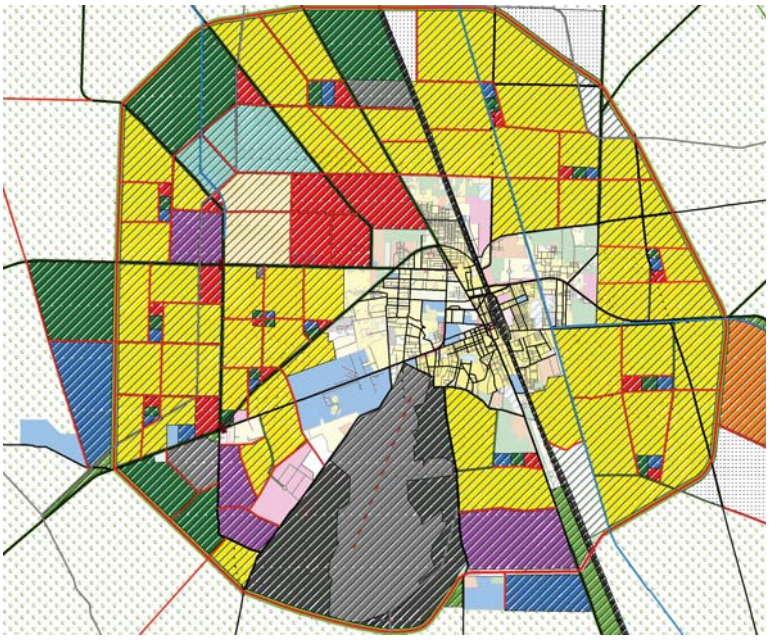
Directorate of Urban Policy Strategic Planning,
P & D Department, Government of Sindh

URBAN POLICY & STRATEGIC PLANNING
P & D DEPARTMENT GOVT OF SINDH

PREPARATION OF DEVELOPMENT MASTER PLANS OF FOURTEEN (14) DISTRICT HEADQUARTER TOWNS OF HYDERABAD, MIRPURKHAS AND SHAHEED BENAZIRABAD DIVISIONS"

STRATEGIC DEVELOPMENT PLAN REPORT

(2017- 37)







NAWABSHAH

February, 2021

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In Association with

MMP
MMP Pakistan (Pvt) Ltd.

TRANSMITTAL LETTER

Urbanization in Pakistan is taking place at a substantially high pace most of which is gravitating to the large cities. The secondary cities have not been able to play their role as the "Engine of Economic Growth" due to lack of public funding in the development infrastructure resulting in lop-sided spatial spread. The hinterland has remained poor facing abject poverty due to less economic opportunities, social facilities and institutional support.

Sindh Government took initiative by establishing Directorate of Urban Policy and Strategic Planning (UPSP) within the Planning and Development Department in 2012, to initiate and ensure planned growth of secondary cities of Sindh province through the preparation of Master Development Plans of District Headquarters Towns. In this phase 14 DHQ Towns of Hyderabad, Mirpurkhas and Shaheed Benazirabad Divisions Viz Nawabshah, Sanghar, Naushahro Feroze, Mirpurkhas, Mithi, Umerkot, Tando Muhammad Khan, Tando Allahyar, Mitiari, Badin, Thatta, Sujawal, Dadu, Jamshoro and one SDG compline taluka Islamkot Town.

Directorate of Urban Policy and Strategic Planning initiated Consultant selection process under SPPRA rules. The consortium of three reputable local Consultants led by EA Consulting (Pvt.) Ltd. including MMP (Pvt.) Ltd. and EMC (Pvt.) Ltd was selected due to their high standing in prequalification and lowest financial bid. The Consultants brought together a highly qualified and experienced team to provide the specialized inputs. The data collection was carried out in the field through a sample socio – economic surveys, questionnaires to various government offices and discussions with the stakeholders. The findings and recommendations were submitted to client for review in seven stages and shared with the stakeholders in workshop for each town. This report is the final Deliverable (Strategic Development Plan Report) of the project.

The volume and spatial spread of the project area did present lot of logistics and data availability problems which were resolved with the support of Client who had pursued actively with the various lines departments to assure all available data to Consultants. The Consultant's team is indebted to the Director General UPSP and his team without their support it would not have been possible to complete this project. The consultant would also like to thank all the district officials for making field exercise productive.

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PREPARATION OF DEVELOPMENT MASTER PLANS OF FOURTEEN (14) DISTRICT HEADQUARTER TOWNS OF HYDERABAD, MIRPURKHAS & SHAHEED BENAZIRABAD DIVISIONS

STRATEGIC DEVELOPMENT PLAN REPORT – NAWABSHAH

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Annexure – B: Atlas

LIST OF ACRONYMS AND ABBREVIATIONS

ADP	Annual Development Plan
AGR	Annual Growth Rate
BC	Brick Construction
BHU	Basic Health Unit
BOD	Biological Oxygen Demand
CBD	Central Business District
CC	Climate Change
DBM	Digital Base Map
DCs	Deputy Commissioners
DHQ(s)	District Headquarters
DMP	Disaster Management Plan
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DSPC	Development Strategies & Prevalent Condition
DUP&SP	Directorate Of Urban Policy & Strategic Planning, Government of Sindh
ECP	Emergency Contingency Plan
EDP	Economic Development Plan
EMC	Environmental Management Consultants
EPA	Environmental Protection Act
FWO	Frontier Works Organization
GBHS	Government Boys High School
GBHSS	Government Boys High Secondary School
GBLSS	Government Boys Lower Secondary School
GBPS	Government Boys Primary School
GER	Gross Enrolment Ratio
GGHS	Government Girls High School
GGHSS	Government Girls Secondary School
GGLSS	Government Girls Lower Secondary School
GGPS	Government Girls Primary School
GIS	Geographic Information System
GOP	Government of Pakistan
GOS	Government of Sindh
GPS	Global Positioning System
HESCO	Hyderabad Electricity Supply Corporation
HH	Household
HQ	Head Quarters
KA(s)	Katchi Abadis
KV	Kilo Volt
LPG	Liquid Petroleum Gas
LULC	Land Use/Land Cover
MC	Municipal Committee

MISC	Multiple Indicator Cluster Survey
MW	Mega Watt
NER	Net Enrolment Ratio
NGO	Non-Governmental Organization
NPDMP	National & Provisional Disaster Management Policy
NRM	National Reference Manual
O&M	Operation & Maintenance
OH	Over Head
P&D	Planning & Development Department
PCU(s)	Passenger Car Units
PDAO	Planning & Development Act Ordinance
PDMA	Provincial Disaster Management Authority
PGS	Population Growth Scenarios
PH	Peak Hour
PHED	Public Health Engineering Department
PMTs	Pole Mounted Transformers
PR	Public Representative
PTCL	Pakistan Telecommunication Limited
RAP	Resilience & Adaptability Plan
RCC	Reinforced Cement Concrete
SAR	Situation Analysis Report
SB&TPR	Sindh Building & Town Planning Regulation
SBI	Sindh Board Of Investment
SDI	Spatial Data Information
SECP	Securities & Exchange Connection Of Pakistan
SED	Socio Economic Data
SES	Socio Economic Survey
SEPA	Sindh Environmental Protection Agency
SME(s)	Small Medium Enterprises
SOP	Standard Operation Procedures
SPPRA	Sindh Public Procurement Regulatory Authority
SS	Sample Survey
SSGC	Sui Southern Gas Company
STP	Sewerage Treatment Plant
SWM	Solid Waste Management
SWOT	Strength Weaknesses Opportunities Threat
TOR	Terms Of References
TSS	Total Suspended Solids
TVC	Traffic Volume Count
TW	Tube Well
UC	Union Council
UG	Under Ground
UG/l	Concentration of Arsenic (10 micro-gm/litre)
W&SD	Work & Services Department

WAPDA	Water and Power Development Authority
WATSAN	Water & Sanitation
WASH	Water, Sanitation & Hygiene
WB	World Bank
WHO	World Health Organization

EXECUTIVE SUMMARY

A. PROJECT AREA BRIEF

Nawabshah Taluka was upgraded to the district level in 1912. Nawabshah District was re-named as Shaheed Benazirabad district in the memory of the Ex-Prime Minister Shaheed Mohtarma Benazirabad Bhutto assassinated in 2008. With the exception of north eastern part of Nawabshah taluka which is a desert known as Gunjo Thar, the rest of the district is a fertile plain formed by Indus River. The average elevation of the area is about 50 meters above sea level.

The District lies between 25°59”-27°15” north latitudes and 67°52”-58°54” east longitudes; in the heart of Sindh. It has Naushahro Feroze and Khairpur districts on the north, on the west bounded by Indus River, Jamshoro and Dadu districts, on the east by Sanghar and on the south by Matiari district. It covers an area of about 4,665 Sq. kms with four talukas named Nawabshah, Sakrand, Qazi Ahmad and Daur. Nawabshah Town is the district headquarter town of the district.

According to latest census of 2017, population of Nawabshah town is 279,688 with a growth rate of 2.08% during 1998-2017. Projected population of Nawabshah works out to be 415,602 souls by 2037. Total area of the town covers 4,239 sq.km. The built-up area of Nawabshah town comprises of around 8,174 acres of land but the spread of urban area as estimated by the consultants is about 21,296 acres. The land use analysis indicates that almost 52% of total urban boundary area is in residential use.

As Nawabshah is an industrial & agricultural city, its spatial growth in last 10 years shows that town spread more than 50% in its built-up area, mainly in east and west directions. Various institutional expansions were developed in past 5 years from 2013. The recently developed Nawabshah-Qazi Ahmed Road and Nawabshah-Sakrand Road are hub of low density sprawl and catering for major Share of population. Most of the facilities are present on Civil Hospital Road and Jail (Kutchery) Road. The core area is along the railway track from Old Sabzi Mandi to Mohini Bazaar.

B. VISION 2037

As per the objective of the Provincial Government the planning process was carried out in Consultation with the stakeholders.

Two vision formulating workshop was carried out with the main stakeholders on November 28, 2018 and February 14, 2019 . The stakeholders were manly local citizens, government officials, businessmen and member of civil society. They were so logged down with the immediate day to day problems that they could not articulate a long term vision. However the collections of opinions expressed produced the following vision:

"The city full filling all the basic needs, such as housing, water supply and sanitation, in clean and sustainable pollution free environment, with education and health for all, along with growth in local and regional economy with increase in employment, incomes and related skills development to emerge as well planned modern city with peace, security and prosperity like some of the most livable cities in the world."

C. DEMOGRAPHY

Nawabshah is the District Headquarter Town of Shaheed Benazirabad District. It is the Municipal Corporation. According to 1998 census, town had a population of 189,244 souls with a growth rate of 3.69% during 1981-1998. The 2017 census reveals that the population of Nawabshah Town has reached to about 279,688 souls with a growth rate of 2.08% during 1998-2017. Projected population of Nawabshah City works out to be 415,602 souls by 2037.

D. SECTOR WISE ANALYSIS AND PROPOSAL

The Consultants had carried out data collections in three layers:

- Primary source including sample Socio-economic Survey.
- Secondary Source including data from government sources published and unpublished documents
- Discussions with the officials, Consultations with Stakeholders.

The present need analysis and constraints were compiled and submitted in the form of Situation Analysis Report. Consultative Workshops were held in respective DHQ Towns with an objective to validate the accuracy of data and verify the data analysis with the Stakeholders.

Keeping in view the stakeholder's comments and suggestions, the draft strategies were developed to fulfill needs in the most efficient way. The Draft Strategic Development Report submitted by the Consultants was again shared with the Stakeholders and their feedback/comments received.

Thereafter, the Final Strategic Report will be submitted. Based on the approved strategies the final action will be the preparation of Long Term/Short Term Plans, Priority Plan and Immediate Action Plan for Core Urban Area.

Based on the evaluation of primary and secondary data, the need assessment has been carried out for a projected population on the basis of 20 years growth projections. The need assessment is based on the Baseline Indicators, Stakeholders Views, Demand vs Need Analysis, NRM with professional judgment and Consultant's own experience and standards used in other developing countries.

1. Housing

Housing in terms of affordable home with basic infrastructure and facilities is the basic human need. According to 2017 census population results, Nawabshah MC had household size of 5.9 persons and a total housing stock of 47,276. The major issues in the housing sector are scarcity of developed urban land, poor land administration, housing in dilapidated condition, unafforable housing cost for low income groups unchecked growth of squatter settlements, shortage of finance, high cost of building material, high density housing causing congestion and lack of basic utilities.

On basis of projected population for year 2037 the numbers of households have been estimated around 70,441 on fixed household size of 5.9 persons out of which additional housing requirement will be 23,165. The strategies for short term plan are land development incremental housing schemes, establishment of low-income housing funds and improvement in basic utilities for the residential areas. The long term plan includes the development of cost effective approaches, formation of land bank, initiation of an affordable housing programme and formulation of green building by-laws. The priority projects includes the land acquisition for low income public housing projects and master planning and infrastructure designing for additional population.

2. Social Amenities

2.1 Education

There are three main universities named Quaid-Awam University of Engineering and technology, Shaheed Benazir Bhutto University and Peoples University of Medical & Health Sciences for Women.
Present number of Boys and Girls students in Schools at Nawabshah is 51,203. Students are studying in different level of schools like: primary and secondary schools. Available number of class rooms for all levels are 1,322. As per present figures provided by Reform Support Unit (RSU) education & literacy department, the occupancy is 38 students per class room in primary to higher secondary schools which is higher as per National Reference Manual (NRM) standard of 30 students per class room. The issues in education sector involves shortage of classrooms and teachers, low enrolment level with gender disparity, lack of provision of basic and allied facilities and poor condition of schools and colleges.

The future need is 3,432 classrooms in schools and 977 classrooms in high schools and colleges by the end of plan period in 2037 to achieve the target of 100% enrolment with no gender disparity. The education authorities should plan gradually by increasing the classrooms in existing schools in high density areas and new schools in low density areas. The spatial distribution of schools and other educational institutions should be that our schools, specially girls school are within easy walking distance. The strategies for short term plan includes the rehabilitation of schools and colleges, eliminate the chances of misuse and encroachments of educational buildings, training programme for teachers, establishment of vocational and skill training centres and rehabilitation/construction of women hostels for teaching staff. The long term plan involves increasing equitable access to quality education, improving the quality of learning outcomes, enhancing the equity of resource allocation, provision of technical education and upgradation of existing

universities. At present, the condition of existing schools in DHQ town needs rehabilitation and improvement of the infrastructure and allied basic facilities like water, electricity, toilet, playgrounds etc. The priority projects need to focus on the repair and rehabilitation with allied facilities of schools and colleges located in DHQ town Nawabshah. At present only five educational facilities are present in core area of Nawabshah. Besides repair and rehabilitation we are only proposing associated facilities with all allied services including roads and building renovation. The immediate action plan includes the repair and rehabilitation of institutes located in core town area.

2.2 Health

In District Shaheed Benazirabad, there is one teaching hospital having 875 bed capacity, one THQ having 50 beds, 37 BHUs at district having 74 beds, 10 RHCs having 164 beds, 168 Dispensaries having 10 beds and 12 private hospitals having 285 numbers of beds, having the total number of 1,458 beds. The major issues are insufficient health facilities, lack of diagnostic and other health equipment, difficulty in transferring patients from rural to urban area, vacant posts for doctors and lack of training of paramedical staff. Currently there is need of 1,768 beds & 1,288 doctors to cater the present population of District Shaheed Benazirabad.

Therefore, the target up to the year 2037 is to provide 2 beds per 1000 projected district population as per standard given in the National Reference Manual on Planning and Infrastructure Standards (NRM). Therefore there is need of 4,965 additional beds & 2,158 doctors to cater the District Shaheed Benazirabad Population upto next 20 years. The strategies for short term plan are improve access to healthcare facilities, access through ambulance network, availability of skilled workforce, improving functionality of equipment and availability of quality medicines and rehabilitation of BHUs and RHCs. The long term plan includes the extension of teaching hospital, provision and enhancement of Mobile Health Unit, upgradation of BHUs, RHCs and MCHCs, health awareness programmes, research programmes for doctors, provision of diagnostic facilities, ambulance, pharmacy in all hospitals, specialized hospitals and accommodation facilities for doctors and paramedics staff. The priority projects should focus on the Provision of Missing Facilities at Civil Hospital. Immediate action plan for health facilities includes repair & rehabilitation of Civil Hospital & Installation of Incinerators.

2.3 Recreational

The few recreational places in Shaheed Benazirabad are Bilawal Cricket Stadium and Sikandar Art Gallery. The historic places include Bhiro Bhango and Dalel Dero. Some issues are lack of preservation of recreational spots, lack of planned open spaces, in-active tourist development program, unavailability of basic facilities and no provision of playgrounds.

Part of the strategic planning is to beautify the present canals; Gajrah Branch and Khiyaroon minor. This could be done by constructing pathways on the sides for pedestrians, solidifying the embankments, and adding food courts. The short term plan includes the restoration and maintenance of open spaces i.e. Momal Park, HM Khoja Park, Abdul Qadir Park, Lab-e-Gajra Wah Park, Society Park, Bakhtawar Park, Lateef Park, Gajra Wah Park and Municipal Park, preservation of cultural heritage, construction/rehabilitation of

parks, playgrounds and recreational facilities, construction of auditoriums and upgradation of art councils. The strategies for long term plan are to provide recreational infrastructure, feasibility study for establishment of museum and research centre, youth development programme and promote tourism. The priority projects includes the Construction / Rehabilitation of Existing Recreational Facilities in Nawabshah MC are required i.e. Momal Park, Society Park and Bakhtawar Park and repair and rehabilitation of existing sports facilities i.e. Rehabilitation of Bilawal Cricket Stadium. The immediate action plan involves in repair and rehabilitation of HM Khowaja Public Park and Sports Ground Gymkhana, rehabilitation of Eid Gah & provision of wall for existing graveyards present in core town area.

3. ECONOMIC DEVELOPMENT

3.1 Irrigation

Agriculture, in Shaheed Benazirabad, mainly depends upon canal irrigation. However, other modes of land irrigation like river water and tube wells are also used. Rohri canal is one of the biggest canals in Asia and it irrigates around 2.9 million acres and 23% of the agriculture sector gets water through it. Nawabshah, being an agriculture Hub consists of two Irrigation Water Supply Divisions called "Nusrat Division" and "Dad Division" in the district. The supply of sufficient irrigation water for future for agricultural growth is expected to be available.

3.2 Agriculture

The city of Nawabshah is set in a lush agricultural region. The city is famous for its sugarcane, mango, national hub of cotton production and one of the largest producer of banana in Pakistan. The total geographical area of district Shaheed Benazirabad is 451,000 hectares out of this cultivated area is up to 385,000 hectare. The major issues are that the land ownership is much skewed, decrease in land utilization, high price of inputs, absence of farm to market roads, lack of agriculture credit facilities, water logging and salinity, unavailability of water in canals, irrigation and drainage.

The short term plan includes to modernize agriculture, increase supply and quality of agricultural crops and provision of warehouses. The strategies for long term plan includes the agriculture technology development and enhancing crop productivity. The priority projects need to be focused on agriculture credit facilities, regular supply of irrigation water, availability of fertilizers, pesticides and quality seeds, installation of tube wells, measures to reduce water logging and salinity and construction of farm to market roads.

3.3 Livestock and Fisheries

The district Shaheed Benazirabad is richly populated area having a population of 2,619,329 of large and small animals. Animal population of district is highest number of goats having 877,509 heads followed by buffalos 390,259 heads and Cattle 339,188. Unfortunately, this sector despite being the second most important sector in the local economy, has not been given due importance in the past. The scattered cattle farms will need to be consolidated away from population outside the town. There are 11 veterinary Hospitals and 44 veterinary centres. The major issues are limited knowledge and facilities, secondary

source of income and insufficient veterinary services. There are 81 private fish production farms in the District. The annual production of fish is approximately 6,332 M. Tons. There is need to develop and implement a broad-based fisheries policy which is required for accelerated development of the fisheries sector.

The strategies need to be focused on the improvement of production performance, establishment of model livestock, dairy and cattle farms and enhancing the veterinary services, lease of fishing rights, local awareness, aquaculture development, collection of statistical fish data and enforcement of fisheries enactment. The projects for the Economic Development includes the establishment of livestock and dairy farms, development and implementation of a broad-based fisheries policy for the development of the fisheries sector, including Construction of landing areas business halls.

3.4 Industries

Shaheed Benazirabad has industries pertaining to the agriculture sector. Famous among these are the sugar mills in this district as sugarcane is cultivated on large scale. Currently there are two designated sites as industrial areas in DHQ Town like Industrial Estate Nawabshah and Special Industrial Zone Nawabshah.

The short term plan includes to modernize the service sector, support industrial development, provision of vocational training and employable skills and micro-financing to small industries. The strategies for long term plan are sufficient market infrastructure, development of Industrial Estates, heritage saving, shift from industrial agriculture to diversified agro ecological systems and provision of infrastructure for establishment of new industries.

The priority projects should focus on revitalization of Industrial Estate. The projects for economic development plan include addition in industrial units and full utilization of Industrial Estates to be accelerated.

3.5 Trade and Commerce

There is the presence of strong retail market; “Mohni Bazar” and “Liaquat Market” with numerous food shops. There are several banks and mobile facilitation centre.

