone.

c. Circulation network

To improve the efficiency of the ward more roads are proposed which will consume almost 17.56 acres of land and it is more than 17% of the total area. For network improvement widening of existing road, link road and new roads are proposed which will be done phase wise within 2031.

d. Community Facilities

Total 0.86 acres of land will use for community facilities.

e. Agricultural Zone

More than 18.53% of the total land of the ward will remain as agricultural use up to the year 2031. Some portion of land of rural homestead will also utilize as some sort of agricultural activities as farm, poultry or horticulture use. This zone will serve as the hinter land for the town.

f. Water Body

The proposed retention area covers 6.65 acres of land.

g. Education and Research

Including a new high school, about 0.94 acres land has been proposed to serve educational facilities.

14.11.2.3 Proposed Road Infrastructure Development

Total 7.02 km road development proposal have been proposed for Ward no. 09 of Swarupkati Paurashava. Length of the local road will be 3.42 km and width of these roads will be 20ft. Total length of secondary road will be 3.14 km and width of these roads will be varied from 40 ft to 60ft for this ward. There is 0.46 km primary road proposal for the ward. Detail scenario of road network development proposal was given in Table 14.43. **Map 14.26** represents proposed Road network for ward 9.

Table 14.43: Road Network Proposal at Ward no. 09

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-868	Local Road	20	0.01	Road Widening	3rd Phase
N-1	Secondary Road	60	188.37	New Road	2nd Phase
N-11	Primary Road	100	259.53	New Road	1st Phase
W-734	Local Road	20	207.13	Road Widening	3rd Phase
W-745	Local Road	20	79.87	Road Widening	3rd Phase
W-746	Local Road	20	13.20	Road Widening	3rd Phase
W-747	Local Road	20	27.72	Road Widening	3rd Phase
W-749	Secondary Road	40	127.32	Road Widening	2nd Phase
W-750	Local Road	20	30.38	Road Widening	3rd Phase
W-751	Local Road	20	14.99	Road Widening	3rd Phase
W-752	Local Road	20	54.01	Road Widening	3rd Phase
W-753	Local Road	20	65.64	Road Widening	3rd Phase
W-755	Local Road	20	10.05	Road Widening	3rd Phase
W-756	Local Road	20	27.31	Road Widening	3rd Phase
W-757	Local Road	20	3.79	Road Widening	3rd Phase
W-758	Secondary Road	60	21.57	Road Widening	2nd Phase
W-759	Local Road	20	39.92	Road Widening	3rd Phase
W-760	Local Road	20	102.74	Road Widening	3rd Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-761	Local Road	20	106.18	Road Widening	3rd Phase
W-762	Local Road	20	55.18	Road Widening	3rd Phase
W-763	Local Road	20	5.06	Road Widening	3rd Phase
W-764	Primary Road	100	69.02	Road Widening	1st Phase
W-765	Local Road	20	129.07	Road Widening	3rd Phase
W-766	Primary Road	100	2.59	Road Widening	1st Phase
W-767	Secondary Road	40	205.10	Road Widening	2nd Phase
W-768	Local Road	20	34.24	Road Widening	3rd Phase
W-769	Local Road	20	41.04	Road Widening	3rd Phase
W-770	Primary Road	100	4.75	Road Widening	1st Phase
W-771	Secondary Road	40	144.35	Road Widening	2nd Phase
W-772	Local Road	20	83.29	Road Widening	3rd Phase
W-773	Local Road	20	71.89	Road Widening	3rd Phase
W-774	Secondary Road	40	53.11	Road Widening	2nd Phase
W-775	Secondary Road	40	181.40	Road Widening	2nd Phase
W-833	Local Road	20	102.15	Road Widening	3rd Phase
W-834	Secondary Road	40	8.94	Road Widening	2nd Phase
W-835	Local Road	20	66.74	Road Widening	3rd Phase
W-836	Local Road	20	43.79	Road Widening	3rd Phase
W-837	Secondary Road	40	16.96	Road Widening	2nd Phase
W-838	Local Road	20	59.60	Road Widening	3rd Phase
W-839	Secondary Road	40	113.74	Road Widening	2nd Phase
W-840	Secondary Road	40	9.22	Road Widening	2nd Phase
W-841	Local Road	20	35.99	Road Widening	3rd Phase
W-842	Local Road	20	42.12	Road Widening	3rd Phase
W-843	Local Road	20	89.77	Road Widening	3rd Phase
W-844	Local Road	20	17.40	Road Widening	3rd Phase
W-845	Local Road	20	35.95	Road Widening	3rd Phase
W-846	Local Road	20	21.01	Road Widening	3rd Phase
W-847	Local Road	20	28.59	Road Widening	3rd Phase
W-848	Local Road	20	46.79	Road Widening	3rd Phase
W-849	Secondary Road	40	19.26	Road Widening	2nd Phase
W-850	Local Road	20	38.32	Road Widening	3rd Phase
W-851	Secondary Road	40	131.16	Road Widening	2nd Phase
W-852	Local Road	20	83.66	Road Widening	3rd Phase
W-853	Local Road	20	98.22	Road Widening	3rd Phase
W-854	Local Road	20	2.39	Road Widening	3rd Phase
W-855	Local Road	20	134.04	Road Widening	3rd Phase
W-856	Local Road	20	130.12	Road Widening	3rd Phase
W-857	Local Road	20	34.04	Road Widening	3rd Phase
W-859	Local Road	20	69.30	Road Widening	3rd Phase
W-862	Local Road	20	33.90	Road Widening	3rd Phase
W-863	Local Road	20	17.86	Road Widening	3rd Phase
W-864	Local Road	20	65.45	Road Widening	3rd Phase
W-865	Local Road	20	10.67	Road Widening	3rd Phase
W-866	Local Road	20	18.09	Road Widening	3rd Phase
W-867	Local Road	20	43.09	Road Widening	3rd Phase
W-868	Local Road	20	100.26	Road Widening	3rd Phase
W-869	Secondary Road	40	88.84	Road Widening	2nd Phase
W-870	Secondary Road	40	44.76	Road Widening	2nd Phase
W-871	Secondary Road	40	62.78	Road Widening	2nd Phase
W-877	Secondary Road	60	1.06	Road Widening	2nd Phase
W-878	Secondary Road	60	59.05	Road Widening	2nd Phase
W-879	Local Road	20	47.83	Road Widening	3rd Phase
W-880	Secondary Road	60	57.49	Road Widening	2nd Phase
W-881	Secondary Road	60	0.70	Road Widening	2nd Phase
W-882	Secondary Road	60	98.37	Road Widening	2nd Phase
W-883	Local Road	20	38.12	Road Widening	3rd Phase
W-884	Secondary Road	50	705.06	Road Widening	2nd Phase
W-885	Secondary Road	40	371.38	Road Widening	2nd Phase

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase
W-886	Secondary Road	40	235.70	Road Widening	2nd Phase
W-887	Secondary Road	40	11.71	Road Widening	2nd Phase
N-32	Primary Road	80	124.30	New Road	1st Phase
W-922	Secondary Road	40	65.28	Road Widening	2nd Phase
W-938	Secondary Road	40	114.16	Road Widening	2nd Phase
N-65	Local Road	20	115.02	New Road	3rd Phase
N-66	Local Road	20	121.15	New Road	3rd Phase
N-67	Local Road	20	156.87	New Road	3rd Phase
N-68	Local Road	20	34.72	New Road	3rd Phase
N-69	Local Road	20	235.87	New Road	3rd Phase
Total			**7018.65**		

- "n" for new proposed road and "w" for proposed widening of existing road

14.11.2.4 Drainage Development Plan

There are no drainage facilities for this ward. Natural drain is adequate here. New drainage network will cover this ward also with 2.03 km secondary drains and 1.28 km tertiary drains (Table: 14.44).

Table 14.44: Drainage Development Plan Proposals for ward 09

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing
SD-11	Secondary Drain	2.5-3.5	1.25-2.25	238.62	1st Phase
SD-12	Secondary Drain	2.5-3.5	1.25-2.25	155.82	1st Phase
SD-13	Secondary Drain	2.5-3.5	1.25-2.25	116.32	1st Phase
SD-14	Secondary Drain	2.5-3.5	1.25-2.25	198.92	1st Phase
SD-15	Secondary Drain	2.5-3.5	1.25-2.25	277.39	1st Phase
SD-16	Secondary Drain	2.5-3.5	1.25-2.25	429.31	1st Phase
SD-17	Secondary Drain	2.5-3.5	1.25-2.25	356.05	1st Phase
TD-15	Tertiary Drain	2-2.5	0.64-1.25	361.98	3rd Phase
SD-18	Secondary Drain	2.5-3.5	1.25-2.25	145.76	1st Phase
TD-17	Tertiary Drain	2-2.5	0.64-1.25	12.43	3rd Phase
TD-25	Tertiary Drain	2-2.5	0.64-1.25	5.21	3rd Phase
TD-27	Tertiary Drain	2-2.5	0.64-1.25	195.32	3rd Phase
SD-55	Secondary Drain	2.5-3.5	1.25-2.25	112.50	1st Phase
TD-175	Tertiary Drain	2-2.5	0.64-1.25	151.06	3rd Phase
TD-176	Tertiary Drain	2-2.5	0.64-1.25	235.87	3rd Phase
TD-177	Tertiary Drain	2-2.5	0.64-1.25	95.35	3rd Phase
TD-178	Tertiary Drain	2-2.5	0.64-1.25	104.00	3rd Phase
TD-179	Tertiary Drain	2-2.5	0.64-1.25	118.81	3rd Phase
Total				**3310.71**	

14.11.2.5 Urban Services

a. Solid Waste Management

Solid waste management is a major urban service. As density of population increases the volume of solid waste also increases proportionately. However, the income level is also a major factor influencing the volume of solid waste. Population and the volume of waste in the Paurashava are yet to be large enough to become a problem for the city. But the present management system is not satisfactory and it might to lead to problem in future. The consultant proposes solid waste transfer stations in a suitable location. It is recommended that home collection system is introduced in the ward by creation of local CBOs. This will cause organized collection of waste and prevent indiscriminate littering.

b. Water Supply

It is proposed to install a network based water supply system by exploring fresh water from the

Sandhya River for the entire Paurashava.

c. Sanitation

The Paurashava must try to promote hygienic sanitation for the whole Paurashava to ensure better public health.

e. Ward Center

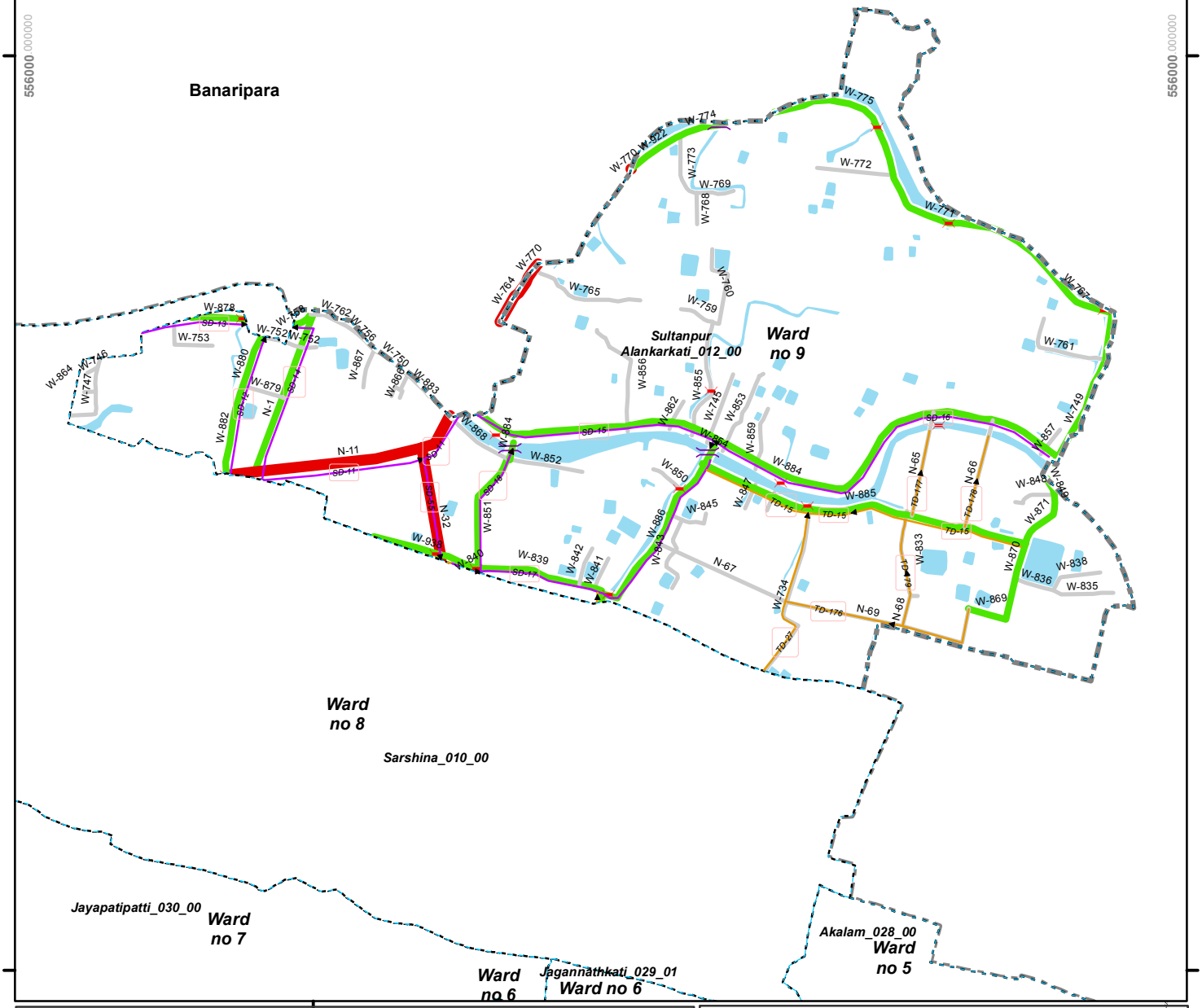
A ward center will be established in Ward no. 09. The ward center having ward office, Neighborhood Park, market and community center will serve this ward and people in the adjoining areas.

Table 14.45: Utility Service Development Proposals for ward 09

ID	Type of facility	Ward no	Mouza Name	Plot no	Area (Acre)
CZ-13	Neighborhood Market		Sultanpur Alankarkati_012_00	7, 8, 10, 11, 211, 213	0.87
CZ-12	Neighborhood Market		Sultanpur Alankarkati	153, 179	0.54
CZ-17	Corner Shop		Sultanpur Alankarkati_012_00	155, 22222	0.43
GIZ-02	Small Scale Industry	8 & 9	Sarshina_010_00	300, 526	3.53 (Partial)
			Sultanpur Alankarkati_012_00	161, 163, 164, 166, 167, 168, 169, 170, 171, 230	
AD-09	Ward Office		Sultanpur Alankarkati_012_00	213	0.21
OS-06	Neighborhood Park		Sultanpur Alankarkati_012_00	211, 212, 213, 214, 215, 216, 217	1.81
OS-13	Play ground		Sultanpur Alankarkati_012_00	121, 218, 219, 220, 221, 222	0.92
TF-07	Tempu/ Baby Taxi Stand		Sultanpur Alankarkati_012_00	153, 178	0.10
US-12	Waste Transfer Station		Sultanpur Alankarkati_012_00	8	0.10
HF-04	Health Centre/ Maternity Clinic		Sultanpur Alankarkati_012_00	123, 128, 132, 133, 134, 137, 138, 139, 140, 147, 148	1.34
CF-07	Community Center		Sultanpur Alankarkati_012_00	208, 209, 210	0.82

Map 14.26 & Map 14.27 represents proposed Road and Drainage network for ward 9 and development proposals of ward 9 respectively.

Map 14.26	Proposed Road and Drainage Network of ward No. 09



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

0 0.04 0.08 0.16 0.24 0.32 Kilometers

Legend

Existing

- Paurashava Boundary
- Ward Boundary
- Mouza Boundary
- Box Culvert
- Bridge
- Pipe Culvert

Proposed

- Box Culvert
- Proposed Bridge

Proposed Drains

- Secondary Drain
- Tertiary Drain

Proposed Road

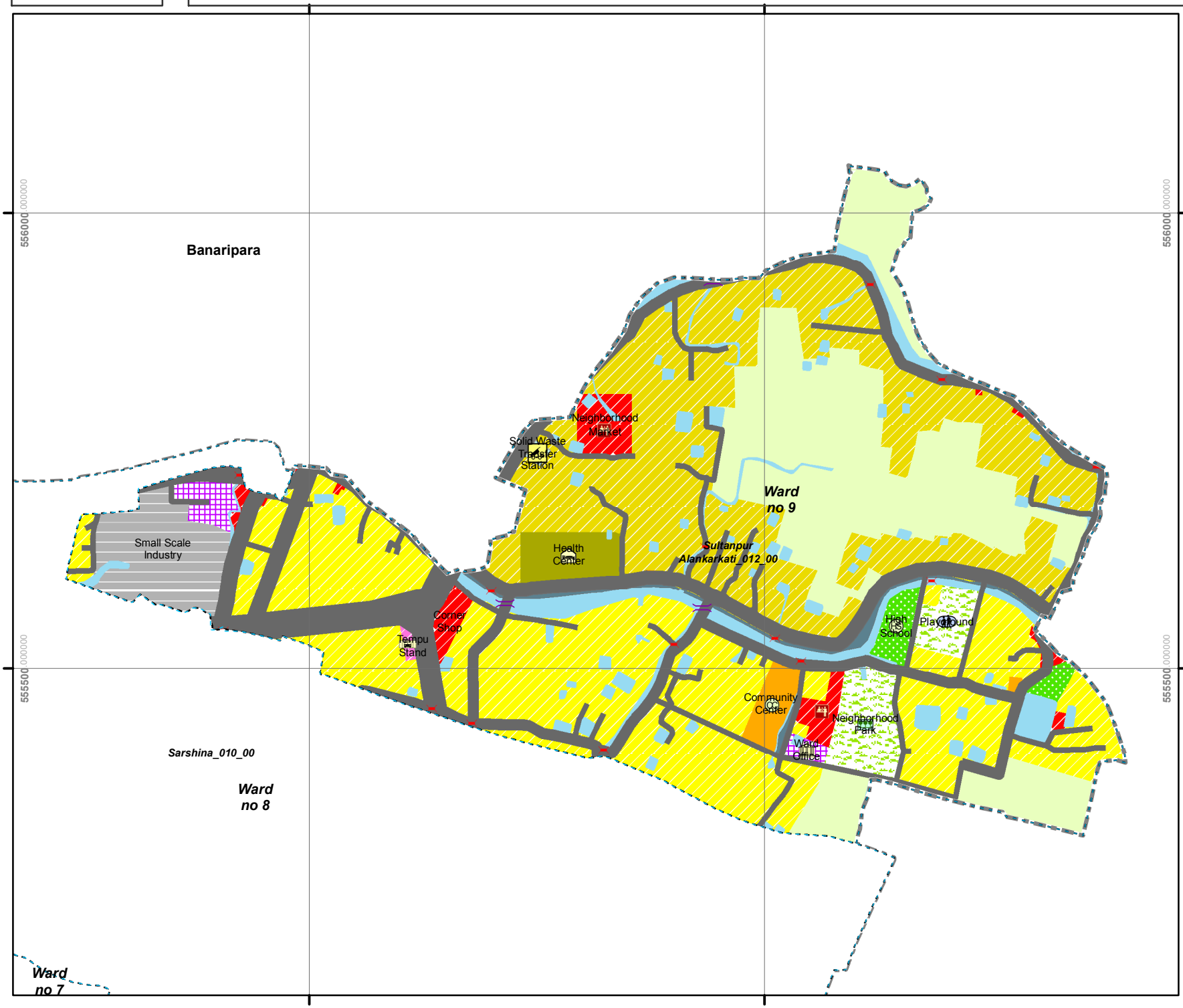
- Local Road
- Primary Road
- Secondary Road
- Proposed Water Body

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Map:1.27

Development Proposals of ward No. 09



PREPARATION OF MASTER PLAN FOR SWARUPKATI PAURASHAVA

UTIDP, Package-11

Legend

- Paura Boundary
- Ward Boundary
- Mouza Boundary

Proposed Landuse

- Administrative
- Agriculture
- Water Body
- Circulation Network
- Commercial
- Community Facilities
- Education & Research
- Health Facility
- Urban Residential
- Industry
- Mixed Use
- Open Space
- Recreational Facility
- Restricted Area
- Rural Settlement
- Transport Facilities
- Urban Deferred
- Utility Services

Development Proposals

- Bus Terminal
- Central Eidgah
- Graveyard/Cremation Place
- Park/Neighborhood park
- Cinema Hall/Auditorium
- College
- Community Center
- Dockyard
- Health Centre/Complex
- High School
- Kindergarten
- Market (Retail/Neighborhood/Wholesale)
- Over Head Tank
- Playground
- Primary School
- Slaughter House
- Waste Disposal Site
- Stadium
- Truck Terminal
- Vocational Training Institute
- Ward Office/Center
- Waste Transfer Station
- Water Treatment Plant
- Tempu/Taxi/Bus/Rickshaw Stand

0 0.0275 0.055 0.11 0.165 0.22 Kilometers

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14.12: Implementation Guidelines

The Master Plan of Swarupkati Paurashava will be an effective tool for planned urban development, if it is implemented properly with legal enforcement. The different components of the Master Plan have varied implications if they are not implemented in an integrated manner. There is no separate laws related directly to the implementation of Master Plan of the Paurashavas in the country other than the Paurashava Ordinance/Act 2009 and some relevant national policies and laws as discussed in chapter 5 under the Structure Plan.

However, the legal provisions that have been made in the Paurashava Ordinance/Act 2009 can effectively be applied in the implementation of the Master Plan of SwarupkatiPouashava for the time being along with other relevant national policies and laws that have also implications at Paurashava level, such as Wetland Conservation Act 2000 and BNBC 1993. Other national policies, guidelines and laws relevant to population, agriculture, environment, tourism, building materials, building construction etc. have implications for the implementation of various components including the Ward Action Plan of the Master Plan of Swarupkati Paurashava.

Therefore, until specific laws and guidelines are made by the government for the Paurashavas in Bangladesh for the implementation of Master Plans, the existing laws, policies and guidelines should be strictly followed so that the goal and objectives of these plans are achieved. Effective application of the various existing policies and laws require prudent exercise of professional knowledge and expertise, which is lacking in the existing human resources of the Paurashavas in Bangladesh. In particular, the Paurashavas require professional urban/town planner(s) in the set up of their manpower. In this context, there is an urgent need for the creation of a planning division/section in the existing set up of the Paurashava Organogram.

14.12.1 Proposals for Mitigation of Identified Issues

The critical issues of planning and development identified in the Structure Plan have been addressed through the preparation of Urban Area Plan and Ward Action Plan. The proposals made in these plans resolve the issues addressed in the Structure Plan.

14.12.2 Comparative Advantage of Master Plan

The Paurashavas in Bangladesh do not have any practicing plans at present in regard to organized development of land use or infrastructure. This situation has been continuing over a long period of time in the past promoting spontaneous land and infrastructure development. As a result, there are examples of unplanned development creating discomfort to the people living in almost all Paurashavas in the country. The implementation of the currently prepared Master Plan of the Paurashava will remove those obstacles by applying the principles, guidelines and proposals of various components of its Master Plan. The Ward Action Plan prepared following the Urban Area Plan will solve the most pressing needs of the town in infrastructure development.

14.13 Conclusion

The Paurashavas in Bangladesh for the first time in its history are having their detailed Master Plans prepared scientifically using modern tools and techniques. These Master Plans will be effective tools for planned development of most of the urban centers in Bangladesh. The planned township development will also ensure required services for the rural areas of the country. This in turn will make a positive impact on economic growth, social progress and environmental sustainability. Swarupkati Paurashava must avail this opportunity for its progress in the future by implementing its newly prepared Master Plan.

Team Composition of Master Plan Preparation

A.1 Personnel of the Project Management Office (UTIDP, LGED)

Sl No.	Name	Position
1	Md. Moslah Uddin	Project Director
2	Md. Manzurul Islam	Deputy Project Director
3	Syed Shahriar Amin	Urban Planner
4	Ziaul Hoque	Urban Planner
5	Pulin Chandra Golder	Urban Planner

A.2 Personnel of the Consultancy Firm Sheltech Consultants (Pvt.) Ltd.

A. Key Personnel:

Sl No.	Name	Position
1	Sultana Dilruba Aziz	Team Leader
2	Afsana M Kamal	Deputy Team Leader
3	Rukhsana Parveen	Urban Planner
4	Dr. Md. Altaf Hossain	Urban Planner
5	A.K.M. Mahfuzul Kabir	Demographer/Statistician
6	Dr. Santi Ranjan Hawlader	Urban Development Economist
7	Lipika Khan	Transport Planning Expert
8	Mohammed Iqbal Hossain	Municipal Engineer
9	Mohammad Ferozuddin	Architect Planner
10	Mohammad Quadiruzzaman	Environmental Analyst
11	Tripal Kumar Sen	GIS Specialist
12	Md. Hefzul Bari	Legal Expert

B. Supporting Stuff:

Sl No.	Name	Position
1	Mohammad Helal	Office Manager
2	M.A. Quayum	Computer Operator
3	Md. Jhangir Hossain	Computer Operator
4	Raihanul Islam	CAD Operator
5	Zakaria Ahmed	CAD Operator
6	ANM Shafiqul Alam	Surveyor
7	Aolad Hossain	Surveyor

রেজিষ্টার্ড নং ডি এ-১

বাংলাদেশ গেজেট

অতিরিক্ত সংখ্যা

কর্তৃপক্ষ কর্তৃক প্রকাশিত

বৃহস্পতিবার, মার্চ ১৮, ১৯৯৯

Betazi & Swarupkati

ANNEXURE 01

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার

স্থানীয় সরকার, পল্লী উন্নয়ন ও সমবায় মন্ত্রণালয়

স্থানীয় সরকার বিভাগ

(শাখা পৌর-২)

প্রজ্ঞাপন

তারিখ, ১৫ই মার্চ ১৯৯৯

নং পৌর-২/ওয়ার্ড-৬/৯৮/৩০৪---Paurashava Ordinance, 1977 (XXVI of 1977) এর section 19 এবং section 24 এ প্রদত্ত ক্ষমতাবলে সরকার এইমর্মে সিদ্ধান্ত গ্রহণ করিয়াছে যে,—

(ক) নিম্নের তফসিলের কলাম ৩-এ উল্লিখিত মিউনিসিপ্যালিটি একই তফসিলের কলাম ৪-এ উল্লিখিত সংখ্যক ওয়ার্ডে বিভক্ত হইবে ;

(খ) উক্ত তফসিলের কলাম ৫-এ উল্লিখিত সংখ্যক সংরক্ষিত মহিলা আসনে পুনঃনির্ধারিত হইবে ;

(গ) উক্ত তফসিলের কলাম ৬-এ উল্লিখিত সংখ্যাই হইবে সংশ্লিষ্ট পৌরসভার সংরক্ষিত মহিলা আসন বাবদ, কমিশনার সংখ্যা ;

(ঘ) উক্ত তফসিলের কলাম ৭-এ উল্লিখিত সংখ্যাই হইবে সংরক্ষিত মহিলা কমিশনারের সংখ্যা।

(১১১৯)

মূল্য : মাত্র ১.০০

তফসিল

ক্রমিক নং	জেলার নাম	মিউনিসিপ্যালিটির নাম	ওয়ার্ডের সংখ্যা	সংরক্ষিত মহিলা আসন সংখ্যা	কলাম ৪এ উল্লিখিত ওয়ার্ড হইতে নির্বাচিত কমিশনারের সংখ্যা	কলাম ৫এ উল্লিখিত রক্ষিত আসন হইতে নির্বাচিত মহিলা কমিশনারের সংখ্যা
১	২	৩	৪	৫	৬	৭
(১)	বরগুনা	বেতাগী	৯	৩	৯	৩
(২)	পিরোজপুর	স্বরূপকাঠি	৯	৩	৯	৩

২। এই প্রজ্ঞাপনের তফসিলের কলাম ৪-এ উল্লিখিত ওয়ার্ডের প্রতি ওয়ার্ড হইতে একজন করিয়া কমিশনার এবং কলাম ৫-এ উল্লিখিত সংরক্ষিত মহিলা আসনের প্রতি আসন হইতে একজন করিয়া মহিলা কমিশনার নির্বাচিত হইবেন।

রাষ্ট্রপতির আদেশক্রমে

আবদুস সাত্তার মিঞা
উপ-সচিব (পৌর)।

প্রজ্ঞাপন

তারিখ, ১৫ই মার্চ ১৯৯৯

নং পৌর-২/ওয়ার্ড-৬/১৮/৩০৫—Paurashava Ordinance, 1977 (XXVI of 1977)-এর section 21-এর বিধানানুসারে ডিলিমিটেশন অফিসার কর্তৃক সুপারিশকৃত নিম্নে তফসিলে বর্ণিত মিউনিসিপ্যালিটিসমূহের ওয়ার্ড গঠন করে সরকার আদেশ জারী করিল।

ক্রমিক নং	জেলার নাম	মিউনিসিপ্যালিটির নাম	ওয়ার্ড নং	ওয়ার্ডের সাথে অন্তর্ভুক্ত এলাকা (পূর্বে, পশ্চিমে উত্তরে, ও দক্ষিণে শেষ প্রান্ত স্থিত রোড, গলি, মহল্লা, খাল ইত্যাদির বর্ণনা)।
১	২	৩	৪	৫
	বরগুনা	বেতাগী	১	উত্তর-কালাইয়ের খালের দক্ষিণ পাড়, খালেক হাজীর বাড়ী। দক্ষিণ-কুমারের খালের পূর্বপাড়। পূর্ব-আনিরখার বাড়ীর দাগ নং ২০২৫, [illegible] সরদারের বাড়ী দাগ নং ১৬৯১ হোগলখাল। পশ্চিম-বিবখালী নদী, বেতাগী খালের পূর্বপাড়, বেতাগী থানা।

নিম্ন তফসিলে বর্ণিত মিউনিসিপ্যালিটিসমূহের সংরক্ষিত মহিলা আসনে নির্বাচনের লক্ষ্যে সংরক্ষিত মহিলা ওয়ার্ড গঠন করে সরকার নিম্নে জারী করিল :—

ক্রমিক নং	জেলার নাম	মিউনিসিপ্যালিটির নাম	সংরক্ষিত মহিলা ওয়ার্ড নং	ওয়ার্ডের সাথে অন্তর্ভুক্ত এলাকার সীমানা (পূর্বে, পশ্চিমে, উত্তরে ও দক্ষিণে শেষ প্রান্তস্থিত রোড, গলি, নদী, খাল ইত্যাদির বর্ণনা)
১	২	৩	৪	৫
	পিরোজপুর	স্বরূপকাঠি	১	উত্তর স্বরূপকাঠি, দক্ষিন স্বরূপকাঠি, পশ্চিম জগন্নাথকাঠি :
				উত্তরে-সিতলার খাল।
				পূর্বে-পূর্ব জগন্নাথকাঠি ও পশ্চিম জগন্নাথকাঠির সীমানা।
				পশ্চিমে-সন্ধ্যা নদী।
				দক্ষিণে-স্বরূপকাঠি ও কাঁঠালকাঠি মৌজার শেষ সীমানা।
			২	পূর্ব জগন্নাথকাঠি, আকলম, উত্তর জগন্নাথকাঠি :
				উত্তরে-উত্তর জগন্নাথকাঠি ও আকলম মৌজার শেষ সীমানা।
				পশ্চিমে-উত্তর জগন্নাথকাঠি ও পূর্ব জগন্নাথকাঠির শেষ সীমানা।
				পূর্বে-পূর্ব জগন্নাথকাঠি ও আকলম মৌজার শেষ সীমানা।
				দক্ষিণে-পূর্ব জগন্নাথকাঠির দক্ষিণ পাশের গমনাল খাল এবং আকলম মৌজার দক্ষিণ পাশের সিতলার খাল।
			৩	জগৎপট্টি, শলিনা, মাওরা :
				উত্তরে-মাওরা গ্রাম অর্থাৎ ওয়ার্ডের শেষ সীমানা।
				পূর্বে-মাওরা গ্রাম (ওয়ার্ড), শলিনা ও জগৎপট্টি মৌজার শেষ সীমানা।
				পশ্চিমে-মাওরা গ্রাম (ওয়ার্ড), শলিনা ও জগৎপট্টি মৌজার শেষ সীমানা।
				দক্ষিণে-সিতলার খাল।

রাষ্ট্রপতির আদেশক্রমে
আবদুস সাত্তার মিঞা
উপ-সচিব (পৌর)।

মুদ্রণ: আবদুল করিম সরকার (উপ-সচিব), বাংলাদেশ সরকারী মুদ্রণালয়, তেজগাঁও, ঢাকা কর্তৃক মুদ্রিত।
প্রকাশ: তমিজুল হক মোল্লা, উপ-নিয়ন্ত্রক, বাংলাদেশ ফরম ও প্রকাশনী অফিস, তেজগাঁও, ঢাকা কর্তৃক প্রকাশিত।

Annexure- C: Land use Permission

a. Urban Residential Land Use

Land Use Permitted

The following uses in the tables are proposed to be applicable for this zone only.

Table A.1: Land Use Permitted

Permitted Urban Residential Uses
Artisan's Shop
Assisted Living or Elderly Home
Confectionery Shop
Barber Shop
Child Daycare \ Preschool
Cleaning \ Laundry Shop
Communication Service Facilities
Communication Tower Within Permitted Height
Condominium or Apartment
Cottage
Cyber Café
Daycare Center (Commercial or Nonprofit)
Drug Store or Pharmacy
Employee Housing (Guards \ Drivers) \ Ancillary Use
General Store
Grocery Store
High School
Household Appliance and Furniture Repair Service (No Outside Storage)
Housing For Seasonal Firm Labor
Landscape and Horticultural Services
Mosque, Place Of Worship
Newspaper Stand
Nursery School
Orphanage
Eidgah
Photocopying and Duplicating Services (No Outside Storage)
Pipelines and Utility Lines
Playing Field
Primary School
Private Garages (Ancillary Use)
Project Identification Signs
Property Management Signs
Public Transport Facility
Satellite Dish Antenna
Shelter (Passers By)
Shoe Repair or Shoeshine Shop (Small)
CBO Office
Special Dwelling
Temporary Tent
Temporary tent for Permitted Function
Newspaper Stand
Specialized School: Dance, Art, Music, Physically Challenged & Others
Transmission Lines
Urban-Nature Reserve
Utility Lines
Woodlot
Children's Park (Must Have Parking)
ATM Booth
Water Pump \ Reservoir
Monument (Neighborhood Scale)
Bill Payment Booth
Boarding and Rooming House
Dormitory
Memorial Structure (Ancillary)
Neighborhood Center* *(Where Neighborhood Center exists)*
Permitted
Community Center
Doctor \ Dentist Chamber
Cultural Exhibits and Libraries
Fast Food Establishment \ Food Kiosk
Flowers, Nursery Stock and Florist Supplies
Fitness Centre
Gaming Clubs
Departmental Stores
Retail Shops \ Facilities

Source: Compiled by the Consultants

*Permission of Neighborhood Center Facilities in absence of formal neighborhood should be subject to Landuse Permit Committee

Land Use Conditionally Permitted

The following uses may be permitted or disallowed in this zone after review and approval by the authority/committee following appropriate procedure while the application meets the criteria mentioned in the requirement.