There is availability of financial institutes in the district. The district is well-known due to its characteristics of agriculture engine, which serves all over Sindh. The issues are failure of PPP, demise of local agriculture market and un-planned local business activities. The immediate action plan focusing on the core urban area of Nawabshah consists of removal of encroachments from town center and bazaars, rehabilitation of Main Commercial (CBD) Area, rehabilitation & beautification of main Bazar area i.e. Chakra Market, Mohini Bazar & Regal Cinema area; Provision of pedestrian facility in Bazar area; Up gradation & Rehabilitation of internal Bazaar roads.

4. BASIC UTILITIES

4.1 Water Supply

The water resources of the project towns complete both the surface source as well as the groundwater source. The bulk of municipal water supplied to the project towns is drawn from the irrigation canals, passing close to the towns, and comparatively much smaller part of the supplies is dependent upon groundwater extraction through tube wells. Nawabshah is Town (DHQ) in the Shaheed Benazirabad district of Sindh Province roughly 50 km from the left bank of River Indus.

At present, 9.0 MGD is reported as potable water for Nawabshah town. There are five storage reservoirs with a capacity of 4 million gallons transmitting water through 9 pumping stations via conventional treatment system of open ponds from Rohri canal, Quaid-e-Awam University and Gajra Wah. The ground water is used during closure period of the canal once every year. The water supply is intermittent but three times every day totaling about 14 hours in 24 hours which is sufficient.

It is expected that in next 20 years, water supply will remain same 30 gallon per capita per day. Therefore, after fulfilling the present need the additional water demand for Nawabshah town will be as 3.5 MGD. The population of Nawabshah will be as 415,602 by the end of 2037. The short term plan includes that the design of water supply pipes should ensure no contamination of water and preference should be given to rehabilitate existing schemes. The strategies for long term plan are providing access to safe water, exploration and regulation of groundwater, frame a broad policy framework and feasibility study for identification of new water sources. The priority projects should focus on Improvement in Water Intake Work, repair & rehabilitation of existing Water Supply Network and Ultra Water Filtration Plant, provision of new water supply network for remaining. The immediate action plan includes the rehabilitation and construction of water supply network in the core town.

4.2 Sewerage and Drainage

The drainage scheme in Nawabshah was installed in three phases during 1974 to 2010, and consists of a combination of pipe sewers and open drains flowing to five disposal works. The wastewater is utilized for agriculture purposes in dry seasons.

During Survey in Nawabshah, about 33% of respondents are dissatisfied with the current sewerage system. The majority (81%) of HHs use roadside drains for the disposal of sewerage-drainage in Nawabshah Town. Only 2% of town is facilitated with covered drainage network and 13% semi covered, and while remaining 85% is uncovered drainage system. The drainage operation is operated at financial loss. All HHs (100%) would prefer a “Toilets connected to sewers” sewerage system. Flooding is significant in Nawabshah during the rainy season. The major issues identified are damaged lines, over-flowing sewage water on streets, improper maintenance of sewerage facilities, informal settlements, poor condition of sewer system and no waste water treatment plant. Sewerage water flows at 70% of the water supply, therefore presently against the water demand of 8.4 mgd the sewerage water flows is 5.9 mgd.

In the next twenty years 8.75 mgd sewerage water will be generated against the estimated water supply of 12.5 mgd. The strategies for short term plan are priority given to un-served areas, need based interventions, use of gravity flow systems, acquire land and provide proper sewage treatment plants leading up to recycling of treated affluent for landscaping, etc. The long term plan includes the provision of improved services, sewage treated before discharging, and construction/rehabilitation of WWTP and land acquisition for stabilization of ponds. The priority projects need to focus on the construction/rehabilitation of drains and WWTP, and rehabilitation of waste water disposal stations. The immediate action plan involves the removal of existing waste water collection ponds located in core urban area, repair & rehabilitation of primary and secondary drains, Construction of new drainage network for unserved area and Repair & rehabilitation of two Sewage Treatment Plants.

4.3 Solid Waste Management

Some of the major issues are shortage of machineries, lack of properly organized waste collection system, no proper arrangement for the disposal of infectious waste and segregation of organic waste. It is recommended to undertake the field study for the determination of waste generation and characterization for Nawabshah in order to plan and design the solid waste management system. Considering waste generation rate for design purpose as 0.45 kg per capita per day with the current (2017) population of the municipal committee of Nawabshah as 279,688 the total municipal solid waste load arising in the municipality is approx. 125,860 kg or 125.9 tons per day.

The waste generation rate estimated from the studies conducted earlier suggests to be around 0.4 – 0.45 kg per capita per day[1]. However it is recommended to undertake the field study for the determination of waste generation and characterization for Nawabshah in order to plan and design the solid waste management system. Future waste generation will be as 187 Matric tons per day. Based on National Reference Manual (NRM): on population of 10, 000, one acre of landfill area is required. So for the population of 279,688 in 2017, landfill area of 27.96 acre is needed and for the projected population in 2037 of **415,602**, landfill area of approx. 41.56 acre is required.

The short term plan includes the segregation of bio-medical waste collection system, daily sweeping of streets and roads, daily removal of garbage, effective and efficient collection system, zero direct human contact with waste and commercial areas to contribute towards waste management costs. The long term plan focus on the development of an efficient waste management system, allocation of proper landfill site, community and private sector involvement in SWM, public awareness and education, encourage on-site reuse and recycling and implement waste minimization. The priority projects includes the feasibility study for construction of central composting plant and procurement for land acquisition process for landfill site. The immediate action plan involves in the installation of collection points in core town area and introduction of 4Rs.

[1] Consultants Estimates

5. INFRASTRUCTURE

5.1 Energy

The Power Supply to Nawabshah (MC) is through HESCO/WAPDA via 132 KV Grid station feeding district by 11 KV feeders. Some of the major issues are lack of advocacy efforts to promote efficient fuel use, less public awareness regarding fuel conservation, scarcity and high price of alternate fuel sources, lack of maintenance of power plants, circular debt and theft of electricity.

Consultant survey highlight the fact that about 81% of the households in Nawabshah have no alternative power source in addition to HESCO supply, some 17.5% of the households have solar energy and only 0.5% household has wind power.

The strategies includes the curtailment of transmission and distribution losses, achieving fuel efficiency, adopting new technologies, altering existing fuel use, addition of sub-stations and encourage energy efficient building construction. The immediate action plan need to focus on the installation of wall mounted street lights and promote energy efficient appliances and feasibility study of alternate energy sources.

5.2 Gas Supply

Out of 308 houses surveyed by the Consultants only 3% had the piped gas available to them. 97% of the houses having no gas availability are using coal, wood, gas cylinder and kerosene oil. The strategies need to be focused on feasibility study for alternate resources available, measures to cater load shedding and measures to appropriately price the energy sources.

5.3 Transportation

This district has a well-connected road network and has 349 kilometers of good quality roads in the entire district. By road, the district headquarters of Nawabshah is at a 4 hours' drive from the provincial capital Karachi. N-5 National Highway and Mehran Highway are the major connecting roads with rest of the country. Nawabshah Airport is located about 3 kilometers southwest of Nawabshah City. It has one runway, which has a length of 2,743 meters. The city is also linked with the national network of Pakistan Railways through Karachi-Lahore railway line. The issues include poor condition of roads, insufficient from –to-market road, traffic congestion, unavailability of traffic signals, absence of street lighting, encroachments and drainage issues on road.

The strategies for long term plan includes the creation of Traffic Engineering Bureaus (TEBs), issuance of license for public transport system, Environmental Impact Assessment for all transportation projects, declaration of private vehicles free zones, dualization of main arteries, satisfy mobility needs, improvement of service delivery, implementation of Axle Load Management, improvement of existing road geometry, road design and specifications. The short term plan needs to focus on rehabilitation of existing roads and reconstruction as per specifications, prevent encroachments, expansion of railway station, improved market access, maintained sustainable traffic flow and new transport terminal for goods.

The priority project involves the rehabilitation and beautification of major roads and installation of traffic signals and solar lighting on main roads. The immediate action plan includes the installation of streetlights on Qazi Ahmed Road, Sakrand Benazirabad Road, Shahpur chakra road, Shaheed Bhutto Road, and Nawabshah Bypass road and provision of parking spaces along major roads. Provision of Pedestrian pathways, provision of footpaths, street furniture and installation of traffic signals.

5.4 Communication

The PTCL offices are located at many places in Nawabshah. As per the survey by the Consultants there are about 13% households using PTCL land line out of 1,037 households surveyed. Others 87% household use public call offices in the area or cell phone.

6. ENVIRONMENT AND DISASTER RISK MANAGEMENT

6.1 Environment

The land structure of this district can be divided into three parts. The Seismic zoning map of Pakistan (2015) places Nawabshah in Zone 2A, a possibility of minor to moderate seismic hazards. PAI forest is situated at a distance of 2 Km from Sakrand town. Deh Akro II Wildlife Sanctuary Complex is situated in the district of Shaheed Benazirabad. The major issues are water logging and salinity, water contamination, low quality of surface water, seismic risk, aging of surface drainage canal system and polluted air.

The strategies for short term plan proposed to ensure environmental sustainability, inforcement of permit to discharge waste, preserve ecological cycles, increase rangelands production, provide recreational facilities, create environmental awareness, conserve biodiversity and fostering PPP. The long term plan includes the improvement of drainage, sustainable development while overcoming environmental challenges and multi-pronged approach to fisheries management. The priority projects should focus on the rehabilitation of irrigated plantation, enhance rangeland production, rehabilitation of forest parks and afforestation. The immediate action plan involves enhancing local tress plantation like Mango, Neem and Ber.

6.2 Disaster Risk Management

Nawabshah is the main city and DHQ of Shaheed Benazirabad District in Sindh, Pakistan. The district is prone to floods. Floods of 2010/2011 worsened the existing situation of the population and the indicators of food security. The major issues are low level of risk awareness, not “risk conscious” development, insufficient DRR capacity, negligible involvement of private sector, riverine flood and food security problem.

The strategies for short term plan includes to develop coordination mechanism with PMD, develop mechanism for regulation of water discharge, developing monitoring mechanism, provide necessary medical facilities, coordinate with DDMA and emergency declaration at all medical points. The long term plan involves the arrangements that allow the system to switch into emergency mode, clarification of

mutual roles and responsibilities; DSM and PPHI shall be responsible for providing medical cover to the IDPs, National risk assessment would identify highly vulnerable districts and DRR needs to involve local level actors. "Designated Evacuation Shelters" are provided to the people after the disaster. It is a facility where residents who have fled due to the dangers of a natural disaster may stay for as long as is necessary until the dangers of the natural disaster have receded. The purpose of these facilities is to offer temporary shelter for residents who are unable to return home due to the natural disaster. All public buildings like schools, colleges, etc. or elevated areas would be used as shelter in case of any disaster in town. The shelters are designated by the municipal government and awareness about them should be created among the general public. The priority projects should focus on the identification and declaration of "disaster affected" areas, DRM strategies should be based upon clear assessments of disaster risks, vigilance of canals, ensure smooth flow of water, prompt dewatering of stagnant water, HESCO should ensure uninterrupted supply of electricity, arrangement of medical teams, fumigate the area, emergency set up of relief camps and ensure sanitation and cleanliness.

7. IMPLEMENTATION

Presently, different proposals or schemes belonging to their respective sectors are identified by the departments and also incorporated separately in the Annual Development Programme (ADP). This creates a lot of problem as there would not be any harmony in the development of the city, as one scheme may create difficulties and problems for the other. It is necessary that all the public service sectors work together as a package that would result in proper development of the town.

The Government of Sindh would take responsibility of implementing various development proposals by utilizing its maximum resources and by engaging various public offices of government of Sindh, established in town. The concerned agency must ensure that the overall process must go after following themes of implementation process. The overall implementation process to be carried out in coordination with Town Planning and Urban Development Standards (Frameworks) in which redevelopment will be phased to prioritization.

Government may seek technical assistance from all the line department i.e. DUP&SP, Town Planning Department, Municipal Corporation, Secretariat of Commissioner and Deputy Commissioner. A committee would be formed as the "Project Management and Implementation Unit" (PMIU) to implement on the Strategic Development Plan. The "Project Management and Implementation Unit" will mainly consist of qualified town and urban planners supported by other technical staff; architects, project managers, engineers, finance officers and any other technical staff expert in their relevant fields.

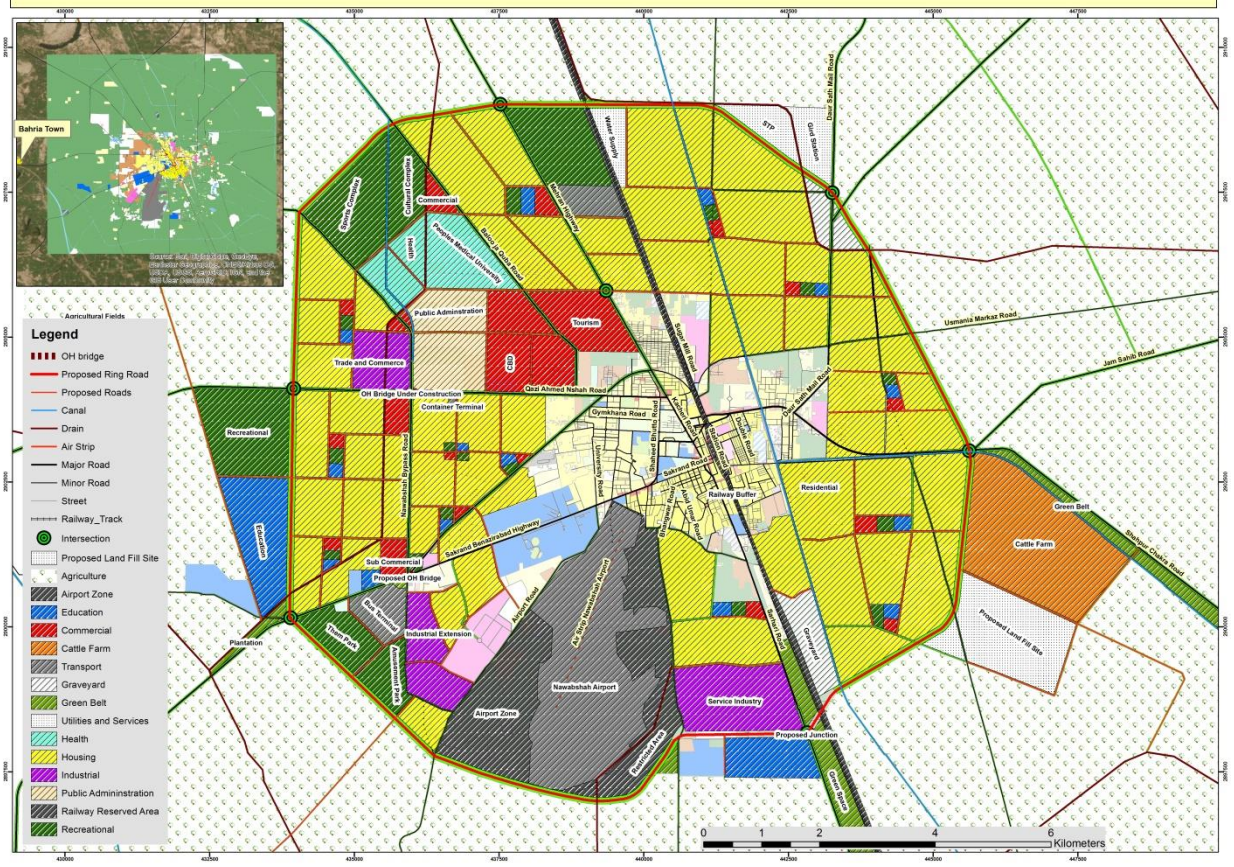
The "Project Management and Implementation Unit" shall supervise and coordinate respective urban developers involved in development activities, conduct monitory audits, prepare evaluation and impact reports. Planning and development department Government of Sindh shall lead "PMIU" to implement Master Plan.

8. STRATEGIES FOR FUTURE DEVELOPMENT

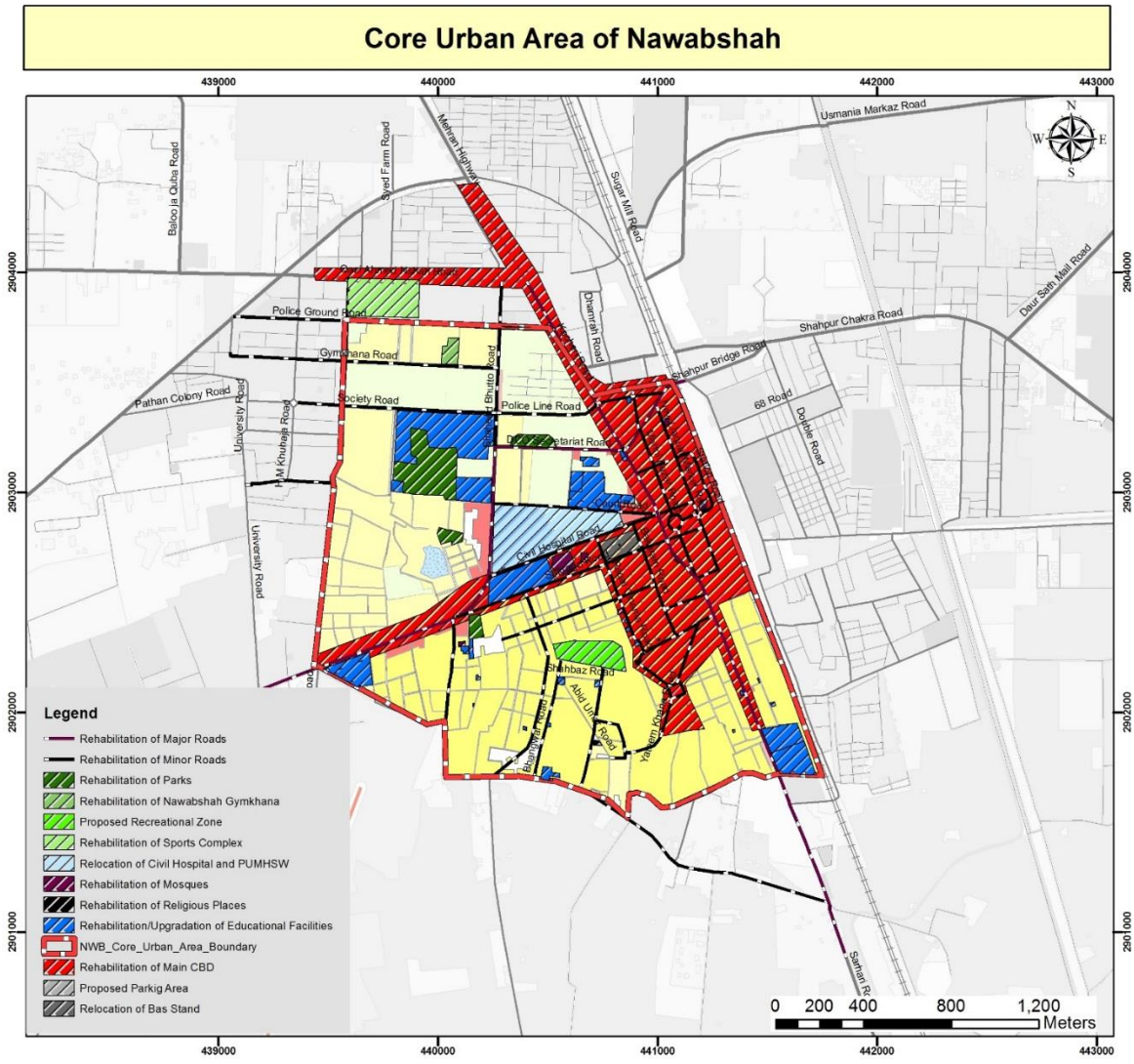
The strategies focus on revitalization of the affordable housing, provision of basic facilities, efficient transportation and communication, energy efficient technology, active service sector, implementation of pro-active governance, development of human resource, facilitation of social infrastructure, reinforcement of the local governance institutions, modernization of administration, preservation of heritage, sustainable environment, development of tourism resources, involvement of community participation and implementation of Public-Private Partnership.

9. MASTER PLAN PROPOSALS

Proposed Master Plan for Nawabshah Town



10. IMMEDIATE ACTION PLAN FOR CORE URBAN AREA



11. SDGS ACCELERATION PLAN:

Under the contract of the Preparation of Development Master Plan of 14 DHQ towns, SDG Acceleration Plan was not part of the approved TORs, however keeping in view the Sindh Government's initiatives to mainstream SDGs targets in provincial planning (taking Islamkot as a model SDG Taluka) the Directorate and Consultant after due consultative process felt the need to include brief SDG Acceleration Plan as part of Development Master Plans. Further in consultation with SDG Unit Sindh, SDG 11 – *Sustainable Cities and Communities* was selected for SDG Acceleration Plan for 14 DHQ towns, since it is pertinent to urban planning and development. Please refer Annexure (A) for brief SDGs Acceleration Plan.

STRATEGIC DEVELOPMENT PLAN REPORT – NAWABSHAH

1. SINDH – AN OVERVIEW

Sindh is the most urbanized province in Pakistan. Due to lack of interest in the planning and development of secondary cities District Headquarters towns, the public funding in development infrastructure had been sporadic resulting in un-informed adhoc decisions. Consequently the secondary cities have not been able to play their role as "Engines of Economic growth" and hinterland has remained poor facing abject poverty due to less economic opportunities and social facilities. The poverty head count ratio in the urban-cum-rural areas is almost double than that in the declared urban areas.

Sindh Government took initiative by establishing Directorate of Urban Policy and Strategic Planning within the P & D Department in September, 2018 to initiate and ensure planned growth of Secondary cities through the Preparation of Master Development Plans of District Headquarter Towns in September 2008.

1.1 Project Background

Sindh, Pakistan's second most populated province plays a pivotal role in the national economic and development agenda. The country's largest port city, Karachi, is the financial capital of the country. The Province comprises of 23% of Pakistan's population and 18% of its land area. It has the highest concentration of urban population at 49% as compared to an overall country average of 32.5%, making it the most urbanized province in the country. With 23% of country's population, its contribution to the national GDP is around 33%. Sindh collects 70% of Pakistan's Income Tax and 62% of Sales Tax.

Sindh has 54% of country's textile units, 45% of its sugar mills, 20% of pulp & paper mills and 35% of edible oil processed locally. Sindh accounts for 34% of total industrial capacity in large scale manufacturing and 25% of small scale manufacturing. Moreover the Province produces 70 % of Country's gas, 30% petroleum and 95% of Coal.

Despite global economic slowdown towards the end of 2008 and Pakistan's solidarity with the International cause for peace, playing a key role as the front line state, Sindh's manufacturing sector has been resilient and investments have continued to pour in the economic cycle. MNCs and local enterprises are committed to make investments worth around USD 8.0 billion in the province in coming years.

Sindh's diversified economy also comprises of a well-developed agricultural base supported by an effective irrigation network on the River Indus. Around 14% wheat, 30% rice, 30% sugar cane, 25% cotton and 30% vegetable crops grown in Pakistan are from Sindh. This provides immense opportunity for setting up export based agri-processing industry in the province. (http://www.sbi.gos.pk/sindh-economy.php).

1.2 General Issues

Despite of its significant contribution in National GDP, Sindh has not received the priority in development funding as it deserves. DUP&SP is the medium through which grass root development / strategy is being formulated by professionals for the betterment of people and create de-centralize economical hubs to counter higher migration rate towards developed urban centres resulting better socioeconomic condition

of the people. While going through the available literature so far, several issues have been identified in this regards, such as:

- Non-existence of Sustainable planning policy, apparatus, regulatory framework and its implementation;
- Absence of current housing policy based on sustainable and smart growth mechanism;
- Lack of coordination between institutions responsible for development of a town or Absence of Institutional Framework.
- Previous Master / Development / Structure Plans of Town Planning Department have hardly been implemented due to poor implementation mechanism;
- Local cultural preferences and settlement patterns undermine the role of urbanization in supporting economic growth;
- In most of the District Headquarters Towns, in-effective municipal infrastructure and service delivery is a common cause of failures in water, waste water, SWM, etc.
- Non-existence of spatial and non-spatial database systems;

1.3 Objectives

The objective of the assignment, as mentioned in the TORs is to prepare Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas and Shaheed Benazirabad Divisions; for development of spatial planning and zoning system as well as local economic development strategies on the basis on ecological sustainability.

The Consultant is tasked to prepare strategies:

- To plan for social infrastructure at affordable standards for education, health, recreation and cultural needs.
- To upgrade the existing physical infrastructure and enhance the supply of potable water and to propose the required capacity of network for water supply, sewerage, drainage, flood waters till year 2037.
- To provide for modern sanitation, solid waste management and disposal.
- To improve existing road networks, extend links, upgrade intersections, bridges and flyovers; and other means of communication and proposed where needed.
- To provide for safe and efficient public transport.
- To plan for effective traffic management, smooth transit and provide for parking facilities, where required in multi-storey car parks.
- To plan for enhancement and revitalization of economic base by expansion of industrial and commercial base, and for rapid expansion of IT and Telecom sectors, tourism, agricultural activity, etc in the means of sustainable and smart concept.
- To propose alternate energy sources as country is facing acute shortage especially in summer season.

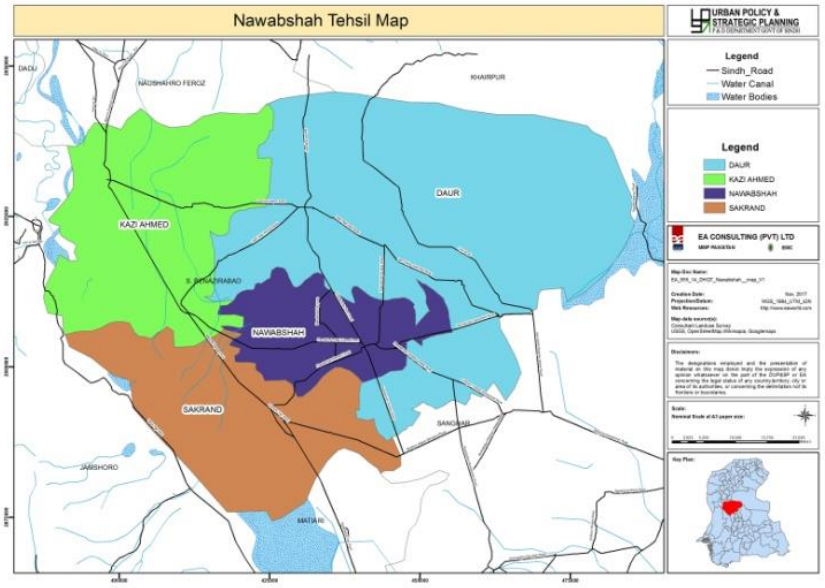
The Strategic Plan output

The proposed Development Master Plans of selected District Headquarter Towns of Sindh would focus on the following Tasks

- Review of Past Trends, Development Strategies and Prevalent Conditions
- Preparation of Digital Base Maps
- SWOT Analysis
- Carving out a Vision for the Future of these cities
- Preparation of Development Plan comprising of:
    - Long Term Development Plan
    - Growth Scenarios
    - Short Term Action Plans for Priority Infrastructures
    - Immediate Action Plan for the Core Urban Areas
    - Economic Development Plan
    - Disaster Management Plan and
    - Climate Change, Resilience & Adaptability Plans

2. AN OVERVIEW OF NAWABSHAH (SHAHEED BENAZIRABAD DISTRICT)

2.1 History



Historically, this region was ruled by different dynasties including the Soomra (1024-1351), Summa (1335-1520), Arghun (1520-1650), Kalhora (1657-1783) and Talpur (1783-1843). When Britain invaded the subcontinent, General Charles Napier, a commander in the British Army, defeated the Talpur dynasty and conquered Sindh in 1843. He was appointed as first Governor General of Sindh. The province was divided into different administrative parts and assigned to Zamindars (landlords) to collect taxes for the British government. Later on, the rulers developed these areas as urban centers. People migrated from other districts and provinces as well and started to reside here. The British Empire named these small developed areas as "Talukas". They named this taluka after the name of a migrator, Syed Nawabshah, which was initially called Nawabshah town, and then developed as Nawabshah taluka and finally it was upgraded to the status of Nawabshah district in 1912. Shaheed Benazirabad district was formerly known as Nawabshah district. It was renamed in April 2008 after the assassination of Mohtarma Benazir Bhutto.

2.2 Topography and Geology

With the exception of north eastern part of Nawabshah taluka which is a desert known as Gunjo Thar, the rest of the district is a fertile plain formed by Indus River. The soil is sandy with hard clay loams with negligible exception where the soil is Kallarish. Shaheed Benazirabad district is that part of Indus valley which has benefited more than any other part of Sindh from the development of irrigation under Rohri canal. The average elevation of the area is about 50 meters above sea level.

Geographically, most of the district is in what is termed vaguely vicholo (middle) Sindh. Nawabshah town is located almost the exact centre of the province of Sindh.

The land structure of this district can be distributed into three parts. First, on the northern side of the district is the kacha (the lands alongside the Indus River), these lands are very fertile but are prone to riverine floods. Second, the central and major part of the district contains of the irrigated cultivable lands.

This area consists of very productive agricultural land. Third, the eastern part of the district that comprises of the barren desert lands in Daur taluka[2].

2.3 Geographical Location and Area

The district lies between 25° 59" to 27° 15" north latitudes and 67° 52" to 58° 54" east longitudes. It has Naushahro Feroze and Khairpur districts on the north, on the west bonded by Indus River, Jamshoro and Dadu districts, on the east by Sanghar and on the south by Matiari district. The district is located in the center of the Sindh province of Pakistan, and is therefore commonly known as the heart of Sindh.

Indus is the only river of the district which runs along the western boundary of the district for about 90 kilometres. There are no other rivers in the district but a nallah from river Indus to Sakrand. Roughly whole of the district except eastern portion of Nawabshah taluka, which is a desert is suitable for the production of crops. Main crops during rabi are wheat, oil seeds, berseem fodder, mutter and gram. In kharif crops cotton, jowar, bajra, gowar and sugarcane are grown. Good breed of buffalo and cow are found in the district. Sheep, goat, camel, horse, ass and mule are also the main livestock of Shaheed Benazirabad district.

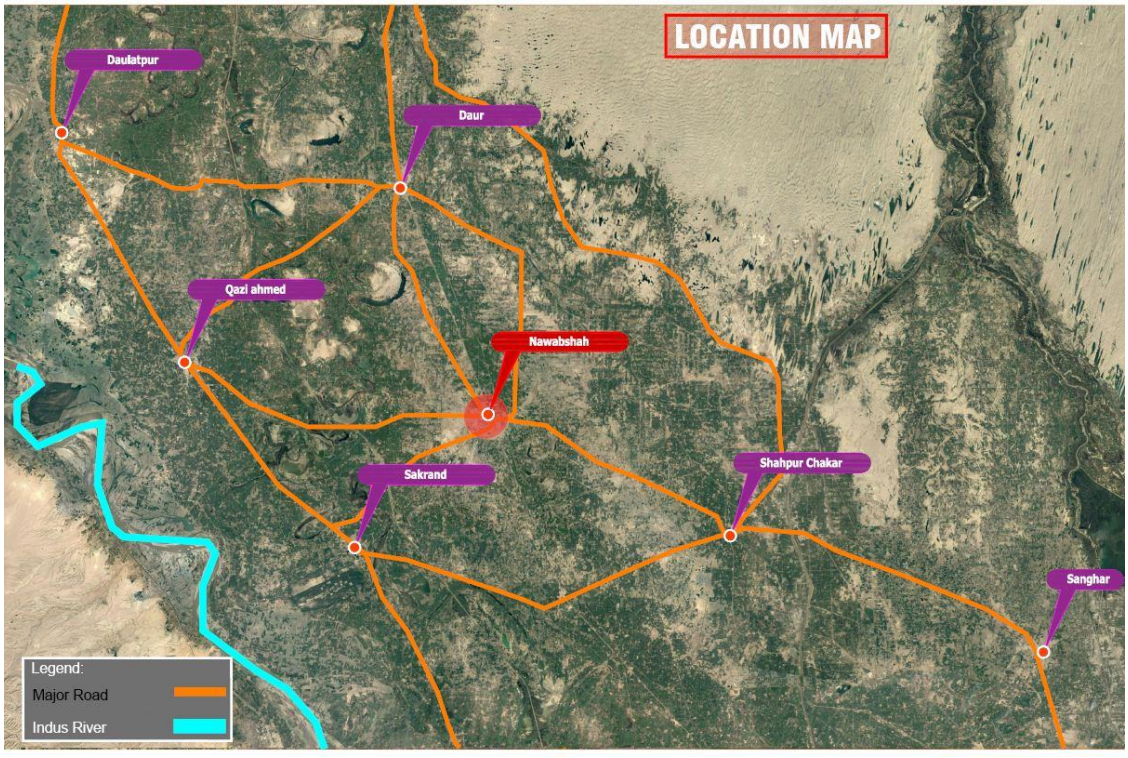


Figure 2:1: Location Map of Nawabshah

[2] PESA-DP-Shaheed Benazirabad

2.4 Administrative Set-up

District Shaheed Benazirabad has its district headquarters in Nawabshah city. This district has four talukas named Nawabshah, Sakrand, Qazi Ahmad and Daur. It has 51 union councils and 321 mouzas (revenue village). Out of the total mouzas, 291 are rural mouzas, 10 are urban, 14 are partly urban, 4 are forests and two mouzas are un-populated.

Table 2-1: Administrative Division of District Shaheed Benazirabad

Shaheed Benazirabad	Krungo Circled / Supervisory Tapas	Patwar Circles / Tapas	Number of Mouzas					
			Total	Rural	Urban	Partly Urban	Forest	Un-Populated
Nawabshah Taluka	1	13	51	44	3	4	-	-
Sakrand Taluka	2	18	63	57	1	1	3	1
Kazi Ahmad Taluka	3	27	64	56	2	4	1	1
Daur Taluka	2	33	143	134	4	5	-	-

Source: Mouza Statistics of Sindh 2008, Agriculture Census Organization.

2.5 Population

- **Past Growth Trends Shaheed Benazirabad District**

  According to 1998 census, population of district Shaheed Benazirabad was 1,071,533 souls with 26% urban population and 74% rural population, with an average annual growth rate of 1.63%. According to the Population and Housing census of 2017 population figures for district Shaheed Benazirabad is 1,612,847 souls with an average annual growth rate of 2.18% which shows an increasing trend.

  Shaheed Benazirabad District has a slow growth rate and this is the reason why its population will not even be doubled by 2037. Projected population of Nawabshah works out to be 2,482,625 souls by 2037. The future projections of Shaheed Benazirabad District are described in the below table:

Table 2-2: Future Projections for Shaheed Benazirabad District @ 2.18% Annually				
Census 2017	**Estimated 2022**	**Estimated 2027**	**Estimated 2032**	**Estimated 2037**
1,612,847	1,796,481	2,001,023	2,228,854	2,482,625
Source: Census 2017 & Consultant's Estimates				

2.6 Present and Future Population Projections Nawabshah MC

According to 1998 census town had a population of 189,244 with household size of 7.7, with estimated growth rate of 3.69% per annum and 45% of the population. According to latest census of 2017 population of Nawabshah town is 279,688 with an annual growth rate of 2.08%. Below table shows the population growth trend of Nawabshah town upto 2037. Due to decrease in growth rate, projected population of Nawabshah works out to be 415,602 souls by the end of 2037. The future projections of Nawabshah town are depicted in the table below;

Table 2-3: Nawabshah MC Present & Future Growth Trends					
Census 1998	**Census 2017**	**Estimated 2022**	**Estimated 2027**	**Estimated 2032**	**Estimated 2037**
189,244	279,688	308,798	340,938	376,423	415,602
Source: Census 2017 & Consultant's Estimates					

2.7 Urban Morphology

Nawabshah Town has recently gone through a development phase, where various institutional expansions are developed in past 5 years from 2013. The recently developed Nawabshah- Qazi Ahmed Road, Nawabshah-Sakrand Road are hub of Low Density Sprawl and catering major population to act as pull for inward growth of population. Total area of the town covers 4239 sq.km with the density of 240/sq.km. Nawabshah town gets its growth from 2004 to 2017 in between two major roads, Sakrand road and shahpur chakar road by its reformation of two major housing societies like: Quaid-e-awam colony on Shaheed Bhutto road and airport road. The city extended in three directions constantly i.e. northern part, southern part and western part of town area. Town's spatial growth during last 10 years shows that town spread at 58% in its built up area.

The city grew mainly in north-south and east-west directions. Nawabshah town's center builds up along the medical college and hospital which includes the major buildings like;

- Medical College Hospital Nawabshah
- Rangers Public School
- Session Court

- EDO Health Office
- DCO Office
- Town Jail
- Govt. Boys Degree College
- NBP Zonal Office
- Cloth Market
- District Council Nazim Office
- PAF selection center Nawabshah
- Shaheen Air ways training center
- Cancer Hospital at Qazi Ahmed Road

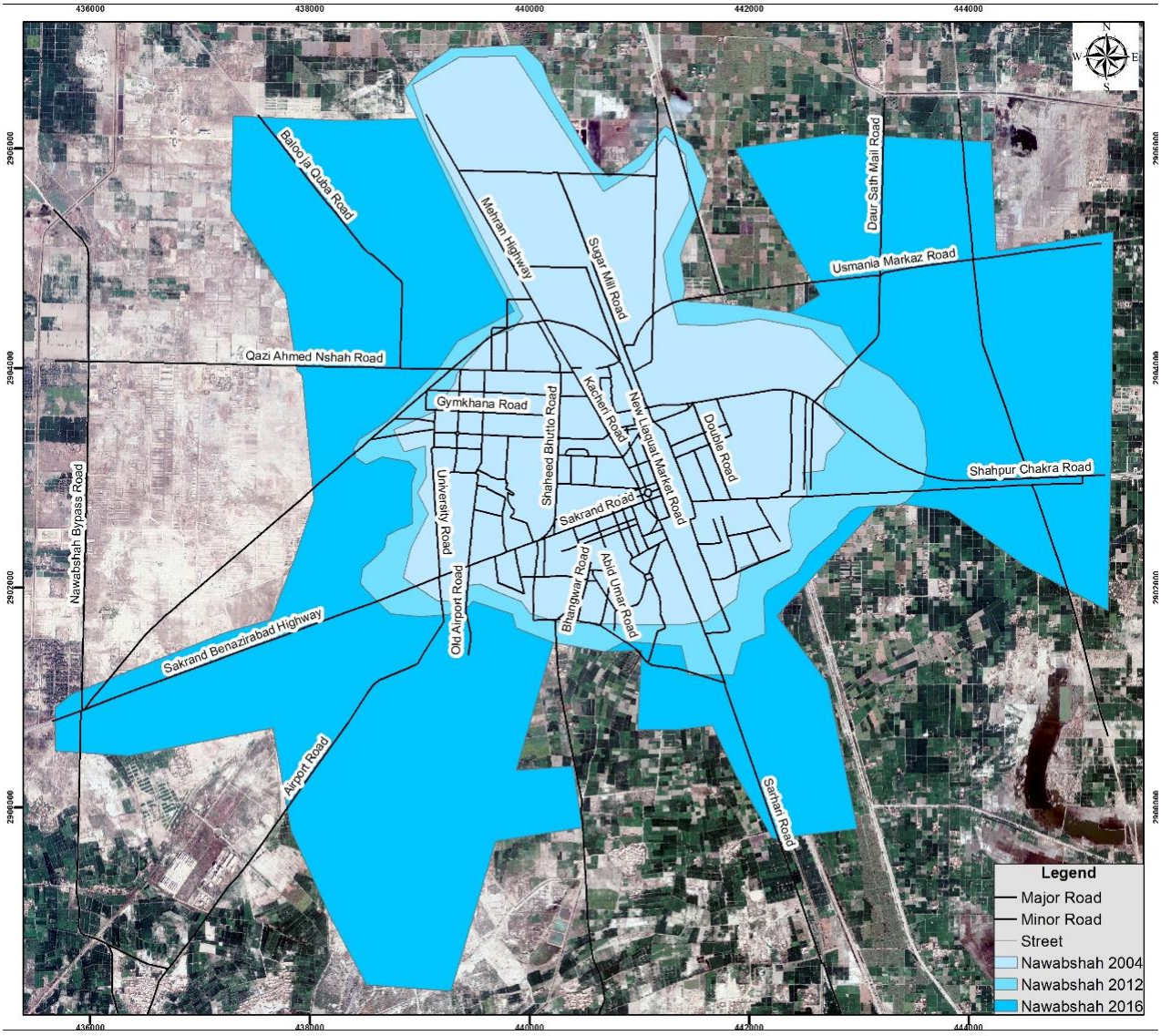


Figure: 2:2: Historical Growth of Nawabshah

2.8 Land Use and Spatial Extension

The built-up area of Nawabshah town comprises of around 8,174 acres of land which is 38.4% of the total area as compared to consultant's urban boundary which is 21,296 acres. The land use analysis indicates that almost 52% of total urban boundary area is in use of residential purpose only. 42.5% of the area is covered by agriculture fields.