Table A.2: Land Use Conditionally Permitted

Conditionally Permitted Urban Residential Uses

Conditionally Permitted Urban Residential Uses
Addiction Treatment Center
Amusement and Recreation (Indoors)
Funeral Services
Art Gallery, Art Studio \ Workshop
Automobile Driving Academy
Beauty and Body Service
Billiard Parlor \ Pool Hall
Book or Stationery Store or Newsstand
Building Maintenance \ Cleaning Services, No Outside Storage
Bus Passenger Shelter
Graveyard \ Cemetery
Coffee Shop \ Tea Stall
Correctional Institution
Courier Service
Crematorium
Plantation (Except Narcotic Plant)
Furniture & Variety Stores
Emergency Shelter
Energy Installation
Garages
Garden Center or Retail Nursery
Fire Brigade Station
Police Station
Temporary Rescue Shed
Guest House
Slaughter House
Static Transformer Stations
Tourist Home or Resort
Market (Bazar)
Optical Goods Sales
Outdoor Café
Outdoor Fruit and Vegetable Markets
Community Hall
Neighborhood Co-Operative Office
Overhead Water Storage Tanks
Row House
Paints and Varnishes Store
Parking Lot
Patio Homes
Photofinishing Laboratory
Post Office
Postal Facilities
Sports and Recreation Club
Tennis Club
Flood Management Structure
Telephone Sub Station
Electrical Sub Station

Source: Compiled by the Consultants

Restricted Uses

All uses except permitted and conditionally permitted uses are restricted in this zone.

b. General Industry

Land use Permitted

General Industry land use category approve only Green and Orange-A category industry mentioned in *The Environmental Conservation Rule, 1997*.The following uses in the tables are proposed to be applicable for this zone only.

Table A.3: Land Use Permitted

Permitted General Industrial Activities
Confectionery Shop
Bank & Financial Institution
Bicycle Assembly, Parts and Accessories
Blacksmith
Bus Passenger Shelter
Communication Tower Within Permitted Height
Freight Transport Facility
Police Box \ Barrack
Fire \ Rescue Station
Grocery Store
Household Appliance and Furniture Repair Service
Machine Sheds
Meat and Poultry (Packing & Processing)
Mosque, Place Of Worship
Newspaper Stand
Photocopying and Duplicating Services
Pipelines and Utility Lines
Printing, Publishing and Distributing
Public Transport Facility
Restaurant
Retail Shops \ Facilities
Salvage Processing
Salvage Yards
Satellite Dish Antenna
Sawmill, Chipping and Pallet Mill
Shelter (Passers By)
Television, Radio or Electronics Repair (No Outside Storage)
Transmission Lines
Truck Stop & Washing or Freight Terminal
Utility Lines
Wood Products
Woodlot

Permitted General Industrial Activities
ATM Booth
Water Pump \ Reservoir
Effluent Treatment Plant
Social Forestry

Source: Compiled by the Consultants

Land Use Conditionally Permitted

The following uses may be permitted or denied in this zone after review and approval by the authority/committee following appropriate procedure.

Table A.4: Land Use Conditionally Permitted

Conditionally Permitted General Industrial Land Uses
Amusement and Recreation (Indoors)
Appliance Store
Plantation (Except Narcotic Plant)
Cyber Café
Daycare Center (Commercial or Nonprofit)
Doctor \ Dentist Chamber
Electrical and Electronic Equipment and Instruments Sales
Employee Housing
Energy Installation
Fast Food Establishment \ Food Kiosk
Garages
Grain & Feed Mills
Incineration Facility
Super Store
Lithographic or Print Shop
Motor Vehicle Fuelling Station \ Gas Station
Motorcycle Sales Outlet
Outdoor Fruit and Vegetable Markets
Outside Bulk Storage
Overhead Water Storage Tanks
Painting and Wallpaper Sales
Paints and Varnishes
Parking Lot
Parking Lot (Commercial)
Private Garages
Retail Shops Ancillary To Studio \ Workshop
Jute Mill

Source: Compiled by the Consultants

Restricted Uses

All other uses; except the permitted and conditionally permitted uses.

c. Commercial Zone

Land Use Permitted

Commercial zone is mainly intended for supporting the office and business works. There are several functions that are permitted in this zone.

Table A.5: Land Use Permitted

Permitted Commercial Activity
Accounting, Auditing or Bookkeeping Services
Billboards, Advertisements & Advertising Structure
Agri-Business
Agricultural Sales and Services
Ambulance Service
Antique Shop
Appliance Store
Auction Market
Auditorium, Coliseum, Meeting Halls, and Conference Facilities, Convention
Auto Leasing or Rental Office
Auto Paint Shop
Auto Parts and Accessory Sales (Indoors)
Auto Repair Shop (With Garage)
Automobile Wash
Automobile Sales
Confectionery Shop
Bakery or Confectionery Retail
Bank & Financial Institution
Bar (Licensed)
Barber Shop
Beauty and Body Service
Bicycle Shop
Billiard Parlor \ Pool Hall
Book or Stationery Store or Newsstand
Building Material Sales or Storage (Indoors)
Bulk Mail and Packaging
Bus Passenger Shelter
Cinema Hall
Communication Service Facilities
Communication Tower Within Permitted Height
Computer Maintenance and Repair
Computer Sales & Services
Conference Center
Construction Company
Courier Service
Cyber Café
Daycare Center (Commercial or Nonprofit)
Department Stores, Furniture & Variety Stores

Permitted Commercial Activity
Doctor \ Dentist Chamber
Drug Store or Pharmacy
Electrical and Electronic Equipment and Instruments Sales
Fast Food Establishment \ Food Kiosk
Freight Handling, Storage & Distribution
Freight Transport Facility
Freight Yard
General Store
Grocery Store
Guest House
Hotel or Motel
Inter-City Bus Terminal
Jewelry and Silverware Sales
Junk \ Salvage Yard
Super Store
Market (Bazar)
Mosque, Place Of Worship
Motorcycle Sales Outlet
Multi-Storey Car Park
Newspaper Stand
Outdoor Fruit and Vegetable Markets
Outdoor Recreation, Commercial
Parking Lot (Commercial)
Pet Store
Photocopying and Duplicating Services
Photofinishing Laboratory & Studio
Pipelines and Utility Lines
Post Office
Preserved Fruits and Vegetables Facility \ Cold Storage
Printing, Publishing and Distributing
Project Identification Signs
Property Management Signs
Public Transport Facility
Refrigerator or Large Appliance Repair
Resort
Restaurant
Retail Shops \ Facilities
Salvage Processing
Salvage Yards
Satellite Dish Antenna
Sawmill, Chipping and Pallet Mill
Shelter (Passers By)
Shopping Mall \ Plaza
Slaughter House
Software Development
Sporting Goods and Toys Sales
Taxi Stand
Telephone Exchanges
Television, Radio or Electronics Repair (No Outside Storage)
Theater (Indoor)
Transmission Lines
Utility Lines
Vehicle Sales & Service, Leasing or Rental
Veterinarian Clinics, Animal Hospitals, Kennels and Boarding Facilities
Warehousing
Wood Products
Woodlot
ATM Booth
Water Pump \ Reservoir
Agro-Based Industry (Rice Mill, Saw Mill, Cold Storage)
Social Forestry

Source: Compiled by the Consultants

Land Use Conditionally Permitted

Some functions are permitted with some condition in this zone.

Table A.6: Land Use Conditionally Permitted

Conditionally permitted commercial activities
Amusement and Recreation (Indoors)
Bicycle Assembly, Parts and Accessories
Broadcast Studio \ Recording Studio (No Audience)
Coffee Shop \ Tea Stall
Concert Hall, Stage Shows
Construction, Survey, Soil Testing Firms
Trade Shows
Craft Workshop
Plantation (Except Narcotic Plant)
Energy Installation
Firm Equipment Sales & Service
Agricultural Chemicals, Pesticides or Fertilizers Shop
Fitness Centre
Flowers, Nursery Stock and Florist Supplies
Forest Products Sales
Fuel and Ice Dealers
Garages
Garden Center or Retail Nursery
Police Box \ Barrack
Fire \ Rescue Station
Grain & Feed Mills

Conditionally permitted commercial activities
Household Appliance and Furniture Repair Service
Incineration Facility
Indoor Amusement Centers, Game Arcades
Indoor Theatre
Lithographic or Print Shop
Motor Vehicle Fuelling Station \ Gas Station
Musical Instrument Sales or Repair
Optical Goods Sales
Painting and Wallpaper Sales
Paints and Varnishes
Parking Lot
Patio Homes
Postal Facilities
Poultry
Private Garages
Professional Office
Retail Shops Ancillary To Studio \ Workshop
Stone \ Cut Stone Products Sales

Source: Compiled by the Consultants

Restricted Uses

All other uses except;, the permitted and conditionally permitted uses.

d. Rural Settlement

Land Use Permitted

The following uses in the tables are proposed to be applicable for this zone only.

Table A.7: Land Use Permitted

Permitted Rural Settlement
Agricultural Dwellings
Animal Husbandry
Animal Shelter
Graveyard \ Cemetery
Child Daycare \ Preschool
Primary School
Communication Tower Within Permitted Height
Cottage
Crematorium
Dairy Firming
General Store
Grocery Store
Handloom (Cottage Industry)
Housing For Seasonal Firm Labor
Mosque, Place Of Worship
Newspaper Stand
Nursery School
orphanage
Outdoor Religious Events (Eidgah)
Playing Field
Satellite Dish Antenna
NGO \ CBO Facilities
Special Dwelling (E.G. Dorm For Physically Challenged Etc.)
Temporary Shed \ Tent
Specialized School: Dance, Art, Music, Physically Challenged & Others
Static Electrical Sub Stations
Transmission Lines
Utility Lines
Woodlot
Plantation (Except Narcotic Plant)
Social Forestry
Memorial Structure

Source: Compiled by the Consultants

Land Use Conditionally Permitted

The following uses may be permitted or disallowed in this zone after review and approval by the authority/committee following appropriate procedure while the application meets the criteria mentioned in the requirement.

Table No. A.8: Land Use Conditionally Permitted

Conditionally permitted uses under Rural Settlement
Artisan's Shop (Potter, Blacksmith, and Goldsmith Etc.)
Research organization (Agriculture \ Fisheries)
Energy Installation
Fish Hatchery
Garden Center or Retail Nursery
Emergency Shelter
Sports and Recreation Club, Firing Range: Indoor

Source: Compiled by the Consultants

Restricted Uses

All uses except permitted and conditionally permitted uses are restricted in this zone.

e. Mixed use zone

Land Use Permitted

The following uses in the tables are proposed to be applicable for this zone only.

Table A.11: Land Use Permitted

Permitted uses in Mixed Use Zone
Accounting, Auditing or Bookkeeping Services
Addiction Treatment Center
Billboards, Advertisements & Advertising Structure
Agricultural Sales and Services
Antique Store
Appliance Store
Art Gallery, Art Studio \ Workshop
Artisan's Shop
Assisted Living or Elderly Home
Auditorium, Coliseum, Meeting Halls, and Conference Facilities, Convention
Auto Leasing or Rental Office
Automobile Wash
Automobile Driving Academy
Confectionery Shop
Bakery or Confectionery Retail
Bank & Financial Institution
Barber Shop
Bicycle Shop
Billiard Parlor \ Pool Hall
Blacksmith
Boarding and Rooming House
Book or Stationery Store or Newsstand
Bus Passenger Shelter
Child Daycare \ Preschool
Cleaning \ Laundry Shop
Commercial Recreational Buildings
Communication Service Facilities
Communication Tower Within Permitted Height
Community Center
Condominium or Apartment
Correctional Institution
Courier Service
Cyber Café
Daycare Center (Commercial or Nonprofit)
Doctor \ Dentist Chamber
Employee Housing
Fabric Store
Fast Food Establishment \ Food Kiosk
Funeral Services
General Store
Grocery Store
Guest House
Hospital
Jewelry and Silverware Sales
Landscape and Horticultural Services
Mosque, Place Of Worship
Newspaper Stand
Nursery School
Photocopying and Duplicating Services
Pipelines and Utility Lines
Primary School
Project Identification Signs
Property Management Signs
Public Transport Facility
Resort
Satellite Dish Antenna
Shelter (Passers By)
Shoe Repair or Shoeshine Shop (Small)
Slaughter House
Social organization
Software Development
Special Dwelling
Toys and Hobby Goods Processing and Supplies
Training Centre
Transmission Lines
Utility Lines
Vehicle Sales & Service, Leasing or Rental
Warehousing
Woodlot
Children's Park
ATM Booth
Water Pump \ Reservoir
Social Forestry
Dormitory
Rickshaw \ Auto Rickshaw Stand

Source: Compiled by the Consultants

Land Use Conditionally Permitted

The following uses may be permitted or disallowed in this zone after review and approval by the authority/committee.

Table A.12: Land Use Conditionally Permitted

Conditionally permitted uses in Mixed Use Zone
Agricultural Chemicals, Pesticides or Fertilizers Shop
Amusement and Recreation (Indoors)
Beauty and Body Service

Conditionally permitted uses in Mixed Use Zone
Broadcast Studio \ Recording Studio (No Audience)
Building Maintenance \ Cleaning Services, No Outside Storage
Building Material Sales or Storage (Indoors)
Graveyard \ Cemetery
Coffee Shop \ Tea Stall
Computer Maintenance and Repair
Computer Sales & Services
Concert Hall, Stage Shows
Conference Center
Construction Company
Construction, Survey, Soil Testing Firms
Cottage
Counseling Services
Craft Workshop
Crematorium
Plantation (Except Narcotic Plant)
Cultural Exhibits and Libraries
Department Stores, Furniture & Variety Stores
Drug Store or Pharmacy
Energy Installation
Fitness Centre
Flowers, Nursery Stock and Florist Supplies
Freight Handling, Storage & Distribution
Freight Transport Facility
Gaming Clubs
Garages
Garden Center or Retail Nursery
Commercial Office
Project Office
Government Office
Hotel or Motel
Household Appliance and Furniture Repair Service
Indoor Amusement Centers, Game Arcades
Indoor Theatre
Lithographic or Print Shop
Market (Bazar)
Health Office, Dental Laboratory, Clinic or Lab
Musical Instrument Sales or Repair
Optical Goods Sales
Outdoor Café
Outdoor Fruit and Vegetable Markets
Painting and Wallpaper Sales
Paints and Varnishes
Patio Homes
Photofinishing Laboratory & Studio
Poultry
Printing, Publishing and Distributing
Psychiatric Hospital
Retail Shops Ancillary To Studio \ Workshop
Radio \ Television or T&T Station With Transmitter Tower
Refrigerator or Large Appliance Repair
Restaurant
Retail Shops \ Facilities
Sporting Goods and Toys Sales
Sports and Recreation Club, Firing Range: Indoor
Telephone Exchanges
Television, Radio or Electronics Repair (No Outside Storage)

Source: Compiled by the Consultants

Restricted Uses

All uses except permitted and conditionally permitted uses are restricted in this zone.

f. Education and Research Area

Land Use Permitted

The following uses in the tables are proposed to be applicable for this zone only.

Table A.13: Land Use Permitted

Permitted uses under Education & Research Zone
Addiction Treatment Center
Billboards, Advertisements & Advertising Structure
Art Gallery, Art Studio \ Workshop
Automobile Driving Academy
Confectionery Shop
Bus Passenger Shelter
Child Daycare \ Preschool
College, University, Technical Institute
Communication Service Facilities
Communication Tower Within Permitted Height
Conference Center
Correctional Institution
Cultural Exhibits and Libraries
Cyber Café
Freight Transport Facility
General Store
Grocery Store
High School
Hospital
Lithographic or Print Shop
Mosque, Place Of Worship
Multi-Storey Car Park
Newspaper Stand
Nursery School
Outdoor Religious Events
Photocopying and Duplicating Services

Permitted uses under Education & Research Zone
Post Office
Primary School
Professional Office
Project Identification Signs
Property Management Signs
Public Transport Facility
Satellite Dish Antenna
School (Retarded)
Scientific Research Establishment
Shelter (Passers By)
Specialized School: Dance, Art, Music & Others
Training Centre
Transmission Lines
Utility Lines
Vocational, Business, Secretarial School
Woodlot
ATM Booth
Water Pump \ Reservoir
Social Forestry
Dormitory
Veterinary School \ College and Hospital

Source: Compiled by the Consultants

Land Use Conditionally Permitted

The following uses may be permitted or denied in this zone after review and approval by the authority/committee.

Table A.14: Land Use Conditionally Permitted

Conditionally permitted uses under Education and Research Zone
Auditorium, Coliseum, Meeting Halls, and Conference Facilities, Convention
Bank & Financial Institution
Barber Shop
Boarding and Rooming House
Book or Stationery Store or Newsstand
Coffee Shop \ Tea Stall
Counseling Services
Courier Service
Plantation (Except Narcotic Plant)
Daycare Center (Commercial or Nonprofit)
Doctor \ Dentist Chamber
Drug Store or Pharmacy
Fast Food Establishment \ Food Kiosk
Flowers, Nursery Stock and Florist Supplies
Gallery \ Museum
Garages
Indoor Theatre
orphanage
Outdoor Café
Parking Lot
Pipelines and Utility Lines
Postal Facilities
Psychiatric Hospital

Source: Compiled by the Consultants

Restricted Uses

All uses except permitted and conditionally permitted uses are restricted in this zone.

g. Government Office

Land Use Permitted

The following uses in the tables are proposed to be applicable for this zone only.

Table A.15: Land Use Permitted

Permitted uses under Government Office Zone
Accounting, Auditing or Bookkeeping Services
Billboards, Advertisements & Advertising Structure
Confectionery Shop
Bus Passenger Shelter
Civic Administration
Communication Service Facilities
Communication Tower Within Permitted Height
Construction, Survey, Soil Testing Firms
Cultural Exhibits and Libraries
Cyber Café
Emergency Shelter
Freight Transport Facility
General Store
Project Office
Government Office
Grocery Store
Guest House
Multi-Storey Car Park
Newspaper Stand
Outdoor Religious Events
Photocopying and Duplicating Services
Post Office
Professional Office
Public Transport Facility
Satellite Dish Antenna
Scientific Research Establishment
Shelter (Passers By)
Training Centre

Permitted uses under Government Office Zone
Transmission Lines
Utility Lines
Woodlot
ATM Booth
Water Pump \ Reservoir
Social Forestry

Source: Compiled by the Consultants

Land Use Conditionally Permitted

The following uses may be permitted or denied in this zone after review and approval by the authority/committee.

Table A.16: Land Use Conditionally Permitted

Conditionally permitted uses under Government office
Amusement and Recreation (Indoors)
Auditorium, Coliseum, Meeting Halls, and Conference Facilities, Convention
Bank & Financial Institution
Boarding and Rooming House
Book or Stationery Store or Newsstand
Coffee Shop \ Tea Stall
Conference Center
Courier Service
Plantation (Except Narcotic Plant)
Daycare Center (Commercial or Nonprofit)
Detention Facilities
Doctor \ Dentist Chamber
Energy Installation
Fast Food Establishment \ Food Kiosk
Flowers, Nursery Stock and Florist Supplies
Freight Handling, Storage & Distribution
Freight Yard
Gallery \ Museum
Garages
Police Box \ Barrack
Fire \ Rescue Station
Lithographic or Print Shop
Mosque, Place Of Worship
Outdoor Café
Parking Lot
Parking Lot (Commercial)
Pipelines and Utility Lines
Postal Facilities

Source: Compiled by the Consultants

Restricted Uses

All uses except permitted and conditionally permitted uses are restricted in this zone.

h. Agricultural Zone

Land Use Permitted

The following uses in the tables are proposed to be applicable for this zone only.

Table A17: Land Use Permitted

Permitted uses under Agricultural Zone
Food Grain Cultivation
Vegetable Cultivation
Cash Crop Cultivation
Horticulture
Arboriculture
Dairy Firming
Deep Tube Well
Shallow Tube Well
Irrigation Facilities (Irrigation Canal, Culvert, Flood Wall etc)
Temporary Structure (Agricultural)
Animal Shelter
Duckery
Aquatic Recreation Facility (Without Structure)
Tree Plantation (Except Narcotic Plant)
Aquaculture
Static Transformer Stations
Transmission Lines
Utility Lines
Woodlot
Social Forestry

Source: Compiled by the Consultants

Land Use Conditionally Permitted

Table A18: Land Use Conditionally Permitted

Conditionally permitted uses under Agricultural Zone
Graveyard \ Cemetery
Communication Tower Within Permitted Height
Crematorium
Fish Hatchery
Garden Center or Retail Nursery
Poultry

Source: Compiled by the Consultants

Restricted Uses

All uses except permitted and conditionally permitted uses are restricted in this zone.

j. Open Space

Land Use Permitted

The following uses in the tables are proposed to be applicable for this zone only.

Table A.19: Land Use Permitted

Permitted uses under Open Space
Botanical Garden & Arboretum
Bus Passenger Shelter
Caravan Park \ Camping Ground
Carnivals and Fairs
Circus
Plantation (Except Narcotic Plant)
Landscape and Horticultural Services
Open Theater
Park and Recreation Facilities (General)
Pipelines and Utility Lines
Playing Field
Special Function Tent
Tennis Club
Transmission Lines
Urban-Nature Reserve
Utility Lines
Woodlot
Zoo
Roadside Parking
Social Forestry
Memorial Structure

Source: Compiled by the Consultants

Landuse Conditionally Permitted

Table A 20: Land Use Conditionally Permitted

Conditionally permitted uses under open space
Communication Tower Within Permitted Height
Trade Shows
Fitness Centre
Flowers, Nursery Stock and Florist Supplies
Golf Course
Motorized Recreation
Outdoor Recreation Facilities
Outdoor Recreation, Commercial
Outdoor Sports and Recreation
Park Maintenance Facility
Retreat Center
Sports and Recreation Club, Firing Range: Indoor

Source: Compiled by the Consultants

Restricted Uses

All uses except permitted and conditionally permitted uses are restricted.

k. Water Body

Retaining water is the main purpose of this type of Landuse.

Land Use Permitted

The following uses in the tables are proposed to be applicable for this zone only.

Table A.21: Land Use Permitted

Permitted uses under Water Body
Aquatic Recreation Facility (Without Structure)
Fishing Club
Utility Lines
Water Parks
Memorial Structure

Source: Compiled by the Consultants

Land Use Conditionally Permitted

The following uses may be permitted or denied in this zone after review and approval by the authority/committee.

Table A.22: Land Use Conditionally Permitted

Conditionally permitted uses under water body
Plantation (Except Narcotic Plant)
Marina \ Boating Facility
Motorized Recreation

Source: Compiled by the Consultants

Restricted Uses

All uses except permitted and conditionally permitted uses are restricted.

স্বরূপকাঠি পৌরসভার খসড়া মহাপরিকল্পনার উপর মতবিনিময় সভার কার্যবিবরণী

তারিখ: ০৬/১০/২০১৩
স্থান: স্বরূপকাঠি পৌরসভা
সময়: সকাল ১১:০০ ঘটিকায়

স্থানীয় সরকার প্রকৌশল অধিদপ্তর, স্বরূপকাঠি পৌরসভা ও পরামর্শক প্রতিষ্ঠানের যৌথ উদ্যোগে স্বরূপকাঠি পৌরসভার খসড়া মহাপরিকল্পণার উপর মাননীয় মেয়র জনাব মোঃ শফিকুল ইসলাম ফরিদ এর সভাপতিত্বে এক মতবিনিময় সভা অনুষ্ঠিত হয়। উক্ত মতবিনিময় সভায় পৌরসভার কাউন্সিলরবৃন্দ সহ স্থানীয় গণ্যমাণ্য ব্যক্তি বর্গ, বিভিন্ন সরকারি-বেসরকারি অধিদপ্তরের কর্মকর্তাবৃন্দ,স্থানীয় সরকার প্রকৌশল অধিদপ্তরের প্রতিনিধি, এবং মহাপরিকল্পনার প্রণয়ণ প্রকল্পে নিযুক্ত পরামর্শকবৃন্দ উপস্থিত হয়ে আলোচনায় অংশগ্রহন করেন।

সভার শুরুতে মাননীয় মেয়র মহোদয় জনাব মোঃ শফিকুল ইসলাম ফরিদ উপস্থিত সকলকে শুভেচ্ছা জানিয়ে আনুষ্ঠানিকভাবে সভার কার্যক্রম শুরু করেন এবং স্বাগত বক্তব্যে উল্লেখ করেন যে, আগামী (২০) বিশ বছরের জন্য এই মহাপরিকল্পনার উক্ত পরিকল্পণায় উপস্থিত সকলকে সুচিন্তিত মতামত প্রদানের জন্য আহ্বান করেন যাতে করে পরিকল্পণাটি আরও গঠণমূলক ও বাস্তব সম্মত হয়।

উপজেলা শহর অবকাঠামো উন্নয়ন প্রকল্পের পরিকল্পণাবিদ মোঃ জিয়াউল হক মহাপরিকল্পণার স্বয়ংসম্পূর্ণ ও যথাযথ বাস্তবায়নের জন্য সকলের সহযোগীতা কামনা করেন এবং তিনি বলেন যে সকলের মূল্যবান মতামত পরিকল্পণাকে আরো গঠণমূলক ও সময়োপযোগী করে তুলবে।

পরামর্শক প্রতিষ্ঠানের পক্ষ থেকে পরিকল্পনাবিদ মিঠুন তলাপাত্র, উপস্থিত সকলকে স্বাগত জানিয়ে খসড়া মহাপরিকল্পনার উপর Power Point Presentation এর মাধ্যমে তার বক্তব্য তুলে ধরেন। তিনি কার্যক্রমসমূহ, উন্নয়নের সম্ভাবনাসমূহ ধাপে ধাপে বর্ণনা করেন।এরপর মহাপরিকল্পণার কোথায় কিভাবে প্রস্তাবনা সমূহ ওয়ার্ড ভিত্তিক দেওয়া হয়েছে সেসব বিষদ আলোচনা করেন। তিনি আরও উল্লেখ করেন যে, সকলের মতামতের ভিত্তিতে যে প্রস্তাবসমূহ দেওয়া হয়েছিল তা নিম্নরূপ:

Proposed Facilities	Area (Acre)	Ward no	Plot No	Mouza Name_JL_Sheet
Planned Residential Area	10.52	5,6	84, 85, 86, 89, 90, 91, 92, 93, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 122, 123, 124, 125, 126, 127, 128, 129, 135, 141, 142, 143, 144, 946	Jagannathkati_029_01
			99999	Akalam_028_00
Resettlement Zone	8.52	5	17, 26, 27, 28, 29, 30, 31, 38, 39, 40, 41, 44, 45, 46, 47, 49, 50, 51, 52, 53, 54, 55,	Akalam_028_00

Proposed Facilities	Area (Acre)	Ward no	Plot No	Mouza Name_JL_Sheet
			56, 57, 362, 378, 386	
Wholesale Market	1.48	1	601, 602, 606	Jagannathkati_029_02
			272, 273, 276, 363, 364, 365, 366, 367, 368	Swarupkati_031_00
	3.54	3	340	Jagannathkati_029_01
			601, 602, 603, 604, 605, 606, 608	Jagannathkati_029_02
			276	Swarupkati_031_00
Super Market	1.71	6	184, 192, 193, 196	Jagannathkati_029_01
Retail Market	1.22	1	358, 453, 454, 457, 458, 459, 671	Swarupkati_031_00
	1.78	2	451, 452, 453, 458, 487, 561, 566, 571, 572	
	0.51	3	433, 435, 452	Jagannathkati_029_01
	2.39	4	433, 435, 448, 449, 450, 451, 452	Jagannathkati_029_01
			643, 646, 647, 648, 654, 703	Jagannathkati_029_02
	1.81	5	121, 122, 123, 124, 127, 153, 165, 166, 167, 168, 169, 170, 172, 196, 331, 333	Akalam_028_00
	1.29	6	6, 7, 8, 9, 16, 17, 21, 930, 931	Jagannathkati_029_01
	0.45	7	1, 2, 190, 196	Jayapatipatti_030_00
			39, 330, 332, 348	Sarshina_010_00
	1.61	8	1,2,190	Jayapatipatti_030_00
			39, 328, 329, 330, 331, 332, 333, 334, 348	Sarshina_010_00
Neighborhood Market	0.67	1	138, 139, 140, 141, 142, 143	Swarupkati_031_00
	0.48	2	411, 416, 417	Swarupkati_031_00
	0.22	3	291	Jagannathkati_029_01
			139	Swarupkati_031_00
	0.90	8	405, 423, 424, 425, 426, 427	Sarshina_010_00
	1.41	9	7, 8, 10, 11, 211, 213	Sultanpur Alankarkati_012_00
		7	127, 133, 136, 137, 142, 155, 156	Jayapatipatti
		9	153, 179 22222	Sultanpur Alankarkati
Slaughter House	0.61	6	136, 151, 154, 155, 157, 158, 159, 160, 161, 162, 170, 178	Jagannathkati
Cottage/Agro-based Industry	1.06	2	620	Jagannathkati_029_02
			276, 394, 401, 403, 404, 405, 407, 408, 490, 491	Swarupkati_031_00
	1.06	3	613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 629, 630, 631, 632, 633, 634, 635, 637, 638, 648, 649, 650, 651, 652, 658, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 675, 686, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 701, 702, 703, 704, 705, 706, 717	Jagannathkati_029_02
			276	Swarupkati_031_00
Small Scale Industry	18.85	8	39, 257, 258, 260, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 318, 321, 322, 323, 324, 325, 326, 327, 328, 329, 441, 526, 531	Sarshina_010_00

Proposed Facilities	Area (Acre)	Ward no	Plot No	Mouza Name_JL_Sheet
			167, 168, 169, 170, 171	Sultanpur Alankarkati_012_00
	3.53	9	300, 526	Sarshina_010_00
			161, 163, 164, 166, 167, 168, 169, 170, 171, 230	Sultanpur Alankarkati_012_00
Ward Offices	0.19	1	361, 362, 363, 374	Swarupkati_031_00
	0.24	2	418, 437	Swarupkati_031_00
	0.86	3	356, 356	Jagannathkati_029_01
			609, 622, 639	Jagannathkati_029_02
	0.25	4	452, 453, 454	Jagannathkati_029_01
	0.30	5	172, 173, 175, 195, 196	Akalam_028_00
	0.18	6	76, 77, 88	Jagannathkati_029_01
	0.35	7	85, 86, 87, 88, 108, 191	Jayapatipatti_030_00
	0.24	8	402, 403, 404, 428	Sarshina_010_00
	0.21	9	213	Sultanpur Alankarkati_012_00
College	3.62	6	56, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 950	Jagannathkati_029_01
Secondary School	0.72	1	269, 270, 271, 272	Swarupkati_031_00
	1.08	2	395, 396, 411, 412, 413, 414, 415, 418, 437, 438, 439	Swarupkati_031_00
	0.67	3	338, 339, 340	Jagannathkati_029_01
			270	Swarupkati_031_00
	3.14	4	440, 442, 443, 444, 445, 446, 462, 536, 537, 538, 539, 540, 541, 542, 543	Jagannathkati_029_01
	2.74	6	24, 26, 27, 28, 29, 33, 34, 37, 61, 63	Jagannathkati_029_01
	0.20	7	27, 33	Jagannathkati_029_01
			73	Jayapatipatti_030_00
	0.65	9	121, 216, 217, 218, 219,	Sultanpur Alankarkati_012_00
Primary School	0.77	2	395, 396, 397, 398, 399, 400, 401, 408, 412, 413, 588	Swarupkati_031_00
	0.36	6	1, 3	Jagannathkati_029_01
			80	Jayapatipatti_030_00
	1.47	7	1,3	Jagannathkati_029_01
			79, 80, 82, 87, 191	Jayapatipatti_030_00
	1.09	5	135, 320, 321, 322, 330	Akalam_028_00
Vocational Training Center	3.52	4	400, 441, 442, 443, 446, 447, 448, 449, 450, 451, 458, 459	Jagannathkati_029_01
Kindergarten	0.63	1	277, 278, 279, 283, 284	Swarupkati_031_00
	0.00	2	418	Swarupkati_031_00
	0.88	4	400, 401, 454, 457, 460, 461, 478, 479, 481, 482, 483, 504, 506, 507, 508, 574	Jagannathkati_029_01
	0.97	5	16, 31, 37, 79, 80, 163, 164, 165, 197, 198, 199, 200	Akalam_028_00
	0.73	6	71, 88, 89, 90, 91, 95, 96, 101, 159, 162, 187	Jagannathkati_029_01
	0.08	7	21, 72, 73	Jayapatipatti_030_00
	0.56	8	313, 354, 355, 356, 357, 358, 433, 434, 505, 526	Sarshina_010_00
Public Library	0.39	8	428, 429, 444	Sarshina_010_00

Proposed Facilities	Area (Acre)	Ward no	Plot No	Mouza Name_JL_Sheet
Central Park	14.54	1	76, 77, 82, 144, 173, 174, 175, 177, 178, 179, 180, 181, 182, 183, 208, 218, 219, 223, 224, 225, 227, 228, 229, 230, 276, 280, 283, 287, 288, 289, 290, 322, 323, 324, 326, 327, 328, 329, 330, 331, 332, 336, 470, 472, 600	Swarupkati_031_00
Neighborhood Park	1.62	2	418, 419, 421, 425, 427	Swarupkati_031_00
	1.16	4	399, 400, 401, 402, 403, 404	Jagannathkati_029_01
	1.10	5	189, 190, 191, 200, 201, 202, 203, 208	Akalam_028_00
	2.14	7	19, 41, 113, 114, 115, 116, 191, 199	Jayapatipatti_030_00
	1.81	9	211, 212, 213, 214, 215, 216, 217	Sultanpur Alankarkati_012_00
Park	1.00	1	136, 138, 139, 586, 587	Swarupkati_031_00
	1.89	3	288, 290, 344, 345, 346, 347, 348, 349, 421, 424, 953	Jagannathkati_029_01
			609, 610	Jagannathkati_029_02
			139	Swarupkati_031_00
	0.82	4	641, 643, 652, 654, 655, 656	Jagannathkati_029_02
	1.56	8	386, 387, 388, 392, 393, 394, 395, 398, 399, 400, 401, 402, 428, 429	Sarshina_010_00
Play ground	1.93	1	87, 88, 90, 91, 92, 93, 94, 109, 110, 111, 112, 113, 114, 115, 116, 117, 122, 127, 128, 272	Swarupkati_031_00
	2.76	2	276, 391, 392, 393, 394, 395, 400, 409, 410, 411, 412, 413, 414, 420, 421	Swarupkati_031_00
	1.62	3	338, 339, 340, 341	Jagannathkati_029_01
			601, 603, 604, 606, 608, 616	Jagannathkati_029_02
	2.11	4	460, 461, 462, 463, 464	Jagannathkati_029_01
	1.29	6	184, 196	Jagannathkati_029_01
	5.96	7	1, 2, 3, 4, 6, 7, 21, 22, 66, 69, 70, 77, 78, 79, 80, 81, 82, 189, 196, 197	Jayapatipatti_030_00
	1.77	8	403, 404, 405, 406, 423, 427	Sarshina_010_00
	0.92	9	121, 218, 219, 220, 221, 222	Sultanpur Alankarkati_012_00
Stadium	5.40	1	277, 284, 338, 339, 342, 343, 344, 345, 346, 347, 348, 349, 351, 352, 353, 358, 359, 360	Swarupkati_031_00
		4	754	Jagannathkati_029_02
Cinema/Theater	0.53	3	648, 649, 650, 651, 703	Jagannathkati_029_02
Auditorium	0.60	7	102, 103, 186	Jayapatipatti_030_00
Bus Terminal	2.91	7	127, 128, 132, 133, 158, 159, 160, 161, 162, 163, 164, 197	Jayapatipatti_030_00
Truck Terminal	1.28	3	606, 615, 616	Jagannathkati_029_02
Dockyard	5.18	1	7, 8, 71, 72, 74, 76, 77, 78, 79, 80, 81, 82, 86, 128	Swarupkati_031_00
Ricksaw Stand	0.23	6	12, 17, 21, 63, 64, 65	Jagannathkati_029_01
	0.21	7	101, 102	Jayapatipatti_030_00
Tempu/ Baby Taxi Stand	0.72	7	126, 128,129, 196	Jayapatipatti_030_00
	0.10	9	153, 178	Sultanpur Alankarkati_012_00
Bus Stand	0.42	5	99, 102, 106	Akalam_028_00
Waste Transfer Station	0.93	1	131, 132, 133, 139, 370, 371, 372, 373	Swarupkati_031_00