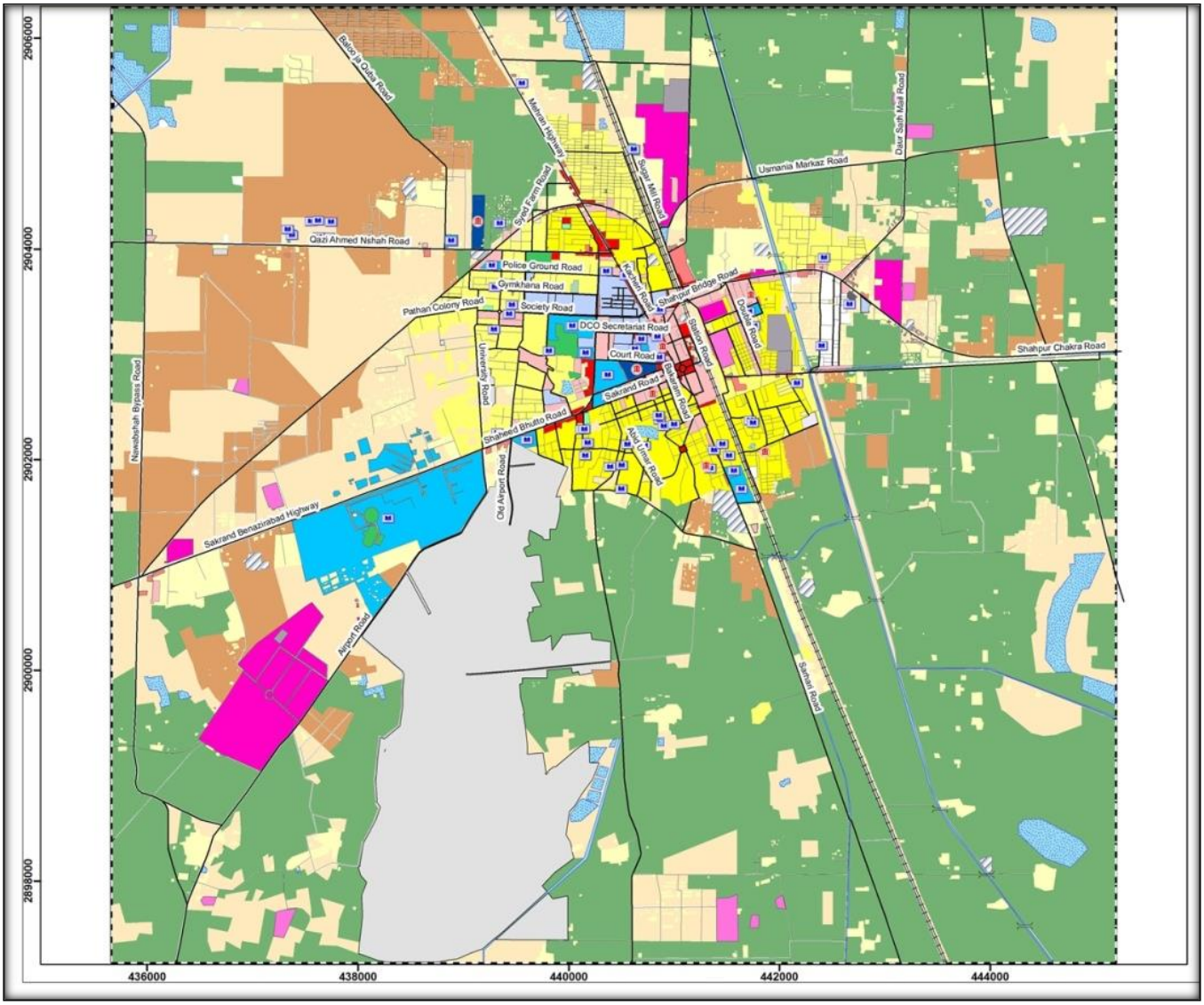


Figure 2:3: Land Use Map of Nawabshah

Table 2-4: Land use Classification and Percentages				
Nawabshah Town (Urban Boundary)				**21,296**
CATEGORIES	**LANDUSE CLASSIFICATION**			**AREA (ACRES)**
URBAN	Residential	Residential	Low Density Residential	882
			Medium Density Residential	625
			High Density Residential	549
			Mix Development	199
			Proposed Housing Schemes	1,999
	Sub Total			4,253
	Commercial	Commercial	Low Density Commercial	14
			Medium Density Commercial	43
			High Density Commercial	59
	Sub Total			116
	Parks and Playground	Parks and Playground	Parks and Playgrounds	48
	Sub Total			48
	Amenities	Institutional	Education	426
			Public Administration	107
			Health And Welfare	26
			Religious	6
		Utilities And Municipal Service Facilities	Electricity	1
			Sewerage	5
			Water Supply	45
		Burial Ground	Burial Ground	90
	Sub Total			705
	Industrial	Manufacturing	Small-Scale Manufacturing/ Light Industry	79
			Large-Scale Manufacturing/ Heavy Industry	360
	Sub Total			439
	Transportation	Transportation	Transportation	2,612
	Sub Total			2,612
	Sub Total			8,174
NON-URBAN	Agriculture And Forestry		Agricultural	9,047
	Sub Total			9,047
	Water Bodies		Canal	73
			Water Bodies	286
	Sub Total			359
	Vacant Area			3,715
	Total			3,715
TOTAL				**21,296**
Source: Spatial Analysis done by Consultants				

2.9 Town Scape

Zone 1:

Zone 1 contains Nawabshah Junction (railway Station). It comprises of high density residential areas consisting of various housing colonies like Santa Singh colony, Ghareebabad, Daulat Colony etc. This zone also contains Liaquat Market, Mohini Bazaar and other Bazaars. Thus it is the highly compact zone of the city.

Zone 2:

This zone is characterized by presence of heavy industries, new development and agriculture. In heavy industries Habib Sugar Mill private Ltd. is the big name. The new housing development is going through at the expense of agricultural land parcels.

Zone 3:

This zone seems to be a planned area of Public Administration, Recreational, Educational and Health Institutions. It includes major landmarks like DC Office, Session Court, Shaheed Benazir Bhutto University, Peoples University of Medical and Health Sciences for Women (PUMHSW), Bilawal Sports Stadium, Gymkhana. Thus this could be referred as the CBD of the town.

Zone 4:

Most of the future development is being carrying out in this zone. Other than new housing potential it also contains new Nawabshah Hospital for Mother and Child Care, Shaheed Benazir Public School and an old abandoned Dry Port.

Zone 5:

This zone is an Industrial cum Educational Zone. It has small Industries such as Ginning factory, cotton factory, chemi visco fibre and oil mills. Quaid-e-Awam University of Engineering, Science & Technology Nawabshah (Q.U.E.S.T) also exist in this zone, on both sides of Sakrand Nawabshah Road.

Zone 6:

It is an exclusive zone comprises of the existing airport and related activities. This zone seems to be have some restrictions regarding new development and high rise buildings due to the presence of airport.

Zonal Plan of Nawabshah

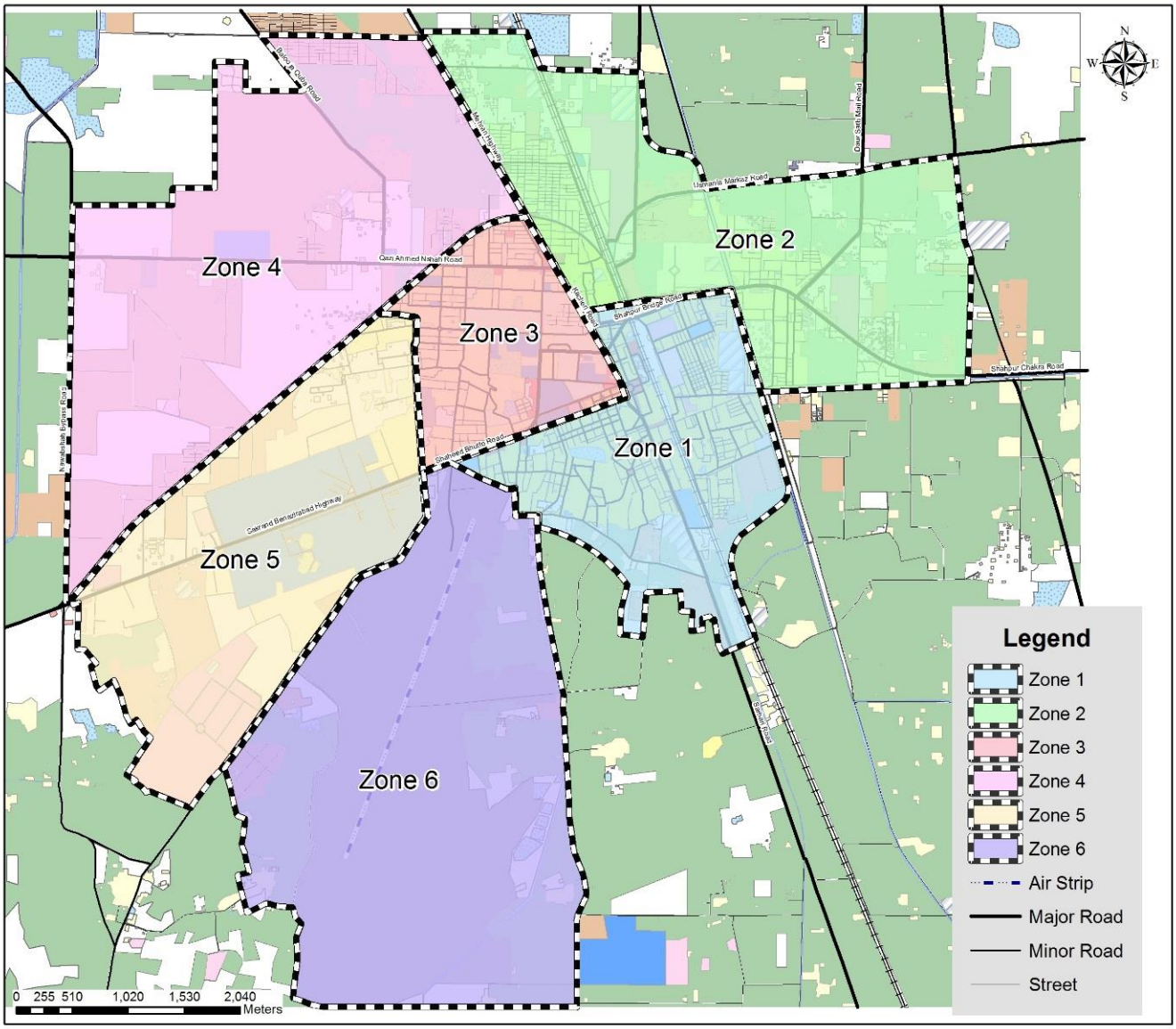


Figure 2:4: Various types of Land uses in Nawabshah



Residential



Agricultural Land



Commercial area in Nawabshah



Medical Centre Nawabshah



Graveyard



District Health Office

3. VISION FOR STRATEGIC DEVELOPMENT PLAN OF NAWABSHAH

Having gone through a detailed process of data collection and evaluation in the previous stages of the study and obtaining citizens input through the Consultative workshops with the stakeholders, the Consultants have identified development issues in the various sectors and provided sector wise strategies to resolve issues in an integrated manner. The issues are running of the development programmes. As funds are never unlimited, it would be utmost necessary to concentrate on projects that being meaningful and quick relief in the life of common man and significantly the quality of life. In the sections of the Report to follow, sector wise development strategies are listed. The focus should be to select projects which have a strong sequential links is the form of a "package" rather than stand-alone project.

3.1 Summation of Vision Formulation

The basic aim of vision formulation exercise is to have pluralistic approach to establish a shared and common vision for the development of **Nawabshah "Shaheed Benazirabad"** DHQ town in the future, define its role as a leading regional centre in the Sindh province and the socio-economic uplift of the population



The summations and conclusions are described hereunder:

1) Although the participants generally understood that vision should reflect citizens and stakeholders' aspirations as to where they want to see their town in twenty years from now However, their focus has remained on the resolution of immediate problems namely; supply of clean drinking water, sewerage and drainage, solid waste disposal, traffic congestion and parking, better health and educational facilities, cleanliness, parks and play areas It is clear that far flung high sounding vision statements, are meaning less for them if the immediate problems are not urgently solved

2) The participants showed concern regarding high rate of population growth and migration Urbanization and uncontrolled land use conversion is eating away lots of urban agricultural land and breaking social fabric of residential communities. Need for land management system has been stressed

3) The socio- economic uplift of the population has been mentioned by most participants, which include provision of basic needs of housing facilities with sustainable utility services, health, education, parks and playgrounds, employment and income generation.

4) Peace, safety, security and proper governance are envisioned by the participants as the ultimate goal for the twenty year **Nawabshah "Shaheed Benazirabad"** Strategic Development Plan Whereas the Vision will remain static, the path to reach the vision may be subject to adjustments to account for ground realities.

3.2 Nawabshah "Shaheed Benazirabad's" Vision Statement

The visioning process stems from the Stakeholders' Vision of the town which have been translated into tangible and concrete targets .The discussions in the Workshop that most people want to see:

Where a lot of investment is expected to be made;
The priority will first be given to improve the Core Urban Area of DHQ town. And then could go to remaining town and Peri-urban areas.

Existing utilities including water supply, sewerage & drainage as well as facilities are in bad state of repairs due to shortage of funds. The government should make sufficient fund allocations for the repairs and rehabilitation of existing facilities.

NAWABSHAH "SHAHEED BENAZIRABAD"
VISION 2037

"The city full filling all the basic needs, such as housing, water supply and sanitation, in clean and sustainable pollution free environment, with education and health for all, along with growth in local and regional economy with increase in employment, incomes and related skills development to emerge as well planned modern city with peace, security and prosperity like some of the best most liveable cities in the world."

PROPOSED MASTER PLAN OF

NAWABSHAH TOWN

4. PROPOSED MASTER PLAN OF NAWABSHAH TOWN

4.1 Spatial Pattern

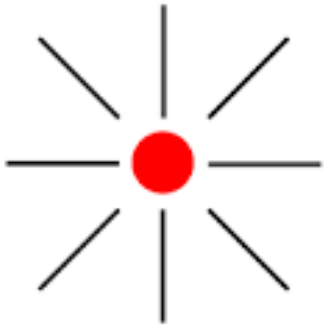
After migration of Syed Nawabshah, the town was initially called Nawabshah Town, and then it was upgraded to the status of District Headquarter Town. Its district was renamed as Shaheed Benazirabad district after assassination of Mohtarma Benazir Bhutto. It is located in the center of the Sindh and is therefore commonly known as the Heart of Sindh.

Indus River runs along the western side of the district and Nawabshah Town is roughly 50 kilometers from its left bank. This district is benefited more than any other part of Sindh from the irrigation development of Rohri Canal. The average elevation of the area is about 50 meters above sea level. The soil is sandy with hard clay loams with negligible exception where the soil is Kallarish. With the exception of north eastern part of Nawabshah which is a desert known as Gunjo Thar, the rest of the district is a fertile plain formed by Indus River.

The important means of transport and communication in the Nawabshah are airport, railway and roads. National highway (N-5) passes through Sakrand and Qazi Ahmad; and Nawabshah Town is connected to N-5 via Sakrand Road (N-305) and Qazi Ahmed Road. Nawabshah Town has recently gone through a development phase, where various institutional expansions are developed since 2013. The recently developed Nawabshah Qazi Ahmed Road and Nawabshah Sakrand Road are hub of low density sprawl and catering major population. In addition Shahpur Chakra Road has also acted as a magnet of recent growth. Thus it can be concluded that the city is constantly extended in west and east directions mainly. In the town of Nawabshah, the development is not confined thus the existing infrastructure is continuously under pressure due to un-planned development.

4.2 Basic Urban Form

The existing town is a medium size lively and thriving urban center that fulfils the socio-economic and financial needs of its population and of surrounding towns. Specially those are not along major connectivity corridors are benefited, like Daur Taluka.

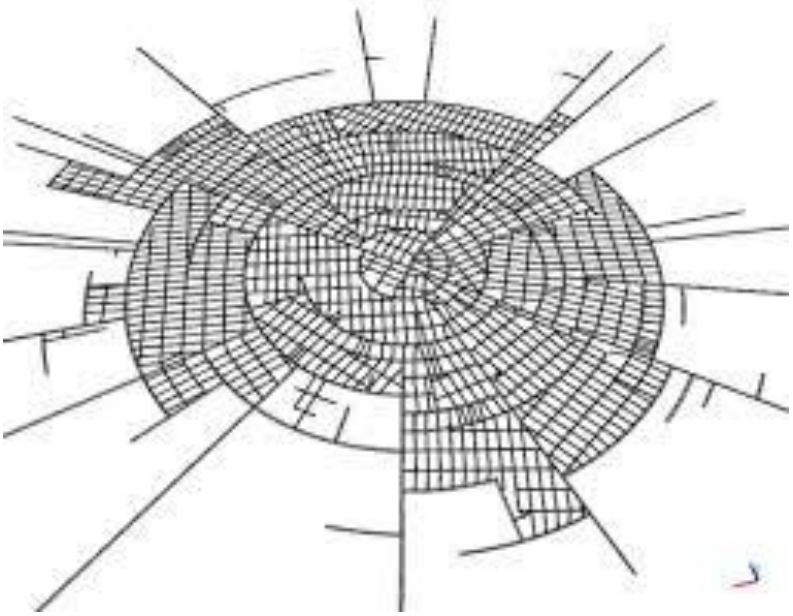


It is no surprise then that the population demands the uniqueness and prominence of the existing town to be maintained or enhanced in the future plan. During the stakeholder's conference, the town elders insisted that any future urban development detached from the existing town making the existing town a redundant, will not be acceptable to them.

The existing core town would naturally be the physical nucleus of the future town, and the future development will radiate from it in all directions in form of different sectors. At present eight major roads connects Nawabshah with the other cities, all converging on the town center. Interconnection of these

radiating roads with the proposed Ring Road around the existing town, will keeps the development compact.

Since this town is large enough in terms of its spatial spread and its projected future population, thus the alignment of a Ring Road is made with consultation of stakeholders. The Ring Road is formed considering some important outer developments like; SMBB University, Peoples Medical University, Airport and Bakhtawar Cadet College. In addition the portion of existing Nawabshah Bypass Road will act as main connecting artery between Qazi Ahmed and Sakrand Roads. After passing Ring Road, it will function as bypass for the town.



4.3 Proposed Master Plan

The Proposed Master Plan for Nawabshah has been prepared with the consideration of three phases as follows:

i. Immediate Phase - Immediate Action Plan
ii. Short Term Phase - Priority Projects
iii. Long Term Phase – Strategic Development Plan

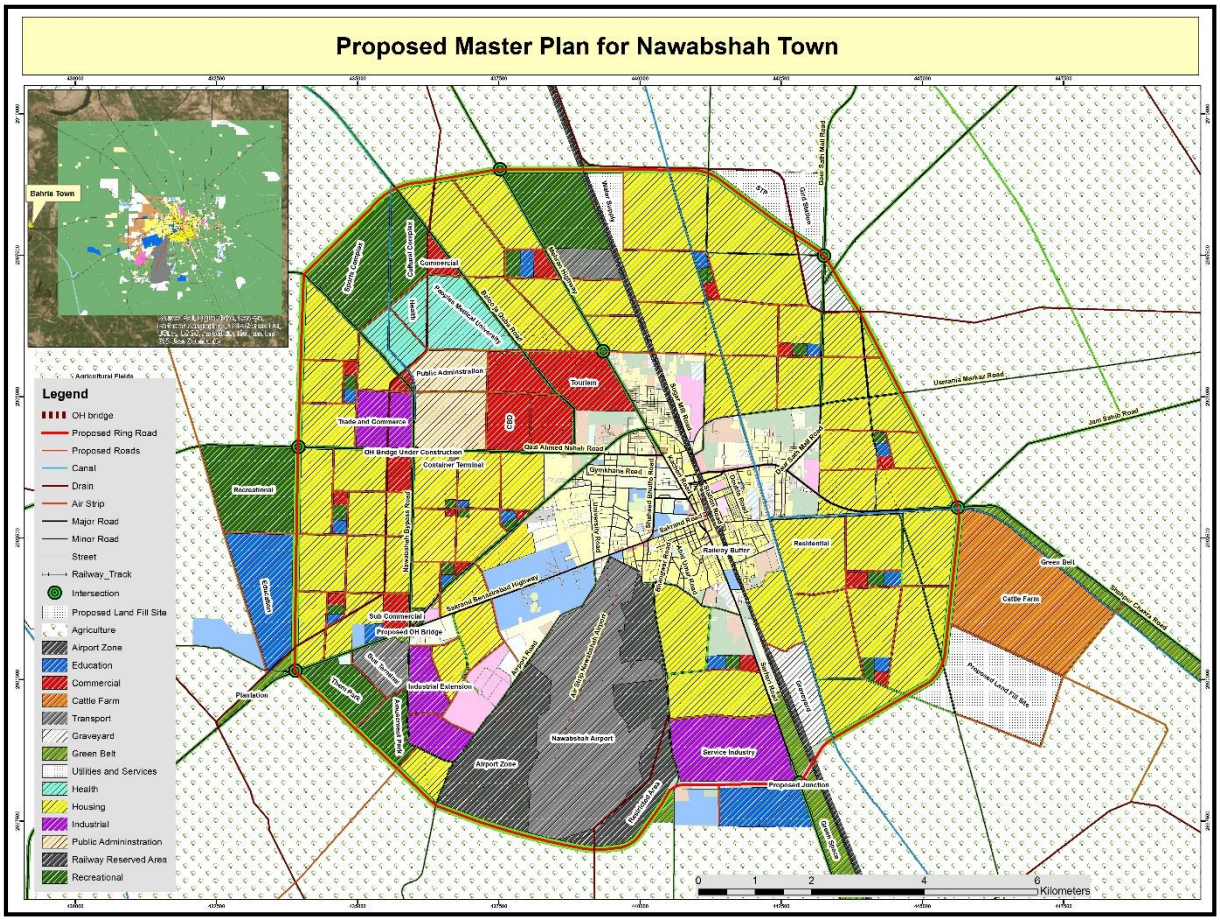
The total extent of the area included in the overall proposed Nawabshah Master Plan is 41,200 acres approx. for a population of 416,000 by 2037. In this way, Nawabshah Town in next twenty years is expected to have population density of 10 persons per acre and overall six housing units per acre with an average household size of 5.9.

The hallmark of the plan is that it is **compact without being congested**. As the future expansion of the Nawabshah Town is expected to be large, thus the complete Proposed Nawabshah Master Plan is catering for all the needs of a full-fledged metropolis of the future. Thus the plan will afford balanced development containing all required land uses.

The overall structure of the plan is a combination of radial and grid pattern that the existing minor roads creating grid, major roads serving as radial roads and proposed ring road is running all around the

periphery. Further the intersection of radial roads and ring road creates main junctions and forming different sectors.

Despite taking different aspects in to consideration, the Consultant suggest that the Master Planning should be reviewed every five years to estimate the land use and area requirement according to the growth rate and economic investment.