Proposed Facilities	Area (Acre)	Ward no	Plot No	Mouza Name_JL_Sheet
	0.37	2	515, 516, 533	Swarupkati_031_00
	0.64	3	420, 425	Jagannathkati_029_01
			650, 651, 652, 653, 657, 659, 660, 661	Jagannathkati_029_02
	0.06	4	425, 453, 455	Jagannathkati_029_01
	0.49	5	138, 163, 200, 201, 208	Akalam_028_00
	0.24	6	5, 129	Jagannathkati_029_01
	0.21	7	48, 49, 50	Jayapatipatti_030_00
	0.46	8	328, 333, 389, 391, 444, 455	Sarshina_010_00
	0.10	9	8	Sultanpur Alankarkati_012_00
Water Treatment Plant	2.52	7	125, 126, 196	Jayapatipatti_030_00
Over Head Tank	0.96	3	296, 298, 299, 352, 353, 354, 365, 430, 432	Jagannathkati_029_01
			637, 638, 640	Jagannathkati_029_02
	0.19	6	59, 60	Jagannathkati_029_01
	0.14	7	153, 154, 155, 156	Jayapatipatti_030_00
	0.32	8	303, 306	Sarshina_010_00
Waste Disposal Site	4.64	5	108, 22222	Akalam_028_00
Health Centre/ Maternity Clinic	0.57	1	284, 341, 344, 345	Swarupkati_031_00
	0.86	7	48, 49, 55, 56, 81, 82, 83, 191	Jayapatipatti_030_00
	1.34	9	123, 128, 132, 133, 134, 137, 138, 139, 140, 147, 148	Sultanpur Alankarkati_012_00
	0.10	3	414, 415, 420, 425	Jagannathkati_029_01
	0.91	4	403, 404, 405, 406, 407, 425	Jagannathkati_029_01
Health Complex	7.69	3	341	Jagannathkati_029_01
			606, 607, 608, 609, 610, 611, 612	Jagannathkati_029_02
	0.21	7	61, 62, 65	Jayapatipatti_030_00
	1.74	8	368, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 381, 386, 396, 530	Sarshina_010_00
Central Eidgah	1.84	6	184, 190, 192, 193, 194, 195, 196	Jagannathkati_029_01
Central Graveyard	1.76	6	100, 102, 103, 104, 105, 185, 186, 187	Jagannathkati_029_01
Community Center	0.82	1	131, 137, 138, 175, 176, 177, 239, 240	Swarupkati_031_00
	0.57	2	437, 438, 439, 442, 443	Swarupkati_031_00
	1.33	3	606, 609, 611, 612, 622, 634, 638, 639, 640	Jagannathkati_029_02
	0.44	4	447, 450, 451, 452, 453, 454	Jagannathkati_029_01
	0.93	5	150, 151, 153, 170, 171, 172, 173, 174, 175, 177	Akalam_028_00
	0.72	6	56, 75, 76, 77	Jagannathkati_029_01
	0.80	7	46, 47, 48, 51, 52, 83, 84, 191	Jayapatipatti_030_00
	0.65	8	398, 399, 400, 402, 403, 405	Sarshina_010_00
	0.82	9	208, 209, 210	Sultanpur Alankarkati_012_00
Cremation Plane	3.33	1	333, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 476	Swarupkati_031_00

সমাপনি বক্তব্যে মেয়র মহোদয় পরামর্শক প্রতিষ্ঠানের পরিকল্পণাবিদগণকে এবং স্থানীয় সরকার প্রকৌশল অধিদপ্তরকে পৌরসভার মহাপরিকল্পণা প্রনয়নের জন্য পুনরায় ধন্যবাদ জ্ঞাপন করেন এবং সম্ভাব্য সকল দিকনির্দেশনাগুলি সন্নিবেশিত করে যথাশীঘ্রসম্ভব চুড়ান্ত মহাপরিকল্পণা প্রণয়ন করার জন্য অনুরোধ করেন। সভায় আর কোন আলোচনা না থাকায় সকলকে ধন্যবাদ জানিয়ে পৌরসভার স্বপ্ন বাস্তবায়নের আশা ব্যক্ত করে সভার কার্যক্রম সমাপ্তি ঘোষণা করেন।



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(জনাব মোঃ শফিকুল ইসলাম ফরিদ)

মেয়র,

স্বরূপকাঠি পৌরসভা

স্থানীয় সরকার প্রকৌশল অধিদপ্তর, ঢাকা-১২০৭
উপজেলা শহর অবকাঠামো উন্নয়ন প্রকল্প, প্যাকেজ-১১

স্বরূপকাঠি পৌরসভার মহাপরিকল্পনার উপর চূড়ান্ত মতবিনিময় সভা
স্বরূপকাঠি পৌরসভা।
স্থান: স্বরূপকাঠি পৌরসভা। তারিখ: ০৬ অক্টোবর, ২০১৩ খ্রিঃ; সকাল ১১:০০ ঘটিকা

অংশগ্রহনকারীর তালিকা

ক্রমিক নং	নাম	প্রতিষ্ঠান ও পদবী	ফোন নম্বর	সাক্ষর
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ক্রমিক নং	নাম	প্রতিষ্ঠান ও পদবী	ফোন নম্বর	সাক্ষর
১২	[illegible]	[illegible]	01677629677	[signature]
১৩	মোসাঃ মাহমুদা খাতুন	[illegible]	01813406578	[signature]
১৪	সুপ্রতিম সরদার	উপ-সহকারী প্রকৌশলী	01919818881	[signature]
১৫	মোঃ রিপন হোসেন মোল্লা	কাউন্সিলর ৩নং ওয়ার্ড	01820124880	[signature]
১৬	[illegible]	[illegible]	01717612440	[signature]
১৭	[illegible]	[illegible]	01748963135	[signature]
১৮	[illegible]	[illegible]	01831491185	[signature]
১৯	মোঃ জিহাদ হোসেন গাজীকার	[illegible]	01712890697	[signature]
২০	[illegible]	[illegible]	01754410884	[signature]
২১	মোঃ ওসমান [illegible]	[illegible]	01718-145969	[signature]
২২	[illegible]	[illegible]	01725928053	[signature]
২৩	[illegible]	[illegible]	[illegible]	[signature]
২৪	[illegible]	[illegible]	[illegible]	[signature]
২৫	[illegible]	[illegible]	[illegible]	[signature]

ক্রমিক নং	নাম	প্রতিষ্ঠান ও পদবী	ফোন নম্বর	সাক্ষর
২৬	মোঃ জিয়াউর হক	নগর পরিকল্পনাবিদ	০১৭১১-২৪৪৯৭৩	
২৭	বিপ্লব ভট্টাচার্য	নগর পরিকল্পনাবিদ SCPL	01722-020922	
২৮	আবদুল্লাহ আল ফাহাদ	নগর পরিকল্পনাবিদ SCPL	০১৯১১-৪৭৬৪৭৫	
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Phase wise Road Network Development proposal of Swarupkati Paurashava

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase	Ward No.
W-950	Primary Road	100	748.39	Road Widening	1st Phase	Ward no 1
W-967	Secondary Road	50	329.20	Road Widening	2nd Phase	Ward no 1
W-74	Local Road	20	11.92	Road Widening	3rd Phase	Ward no 1
W-79	Local Road	20	47.76	Road Widening	3rd Phase	Ward no 1
W-88	Local Road	20	34.81	Road Widening	3rd Phase	Ward no 1
W-90	Local Road	20	59.62	Road Widening	3rd Phase	Ward no 1
W-91	Local Road	20	99.62	Road Widening	3rd Phase	Ward no 1
W-92	Local Road	20	70.39	Road Widening	3rd Phase	Ward no 1
W-96	Local Road	20	56.27	Road Widening	3rd Phase	Ward no 1
W-99	Secondary Road	60	0.85	Road Widening	2nd Phase	Ward no 1
W-105	Secondary Road	40	1.41	Road Widening	2nd Phase	Ward no 1
W-106	Local Road	20	1.28	Road Widening	3rd Phase	Ward no 1
W-107	Local Road	20	62.48	Road Widening	3rd Phase	Ward no 1
W-108	Secondary Road	60	72.17	Road Widening	2nd Phase	Ward no 1
W-109	Local Road	20	13.86	Road Widening	3rd Phase	Ward no 1
W-118	Local Road	20	68.08	Road Widening	3rd Phase	Ward no 1
W-120	Secondary Road	60	8.50	Road Widening	2nd Phase	Ward no 1
W-123	Primary Road	60	177.01	Road Widening	1st Phase	Ward no 1
W-124	Secondary Road	60	46.43	Road Widening	2nd Phase	Ward no 1
W-126	Local Road	20	19.15	Road Widening	3rd Phase	Ward no 1
W-129	Local Road	20	21.11	Road Widening	3rd Phase	Ward no 1
W-139	Local Road	20	0.08	Road Widening	3rd Phase	Ward no 1
W-140	Secondary Road	60	40.60	Road Widening	2nd Phase	Ward no 1
W-142	Local Road	20	45.88	Road Widening	3rd Phase	Ward no 1
W-176	Local Road	20	27.22	Road Widening	3rd Phase	Ward no 1
W-179	Local Road	20	29.77	Road Widening	3rd Phase	Ward no 1
W-186	Local Road	20	35.39	Road Widening	3rd Phase	Ward no 1
W-206	Secondary Road	40	146.88	Road Widening	2nd Phase	Ward no 1
W-208	Local Road	20	67.96	Road Widening	3rd Phase	Ward no 1
W-209	Local Road	20	82.04	Road Widening	3rd Phase	Ward no 1
W-221	Secondary Road	40	125.61	Road Widening	2nd Phase	Ward no 1
W-229	Local Road	20	27.07	Road Widening	3rd Phase	Ward no 1
W-237	Local Road	20	9.79	Road Widening	3rd Phase	Ward no 1
W-238	Local Road	20	10.54	Road Widening	3rd Phase	Ward no 1
W-240	Local Road	20	17.81	Road Widening	3rd Phase	Ward no 1
W-247	Local Road	20	28.72	Road Widening	3rd Phase	Ward no 1
W-251	Secondary Road	60	16.95	Road Widening	2nd Phase	Ward no 1
W-255	Local Road	20	40.53	Road Widening	3rd Phase	Ward no 1
W-260	Local Road	20	28.93	Road Widening	3rd Phase	Ward no 1
W-263	Local Road	20	6.98	Road Widening	3rd Phase	Ward no 1
W-265	Local Road	20	13.99	Road Widening	3rd Phase	Ward no 1
W-267	Local Road	20	14.05	Road Widening	3rd Phase	Ward no 1
W-270	Local Road	20	14.26	Road Widening	3rd Phase	Ward no 1
W-272	Local Road	20	10.02	Road Widening	3rd Phase	Ward no 1
W-274	Local Road	20	20.77	Road Widening	3rd Phase	Ward no 1
W-277	Local Road	20	40.45	Road Widening	3rd Phase	Ward no 1
W-280	Local Road	20	31.14	Road Widening	3rd Phase	Ward no 1
W-287	Local Road	20	49.75	Road Widening	3rd Phase	Ward no 1
W-288	Local Road	20	60.91	Road Widening	3rd Phase	Ward no 1
W-290	Local Road	20	27.10	Road Widening	3rd Phase	Ward no 1
W-293	Local Road	20	110.23	Road Widening	3rd Phase	Ward no 1
W-301	Local Road	20	91.93	Road Widening	3rd Phase	Ward no 1
W-302	Local Road	20	1.23	Road Widening	3rd Phase	Ward no 1
W-304	Local Road	20	45.89	Road Widening	3rd Phase	Ward no 1
W-306	Local Road	20	4.70	Road Widening	3rd Phase	Ward no 1
W-307	Local Road	20	26.21	Road Widening	3rd Phase	Ward no 1
W-308	Local Road	20	30.18	Road Widening	3rd Phase	Ward no 1
W-309	Local Road	20	10.47	Road Widening	3rd Phase	Ward no 1
W-310	Local Road	20	45.35	Road Widening	3rd Phase	Ward no 1
W-311	Local Road	20	17.91	Road Widening	3rd Phase	Ward no 1
W-312	Local Road	20	13.92	Road Widening	3rd Phase	Ward no 1
W-317	Local Road	20	19.03	Road Widening	3rd Phase	Ward no 1
W-318	Local Road	20	26.16	Road Widening	3rd Phase	Ward no 1
W-319	Local Road	20	61.00	Road Widening	3rd Phase	Ward no 1
W-323	Local Road	20	28.85	Road Widening	3rd Phase	Ward no 1
W-333	Local Road	20	54.70	Road Widening	3rd Phase	Ward no 1
W-338	Local Road	20	41.15	Road Widening	3rd Phase	Ward no 1
W-344	Local Road	20	26.96	Road Widening	3rd Phase	Ward no 1
W-352	Local Road	20	18.73	Road Widening	3rd Phase	Ward no 1
W-354	Primary Road	100	28.75	Road Widening	1st Phase	Ward no 1

Phase wise Road Network Development proposal of Swarupkati Paurashava

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase	Ward No.
W-369	Local Road	20	12.72	Road Widening	3rd Phase	Ward no 1
W-370	Secondary Road	60	57.37	Road Widening	2nd Phase	Ward no 1
W-371	Local Road	20	51.91	Road Widening	3rd Phase	Ward no 1
W-372	Local Road	20	30.03	Road Widening	3rd Phase	Ward no 1
W-373	Local Road	20	5.94	Road Widening	3rd Phase	Ward no 1
W-374	Secondary Road	60	51.54	Road Widening	2nd Phase	Ward no 1
W-376	Local Road	20	117.47	Road Widening	3rd Phase	Ward no 1
W-377	Local Road	20	3.06	Road Widening	3rd Phase	Ward no 1
W-378	Local Road	20	8.23	Road Widening	3rd Phase	Ward no 1
W-379	Local Road	20	36.36	Road Widening	3rd Phase	Ward no 1
W-380	Secondary Road	60	18.69	Road Widening	2nd Phase	Ward no 1
W-381	Local Road	20	0.86	Road Widening	3rd Phase	Ward no 1
W-386	Local Road	20	24.10	Road Widening	3rd Phase	Ward no 1
W-388	Secondary Road	60	59.75	Road Widening	2nd Phase	Ward no 1
W-389	Local Road	20	18.98	Road Widening	3rd Phase	Ward no 1
W-390	Local Road	20	4.35	Road Widening	3rd Phase	Ward no 1
W-396	Primary Road	100	28.05	Road Widening	1st Phase	Ward no 1
W-398	Secondary Road	60	93.65	Road Widening	2nd Phase	Ward no 1
W-403	Local Road	20	88.02	Road Widening	3rd Phase	Ward no 1
W-453	Local Road	20	55.31	Road Widening	3rd Phase	Ward no 1
W-466	Local Road	20	137.29	Road Widening	3rd Phase	Ward no 1
W-474	Local Road	20	47.70	Road Widening	3rd Phase	Ward no 1
W-507	Local Road	20	75.93	Road Widening	3rd Phase	Ward no 1
W-952	Secondary Road	40	124.57	Road Widening	2nd Phase	Ward no 1
W-790	Secondary Road	40	42.38	Road Widening	2nd Phase	Ward no 1
W-791	Secondary Road	40	129.54	Road Widening	2nd Phase	Ward no 1
W-792	Secondary Road	40	99.26	Road Widening	2nd Phase	Ward no 1
W-803	Primary Road	60	25.20	Road Widening	1st Phase	Ward no 1
W-804	Primary Road	60	66.85	Road Widening	1st Phase	Ward no 1
W-805	Primary Road	60	46.35	Road Widening	1st Phase	Ward no 1
W-806	Primary Road	60	145.61	Road Widening	1st Phase	Ward no 1
W-807	Secondary Road	60	198.64	Road Widening	2nd Phase	Ward no 1
W-808	Secondary Road	60	115.55	Road Widening	2nd Phase	Ward no 1
W-809	Secondary Road	60	86.15	Road Widening	2nd Phase	Ward no 1
W-810	Secondary Road	60	38.82	Road Widening	2nd Phase	Ward no 1
W-811	Secondary Road	60	61.99	Road Widening	2nd Phase	Ward no 1
W-812	Secondary Road	60	65.94	Road Widening	2nd Phase	Ward no 1
W-817	Secondary Road	60	47.43	Road Widening	2nd Phase	Ward no 1
W-872	Local Road	20	40.50	Road Widening	3rd Phase	Ward no 1
W-873	Local Road	20	61.58	Road Widening	3rd Phase	Ward no 1
W-891	Local Road	20	139.26	Road Widening	3rd Phase	Ward no 1
W-892	Local Road	20	79.37	Road Widening	3rd Phase	Ward no 1
N-28	Secondary Road	60	288.86	New Road	2nd Phase	Ward no 1
N-30	Secondary Road	60	236.97	New Road	2nd Phase	Ward no 1
N-31	Secondary Road	60	103.65	New Road	2nd Phase	Ward no 1
W-909	Secondary Road	40	54.63	Road Widening	2nd Phase	Ward no 1
W-910	Secondary Road	60	1.13	Road Widening	2nd Phase	Ward no 1
N-39	Local Road	30	80.85	New Road	3rd Phase	Ward no 1
W-940	Local Road	20	2.90	Road Widening	3rd Phase	Ward no 1
W-941	Local Road	20	4.42	Road Widening	3rd Phase	Ward no 1
W-942	Secondary Road	60	6.82	Road Widening	2nd Phase	Ward no 1
N-40	Primary Road	100	362.76	New Road	1st Phase	Ward no 1
W-954	Secondary Road	60	255.71	Road Widening	2nd Phase	Ward no 1
W-955	Secondary Road	40	43.97	Road Widening	2nd Phase	Ward no 1
N-73	Secondary Road	40	12.41	New Road	2nd Phase	Ward no 1
N-75	Secondary Road	40	41.54	New Road	2nd Phase	Ward no 1
W-165	Local Road	20	0.52	Road Widening	3rd Phase	Ward no 1
W-807	Secondary Road	60	0.52	Road Widening	2nd Phase	Ward no 1
W-950	Primary Road	100	496.79	Road Widening	1st Phase	Ward no 2
W-1	Local Road	20	63.74	Road Widening	3rd Phase	Ward no 2
W-2	Local Road	20	145.95	Road Widening	3rd Phase	Ward no 2
W-3	Local Road	20	43.04	Road Widening	3rd Phase	Ward no 2
W-4	Local Road	20	59.50	Road Widening	3rd Phase	Ward no 2
W-5	Local Road	20	33.82	Road Widening	3rd Phase	Ward no 2
W-6	Local Road	20	46.40	Road Widening	3rd Phase	Ward no 2
W-7	Local Road	20	53.23	Road Widening	3rd Phase	Ward no 2
W-8	Local Road	20	31.70	Road Widening	3rd Phase	Ward no 2
W-9	Local Road	20	35.61	Road Widening	3rd Phase	Ward no 2
W-10	Local Road	20	7.97	Road Widening	3rd Phase	Ward no 2
W-11	Local Road	20	9.54	Road Widening	3rd Phase	Ward no 2

Phase wise Road Network Development proposal of Swarupkati Paurashava

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase	Ward No.
W-12	Local Road	20	8.37	Road Widening	3rd Phase	Ward no 2
W-13	Local Road	20	13.40	Road Widening	3rd Phase	Ward no 2
W-14	Local Road	20	9.15	Road Widening	3rd Phase	Ward no 2
W-15	Local Road	20	1.38	Road Widening	3rd Phase	Ward no 2
W-16	Local Road	20	95.08	Road Widening	3rd Phase	Ward no 2
W-17	Local Road	20	21.20	Road Widening	3rd Phase	Ward no 2
W-18	Local Road	20	5.47	Road Widening	3rd Phase	Ward no 2
W-19	Local Road	20	8.64	Road Widening	3rd Phase	Ward no 2
W-20	Local Road	20	3.60	Road Widening	3rd Phase	Ward no 2
W-21	Local Road	20	16.63	Road Widening	3rd Phase	Ward no 2
W-22	Local Road	20	62.80	Road Widening	3rd Phase	Ward no 2
W-23	Local Road	20	84.41	Road Widening	3rd Phase	Ward no 2
W-24	Local Road	20	133.65	Road Widening	3rd Phase	Ward no 2
W-25	Local Road	20	54.06	Road Widening	3rd Phase	Ward no 2
W-26	Local Road	20	41.24	Road Widening	3rd Phase	Ward no 2
W-27	Local Road	20	44.46	Road Widening	3rd Phase	Ward no 2
W-28	Local Road	20	143.24	Road Widening	3rd Phase	Ward no 2
W-29	Local Road	20	304.33	Road Widening	3rd Phase	Ward no 2
W-30	Local Road	20	15.02	Road Widening	3rd Phase	Ward no 2
W-31	Local Road	20	22.89	Road Widening	3rd Phase	Ward no 2
W-32	Local Road	20	40.71	Road Widening	3rd Phase	Ward no 2
W-33	Local Road	20	32.26	Road Widening	3rd Phase	Ward no 2
W-34	Local Road	20	137.82	Road Widening	3rd Phase	Ward no 2
W-35	Local Road	20	76.53	Road Widening	3rd Phase	Ward no 2
W-36	Local Road	20	18.44	Road Widening	3rd Phase	Ward no 2
W-38	Secondary Road	40	2.04	Road Widening	2nd Phase	Ward no 2
W-39	Local Road	20	90.39	Road Widening	3rd Phase	Ward no 2
W-40	Local Road	20	32.56	Road Widening	3rd Phase	Ward no 2
W-41	Secondary Road	50	157.30	Road Widening	2nd Phase	Ward no 2
W-44	Local Road	20	29.53	Road Widening	3rd Phase	Ward no 2
W-45	Secondary Road	60	37.53	Road Widening	2nd Phase	Ward no 2
W-53	Local Road	20	151.58	Road Widening	3rd Phase	Ward no 2
W-55	Local Road	20	21.43	Road Widening	3rd Phase	Ward no 2
W-57	Local Road	20	38.89	Road Widening	3rd Phase	Ward no 2
W-60	Secondary Road	50	79.82	Road Widening	2nd Phase	Ward no 2
W-63	Local Road	20	24.31	Road Widening	3rd Phase	Ward no 2
W-64	Local Road	20	9.42	Road Widening	3rd Phase	Ward no 2
W-65	Local Road	20	15.03	Road Widening	3rd Phase	Ward no 2
W-66	Local Road	20	99.97	Road Widening	3rd Phase	Ward no 2
W-67	Local Road	20	30.76	Road Widening	3rd Phase	Ward no 2
W-70	Secondary Road	40	320.25	Road Widening	2nd Phase	Ward no 2
W-71	Local Road	20	12.35	Road Widening	3rd Phase	Ward no 2
W-72	Local Road	20	86.19	Road Widening	3rd Phase	Ward no 2
W-73	Secondary Road	60	194.39	Road Widening	2nd Phase	Ward no 2
W-74	Local Road	20	60.55	Road Widening	3rd Phase	Ward no 2
W-77	Secondary Road	60	76.80	Road Widening	2nd Phase	Ward no 2
W-78	Local Road	20	28.01	Road Widening	3rd Phase	Ward no 2
W-80	Local Road	20	26.71	Road Widening	3rd Phase	Ward no 2
W-81	Local Road	20	15.94	Road Widening	3rd Phase	Ward no 2
W-84	Local Road	20	23.65	Road Widening	3rd Phase	Ward no 2
W-88	Local Road	20	52.48	Road Widening	3rd Phase	Ward no 2
W-93	Secondary Road	60	20.10	Road Widening	2nd Phase	Ward no 2
W-95	Secondary Road	60	22.54	Road Widening	2nd Phase	Ward no 2
W-97	Local Road	20	42.73	Road Widening	3rd Phase	Ward no 2
W-99	Secondary Road	60	26.77	Road Widening	2nd Phase	Ward no 2
W-100	Local Road	20	45.19	Road Widening	3rd Phase	Ward no 2
W-101	Local Road	20	20.30	Road Widening	3rd Phase	Ward no 2
W-105	Secondary Road	40	57.97	Road Widening	2nd Phase	Ward no 2
W-107	Local Road	20	13.19	Road Widening	3rd Phase	Ward no 2
W-109	Local Road	20	19.11	Road Widening	3rd Phase	Ward no 2
W-802	Secondary Road	40	125.94	Road Widening	2nd Phase	Ward no 2
W-900	Local Road	20	65.50	Road Widening	3rd Phase	Ward no 2
W-901	Secondary Road	80	608.62	Road Widening	2nd Phase	Ward no 2
N-76	Local Road	20	146.36	New Road	3rd Phase	Ward no 2
N-77	Local Road	20	180.73	New Road	3rd Phase	Ward no 2
N-78	Local Road	20	282.55	New Road	3rd Phase	Ward no 2
N-85	Local Road	20	36.77	New Road	3rd Phase	Ward no 2
W-956	Secondary Road	50	93.28	Road Widening	2nd Phase	Ward no 3
W-965	Secondary Road	40	152.96	Road Widening	2nd Phase	Ward no 3
W-967	Secondary Road	50	6.27	Road Widening	2nd Phase	Ward no 3

Phase wise Road Network Development proposal of Swarupkati Paurashava

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase	Ward No.
N-4	Primary Road	60	153.92	New Road	1st Phase	Ward no 3
N-5	Secondary Road	40	389.90	New Road	2nd Phase	Ward no 3
N-6	Secondary Road	40	84.33	New Road	2nd Phase	Ward no 3
N-7	Secondary Road	40	337.64	New Road	2nd Phase	Ward no 3
N-8	Secondary Road	60	34.11	New Road	2nd Phase	Ward no 3
N-9	Secondary Road	50	162.95	New Road	2nd Phase	Ward no 3
N-17	Secondary Road	60	103.91	New Road	2nd Phase	Ward no 3
N-18	Secondary Road	40	73.04	New Road	2nd Phase	Ward no 3
W-37	Local Road	20	23.18	Road Widening	3rd Phase	Ward no 3
W-38	Secondary Road	40	30.34	Road Widening	2nd Phase	Ward no 3
W-42	Secondary Road	40	150.81	Road Widening	2nd Phase	Ward no 3
W-43	Local Road	20	21.99	Road Widening	3rd Phase	Ward no 3
W-46	Secondary Road	40	63.95	Road Widening	2nd Phase	Ward no 3
W-47	Local Road	20	75.82	Road Widening	3rd Phase	Ward no 3
W-48	Primary Road	80	413.95	Road Widening	1st Phase	Ward no 3
W-49	Local Road	20	8.89	Road Widening	3rd Phase	Ward no 3
W-50	Local Road	20	41.96	Road Widening	3rd Phase	Ward no 3
W-51	Local Road	20	69.63	Road Widening	3rd Phase	Ward no 3
W-52	Local Road	20	59.77	Road Widening	3rd Phase	Ward no 3
W-54	Secondary Road	40	25.24	Road Widening	2nd Phase	Ward no 3
W-58	Local Road	20	92.25	Road Widening	3rd Phase	Ward no 3
W-59	Secondary Road	40	52.06	Road Widening	2nd Phase	Ward no 3
W-68	Local Road	20	59.74	Road Widening	3rd Phase	Ward no 3
W-69	Secondary Road	40	38.91	Road Widening	2nd Phase	Ward no 3
W-70	Secondary Road	40	71.53	Road Widening	2nd Phase	Ward no 3
W-71	Local Road	20	14.45	Road Widening	3rd Phase	Ward no 3
W-76	Local Road	20	0.06	Road Widening	3rd Phase	Ward no 3
W-82	Secondary Road	40	144.54	Road Widening	2nd Phase	Ward no 3
W-83	Local Road	20	106.07	Road Widening	3rd Phase	Ward no 3
W-86	Secondary Road	40	11.25	Road Widening	2nd Phase	Ward no 3
W-98	Local Road	20	0.10	Road Widening	3rd Phase	Ward no 3
W-102	Local Road	20	30.93	Road Widening	3rd Phase	Ward no 3
W-103	Secondary Road	60	50.20	Road Widening	2nd Phase	Ward no 3
W-110	Local Road	20	0.15	Road Widening	3rd Phase	Ward no 3
W-112	Local Road	20	0.17	Road Widening	3rd Phase	Ward no 3
W-113	Secondary Road	40	119.63	Road Widening	2nd Phase	Ward no 3
W-114	Local Road	20	0.11	Road Widening	3rd Phase	Ward no 3
W-115	Primary Road	60	171.82	Road Widening	1st Phase	Ward no 3
W-117	Local Road	20	29.14	Road Widening	3rd Phase	Ward no 3
W-121	Local Road	20	33.69	Road Widening	3rd Phase	Ward no 3
W-123	Primary Road	60	224.28	Road Widening	1st Phase	Ward no 3
W-127	Local Road	20	50.72	Road Widening	3rd Phase	Ward no 3
W-149	Local Road	20	8.56	Road Widening	3rd Phase	Ward no 3
W-150	Local Road	20	11.81	Road Widening	3rd Phase	Ward no 3
W-155	Local Road	20	6.14	Road Widening	3rd Phase	Ward no 3
W-156	Local Road	20	7.73	Road Widening	3rd Phase	Ward no 3
W-157	Local Road	20	1.22	Road Widening	3rd Phase	Ward no 3
W-158	Local Road	20	7.88	Road Widening	3rd Phase	Ward no 3
W-160	Local Road	20	7.30	Road Widening	3rd Phase	Ward no 3
W-161	Local Road	20	8.19	Road Widening	3rd Phase	Ward no 3
W-163	Local Road	20	6.73	Road Widening	3rd Phase	Ward no 3
W-164	Local Road	20	2.36	Road Widening	3rd Phase	Ward no 3
W-166	Local Road	20	10.82	Road Widening	3rd Phase	Ward no 3
W-169	Secondary Road	60	102.22	Road Widening	2nd Phase	Ward no 3
W-170	Local Road	20	37.45	Road Widening	3rd Phase	Ward no 3
W-171	Secondary Road	40	252.29	Road Widening	2nd Phase	Ward no 3
W-172	Secondary Road	60	86.64	Road Widening	2nd Phase	Ward no 3
W-177	Local Road	20	25.46	Road Widening	3rd Phase	Ward no 3
W-178	Local Road	20	22.88	Road Widening	3rd Phase	Ward no 3
W-182	Local Road	20	35.39	Road Widening	3rd Phase	Ward no 3
W-187	Local Road	20	11.62	Road Widening	3rd Phase	Ward no 3
W-191	Local Road	20	12.37	Road Widening	3rd Phase	Ward no 3
W-192	Secondary Road	40	70.39	Road Widening	2nd Phase	Ward no 3
W-193	Local Road	20	34.01	Road Widening	3rd Phase	Ward no 3
W-194	Local Road	20	0.04	Road Widening	3rd Phase	Ward no 3
W-195	Local Road	20	1.76	Road Widening	3rd Phase	Ward no 3
W-197	Secondary Road	40	66.32	Road Widening	2nd Phase	Ward no 3
W-205	Secondary Road	60	148.27	Road Widening	2nd Phase	Ward no 3
W-212	Secondary Road	40	110.30	Road Widening	2nd Phase	Ward no 3
W-213	Local Road	20	73.45	Road Widening	3rd Phase	Ward no 3

Phase wise Road Network Development proposal of Swarupkati Paurashava

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase	Ward No.
W-214	Secondary Road	60	36.72	Road Widening	2nd Phase	Ward no 3
W-215	Secondary Road	40	22.54	Road Widening	2nd Phase	Ward no 3
W-216	Secondary Road	40	135.53	Road Widening	2nd Phase	Ward no 3
W-217	Secondary Road	40	7.05	Road Widening	2nd Phase	Ward no 3
W-218	Secondary Road	40	66.47	Road Widening	2nd Phase	Ward no 3
W-219	Local Road	20	33.44	Road Widening	3rd Phase	Ward no 3
W-220	Secondary Road	40	17.22	Road Widening	2nd Phase	Ward no 3
W-223	Local Road	20	76.05	Road Widening	3rd Phase	Ward no 3
W-226	Local Road	20	54.57	Road Widening	3rd Phase	Ward no 3
W-227	Local Road	20	24.48	Road Widening	3rd Phase	Ward no 3
W-228	Secondary Road	40	51.07	Road Widening	2nd Phase	Ward no 3
W-230	Local Road	20	31.11	Road Widening	3rd Phase	Ward no 3
W-232	Local Road	20	41.49	Road Widening	3rd Phase	Ward no 3
W-235	Local Road	20	111.27	Road Widening	3rd Phase	Ward no 3
W-236	Secondary Road	40	34.83	Road Widening	2nd Phase	Ward no 3
W-239	Secondary Road	40	13.35	Road Widening	2nd Phase	Ward no 3
W-241	Secondary Road	40	69.34	Road Widening	2nd Phase	Ward no 3
W-242	Secondary Road	40	7.91	Road Widening	2nd Phase	Ward no 3
W-246	Local Road	20	11.98	Road Widening	3rd Phase	Ward no 3
W-248	Local Road	20	13.29	Road Widening	3rd Phase	Ward no 3
W-251	Secondary Road	60	109.44	Road Widening	2nd Phase	Ward no 3
W-254	Local Road	20	44.04	Road Widening	3rd Phase	Ward no 3
W-261	Local Road	20	111.29	Road Widening	3rd Phase	Ward no 3
W-262	Local Road	20	24.72	Road Widening	3rd Phase	Ward no 3
W-264	Local Road	20	21.52	Road Widening	3rd Phase	Ward no 3
W-269	Local Road	20	2.90	Road Widening	3rd Phase	Ward no 3
W-271	Local Road	20	6.63	Road Widening	3rd Phase	Ward no 3
W-273	Local Road	20	31.37	Road Widening	3rd Phase	Ward no 3
W-275	Secondary Road	40	67.89	Road Widening	2nd Phase	Ward no 3
W-276	Secondary Road	40	81.02	Road Widening	2nd Phase	Ward no 3
W-278	Local Road	20	66.12	Road Widening	3rd Phase	Ward no 3
W-282	Secondary Road	40	28.03	Road Widening	2nd Phase	Ward no 3
W-283	Local Road	20	20.49	Road Widening	3rd Phase	Ward no 3
W-284	Local Road	20	1.81	Road Widening	3rd Phase	Ward no 3
W-289	Local Road	20	38.99	Road Widening	3rd Phase	Ward no 3
W-295	Secondary Road	40	14.01	Road Widening	2nd Phase	Ward no 3
W-299	Local Road	20	27.24	Road Widening	3rd Phase	Ward no 3
W-303	Secondary Road	60	55.68	Road Widening	2nd Phase	Ward no 3
W-305	Secondary Road	40	85.87	Road Widening	2nd Phase	Ward no 3
W-321	Local Road	20	76.14	Road Widening	3rd Phase	Ward no 3
W-335	Local Road	20	110.93	Road Widening	3rd Phase	Ward no 3
W-339	Local Road	20	3.07	Road Widening	3rd Phase	Ward no 3
W-347	Local Road	20	24.87	Road Widening	3rd Phase	Ward no 3
W-349	Local Road	20	118.81	Road Widening	3rd Phase	Ward no 3
W-357	Local Road	20	12.57	Road Widening	3rd Phase	Ward no 3
W-366	Local Road	20	21.30	Road Widening	3rd Phase	Ward no 3
W-369	Local Road	20	17.89	Road Widening	3rd Phase	Ward no 3
W-387	Secondary Road	40	230.44	Road Widening	2nd Phase	Ward no 3
W-390	Local Road	20	28.78	Road Widening	3rd Phase	Ward no 3
W-787	Secondary Road	40	21.60	Road Widening	2nd Phase	Ward no 3
W-793	Secondary Road	40	13.88	Road Widening	2nd Phase	Ward no 3
W-809	Secondary Road	60	7.27	Road Widening	2nd Phase	Ward no 3
W-813	Secondary Road	50	30.16	Road Widening	2nd Phase	Ward no 3
W-814	Secondary Road	50	64.87	Road Widening	2nd Phase	Ward no 3
W-815	Secondary Road	50	8.20	Road Widening	2nd Phase	Ward no 3
W-816	Secondary Road	50	47.19	Road Widening	2nd Phase	Ward no 3
W-818	Secondary Road	50	56.59	Road Widening	2nd Phase	Ward no 3
W-819	Secondary Road	50	22.83	Road Widening	2nd Phase	Ward no 3
W-820	Secondary Road	50	15.61	Road Widening	2nd Phase	Ward no 3
W-821	Secondary Road	50	28.89	Road Widening	2nd Phase	Ward no 3
W-822	Secondary Road	50	78.99	Road Widening	2nd Phase	Ward no 3
W-823	Secondary Road	50	32.60	Road Widening	2nd Phase	Ward no 3
W-824	Secondary Road	60	27.41	Road Widening	2nd Phase	Ward no 3
W-893	Local Road	20	103.04	Road Widening	3rd Phase	Ward no 3
W-894	Local Road	20	22.68	Road Widening	3rd Phase	Ward no 3
W-895	Secondary Road	40	51.39	Road Widening	2nd Phase	Ward no 3
W-896	Secondary Road	40	29.81	Road Widening	2nd Phase	Ward no 3
W-897	Secondary Road	40	25.52	Road Widening	2nd Phase	Ward no 3
W-901	Secondary Road	80	454.72	Road Widening	2nd Phase	Ward no 3
W-957	Secondary Road	40	7.73	Road Widening	2nd Phase	Ward no 3

Phase wise Road Network Development proposal of Swarupkati Paurashava

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase	Ward No.
W-905	Primary Road	60	30.42	Road Widening	1st Phase	Ward no 3
W-906	Local Road	20	0.07	Road Widening	3rd Phase	Ward no 3
W-958	Secondary Road	40	93.97	Road Widening	2nd Phase	Ward no 3
W-958	Secondary Road	40	0.00	Road Widening	2nd Phase	Ward no 3
W-959	Secondary Road	40	28.99	Road Widening	2nd Phase	Ward no 3
W-959	Secondary Road	40	0.00	Road Widening	2nd Phase	Ward no 3
W-907	Secondary Road	50	7.44	Road Widening	2nd Phase	Ward no 3
N-28	Secondary Road	60	44.57	New Road	2nd Phase	Ward no 3
N-29	Secondary Road	60	119.42	New Road	2nd Phase	Ward no 3
W-908	Secondary Road	60	41.02	Road Widening	2nd Phase	Ward no 3
N-30	Secondary Road	60	104.53	New Road	2nd Phase	Ward no 3
W-910	Secondary Road	60	54.12	Road Widening	2nd Phase	Ward no 3
N-33	Secondary Road	60	278.08	New Road	2nd Phase	Ward no 3
W-915	Local Road	20	68.73	Road Widening	3rd Phase	Ward no 3
N-34	Secondary Road	60	31.12	New Road	2nd Phase	Ward no 3
N-37	Secondary Road	40	346.81	New Road	2nd Phase	Ward no 3
N-38	Secondary Road	40	22.55	New Road	2nd Phase	Ward no 3
W-960	Primary Road	80	88.83	Road Widening	1st Phase	Ward no 3
W-966	Primary Road	80	209.10	Road Widening	1st Phase	Ward no 3
W-947	Secondary Road	60	286.61	Road Widening	2nd Phase	Ward no 3
N-44	Secondary Road	40	35.03	New Road	2nd Phase	Ward no 3
N-45	Secondary Road	60	62.77	New Road	2nd Phase	Ward no 3
W-961	Secondary Road	40	74.32	Road Widening	2nd Phase	Ward no 3
W-961	Secondary Road	40	0.01	Road Widening	2nd Phase	Ward no 3
N-73	Secondary Road	40	147.12	New Road	2nd Phase	Ward no 3
N-74	Local Road	20	161.91	New Road	3rd Phase	Ward no 3
N-76	Local Road	20	29.71	New Road	3rd Phase	Ward no 3
N-78	Local Road	20	10.56	New Road	3rd Phase	Ward no 3
N-80	Local Road	20	0.36	New Road	3rd Phase	Ward no 3
N-85	Local Road	20	80.61	New Road	3rd Phase	Ward no 3
N-86	Local Road	20	221.64	New Road	3rd Phase	Ward no 3
N-87	Local Road	20	500.60	New Road	3rd Phase	Ward no 3
N-88	Local Road	20	200.24	New Road	3rd Phase	Ward no 3
N-89	Local Road	20	177.40	New Road	3rd Phase	Ward no 3
N-90	Local Road	20	93.90	New Road	3rd Phase	Ward no 3
N-93	Secondary Road	50	23.28	New Road	2nd Phase	Ward no 3
W-173	Local Road	20	0.04	Road Widening	3rd Phase	Ward no 3
N-33	Secondary Road	60	0.04	New Road	2nd Phase	Ward no 3
N-19	Local Road	20	4.70	New Road	3rd Phase	Ward no 4
N-22	Local Road	20	0.01	New Road	3rd Phase	Ward no 4
W-146	Local Road	20	0.00	Road Widening	3rd Phase	Ward no 4
W-956	Secondary Road	50	99.31	Road Widening	2nd Phase	Ward no 4
W-965	Secondary Road	40	231.79	Road Widening	2nd Phase	Ward no 4
N-7	Secondary Road	40	450.76	New Road	2nd Phase	Ward no 4
N-8	Secondary Road	60	235.25	New Road	2nd Phase	Ward no 4
N-19	Local Road	20	1.44	New Road	3rd Phase	Ward no 4
N-20	Local Road	20	16.60	New Road	3rd Phase	Ward no 4
N-21	Local Road	20	77.78	New Road	3rd Phase	Ward no 4
N-22	Local Road	20	41.15	New Road	3rd Phase	Ward no 4
N-23	Local Road	20	262.08	New Road	3rd Phase	Ward no 4
W-56	Local Road	20	32.42	Road Widening	3rd Phase	Ward no 4
W-61	Local Road	20	80.82	Road Widening	3rd Phase	Ward no 4
W-62	Local Road	20	15.25	Road Widening	3rd Phase	Ward no 4
W-75	Local Road	20	117.74	Road Widening	3rd Phase	Ward no 4
W-76	Local Road	20	67.31	Road Widening	3rd Phase	Ward no 4
W-85	Local Road	20	101.86	Road Widening	3rd Phase	Ward no 4
W-87	Local Road	20	12.34	Road Widening	3rd Phase	Ward no 4
W-89	Local Road	20	49.65	Road Widening	3rd Phase	Ward no 4
W-94	Local Road	20	108.10	Road Widening	3rd Phase	Ward no 4
W-98	Local Road	20	30.92	Road Widening	3rd Phase	Ward no 4
W-104	Local Road	20	39.73	Road Widening	3rd Phase	Ward no 4
W-110	Local Road	20	42.91	Road Widening	3rd Phase	Ward no 4
W-111	Local Road	20	11.12	Road Widening	3rd Phase	Ward no 4
W-116	Local Road	20	40.31	Road Widening	3rd Phase	Ward no 4
W-119	Local Road	20	51.24	Road Widening	3rd Phase	Ward no 4
W-122	Local Road	20	39.35	Road Widening	3rd Phase	Ward no 4
W-125	Local Road	20	33.32	Road Widening	3rd Phase	Ward no 4
W-128	Local Road	20	1.77	Road Widening	3rd Phase	Ward no 4
W-130	Secondary Road	60	88.90	Road Widening	2nd Phase	Ward no 4
W-131	Secondary Road	60	49.40	Road Widening	2nd Phase	Ward no 4

Phase wise Road Network Development proposal of Swarupkati Paurashava

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase	Ward No.
W-132	Local Road	20	0.30	Road Widening	3rd Phase	Ward no 4
W-133	Local Road	20	7.06	Road Widening	3rd Phase	Ward no 4
W-134	Secondary Road	60	68.32	Road Widening	2nd Phase	Ward no 4
W-135	Local Road	20	43.23	Road Widening	3rd Phase	Ward no 4
W-136	Local Road	20	0.84	Road Widening	3rd Phase	Ward no 4
W-137	Local Road	20	38.43	Road Widening	3rd Phase	Ward no 4
W-138	Secondary Road	60	12.15	Road Widening	2nd Phase	Ward no 4
W-141	Local Road	20	2.85	Road Widening	3rd Phase	Ward no 4
W-143	Local Road	20	19.03	Road Widening	3rd Phase	Ward no 4
W-144	Local Road	20	2.88	Road Widening	3rd Phase	Ward no 4
W-145	Local Road	20	134.26	Road Widening	3rd Phase	Ward no 4
W-146	Local Road	20	35.48	Road Widening	3rd Phase	Ward no 4
W-147	Local Road	20	43.79	Road Widening	3rd Phase	Ward no 4
W-148	Local Road	20	21.09	Road Widening	3rd Phase	Ward no 4
W-151	Local Road	20	6.11	Road Widening	3rd Phase	Ward no 4
W-152	Local Road	20	8.50	Road Widening	3rd Phase	Ward no 4
W-153	Local Road	20	55.79	Road Widening	3rd Phase	Ward no 4
W-154	Local Road	20	3.03	Road Widening	3rd Phase	Ward no 4
W-159	Local Road	20	19.34	Road Widening	3rd Phase	Ward no 4
W-162	Local Road	20	33.76	Road Widening	3rd Phase	Ward no 4
W-167	Local Road	20	15.42	Road Widening	3rd Phase	Ward no 4
W-168	Local Road	20	11.16	Road Widening	3rd Phase	Ward no 4
W-170	Local Road	20	34.77	Road Widening	3rd Phase	Ward no 4
W-174	Local Road	20	13.94	Road Widening	3rd Phase	Ward no 4
W-175	Local Road	20	29.00	Road Widening	3rd Phase	Ward no 4
W-180	Local Road	20	57.12	Road Widening	3rd Phase	Ward no 4
W-181	Secondary Road	40	196.97	Road Widening	2nd Phase	Ward no 4
W-183	Local Road	20	91.22	Road Widening	3rd Phase	Ward no 4
W-184	Local Road	20	16.10	Road Widening	3rd Phase	Ward no 4
W-185	Local Road	20	90.42	Road Widening	3rd Phase	Ward no 4
W-188	Local Road	20	10.92	Road Widening	3rd Phase	Ward no 4
W-189	Local Road	20	14.69	Road Widening	3rd Phase	Ward no 4
W-190	Local Road	20	8.01	Road Widening	3rd Phase	Ward no 4
W-196	Local Road	20	24.86	Road Widening	3rd Phase	Ward no 4
W-197	Secondary Road	40	12.85	Road Widening	2nd Phase	Ward no 4
W-198	Local Road	20	0.52	Road Widening	3rd Phase	Ward no 4
W-199	Local Road	20	7.30	Road Widening	3rd Phase	Ward no 4
W-200	Local Road	20	11.42	Road Widening	3rd Phase	Ward no 4
W-201	Local Road	20	30.47	Road Widening	3rd Phase	Ward no 4
W-202	Local Road	20	71.80	Road Widening	3rd Phase	Ward no 4
W-203	Secondary Road	40	23.48	Road Widening	2nd Phase	Ward no 4
W-204	Local Road	20	52.49	Road Widening	3rd Phase	Ward no 4
W-207	Local Road	20	19.12	Road Widening	3rd Phase	Ward no 4
W-210	Local Road	20	35.87	Road Widening	3rd Phase	Ward no 4
W-211	Local Road	20	11.10	Road Widening	3rd Phase	Ward no 4
W-222	Secondary Road	40	88.98	Road Widening	2nd Phase	Ward no 4
W-224	Local Road	20	77.35	Road Widening	3rd Phase	Ward no 4
W-225	Local Road	20	63.24	Road Widening	3rd Phase	Ward no 4
W-231	Local Road	20	40.93	Road Widening	3rd Phase	Ward no 4
W-233	Secondary Road	40	123.67	Road Widening	2nd Phase	Ward no 4
W-234	Local Road	20	107.65	Road Widening	3rd Phase	Ward no 4
W-243	Local Road	20	27.88	Road Widening	3rd Phase	Ward no 4
W-244	Local Road	20	12.46	Road Widening	3rd Phase	Ward no 4
W-245	Local Road	20	7.84	Road Widening	3rd Phase	Ward no 4
W-249	Local Road	20	14.57	Road Widening	3rd Phase	Ward no 4
W-250	Local Road	20	7.47	Road Widening	3rd Phase	Ward no 4
W-252	Local Road	20	13.28	Road Widening	3rd Phase	Ward no 4
W-253	Local Road	20	22.39	Road Widening	3rd Phase	Ward no 4
W-256	Secondary Road	40	170.24	Road Widening	2nd Phase	Ward no 4
W-257	Local Road	20	20.84	Road Widening	3rd Phase	Ward no 4
W-258	Local Road	20	14.78	Road Widening	3rd Phase	Ward no 4
W-259	Local Road	20	11.94	Road Widening	3rd Phase	Ward no 4
W-266	Local Road	20	15.71	Road Widening	3rd Phase	Ward no 4
W-268	Local Road	20	56.00	Road Widening	3rd Phase	Ward no 4
W-279	Local Road	20	14.65	Road Widening	3rd Phase	Ward no 4
W-281	Secondary Road	40	134.26	Road Widening	2nd Phase	Ward no 4
W-285	Secondary Road	40	44.90	Road Widening	2nd Phase	Ward no 4
W-286	Local Road	20	8.18	Road Widening	3rd Phase	Ward no 4
W-291	Secondary Road	40	31.09	Road Widening	2nd Phase	Ward no 4
W-292	Primary Road	80	199.13	Road Widening	1st Phase	Ward no 4

Phase wise Road Network Development proposal of Swarupkati Paurashava

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase	Ward No.
W-294	Local Road	20	176.90	Road Widening	3rd Phase	Ward no 4
W-296	Local Road	20	13.06	Road Widening	3rd Phase	Ward no 4
W-297	Local Road	20	13.75	Road Widening	3rd Phase	Ward no 4
W-298	Local Road	20	19.57	Road Widening	3rd Phase	Ward no 4
W-300	Secondary Road	40	72.34	Road Widening	2nd Phase	Ward no 4
W-313	Local Road	20	59.22	Road Widening	3rd Phase	Ward no 4
W-314	Local Road	20	34.10	Road Widening	3rd Phase	Ward no 4
W-315	Local Road	20	123.55	Road Widening	3rd Phase	Ward no 4
W-316	Local Road	20	51.52	Road Widening	3rd Phase	Ward no 4
W-320	Local Road	20	14.35	Road Widening	3rd Phase	Ward no 4
W-321	Local Road	20	116.88	Road Widening	3rd Phase	Ward no 4
W-322	Local Road	20	11.22	Road Widening	3rd Phase	Ward no 4
W-324	Local Road	20	15.15	Road Widening	3rd Phase	Ward no 4
W-325	Local Road	20	5.87	Road Widening	3rd Phase	Ward no 4
W-326	Local Road	20	14.03	Road Widening	3rd Phase	Ward no 4
W-327	Local Road	20	31.83	Road Widening	3rd Phase	Ward no 4
W-328	Local Road	20	18.23	Road Widening	3rd Phase	Ward no 4
W-329	Local Road	20	2.94	Road Widening	3rd Phase	Ward no 4
W-330	Local Road	20	14.06	Road Widening	3rd Phase	Ward no 4
W-331	Local Road	20	148.71	Road Widening	3rd Phase	Ward no 4
W-332	Local Road	20	36.46	Road Widening	3rd Phase	Ward no 4
W-334	Local Road	20	61.55	Road Widening	3rd Phase	Ward no 4
W-336	Local Road	20	37.40	Road Widening	3rd Phase	Ward no 4
W-337	Local Road	20	42.53	Road Widening	3rd Phase	Ward no 4
W-358	Local Road	20	45.12	Road Widening	3rd Phase	Ward no 4
W-361	Local Road	20	92.59	Road Widening	3rd Phase	Ward no 4
W-362	Local Road	20	77.27	Road Widening	3rd Phase	Ward no 4
W-363	Local Road	20	71.74	Road Widening	3rd Phase	Ward no 4
W-364	Local Road	20	40.94	Road Widening	3rd Phase	Ward no 4
W-365	Local Road	20	86.13	Road Widening	3rd Phase	Ward no 4
W-368	Local Road	20	18.51	Road Widening	3rd Phase	Ward no 4
N-26	Primary Road	80	5.55	New Road	1st Phase	Ward no 4
W-797	Secondary Road	40	78.19	Road Widening	2nd Phase	Ward no 4
W-798	Secondary Road	40	81.66	Road Widening	2nd Phase	Ward no 4
W-800	Secondary Road	40	49.52	Road Widening	2nd Phase	Ward no 4
W-801	Secondary Road	40	138.37	Road Widening	2nd Phase	Ward no 4
W-895	Secondary Road	40	2.30	Road Widening	2nd Phase	Ward no 4
W-898	Local Road	20	51.61	Road Widening	3rd Phase	Ward no 4
W-899	Secondary Road	40	44.86	Road Widening	2nd Phase	Ward no 4
W-957	Secondary Road	40	233.24	Road Widening	2nd Phase	Ward no 4
W-906	Local Road	20	25.37	Road Widening	3rd Phase	Ward no 4
W-958	Secondary Road	40	0.00	Road Widening	2nd Phase	Ward no 4
W-958	Secondary Road	40	155.22	Road Widening	2nd Phase	Ward no 4
W-959	Secondary Road	40	0.00	Road Widening	2nd Phase	Ward no 4
W-959	Secondary Road	40	13.20	Road Widening	2nd Phase	Ward no 4
N-29	Secondary Road	60	5.55	New Road	2nd Phase	Ward no 4
N-34	Secondary Road	60	293.13	New Road	2nd Phase	Ward no 4
N-41	Primary Road	80	151.78	New Road	1st Phase	Ward no 4
W-966	Primary Road	80	52.29	Road Widening	1st Phase	Ward no 4
W-961	Secondary Road	40	0.01	Road Widening	2nd Phase	Ward no 4
W-961	Secondary Road	40	6.63	Road Widening	2nd Phase	Ward no 4
N-79	Local Road	20	157.43	New Road	3rd Phase	Ward no 4
N-80	Local Road	20	95.45	New Road	3rd Phase	Ward no 4
N-81	Local Road	20	165.02	New Road	3rd Phase	Ward no 4
N-82	Local Road	20	109.10	New Road	3rd Phase	Ward no 4
N-83	Local Road	20	171.97	New Road	3rd Phase	Ward no 4
N-20	Local Road	20	1.75	New Road	3rd Phase	Ward no 4
W-141	Local Road	20	1.75	Road Widening	3rd Phase	Ward no 4
W-963	Secondary Road	60	1187.09	Road Widening	2nd Phase	Ward no 5
N-13	Secondary Road	60	8.49	New Road	2nd Phase	Ward no 5
N-14	Secondary Road	60	330.87	New Road	2nd Phase	Ward no 5
W-340	Local Road	20	43.18	Road Widening	3rd Phase	Ward no 5
W-341	Local Road	20	126.84	Road Widening	3rd Phase	Ward no 5
W-342	Local Road	20	53.46	Road Widening	3rd Phase	Ward no 5
W-343	Local Road	20	84.15	Road Widening	3rd Phase	Ward no 5
W-345	Local Road	20	80.64	Road Widening	3rd Phase	Ward no 5
W-346	Local Road	20	98.94	Road Widening	3rd Phase	Ward no 5
W-348	Local Road	20	94.25	Road Widening	3rd Phase	Ward no 5
W-350	Secondary Road	40	145.65	Road Widening	2nd Phase	Ward no 5
W-351	Local Road	20	44.80	Road Widening	3rd Phase	Ward no 5

Phase wise Road Network Development proposal of Swarupkati Paurashava

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase	Ward No.
W-355	Local Road	20	217.44	Road Widening	3rd Phase	Ward no 5
W-356	Local Road	20	65.35	Road Widening	3rd Phase	Ward no 5
W-359	Local Road	20	8.61	Road Widening	3rd Phase	Ward no 5
W-360	Local Road	20	66.47	Road Widening	3rd Phase	Ward no 5
W-367	Local Road	20	116.76	Road Widening	3rd Phase	Ward no 5
W-375	Local Road	20	36.11	Road Widening	3rd Phase	Ward no 5
W-382	Secondary Road	40	56.84	Road Widening	2nd Phase	Ward no 5
W-383	Local Road	20	44.27	Road Widening	3rd Phase	Ward no 5
W-384	Local Road	20	137.08	Road Widening	3rd Phase	Ward no 5
W-385	Local Road	20	20.78	Road Widening	3rd Phase	Ward no 5
W-391	Local Road	20	59.70	Road Widening	3rd Phase	Ward no 5
W-392	Secondary Road	40	132.98	Road Widening	2nd Phase	Ward no 5
W-393	Secondary Road	40	22.15	Road Widening	2nd Phase	Ward no 5
W-394	Local Road	20	22.25	Road Widening	3rd Phase	Ward no 5
W-395	Local Road	20	41.65	Road Widening	3rd Phase	Ward no 5
W-397	Local Road	20	17.93	Road Widening	3rd Phase	Ward no 5
W-399	Local Road	20	10.13	Road Widening	3rd Phase	Ward no 5
W-405	Local Road	20	104.99	Road Widening	3rd Phase	Ward no 5
W-407	Local Road	20	161.83	Road Widening	3rd Phase	Ward no 5
W-417	Local Road	20	7.11	Road Widening	3rd Phase	Ward no 5
W-418	Local Road	20	52.71	Road Widening	3rd Phase	Ward no 5
W-419	Secondary Road	40	62.51	Road Widening	2nd Phase	Ward no 5
W-420	Local Road	20	14.41	Road Widening	3rd Phase	Ward no 5
W-422	Local Road	20	7.76	Road Widening	3rd Phase	Ward no 5
W-423	Local Road	20	24.09	Road Widening	3rd Phase	Ward no 5
W-424	Local Road	20	55.59	Road Widening	3rd Phase	Ward no 5
W-431	Secondary Road	40	48.79	Road Widening	2nd Phase	Ward no 5
W-434	Local Road	20	6.87	Road Widening	3rd Phase	Ward no 5
W-435	Local Road	20	24.45	Road Widening	3rd Phase	Ward no 5
W-440	Local Road	20	20.83	Road Widening	3rd Phase	Ward no 5
W-452	Local Road	20	19.16	Road Widening	3rd Phase	Ward no 5
W-468	Local Road	20	19.33	Road Widening	3rd Phase	Ward no 5
W-471	Secondary Road	40	31.20	Road Widening	2nd Phase	Ward no 5
W-472	Secondary Road	40	16.91	Road Widening	2nd Phase	Ward no 5
W-473	Secondary Road	40	62.96	Road Widening	2nd Phase	Ward no 5
W-475	Local Road	20	6.75	Road Widening	3rd Phase	Ward no 5
W-476	Local Road	20	0.68	Road Widening	3rd Phase	Ward no 5
W-477	Local Road	20	40.86	Road Widening	3rd Phase	Ward no 5
W-478	Secondary Road	40	169.25	Road Widening	2nd Phase	Ward no 5
W-486	Secondary Road	40	132.61	Road Widening	2nd Phase	Ward no 5
W-487	Local Road	20	15.24	Road Widening	3rd Phase	Ward no 5
W-488	Local Road	20	56.05	Road Widening	3rd Phase	Ward no 5
W-490	Local Road	20	2.35	Road Widening	3rd Phase	Ward no 5
W-492	Local Road	20	14.46	Road Widening	3rd Phase	Ward no 5
W-500	Local Road	20	26.49	Road Widening	3rd Phase	Ward no 5
W-506	Local Road	20	43.17	Road Widening	3rd Phase	Ward no 5
W-508	Secondary Road	40	26.36	Road Widening	2nd Phase	Ward no 5
W-509	Local Road	20	42.09	Road Widening	3rd Phase	Ward no 5
W-510	Local Road	20	4.21	Road Widening	3rd Phase	Ward no 5
W-511	Local Road	20	133.78	Road Widening	3rd Phase	Ward no 5
W-512	Local Road	20	100.67	Road Widening	3rd Phase	Ward no 5
W-513	Local Road	20	32.23	Road Widening	3rd Phase	Ward no 5
W-517	Local Road	20	50.71	Road Widening	3rd Phase	Ward no 5
W-518	Local Road	20	73.03	Road Widening	3rd Phase	Ward no 5
W-524	Local Road	20	34.60	Road Widening	3rd Phase	Ward no 5
W-525	Secondary Road	40	42.83	Road Widening	2nd Phase	Ward no 5
W-526	Local Road	20	17.96	Road Widening	3rd Phase	Ward no 5
W-530	Local Road	20	33.47	Road Widening	3rd Phase	Ward no 5
W-531	Local Road	20	49.07	Road Widening	3rd Phase	Ward no 5
W-533	Local Road	20	12.28	Road Widening	3rd Phase	Ward no 5
W-535	Local Road	20	45.35	Road Widening	3rd Phase	Ward no 5
W-538	Local Road	20	56.28	Road Widening	3rd Phase	Ward no 5
W-539	Local Road	20	35.83	Road Widening	3rd Phase	Ward no 5
W-541	Local Road	20	17.68	Road Widening	3rd Phase	Ward no 5
W-542	Secondary Road	40	156.36	Road Widening	2nd Phase	Ward no 5
W-544	Local Road	20	31.15	Road Widening	3rd Phase	Ward no 5
W-545	Secondary Road	40	61.52	Road Widening	2nd Phase	Ward no 5
W-546	Local Road	20	2.96	Road Widening	3rd Phase	Ward no 5
W-548	Local Road	20	21.54	Road Widening	3rd Phase	Ward no 5
W-549	Local Road	20	14.12	Road Widening	3rd Phase	Ward no 5

Phase wise Road Network Development proposal of Swarupkati Paurashava

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase	Ward No.
W-552	Local Road	20	12.91	Road Widening	3rd Phase	Ward no 5
W-553	Secondary Road	40	10.27	Road Widening	2nd Phase	Ward no 5
W-555	Local Road	20	89.16	Road Widening	3rd Phase	Ward no 5
W-556	Secondary Road	40	30.32	Road Widening	2nd Phase	Ward no 5
W-557	Local Road	20	26.68	Road Widening	3rd Phase	Ward no 5
W-558	Secondary Road	40	241.98	Road Widening	2nd Phase	Ward no 5
W-560	Secondary Road	40	64.50	Road Widening	2nd Phase	Ward no 5
W-561	Secondary Road	40	51.99	Road Widening	2nd Phase	Ward no 5
W-567	Secondary Road	40	29.81	Road Widening	2nd Phase	Ward no 5
W-568	Secondary Road	60	126.26	Road Widening	2nd Phase	Ward no 5
W-571	Local Road	20	163.11	Road Widening	3rd Phase	Ward no 5
W-572	Secondary Road	40	98.28	Road Widening	2nd Phase	Ward no 5
W-578	Secondary Road	40	31.20	Road Widening	2nd Phase	Ward no 5
W-581	Local Road	20	23.39	Road Widening	3rd Phase	Ward no 5
W-582	Local Road	20	78.54	Road Widening	3rd Phase	Ward no 5
W-583	Local Road	20	94.82	Road Widening	3rd Phase	Ward no 5
W-584	Secondary Road	60	43.27	Road Widening	2nd Phase	Ward no 5
W-585	Local Road	20	42.66	Road Widening	3rd Phase	Ward no 5
W-586	Secondary Road	40	139.87	Road Widening	2nd Phase	Ward no 5
W-590	Secondary Road	40	18.06	Road Widening	2nd Phase	Ward no 5
W-591	Secondary Road	40	46.35	Road Widening	2nd Phase	Ward no 5
W-592	Secondary Road	60	37.89	Road Widening	2nd Phase	Ward no 5
W-593	Secondary Road	40	61.69	Road Widening	2nd Phase	Ward no 5
W-594	Secondary Road	40	46.94	Road Widening	2nd Phase	Ward no 5
W-595	Local Road	20	77.47	Road Widening	3rd Phase	Ward no 5
W-596	Secondary Road	40	199.81	Road Widening	2nd Phase	Ward no 5
W-597	Secondary Road	60	5.15	Road Widening	2nd Phase	Ward no 5
W-599	Secondary Road	60	55.46	Road Widening	2nd Phase	Ward no 5
W-600	Secondary Road	40	160.71	Road Widening	2nd Phase	Ward no 5
W-601	Secondary Road	60	29.65	Road Widening	2nd Phase	Ward no 5
W-602	Local Road	20	91.35	Road Widening	3rd Phase	Ward no 5
W-603	Secondary Road	40	19.20	Road Widening	2nd Phase	Ward no 5
W-604	Secondary Road	60	92.35	Road Widening	2nd Phase	Ward no 5
W-605	Secondary Road	40	188.98	Road Widening	2nd Phase	Ward no 5
W-606	Secondary Road	40	230.77	Road Widening	2nd Phase	Ward no 5
W-607	Local Road	20	53.67	Road Widening	3rd Phase	Ward no 5
W-608	Local Road	20	45.15	Road Widening	3rd Phase	Ward no 5
W-609	Local Road	20	8.61	Road Widening	3rd Phase	Ward no 5
W-610	Local Road	20	48.88	Road Widening	3rd Phase	Ward no 5
W-613	Secondary Road	40	56.55	Road Widening	2nd Phase	Ward no 5
W-614	Local Road	20	189.79	Road Widening	3rd Phase	Ward no 5
W-615	Local Road	20	18.21	Road Widening	3rd Phase	Ward no 5
W-616	Local Road	20	39.59	Road Widening	3rd Phase	Ward no 5
W-617	Secondary Road	40	44.01	Road Widening	2nd Phase	Ward no 5
W-618	Local Road	20	20.54	Road Widening	3rd Phase	Ward no 5
W-619	Local Road	20	49.28	Road Widening	3rd Phase	Ward no 5
W-620	Secondary Road	40	161.23	Road Widening	2nd Phase	Ward no 5
W-624	Secondary Road	40	136.23	Road Widening	2nd Phase	Ward no 5
W-627	Secondary Road	40	53.71	Road Widening	2nd Phase	Ward no 5
W-630	Secondary Road	40	31.80	Road Widening	2nd Phase	Ward no 5
W-631	Local Road	20	53.68	Road Widening	3rd Phase	Ward no 5
W-632	Local Road	20	93.19	Road Widening	3rd Phase	Ward no 5
W-638	Secondary Road	40	25.93	Road Widening	2nd Phase	Ward no 5
W-639	Local Road	20	21.10	Road Widening	3rd Phase	Ward no 5
W-640	Secondary Road	40	67.78	Road Widening	2nd Phase	Ward no 5
W-645	Local Road	20	164.30	Road Widening	3rd Phase	Ward no 5
W-648	Local Road	20	44.12	Road Widening	3rd Phase	Ward no 5
W-649	Secondary Road	40	90.36	Road Widening	2nd Phase	Ward no 5
W-655	Secondary Road	40	58.76	Road Widening	2nd Phase	Ward no 5
W-656	Local Road	20	23.73	Road Widening	3rd Phase	Ward no 5
W-657	Local Road	20	0.28	Road Widening	3rd Phase	Ward no 5
W-659	Local Road	20	47.96	Road Widening	3rd Phase	Ward no 5
W-662	Local Road	20	94.19	Road Widening	3rd Phase	Ward no 5
W-663	Secondary Road	40	23.37	Road Widening	2nd Phase	Ward no 5
W-665	Local Road	20	27.15	Road Widening	3rd Phase	Ward no 5
W-667	Secondary Road	60	303.48	Road Widening	2nd Phase	Ward no 5
W-670	Secondary Road	60	26.12	Road Widening	2nd Phase	Ward no 5
W-677	Secondary Road	60	110.23	Road Widening	2nd Phase	Ward no 5
W-916	Secondary Road	40	65.15	Road Widening	2nd Phase	Ward no 5
W-917	Secondary Road	40	13.80	Road Widening	2nd Phase	Ward no 5