4.3.1 Salient Features of Planning

- The main CBD Central Business District occurs in between Qazi Ahmed and Baloo Ja Quba Roads. Likewise tourism area is placed next to CBD along Mehran Highway. In addition, sub commercial areas are also identified at Nawabshah Bypass Road and its intersections with Qazi Ahmed, Sakrand Roads, to reduce the burden over the main CBD.
- Trade and commerce activities are placed along Qazi Ahmed Road with respect to existing Dry Port along same road. Moreover a much larger technical service area is also proposed along Sarhari Road towards southern side. The Industrial Area Extension is placed next to existing special industrial zone and it is accessible from Airport and Sakrand Road.

- One of the largest area of this town is made reserved for airport and related use. Similarly reservation for railway land with buffer area is also suggested. The transport terminals are also provided one at Sakrand Road and another at Mehran Highway.
- The areas for graveyards have also been reserved at the far ends of the proposed town. However, these are accessible from Sarhari Road, 68 Miles Road and Airport Road.
- The cattle area is proposed in the southeast along Shahpur Chakra Road to limit the town development further and it will also benefit the population of nearby villages and other settlements.
- The new public administration area is proposed adjacent to the new CBD along Qazi Ahmed Road, to serve and manage this large city of Nawabshah.
- The health zone is marked in northeast direction, adjacent to People Medical College, as it is under construction along Baloo Ja Quba Road. In the same way, considering existence of SMBB University and Bakhtawar Cadet College, two educational areas are recommended next to these.
- The sports and cultural complexes are proposed in northwest at inner side of the Ring Road, also approachable with Nawabshah Bypass and Baloo Ja Quba Road. On the southwest side amusement and theme parks are suggested along Sakrand and Airport Roads. In addition two major recreational areas are also designated at Qazi Ahmed Road and Mehran Highway.
- The areas reserved for agriculture beyond the Ring Road will be helpful in restricting housing development and preserving the agricultural farms from the onslaught of the housing projects by private sectors.

4.3.2 Ring Road – Connecting Outer Developments

The proposed ring road is not a smooth circle as it is basically formed by connecting outlying development of SMBB University, Peoples Medical University, Airport and Bakhtawar Cadet College. The shape of the proposed Ring Road give itself a moving direction in northwest, due to presence of Nawabshah Bypass. This bypass is further going to join the Mehran Highway. The recommendations are to increase the right of way i.e. 200 feet with urban forestation of 200 feet wide on both sides of the complete ring road. As the areas on both sides of the Ring Road will attract many developers. The land two hundred feet on both sides of the ring road should be notified for development control where only planting of local trees should be allowed.

4.3.3 Radial Roads – Regional Connectivity

All proposed radial roads are existing major roads, providing transport connectivity with other urban and rural regional areas. Most of these roads are converging to core urban area, or in other words these roads are originating from the existing town. In this way, the existing town will remain focal point of all development along the roads. However, these roads are also serving as vital radial regional connections.

As a result, there are eight proposed radial roads with increased ROW, which will serve as future regional connections. These includes; Sakrand, Qazi Ahmed, Baloo Ja Quba, Mehran Highway, 68 Miles, Shahpur Chakra, Sarhari and Airport Roads. In addition, Nawabshah Bypass is connecting some of these radial roads and further providing regional connectivity in northwest direction. However it is very important to control upfront development along the major roads. Likewise Ring Road, on both sides of major roads planting of local trees is also highly recommended.

4.4 Proposed Land Use Zoning

Table 3-4-1: Proposed Land Use Classification for Nawabshah

S.No	NRM STANDARDS		PROPOSED LAND USE CLASSIFICATION	
	Land Use Zoning	Land Uses (%)	Level - 1 Functional Zoning	Land Uses (%)
1	Residential	40-45%	Residential	33.0%
2	Commercial	2-3%	Commercial	4.6%
3	Industrial	2-10%	Economic	6.9%
			Livestock	
			Industrial	
4	Institutional	3-5%	Health and Welfare	6.9%
			Educational	
			Religious	
			Public Administration	
5	Community Open Spaces	4-6%	Recreational	6.9%
6	Graveyards	2-3%	Graveyards	1.6%
7	Arterial Circulation & Terminals	15-20%	Transportation	19.3%
			Utilities and Services	
8	Protected Reserved	15-25%	Urban Forestation	20.8%
			Agriculture	
			Water Bodies	
			Vacant / Reserved	

The proposed land use zoning is broadly based on NRM Standards[3]. The NRM has not been revised since decades, thus the Consultant have added new land uses in the prescribed categories, as primary zoning i.e. Level-1. Further, as per the contextual requirement of the local environment of Nawabshah as DHQ Town, secondary zoning i.e. Level-2, is also categorized accordingly, again in consideration to the NRM Standards[4]. Comparison of proposed land use as per NRM standards is shown in the table:

The total area requirement for full fledge metropolis will be around 41,200 acres. As shown in the table of proposed land use classification, the percentage of residential is low, while commercial is high, in comparison to the NRM standards. Subsequently, the commercial area will also contain residences in form of apartments and mixed use development. In this way, commercial area is sharing the residential load as well.

[3] Guidelines for Land Allocation to Zones in the Preliminary Design of a New Town, Table 10.3, page no. 305, National Reference Manual on Planning and Infrastructure Standards

[4] Standard Land Use Classification for Urban Jurisdictions in Pakistan, Appendix 10.1, page no. 398, National Reference Manual on Planning and Infrastructure Standards

S.No	PROPOSED LAND USE CLASSIFICATION FOR NAWABSHAH TOWN						
	Level - 1 Functional Zoning	Level - 2 Functional Zoning	Areas (acres approx.)		Land Uses (%)	Areas (acres approx.)	Land Uses (%)
1	Residential	Existing Residential	2,253				
		Present Housing Schemes	2,000	13,597	33.0%	13,597	33.0%
		Proposed Residential	9,344				
2	Commercial	Existing Commercial	116				
		New Central Business District	352				
		Tourism Area	326				
		Sub-Commercial at Sakrand Road	140	1,901	4.6%	1,901	4.6%
		Sub-Commercial at Qazi Ahmed Road	135				
		Sub-Commercial at Bypass Road	103				
		Commercials	728				
3	Economic	Trade and Commerce	360	910	2.2%		
		Technical Services	550				
4	Livestock	Cattle Farms	1,170	1,170	2.8%	2,826	6.9%
5	Industrial	Existing Industrial Area	439	747	1.8%		
		Industrial Extension Area	308				
6	Health and Welfare	Existing Health and Welfare	26				
		Peoples Medical University	351	622	1.5%		
		New Health Area	246				
7	Educational	Existing Educational	426				
		Educational Area near SMBB University	467	1,364	3.3%		
		Educational Area near Bakhtawar Cadet College	264			2,855	6.9%
		Schools and Colleges	208				
8	Religious	Existing Religious	6				
		Religious at Baloo Ja Quba Road	112	241	0.6%		
		Religious at Sarhari Road	123				
9	Public Administration	Existing Public Administration	107	627	1.5%		
		New Public Administration Area	520				
10	Recreational	Existing Parks and Playground	48				
		Sports Complex	453				
		Cultural Complex	223				
		Amusement Park	167				
		Theme Park	212	2,825	6.9%	2,825	6.9%
		Recreational Area at Qazi Ahmed Road	530				
		Recreational Area at Mehran Highway	414				
		Green Belts	567				
		Parks and Playgrounds	210				
11	Graveyards	Existing Graveyards	90				
		Graveyard at 68 Road	215	660	1.6%	660	1.6%
		Graveyard near Airport Area	128				
		Graveyard along Railway Reservation	228				
12	Transportation	Existing Transportation	2,612				
		Transport Terminal at Sakrand Road	172				
		Transport Terminal at Mehran Highway	141				
		Airport Reserved Area	1,442	6,744	16.4%		
		Railway Reserved Land	575				
		Junctions, Intersections, Overhaeds, Underpasses	132			7,946	19.3%
		Road Network	1,669				
13	Utilities and Services	Existing Utilities and Services	51				
		Water Supply	122				
		Sewerage	208	1,202	2.9%		
		Land Fill	641				
		Electricity	180				
14	Urban Forestation	Urban Forestation	1,210	1,210	2.9%		
15	Agriculture	Agricultiral Fields	6,974	6,974	16.9%	8,543	20.8%
16	Water Bodies	Canals and Ponds	359	359	0.9%		
17	Vacant	Vacant Area		-	0.0%		
		Total Area for Future Development of Nawabshah	41,153	41,153	100%	41,153	100%

4.4.1 Residential Zone

The important features of the proposed master plan is accommodation of all income groups with diverse options for housing. Therefore in total 13,600 acres of residential land use is proposed, which will create six housing units per acre on average. Thus in overall town more than 81,600 housing units are expected to be in town by 2037.

There are existing vacant land parcels in overall town, specially in west of the core urban area have a considerable potential of infill development for residential use. This will somehow fulfill the partial need of new migrants coming from other areas in search of better living in the immediate phase. For low income group in short term phase (priority project) 166 acre of land is proposed along Sarhari Road for medium to high density development; while for other income groups, mixed density (low, medium and high) residential areas are proposed. Moving ahead, for the long term phase, areas are also being reserved for residential development as per future requirement, which will also include apartment buildings.

The following land use division is for New Residential Schemes according to Sindh Building & Town Planning Regulations of Sindh Building Control Authority:

New Residential Scheme [5]		
S.No	**Land Use**	**SBCA Standards**
1	Residential	55% max
2	Commercial	5% max
3	Parks	5% min
4	Playgrounds	5% min
5	Public Uses	5% min
6	Educational	3% min
7	Roads	22% min

The Level II secondary zoning of residential land use will be as follow:

- **Houses**

  Taking the existing trend of housing, it is recommended to concentrate more towards houses, as the cultural context favor low to medium density housing development. However, it is preferred to follow the standards and give ample spaces to neighborhood facilities as well.

  The following guidelines are for houses zone development:

Permitted Uses	Allied Permissible Uses	Prohibited Uses
- Houses - Neighborhood level facilities like small commercial, parks, playgrounds, schools, religious, parking	- Utilities and services - Road accessibility - Pedestrian friendly streetscape - Mixed-used structures	- Apartments - Large health and educational institution - Large commercial activities

[5] Land Allocation for New Residential Schemes as per Sindh Building & Town Planning Regulations, Chapter 20.4.1, page no 124.

Houses - Applicable SBCA Bylaws[6]					
Types	**Densities per acre**	**Plot Sizes sq.yds**	**Foot Print FP %**	**Floor Area Ratio - FAR**	**No. of Floors**
Low Density Houses	50 – 100	1,000 or above	40% - 45%	1:1	G+2 (max)
Medium Density Houses	100 - 200	400 to 999	50% - 55%	1:1 - 1:1.5	G+2 (max)
High Density Houses	200 - 300	120 to 399	65% - 75%	1:1.8 - 1:2	G+2 (max)

- **Apartments**

  In Nawabshah Town, the trend of vertical residential development, in form of apartments is already existing. Secondly, as new migrants are expected from other urban areas as well, thus there is a need to fulfill the modern residential need like apartments. On the other hand, apartments are more effective in accommodating large number of households in less acres of land due to increased density in comparison to houses.

  Here it is not necessary to build a concrete jungle, however with better design and new ideas different type of walkable as well as high rise could be made. The main focus should be to provide open and green areas as breathing spaces in between apartment building as per the standards.

  The following guidelines are for apartment zone development:

Permitted Uses	**Allied Permissible Uses**	**Prohibited Uses**
- Apartments - Designated parking areas - Small commercial - Parks and playgrounds - Prayer areas	- Utilities and services - Road accessibility - Pedestrian friendly streetscape - Mixed-used structures	- Large health and educational institution - Large commercial activities

Apartments - Applicable SBCA Bylaws[7]					
Types	**Densities[8] per acre**	**Apartment Sizes sq.ft**	**Foot Print FP %**	**Floor Area Ratio - FAR**	**No. of Floors**
Low Density Apartments	325	2,500 – 4,000	40%	1:2.75	G+6 (max)
Medium Density Apartments	500	1,500 – 2,500	40%	1:2.75	G+6 (max)
High Density Apartments	650	1,000 - 1,500	40%	1:2.75	G+6 (max)

[6] Houses/Bungalows, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.2, page no 141.
[7] Flat Sites Category, Zoning Regulations /Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.4, page no 144.
[8] Residential Density Standards, as per Sindh Building & Town Planning Regulations, Chapter 20.3, page no 123.

4.4.2 Commercial Zone

This zone is mainly mixed use commercial with state of art buildings. The smart development will be preferred from medium to high density and less foot print, in order to utilize the land efficiently with sufficient open and green spaces.

The Level II secondary zoning of commercial land use will be as follow:

- **New CBD (Commercial Business District)**
  The New CBD has been located in the area of central attraction accessible from Qazi Ahmed Road. The main land uses of the CBD will be regional corporate headquarters, financial centers, media houses, IT / software, specialized production service and retail shopping outlets with dedicated parking and large open spaces. This will integrate a great deal of financial, business, culture, service institutions and lots of supporting facilities; such as business office buildings, large shopping malls, hotels and apartments, etc. These will be developed with perfect and convenient traffic, communications and other infrastructures, favorable economic development, environment friendly places; which are convenient for commercial activities.

- **Tourism**
  There are few historic and famous places in the district includes; Bhiro Bhango, Dalel Dero, Kuba Noor Muhammad Kalhora and Mandir of Halani. Considering the potential of tourism, the area has been reserved for tourism along Mehran Highway, adjacent to New CBD. It will include convention center, expo center, hotels, shopping malls, exhibition ground, etc.

- **Sub Commercial**
  In continuation to the main CBD, it is recommended to place sub commercial areas at other major intersection to share the burden of commercial activities. Thus, three sub commercial centers are proposed at Qazi Ahmed Road, Sakrand Road and Nawabshah Bypass. Further small commercials in the residential areas are also located for retail commercial activities of everyday goods required to fulfill the daily need of the residents.

The following guidelines are for commercial zone development:

Permitted Uses	Allied Permissible Uses
- Corporate head office buildings, towers - Huge markets, malls, outlets - Large public squares and parks - Dedicated parking lots / spaces	- Pedestrian friendly streetscape - Mixed-used buildings - Medium to High Rise Apartments - Fueling stations -

Applicable SBCA Bylaws[9][10]	Prohibited Uses
- Plot Sizes: 1,000 sq.yds. (min) - FP: 40% - 65% - FAR: 1:2.75 – 1:5.5 - Floors: G+6 & G+8 (max)	- Residential housing schemes - Large health and educational institution

4.4.3 Economic Zone

In view of contextual requirement, the emphasis is given to other economic activities also, instead of only industrial development. The main criteria is to rely on local economic potentials, which mostly related to technical service and upcoming new type of markets.

The Level II secondary zoning of economic land use will be as follow:

- **Trade and Commerce**
  In west side of the town at Qazi Ahmed Road, trade and commerce area is positioned. This will provide in and out trading activities of the region specially to other areas of the district. It will includes grains, fruit and vegetable markets, wholesale markets, slaughter house, storage areas etc. For all of these trading activities large to small scale warehouses will be required, comprises of general, bulk, liquid, dry and cold storage as well. These should be well equipped with all the required technology of good storage and management like CCTV surveillance, in and out data entry.

- **Technical Services**
  Technical services area is also marked along Sarhari Road, to cater present trend of technical services in the town. These technical services will include mechanical workshops and spare parts (auto mobile repairing), building construction materials, home depots, furniture market, housewares, food and beverages, computer hardware etc. However with the passage of time, technological advancement and changing needs; new requirement will come up to cater to the job market through new economic opportunities and activities.

[9] Commercial, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.3, page no 143.
[10] Flat Sites Category, Zoning Regulations /Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.4, page no 144.

The following guidelines are for economic zone development:

Permitted Uses	Allied Permissible Uses
- Warehouses and Workshops - Godowns and Cold Storage - Trade and Commerce Areas - Showrooms or Display Centers	- Mixed-used buildings - Residences for workers - Fueling stations
Applicable SBCA Bylaws[11]	**Prohibited Uses**
- Plot Sizes: o Small size: upto 0.5 acres o Medium size: 0.5 to 5 acres o Large size: 5 acres or above - FP: 60% - 70% - FAR: 1:2.5 - 1:1.5 - Floors: G+1 & G+2 (max)	- Private Residential housing schemes - Large health and educational institution

4.4.4 Livestock Zone

Among neighborhood towns, Nawabshah is mainly an industrial and then an agricultural town. However, local inhabitants also rely on livestock such as cattle, buffaloes, goats and poultry as other source of income. In this regard livestock zone is placed in eastern direction along Shahpur Chakra Road, to promote livestock production.

The Level II secondary zoning of livestock land use will be as follow:

- **Veterinary Hospital and College**
  A full-fledged veterinary hospital and college is proposed to cater to livestock health requirements and to produce more vet doctors.

- **Dairy Production**[12]
  Dairy area will be facilitated with mandi / cattle market, artificial insemination center, slaughter house, milk collection unit, chiller storage unit, fodder storage and purchase, bio gas plant etc.

- **Cattle Farms with Pasture and Grazing Lands**
  Cattle area will contain mainly cattle farms that could accommodate buffaloes, cows, sheep, goats, camel, poultry and ostrich; with pasture and grazing lands around the farms.

[11] Industrial Areas, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.6, page no 145.

[12] Dairy Plots, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.8, page no 149.

The following guidelines are for livestock zone development:

Permitted Uses	Allied Permissible Uses	Prohibited Uses
- Cattle Farms - Poultry Farms - Pasture and grazing lands - Slaughter Houses - Dairy production - Veterinary services - Veterinary education and training	- Low rise ancillary structures - Residences of caretakers - Related commercial activities - Fueling stations - Godowns and cold storage - Cattle market	- Other than permitted and permissible

4.4.5 Industrial Zone

In order to increase employment opportunities and production activities; industrial areas need to be developed. It will create more jobs, investment options, open new markets and at the end of the day will boost the economy of the town.

The following land use division is for New Industrial Estate according to Sindh Building & Town Planning Regulations of Sindh Building Control Authority:

Table 4-2: New Industrial Estate [13]

S. No.	Land Use	SBCA Standards
1	Industrial	70% max
2	Commercial	1% max
3	Parks / Playground	3% min
4	Public Uses	6% min
5	Roads	20% min
6	Residential	8% min
No roads shall be less than 40 feet in small industries. No roads shall be less than 50 feet in medium and large industries. Industrial plot of 5 acres or more, residential area for labour and staff is allowed at rear.		

[13] Land Allocation for New Industrial Estate as per Sindh Building & Town Planning Regulations, Chapter 20.4.2, page no 124.

The Level II secondary zoning of economic land use will be as follow:

- **Existing Industrial Area**
  Initially existing Small Industrial Estate of 50 acres and Special Industrial Zone of 239 acres are recommended to be filled first. The potential of industries from small scale is present in this town, not only agriculture related industries.

- **Industrial Area Extension**
  The proposed Industrial Area Extension is proposed next to Special Industrial Zone along Airport Road. This is more appropriate to develop small scale industries. It is not suggested to develop whole area at once, instead as per the need. Preferably starting from the road accessible side and keeping further area reserved for future use when firstly developed area utilized. The small scale industries may include flour mills, ice factories, packaging of fruits and vegetables, feeder crops, cottage industries of handicrafts, souvenirs etc.

The following guidelines are for industrial zone development:

Permitted Uses	Allied Permissible Uses
- Small Scale Industries - Processing Units - Manufacturing Activities - Warehouses or Godowns - Workshops	- Showrooms - Mixed-used buildings - Residences for workers - Fueling stations
Applicable SBCA Bylaws[14]	**Prohibited Uses**
- Plot Sizes: o Small size: upto 0.5 acres o Medium size: 0.5 to 5 acres o Large size: 5 acres or above - FP: 60% - 70% - FAR: 1:2.5 - 1:1.5 - Floors: G+1 & G+2 (max)	- Private Residential housing schemes - Large health and educational institution

4.4.6 Health and Welfare Zone

This zone is specifically for health and welfare related large scale activities. It will be a specialized area with high tech health facilities, social welfare and supporting services; with advance infrastructure. The aim will be to provide all specialized health solution within the town, and to serve the population beyond city borders, like nearby urban and rural localities.

[14] Industrial Areas, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.6, page no 145.

The Level II secondary zoning of health and welfare land use will be as follow:

- **Peoples Medical University - District Health Complex**
  Since Peoples Medical University is under construction along Baloo Ja Quba Road, it is suggested to develop it as a District Health Complex. Since it will become tertiary level center for health facilities, thus nursing college, staff residence, hostels, community and allied facilities will also be accommodated here. It could also include; Rehabilitation Centers, Special children, Edhi Homes (orphanage / old age / women) etc.

- **New Health and Welfare Area**
  The new health and welfare area is marked adjacent to Peoples Medical University at Nawabshah Bypass, to make it accessible for other towns as well and to attract private investment in health and welfare sector. It is widely possible that this area will be utilized for distinct health and welfare facilities in long term phase; like specialized hospitals, research and welfare centers etc. It will comprises of the specialized units like oncology, urology, infertility centers, organ transplantation, and specialized treatment centers, research and development centers.

The following guidelines are for health and welfare zone development:

Permitted Uses	Allied Permissible Uses
- Large Hospitals - Specialized treatment centers - Medical College - Dental College - Pharmaceutical College - Nursing College - Laboratories and Diagnostic Centers - Blood Banks - Health Research Institutes	- Staff Residences (medical and paramedic) - Separate Hostels for Boys and Girls - Auditoriums, seminar halls, workshop spaces - Community facilities (parks, playgrounds, schools, clinic, neighborhood commercial) - Support facilities (gym, health club, bus stops, taxi stand, banks, fueling stations)
Applicable SBCA Bylaws[15]	**Prohibited Uses**
- Plot Sizes: 1.0 acre or above - FP: 50% - FAR: 1:1.5 - Floors: G+2 (max)	- Private residential housing schemes - Large commercial activities

[15] Amenity Plots, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.5, page no 145.