Phase wise Road Network Development proposal of Swarupkati Paurashava

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase	Ward No.
W-918	Secondary Road	40	57.11	Road Widening	2nd Phase	Ward no 5
W-919	Secondary Road	60	101.20	Road Widening	2nd Phase	Ward no 5
N-35	Secondary Road	60	123.08	New Road	2nd Phase	Ward no 5
N-36	Secondary Road	60	183.20	New Road	2nd Phase	Ward no 5
W-920	Secondary Road	60	36.09	Road Widening	2nd Phase	Ward no 5
W-921	Secondary Road	60	132.84	Road Widening	2nd Phase	Ward no 5
N-47	Local Road	20	12.68	New Road	3rd Phase	Ward no 5
N-49	Local Road	20	18.19	New Road	3rd Phase	Ward no 5
N-51	Local Road	20	11.55	New Road	3rd Phase	Ward no 5
N-52	Local Road	20	4.40	New Road	3rd Phase	Ward no 5
N-91	Secondary Road	40	92.86	New Road	2nd Phase	Ward no 5
W-963	Secondary Road	40	48.16	Road Widening	2nd Phase	Ward no 5
N-94	Secondary Road	60	411.68	New Road	2nd Phase	Ward no 5
N-95	Secondary Road	40	96.12	New Road	2nd Phase	Ward no 5
W-965	Secondary Road	40	39.07	Road Widening	2nd Phase	Ward no 6
N-2	Secondary Road	50	264.25	New Road	2nd Phase	Ward no 6
N-3	Primary Road	80	297.13	New Road	1st Phase	Ward no 6
N-10	Primary Road	60	21.97	New Road	1st Phase	Ward no 6
N-12	Secondary Road	60	161.08	New Road	2nd Phase	Ward no 6
N-13	Secondary Road	60	148.83	New Road	2nd Phase	Ward no 6
N-15	Secondary Road	40	3.92	New Road	2nd Phase	Ward no 6
N-16	Local Road	20	150.18	New Road	3rd Phase	Ward no 6
N-24	Local Road	20	64.81	New Road	3rd Phase	Ward no 6
N-25	Local Road	20	60.17	New Road	3rd Phase	Ward no 6
W-337	Local Road	20	5.91	Road Widening	3rd Phase	Ward no 6
W-347	Local Road	20	54.93	Road Widening	3rd Phase	Ward no 6
W-353	Local Road	20	0.49	Road Widening	3rd Phase	Ward no 6
W-357	Local Road	20	4.80	Road Widening	3rd Phase	Ward no 6
W-358	Local Road	20	6.46	Road Widening	3rd Phase	Ward no 6
W-365	Local Road	20	2.64	Road Widening	3rd Phase	Ward no 6
W-366	Local Road	20	2.08	Road Widening	3rd Phase	Ward no 6
W-368	Local Road	20	7.84	Road Widening	3rd Phase	Ward no 6
W-387	Secondary Road	40	2.51	Road Widening	2nd Phase	Ward no 6
W-390	Local Road	20	5.31	Road Widening	3rd Phase	Ward no 6
W-400	Local Road	20	18.44	Road Widening	3rd Phase	Ward no 6
W-401	Local Road	20	18.53	Road Widening	3rd Phase	Ward no 6
W-402	Local Road	20	16.98	Road Widening	3rd Phase	Ward no 6
W-404	Local Road	20	144.25	Road Widening	3rd Phase	Ward no 6
W-406	Secondary Road	40	34.28	Road Widening	2nd Phase	Ward no 6
W-408	Local Road	20	22.64	Road Widening	3rd Phase	Ward no 6
W-409	Local Road	20	55.36	Road Widening	3rd Phase	Ward no 6
W-410	Local Road	20	48.21	Road Widening	3rd Phase	Ward no 6
W-411	Local Road	20	10.36	Road Widening	3rd Phase	Ward no 6
W-412	Secondary Road	40	63.74	Road Widening	2nd Phase	Ward no 6
W-413	Local Road	20	15.23	Road Widening	3rd Phase	Ward no 6
W-414	Local Road	20	10.10	Road Widening	3rd Phase	Ward no 6
W-415	Local Road	20	16.27	Road Widening	3rd Phase	Ward no 6
W-416	Local Road	20	22.35	Road Widening	3rd Phase	Ward no 6
N-26	Primary Road	80	95.85	New Road	1st Phase	Ward no 6
W-421	Secondary Road	40	3.08	Road Widening	2nd Phase	Ward no 6
W-425	Secondary Road	40	43.56	Road Widening	2nd Phase	Ward no 6
W-426	Local Road	20	20.49	Road Widening	3rd Phase	Ward no 6
W-427	Local Road	20	66.12	Road Widening	3rd Phase	Ward no 6
W-428	Local Road	20	31.19	Road Widening	3rd Phase	Ward no 6
W-429	Local Road	20	16.94	Road Widening	3rd Phase	Ward no 6
W-430	Local Road	20	20.78	Road Widening	3rd Phase	Ward no 6
W-432	Local Road	20	44.41	Road Widening	3rd Phase	Ward no 6
W-433	Local Road	20	15.21	Road Widening	3rd Phase	Ward no 6
W-436	Local Road	20	9.72	Road Widening	3rd Phase	Ward no 6
W-437	Local Road	20	17.10	Road Widening	3rd Phase	Ward no 6
W-438	Local Road	20	22.28	Road Widening	3rd Phase	Ward no 6
W-439	Local Road	20	36.67	Road Widening	3rd Phase	Ward no 6
W-441	Local Road	20	5.84	Road Widening	3rd Phase	Ward no 6
W-442	Local Road	20	19.10	Road Widening	3rd Phase	Ward no 6
W-443	Local Road	20	17.35	Road Widening	3rd Phase	Ward no 6
W-444	Local Road	20	53.23	Road Widening	3rd Phase	Ward no 6
W-445	Local Road	20	3.83	Road Widening	3rd Phase	Ward no 6
W-446	Local Road	20	40.35	Road Widening	3rd Phase	Ward no 6
W-447	Local Road	20	3.47	Road Widening	3rd Phase	Ward no 6
W-448	Local Road	20	36.49	Road Widening	3rd Phase	Ward no 6

Phase wise Road Network Development proposal of Swarupkati Paurashava

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase	Ward No.
W-449	Local Road	20	39.54	Road Widening	3rd Phase	Ward no 6
W-450	Local Road	20	71.63	Road Widening	3rd Phase	Ward no 6
W-451	Local Road	20	24.85	Road Widening	3rd Phase	Ward no 6
W-454	Local Road	20	25.78	Road Widening	3rd Phase	Ward no 6
W-455	Local Road	20	13.54	Road Widening	3rd Phase	Ward no 6
W-456	Local Road	20	84.20	Road Widening	3rd Phase	Ward no 6
W-457	Local Road	20	55.72	Road Widening	3rd Phase	Ward no 6
W-458	Local Road	20	27.39	Road Widening	3rd Phase	Ward no 6
W-459	Local Road	20	49.72	Road Widening	3rd Phase	Ward no 6
W-460	Local Road	20	24.16	Road Widening	3rd Phase	Ward no 6
W-461	Local Road	20	19.47	Road Widening	3rd Phase	Ward no 6
W-462	Local Road	20	19.99	Road Widening	3rd Phase	Ward no 6
W-463	Secondary Road	40	38.27	Road Widening	2nd Phase	Ward no 6
W-464	Local Road	20	9.84	Road Widening	3rd Phase	Ward no 6
W-465	Local Road	20	50.00	Road Widening	3rd Phase	Ward no 6
W-467	Local Road	20	55.18	Road Widening	3rd Phase	Ward no 6
W-469	Secondary Road	40	60.38	Road Widening	2nd Phase	Ward no 6
W-470	Local Road	20	20.34	Road Widening	3rd Phase	Ward no 6
W-479	Local Road	20	15.93	Road Widening	3rd Phase	Ward no 6
W-480	Local Road	20	22.97	Road Widening	3rd Phase	Ward no 6
W-481	Primary Road	80	41.46	Road Widening	1st Phase	Ward no 6
W-482	Local Road	20	68.25	Road Widening	3rd Phase	Ward no 6
W-483	Local Road	20	32.65	Road Widening	3rd Phase	Ward no 6
W-484	Local Road	20	28.53	Road Widening	3rd Phase	Ward no 6
W-485	Local Road	20	108.87	Road Widening	3rd Phase	Ward no 6
W-489	Secondary Road	40	32.56	Road Widening	2nd Phase	Ward no 6
W-491	Local Road	20	15.23	Road Widening	3rd Phase	Ward no 6
W-493	Local Road	20	14.16	Road Widening	3rd Phase	Ward no 6
W-495	Local Road	20	39.04	Road Widening	3rd Phase	Ward no 6
W-498	Local Road	20	174.75	Road Widening	3rd Phase	Ward no 6
W-499	Primary Road	80	218.05	Road Widening	1st Phase	Ward no 6
W-501	Local Road	20	30.86	Road Widening	3rd Phase	Ward no 6
W-502	Local Road	20	15.54	Road Widening	3rd Phase	Ward no 6
W-503	Secondary Road	40	147.94	Road Widening	2nd Phase	Ward no 6
W-504	Secondary Road	40	12.22	Road Widening	2nd Phase	Ward no 6
W-505	Local Road	20	64.07	Road Widening	3rd Phase	Ward no 6
W-515	Local Road	20	4.43	Road Widening	3rd Phase	Ward no 6
W-516	Secondary Road	40	10.28	Road Widening	2nd Phase	Ward no 6
W-519	Local Road	20	35.30	Road Widening	3rd Phase	Ward no 6
W-523	Local Road	20	31.28	Road Widening	3rd Phase	Ward no 6
W-529	Local Road	20	23.52	Road Widening	3rd Phase	Ward no 6
W-532	Local Road	20	16.66	Road Widening	3rd Phase	Ward no 6
W-534	Local Road	20	44.66	Road Widening	3rd Phase	Ward no 6
W-537	Primary Road	60	347.99	Road Widening	1st Phase	Ward no 6
W-543	Local Road	20	77.60	Road Widening	3rd Phase	Ward no 6
W-547	Local Road	20	42.66	Road Widening	3rd Phase	Ward no 6
W-553	Secondary Road	40	247.52	Road Widening	2nd Phase	Ward no 6
W-554	Secondary Road	40	100.12	Road Widening	2nd Phase	Ward no 6
W-566	Local Road	20	26.11	Road Widening	3rd Phase	Ward no 6
W-574	Local Road	20	35.00	Road Widening	3rd Phase	Ward no 6
W-623	Local Road	20	22.79	Road Widening	3rd Phase	Ward no 6
W-625	Local Road	20	162.17	Road Widening	3rd Phase	Ward no 6
W-626	Local Road	20	22.70	Road Widening	3rd Phase	Ward no 6
W-628	Local Road	20	15.17	Road Widening	3rd Phase	Ward no 6
W-629	Local Road	20	47.44	Road Widening	3rd Phase	Ward no 6
W-633	Local Road	20	22.37	Road Widening	3rd Phase	Ward no 6
W-634	Local Road	20	37.23	Road Widening	3rd Phase	Ward no 6
W-635	Local Road	20	18.43	Road Widening	3rd Phase	Ward no 6
W-636	Local Road	20	16.02	Road Widening	3rd Phase	Ward no 6
W-637	Local Road	20	100.38	Road Widening	3rd Phase	Ward no 6
W-651	Local Road	20	24.86	Road Widening	3rd Phase	Ward no 6
W-652	Local Road	20	80.49	Road Widening	3rd Phase	Ward no 6
W-653	Secondary Road	60	58.82	Road Widening	2nd Phase	Ward no 6
W-654	Local Road	20	122.34	Road Widening	3rd Phase	Ward no 6
W-658	Secondary Road	40	132.27	Road Widening	2nd Phase	Ward no 6
W-660	Local Road	20	24.19	Road Widening	3rd Phase	Ward no 6
W-666	Local Road	20	27.13	Road Widening	3rd Phase	Ward no 6
W-668	Local Road	20	22.23	Road Widening	3rd Phase	Ward no 6
W-670	Secondary Road	60	26.61	Road Widening	2nd Phase	Ward no 6
W-671	Secondary Road	60	63.53	Road Widening	2nd Phase	Ward no 6

Phase wise Road Network Development proposal of Swarupkati Paurashava

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase	Ward No.
W-673	Local Road	20	27.03	Road Widening	3rd Phase	Ward no 6
W-683	Local Road	20	0.79	Road Widening	3rd Phase	Ward no 6
W-778	Secondary Road	40	68.84	Road Widening	2nd Phase	Ward no 6
W-779	Secondary Road	40	41.27	Road Widening	2nd Phase	Ward no 6
W-780	Secondary Road	40	22.11	Road Widening	2nd Phase	Ward no 6
W-781	Secondary Road	40	21.63	Road Widening	2nd Phase	Ward no 6
W-782	Secondary Road	40	123.22	Road Widening	2nd Phase	Ward no 6
W-964	Local Road	20	127.35	Road Widening	3rd Phase	Ward no 6
W-786	Secondary Road	40	41.06	Road Widening	2nd Phase	Ward no 6
W-787	Secondary Road	40	56.87	Road Widening	2nd Phase	Ward no 6
W-788	Secondary Road	40	15.06	Road Widening	2nd Phase	Ward no 6
W-789	Secondary Road	40	25.39	Road Widening	2nd Phase	Ward no 6
W-790	Secondary Road	40	14.30	Road Widening	2nd Phase	Ward no 6
W-793	Secondary Road	40	58.42	Road Widening	2nd Phase	Ward no 6
W-794	Secondary Road	40	63.15	Road Widening	2nd Phase	Ward no 6
W-795	Secondary Road	40	18.68	Road Widening	2nd Phase	Ward no 6
W-796	Secondary Road	40	13.84	Road Widening	2nd Phase	Ward no 6
W-797	Secondary Road	40	23.51	Road Widening	2nd Phase	Ward no 6
W-799	Secondary Road	40	26.61	Road Widening	2nd Phase	Ward no 6
W-801	Secondary Road	40	15.88	Road Widening	2nd Phase	Ward no 6
W-898	Local Road	20	8.22	Road Widening	3rd Phase	Ward no 6
W-903	Secondary Road	40	25.04	Road Widening	2nd Phase	Ward no 6
W-904	Secondary Road	40	41.92	Road Widening	2nd Phase	Ward no 6
W-914	Secondary Road	60	122.45	Road Widening	2nd Phase	Ward no 6
W-946	Primary Road	80	43.11	Road Widening	1st Phase	Ward no 6
N-42	Secondary Road	60	60.02	New Road	2nd Phase	Ward no 6
N-43	Primary Road	60	115.86	New Road	1st Phase	Ward no 6
W-948	Primary Road	80	70.90	Road Widening	1st Phase	Ward no 6
N-47	Local Road	20	279.71	New Road	3rd Phase	Ward no 6
N-48	Local Road	20	257.43	New Road	3rd Phase	Ward no 6
N-49	Local Road	20	231.65	New Road	3rd Phase	Ward no 6
N-50	Local Road	20	249.85	New Road	3rd Phase	Ward no 6
N-51	Local Road	20	102.25	New Road	3rd Phase	Ward no 6
N-52	Local Road	20	81.58	New Road	3rd Phase	Ward no 6
N-53	Local Road	20	52.60	New Road	3rd Phase	Ward no 6
N-54	Local Road	20	149.83	New Road	3rd Phase	Ward no 6
N-55	Secondary Road	60	550.93	New Road	2nd Phase	Ward no 6
N-56	Secondary Road	40	153.65	New Road	2nd Phase	Ward no 6
N-57	Secondary Road	40	157.11	New Road	2nd Phase	Ward no 6
N-58	Local Road	20	43.92	New Road	3rd Phase	Ward no 6
N-59	Local Road	20	111.60	New Road	3rd Phase	Ward no 6
N-60	Secondary Road	40	97.97	New Road	2nd Phase	Ward no 6
N-62	Local Road	20	148.40	New Road	3rd Phase	Ward no 6
N-63	Local Road	20	40.83	New Road	3rd Phase	Ward no 6
N-84	Local Road	20	5.76	New Road	3rd Phase	Ward no 6
N-92	Local Road	20	86.52	New Road	3rd Phase	Ward no 6
W-949	Secondary Road	40	41.61	Road Widening	2nd Phase	Ward no 6
W-963	Secondary Road	40	729.68	Road Widening	2nd Phase	Ward no 6
N-2	Secondary Road	50	60.73	New Road	2nd Phase	Ward no 7
N-3	Primary Road	80	50.60	New Road	1st Phase	Ward no 7
N-10	Primary Road	60	182.65	New Road	1st Phase	Ward no 7
N-15	Secondary Road	40	96.28	New Road	2nd Phase	Ward no 7
N-16	Local Road	20	26.50	New Road	3rd Phase	Ward no 7
W-453	Local Road	20	3.10	Road Widening	3rd Phase	Ward no 7
W-494	Local Road	20	28.41	Road Widening	3rd Phase	Ward no 7
W-496	Local Road	20	6.96	Road Widening	3rd Phase	Ward no 7
W-497	Local Road	20	25.99	Road Widening	3rd Phase	Ward no 7
W-514	Local Road	20	45.33	Road Widening	3rd Phase	Ward no 7
W-515	Local Road	20	37.30	Road Widening	3rd Phase	Ward no 7
W-520	Local Road	20	138.03	Road Widening	3rd Phase	Ward no 7
W-521	Local Road	20	51.68	Road Widening	3rd Phase	Ward no 7
W-522	Local Road	20	35.65	Road Widening	3rd Phase	Ward no 7
W-527	Local Road	20	20.19	Road Widening	3rd Phase	Ward no 7
W-528	Local Road	20	113.77	Road Widening	3rd Phase	Ward no 7
W-536	Local Road	20	21.86	Road Widening	3rd Phase	Ward no 7
W-550	Local Road	20	45.55	Road Widening	3rd Phase	Ward no 7
W-551	Local Road	20	63.85	Road Widening	3rd Phase	Ward no 7
W-559	Secondary Road	60	36.36	Road Widening	2nd Phase	Ward no 7
W-562	Local Road	20	27.22	Road Widening	3rd Phase	Ward no 7
W-563	Local Road	20	17.63	Road Widening	3rd Phase	Ward no 7

Phase wise Road Network Development proposal of Swarupkati Paurashava

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase	Ward No.
W-564	Local Road	20	1.19	Road Widening	3rd Phase	Ward no 7
W-565	Local Road	20	6.62	Road Widening	3rd Phase	Ward no 7
W-566	Local Road	20	27.30	Road Widening	3rd Phase	Ward no 7
W-569	Local Road	20	27.84	Road Widening	3rd Phase	Ward no 7
W-570	Local Road	20	41.18	Road Widening	3rd Phase	Ward no 7
W-573	Secondary Road	60	20.13	Road Widening	2nd Phase	Ward no 7
W-575	Local Road	20	17.73	Road Widening	3rd Phase	Ward no 7
W-576	Local Road	20	54.44	Road Widening	3rd Phase	Ward no 7
W-577	Local Road	20	22.81	Road Widening	3rd Phase	Ward no 7
W-579	Secondary Road	40	253.36	Road Widening	2nd Phase	Ward no 7
W-580	Secondary Road	60	76.26	Road Widening	2nd Phase	Ward no 7
W-587	Secondary Road	40	41.08	Road Widening	2nd Phase	Ward no 7
W-588	Local Road	20	48.24	Road Widening	3rd Phase	Ward no 7
W-589	Local Road	20	20.22	Road Widening	3rd Phase	Ward no 7
W-598	Local Road	20	22.22	Road Widening	3rd Phase	Ward no 7
W-611	Secondary Road	40	98.28	Road Widening	2nd Phase	Ward no 7
W-612	Secondary Road	60	218.09	Road Widening	2nd Phase	Ward no 7
W-621	Local Road	20	167.50	Road Widening	3rd Phase	Ward no 7
W-622	Local Road	20	78.51	Road Widening	3rd Phase	Ward no 7
W-641	Secondary Road	40	183.13	Road Widening	2nd Phase	Ward no 7
W-642	Local Road	20	6.04	Road Widening	3rd Phase	Ward no 7
W-643	Local Road	20	59.86	Road Widening	3rd Phase	Ward no 7
W-644	Local Road	20	54.70	Road Widening	3rd Phase	Ward no 7
W-646	Secondary Road	40	137.12	Road Widening	2nd Phase	Ward no 7
W-647	Secondary Road	60	15.35	Road Widening	2nd Phase	Ward no 7
W-650	Secondary Road	40	111.43	Road Widening	2nd Phase	Ward no 7
W-661	Local Road	20	54.78	Road Widening	3rd Phase	Ward no 7
W-664	Local Road	20	23.51	Road Widening	3rd Phase	Ward no 7
W-668	Local Road	20	1.96	Road Widening	3rd Phase	Ward no 7
W-669	Local Road	20	29.43	Road Widening	3rd Phase	Ward no 7
W-672	Local Road	20	29.46	Road Widening	3rd Phase	Ward no 7
W-673	Local Road	20	5.09	Road Widening	3rd Phase	Ward no 7
W-674	Secondary Road	50	138.87	Road Widening	2nd Phase	Ward no 7
W-679	Local Road	20	23.42	Road Widening	3rd Phase	Ward no 7
W-680	Local Road	20	44.72	Road Widening	3rd Phase	Ward no 7
W-683	Local Road	20	38.58	Road Widening	3rd Phase	Ward no 7
W-684	Secondary Road	40	105.33	Road Widening	2nd Phase	Ward no 7
W-688	Local Road	20	28.01	Road Widening	3rd Phase	Ward no 7
W-690	Local Road	20	54.55	Road Widening	3rd Phase	Ward no 7
W-691	Local Road	20	48.70	Road Widening	3rd Phase	Ward no 7
W-692	Secondary Road	40	424.67	Road Widening	2nd Phase	Ward no 7
W-693	Local Road	20	38.37	Road Widening	3rd Phase	Ward no 7
W-699	Local Road	20	378.39	Road Widening	3rd Phase	Ward no 7
W-700	Local Road	20	27.53	Road Widening	3rd Phase	Ward no 7
W-701	Local Road	20	14.43	Road Widening	3rd Phase	Ward no 7
W-702	Local Road	20	0.32	Road Widening	3rd Phase	Ward no 7
W-703	Secondary Road	60	21.75	Road Widening	2nd Phase	Ward no 7
W-708	Local Road	20	46.18	Road Widening	3rd Phase	Ward no 7
W-709	Local Road	20	50.88	Road Widening	3rd Phase	Ward no 7
W-716	Local Road	20	72.41	Road Widening	3rd Phase	Ward no 7
W-724	Local Road	20	99.76	Road Widening	3rd Phase	Ward no 7
W-736	Local Road	20	7.96	Road Widening	3rd Phase	Ward no 7
W-777	Local Road	20	131.74	Road Widening	3rd Phase	Ward no 7
W-951	Primary Road	100	603.36	Road Widening	1st Phase	Ward no 7
W-952	Secondary Road	40	192.22	Road Widening	2nd Phase	Ward no 7
W-781	Secondary Road	40	41.49	Road Widening	2nd Phase	Ward no 7
W-783	Secondary Road	40	107.67	Road Widening	2nd Phase	Ward no 7
W-784	Secondary Road	40	27.49	Road Widening	2nd Phase	Ward no 7
W-785	Secondary Road	40	56.06	Road Widening	2nd Phase	Ward no 7
W-825	Secondary Road	50	81.91	Road Widening	2nd Phase	Ward no 7
W-826	Secondary Road	50	77.69	Road Widening	2nd Phase	Ward no 7
W-827	Secondary Road	60	59.95	Road Widening	2nd Phase	Ward no 7
W-828	Secondary Road	60	151.89	Road Widening	2nd Phase	Ward no 7
W-829	Secondary Road	60	390.95	Road Widening	2nd Phase	Ward no 7
W-888	Secondary Road	60	539.58	Road Widening	2nd Phase	Ward no 7
W-889	Primary Road	60	76.44	Road Widening	1st Phase	Ward no 7
N-27	Secondary Road	60	40.87	New Road	2nd Phase	Ward no 7
W-890	Secondary Road	60	19.29	Road Widening	2nd Phase	Ward no 7
W-912	Local Road	20	16.28	Road Widening	3rd Phase	Ward no 7
N-40	Primary Road	100	229.88	New Road	1st Phase	Ward no 7

Phase wise Road Network Development proposal of Swarupkati Paurashava

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase	Ward No.
W-953	Primary Road	60	225.90	Road Widening	1st Phase	Ward no 7
N-60	Secondary Road	40	431.39	New Road	2nd Phase	Ward no 7
N-61	Secondary Road	40	197.72	New Road	2nd Phase	Ward no 7
N-62	Local Road	20	5.85	New Road	3rd Phase	Ward no 7
N-63	Local Road	20	34.40	New Road	3rd Phase	Ward no 7
N-64	Secondary Road	40	168.05	New Road	2nd Phase	Ward no 7
N-70	Local Road	20	239.29	New Road	3rd Phase	Ward no 7
N-71	Local Road	20	107.14	New Road	3rd Phase	Ward no 7
N-72	Local Road	20	65.11	New Road	3rd Phase	Ward no 7
N-84	Local Road	20	88.55	New Road	3rd Phase	Ward no 7
W-536	Local Road	20	2.85	Road Widening	3rd Phase	Ward no 7
W-540	Local Road	20	2.85	Road Widening	3rd Phase	Ward no 7
W-962	Secondary Road	60	423.25	Road Widening	2nd Phase	Ward no 8
N-3	Primary Road	80	10.17	New Road	1st Phase	Ward no 8
N-11	Primary Road	100	310.45	New Road	1st Phase	Ward no 8
W-671	Secondary Road	60	15.29	Road Widening	2nd Phase	Ward no 8
W-674	Secondary Road	50	13.20	Road Widening	2nd Phase	Ward no 8
W-675	Secondary Road	60	15.61	Road Widening	2nd Phase	Ward no 8
W-676	Secondary Road	40	68.67	Road Widening	2nd Phase	Ward no 8
W-677	Secondary Road	60	18.72	Road Widening	2nd Phase	Ward no 8
W-678	Secondary Road	40	100.72	Road Widening	2nd Phase	Ward no 8
W-681	Secondary Road	40	86.73	Road Widening	2nd Phase	Ward no 8
W-682	Local Road	20	220.84	Road Widening	3rd Phase	Ward no 8
W-685	Local Road	20	53.54	Road Widening	3rd Phase	Ward no 8
W-686	Secondary Road	40	58.92	Road Widening	2nd Phase	Ward no 8
W-687	Secondary Road	40	41.29	Road Widening	2nd Phase	Ward no 8
W-689	Secondary Road	50	53.08	Road Widening	2nd Phase	Ward no 8
W-694	Local Road	20	180.43	Road Widening	3rd Phase	Ward no 8
W-695	Secondary Road	50	51.48	Road Widening	2nd Phase	Ward no 8
W-696	Local Road	20	52.21	Road Widening	3rd Phase	Ward no 8
W-697	Primary Road	80	54.93	Road Widening	1st Phase	Ward no 8
W-698	Local Road	20	113.46	Road Widening	3rd Phase	Ward no 8
W-701	Local Road	20	14.67	Road Widening	3rd Phase	Ward no 8
W-703	Secondary Road	60	68.35	Road Widening	2nd Phase	Ward no 8
W-704	Local Road	20	29.02	Road Widening	3rd Phase	Ward no 8
W-705	Local Road	20	38.72	Road Widening	3rd Phase	Ward no 8
W-706	Local Road	20	110.54	Road Widening	3rd Phase	Ward no 8
W-707	Local Road	20	26.38	Road Widening	3rd Phase	Ward no 8
W-708	Local Road	20	41.35	Road Widening	3rd Phase	Ward no 8
W-709	Local Road	20	36.01	Road Widening	3rd Phase	Ward no 8
W-710	Local Road	20	17.74	Road Widening	3rd Phase	Ward no 8
W-711	Local Road	20	35.23	Road Widening	3rd Phase	Ward no 8
W-712	Secondary Road	50	31.40	Road Widening	2nd Phase	Ward no 8
W-713	Local Road	20	19.32	Road Widening	3rd Phase	Ward no 8
W-714	Local Road	20	65.51	Road Widening	3rd Phase	Ward no 8
W-715	Local Road	20	81.30	Road Widening	3rd Phase	Ward no 8
W-717	Local Road	20	104.66	Road Widening	3rd Phase	Ward no 8
W-718	Local Road	20	12.35	Road Widening	3rd Phase	Ward no 8
W-719	Local Road	20	64.90	Road Widening	3rd Phase	Ward no 8
W-720	Local Road	20	29.74	Road Widening	3rd Phase	Ward no 8
W-721	Local Road	20	36.25	Road Widening	3rd Phase	Ward no 8
W-722	Secondary Road	60	11.76	Road Widening	2nd Phase	Ward no 8
W-723	Local Road	20	0.01	Road Widening	3rd Phase	Ward no 8
W-724	Local Road	20	65.38	Road Widening	3rd Phase	Ward no 8
W-725	Local Road	20	14.13	Road Widening	3rd Phase	Ward no 8
W-726	Local Road	20	100.58	Road Widening	3rd Phase	Ward no 8
W-727	Local Road	20	105.35	Road Widening	3rd Phase	Ward no 8
W-728	Local Road	20	90.22	Road Widening	3rd Phase	Ward no 8
W-729	Secondary Road	40	87.56	Road Widening	2nd Phase	Ward no 8
W-730	Secondary Road	40	147.13	Road Widening	2nd Phase	Ward no 8
W-731	Secondary Road	40	15.69	Road Widening	2nd Phase	Ward no 8
W-732	Secondary Road	40	14.95	Road Widening	2nd Phase	Ward no 8
W-733	Local Road	20	38.77	Road Widening	3rd Phase	Ward no 8
W-734	Local Road	20	121.67	Road Widening	3rd Phase	Ward no 8
W-735	Secondary Road	40	106.50	Road Widening	2nd Phase	Ward no 8
W-736	Local Road	20	36.98	Road Widening	3rd Phase	Ward no 8
W-737	Local Road	20	101.12	Road Widening	3rd Phase	Ward no 8
W-738	Local Road	20	7.11	Road Widening	3rd Phase	Ward no 8
W-739	Local Road	20	88.05	Road Widening	3rd Phase	Ward no 8
W-740	Local Road	20	25.16	Road Widening	3rd Phase	Ward no 8

Phase wise Road Network Development proposal of Swarupkati Paurashava

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase	Ward No.
W-741	Local Road	20	46.54	Road Widening	3rd Phase	Ward no 8
W-742	Local Road	20	9.97	Road Widening	3rd Phase	Ward no 8
W-743	Local Road	20	33.05	Road Widening	3rd Phase	Ward no 8
W-744	Local Road	20	31.98	Road Widening	3rd Phase	Ward no 8
W-748	Local Road	20	139.32	Road Widening	3rd Phase	Ward no 8
W-752	Local Road	20	7.54	Road Widening	3rd Phase	Ward no 8
W-753	Local Road	20	2.41	Road Widening	3rd Phase	Ward no 8
W-754	Local Road	20	1.33	Road Widening	3rd Phase	Ward no 8
W-755	Local Road	20	21.98	Road Widening	3rd Phase	Ward no 8
W-776	Primary Road	100	322.36	Road Widening	1st Phase	Ward no 8
W-951	Primary Road	100	44.93	Road Widening	1st Phase	Ward no 8
W-830	Secondary Road	60	131.67	Road Widening	2nd Phase	Ward no 8
W-831	Secondary Road	60	154.39	Road Widening	2nd Phase	Ward no 8
W-832	Secondary Road	60	81.01	Road Widening	2nd Phase	Ward no 8
W-834	Secondary Road	40	20.88	Road Widening	2nd Phase	Ward no 8
W-840	Secondary Road	40	59.02	Road Widening	2nd Phase	Ward no 8
W-858	Local Road	20	14.89	Road Widening	3rd Phase	Ward no 8
W-860	Local Road	20	52.99	Road Widening	3rd Phase	Ward no 8
W-861	Local Road	20	63.24	Road Widening	3rd Phase	Ward no 8
W-864	Local Road	20	1.15	Road Widening	3rd Phase	Ward no 8
W-874	Secondary Road	60	136.13	Road Widening	2nd Phase	Ward no 8
W-875	Secondary Road	60	137.18	Road Widening	2nd Phase	Ward no 8
W-876	Secondary Road	60	79.51	Road Widening	2nd Phase	Ward no 8
W-877	Secondary Road	60	25.23	Road Widening	2nd Phase	Ward no 8
W-878	Secondary Road	60	47.05	Road Widening	2nd Phase	Ward no 8
W-881	Secondary Road	60	17.18	Road Widening	2nd Phase	Ward no 8
W-882	Secondary Road	60	1.50	Road Widening	2nd Phase	Ward no 8
W-911	Secondary Road	40	38.78	Road Widening	2nd Phase	Ward no 8
N-32	Primary Road	80	368.91	New Road	1st Phase	Ward no 8
W-913	Secondary Road	50	150.56	Road Widening	2nd Phase	Ward no 8
W-923	Secondary Road	40	32.05	Road Widening	2nd Phase	Ward no 8
W-924	Local Road	20	103.91	Road Widening	3rd Phase	Ward no 8
W-925	Secondary Road	40	151.40	Road Widening	2nd Phase	Ward no 8
W-926	Secondary Road	40	76.46	Road Widening	2nd Phase	Ward no 8
W-927	Local Road	20	133.99	Road Widening	3rd Phase	Ward no 8
W-928	Secondary Road	40	268.99	Road Widening	2nd Phase	Ward no 8
W-929	Secondary Road	40	167.13	Road Widening	2nd Phase	Ward no 8
W-930	Local Road	20	127.83	Road Widening	3rd Phase	Ward no 8
W-931	Local Road	20	26.73	Road Widening	3rd Phase	Ward no 8
W-932	Secondary Road	40	48.63	Road Widening	2nd Phase	Ward no 8
W-933	Secondary Road	40	91.83	Road Widening	2nd Phase	Ward no 8
W-934	Local Road	20	4.30	Road Widening	3rd Phase	Ward no 8
W-935	Local Road	20	39.73	Road Widening	3rd Phase	Ward no 8
W-936	Local Road	20	6.34	Road Widening	3rd Phase	Ward no 8
W-937	Secondary Road	40	60.47	Road Widening	2nd Phase	Ward no 8
W-938	Secondary Road	40	153.24	Road Widening	2nd Phase	Ward no 8
W-939	Local Road	20	40.69	Road Widening	3rd Phase	Ward no 8
W-943	Local Road	20	10.29	Road Widening	3rd Phase	Ward no 8
W-944	Local Road	20	2.33	Road Widening	3rd Phase	Ward no 8
W-945	Primary Road	80	0.61	Road Widening	1st Phase	Ward no 8
W-868	Local Road	20	0.01	Road Widening	3rd Phase	Ward no 9
N-1	Secondary Road	60	188.37	New Road	2nd Phase	Ward no 9
N-11	Primary Road	100	259.53	New Road	1st Phase	Ward no 9
W-734	Local Road	20	207.13	Road Widening	3rd Phase	Ward no 9
W-745	Local Road	20	79.87	Road Widening	3rd Phase	Ward no 9
W-746	Local Road	20	13.20	Road Widening	3rd Phase	Ward no 9
W-747	Local Road	20	27.72	Road Widening	3rd Phase	Ward no 9
W-749	Secondary Road	40	127.32	Road Widening	2nd Phase	Ward no 9
W-750	Local Road	20	30.38	Road Widening	3rd Phase	Ward no 9
W-751	Local Road	20	14.99	Road Widening	3rd Phase	Ward no 9
W-752	Local Road	20	54.01	Road Widening	3rd Phase	Ward no 9
W-753	Local Road	20	65.64	Road Widening	3rd Phase	Ward no 9
W-755	Local Road	20	10.05	Road Widening	3rd Phase	Ward no 9
W-756	Local Road	20	27.31	Road Widening	3rd Phase	Ward no 9
W-757	Local Road	20	3.79	Road Widening	3rd Phase	Ward no 9
W-758	Secondary Road	60	21.57	Road Widening	2nd Phase	Ward no 9
W-759	Local Road	20	39.92	Road Widening	3rd Phase	Ward no 9
W-760	Local Road	20	102.74	Road Widening	3rd Phase	Ward no 9
W-761	Local Road	20	106.18	Road Widening	3rd Phase	Ward no 9
W-762	Local Road	20	55.18	Road Widening	3rd Phase	Ward no 9

Phase wise Road Network Development proposal of Swarupkati Paurashava

Proposed ID	Type	Width in ft	Length in m	Remarks	Phase	Ward No.
W-763	Local Road	20	5.06	Road Widening	3rd Phase	Ward no 9
W-764	Primary Road	100	69.02	Road Widening	1st Phase	Ward no 9
W-765	Local Road	20	129.07	Road Widening	3rd Phase	Ward no 9
W-766	Primary Road	100	2.59	Road Widening	1st Phase	Ward no 9
W-767	Secondary Road	40	205.10	Road Widening	2nd Phase	Ward no 9
W-768	Local Road	20	34.24	Road Widening	3rd Phase	Ward no 9
W-769	Local Road	20	41.04	Road Widening	3rd Phase	Ward no 9
W-770	Primary Road	100	4.75	Road Widening	1st Phase	Ward no 9
W-771	Secondary Road	40	144.35	Road Widening	2nd Phase	Ward no 9
W-772	Local Road	20	83.29	Road Widening	3rd Phase	Ward no 9
W-773	Local Road	20	71.89	Road Widening	3rd Phase	Ward no 9
W-774	Secondary Road	40	53.11	Road Widening	2nd Phase	Ward no 9
W-775	Secondary Road	40	181.40	Road Widening	2nd Phase	Ward no 9
W-833	Local Road	20	102.15	Road Widening	3rd Phase	Ward no 9
W-834	Secondary Road	40	8.94	Road Widening	2nd Phase	Ward no 9
W-835	Local Road	20	66.74	Road Widening	3rd Phase	Ward no 9
W-836	Local Road	20	43.79	Road Widening	3rd Phase	Ward no 9
W-837	Secondary Road	40	16.96	Road Widening	2nd Phase	Ward no 9
W-838	Local Road	20	59.60	Road Widening	3rd Phase	Ward no 9
W-839	Secondary Road	40	113.74	Road Widening	2nd Phase	Ward no 9
W-840	Secondary Road	40	9.22	Road Widening	2nd Phase	Ward no 9
W-841	Local Road	20	35.99	Road Widening	3rd Phase	Ward no 9
W-842	Local Road	20	42.12	Road Widening	3rd Phase	Ward no 9
W-843	Local Road	20	89.77	Road Widening	3rd Phase	Ward no 9
W-844	Local Road	20	17.40	Road Widening	3rd Phase	Ward no 9
W-845	Local Road	20	35.95	Road Widening	3rd Phase	Ward no 9
W-846	Local Road	20	21.01	Road Widening	3rd Phase	Ward no 9
W-847	Local Road	20	28.59	Road Widening	3rd Phase	Ward no 9
W-848	Local Road	20	46.79	Road Widening	3rd Phase	Ward no 9
W-849	Secondary Road	40	19.26	Road Widening	2nd Phase	Ward no 9
W-850	Local Road	20	38.32	Road Widening	3rd Phase	Ward no 9
W-851	Secondary Road	40	131.16	Road Widening	2nd Phase	Ward no 9
W-852	Local Road	20	83.66	Road Widening	3rd Phase	Ward no 9
W-853	Local Road	20	98.22	Road Widening	3rd Phase	Ward no 9
W-854	Local Road	20	2.39	Road Widening	3rd Phase	Ward no 9
W-855	Local Road	20	134.04	Road Widening	3rd Phase	Ward no 9
W-856	Local Road	20	130.12	Road Widening	3rd Phase	Ward no 9
W-857	Local Road	20	34.04	Road Widening	3rd Phase	Ward no 9
W-859	Local Road	20	69.30	Road Widening	3rd Phase	Ward no 9
W-862	Local Road	20	33.90	Road Widening	3rd Phase	Ward no 9
W-863	Local Road	20	17.86	Road Widening	3rd Phase	Ward no 9
W-864	Local Road	20	65.45	Road Widening	3rd Phase	Ward no 9
W-865	Local Road	20	10.67	Road Widening	3rd Phase	Ward no 9
W-866	Local Road	20	18.09	Road Widening	3rd Phase	Ward no 9
W-867	Local Road	20	43.09	Road Widening	3rd Phase	Ward no 9
W-868	Local Road	20	100.26	Road Widening	3rd Phase	Ward no 9
W-869	Secondary Road	40	88.84	Road Widening	2nd Phase	Ward no 9
W-870	Secondary Road	40	44.76	Road Widening	2nd Phase	Ward no 9
W-871	Secondary Road	40	62.78	Road Widening	2nd Phase	Ward no 9
W-877	Secondary Road	60	1.06	Road Widening	2nd Phase	Ward no 9
W-878	Secondary Road	60	59.05	Road Widening	2nd Phase	Ward no 9
W-879	Local Road	20	47.83	Road Widening	3rd Phase	Ward no 9
W-880	Secondary Road	60	57.49	Road Widening	2nd Phase	Ward no 9
W-881	Secondary Road	60	0.70	Road Widening	2nd Phase	Ward no 9
W-882	Secondary Road	60	98.37	Road Widening	2nd Phase	Ward no 9
W-883	Local Road	20	38.12	Road Widening	3rd Phase	Ward no 9
W-884	Secondary Road	50	705.06	Road Widening	2nd Phase	Ward no 9
W-885	Secondary Road	40	371.38	Road Widening	2nd Phase	Ward no 9
W-886	Secondary Road	40	235.70	Road Widening	2nd Phase	Ward no 9
W-887	Secondary Road	40	11.71	Road Widening	2nd Phase	Ward no 9
N-32	Primary Road	80	124.30	New Road	1st Phase	Ward no 9
W-922	Secondary Road	40	65.28	Road Widening	2nd Phase	Ward no 9
W-938	Secondary Road	40	114.16	Road Widening	2nd Phase	Ward no 9
N-65	Local Road	20	115.02	New Road	3rd Phase	Ward no 9
N-66	Local Road	20	121.15	New Road	3rd Phase	Ward no 9
N-67	Local Road	20	156.87	New Road	3rd Phase	Ward no 9
N-68	Local Road	20	34.72	New Road	3rd Phase	Ward no 9
N-69	Local Road	20	235.87	New Road	3rd Phase	Ward no 9
Total			**82046.50**			

Phase wise Drainage Network Development Proposal of Swarupkati Paurashava

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing	Ward No.
TD-1	Tertiary Drain	2-2.5	0.64-1.25	46.31	2nd Phase	Ward no 1
TD-2	Tertiary Drain	2-2.5	0.64-1.25	56.74	2nd Phase	Ward no 1
TD-48	Tertiary Drain	2-2.5	0.64-1.25	502.15	3rd Phase	Ward no 1
SD-28	Secondary Drain	2.5-3.5	1.25-2.25	588.59	1st Phase	Ward no 1
TD-50	Tertiary Drain	2-2.5	0.64-1.25	17.07	3rd Phase	Ward no 1
TD-51	Tertiary Drain	2-2.5	0.64-1.25	44.53	3rd Phase	Ward no 1
TD-52	Tertiary Drain	2-2.5	0.64-1.25	147.28	2nd Phase	Ward no 1
TD-53	Tertiary Drain	2-2.5	0.64-1.25	45.81	2nd Phase	Ward no 1
TD-54	Tertiary Drain	2-2.5	0.64-1.25	59.41	2nd Phase	Ward no 1
TD-55	Tertiary Drain	2-2.5	0.64-1.25	123.67	2nd Phase	Ward no 1
SD-29	Secondary Drain	2.5-3.5	1.25-2.25	311.69	1st Phase	Ward no 1
TD-56	Tertiary Drain	2-2.5	0.64-1.25	162.99	3rd Phase	Ward no 1
SD-30	Secondary Drain	2.5-3.5	1.25-2.25	228.89	1st Phase	Ward no 1
SD-31	Secondary Drain	2.5-3.5	1.25-2.25	193.22	1st Phase	Ward no 1
SD-32	Secondary Drain	2.5-3.5	1.25-2.25	431.76	1st Phase	Ward no 1
SD-33	Secondary Drain	2.5-3.5	1.25-2.25	169.61	1st Phase	Ward no 1
TD-57	Tertiary Drain	2-2.5	0.64-1.25	167.17	3rd Phase	Ward no 1
TD-59	Tertiary Drain	2-2.5	0.64-1.25	65.48	3rd Phase	Ward no 1
TD-68	Tertiary Drain	2-2.5	0.64-1.25	292.12	3rd Phase	Ward no 1
TD-69	Tertiary Drain	2-2.5	0.64-1.25	306.94	3rd Phase	Ward no 1
TD-70	Tertiary Drain	2-2.5	0.64-1.25	269.29	3rd Phase	Ward no 1
TD-86	Tertiary Drain	2-2.5	0.64-1.25	216.54	3rd Phase	Ward no 1
TD-129	Tertiary Drain	2-2.5	0.64-1.25	308.94	3rd Phase	Ward no 1
TD-131	Tertiary Drain	2-2.5	0.64-1.25	12.41	3rd Phase	Ward no 1
TD-146	Tertiary Drain	2-2.5	0.64-1.25	105.04	3rd Phase	Ward no 1
TD-129	Tertiary Drain	2-2.5	0.64-1.25	252.78	3rd Phase	Ward no 1
TD-130	Tertiary Drain	2-2.5	0.64-1.25	252.78	3rd Phase	Ward no 1
TD-48	Tertiary Drain	2-2.5	0.64-1.25	396.05	3rd Phase	Ward no 2
SD-33	Secondary Drain	2.5-3.5	1.25-2.25	359.42	1st Phase	Ward no 2
SD-34	Secondary Drain	2.5-3.5	1.25-2.25	320.25	1st Phase	Ward no 2
SD-35	Secondary Drain	2.5-3.5	1.25-2.25	301.97	1st Phase	Ward no 2
TD-71	Tertiary Drain	2-2.5	0.64-1.25	78.12	3rd Phase	Ward no 2
TD-72	Tertiary Drain	2-2.5	0.64-1.25	210.53	3rd Phase	Ward no 2
TD-73	Tertiary Drain	2-2.5	0.64-1.25	230.48	3rd Phase	Ward no 2
SD-42	Secondary Drain	2.5-3.5	1.25-2.25	305.48	1st Phase	Ward no 2
SD-43	Secondary Drain	2.5-3.5	1.25-2.25	16.94	1st Phase	Ward no 2
SD-45	Secondary Drain	2.5-3.5	1.25-2.25	5.30	1st Phase	Ward no 2
TD-147	Tertiary Drain	2-2.5	0.64-1.25	42.75	3rd Phase	Ward no 2
TD-148	Tertiary Drain	2-2.5	0.64-1.25	128.73	3rd Phase	Ward no 2
TD-149	Tertiary Drain	2-2.5	0.64-1.25	148.67	3rd Phase	Ward no 2
TD-150	Tertiary Drain	2-2.5	0.64-1.25	100.46	3rd Phase	Ward no 2
TD-151	Tertiary Drain	2-2.5	0.64-1.25	75.78	3rd Phase	Ward no 2

Phase wise Drainage Network Development Proposal of Swarupkati Paurashava

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing	Ward No.
TD-152	Tertiary Drain	2-2.5	0.64-1.25	146.36	3rd Phase	Ward no 2
SD-24	Secondary Drain	2.5-3.5	1.25-2.25	81.66	1st Phase	Ward no 3
TD-48	Tertiary Drain	2-2.5	0.64-1.25	349.74	3rd Phase	Ward no 3
SD-25	Secondary Drain	2.5-3.5	1.25-2.25	209.04	1st Phase	Ward no 3
TD-51	Tertiary Drain	2-2.5	0.64-1.25	11.77	3rd Phase	Ward no 3
SD-35	Secondary Drain	2.5-3.5	1.25-2.25	175.06	1st Phase	Ward no 3
SD-37	Secondary Drain	2.5-3.5	1.25-2.25	525.80	1st Phase	Ward no 3
SD-38	Secondary Drain	2.5-3.5	1.25-2.25	536.53	1st Phase	Ward no 3
TD-57	Tertiary Drain	2-2.5	0.64-1.25	568.37	3rd Phase	Ward no 3
TD-58	Tertiary Drain	2-2.5	0.64-1.25	599.32	3rd Phase	Ward no 3
SD-39	Secondary Drain	2.5-3.5	1.25-2.25	208.51	1st Phase	Ward no 3
TD-59	Tertiary Drain	2-2.5	0.64-1.25	222.73	3rd Phase	Ward no 3
TD-60	Tertiary Drain	2-2.5	0.64-1.25	165.80	3rd Phase	Ward no 3
TD-61	Tertiary Drain	2-2.5	0.64-1.25	313.97	3rd Phase	Ward no 3
SD-40	Secondary Drain	2.5-3.5	1.25-2.25	140.58	1st Phase	Ward no 3
TD-62	Tertiary Drain	2-2.5	0.64-1.25	51.61	3rd Phase	Ward no 3
TD-63	Tertiary Drain	2-2.5	0.64-1.25	138.67	3rd Phase	Ward no 3
TD-64	Tertiary Drain	2-2.5	0.64-1.25	123.35	3rd Phase	Ward no 3
TD-65	Tertiary Drain	2-2.5	0.64-1.25	109.43	3rd Phase	Ward no 3
TD-66	Tertiary Drain	2-2.5	0.64-1.25	395.83	3rd Phase	Ward no 3
TD-67	Tertiary Drain	2-2.5	0.64-1.25	302.74	3rd Phase	Ward no 3
TD-68	Tertiary Drain	2-2.5	0.64-1.25	11.94	3rd Phase	Ward no 3
SD-42	Secondary Drain	2.5-3.5	1.25-2.25	5.49	1st Phase	Ward no 3
SD-43	Secondary Drain	2.5-3.5	1.25-2.25	243.98	1st Phase	Ward no 3
SD-44	Secondary Drain	2.5-3.5	1.25-2.25	114.08	1st Phase	Ward no 3
SD-45	Secondary Drain	2.5-3.5	1.25-2.25	336.33	1st Phase	Ward no 3
TD-74	Tertiary Drain	2-2.5	0.64-1.25	123.86	3rd Phase	Ward no 3
TD-75	Tertiary Drain	2-2.5	0.64-1.25	144.98	3rd Phase	Ward no 3
TD-76	Tertiary Drain	2-2.5	0.64-1.25	212.84	3rd Phase	Ward no 3
SD-46	Secondary Drain	2.5-3.5	1.25-2.25	112.56	1st Phase	Ward no 3
TD-79	Tertiary Drain	2-2.5	0.64-1.25	83.92	3rd Phase	Ward no 3
TD-80	Tertiary Drain	2-2.5	0.64-1.25	50.12	3rd Phase	Ward no 3
SD-47	Secondary Drain	2.5-3.5	1.25-2.25	54.43	1st Phase	Ward no 3
SD-48	Secondary Drain	2.5-3.5	1.25-2.25	41.76	1st Phase	Ward no 3
TD-83	Tertiary Drain	2-2.5	0.64-1.25	198.45	3rd Phase	Ward no 3
TD-84	Tertiary Drain	2-2.5	0.64-1.25	277.71	3rd Phase	Ward no 3
TD-85	Tertiary Drain	2-2.5	0.64-1.25	33.15	3rd Phase	Ward no 3
SD-49	Secondary Drain	2.5-3.5	1.25-2.25	48.29	1st Phase	Ward no 3
TD-87	Tertiary Drain	2-2.5	0.64-1.25	186.33	3rd Phase	Ward no 3
TD-88	Tertiary Drain	2-2.5	0.64-1.25	163.94	3rd Phase	Ward no 3
TD-89	Tertiary Drain	2-2.5	0.64-1.25	74.40	3rd Phase	Ward no 3
TD-131	Tertiary Drain	2-2.5	0.64-1.25	147.12	3rd Phase	Ward no 3

Phase wise Drainage Network Development Proposal of Swarupkati Paurashava

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing	Ward No.
TD-132	Tertiary Drain	2-2.5	0.64-1.25	225.32	3rd Phase	Ward no 3
TD-133	Tertiary Drain	2-2.5	0.64-1.25	199.78	3rd Phase	Ward no 3
TD-134	Tertiary Drain	2-2.5	0.64-1.25	176.07	3rd Phase	Ward no 3
TD-135	Tertiary Drain	2-2.5	0.64-1.25	92.38	3rd Phase	Ward no 3
SD-58	Secondary Drain	2.5-3.5	1.25-2.25	328.73	1st Phase	Ward no 3
TD-136	Tertiary Drain	2-2.5	0.64-1.25	105.40	3rd Phase	Ward no 3
TD-137	Tertiary Drain	2-2.5	0.64-1.25	152.43	3rd Phase	Ward no 3
TD-138	Tertiary Drain	2-2.5	0.64-1.25	258.07	3rd Phase	Ward no 3
TD-147	Tertiary Drain	2-2.5	0.64-1.25	72.42	3rd Phase	Ward no 3
TD-149	Tertiary Drain	2-2.5	0.64-1.25	10.56	3rd Phase	Ward no 3
TD-152	Tertiary Drain	2-2.5	0.64-1.25	25.44	3rd Phase	Ward no 3
TD-155	Tertiary Drain	2-2.5	0.64-1.25	4.59	3rd Phase	Ward no 3
TD-156	Tertiary Drain	2-2.5	0.64-1.25	108.56	3rd Phase	Ward no 3
TD-157	Tertiary Drain	2-2.5	0.64-1.25	133.38	3rd Phase	Ward no 3
TD-158	Tertiary Drain	2-2.5	0.64-1.25	119.04	3rd Phase	Ward no 3
TD-159	Tertiary Drain	2-2.5	0.64-1.25	175.48	3rd Phase	Ward no 3
TD-160	Tertiary Drain	2-2.5	0.64-1.25	46.25	3rd Phase	Ward no 3
TD-162	Tertiary Drain	2-2.5	0.64-1.25	87.31	3rd Phase	Ward no 3
TD-163	Tertiary Drain	2-2.5	0.64-1.25	182.71	3rd Phase	Ward no 3
TD-137	Tertiary Drain	2-2.5	0.64-1.25	0.82	3rd Phase	Ward no 3
TD-156	Tertiary Drain	2-2.5	0.64-1.25	0.82	3rd Phase	Ward no 3
SD-25	Secondary Drain	2.5-3.5	1.25-2.25	378.50	1st Phase	Ward no 4
SD-27	Secondary Drain	2.5-3.5	1.25-2.25	134.54	1st Phase	Ward no 4
TD-49	Tertiary Drain	2-2.5	0.64-1.25	264.25	3rd Phase	Ward no 4
SD-36	Secondary Drain	2.5-3.5	1.25-2.25	229.00	1st Phase	Ward no 4
SD-37	Secondary Drain	2.5-3.5	1.25-2.25	2.94	1st Phase	Ward no 4
TD-61	Tertiary Drain	2-2.5	0.64-1.25	3.98	3rd Phase	Ward no 4
SD-41	Secondary Drain	2.5-3.5	1.25-2.25	13.15	1st Phase	Ward no 4
TD-62	Tertiary Drain	2-2.5	0.64-1.25	52.92	3rd Phase	Ward no 4
TD-77	Tertiary Drain	2-2.5	0.64-1.25	77.99	3rd Phase	Ward no 4
SD-46	Secondary Drain	2.5-3.5	1.25-2.25	46.96	1st Phase	Ward no 4
TD-78	Tertiary Drain	2-2.5	0.64-1.25	67.10	3rd Phase	Ward no 4
TD-79	Tertiary Drain	2-2.5	0.64-1.25	72.98	3rd Phase	Ward no 4
SD-47	Secondary Drain	2.5-3.5	1.25-2.25	12.87	1st Phase	Ward no 4
SD-48	Secondary Drain	2.5-3.5	1.25-2.25	22.34	1st Phase	Ward no 4
TD-81	Tertiary Drain	2-2.5	0.64-1.25	550.23	3rd Phase	Ward no 4
TD-82	Tertiary Drain	2-2.5	0.64-1.25	428.00	3rd Phase	Ward no 4
TD-83	Tertiary Drain	2-2.5	0.64-1.25	3.12	3rd Phase	Ward no 4
TD-84	Tertiary Drain	2-2.5	0.64-1.25	5.58	3rd Phase	Ward no 4
TD-85	Tertiary Drain	2-2.5	0.64-1.25	521.35	3rd Phase	Ward no 4
SD-49	Secondary Drain	2.5-3.5	1.25-2.25	524.69	1st Phase	Ward no 4
TD-89	Tertiary Drain	2-2.5	0.64-1.25	124.90	3rd Phase	Ward no 4

Phase wise Drainage Network Development Proposal of Swarupkati Paurashava

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing	Ward No.
TD-90	Tertiary Drain	2-2.5	0.64-1.25	282.26	3rd Phase	Ward no 4
TD-97	Tertiary Drain	2-2.5	0.64-1.25	243.49	3rd Phase	Ward no 4
TD-98	Tertiary Drain	2-2.5	0.64-1.25	108.86	3rd Phase	Ward no 4
TD-143	Tertiary Drain	2-2.5	0.64-1.25	165.02	3rd Phase	Ward no 4
TD-144	Tertiary Drain	2-2.5	0.64-1.25	110.25	3rd Phase	Ward no 4
TD-145	Tertiary Drain	2-2.5	0.64-1.25	169.43	3rd Phase	Ward no 4
TD-153	Tertiary Drain	2-2.5	0.64-1.25	164.94	3rd Phase	Ward no 4
TD-154	Tertiary Drain	2-2.5	0.64-1.25	97.47	3rd Phase	Ward no 4
TD-155	Tertiary Drain	2-2.5	0.64-1.25	95.45	3rd Phase	Ward no 4
TD-160	Tertiary Drain	2-2.5	0.64-1.25	129.75	3rd Phase	Ward no 4
TD-161	Tertiary Drain	2-2.5	0.64-1.25	157.30	3rd Phase	Ward no 4
SD-4	Secondary Drain	2.5-3.5	1.25-2.25	323.81	1st Phase	Ward no 5
SD-5	Secondary Drain	2.5-3.5	1.25-2.25	486.64	1st Phase	Ward no 5
TD-7	Tertiary Drain	2-2.5	0.64-1.25	477.81	3rd Phase	Ward no 5
SD-6	Secondary Drain	2.5-3.5	1.25-2.25	447.55	1st Phase	Ward no 5
SD-8	Secondary Drain	2.5-3.5	1.25-2.25	418.34	1st Phase	Ward no 5
SD-9	Secondary Drain	2.5-3.5	1.25-2.25	7.26	1st Phase	Ward no 5
SD-10	Secondary Drain	2.5-3.5	1.25-2.25	475.04	1st Phase	Ward no 5
TD-30	Tertiary Drain	2-2.5	0.64-1.25	78.84	3rd Phase	Ward no 5
TD-31	Tertiary Drain	2-2.5	0.64-1.25	322.91	3rd Phase	Ward no 5
TD-32	Tertiary Drain	2-2.5	0.64-1.25	247.75	3rd Phase	Ward no 5
TD-33	Tertiary Drain	2-2.5	0.64-1.25	264.44	3rd Phase	Ward no 5
TD-34	Tertiary Drain	2-2.5	0.64-1.25	281.18	3rd Phase	Ward no 5
TD-35	Tertiary Drain	2-2.5	0.64-1.25	102.57	3rd Phase	Ward no 5
TD-36	Tertiary Drain	2-2.5	0.64-1.25	334.44	3rd Phase	Ward no 5
TD-37	Tertiary Drain	2-2.5	0.64-1.25	268.57	3rd Phase	Ward no 5
SD-23	Secondary Drain	2.5-3.5	1.25-2.25	439.30	1st Phase	Ward no 5
TD-38	Tertiary Drain	2-2.5	0.64-1.25	405.93	3rd Phase	Ward no 5
TD-91	Tertiary Drain	2-2.5	0.64-1.25	40.66	3rd Phase	Ward no 5
TD-92	Tertiary Drain	2-2.5	0.64-1.25	214.98	3rd Phase	Ward no 5
TD-93	Tertiary Drain	2-2.5	0.64-1.25	165.65	3rd Phase	Ward no 5
TD-94	Tertiary Drain	2-2.5	0.64-1.25	283.11	3rd Phase	Ward no 5
TD-95	Tertiary Drain	2-2.5	0.64-1.25	200.34	3rd Phase	Ward no 5
TD-96	Tertiary Drain	2-2.5	0.64-1.25	173.11	3rd Phase	Ward no 5
SD-50	Secondary Drain	2.5-3.5	1.25-2.25	359.55	1st Phase	Ward no 5
TD-109	Tertiary Drain	2-2.5	0.64-1.25	14.91	3rd Phase	Ward no 5
TD-110	Tertiary Drain	2-2.5	0.64-1.25	12.68	3rd Phase	Ward no 5
TD-113	Tertiary Drain	2-2.5	0.64-1.25	10.57	3rd Phase	Ward no 5
TD-114	Tertiary Drain	2-2.5	0.64-1.25	4.40	3rd Phase	Ward no 5
TD-116	Tertiary Drain	2-2.5	0.64-1.25	10.27	3rd Phase	Ward no 5
TD-172	Tertiary Drain	2-2.5	0.64-1.25	189.79	3rd Phase	Ward no 5
TD-173	Tertiary Drain	2-2.5	0.64-1.25	128.95	3rd Phase	Ward no 5

Phase wise Drainage Network Development Proposal of Swarupkati Paurashava

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing	Ward No.
TD-174	Tertiary Drain	2-2.5	0.64-1.25	56.55	3rd Phase	Ward no 5
TD-4	Tertiary Drain	2-2.5	0.64-1.25	382.52	2nd Phase	Ward no 6
TD-5	Tertiary Drain	2-2.5	0.64-1.25	111.37	2nd Phase	Ward no 6
SD-3	Secondary Drain	2.5-3.5	1.25-2.25	654.35	1st Phase	Ward no 6
SD-4	Secondary Drain	2.5-3.5	1.25-2.25	144.13	1st Phase	Ward no 6
SD-6	Secondary Drain	2.5-3.5	1.25-2.25	14.16	1st Phase	Ward no 6
TD-8	Tertiary Drain	2-2.5	0.64-1.25	205.14	3rd Phase	Ward no 6
SD-7	Secondary Drain	2.5-3.5	1.25-2.25	27.08	1st Phase	Ward no 6
TD-10	Tertiary Drain	2-2.5	0.64-1.25	362.57	3rd Phase	Ward no 6
TD-11	Tertiary Drain	2-2.5	0.64-1.25	132.59	3rd Phase	Ward no 6
TD-12	Tertiary Drain	2-2.5	0.64-1.25	287.43	3rd Phase	Ward no 6
TD-13	Tertiary Drain	2-2.5	0.64-1.25	103.34	3rd Phase	Ward no 6
SD-9	Secondary Drain	2.5-3.5	1.25-2.25	421.07	1st Phase	Ward no 6
TD-14	Tertiary Drain	2-2.5	0.64-1.25	396.53	3rd Phase	Ward no 6
TD-29	Tertiary Drain	2-2.5	0.64-1.25	299.12	3rd Phase	Ward no 6
TD-31	Tertiary Drain	2-2.5	0.64-1.25	33.01	3rd Phase	Ward no 6
TD-42	Tertiary Drain	2-2.5	0.64-1.25	11.56	3rd Phase	Ward no 6
TD-44	Tertiary Drain	2-2.5	0.64-1.25	26.49	3rd Phase	Ward no 6
TD-45	Tertiary Drain	2-2.5	0.64-1.25	11.13	2nd Phase	Ward no 6
TD-46	Tertiary Drain	2-2.5	0.64-1.25	0.18	2nd Phase	Ward no 6
SD-24	Secondary Drain	2.5-3.5	1.25-2.25	39.00	1st Phase	Ward no 6
TD-47	Tertiary Drain	2-2.5	0.64-1.25	14.99	2nd Phase	Ward no 6
SD-25	Secondary Drain	2.5-3.5	1.25-2.25	13.48	1st Phase	Ward no 6
SD-26	Secondary Drain	2.5-3.5	1.25-2.25	62.81	1st Phase	Ward no 6
TD-49	Tertiary Drain	2-2.5	0.64-1.25	51.63	3rd Phase	Ward no 6
SD-28	Secondary Drain	2.5-3.5	1.25-2.25	23.74	1st Phase	Ward no 6
SD-40	Secondary Drain	2.5-3.5	1.25-2.25	50.26	1st Phase	Ward no 6
SD-41	Secondary Drain	2.5-3.5	1.25-2.25	103.34	1st Phase	Ward no 6
TD-63	Tertiary Drain	2-2.5	0.64-1.25	1.19	3rd Phase	Ward no 6
TD-103	Tertiary Drain	2-2.5	0.64-1.25	118.88	3rd Phase	Ward no 6
TD-104	Tertiary Drain	2-2.5	0.64-1.25	183.67	3rd Phase	Ward no 6
TD-105	Tertiary Drain	2-2.5	0.64-1.25	159.87	3rd Phase	Ward no 6
TD-106	Tertiary Drain	2-2.5	0.64-1.25	144.88	3rd Phase	Ward no 6
TD-107	Tertiary Drain	2-2.5	0.64-1.25	127.76	3rd Phase	Ward no 6
TD-108	Tertiary Drain	2-2.5	0.64-1.25	106.76	3rd Phase	Ward no 6
TD-109	Tertiary Drain	2-2.5	0.64-1.25	231.65	3rd Phase	Ward no 6
TD-110	Tertiary Drain	2-2.5	0.64-1.25	279.71	3rd Phase	Ward no 6
TD-111	Tertiary Drain	2-2.5	0.64-1.25	252.48	3rd Phase	Ward no 6
TD-112	Tertiary Drain	2-2.5	0.64-1.25	244.27	3rd Phase	Ward no 6
TD-113	Tertiary Drain	2-2.5	0.64-1.25	102.25	3rd Phase	Ward no 6
TD-114	Tertiary Drain	2-2.5	0.64-1.25	80.57	3rd Phase	Ward no 6
TD-115	Tertiary Drain	2-2.5	0.64-1.25	107.95	3rd Phase	Ward no 6

Phase wise Drainage Network Development Proposal of Swarupkati Paurashava

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing	Ward No.
TD-116	Tertiary Drain	2-2.5	0.64-1.25	247.52	3rd Phase	Ward no 6
TD-117	Tertiary Drain	2-2.5	0.64-1.25	142.68	3rd Phase	Ward no 6
SD-53	Secondary Drain	2.5-3.5	1.25-2.25	62.89	1st Phase	Ward no 6
SD-54	Secondary Drain	2.5-3.5	1.25-2.25	201.36	1st Phase	Ward no 6
SD-56	Secondary Drain	2.5-3.5	1.25-2.25	318.75	1st Phase	Ward no 6
SD-57	Secondary Drain	2.5-3.5	1.25-2.25	374.38	1st Phase	Ward no 6
TD-119	Tertiary Drain	2-2.5	0.64-1.25	190.78	3rd Phase	Ward no 6
TD-120	Tertiary Drain	2-2.5	0.64-1.25	107.69	3rd Phase	Ward no 6
TD-121	Tertiary Drain	2-2.5	0.64-1.25	75.80	3rd Phase	Ward no 6
TD-122	Tertiary Drain	2-2.5	0.64-1.25	176.66	3rd Phase	Ward no 6
TD-124	Tertiary Drain	2-2.5	0.64-1.25	97.97	3rd Phase	Ward no 6
TD-125	Tertiary Drain	2-2.5	0.64-1.25	148.40	3rd Phase	Ward no 6
TD-126	Tertiary Drain	2-2.5	0.64-1.25	147.17	3rd Phase	Ward no 6
TD-127	Tertiary Drain	2-2.5	0.64-1.25	121.46	3rd Phase	Ward no 6
TD-128	Tertiary Drain	2-2.5	0.64-1.25	94.56	3rd Phase	Ward no 6
TD-164	Tertiary Drain	2-2.5	0.64-1.25	122.40	3rd Phase	Ward no 6
TD-165	Tertiary Drain	2-2.5	0.64-1.25	69.85	3rd Phase	Ward no 6
TD-166	Tertiary Drain	2-2.5	0.64-1.25	74.93	3rd Phase	Ward no 6
TD-167	Tertiary Drain	2-2.5	0.64-1.25	36.49	3rd Phase	Ward no 6
TD-168	Tertiary Drain	2-2.5	0.64-1.25	35.69	3rd Phase	Ward no 6
TD-169	Tertiary Drain	2-2.5	0.64-1.25	47.80	3rd Phase	Ward no 6
TD-170	Tertiary Drain	2-2.5	0.64-1.25	32.33	3rd Phase	Ward no 6
TD-171	Tertiary Drain	2-2.5	0.64-1.25	99.33	3rd Phase	Ward no 6
TD-1	Tertiary Drain	2-2.5	0.64-1.25	8.06	2nd Phase	Ward no 7
SD-1	Secondary Drain	2.5-3.5	1.25-2.25	784.89	1st Phase	Ward no 7
TD-6	Tertiary Drain	2-2.5	0.64-1.25	217.50	3rd Phase	Ward no 7
SD-2	Secondary Drain	2.5-3.5	1.25-2.25	115.41	1st Phase	Ward no 7
SD-3	Secondary Drain	2.5-3.5	1.25-2.25	373.13	1st Phase	Ward no 7
TD-9	Tertiary Drain	2-2.5	0.64-1.25	144.73	3rd Phase	Ward no 7
SD-7	Secondary Drain	2.5-3.5	1.25-2.25	226.93	1st Phase	Ward no 7
TD-22	Tertiary Drain	2-2.5	0.64-1.25	97.19	3rd Phase	Ward no 7
SD-19	Secondary Drain	2.5-3.5	1.25-2.25	346.04	1st Phase	Ward no 7
SD-20	Secondary Drain	2.5-3.5	1.25-2.25	388.32	1st Phase	Ward no 7
TD-23	Tertiary Drain	2-2.5	0.64-1.25	232.45	3rd Phase	Ward no 7
SD-21	Secondary Drain	2.5-3.5	1.25-2.25	341.71	1st Phase	Ward no 7
TD-24	Tertiary Drain	2-2.5	0.64-1.25	230.64	3rd Phase	Ward no 7
SD-22	Secondary Drain	2.5-3.5	1.25-2.25	363.77	1st Phase	Ward no 7
TD-41	Tertiary Drain	2-2.5	0.64-1.25	127.15	3rd Phase	Ward no 7
TD-42	Tertiary Drain	2-2.5	0.64-1.25	313.77	3rd Phase	Ward no 7
TD-43	Tertiary Drain	2-2.5	0.64-1.25	241.02	3rd Phase	Ward no 7
TD-44	Tertiary Drain	2-2.5	0.64-1.25	89.96	3rd Phase	Ward no 7
SD-28	Secondary Drain	2.5-3.5	1.25-2.25	11.24	1st Phase	Ward no 7

Phase wise Drainage Network Development Proposal of Swarupkati Paurashava

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing	Ward No.
SD-29	Secondary Drain	2.5-3.5	1.25-2.25	3.18	1st Phase	Ward no 7
TD-99	Tertiary Drain	2-2.5	0.64-1.25	204.50	3rd Phase	Ward no 7
TD-101	Tertiary Drain	2-2.5	0.64-1.25	235.87	3rd Phase	Ward no 7
TD-102	Tertiary Drain	2-2.5	0.64-1.25	29.91	3rd Phase	Ward no 7
SD-51	Secondary Drain	2.5-3.5	1.25-2.25	7.55	1st Phase	Ward no 7
SD-52	Secondary Drain	2.5-3.5	1.25-2.25	109.16	1st Phase	Ward no 7
SD-53	Secondary Drain	2.5-3.5	1.25-2.25	196.91	1st Phase	Ward no 7
SD-56	Secondary Drain	2.5-3.5	1.25-2.25	50.60	1st Phase	Ward no 7
TD-123	Tertiary Drain	2-2.5	0.64-1.25	196.87	3rd Phase	Ward no 7
TD-124	Tertiary Drain	2-2.5	0.64-1.25	431.39	3rd Phase	Ward no 7
TD-125	Tertiary Drain	2-2.5	0.64-1.25	4.20	3rd Phase	Ward no 7
TD-127	Tertiary Drain	2-2.5	0.64-1.25	34.40	3rd Phase	Ward no 7
TD-139	Tertiary Drain	2-2.5	0.64-1.25	96.85	3rd Phase	Ward no 7
TD-140	Tertiary Drain	2-2.5	0.64-1.25	120.54	3rd Phase	Ward no 7
TD-141	Tertiary Drain	2-2.5	0.64-1.25	65.11	3rd Phase	Ward no 7
TD-142	Tertiary Drain	2-2.5	0.64-1.25	174.60	3rd Phase	Ward no 7
TD-3	Tertiary Drain	2-2.5	0.64-1.25	224.30	2nd Phase	Ward no 8
SD-1	Secondary Drain	2.5-3.5	1.25-2.25	353.98	1st Phase	Ward no 8
SD-11	Secondary Drain	2.5-3.5	1.25-2.25	338.98	1st Phase	Ward no 8
SD-12	Secondary Drain	2.5-3.5	1.25-2.25	34.68	1st Phase	Ward no 8
SD-13	Secondary Drain	2.5-3.5	1.25-2.25	342.80	1st Phase	Ward no 8
SD-14	Secondary Drain	2.5-3.5	1.25-2.25	24.58	1st Phase	Ward no 8
SD-17	Secondary Drain	2.5-3.5	1.25-2.25	17.49	1st Phase	Ward no 8
TD-16	Tertiary Drain	2-2.5	0.64-1.25	123.29	3rd Phase	Ward no 8
TD-17	Tertiary Drain	2-2.5	0.64-1.25	176.54	3rd Phase	Ward no 8
TD-18	Tertiary Drain	2-2.5	0.64-1.25	218.44	3rd Phase	Ward no 8
TD-19	Tertiary Drain	2-2.5	0.64-1.25	108.14	3rd Phase	Ward no 8
TD-20	Tertiary Drain	2-2.5	0.64-1.25	698.62	3rd Phase	Ward no 8
TD-21	Tertiary Drain	2-2.5	0.64-1.25	303.34	3rd Phase	Ward no 8
TD-22	Tertiary Drain	2-2.5	0.64-1.25	141.75	3rd Phase	Ward no 8
SD-22	Secondary Drain	2.5-3.5	1.25-2.25	80.18	1st Phase	Ward no 8
TD-25	Tertiary Drain	2-2.5	0.64-1.25	92.29	3rd Phase	Ward no 8
TD-26	Tertiary Drain	2-2.5	0.64-1.25	201.20	3rd Phase	Ward no 8
TD-27	Tertiary Drain	2-2.5	0.64-1.25	139.57	3rd Phase	Ward no 8
TD-28	Tertiary Drain	2-2.5	0.64-1.25	298.65	3rd Phase	Ward no 8
TD-29	Tertiary Drain	2-2.5	0.64-1.25	9.64	3rd Phase	Ward no 8
TD-30	Tertiary Drain	2-2.5	0.64-1.25	72.10	3rd Phase	Ward no 8
TD-39	Tertiary Drain	2-2.5	0.64-1.25	207.65	3rd Phase	Ward no 8
TD-40	Tertiary Drain	2-2.5	0.64-1.25	228.89	3rd Phase	Ward no 8
TD-100	Tertiary Drain	2-2.5	0.64-1.25	72.26	3rd Phase	Ward no 8
TD-102	Tertiary Drain	2-2.5	0.64-1.25	62.84	3rd Phase	Ward no 8
SD-51	Secondary Drain	2.5-3.5	1.25-2.25	66.32	1st Phase	Ward no 8