4.4.7 Educational Zone

The large scale educational land uses will be development in this zone, focusing towards the global trend of education specially for upcoming generations. The aim is to create a knowledge base hub, to provide quality education in all diversified filed, in order to upgrade the livelihood of the local as well as the regional population.

The Level II secondary zoning of educational land use will be as follow:

- **Educational Area near SMBB University**
  Shaheed Benazir Bhutto University is already established in southwest of the town at Sakrand Road. Its further upgradation is proposed to multiply its fields of study and increase its student intake capacity. For this more buildings, teaching and non-teaching staff, residences and other related facilities will be required.

  The educational area adjacent to SMBBU is mainly proposed for another public sector large scale university, which is required for the future demand of young population. The idea is to introduce more educational fields like languages, humanities, applied sciences, arts, commerce, social sciences etc., which could be modified further. Afterwards broad-spectrum of new ranges of education will be added according to the demand of the society, in form of wings, departments and blocks.

  In addition to academic buildings; allied facilities like administration, sports grounds, and health clubs will also be accommodated here. Since it will be the primary level university of the town, thus it will also contain large number of students, faculty and staff. This huge influx will also require residences with community facilities.

  The library, data and information centers and scientific research institutes are also recommended in this zone to provide all kind of facilities for research and development in different fields.

  It is also proposed to provide more government degree colleges for boys and girls, separately. It is suggested to accommodate all the required facilities and service like; libraries, laboratories, playgrounds, washrooms, etc.

- **Educational Area near Bakhtawar Cadet College**
  Bakhtawar Cadet College for girls is present in southern part of the town. It comprises of large land parcel and sufficient area is vacant for its future development. Although it is a cadet college, however it could cater the demand for future educational needs of brave girls.

  The area next to Cadet College is suggested for the advance educational facilities. As the society is moving towards global dynamics, diversified fields of education will be prerequisite.

It could include upcoming need of the job market like; engineering, business, management, finance, media, IT and software, etc.

The specific area for future universities is reserved along Sarhari Road. The purpose behind is to involve regional level youth in the education and research, in order to enhance the educational attainment level.

It will also include; more poly technical college for boys and girls, women development center (working women hostels, day care centers), certified computer and IT training centers, research centers, etc. The vocational training center are also suggested to be placed in this zone to cater need of under privileged youth for better skills and technical knowledge. This will provide space for skill development centers, technical education for the local and surrounding population to accommodate in the current job market.

The following guidelines are for educational zone development:

Permitted Uses	Allied Permissible Uses
- Large scale educational areas - General Education Universities - Scientific Research Institutes - Engineering colleges / universities - Business and management schools - Finance and accountancy Institutes - IT and media Institutes - City level libraries, book banks, data and information centers	- Staff Residences (teaching and non-teaching) - Separate Hostels for Boys and Girls - Auditoriums, seminar halls, workshop spaces - Community facilities (parks, playgrounds, clinics, schools, neighborhood commercial) - Support facilities (gym, health club, bus stops, taxi stand, banks, fueling stations)
Applicable SBCA Bylaws[16]	**Prohibited Uses**
- Plot Sizes: 1.0 acre or above - FP: 50% - FAR: 1:1.5 - Floors: G+2 (max)	- Private residential housing schemes - Large commercial activities

4.4.8 Religious Zone

In the proposed master plan two religious sites are allocated in the Nawabshah Town; one is along Baloo Ja Quba Road and other at Sarhari Road. These are not necessarily to be developed soon, as presently there are sufficient religious places. These will be grand religious monumental buildings and structures, to enhance aesthetic of the town. Further it is suggested to fulfill the future requirement of different religious groups in sub divisions of other areas.

[16] Ibid

The following guidelines are for religious zone development:

Permitted Uses	Allied Permissible Uses
- Religious buildings like mosques, imam barghahs, mandir, churches, etc. - Religious teaching areas - Religious preaching grounds - Orphanage	- Residences for religious leaders - Accommodation for religious scholars, students - Small parks, playgrounds, clinics, commercial - Support facilities (bus stops, taxi stand, banks, fueling stations)
Applicable SBCA Bylaws[17][18]	**Prohibited Uses**
- Plot Sizes: 1.0 acre or above - FP: 50% - FAR: 1:1.5 - Floors: G+2 (max)	- Private residential housing schemes - Large commercial activities

4.4.9 Public Administration Zone

The exiting offices of Public Administration are mostly along Kacheri Road, almost in the center of the town. Considering future requirements, the new public administration area is marked next to CBD.

The Level II secondary zoning of public administration land use will be as follow:

- **New Public Administration**

  The public administration offices will includes District Secretariat, Development Authority, Town Committee Offices, Line Departments, Local Government Offices, Town Planning Department, Judiciary Complex, Circuit House etc.

  As Nawabshah is a district headquarter, in future with the rising activities more space for different public offices and institutions will be required. With this assumption future extension area for public administration need to be reserved.

  The area for public employee housing is also suggested here to cater the need of housing for public employees. This will include houses and walkable apartments for all employees, according to their grade levels and status.

  The area for police lines extension is also recommended to include in public administration area. The purpose of including an additional area is to extend the facility as per future requirement and also to provide accommodation facilities to employees of different grading.

  Likewise Police Lines, extension of District Jail is also proposed to be part of public administration area. This will serve the purpose of additional needs and will also fulfill the residential requirement of the staff of various levels.

[17] Ibid

[18] Religious Buildings, Plots, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.13, page no 156.

The following guidelines are for public administration zone development:

Permitted Uses	Allied Permissible Uses
- District Secretariat, - Development Authority - Town Committee Complex - Line Departments - Local Government Offices - Town Planning Department - Judiciary Complex - Circuit House	- Employees Residences (for all grades) - Auditoriums, seminar halls, workshop spaces - Community facilities (parks, playgrounds, clinics, schools, neighborhood commercial) - Support facilities (gym, health club, bus stops, taxi stand, banks, fueling stations)
Applicable SBCA Bylaws[19]	**Prohibited Uses**
- Plot Sizes: 1.0 acre or above - FP: 50% - FAR: 1:1.5 - Floors: G+2 (max)	- Private residential housing schemes - Large commercial activities

4.4.10 Recreational Zone

In the existing towns, disappearance of open spaces and non-provision of planned open spaces are seen. Thus, in the proposed master plan, recreational land use has been given a vital importance in order to create a healthy environment. Several types of regional level recreational activities are recommended like sports and cultural complex, amusement and theme parks, festival grounds etc.

The Level II secondary zoning of recreational land use will be as follow:

- **Sports and Cultural Complex**
  In between Nawabshah Bypass and Baloo Ja Quba Road, Sports and Cultural Complexes are proposed. It will include cricket, football, hockey and other ground, cultural center and gymnasium. A large park could also be accommodated in the heart of the proposed complex. This will be a general public park, however its sub portions could be reserved for families (ladies and children). Thus it will also contain area for swings, sitting, walking, jogging with allied facilities of washrooms, tuck shops, parking etc.

- **Amusement and Theme Parks**
  The recreational area specifically for amusement and theme parks is designated in southwest of the town at Sakrand Road. In this area large scale amusement facilities like thrilling rides in a safe and pleasant manner will be provided. Moreover theme parks like Art Park, Ice Park, floral garden, glow garden etc. could also be introduced as per the demand of the region.

[19] Ibid

- **Reserved Recreational Areas**

  Nawabshah a regional center there are also need to locate botanical and zoological gardens. These gardens will serve not only a metropolis of future but urban and rural areas of Nawabshah region as well.

  Considering local tradition and types of festivals, a space could also be designated for such events. These grounds will be used for large population events like carnivals, eid festivals, In addition considering.

  The following guidelines are for recreational zone development:

Permitted Uses	Allied Permissible Uses	Prohibited Uses
- City scale parks - Large public squares - Sports facilities - Cultural activities - Amusement area - Special theme parks - Regional level gardens like botanical, zoological	- Ancillary structures - Accommodation for caretakers / workers - Related commercial activities - Fueling stations - Parking - Public washrooms	- Other than permitted and permissible

4.4.11 Graveyards Zone

At present there are number of graveyards in the town, which have sufficient space available for immediate need. However, for long term there are three proposed graveyards along Sarhari, Airport and 68 Miles Roads. These graveyards can be further divided according to the requirement of practicing religions in the town. Both of these sites are approachable from existing roads and will also remain in the peripheries of the town.

The following guidelines are for graveyard zone development:

Permitted Uses	Allied Permissible Uses	Prohibited Uses
- Graveyard area	- Related commercial activities - Accommodation for caretaker	- Other than permitted and permissible

4.4.12 Transportation Zone

In Nawabshah Town, the transportation is a combination of air, rail and road network of radial roads, bypass, ring road, with terminals and intersections. Road network is considered as a vehicle for economic development and social change. Efficient road network not only develops a quick and efficient transportation system but also opens up new areas previously remained closed. It brings about social

integration among rural and urban sectors and greatly assists in providing access to basic amenities such as education, health facilities, etc. It brings rural areas in constant touch with urban segment of a society and creates better understanding necessary for social change and economic activities.

The Level II secondary zoning of transportation land use will be as follow:

- **Proposed Road Network**

  The proposed road network is originate from the existing radial roads. By adding ring road the existing roads becomes major connecting corridors for the Nawabshah Town through widening and beatification.

  In long term plan, Qazi Ahmed, Sakrand, Mehran Highway, Shahpur Chakra Interchanges are proposed. While for short tern need at Qazi Ahmed and Sakrand Roads, overhead bridges or underpasses are recommended.

  All proposed Major Roads (primary, secondary and tertiary roads) of the master plan will be dual carriageways with green medians in the center; as shown:
  Table 4-3: Proposed Road Network

S. No.	Major Roads	ROW (ft)	Forestation (ft)
i.	Ring Road	200	200
ii.	Nawabshah Bypass	200	200
iii.	Sakrand Road N-305	150	100
iv.	Qazi Ahmed Road	150	100
v.	Mehran Highway	150	100
vi.	Shahpur Chakra Road	150	100
vii.	Baloo Ja Quba Road	100	50
viii.	68 Miles Road	100	50
ix.	Sarhari Road	100	50
x.	Airport Road	100	50
ROW – property to property distance Forestation on both side of ROW			

  Primary Roads: The Ring Road and Nawabshah Bypass are considered as Primary Roads, running on the periphery of the town. Its different segments are serving as bypasses without entering in the town. It will have a right of way of 200 feet (min) with initially a four-lane divided road, service road, median, parking, and cycle/pedestrian track and local tree plantation on both sides.

In addition to the 200 feet ROW, urban forestation of 200 feet on both side are also proposed, to avoid direct / upfront development along primary roads. All primary roads crossings will be initially roundabouts with enough space for grade separated junctions in the future.

Secondary Roads: The secondary roads, are radial roads connecting the town with other towns. It will have a right of way of 150 feet (min) with three lanes, service road, median, footpaths, parking and cycle/pedestrian tracks.

Tertiary Roads: The tertiary roads will have a right of way of 100 feet (min) with at least two lanes, median, footpaths, parking and cycle/pedestrian tracks.

- **Public Transport Terminal**
  In both transport terminals at Sakrand Road and Mehran Highway, separate public transport terminals are proposed. These public transport terminals are placed in order to provide better and nearby multi intermodal transport connectivity. Since major regional communication of general public is expected via these major roads; as most of residential, educational and health related traffic will be generated and these will cover most of the town. These will be comprises of the parking for public buses, hiace, wagons, taxis; with allied facilities like ticking booths, sitting / waiting areas, washrooms, shops and required residence for the drivers and staff.
- **Truck Terminal**
  In both transport terminals at Sakrand Road and Mehran Highway, separate truck terminals are proposed. Since from these point all industrial and economic activities are connected, these found more appropriate locations for heavy traffic and goods transport. These proposed terminals will help in transporting goods from / into the town, which will benefit and boost the economic activities of the town.
- **Dry Port**
  At present, there is an area already designated as dry port, which is suggested to be retained, as Nawabshah Town would require this type of facility for export quality products. It is recommended to mainly comprise of the container yards and related functional spaces. In addition required residence for the drivers and other staff with small offices, rest areas, washrooms, shops etc.
- **Railway Reserved Area**
  The town has large Railway Station, which is also a junction of Nawabshah-Tando Adam and Nawabshah-Mirpurkhas. The railway line is coming from Sarhari side and going towards Bucheri. It is suggested to reserve the area for railway use only, to avoid any sort of encroachments. Consequently, the available vacant land parcels have been marked as Railway Reserved Area, in order to avoid further violation of railway ROW. Further it is recommended to improve the railway service for better cost effective connectivity for the town's economy.
- **Airport Area**
  Nawabshah Town is also benefitted with air route as well. It has a functional airport which is serving regional requirement of air traffic. Currently airport occupies large land parcel,

however more area for airport use is proposed to reserved. This area will be used to extend the airport functions and allied facilities. Therefore, upgradation of this airport is highly recommended to cater more air traffic with efficiency and to enhance its flight capacity from domestic to international as well.

The following guidelines are for transport zone development:

Permitted Uses	Allied Permissible Uses
- All types of parking areas - Designated ROW - Green belts - Footpaths - Traffic management devices	- Drivers and staff accommodation - Support offices, rest areas, washrooms, shops etc. - Street furniture like lights, trash bins, benches etc.
Applicable SBCA Bylaws[20]	**Prohibited Uses**
- No direct access to major roads will be allowed except through service road - No structure or part of a structure may project beyond building line	- Any kind of encroachment

4.4.13 Utilities and Services Zone

The utilities and services provision is also made in the master plan. This land provision is mainly for large scale utilities and services.

The Level II secondary zoning of utilities and services land use will be as follow:

- **Water Supply**
  The main water supply source is Rohri Canal, one of its branch is passing from the center of the town, parallel to railway line. Thus in the north direction, an area is being reserved for water supply works; to build the water reservoirs as per the town's water demand and related water supply infrastructure. This will also cater to water supply filtration plant and other advance purification mechanism.

- **Sewage Treatment Plant**
  Two areas are designated for STPs and their related uses, in northeast and southeast directions. Both sites are is low in elevation level, which will helpful to relay mainly on gravity flow. From very first it is not necessary to setup a fully mechanized STP, but it is suggested to start with oxidation ponds then proceed toward advance management of waste water.

[20] Highway Major Roads, General Standards, as per Sindh Building & Town Planning Regulations, Chapter 21, page no 126.

- **Landfill Site**
  A landfill site is proposed outside the main town area, in east side considering wind direction, This landfill site is accessible from proposed Ring Road and existing Sarhari and Shahpur Chakra Roads via local network. As the whole town will grow according to the master plan it will serve the population for next 20 years or even beyond.

- **Grid Station**
  Grid station in Nawabshah Town is existing along Sakrand Road. Its extension for immediate need is possible to extend in same premises. The extended facility will benefit the residents as per the need of the present consumption of the town. However the new area for grid station setup with upcoming future load and requirement, is suggested at 68 Miles Road in northeast direction.

The following guidelines are for utilities and services zone development:

Permitted Uses	Allied Permissible Uses	Prohibited Uses
- Land use for Utilities and Services like Water Supply, Filtration, Oxidation Ponds, Sewage Treatment, Landfill Sites, Grid Station etc.	- Related land development and building activities - Accommodation for staff, operators and labors. - Specific parking area.	- Other than permitted and permissible

4.4.14 Urban Forestation Zone

Urban forestation along Ring Road and Nawabshah Bypass is proposed to avoid rapidly increasing disorganized private development. Instead planned residential areas as per building control rules and regulations which are proposed on both sides of road after urban forestation reserved areas.

In order to protect the Ring Road and Nawabshah Bypass from uncontrolled development, urban forestation of two hundred feet at both sides of the road should be planted. It is advised to restrict development in this area and implement the rules and regulations to keep the town green.

In addition to the Ring Road, urban forestation of 50 to 100 feet on both side of the major roads are also proposed depending upon their ROW, to avoid direct / upfront development along roads. All major roads crossings will have initially green roundabouts with enough space for grade separated junctions in the future.

The following guidelines are for urban forestation zone development:

Permitted Uses	Allied Permissible Uses
- Land use for horticulture, landscaping, plantation, green belt, forestation.	- Related land use and activities, while no land development or buildings. - Temporary accommodation for labor and security persons. - Specific parking area for any accident and unplanned incident.

4.4.15 Agricultural Zone

In order to limit the town development agricultural reserved areas are proposed. In this manner not only town spatial growth will be confined but also essence of agriculture activities will remain close to the town. It will also create a healthy environment and less burden will be on spread of infrastructure network. The existing villages or settlements in the periphery of the town will also be benefited and not removed from their place of livelihood. The recommended crops for production are; wheat, oil seeds, berseem fodder, mutter, gram, cotton, jowar, bajra, gowar and sugarcane.

The following guidelines are for agriculture zone development:

Permitted Uses	Allied Permissible Uses
- Land use for proposed agricultural and its necessities.	- Related land activities with respect to its rules and regulations. - Accommodation for farmers and labor in associations with MC.

4.4.16 Water Bodies

The branch of Rohri Canal is passing from the west of the Nawabshah Town. In addition another canal is parallel to railway line, passing from the town center. It is suggested to protect the water courses in and around the town area, further canal beautification is highly recommended. It includes:

- Protection of its right of way and removal of encroachments
- Control on incompatible development in its surrounding
- Restriction on disposal of waste water
- Restriction on dumping of solid waste
- Provision of roads on both sides of its course
- Native plantation on both sides of its course

The following guidelines are for Water Bodies zone development:

Permitted Uses	Allied Permissible Uses
- Land use for water bodies like rivers, tributaries, canals, water channels, irrigation network, ponds, lakes, water courses.	- Related land use and activities, while no land development or buildings. - Temporary accommodation for labor and security persons.

4.4.17 Vacant Zone

The objective of providing vacant area with in the town limit is to cater the emergency need at time of any disaster. With this respect a huge land parcel is kept reserved for emergency need, which could be utilized for portable homes, mobile health care facilities, camping for vulnerable of calamities, temporary storage of bulk material etc. The proposed vacant area is within the Nawabshah Town but being on the peripheral area, would not disturb the town activities in general and it is directly accessible from Ring Road.

However, the control on vacant land is extremely important, leap-frog development create pressure to utilize for other uses. Thus, there is a need to make sure that no development would take place in these types of reserved areas.

The following guidelines are for vacant zone development:

Permitted Uses	Allied Permissible Uses
- Land use for proposed emergency and imminent necessities	- Related land development and building activities. - Temporary accommodation for operation and maintenance staff in associations with MC.

SECTOR WISE PROPOSED STRATEGIES

5. HOUSING

5.1 Existing Situation

As per 2017 census population results, Nawabshah MC had household size of 5.9persons and a total housing stock of 47,276. Most of them were categorized as pacca houses which include Pacca (Brick construction) and RCC houses.

The sample survey by Consultants identified that only 1% houses are Katcha, 49% are Pacca, RCC construction 35% and semi pacca 15%. The age of house construction as per respondents came as : upto 5 years (14 %), upto 10 years(27%), upto 20 years(28%), upto 30 years (17%) and above 31 years (13%). Majority of the households consist of 5 to 6 members. Nawabshah town has high population density due to commercial activities. 20% of the households surveyed consist of 3 to 4 members. 30% of the households consist of 5 to 6 members and 21% of the households consist of 7 to 8 members. The status of ownership of houses is like 89% family owned, 1% rent free and 7% on rent. The category of rental indicates housing gap.

General housing condition of surveyed houses was satisfactory although major reasons for the housing backlog are lack of resources, inadequate planning, and wrong land development policies that favour elite at the cost of poorer sections of the society. In Nawabshah urban area the problem manifests as unstoppable growth of squatter settlements through encroachment of state and private land. Up gradation of Katchi Abadis and policy /strategic guidelines need to be formulated for stoppage of this practice.

5.2 Katchi Abadis

The demand for high and middle income housing is met by the formal sector through public run schemes or private sector developers. The low income groups however find it very difficult to buy developed land and build a modest house from their meagre income. The so-called low income housing schemes initiated by the public sector under various programmes are at best affordable for lower middle income groups. The private builders, having been driven by the financial returns do not venture into any project for the low income group.

This segment of population is therefore left to help themselves and with a little help from family, friends and land grabbers, squat on the public lands wherever available and within no time, a cluster of shabbily constructed shelters appears, which defy even minimum definition of a shelter. With time these clusters grow in size and gradually construction is upgraded from temporary to semi-permanent, known as Katchi Abadis. These marginal settlements are without any utilities or urban services until they are regularized, which is also conditional to the ownership and designated use of land on which they are located. Relegated to informal housing sector, Katchi Abadis indicate a wide gap between the income /savings of the lowest income groups and the affordable house.