Phase wise Drainage Network Development Proposal of Swarupkati Paurashava

Proposed Drain ID	Proposed Hierarchy	Proposed Width (ft)	Proposed Depth(m)	Proposed Length(m)	Phasing	Ward No.
TD-118	Tertiary Drain	2-2.5	0.64-1.25	251.69	3rd Phase	Ward no 8
SD-55	Secondary Drain	2.5-3.5	1.25-2.25	424.44	1st Phase	Ward no 8
SD-56	Secondary Drain	2.5-3.5	1.25-2.25	10.17	1st Phase	Ward no 8
SD-11	Secondary Drain	2.5-3.5	1.25-2.25	238.62	1st Phase	Ward no 9
SD-12	Secondary Drain	2.5-3.5	1.25-2.25	155.82	1st Phase	Ward no 9
SD-13	Secondary Drain	2.5-3.5	1.25-2.25	116.32	1st Phase	Ward no 9
SD-14	Secondary Drain	2.5-3.5	1.25-2.25	198.92	1st Phase	Ward no 9
SD-15	Secondary Drain	2.5-3.5	1.25-2.25	277.39	1st Phase	Ward no 9
SD-16	Secondary Drain	2.5-3.5	1.25-2.25	429.31	1st Phase	Ward no 9
SD-17	Secondary Drain	2.5-3.5	1.25-2.25	356.05	1st Phase	Ward no 9
TD-15	Tertiary Drain	2-2.5	0.64-1.25	361.98	3rd Phase	Ward no 9
SD-18	Secondary Drain	2.5-3.5	1.25-2.25	145.76	1st Phase	Ward no 9
TD-17	Tertiary Drain	2-2.5	0.64-1.25	12.43	3rd Phase	Ward no 9
TD-25	Tertiary Drain	2-2.5	0.64-1.25	5.21	3rd Phase	Ward no 9
TD-27	Tertiary Drain	2-2.5	0.64-1.25	195.32	3rd Phase	Ward no 9
SD-55	Secondary Drain	2.5-3.5	1.25-2.25	112.50	1st Phase	Ward no 9
TD-175	Tertiary Drain	2-2.5	0.64-1.25	151.06	3rd Phase	Ward no 9
TD-176	Tertiary Drain	2-2.5	0.64-1.25	235.87	3rd Phase	Ward no 9
TD-177	Tertiary Drain	2-2.5	0.64-1.25	95.35	3rd Phase	Ward no 9
TD-178	Tertiary Drain	2-2.5	0.64-1.25	104.00	3rd Phase	Ward no 9
TD-179	Tertiary Drain	2-2.5	0.64-1.25	118.81	3rd Phase	Ward no 9
Total				**55560.60**		

Table G1: Planning Schedule of Waterbodies in Swarupkati Paurashava

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Jagannathkati	29	2	677	0.000
Water body	Swarupkati	31	0	276	0.084
Water body	Swarupkati	31	0	453	0.015
Water body	Swarupkati	31	0	451	0.001
Water body	Swarupkati	31	0	450	0.041
Water body	Swarupkati	31	0	449	0.031
Water body	Swarupkati	31	0	671	0.000
Water body	Swarupkati	31	0	452	0.107
Water body	Swarupkati	31	0	441	0.055
Water body	Swarupkati	31	0	394	0.005
Water body	Swarupkati	31	0	445	0.000
Water body	Swarupkati	31	0	446	0.000
Water body	Swarupkati	31	0	489	0.036
Water body	Swarupkati	31	0	405	0.186
Water body	Swarupkati	31	0	404	0.006
Water body	Swarupkati	31	0	401	0.019
Water body	Swarupkati	31	0	444	0.011
Water body	Swarupkati	31	0	442	0.012
Water body	Swarupkati	31	0	443	0.016
Water body	Swarupkati	31	0	403	0.026
Water body	Swarupkati	31	0	486	0.035
Water body	Swarupkati	31	0	433	0.142
Water body	Swarupkati	31	0	414	0.000
Water body	Swarupkati	31	0	407	0.005
Water body	Swarupkati	31	0	408	0.019
Water body	Swarupkati	31	0	409	0.102
Water body	Swarupkati	31	0	437	0.005
Water body	Swarupkati	31	0	434	0.020
Water body	Swarupkati	31	0	418	0.099
Water body	Swarupkati	31	0	432	0.031
Water body	Swarupkati	31	0	672	0.798
Water body	Swarupkati	31	0	410	0.114
Water body	Swarupkati	31	0	431	0.047
Water body	Swarupkati	31	0	674	0.190
Water body	Swarupkati	31	0	504	0.121
Water body	Swarupkati	31	0	421	0.026
Water body	Swarupkati	31	0	503	0.007
Water body	Swarupkati	31	0	420	0.014
Water body	Swarupkati	31	0	429	0.003
Water body	Swarupkati	31	0	495	0.005
Water body	Swarupkati	31	0	673	0.088
Water body	Swarupkati	31	0	427	0.000
Water body	Swarupkati	31	0	502	0.070
Water body	Swarupkati	31	0	422	0.060
Water body	Swarupkati	31	0	424	0.015
Water body	Swarupkati	31	0	499	0.045
Water body	Swarupkati	31	0	423	0.001
Water body	Swarupkati	31	0	497	0.010
Water body	Swarupkati	31	0	498	0.006
Water body	Swarupkati	31	0	676	0.094
Water body	Swarupkati	31	0	511	0.042
Water body	Swarupkati	31	0	592	0.003
Water body	Swarupkati	31	0	509	0.160
Water body	Swarupkati	31	0	505	0.084
Water body	Swarupkati	31	0	514	3.831
Water body	Swarupkati	31	0	542	0.006
Water body	Swarupkati	31	0	556	0.074
Water body	Swarupkati	31	0	555	0.129
Water body	Swarupkati	31	0	510	0.001
Water body	Swarupkati	31	0	574	0.497
Water body	Swarupkati	31	0	508	0.056

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Swarupkati	31	0	507	0.002
Water body	Swarupkati	31	0	521	0.010
Water body	Swarupkati	31	0	597	0.000
Water body	Swarupkati	31	0	522	0.019
Water body	Swarupkati	31	0	599	0.002
Water body	Swarupkati	31	0	546	0.231
Water body	Swarupkati	31	0	554	0.024
Water body	Swarupkati	31	0	596	0.001
Water body	Swarupkati	31	0	523	0.021
Water body	Swarupkati	31	0	552	0.021
Water body	Swarupkati	31	0	553	0.013
Water body	Swarupkati	31	0	545	0.004
Water body	Swarupkati	31	0	540	0.289
Water body	Swarupkati	31	0	557	0.082
Water body	Swarupkati	31	0	524	0.022
Water body	Swarupkati	31	0	558	0.061
Water body	Swarupkati	31	0	533	0.043
Water body	Swarupkati	31	0	541	0.012
Water body	Swarupkati	31	0	525	0.025
Water body	Swarupkati	31	0	526	0.045
Water body	Swarupkati	31	0	550	0.020
Water body	Swarupkati	31	0	531	0.003
Water body	Swarupkati	31	0	527	0.046
Water body	Swarupkati	31	0	538	0.030
Water body	Swarupkati	31	0	539	0.043
Water body	Swarupkati	31	0	532	0.000
Water body	Swarupkati	31	0	595	0.000
Water body	Swarupkati	31	0	528	0.094
Water body	Swarupkati	31	0	551	0.032
Water body	Swarupkati	31	0	593	0.009
Water body	Swarupkati	31	0	195	59.728
Water body	Jagannathkati	29	1	285	0.000
Water body	Jagannathkati	29	1	286	0.004
Water body	Jagannathkati	29	1	287	0.060
Water body	Jagannathkati	29	1	288	0.051
Water body	Jagannathkati	29	1	381	0.000
Water body	Jagannathkati	29	1	365	0.043
Water body	Jagannathkati	29	1	380	0.016
Water body	Jagannathkati	29	1	377	0.013
Water body	Jagannathkati	29	1	372	0.010
Water body	Jagannathkati	29	1	360	0.342
Water body	Jagannathkati	29	1	22222	0.011
Water body	Jagannathkati	29	1	366	0.058
Water body	Jagannathkati	29	1	290	0.088
Water body	Jagannathkati	29	1	374	0.000
Water body	Jagannathkati	29	1	361	0.072
Water body	Jagannathkati	29	1	375	0.027
Water body	Jagannathkati	29	1	376	0.002
Water body	Jagannathkati	29	1	945	0.000
Water body	Jagannathkati	29	1	291	0.044
Water body	Jagannathkati	29	1	293	0.012
Water body	Jagannathkati	29	1	408	0.000
Water body	Jagannathkati	29	1	363	0.007
Water body	Jagannathkati	29	1	294	0.003
Water body	Jagannathkati	29	1	318	0.004
Water body	Jagannathkati	29	1	409	0.000
Water body	Jagannathkati	29	1	317	0.010
Water body	Jagannathkati	29	1	292	0.008
Water body	Jagannathkati	29	1	312	0.035
Water body	Jagannathkati	29	1	327	0.031
Water body	Jagannathkati	29	1	295	0.209
Water body	Jagannathkati	29	1	354	0.055
Water body	Jagannathkati	29	1	355	0.054

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Jagannathkati	29	1	307	0.015
Water body	Jagannathkati	29	1	306	0.068
Water body	Jagannathkati	29	1	358	0.469
Water body	Jagannathkati	29	1	359	0.002
Water body	Jagannathkati	29	1	411	0.014
Water body	Jagannathkati	29	1	412	0.000
Water body	Jagannathkati	29	1	304	0.023
Water body	Jagannathkati	29	1	323	0.050
Water body	Jagannathkati	29	1	297	0.001
Water body	Jagannathkati	29	1	425	0.012
Water body	Jagannathkati	29	1	322	0.040
Water body	Jagannathkati	29	1	413	0.028
Water body	Jagannathkati	29	1	420	0.156
Water body	Jagannathkati	29	1	309	0.002
Water body	Jagannathkati	29	1	308	0.001
Water body	Jagannathkati	29	1	415	0.008
Water body	Jagannathkati	29	1	414	0.017
Water body	Jagannathkati	29	1	332	0.226
Water body	Jagannathkati	29	1	311	0.012
Water body	Jagannathkati	29	1	310	0.014
Water body	Jagannathkati	29	1	298	0.004
Water body	Jagannathkati	29	1	353	0.001
Water body	Jagannathkati	29	1	352	0.007
Water body	Jagannathkati	29	1	416	0.019
Water body	Jagannathkati	29	1	357	0.185
Water body	Jagannathkati	29	1	22222	0.014
Water body	Jagannathkati	29	1	356	0.079
Water body	Jagannathkati	29	1	299	0.001
Water body	Jagannathkati	29	1	417	0.001
Water body	Jagannathkati	29	1	328	0.048
Water body	Jagannathkati	29	1	418	0.000
Water body	Jagannathkati	29	1	421	0.065
Water body	Jagannathkati	29	1	334	0.015
Water body	Jagannathkati	29	1	348	0.271
Water body	Jagannathkati	29	1	422	0.099
Water body	Jagannathkati	29	1	330	0.109
Water body	Jagannathkati	29	1	433	0.087
Water body	Jagannathkati	29	1	435	0.010
Water body	Jagannathkati	29	1	343	0.058
Water body	Jagannathkati	29	1	423	0.027
Water body	Jagannathkati	29	1	342	0.028
Water body	Jagannathkati	29	1	340	0.217
Water body	Jagannathkati	29	1	344	0.000
Water body	Jagannathkati	29	1	350	0.003
Water body	Jagannathkati	29	1	349	0.086
Water body	Jagannathkati	29	1	436	0.000
Water body	Jagannathkati	29	1	426	0.050
Water body	Jagannathkati	29	1	427	0.073
Water body	Jagannathkati	29	1	338	0.001
Water body	Jagannathkati	29	1	428	0.009
Water body	Jagannathkati	29	1	429	0.004
Water body	Jagannathkati	29	1	432	0.005
Water body	Jagannathkati	29	1	430	0.003
Water body	Jagannathkati	29	1	431	0.012
Water body	Jagannathkati	29	2	840	0.091
Water body	Jagannathkati	29	2	844	0.000
Water body	Jagannathkati	29	2	684	0.016
Water body	Jagannathkati	29	2	698	0.035
Water body	Jagannathkati	29	2	689	0.030
Water body	Jagannathkati	29	2	685	0.104
Water body	Jagannathkati	29	2	777	1.280
Water body	Jagannathkati	29	2	700	0.169
Water body	Jagannathkati	29	2	688	0.004

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Jagannathkati	29	2	683	0.230
Water body	Jagannathkati	29	2	686	0.504
Water body	Jagannathkati	29	2	697	0.159
Water body	Jagannathkati	29	2	701	0.385
Water body	Jagannathkati	29	2	696	0.116
Water body	Jagannathkati	29	2	681	0.255
Water body	Jagannathkati	29	2	695	0.026
Water body	Jagannathkati	29	2	680	0.116
Water body	Jagannathkati	29	2	702	0.163
Water body	Jagannathkati	29	2	679	0.258
Water body	Jagannathkati	29	2	675	0.255
Water body	Jagannathkati	29	2	678	0.000
Water body	Jagannathkati	29	2	676	0.027
Water body	Jagannathkati	29	2	669	0.250
Water body	Jagannathkati	29	2	706	0.216
Water body	Jagannathkati	29	2	668	0.051
Water body	Jagannathkati	29	2	677	0.106
Water body	Jagannathkati	29	2	667	0.040
Water body	Jagannathkati	29	2	626	0.015
Water body	Jagannathkati	29	2	625	0.120
Water body	Jagannathkati	29	2	624	0.010
Water body	Jagannathkati	29	2	666	0.012
Water body	Jagannathkati	29	2	623	0.202
Water body	Jagannathkati	29	2	627	0.041
Water body	Jagannathkati	29	2	662	0.066
Water body	Jagannathkati	29	2	620	0.002
Water body	Jagannathkati	29	2	621	0.089
Water body	Jagannathkati	29	2	629	0.061
Water body	Jagannathkati	29	2	630	0.012
Water body	Jagannathkati	29	2	613	0.014
Water body	Jagannathkati	29	2	614	0.002
Water body	Jagannathkati	29	2	652	0.009
Water body	Jagannathkati	29	2	631	0.163
Water body	Jagannathkati	29	2	612	0.069
Water body	Jagannathkati	29	2	634	0.053
Water body	Jagannathkati	29	2	703	0.037
Water body	Jagannathkati	29	2	605	0.001
Water body	Jagannathkati	29	2	602	0.080
Water body	Jagannathkati	29	2	638	0.046
Water body	Jagannathkati	29	2	606	0.055
Water body	Jagannathkati	29	2	622	0.038
Water body	Jagannathkati	29	2	601	0.014
Water body	Jagannathkati	29	2	609	0.015
Water body	Jagannathkati	29	2	608	0.637
Water body	Jagannathkati	29	2	617	0.061
Water body	Jayapatipatti	30	0	197	0.000
Water body	Swarupkati	31	0	7	0.826
Water body	Swarupkati	31	0	8	0.356
Water body	Swarupkati	31	0	71	0.754
Water body	Swarupkati	31	0	82	0.848
Water body	Swarupkati	31	0	73	1.550
Water body	Swarupkati	31	0	72	1.015
Water body	Swarupkati	31	0	86	0.000
Water body	Swarupkati	31	0	74	5.572
Water body	Swarupkati	31	0	79	0.135
Water body	Swarupkati	31	0	117	0.005
Water body	Swarupkati	31	0	122	0.226
Water body	Swarupkati	31	0	125	0.004
Water body	Swarupkati	31	0	124	0.225
Water body	Swarupkati	31	0	78	0.183
Water body	Swarupkati	31	0	131	0.063
Water body	Swarupkati	31	0	173	0.061
Water body	Swarupkati	31	0	77	0.142

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Swarupkati	31	0	76	0.666
Water body	Swarupkati	31	0	75	0.335
Water body	Swarupkati	31	0	168	0.015
Water body	Swarupkati	31	0	169	0.023
Water body	Swarupkati	31	0	167	0.035
Water body	Swarupkati	31	0	191	2.246
Water body	Swarupkati	31	0	164	0.024
Water body	Swarupkati	31	0	600	0.000
Water body	Swarupkati	31	0	190	0.382
Water body	Swarupkati	31	0	188	0.357
Water body	Swarupkati	31	0	145	0.126
Water body	Swarupkati	31	0	138	0.187
Water body	Swarupkati	31	0	144	0.014
Water body	Swarupkati	31	0	189	0.052
Water body	Swarupkati	31	0	187	0.499
Water body	Swarupkati	31	0	176	0.085
Water body	Swarupkati	31	0	185	1.633
Water body	Swarupkati	31	0	240	0.039
Water body	Swarupkati	31	0	163	0.036
Water body	Swarupkati	31	0	228	0.008
Water body	Swarupkati	31	0	186	0.728
Water body	Swarupkati	31	0	179	0.080
Water body	Swarupkati	31	0	146	0.236
Water body	Swarupkati	31	0	160	0.006
Water body	Swarupkati	31	0	192	2.733
Water body	Swarupkati	31	0	143	0.012
Water body	Swarupkati	31	0	182	0.225
Water body	Swarupkati	31	0	162	0.132
Water body	Swarupkati	31	0	205	0.207
Water body	Swarupkati	31	0	183	0.581
Water body	Swarupkati	31	0	140	0.006
Water body	Swarupkati	31	0	184	0.034
Water body	Swarupkati	31	0	177	0.102
Water body	Swarupkati	31	0	199	0.558
Water body	Swarupkati	31	0	242	0.236
Water body	Swarupkati	31	0	200	0.182
Water body	Swarupkati	31	0	180	0.016
Water body	Swarupkati	31	0	193	0.480
Water body	Swarupkati	31	0	204	0.372
Water body	Swarupkati	31	0	159	0.126
Water body	Swarupkati	31	0	243	0.012
Water body	Swarupkati	31	0	241	0.073
Water body	Swarupkati	31	0	206	0.174
Water body	Swarupkati	31	0	147	0.009
Water body	Swarupkati	31	0	201	0.124
Water body	Swarupkati	31	0	148	0.059
Water body	Swarupkati	31	0	203	0.084
Water body	Swarupkati	31	0	208	0.699
Water body	Swarupkati	31	0	202	0.176
Water body	Swarupkati	31	0	194	0.192
Water body	Swarupkati	31	0	207	0.122
Water body	Swarupkati	31	0	239	0.006
Water body	Swarupkati	31	0	198	0.345
Water body	Swarupkati	31	0	196	0.791
Water body	Swarupkati	31	0	211	0.361
Water body	Swarupkati	31	0	210	0.034
Water body	Swarupkati	31	0	244	0.240
Water body	Swarupkati	31	0	627	1.832
Water body	Swarupkati	31	0	236	0.027
Water body	Swarupkati	31	0	209	0.095
Water body	Swarupkati	31	0	224	0.091
Water body	Swarupkati	31	0	235	0.015
Water body	Swarupkati	31	0	212	0.137

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Swarupkati	31	0	158	0.084
Water body	Swarupkati	31	0	591	0.277
Water body	Swarupkati	31	0	223	0.122
Water body	Swarupkati	31	0	227	0.007
Water body	Swarupkati	31	0	231	0.005
Water body	Swarupkati	31	0	213	0.173
Water body	Swarupkati	31	0	214	0.142
Water body	Swarupkati	31	0	215	0.031
Water body	Swarupkati	31	0	219	0.305
Water body	Swarupkati	31	0	197	0.174
Water body	Swarupkati	31	0	229	0.037
Water body	Swarupkati	31	0	245	0.000
Water body	Swarupkati	31	0	216	0.233
Water body	Swarupkati	31	0	291	0.489
Water body	Swarupkati	31	0	222	0.013
Water body	Swarupkati	31	0	221	0.033
Water body	Swarupkati	31	0	230	0.016
Water body	Swarupkati	31	0	220	0.024
Water body	Swarupkati	31	0	217	0.101
Water body	Swarupkati	31	0	234	0.047
Water body	Swarupkati	31	0	628	0.222
Water body	Swarupkati	31	0	290	2.312
Water body	Swarupkati	31	0	292	0.109
Water body	Swarupkati	31	0	293	0.237
Water body	Swarupkati	31	0	218	0.074
Water body	Swarupkati	31	0	232	0.027
Water body	Swarupkati	31	0	294	0.353
Water body	Swarupkati	31	0	635	1.495
Water body	Swarupkati	31	0	629	0.217
Water body	Swarupkati	31	0	233	0.077
Water body	Swarupkati	31	0	630	0.358
Water body	Swarupkati	31	0	336	0.011
Water body	Swarupkati	31	0	631	0.640
Water body	Swarupkati	31	0	252	0.002
Water body	Swarupkati	31	0	256	0.023
Water body	Swarupkati	31	0	632	0.285
Water body	Swarupkati	31	0	296	0.654
Water body	Swarupkati	31	0	253	0.108
Water body	Swarupkati	31	0	295	0.248
Water body	Swarupkati	31	0	257	0.032
Water body	Swarupkati	31	0	258	0.037
Water body	Swarupkati	31	0	249	0.053
Water body	Swarupkati	31	0	297	0.381
Water body	Swarupkati	31	0	639	0.808
Water body	Swarupkati	31	0	298	0.035
Water body	Swarupkati	31	0	259	0.001
Water body	Swarupkati	31	0	301	0.013
Water body	Swarupkati	31	0	634	0.206
Water body	Swarupkati	31	0	322	0.134
Water body	Swarupkati	31	0	633	1.271
Water body	Swarupkati	31	0	283	0.032
Water body	Swarupkati	31	0	278	0.160
Water body	Swarupkati	31	0	251	0.004
Water body	Swarupkati	31	0	300	0.206
Water body	Swarupkati	31	0	287	0.114
Water body	Swarupkati	31	0	302	0.772
Water body	Swarupkati	31	0	637	0.031
Water body	Swarupkati	31	0	299	0.029
Water body	Swarupkati	31	0	636	0.589
Water body	Swarupkati	31	0	262	0.054
Water body	Swarupkati	31	0	264	0.020
Water body	Swarupkati	31	0	643	2.950
Water body	Swarupkati	31	0	267	0.101

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Swarupkati	31	0	304	0.043
Water body	Swarupkati	31	0	638	0.072
Water body	Swarupkati	31	0	303	0.277
Water body	Swarupkati	31	0	265	0.101
Water body	Swarupkati	31	0	266	0.036
Water body	Swarupkati	31	0	640	0.290
Water body	Swarupkati	31	0	305	0.047
Water body	Swarupkati	31	0	286	0.091
Water body	Swarupkati	31	0	585	0.035
Water body	Swarupkati	31	0	307	0.229
Water body	Swarupkati	31	0	641	0.229
Water body	Swarupkati	31	0	284	0.081
Water body	Swarupkati	31	0	306	0.095
Water body	Swarupkati	31	0	323	0.618
Water body	Swarupkati	31	0	309	0.146
Water body	Swarupkati	31	0	269	0.383
Water body	Swarupkati	31	0	321	0.097
Water body	Swarupkati	31	0	308	1.461
Water body	Swarupkati	31	0	642	0.014
Water body	Swarupkati	31	0	645	0.459
Water body	Swarupkati	31	0	310	0.106
Water body	Swarupkati	31	0	644	1.174
Water body	Swarupkati	31	0	320	0.046
Water body	Swarupkati	31	0	319	0.439
Water body	Swarupkati	31	0	311	0.245
Water body	Swarupkati	31	0	275	0.092
Water body	Swarupkati	31	0	270	0.066
Water body	Swarupkati	31	0	318	0.063
Water body	Swarupkati	31	0	312	0.122
Water body	Swarupkati	31	0	646	0.059
Water body	Swarupkati	31	0	324	0.312
Water body	Swarupkati	31	0	272	0.015
Water body	Swarupkati	31	0	650	0.461
Water body	Swarupkati	31	0	314	0.043
Water body	Swarupkati	31	0	647	0.552
Water body	Swarupkati	31	0	648	0.199
Water body	Swarupkati	31	0	317	0.042
Water body	Swarupkati	31	0	313	0.235
Water body	Swarupkati	31	0	360	0.031
Water body	Swarupkati	31	0	316	0.057
Water body	Swarupkati	31	0	315	0.164
Water body	Swarupkati	31	0	651	1.954
Water body	Swarupkati	31	0	649	1.255
Water body	Swarupkati	31	0	590	0.029
Water body	Swarupkati	31	0	325	1.134
Water body	Swarupkati	31	0	326	0.169
Water body	Swarupkati	31	0	361	0.016
Water body	Swarupkati	31	0	652	0.750
Water body	Swarupkati	31	0	655	0.545
Water body	Swarupkati	31	0	654	1.158
Water body	Swarupkati	31	0	359	0.047
Water body	Swarupkati	31	0	329	0.233
Water body	Swarupkati	31	0	653	1.380
Water body	Swarupkati	31	0	331	0.178
Water body	Swarupkati	31	0	334	0.040
Water body	Swarupkati	31	0	473	0.822
Water body	Swarupkati	31	0	358	0.190
Water body	Swarupkati	31	0	656	0.670
Water body	Swarupkati	31	0	377	0.049
Water body	Swarupkati	31	0	657	0.292
Water body	Swarupkati	31	0	472	0.489
Water body	Swarupkati	31	0	660	1.197
Water body	Swarupkati	31	0	373	0.029

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Swarupkati	31	0	474	1.381
Water body	Swarupkati	31	0	658	0.189
Water body	Swarupkati	31	0	375	0.029
Water body	Swarupkati	31	0	659	0.242
Water body	Swarupkati	31	0	376	0.012
Water body	Swarupkati	31	0	372	0.026
Water body	Swarupkati	31	0	457	0.120
Water body	Swarupkati	31	0	475	0.331
Water body	Swarupkati	31	0	453	0.030
Water body	Swarupkati	31	0	661	0.392
Water body	Swarupkati	31	0	451	0.000
Water body	Swarupkati	31	0	455	0.005
Water body	Swarupkati	31	0	662	0.264
Water body	Swarupkati	31	0	454	0.020
Water body	Swarupkati	31	0	458	0.005
Water body	Swarupkati	31	0	663	1.751
Water body	Swarupkati	31	0	664	1.104
Water body	Swarupkati	31	0	665	0.601
Water body	Swarupkati	31	0	459	0.073
Water body	Swarupkati	31	0	477	0.030
Water body	Swarupkati	31	0	671	0.365
Water body	Swarupkati	31	0	487	0.000
Water body	Swarupkati	31	0	483	0.003
Water body	Swarupkati	31	0	489	0.000
Water body	Swarupkati	31	0	666	0.236
Water body	Swarupkati	31	0	668	0.802
Water body	Swarupkati	31	0	667	0.426
Water body	Swarupkati	31	0	479	0.009
Water body	Swarupkati	31	0	481	0.065
Water body	Swarupkati	31	0	669	0.138
Water body	Swarupkati	31	0	670	0.191
Water body	Swarupkati	31	0	480	0.481
Water body	Swarupkati	31	0	672	0.000
Water body	Swarupkati	31	0	128	0.873
Water body	Swarupkati	31	0	139	0.008
Water body	Swarupkati	31	0	6	46.177
Water body	Swarupkati	31	0	195	1.725
Water body	Swarupkati	31	0	195	98.690
Water body	Jayapatipatti	30	0	196	19.161
Water body	Jayapatipatti	30	0	1	0.062
Water body	Jayapatipatti	30	0	2	0.079
Water body	Jayapatipatti	30	0	3	0.017
Water body	Jayapatipatti	30	0	22	0.104
Water body	Jayapatipatti	30	0	23	0.259
Water body	Jayapatipatti	30	0	21	0.045
Water body	Jayapatipatti	30	0	8	0.003
Water body	Jayapatipatti	30	0	65	0.035
Water body	Jayapatipatti	30	0	70	0.053
Water body	Jayapatipatti	30	0	12	0.050
Water body	Jayapatipatti	30	0	10	0.014
Water body	Jayapatipatti	30	0	11	0.002
Water body	Jayapatipatti	30	0	62	0.023
Water body	Jayapatipatti	30	0	66	0.020
Water body	Jayapatipatti	30	0	61	0.027
Water body	Jayapatipatti	30	0	13	0.043
Water body	Jayapatipatti	30	0	20	0.114
Water body	Jayapatipatti	30	0	14	0.005
Water body	Jayapatipatti	30	0	37	0.492
Water body	Jayapatipatti	30	0	192	0.031
Water body	Jayapatipatti	30	0	59	0.111
Water body	Jayapatipatti	30	0	73	0.003
Water body	Jayapatipatti	30	0	60	0.094
Water body	Jayapatipatti	30	0	77	0.076

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Jayapatipatti	30	0	33	0.117
Water body	Jayapatipatti	30	0	194	0.002
Water body	Jayapatipatti	30	0	40	0.034
Water body	Jayapatipatti	30	0	58	0.036
Water body	Jayapatipatti	30	0	39	0.194
Water body	Jayapatipatti	30	0	56	0.090
Water body	Jayapatipatti	30	0	74	0.035
Water body	Jayapatipatti	30	0	38	0.039
Water body	Jayapatipatti	30	0	81	0.027
Water body	Jayapatipatti	30	0	15	0.019
Water body	Jayapatipatti	30	0	19	0.121
Water body	Jayapatipatti	30	0	50	0.164
Water body	Jayapatipatti	30	0	52	0.031
Water body	Jayapatipatti	30	0	44	0.058
Water body	Jayapatipatti	30	0	16	0.124
Water body	Jayapatipatti	30	0	80	0.021
Water body	Jayapatipatti	30	0	200	0.058
Water body	Jayapatipatti	30	0	79	0.002
Water body	Jayapatipatti	30	0	42	0.000
Water body	Jayapatipatti	30	0	198	0.077
Water body	Jayapatipatti	30	0	83	0.000
Water body	Jayapatipatti	30	0	191	0.142
Water body	Jayapatipatti	30	0	43	0.037
Water body	Jayapatipatti	30	0	86	0.000
Water body	Jayapatipatti	30	0	46	0.051
Water body	Jayapatipatti	30	0	84	0.002
Water body	Jayapatipatti	30	0	47	0.000
Water body	Jayapatipatti	30	0	116	0.001
Water body	Jayapatipatti	30	0	133	0.056
Water body	Jayapatipatti	30	0	115	0.007
Water body	Jayapatipatti	30	0	85	0.001
Water body	Jayapatipatti	30	0	118	0.103
Water body	Jayapatipatti	30	0	120	0.041
Water body	Jayapatipatti	30	0	88	0.036
Water body	Jayapatipatti	30	0	114	0.000
Water body	Jayapatipatti	30	0	93	0.126
Water body	Jayapatipatti	30	0	111	0.068
Water body	Jayapatipatti	30	0	117	0.297
Water body	Jayapatipatti	30	0	119	0.088
Water body	Jayapatipatti	30	0	90	0.015
Water body	Jayapatipatti	30	0	122	0.011
Water body	Jayapatipatti	30	0	126	0.050
Water body	Jayapatipatti	30	0	94	0.003
Water body	Jayapatipatti	30	0	134	0.013
Water body	Jayapatipatti	30	0	129	0.008
Water body	Jayapatipatti	30	0	96	0.029
Water body	Jayapatipatti	30	0	97	0.020
Water body	Jayapatipatti	30	0	127	0.046
Water body	Jayapatipatti	30	0	98	0.031
Water body	Jayapatipatti	30	0	132	0.204
Water body	Jayapatipatti	30	0	112	0.016
Water body	Jayapatipatti	30	0	130	0.158
Water body	Jayapatipatti	30	0	131	0.353
Water body	Jayapatipatti	30	0	108	0.004
Water body	Jayapatipatti	30	0	104	0.225
Water body	Jayapatipatti	30	0	102	0.127
Water body	Jayapatipatti	30	0	137	0.012
Water body	Jayapatipatti	30	0	107	0.144
Water body	Jayapatipatti	30	0	185	0.161
Water body	Jayapatipatti	30	0	138	0.027
Water body	Jayapatipatti	30	0	110	0.007
Water body	Jayapatipatti	30	0	105	0.302
Water body	Jayapatipatti	30	0	197	2.902

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Jayapatipatti	30	0	142	0.024
Water body	Jayapatipatti	30	0	109	0.038
Water body	Jayapatipatti	30	0	155	0.076
Water body	Jayapatipatti	30	0	156	0.073
Water body	Jayapatipatti	30	0	157	0.006
Water body	Jayapatipatti	30	0	106	0.002
Water body	Jayapatipatti	30	0	103	0.043
Water body	Jayapatipatti	30	0	158	0.017
Water body	Jayapatipatti	30	0	159	0.011
Water body	Jayapatipatti	30	0	154	0.111
Water body	Jayapatipatti	30	0	153	0.149
Water body	Jayapatipatti	30	0	144	0.049
Water body	Jayapatipatti	30	0	101	0.008
Water body	Jayapatipatti	30	0	160	0.001
Water body	Jayapatipatti	30	0	178	0.063
Water body	Jayapatipatti	30	0	145	0.004
Water body	Jayapatipatti	30	0	184	0.057
Water body	Jayapatipatti	30	0	164	0.003
Water body	Jayapatipatti	30	0	146	0.012
Water body	Jayapatipatti	30	0	161	0.002
Water body	Jayapatipatti	30	0	173	0.073
Water body	Jayapatipatti	30	0	169	0.018
Water body	Jayapatipatti	30	0	176	0.254
Water body	Jayapatipatti	30	0	165	0.012
Water body	Jayapatipatti	30	0	174	0.024
Water body	Jayapatipatti	30	0	189	3.551
Water body	Jayapatipatti	30	0	175	0.014
Water body	Jayapatipatti	30	0	183	0.012
Water body	Jayapatipatti	30	0	181	0.037
Water body	Jayapatipatti	30	0	190	0.026
Water body	Jayapatipatti	30	0	186	0.164
Water body	Jayapatipatti	30	0	125	0.094
Water body	Jayapatipatti	30	0	125	19.254
Water body	Jagannathkati	29	1	3	0.001
Water body	Jagannathkati	29	1	229	0.000
Water body	Jagannathkati	29	1	22222	0.000
Water body	Jagannathkati	29	1	22222	0.000
Water body	Jagannathkati	29	1	262	0.000
Water body	Jagannathkati	29	1	246	0.000
Water body	Swarupkati	31	0	128	0.000
Water body	Swarupkati	31	0	6	0.001
Water body	Akalam	28	0	1	0.014
Water body	Akalam	28	0	2	0.002
Water body	Akalam	28	0	374	0.001
Water body	Akalam	28	0	375	0.016
Water body	Akalam	28	0	7	0.028
Water body	Akalam	28	0	9	0.110
Water body	Akalam	28	0	8	0.185
Water body	Akalam	28	0	243	0.517
Water body	Akalam	28	0	179	0.326
Water body	Akalam	28	0	182	0.001
Water body	Akalam	28	0	13	0.154
Water body	Akalam	28	0	11	0.047
Water body	Akalam	28	0	12	0.018
Water body	Akalam	28	0	15	0.167
Water body	Akalam	28	0	228	0.396
Water body	Akalam	28	0	14	0.014
Water body	Akalam	28	0	177	0.081
Water body	Akalam	28	0	21	0.034
Water body	Akalam	28	0	19	0.032
Water body	Akalam	28	0	260	0.187
Water body	Akalam	28	0	18	0.042
Water body	Akalam	28	0	355	0.321