5.2.1 Katchi Abadis in Nawabshah MC[21]

According to data provided by Sindh Kacthi Abadis Authority (SKAA), there are 30 sites identified as Katchi Abadis in Nawabshah MC. These are spread over 365.79 acres covering 4,359 housing units with 28,175 population approx. Thus, it is estimated that 10.07% population of Nawabshah MC resides in katchi abadis. Only eight Katchi Abadis were notified from 1988 to 1991. However, remaining 28 sites are still in process of regularization. The list of Katchi Abadis present in Nawabshah MC is as follows:

List of Katchi Abadis in Nawabshah MC					
S. NO.	**Nawabshah Mc - Name Of Katchi Abadis**	**Total Area In (Acres)**	**No. of Housing Units**	**Estimated Population**	**Date of Notification**
1	16 & 17 Azeem & Taj Colony	21.34	515	2767	Un-Notified
2	Abrar Shah Colony	22.19	555	1055	Un-Notified
3	Ashraf Colony	0.33	178	1218	Un-Notified
4	Azeem & Daulat Colony	4.02	137	1370	Un-Notified
5	Bhangi Para Essarpur	8.90	59	590	31-03-1988
6	Bhangi Para Side Of Marrium Road Hospital	4.05	40	400	31-03-1988
7	Camp No.2 & Golimar	3.17	213	2130	Un-Notified
8	Chandio Goth In Society	2.50	44	450	16-11-1991
9	Dhobi Ghat & Gharibabad Ward A	14.15	137	1370	31-03-1988
10	Faqir Mohammad Dinari Goth	1.50	80	800	Un-Notified
11	Gharibabad Near Ghafooria Masjid*	6.00	137	1370	Un-Notified
12	Gharibabad Near Massan	6.19	8	80	Un-Notified
13	Goth Ghulam Rasool Shah	71.57	200	1200	Un-Notified
14	Goth Loung Khan Kirio	1.20	71	710	Un-Notified
15	Goth Mir Jan Mohammad	13.24	113	784	31-03-1988
16	Goth Pir Shah	2.00	12	100	Un-Notified
17	Jamshed Colony	2.50	48	800	Un-Notified
18	Majid Khan Colony	56.26	450	992	Un-Notified
19	Makrani Para Jinah & Mahajir Colony Ward-C	28.84	142	1420	31-03-1988
20	Mangsi Goth In Society	5.10	44	440	Un-Notified
21	Mansoor Colony	13.33	125	650	Un-Notified
22	Manuabad Near Madersa Faizululoom Ward-A	12.39	45	280	31-03-1988
23	Mujahid Colony Ward-C	14.42	355	1483	31-03-1988

[21] Data provided by Sindh Kacthi Abadis Authority, December 2019

List of Katchi Abadis in Nawabshah MC					
S. NO.	**Nawabshah Mc - Name Of Katchi Abadis**	**Total Area In (Acres)**	**No. of Housing Units**	**Estimated Population**	**Date of Notification**
24	Nawabshah Colony	2.03	50	300	Un-Notified
25	Near Municipal High School	2.00	12	70	Un-Notified
26	Pella Camp	10.01	230	2300	31-03-1988
27	Phul Deh Khiyaroon	9.00	40	350	Un-Notified
28	Pit Santa Singh (Deh Khiyarun)	18.51	138	1380	31-03-1988
29	Rafiq Colony	5.00	80	480	Un-Notified
30	Sangar Road	4.05	101	836	Un-Notified
	Total	**365.79**	**4359**	**28175**	

5.3 Available Housing Stock

As per 2017 census population results, Nawabshah MC had a household size of 5.9 persons and total housing stock of 47,276 households, Most of them were categorized as Pacca houses which include Pacca (Brick construction) and RCC houses.

Table 5-1: Housing Statistics								
Administration Unit	**Past Census 1998**				**Current Census 2017**			
	Population	**AGR**	**No. of HH**	**HH Size**	**Population**	**AGR**	**No. of HH**	**HH Size**
Nawabshah MC	189,244	3.69%	24,577	7.7	279,688	2.08%	47,276	5.9
Nawabshah District	1,071,533	1.63%	211,354	6	1,612,847	2.18%	297,133	5.4

*5.3.1 **Issues***

The following are the major issues in the housing sector:

- Inadequate supply of developed land and its skyrocketing prices are making housing ownership beyond the affordability limits of the majority of population.
- Poor land administration with inadequate legal and regulatory systems.
- Housing and associated infrastructure is in dilapidated condition requiring improvement / replacement
- Unchecked growth of squatter settlements: Katchi Abadis encroachment on state and vacant land is a direct outcome of the housing shortage.

5.4 SWOT Analysis

STRENGTH	WEAKNESSES	OPPORTUNITY	THREATS
HOUSING			
Majority of the population lives in self-owned houses Almost half of the urban area population has pacca houses The trend of new housing schemes construction by private development is increasing. Most of the formal population is served by electric, gas and water supply.	High prices of houses in private sector The informal housing sector lacks provision of utility services like gas supply, clean water and drainage facilities The trend of rental housing is high	Demand for new planned housing schemes Demand for low income housing Demand for public housing projects More housing for local people of town Opportunity for local micro financing for housing Installation of basic utility services through new projects	Homelessness Commercialization Increase in urban sprawl Inflation of land Shortage of open spaces in urban areas Formation of urban slums Relocation of higher income groups

5.5 Need Assessment

On basis of projected Population for year 2037, the numbers of households have been estimated around 70,441 out of which additional Housing Requirement will be 23,165.

Table 3-1: Housing Backlog Nawabshah MC

S. No.	Housing	Population	HH Size	No. of HH
1.	**Present 2017**	279,688	5.9	47,276
2.	**Future 2037**	415,602	5.9	70,441
3.	**Additional (2017-2037)**	135,914	5.9	23,165

Source: Consultants Estimate 2017 & Population Census 2017 of Nawabshah MC)

5.6 Policy Guidelines[22]

Housing sector is divided in various sub sectors. Policy guidelines for all sub sectors are given below:

i. Policy Measures for Land

- Priority Identification of Land for Housing
  As an immediate measure, the provincial, municipal, metropolitan and local authorities under the plan shall identify parcels of state and other lands for housing development in the urban and rural settlements in their respective jurisdictions.

- Land Acquisition
  The procedural and legal bottlenecks in the acquisitions process shall be removed and land acquisition laws shall be suitably amended to make provision for unified, transparent and market value oriented systems and procedures which would also minimize litigation.

- Land Information System
  Development of a comprehensive land information system using modern technology to record correct and up to date information regarding inventory and land classification, settlement patterns, land values and land availability on all land in urban and rural areas.

ii. Policy Measures for Housing Finance[23]

- Housing finance institutions shall be encouraged to promote savings and provide micro loans for low income group through community organization, NGOs and CBOs.
- Part of the sale proceeds of valuable public land shall be set aside to subsidize low income housing and housing for the poor and needy.
- Subsidized loaning facilities shall be extended for rural housing construction and improvements through micro-financing system and institutions like Khushhali Bank, Zakat funds, etc.
- Mark-up on Housing loan installment for individuals shall be treated as expense in tax return.

iii. Policy Measures for Katchi Abadis, Squatter Settlements & Slums[24]

- The process of regularization and up-gradation of the pre-1985 Katchi Abadis shall continue as per current policy. However, Katchi Abadis, which are hazardous by virtue of being close to railways tracks or located under high tension power lines, or are on or close to the riverbeds, or on lands needed for operational /security purposes, need to be relocated at appropriate places by LOAs.
- Formation of new Katchi Abadis shall not be allowed and shall be discouraged by exercising strict development controls in all urban areas.

[22] National Housing Policy 2001
[23] ibid
[24] ibid

- In all government housing schemes, adequate plots for low income people shall be reserved to offer them at affordable prices. In addition private developers will also be encouraged to develop low cost housing schemes.
- City and District Government shall prepare housing plans to cater for the current and future housing needs for low income groups on incremental basis at affordable, cost. Katchi Abadis resettlement plans and up-gradation plans shall be an integral part of these housing plans.

5.7 Policy Measures for Low Income Housing

- In all government and private housing schemes, 20% adequate plots for low income people shall be reserved to offer them at affordable prices. In addition private developers will also be encouraged to develop low cost housing schemes.
- City and District Government shall prepare housing plans to cater for the current and future housing needs for low income groups on incremental basis at affordable, cost.
- Building regulations, building by laws, and planning standards shall be revised to permit incremental development and lowering of planning standards to make it cost effective for low income groups.
- A mechanism of new approved housing schemes should be established in which MC should be bound to provide piped water, sewerage, electricity and gas connection to approved scheme with coordination with other relevant authorities.

5.8 Strategic Development Plan

i. Long Term Plan:

- Development of indigenous and cost effective approaches particularly for low income group and mass production.
- Capacity building of institutions involved in housing provision and related sectors, to safeguard against malpractices, inefficiencies, weaknesses and mafia assaults.
- Land bank to be formed to facilitate availability of suitable, affordable, safe and secure land parcels within the town for the development of housing schemes.
- Concepts of small towns should be worked out to minimize the housing requirement in secondary cities.
- An affordable housing program for low income group in different phases up to 2037, through one window operation (including technical guidance, easy loan provisions, legal procedures)
- Formulation of Green Building Byelaws for future housing to address water conservation, low energy consumption, waste recycling etc.
- Agricultural land should be protected from the on- slaught of housing schemes by developers. Further the multi-story housing should be encouraged to conserve the rich farm land.

ii. Short Term Plan:

- Increase in proportion of small size plots could be made for low income groups in all new housing schemes.
- Promote the development of public housing scheme for low income groups
- Low-income Housing Funds would be established to provide sufficient and affordable credit for housing to meet the needs of shelter less poor. Example is Grameen Bank which is a microfinance organization and community development bank founded in Bangladesh. It makes small loans to the impoverished without requiring collateral
- Improvement of old housing in core urban area including face lifting of existing town fabric.
- Shifting / removal of illegal settlements from hazardous zones in addition to Up gradation / regularization of notified Katchi Abadis in Nawabshah Town
- Improvement / provision of basic utilities and community facilities for the residential areas

5.9 Priority Projects

5.9.1 Detailed Planning and Feasibility Project

i. Land Development of Housing Site with allied services for Low Income People and land acquisition

- **Project Justification**

Most of the population of Town is living in a core urban area & its surrounding areas. Significant households in Nawabshah have low incomes. These households are unable to acquire their own houses so resolve their housing problem resulting in rising the number of slum areas and encroachment. The living condition in such areas are poor they face so many problems and most don't have utility services. To relieve the problems that occur in this situation, the public sector in Shaheed Benazirabad should launch as part of the urban strategy. An affordable housing program for low income households.

The living condition in such areas is not very good, they face so many problems with limited facilities of utilities & infrastructure. According to Socio Economic Survey results conducted by consutants, the status of ownership of houses is like 89% family owned, 4% rent free/Govt. employers and 7% on rent. Therefore on a priority basis, the provision of a developed site for residential purpose is proposed to accommodate at least 3,318 families in short term plan.

Description	Results
Present Population - census 2017	279,688
07 % Population of Nawabshah Living in rental houses with no house ownership	19,578
Households required @ 5.9	3,318

The private sector has been active in for the provision of housing for the population. The government only provides the minimum support for housing for the low income groups but the construction of housing will be the responsibility of the low income groups.

Approx. 3,318 Number of housing units up to 120 sq. yds will be proposed. Tentative ten million cost per acres as development cost is estimated with all allied facilities and infrastructure.

- **Project Benefits**
  Part of the capital expenditure is expected to be recovered through Sale of commercial plots and buildings. The project is expected to generate direct income. The project will directly give benefit to the low income people. Improve in living conditions are associated with the improvement of social and long term economic benefit.

- **Implementing Authority -** BoR & P & D Department Government of Sindh, HBFC.

- **Estimated Cost: 3,318.00 Million Approx. (Short Term)**

Project Name	Long / Short Term	Proposed Area (acre) & Lengths (m)	Preliminary Cost (million/- PKR)	Justification
Land acquisition for Low Income Group	Short Term	166 acre	1,660.00	3,318 Number of units up to 120 sq. yds. 20 houses per acre. For this proposed site land acquisition assumed 10 million per acre.
Phase Wise Land Development with allied Facilities (166 Acres)	Short Term	166 acres	1,660.00	3,318 Number of units up to 120 sq. yds. 20 houses per acre. For this proposed site development we have assumed 10 million per acre with internal allied facilities and infrastructure.

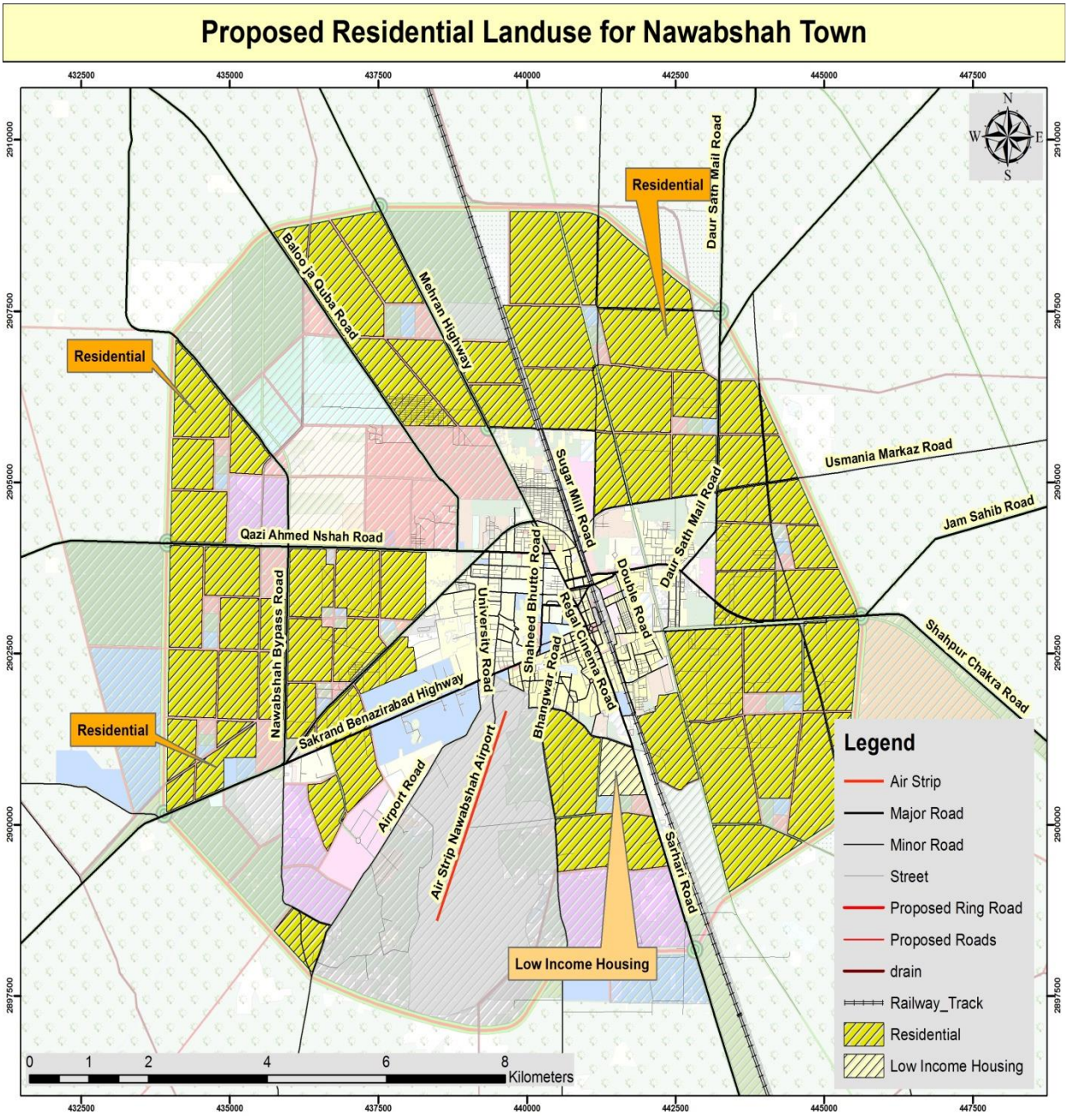


Figure 5:1 : Housing Proposals Map of Nawabshah Town

6. SOCIAL INFRASTRUCTURE

6.1 Education

6.1.1 Existing Situation[25]

Pakistan during last 66 years has been spending on education an average of only 2% of the GNP. The state of education in Sindh is best reflected in its literacy figures and in the serious disparity between rural and urban areas. The Sindh has the largest number of ghost schools in the country and thousands ghost teachers draw government salaries. The education sector in Sindh is facing many challenges; major being very low enrolment level, rural and gender disparity, and low level of quality education. Besides, the alarming fact is a large number of out of school children, even those in the systems are not performing and learning outcomes are less than optimal. There are also issues of large number of closed schools and poor infrastructure in functional schools.

In district Shaheed Benazirabad, there are 2,309 primary schools out of which 1,960 are for male students and 349 are for female students. The total enrolments is 159,990 (male 97,389 and female 62,601) with Teaching Staff available is 4,868 out of which 3,814 are male and 1,054 are Female.



Govt. Islamia Girls Higher Secondary School, Nawabshah

There are 126 Middle Schools in district Shaheed Benazirabad out of which 99 are for male and 27 for female, with total enrolment of 15,026 (male 8,703 and female 6,323) having Teaching Staff of about 575 out of which 387 are male and 188 are female.

The number of Secondary Schools in Shaheed Benazirabad are 85 in number out of which 61 are for male and 24 are for female students, with a total enrolment of 42,001 (male 26,651 and female 15,350), targeted by 1,442 teachers (male 981 and female 461).



Govt. High School Line Par Hassan, Nawabshah

There are 12 Higher Secondary Schools in district Shaheed Benazirabad out of which 10 are male and 2 are female, with enrolment of 19,324 (male 13,985 and female 5,339) having Teaching Staff of about 384 out of which 287 are male and 97 are female.

[25] *Sindh Education Statistics 2015-16.*

There is overall poor condition of schools and college due to Lack of repair and maintenance of buildings, lack of playgrounds, libraries, electricity, labs, toilets etc.

Present Education Institutions and Enrolment Record

Table 5-1: Present Educational Institutions, Teachers and Enrolment Record at Nawabshah Taluka Level

Primary ,Middle and Elementary Schools							
S. No	**Type**	**Numbers**	**Classrooms**	**Enrolments**	**Teachers**	**Students per classroom**	**Teacher Student Ratio**
1	Primary School	280	715	28097	952	39	1:30
2	Middle Schools	12	48	819	45	50	1:18
3	Elementary	22	118	3991	148	34	1:27
	Total / Average	**314**	**881**	**32,907**	**1,145**	**37.5**	**1:29**
Source: District Education Department Shaheed Benazirabad							

Table 5-2 : Present Educational Institutions, Teachers and Enrolment Record at Taluka Nawabshah

Secondary Schools							
S. No.	**Type**	**Numbers**	**Classrooms**	**Enrolments**	**Teachers**	**Students per classroom**	**Teacher Student Ratio**
1	Secondary School	23	353	13789	508	39	1:27
2	Higher Secondary School	3	88	4507	138	51	1:33
	Total / Average	**26**	**441**	**18296**	**646**	**41**	**1:23**
Source: District Education Department Tharparkar							

The present number of Non-Professional College in district Shaheed Benazirabad are 8 (male: 5, female: 3). 8 Degree Colleges (male: 5, female 3) with the total enrolment of 9,433 (male: 6293, female: 3140) and having teaching staff of 189 (male: 123, female: 66**).**[26] **There are two main universities named Quaid-Awam University of Engineering and Technology and Shaheed Benazir Bhutto University:**

[26] *College Education Statistics-2014-15*

Table 6-1 Present Non-Professional Colleges in District Shaheed Benazirabad

Institutions	No. of Institutions			Enrolment			Teaching Staff		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Non-Professional College	8	5	3	9433	6293	3140	189	123	66
Intermediate	-	-	-	-	-	-	-	-	-
Degree	8	5	3	9433	6293	3140	189	123	66
Post Graduate	-	-	-	-	-	-	-	-	-

Source: College Education Statistics-2014-15

ISSUES:

Need Assessment and identification of major issues of education sector in Nawabshah are as follows:

- Shortage of class rooms as per current enrolment
- Low enrolment level with gender disparity
- Shortage of teachers causing low quality of education
- Lack of provision of basic facilities i.e. washrooms, electricity, drinking water etc.
- Poor condition of schools and colleges due to lack of repair and maintenance of buildings
- In addition to classrooms, the rehabilitation of existing educational buildings with all basic and allied facilities are also required. Lack of allied facilities includes furniture, playground, laboratories, libraries etc.
- Lack of boundary walls in several schools.

6.1.2 SWOT Analysis

EDUCATION & LITERACY			
STRENGTH	**WEAKNESSES**	**OPPORTUNITY**	**THREATS**
1. Urban literacy rate is higher than rural 2. With the presence of reputable professional educational institutions, city is serving a large number of regional population through its educational services i.e. "Engineering & Medical" and produces good quality professionals every year	1. Outdated and old syllabus 2. Absenteeism and low Female student's enrolment 3. High demand for private schooling educational system 4. Poor condition of school buildings & shortage of class rooms, playgrounds, furniture and water supply.	1. Education will bring many young people specially females to labour market 2. Education services mark steady growth in urbanization process 3. More PPP is required for educational sector	4. Shift of educated professional to other major towns of the country 5. Expensive quality education Resistance to female education

6.1.3 Need Assessment

i. Nawabshah Taluka (Present Need Assessment)

Present number of Boys and Girls students in Schools at Nawabshah is 51,203. Students are studying in different level of schools like: primary and secondary schools. Available number of class rooms for all levels are 1,322. As per present figures provided by Reform support unit RSU education & literacy department, the occupancy is 38 students per class room in primary to higher secondary schools which is higher as per National Reference Manual (NRM) standard of 30 students per class room. Present situation of schools (Primary, Middle and Secondary) are summarized in the table below:

Table 6-2: Present Need of Classrooms in Nawabshah Taluka

S. No.	Description	Results
In Schools of Nawabshah (Primary, Middle and Secondary)		
1	Total present enrolments	32,907
2	Classrooms available at present	881
3	Students per classroom at present	37
4	Classrooms required for present need @ 30 students per classroom	1,096.90
5	Present shortage of classrooms	216

Source: *District Education Department Shaheed Benazirabad and Consultant's estimates*

Table 6-3: Present Need of Classrooms in Nawabshah Taluka

S. No.	Description	Results
In Schools of Nawabshah (Secondary and Higher Secondary)		
1	Total present enrolments	18,296
2	Classrooms available at present	441
3	Students per classroom at present	41
4	Classrooms required for present need @ 30 students per classroom	610
5	Present shortage of classrooms	169

Source: District Education Department Shaheed Benazirabad and Consultant's estimates

ii. Nawabshah Taluka (Future Need Assessment)

In future the target is to achieve 100% enrolment with 1:1 male female ratio in next twenty years. Therefore the need will be of 4,409 additional classrooms for schools and colleges, which will be

required to accommodate upcoming generation in 2037, as shown in the table below. This need will be fulfilled either by addition of classrooms in the existing buildings or new buildings will be constructed in the future.