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Akalam	28	0	259	0.130
Water body	Akalam	28	0	249	0.031
Water body	Akalam	28	0	258	0.004
Water body	Akalam	28	0	257	0.108
Water body	Akalam	28	0	31	0.015
Water body	Akalam	28	0	255	0.014
Water body	Akalam	28	0	189	0.019
Water body	Akalam	28	0	240	0.021
Water body	Akalam	28	0	254	0.034
Water body	Akalam	28	0	238	0.176
Water body	Akalam	28	0	196	0.002
Water body	Akalam	28	0	239	0.100
Water body	Akalam	28	0	197	0.007
Water body	Akalam	28	0	274	0.022
Water body	Akalam	28	0	203	0.000
Water body	Akalam	28	0	253	0.020
Water body	Akalam	28	0	208	0.062
Water body	Akalam	28	0	267	0.022
Water body	Akalam	28	0	202	0.015
Water body	Akalam	28	0	268	0.033
Water body	Akalam	28	0	283	0.044
Water body	Akalam	28	0	25	0.006
Water body	Akalam	28	0	150	0.070
Water body	Akalam	28	0	269	0.040
Water body	Akalam	28	0	151	0.001
Water body	Akalam	28	0	201	0.058
Water body	Akalam	28	0	198	0.003
Water body	Akalam	28	0	230	0.007
Water body	Akalam	28	0	285	0.013
Water body	Akalam	28	0	237	0.175
Water body	Akalam	28	0	320	0.267
Water body	Akalam	28	0	231	0.052
Water body	Akalam	28	0	289	0.024
Water body	Akalam	28	0	26	0.002
Water body	Akalam	28	0	270	0.021
Water body	Akalam	28	0	41	0.003
Water body	Akalam	28	0	44	0.054
Water body	Akalam	28	0	221	0.132
Water body	Akalam	28	0	299	0.007
Water body	Akalam	28	0	234	0.020
Water body	Akalam	28	0	376	0.072
Water body	Akalam	28	0	300	0.101
Water body	Akalam	28	0	280	0.005
Water body	Akalam	28	0	271	0.004
Water body	Akalam	28	0	209	0.140
Water body	Akalam	28	0	288	0.048
Water body	Akalam	28	0	27	0.131
Water body	Akalam	28	0	286	0.014
Water body	Akalam	28	0	219	0.002
Water body	Akalam	28	0	287	0.013
Water body	Akalam	28	0	291	0.047
Water body	Akalam	28	0	235	0.109
Water body	Akalam	28	0	292	0.011
Water body	Akalam	28	0	220	0.051
Water body	Akalam	28	0	293	0.010
Water body	Akalam	28	0	294	0.049
Water body	Akalam	28	0	303	0.080
Water body	Akalam	28	0	214	0.255
Water body	Akalam	28	0	45	0.173
Water body	Akalam	28	0	215	0.002
Water body	Akalam	28	0	311	0.002
Water body	Akalam	28	0	308	0.033
Water body	Akalam	28	0	148	0.046

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Akalam	28	0	321	0.000
Water body	Akalam	28	0	304	0.252
Water body	Akalam	28	0	135	0.259
Water body	Akalam	28	0	324	0.003
Water body	Akalam	28	0	306	0.095
Water body	Akalam	28	0	55	0.351
Water body	Akalam	28	0	217	0.002
Water body	Akalam	28	0	216	0.020
Water body	Akalam	28	0	47	0.001
Water body	Akalam	28	0	57	0.103
Water body	Akalam	28	0	322	0.002
Water body	Akalam	28	0	349	0.019
Water body	Akalam	28	0	136	0.001
Water body	Akalam	28	0	386	0.006
Water body	Akalam	28	0	56	0.032
Water body	Akalam	28	0	305	0.003
Water body	Akalam	28	0	137	0.018
Water body	Akalam	28	0	134	0.000
Water body	Akalam	28	0	72	0.030
Water body	Akalam	28	0	370	0.079
Water body	Akalam	28	0	350	0.266
Water body	Akalam	28	0	360	0.051
Water body	Akalam	28	0	133	0.074
Water body	Akalam	28	0	330	0.030
Water body	Akalam	28	0	329	0.108
Water body	Akalam	28	0	48	0.013
Water body	Akalam	28	0	138	0.311
Water body	Akalam	28	0	327	0.010
Water body	Akalam	28	0	78	0.036
Water body	Akalam	28	0	58	0.029
Water body	Akalam	28	0	59	0.027
Water body	Akalam	28	0	79	0.178
Water body	Akalam	28	0	60	0.028
Water body	Akalam	28	0	61	0.034
Water body	Akalam	28	0	62	0.016
Water body	Akalam	28	0	81	0.151
Water body	Akalam	28	0	86	0.009
Water body	Akalam	28	0	351	0.127
Water body	Akalam	28	0	67	0.053
Water body	Akalam	28	0	85	0.003
Water body	Akalam	28	0	352	0.114
Water body	Akalam	28	0	109	0.026
Water body	Akalam	28	0	92	0.004
Water body	Akalam	28	0	353	0.262
Water body	Akalam	28	0	84	0.004
Water body	Akalam	28	0	76	0.000
Water body	Akalam	28	0	331	0.009
Water body	Akalam	28	0	333	0.812
Water body	Akalam	28	0	343	0.080
Water body	Akalam	28	0	94	0.009
Water body	Akalam	28	0	106	0.101
Water body	Akalam	28	0	103	0.045
Water body	Akalam	28	0	66	0.010
Water body	Akalam	28	0	93	0.007
Water body	Akalam	28	0	334	0.051
Water body	Akalam	28	0	354	0.150
Water body	Akalam	28	0	83	0.037
Water body	Akalam	28	0	335	0.777
Water body	Akalam	28	0	382	0.006
Water body	Akalam	28	0	381	0.042
Water body	Akalam	28	0	384	0.003
Water body	Akalam	28	0	101	0.041
Water body	Akalam	28	0	336	0.812

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Akalam	28	0	102	0.015
Water body	Akalam	28	0	75	0.052
Water body	Akalam	28	0	69	0.056
Water body	Akalam	28	0	97	0.015
Water body	Akalam	28	0	342	0.067
Water body	Akalam	28	0	73	0.024
Water body	Akalam	28	0	338	0.046
Water body	Akalam	28	0	110	0.055
Water body	Akalam	28	0	341	0.345
Water body	Akalam	28	0	115	0.072
Water body	Akalam	28	0	377	2.659
Water body	Akalam	28	0	70	0.019
Water body	Akalam	28	0	356	0.109
Water body	Akalam	28	0	100	0.001
Water body	Akalam	28	0	111	0.059
Water body	Akalam	28	0	114	0.077
Water body	Akalam	28	0	120	0.009
Water body	Akalam	28	0	80	0.002
Water body	Akalam	28	0	337	0.002
Water body	Akalam	28	0	339	0.045
Water body	Akalam	28	0	108	3.273
Water body	Akalam	28	0	357	0.399
Water body	Akalam	28	0	118	0.003
Water body	Akalam	28	0	117	0.000
Water body	Akalam	28	0	332	0.138
Water body	Akalam	28	0	22222	1.374
Water body	Akalam	28	0	340	0.482
Water body	Akalam	28	0	358	0.500
Water body	Akalam	28	0	99999	0.870
Water body	Jagannathkati	29	1	123	0.000
Water body	Jagannathkati	29	1	124	0.000
Water body	Jagannathkati	29	1	284	0.000
Water body	Jagannathkati	29	1	131	0.000
Water body	Sultanpur Alankarkati	12	0	4	0.041
Water body	Sultanpur Alankarkati	12	0	16	0.411
Water body	Sultanpur Alankarkati	12	0	5	0.395
Water body	Sultanpur Alankarkati	12	0	17	0.050
Water body	Sultanpur Alankarkati	12	0	23	0.097
Water body	Sultanpur Alankarkati	12	0	19	0.000
Water body	Sultanpur Alankarkati	12	0	18	0.019
Water body	Sultanpur Alankarkati	12	0	6	0.007
Water body	Sultanpur Alankarkati	12	0	25	0.033
Water body	Sultanpur Alankarkati	12	0	30	0.006
Water body	Sultanpur Alankarkati	12	0	7	0.014
Water body	Sultanpur Alankarkati	12	0	24	0.033
Water body	Sultanpur Alankarkati	12	0	12	0.005
Water body	Sultanpur Alankarkati	12	0	33	0.001
Water body	Sultanpur Alankarkati	12	0	8	0.147
Water body	Sultanpur Alankarkati	12	0	104	0.152
Water body	Sultanpur Alankarkati	12	0	14	0.083
Water body	Sultanpur Alankarkati	12	0	26	0.004
Water body	Sultanpur Alankarkati	12	0	10	0.002
Water body	Sultanpur Alankarkati	12	0	34	0.040
Water body	Sultanpur Alankarkati	12	0	96	0.001
Water body	Sultanpur Alankarkati	12	0	95	0.001
Water body	Sultanpur Alankarkati	12	0	35	0.024
Water body	Sultanpur Alankarkati	12	0	37	0.007
Water body	Sultanpur Alankarkati	12	0	108	0.099
Water body	Sultanpur Alankarkati	12	0	38	0.000
Water body	Sultanpur Alankarkati	12	0	94	0.010
Water body	Sultanpur Alankarkati	12	0	39	0.003
Water body	Sultanpur Alankarkati	12	0	128	0.000
Water body	Sultanpur Alankarkati	12	0	85	0.001

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Sultanpur Alankarkati	12	0	155	0.135
Water body	Sultanpur Alankarkati	12	0	163	0.030
Water body	Sultanpur Alankarkati	12	0	230	0.019
Water body	Sultanpur Alankarkati	12	0	93	0.001
Water body	Sultanpur Alankarkati	12	0	157	0.000
Water body	Sultanpur Alankarkati	12	0	144	0.014
Water body	Sultanpur Alankarkati	12	0	143	0.017
Water body	Sultanpur Alankarkati	12	0	48	0.006
Water body	Sultanpur Alankarkati	12	0	107	0.001
Water body	Sultanpur Alankarkati	12	0	46	0.005
Water body	Sultanpur Alankarkati	12	0	167	0.006
Water body	Sultanpur Alankarkati	12	0	109	0.075
Water body	Sultanpur Alankarkati	12	0	45	0.002
Water body	Sultanpur Alankarkati	12	0	40	0.049
Water body	Sultanpur Alankarkati	12	0	49	0.056
Water body	Sultanpur Alankarkati	12	0	110	0.010
Water body	Sultanpur Alankarkati	12	0	111	0.133
Water body	Sultanpur Alankarkati	12	0	51	0.001
Water body	Sultanpur Alankarkati	12	0	44	0.005
Water body	Sultanpur Alankarkati	12	0	124	0.050
Water body	Sultanpur Alankarkati	12	0	41	0.001
Water body	Sultanpur Alankarkati	12	0	112	0.031
Water body	Sultanpur Alankarkati	12	0	140	0.016
Water body	Sultanpur Alankarkati	12	0	42	0.006
Water body	Sultanpur Alankarkati	12	0	168	0.028
Water body	Sultanpur Alankarkati	12	0	74	0.034
Water body	Sultanpur Alankarkati	12	0	169	0.088
Water body	Sultanpur Alankarkati	12	0	43	0.002
Water body	Sultanpur Alankarkati	12	0	519	0.000
Water body	Sultanpur Alankarkati	12	0	83	0.078
Water body	Sultanpur Alankarkati	12	0	56	0.017
Water body	Sultanpur Alankarkati	12	0	148	0.063
Water body	Sultanpur Alankarkati	12	0	130	0.005
Water body	Sultanpur Alankarkati	12	0	81	0.006
Water body	Sultanpur Alankarkati	12	0	138	0.102
Water body	Sultanpur Alankarkati	12	0	233	0.054
Water body	Sultanpur Alankarkati	12	0	113	0.026
Water body	Sultanpur Alankarkati	12	0	55	0.010
Water body	Sultanpur Alankarkati	12	0	123	0.000
Water body	Sultanpur Alankarkati	12	0	114	0.000
Water body	Sultanpur Alankarkati	12	0	153	0.000
Water body	Sultanpur Alankarkati	12	0	54	0.010
Water body	Sultanpur Alankarkati	12	0	118	0.051
Water body	Sultanpur Alankarkati	12	0	121	1.687
Water body	Sultanpur Alankarkati	12	0	151	0.001
Water body	Sultanpur Alankarkati	12	0	135	0.001
Water body	Sultanpur Alankarkati	12	0	117	0.009
Water body	Sultanpur Alankarkati	12	0	172	0.000
Water body	Sultanpur Alankarkati	12	0	136	0.011
Water body	Sultanpur Alankarkati	12	0	232	0.001
Water body	Sultanpur Alankarkati	12	0	82	0.055
Water body	Sultanpur Alankarkati	12	0	119	0.009
Water body	Sultanpur Alankarkati	12	0	196	0.010
Water body	Sultanpur Alankarkati	12	0	195	0.020
Water body	Sultanpur Alankarkati	12	0	22222	0.009
Water body	Sultanpur Alankarkati	12	0	197	0.148
Water body	Sultanpur Alankarkati	12	0	183	0.041
Water body	Sultanpur Alankarkati	12	0	222	0.037
Water body	Sultanpur Alankarkati	12	0	201	0.079
Water body	Sultanpur Alankarkati	12	0	209	0.021
Water body	Sultanpur Alankarkati	12	0	193	0.170
Water body	Sultanpur Alankarkati	12	0	217	0.381
Water body	Sultanpur Alankarkati	12	0	216	0.018

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Sultanpur Alankarkati	12	0	185	0.022
Water body	Sultanpur Alankarkati	12	0	178	0.020
Water body	Sultanpur Alankarkati	12	0	211	0.022
Water body	Sultanpur Alankarkati	12	0	179	0.044
Water body	Sultanpur Alankarkati	12	0	228	0.156
Water body	Sultanpur Alankarkati	12	0	188	0.026
Water body	Sultanpur Alankarkati	12	0	210	0.007
Water body	Sultanpur Alankarkati	12	0	204	0.015
Water body	Sultanpur Alankarkati	12	0	192	0.058
Water body	Sultanpur Alankarkati	12	0	206	0.024
Water body	Sultanpur Alankarkati	12	0	208	0.040
Water body	Sultanpur Alankarkati	12	0	227	0.338
Water body	Sultanpur Alankarkati	12	0	213	0.105
Water body	Sultanpur Alankarkati	12	0	207	0.081
Water body	Sultanpur Alankarkati	12	0	191	0.004
Water body	Sultanpur Alankarkati	12	0	189	0.026
Water body	Sultanpur Alankarkati	12	0	214	0.000
Water body	Sultanpur Alankarkati	12	0	190	0.026
Water body	Sarshina	20	0	442	0.000
Water body	Jagannathkati	29	1	284	0.000
Water body	Jagannathkati	29	1	484	0.144
Water body	Jagannathkati	29	1	487	0.079
Water body	Jagannathkati	29	1	488	0.092
Water body	Jagannathkati	29	1	480	0.010
Water body	Jagannathkati	29	1	394	0.023
Water body	Jagannathkati	29	1	391	0.003
Water body	Jagannathkati	29	1	490	0.005
Water body	Jagannathkati	29	1	485	0.005
Water body	Jagannathkati	29	1	935	0.008
Water body	Jagannathkati	29	1	483	0.013
Water body	Jagannathkati	29	1	22222	0.004
Water body	Jagannathkati	29	1	489	0.041
Water body	Jagannathkati	29	1	501	0.002
Water body	Jagannathkati	29	1	499	0.030
Water body	Jagannathkati	29	1	383	0.007
Water body	Jagannathkati	29	1	574	0.004
Water body	Jagannathkati	29	1	493	0.069
Water body	Jagannathkati	29	1	381	0.019
Water body	Jagannathkati	29	1	514	0.020
Water body	Jagannathkati	29	1	482	0.005
Water body	Jagannathkati	29	1	380	0.000
Water body	Jagannathkati	29	1	388	0.023
Water body	Jagannathkati	29	1	382	0.160
Water body	Jagannathkati	29	1	481	0.002
Water body	Jagannathkati	29	1	396	0.042
Water body	Jagannathkati	29	1	478	0.155
Water body	Jagannathkati	29	1	479	0.008
Water body	Jagannathkati	29	1	947	0.019
Water body	Jagannathkati	29	1	475	0.146
Water body	Jagannathkati	29	1	497	0.019
Water body	Jagannathkati	29	1	477	0.007
Water body	Jagannathkati	29	1	476	0.015
Water body	Jagannathkati	29	1	474	0.011
Water body	Jagannathkati	29	1	473	0.007
Water body	Jagannathkati	29	1	468	0.053
Water body	Jagannathkati	29	1	472	0.029
Water body	Jagannathkati	29	1	471	0.037
Water body	Jagannathkati	29	1	407	0.103
Water body	Jagannathkati	29	1	406	0.025
Water body	Jagannathkati	29	1	399	0.060
Water body	Jagannathkati	29	1	401	0.018
Water body	Jagannathkati	29	1	400	0.003
Water body	Jagannathkati	29	1	460	0.067

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Jagannathkati	29	1	462	0.112
Water body	Jagannathkati	29	1	447	0.036
Water body	Jagannathkati	29	1	453	0.008
Water body	Jagannathkati	29	1	454	0.056
Water body	Jagannathkati	29	1	547	0.001
Water body	Jagannathkati	29	1	448	0.048
Water body	Jagannathkati	29	1	442	0.014
Water body	Jagannathkati	29	1	540	0.071
Water body	Jagannathkati	29	1	543	0.223
Water body	Jagannathkati	29	1	436	0.015
Water body	Jagannathkati	29	1	512	0.021
Water body	Jagannathkati	29	1	515	0.013
Water body	Jagannathkati	29	1	516	0.006
Water body	Jagannathkati	29	1	523	0.008
Water body	Jagannathkati	29	1	525	0.066
Water body	Jagannathkati	29	1	561	0.053
Water body	Jagannathkati	29	1	560	0.032
Water body	Jagannathkati	29	1	554	0.075
Water body	Jagannathkati	29	1	556	0.052
Water body	Jagannathkati	29	1	550	0.008
Water body	Jagannathkati	29	1	574	0.004
Water body	Jagannathkati	29	1	570	0.013
Water body	Jagannathkati	29	1	569	0.017
Water body	Jagannathkati	29	1	568	0.029
Water body	Jagannathkati	29	1	567	0.031
Water body	Jagannathkati	29	1	566	0.014
Water body	Jagannathkati	29	1	564	0.015
Water body	Jagannathkati	29	1	563	0.023
Water body	Jagannathkati	29	2	710	0.070
Water body	Jagannathkati	29	2	777	0.128
Water body	Jagannathkati	29	2	770	0.014
Water body	Jagannathkati	29	2	712	0.146
Water body	Jagannathkati	29	2	707	0.109
Water body	Jagannathkati	29	2	769	0.106
Water body	Jagannathkati	29	2	709	0.220
Water body	Jagannathkati	29	2	713	0.001
Water body	Jagannathkati	29	2	708	0.093
Water body	Jagannathkati	29	2	706	0.217
Water body	Jagannathkati	29	2	705	0.109
Water body	Jagannathkati	29	2	714	0.044
Water body	Jagannathkati	29	2	768	0.373
Water body	Jagannathkati	29	2	716	0.020
Water body	Jagannathkati	29	2	715	0.307
Water body	Jagannathkati	29	2	758	0.165
Water body	Jagannathkati	29	2	757	0.046
Water body	Jagannathkati	29	2	756	0.045
Water body	Jagannathkati	29	2	717	0.053
Water body	Jagannathkati	29	2	755	0.132
Water body	Jagannathkati	29	2	721	0.013
Water body	Jagannathkati	29	2	724	0.017
Water body	Jagannathkati	29	2	718	0.109
Water body	Jagannathkati	29	2	754	0.247
Water body	Jagannathkati	29	2	648	0.010
Water body	Jagannathkati	29	2	723	0.016
Water body	Jagannathkati	29	2	725	0.107
Water body	Jagannathkati	29	2	703	0.012
Water body	Jagannathkati	29	2	752	0.079
Water body	Jagannathkati	29	2	753	0.001
Water body	Jagannathkati	29	2	731	0.020
Water body	Jagannathkati	29	2	730	0.004
Water body	Jagannathkati	29	2	734	0.045
Water body	Jagannathkati	29	2	728	0.004
Water body	Jagannathkati	29	2	727	0.139

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Jagannathkati	29	2	732	0.021
Water body	Jagannathkati	29	2	735	0.003
Water body	Jagannathkati	29	2	641	0.119
Water body	Jagannathkati	29	2	736	0.029
Water body	Jagannathkati	29	2	643	0.044
Water body	Jagannathkati	29	2	642	0.002
Water body	Jagannathkati	29	2	733	0.143
Water body	Jagannathkati	29	2	739	0.151
Water body	Akalam	28	0	99999	0.000
Water body	Jayapatipatti	30	0	80	0.002
Water body	Jayapatipatti	30	0	186	0.001
Water body	Sarshina	20	0	508	0.000
Water body	Jagannathkati	29	1	33	0.091
Water body	Jagannathkati	29	1	29	0.016
Water body	Jagannathkati	29	1	31	0.008
Water body	Jagannathkati	29	1	30	0.009
Water body	Jagannathkati	29	1	44	0.520
Water body	Jagannathkati	29	1	45	0.042
Water body	Jagannathkati	29	1	47	0.423
Water body	Jagannathkati	29	1	49	0.033
Water body	Jagannathkati	29	1	22	0.126
Water body	Jagannathkati	29	1	1	0.000
Water body	Jagannathkati	29	1	17	0.079
Water body	Jagannathkati	29	1	21	0.061
Water body	Jagannathkati	29	1	46	0.019
Water body	Jagannathkati	29	1	3	0.025
Water body	Jagannathkati	29	1	19	0.048
Water body	Jagannathkati	29	1	20	0.016
Water body	Jagannathkati	29	1	949	0.032
Water body	Jagannathkati	29	1	54	0.106
Water body	Jagannathkati	29	1	40	0.172
Water body	Jagannathkati	29	1	4	0.028
Water body	Jagannathkati	29	1	63	0.007
Water body	Jagannathkati	29	1	61	0.002
Water body	Jagannathkati	29	1	7	0.006
Water body	Jagannathkati	29	1	6	0.053
Water body	Jagannathkati	29	1	60	0.107
Water body	Jagannathkati	29	1	59	0.019
Water body	Jagannathkati	29	1	58	0.040
Water body	Jagannathkati	29	1	64	0.010
Water body	Jagannathkati	29	1	65	0.000
Water body	Jagannathkati	29	1	67	0.000
Water body	Jagannathkati	29	1	71	0.066
Water body	Jagannathkati	29	1	16	0.004
Water body	Jagannathkati	29	1	188	0.010
Water body	Jagannathkati	29	1	187	0.004
Water body	Jagannathkati	29	1	76	0.067
Water body	Jagannathkati	29	1	81	0.025
Water body	Jagannathkati	29	1	15	0.004
Water body	Jagannathkati	29	1	82	0.015
Water body	Jagannathkati	29	1	88	0.026
Water body	Jagannathkati	29	1	96	0.050
Water body	Jagannathkati	29	1	103	0.006
Water body	Jagannathkati	29	1	91	0.061
Water body	Jagannathkati	29	1	90	0.032
Water body	Jagannathkati	29	1	104	0.088
Water body	Jagannathkati	29	1	98	0.025
Water body	Jagannathkati	29	1	95	0.094
Water body	Jagannathkati	29	1	186	0.000
Water body	Jagannathkati	29	1	89	0.032
Water body	Jagannathkati	29	1	99	0.007
Water body	Jagannathkati	29	1	86	0.015
Water body	Jagannathkati	29	1	93	0.040

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Jagannathkati	29	1	94	0.008
Water body	Jagannathkati	29	1	85	0.051
Water body	Jagannathkati	29	1	108	0.002
Water body	Jagannathkati	29	1	112	0.031
Water body	Jagannathkati	29	1	100	0.023
Water body	Jagannathkati	29	1	92	0.121
Water body	Jagannathkati	29	1	105	0.193
Water body	Jagannathkati	29	1	113	0.007
Water body	Jagannathkati	29	1	184	0.244
Water body	Jagannathkati	29	1	199	0.016
Water body	Jagannathkati	29	1	168	0.011
Water body	Jagannathkati	29	1	115	0.000
Water body	Jagannathkati	29	1	166	0.023
Water body	Jagannathkati	29	1	165	0.013
Water body	Jagannathkati	29	1	164	0.077
Water body	Jagannathkati	29	1	143	0.052
Water body	Jagannathkati	29	1	151	0.079
Water body	Jagannathkati	29	1	142	0.022
Water body	Jagannathkati	29	1	122	0.026
Water body	Jagannathkati	29	1	144	0.033
Water body	Jagannathkati	29	1	205	0.082
Water body	Jagannathkati	29	1	183	0.002
Water body	Jagannathkati	29	1	206	0.001
Water body	Jagannathkati	29	1	208	0.012
Water body	Jagannathkati	29	1	174	0.027
Water body	Jagannathkati	29	1	173	0.022
Water body	Jagannathkati	29	1	180	0.058
Water body	Jagannathkati	29	1	207	0.011
Water body	Jagannathkati	29	1	209	0.012
Water body	Jagannathkati	29	1	210	0.008
Water body	Jagannathkati	29	1	159	0.010
Water body	Jagannathkati	29	1	162	0.027
Water body	Jagannathkati	29	1	213	0.002
Water body	Jagannathkati	29	1	228	0.000
Water body	Jagannathkati	29	1	229	0.002
Water body	Jagannathkati	29	1	22222	0.004
Water body	Jagannathkati	29	1	128	0.000
Water body	Jagannathkati	29	1	22222	0.005
Water body	Jagannathkati	29	1	266	0.003
Water body	Jagannathkati	29	1	262	0.002
Water body	Jagannathkati	29	1	246	0.000
Water body	Jagannathkati	29	1	247	0.001
Water body	Jagannathkati	29	1	178	0.092
Water body	Jagannathkati	29	1	172	0.008
Water body	Jagannathkati	29	1	248	0.003
Water body	Jagannathkati	29	1	170	0.045
Water body	Jagannathkati	29	1	249	0.006
Water body	Jagannathkati	29	1	161	0.038
Water body	Jagannathkati	29	1	157	0.039
Water body	Jagannathkati	29	1	136	0.046
Water body	Jagannathkati	29	1	160	0.163
Water body	Jagannathkati	29	1	250	0.002
Water body	Jagannathkati	29	1	158	0.000
Water body	Jagannathkati	29	1	155	0.008
Water body	Jagannathkati	29	1	148	0.002
Water body	Jagannathkati	29	1	284	8.525
Water body	Jagannathkati	29	1	140	0.000
Water body	Jagannathkati	29	1	156	0.060
Water body	Jagannathkati	29	1	147	0.028
Water body	Jagannathkati	29	1	146	0.024
Water body	Jagannathkati	29	1	139	0.083
Water body	Jagannathkati	29	1	133	0.071
Water body	Jagannathkati	29	1	137	0.066

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Jagannathkati	29	1	130	0.173
Water body	Jagannathkati	29	1	138	0.184
Water body	Jagannathkati	29	1	176	0.052
Water body	Jagannathkati	29	1	177	0.027
Water body	Jagannathkati	29	1	132	0.076
Water body	Jagannathkati	29	1	131	0.144
Water body	Jagannathkati	29	1	215	0.005
Water body	Jagannathkati	29	1	939	0.181
Water body	Jagannathkati	29	1	179	0.105
Water body	Jagannathkati	29	1	214	0.078
Water body	Jagannathkati	29	1	940	0.012
Water body	Jagannathkati	29	1	484	0.001
Water body	Jagannathkati	29	1	487	0.000
Water body	Jagannathkati	29	1	480	0.000
Water body	Jagannathkati	29	1	394	0.000
Water body	Jagannathkati	29	1	391	0.000
Water body	Jagannathkati	29	1	501	0.000
Water body	Jagannathkati	29	1	23	0.008
Water body	Jagannathkati	29	1	245	0.029
Water body	Jayapatipatti	30	0	65	0.000
Water body	Jayapatipatti	30	0	66	0.000
Water body	Sultanpur Alankarkati	12	0	155	0.000
Water body	Sultanpur Alankarkati	12	0	168	0.000
Water body	Sultanpur Alankarkati	12	0	197	0.000
Water body	Sarshina	20	0	256	2.165
Water body	Sarshina	20	0	25	0.001
Water body	Sarshina	20	0	66	0.000
Water body	Sarshina	20	0	33	0.000
Water body	Sarshina	20	0	522	0.001
Water body	Sarshina	20	0	524	0.012
Water body	Sarshina	20	0	263	0.006
Water body	Sarshina	20	0	258	0.035
Water body	Sarshina	20	0	265	1.328
Water body	Sarshina	20	0	260	0.048
Water body	Sarshina	20	0	266	0.062
Water body	Sarshina	20	0	267	0.042
Water body	Sarshina	20	0	268	0.023
Water body	Sarshina	20	0	269	0.008
Water body	Sarshina	20	0	275	0.035
Water body	Sarshina	20	0	526	0.029
Water body	Sarshina	20	0	420	0.014
Water body	Sarshina	20	0	421	0.028
Water body	Sarshina	20	0	415	0.073
Water body	Sarshina	20	0	442	0.004
Water body	Sarshina	20	0	406	0.025
Water body	Sarshina	20	0	485	0.013
Water body	Sarshina	20	0	486	0.065
Water body	Sarshina	20	0	428	0.024
Water body	Sarshina	20	0	488	0.083
Water body	Sarshina	20	0	487	0.013
Water body	Sarshina	20	0	490	0.102
Water body	Sarshina	20	0	357	0.005
Water body	Sarshina	20	0	489	0.078
Water body	Sarshina	20	0	356	0.017
Water body	Sarshina	20	0	430	0.042
Water body	Sarshina	20	0	527	0.062
Water body	Sarshina	20	0	476	0.124
Water body	Sarshina	20	0	429	0.072
Water body	Sarshina	20	0	495	0.077
Water body	Sarshina	20	0	392	0.044
Water body	Sarshina	20	0	396	0.001
Water body	Sarshina	20	0	354	0.033
Water body	Sarshina	20	0	444	0.074

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Sarshina	20	0	477	0.002
Water body	Sarshina	20	0	353	0.081
Water body	Sarshina	20	0	394	0.000
Water body	Sarshina	20	0	474	0.037
Water body	Sarshina	20	0	446	0.069
Water body	Sarshina	20	0	498	0.001
Water body	Sarshina	20	0	445	0.020
Water body	Sarshina	20	0	386	0.078
Water body	Sarshina	20	0	497	0.043
Water body	Sarshina	20	0	389	0.000
Water body	Sarshina	20	0	395	0.001
Water body	Sarshina	20	0	349	0.001
Water body	Sarshina	20	0	447	0.029
Water body	Sarshina	20	0	496	0.261
Water body	Sarshina	20	0	475	0.052
Water body	Sarshina	20	0	499	0.200
Water body	Sarshina	20	0	388	0.112
Water body	Sarshina	20	0	374	0.128
Water body	Sarshina	20	0	500	0.084
Water body	Sarshina	20	0	372	0.184
Water body	Sarshina	20	0	387	0.000
Water body	Sarshina	20	0	366	0.121
Water body	Sarshina	20	0	365	0.057
Water body	Sarshina	20	0	373	0.170
Water body	Sarshina	20	0	385	0.033
Water body	Sarshina	20	0	449	0.116
Water body	Sarshina	20	0	472	0.087
Water body	Sarshina	20	0	370	0.002
Water body	Sarshina	20	0	384	0.117
Water body	Sarshina	20	0	367	0.041
Water body	Sarshina	20	0	448	0.008
Water body	Sarshina	20	0	371	0.000
Water body	Sarshina	20	0	368	0.122
Water body	Sarshina	20	0	381	0.037
Water body	Sarshina	20	0	463	0.008
Water body	Sarshina	20	0	469	0.064
Water body	Sarshina	20	0	501	0.036
Water body	Sarshina	20	0	471	0.000
Water body	Sarshina	20	0	468	0.000
Water body	Sarshina	20	0	461	0.013
Water body	Sarshina	20	0	460	0.002
Water body	Sarshina	20	0	528	0.101
Water body	Sarshina	20	0	505	0.122
Water body	Sarshina	20	0	534	0.127
Water body	Sarshina	20	0	462	0.084
Water body	Sarshina	20	0	459	0.045
Water body	Sarshina	20	0	508	0.382
Water body	Sarshina	20	0	39	65.115
Water body	Jagannathkati	29	1	33	0.000
Water body	Jagannathkati	29	1	29	0.000
Water body	Jagannathkati	29	1	31	0.000
Water body	Jagannathkati	29	1	30	0.000
Water body	Jagannathkati	29	1	44	0.001
Water body	Jagannathkati	29	1	45	0.000
Water body	Jagannathkati	29	1	47	0.000
Water body	Swarupkati	31	0	514	0.000
Water body	Akalam	28	0	99999	0.000
Water body	Swarupkati	31	0	508	0.000
Water body	Jagannathkati	29	2	630	0.000
Water body	Jagannathkati	29	2	613	0.000
Water body	Jagannathkati	29	2	622	0.000
Water body	Jayapatipatti	30	0	133	0.000
Water body	Jayapatipatti	30	0	142	0.000

Landuse Type	Mouza Name	JL	Sheet	Plot No.	Area (acres)
Water body	Jagannathkati	29	2	629	0.000
Water body	Swarupkati	31	0	504	0.000
Water body	Swarupkati	31	0	509	0.000
Water body	Swarupkati	31	0	592	0.000
Water body	Swarupkati	31	0	509	0.000
Water body	Swarupkati	31	0	509	0.000
Water body	Swarupkati	31	0	508	0.000
Water body	Jagannathkati	29	1	22222	0.000
Water body	Jagannathkati	29	1	937	0.000
Water body	Jagannathkati	29	1	516	0.000
Water body	Jagannathkati	29	1	574	0.000
Water body	Jagannathkati	29	1	570	0.000
Water body	Jagannathkati	29	1	569	0.000
Water body	Jagannathkati	29	1	567	0.000
Water body	Jagannathkati	29	1	566	0.000
Water body	Jagannathkati	29	1	566	0.000
Water body	Jagannathkati	29	1	564	0.000