Table 6-4: Future Requirement of Classrooms in Nawabshah

S. No.	Description	Results
In Schools of Nawabshah		
1	Expected total enrolment by 2037 @ 100% enrolment	135,854
2	Total classrooms requirement in 2037	4,528
3	Additional classrooms requirement in 2037	3,432
In High schools and Colleges of Nawabshah		
1	Expected total enrolment by 2037 @ 100% enrolment	63,478
2	Total classrooms requirement in 2037	1,587
3	Additional classrooms requirement in 2037	977

Source: *Consultant's estimates based on population projection on 2017 census and 1998 census age pyramid*

iii. Present Need Assessment Shaheed Benazirabad District (2017)

As per NRM (National Reference Manual) and NEP (National Education Policy) standards, students per class room occupancy ratio are 30 students per class room for primary, middle and secondary level. Total enrolment and available number of class rooms shows that there is a present shortage of class rooms.

Present need can be fulfilled by providing new class rooms in existing school buildings or providing new school buildings with provision of play grounds and other facilities. Therefore, for the short term plan, Shaheed Benazirabad district have need of 2,282 extra class rooms.

iv. Future Need Assessment - District Shaheed Benazirabad (2037)

a. <u>District Shaheed Benazirabad (Primary to Higher Secondary)</u>

The long term plan target is to achieve 100% enrolment with 1:1 male female ratio by 2037; therefore 4,374 additional classrooms will be required to accommodate upcoming generation for next twenty years. This need could be fulfilled either by addition in existing buildings or more new schools and colleges will be need to constructed in future to serve additional estimated population .

Table 6-5: Future Assessment (2037) at District Level		
S. No.	**Description**	**Results**
1	Expected Enrolment upto 2037	372,394
2	Student Per Class Room @ NRM Standard (Primary to Secondary)	30
3	Total Number of Class Rooms Required upto 2037	12,413
4	Additional class rooms required upto 2037	4,374
Source: Consultant's estimates based on population projection on 2017 census and 1998 census		

6.1.4 Policy Guidelines[27]

- Development of Teachers and professional substitutes;
- Construct required schools and higher education institutions in all districts. Take stock of operational and staffed schools and eliminate ghost schools.
- Launch a rural education program.
- Ghost Schools and absentee teacher should be identified and removed.
- Maintenance of existing dilapidated schools and buildings should be given top priority.
- For girl's literacy and women education, informal system of homeschool may be encouraged.

6.1.5 Strategic Development Plan

This Strategic Development Plan aims to strengthen existing schools system to bring socio-economic and sustainable development in the region. The focus of this plan is centered chiefly on improving education standard at primary and secondary levels and providing extra curriculum opportunities to address the needs of youth in rural and remote areas. This will increased the literacy ratio, living standard, employment opportunities of the future population.

i. Long Term Plan

- Increasing equitable access to quality Early childhood education, primary and secondary education
- Improving the quality of learning outcomes through strengthening the teaching/learning process, improving the quality of teachers through merit-based selection and recruitment; improved accountability, and establishing a competency-based constructivist system of educational professional development.

[27] Sindh Vision 2030

- Enhancing the equity of resource allocation and improving the fiscal sustainability and effectiveness of educational expenditure, thereby fostering transparency and accountability in the use of public resources.
- Sindh Technical and Vocational Training authority (STEVTA) is providing the technical education to the people of Sindh for increasing their technical Skills. In Shaheed Benazirabad, the peoples are significantly deficit in technical skills. By implementation of this project, people will enhance their technical skills and it also increase the employment status of the district.
- Up gradation of existing universities.

ii. Short Term Plan

- Rehabilitations of Schools and Colleges with allied infrastructure
- MC to take over all site provided for schools in the new housing schemes to eliminate the chances of misuse and encroachment.
- Training programme for teachers to increase capacity building
- Vocational and skill training centers in alliance with contemporary demand
- Rehabilitation/Construction of Women Hostels for Teaching Staff and Working Women in Shaheed Benazirabad

6.1.6 Priority Projects

i. <u>Construction and Rehabilitation of Schools and Allied Infrastructure</u>

- **Project Justification**

Education plays very Important Role to achieve the goals of any urban development. Currently, the situation of Primary and Secondary education in Nawabshah is not in satisfactory condition. Education should be the one of major goal of any urban strategy. Importance must be placed on girls schools because it was badly disregarded. At present, the condition of exisiting schools in DHQ town needs rehabilation and improvement of the infrastructure and Allied basic facilities like water, electricity, toilet, playgrounds etc. (excluded the Core Urban Area of Nawabshah)*. The List of the schools in this project are given bellow:

S. No.	Name	Area (Acre)
1	Govt. Fatima Jinnah Girls Higher Secondary School	0.39
2	Benazirabad school	0.48
3	Govt. Girls Primary School Faiz Muhammad Panghor	0.80
4	Govt. High School Naya madrasa Nawabshah	0.19
5	Govt. Girls Elementary School Dollat Colony Nawabshah	0.26
6	Govt. Boys Primary School	0.07
7	Govt. Girls Elementary School Kashmir Colony	0.03
8	Govt. Boys Urdu primary School Haji Bashir Kashmir Colony	0.13
9	Teacher resource center	0.18
10	Sachal Sarmast Degree College	5.84
11	Govt. Boys Muslim High School	0.19
12	Islamia Girls Higher Secondary School	4.10
13	Degree Girls College	0.76
	Total Area	**13.42**

- **Project Benefits**

  By the increasing in the litracy ratio the living standad of the population will improve and increse the empolymet oppertunities with in the district.

- **Implementing Authority -** Department of Education, Provincial Government and District Government

- **Estimated Cost:** 600 Million PKR Approx. (Short Term)

Project Name	Short Term	Proposed Area in Acres	Preliminary Cost in million)	Justification
Rehabilitation of Schools & Allied Infrastructure (excluding Core Urban Area with 30% buildup area)	Short Term	13.42 acre	600.00	13.42 acre = 584,575 sft, at the rate of 5000/- PKR per sft construction cost with all infrastructure cost. (considered 50% as Built up Area)

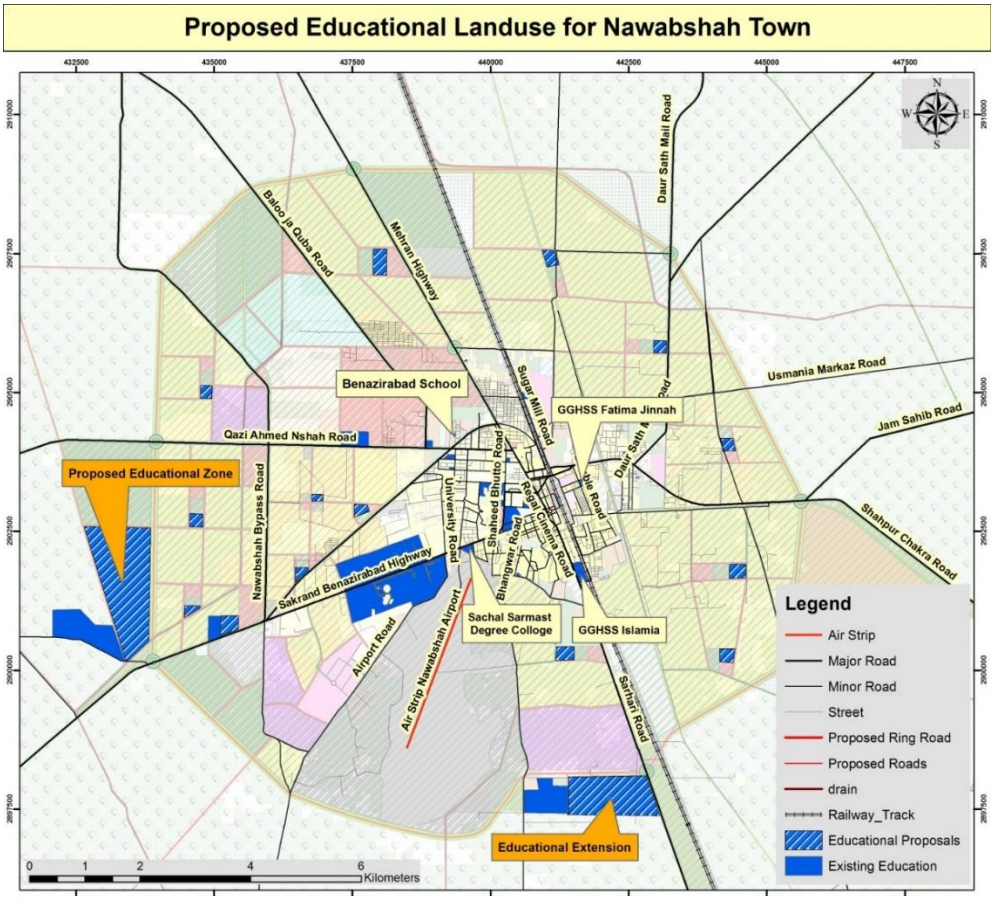


Figure 6:1: Proposed education Zone

6.1.7 Immediate Action Plan for Core Urban Area

i. Rehabilitation and Up gradation of Schools

All schools marked in core urban area should be rehabilitate with the structural stability, building repair work, access to utilities, provision of facilities, replacement of old furniture, presence of teaching and non-teaching staff etc.

The up gradation could be made through addition of new building in same compound or addition of number of floors for new class rooms and allied facilities
At present only five educational facilities are present in core area of Nawabshah. Besides repair and rehabilitation we are only proposing associating facilities with all allied services related to basic utilities, access road and building renovation. To some extent as the population grown beyond the urban core area assumed boundary the short term and long term educational projects are already proposed in priority projects sector wise for future population of town.

S. No	Education Facility Name	Area (Acre)	Repair & Rehabilitation - Activity Wise Cost in Millions							
			Street/ Road / Parking	Utility Facilities					School Building Repair/ Renovation	Security
				Electricity	Water Supply	Sewerage	Gas	PTCL		
1	Khardisha Begum Govt. Girls High School Gareebabad Nawabshah	0.14	0.14	0.16	0.20	0.20	0.14	0.03	0.07	0.03
2	HM Khoja Middle School	4.33	4.33	4.98	6.50	6.50	4.33	1.08	2.17	1.08
3	Islamia Girls Higher Secondary School	4.09	4.09	4.70	6.13	6.13	4.09	1.02	2.04	1.02
4	Government Girls Elementary School	0.40	0.40	0.46	0.60	0.60	0.40	0.10	0.20	0.10
5	New Constructed School By SBCA	0.09	0.09	0.10	0.13	0.13	0.09	0.02	0.04	0.02
Total		9.04	9.04	10.40	13.56	13.56	9.04	2.26	4.52	2.26
Grand Total PKR Rs. Million		**64.66**								

6.1.8 Economic Development

The above analysis shows the additional schools/colleges would be needed to fill the gap due to population growth and admissions to unrolled children. Planning is needed to explore the ways by:

(i) Rehabilitation and improvement in the existing schools/colleges

(ii) Establishment of new units particularly at HQ Town and Tehsil towns as the shift from rural to urban areas is being gradually made

(iii) Providing additional funding for special Children and Participation of private sector directly or through public- private partnership.

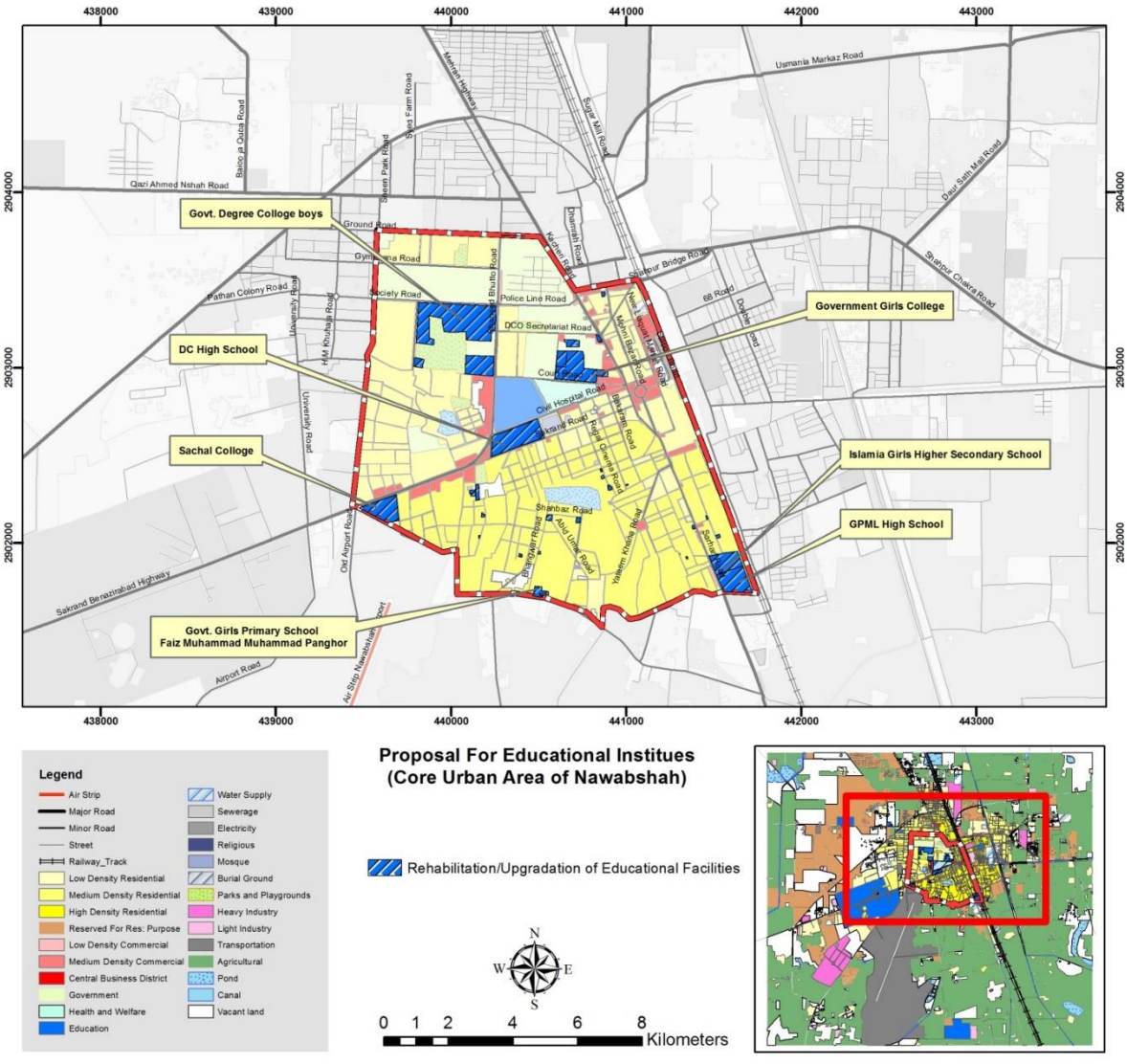


Figure 6:2: Rehabilitation of Educational Institutes of core urban area

6.2 Health

6.2.1 Existing Situation at District Level

Currently, tertiary level health facilities of Taluka hospital THQ and BHUs are serving the regional population of Sindh at Shaheed Benazirabad district. There is one Government Teaching hospital having 875 beds, 1 Taluka Hospitals at District having 50 beds and 12 private hospitals having 285 numbers of beds to serve the district. The other health facilities spread over entire district are 10 RHC (Rural Health Center) having 164 beds, 6 TB Clinics, 37 BHUs (Basic Health Unit) having bed strength of 74, 168 dispensaries having 10 number of beds and 21 M.C.H.C (Mother Child Health Center).

In district Shaheed Benazirabad, there is one teaching hospital having 875 bed capacity, 1 THQ having 50 beds, 37 BHUs at district having 74 beds, 10 RHCs having 164 beds, 168 Dispensaries having 10 beds and 12 private hospitals having 285 numbers of beds serving at the Shaheed Benazirabad district.

Table 4-1: Government and Private Departmental with bed capacity in District Shaheed Benazirabad

Type	No.	Beds
Teaching Hospital	1	875
THQs	1	50
BHUs	37	74
RHCs	10	164
Dispensaries	168	10
Private	12	285
Total	**229**	**1458**

Source: Health Profile of Sindh, 2017

In district Shaheed Benazirabad there is only one Leprosy clinic, 1 Trauma emergency center and 1 Unani shifa khana which serving the whole district population.

Currently, 202 nos. doctors are performing their jobs at district Shaheed Benazirabad. There are 9 Physicians (Govt: 4, Private: 5), 9 Surgeons (Govt: 4, Private: 5), 10 Gynecologist (Govt: 4, Private: 6), 10 Pediatricians (Govt: 4, Private: 6) and 19 Dentists (Govt: 10, Private: 9) in Shaheed Benazirabad district. There are 531 GMO doctors in district Shaheed Benazirabad hospitals out of which 325 in government hospitals, 9 in semi government, 28 in local bodies and 169 in private hospitals.

The Para-Medical staff of district Shaheed Benazirabad in public sector includes 85 Nurses, 61 LHV, 142 Midwives, 122 Med. Tech and 250 Disp. /Dressers.

6.2.2 Health Sector at DHQ Nawabshah

a. Medical & Para Medical Staff

It is quite disappointing fact that more than 57% of sanctioned posts of doctors and para-medics are filled. At present, Nawabshah DHQ town has 45 sanctioned posts of doctors out of which 26 are the actual appointments and remaining are vacant (including both male and female doctors). 6 nurses, 8 dispensers, 37 other paramedic and non-paramedic staff is performing their jobs i.e. ward boys, sweepers, gardeners, electricians and lab attendant. This number of medical staff is exclusive for private practicing doctors and paramedics.

Table 6-6: Medical District Headquarter Nawabshah

Posts	Sanctioned	Filled	Vacant
Doctors	45	26	19
Staff Nurse	6	6	
Dispensers and Paramedics & Non-Paramedic Staff	45	45	

Source: District Health Officer, Nawabshah 2017

b. Laboratories

Currently THQ/DHQ is facing lot of problems but instead of the fact there are X-Ray machines, wards, Laboratories, O.Ts, oxygen plant, diagnostic centers, ICT Scan, MRI, Neurology, Nephrology and incinerators available in the district to a satisfactory extent.

c. Drug Supplies

The complete range of items was not available at the majority of the surveyed facilities. The most common reason for their non-availability was under supply and delayed supply or lack of procurement powers at the district level. The DHQ/THQ Hospital and other health facilities are facing lot of problems regarding shortage of medicines supply. Most of patients have to purchase medicines from the local market. Presence of sub-standard medicines in local markets adds troubles for the patients.

6.2.3 ***Issues***

The following are the major issues in the health sector:

- Large number of Vacant posts of doctors and medical staffs in health institutes of the district.
- Lack of training and housing facilities for LHW and paramedical staff
- Accessibility to health care facilities in remote rural areas is difficult.
- Lack of Health facilities such as wards, labs and OT facilities

- Lack of diagnostic and other Health equipment
- Deficiency of transferring serious cases from rural areas to hospitals

6.2.4 SOWT Analysis

HEALTH			
STRENGTH	**WEAKNESS**	**OPPORTUNITY**	**THREATS**
1. THQ and BHUs are serving the regional population of the district.	1. Absenteeism and non-availability of medical and non-medical staff 2. High infant mortality rate. 3. Poor administration 4. Shortage of appropriate medical equipment and medicines	1. More investment is required through PPP in health sector to become focus of urbanization 2. More job opportunities and facilities for doctors	1. Death rate may increase 2. Poor health indicators are threat to economy and productivity

6.2.5 Need Assessment

6.2.6 Present Need Assessment (Population, Bed Ratio) 2017

There are currently 875 beds in Teaching Hospital, 50 beds in 1 Taluka Hospital, 74 beds in 37 BHUs, 164 beds in 10 RHCs, 10 beds in 168 Dispensaries and 285 beds in private hospitals in district Shaheed Benazirabad. The NRM (National Reference Manual) recommends 2 bed per thousand as the medium term target. On this basis there is need of 1,768 additional beds & 1,288 doctors to cater the present population of District Shaheed Benazirabad. The shortage of staff, medicines and funds for building maintenance are endemic main problems in the health sector.

Tale 6-7 : Present Analysis of population to bed ratio and Doctor Ratio at District Level

Census Population 2017	Available Beds	Present need	Required Beds	Available Doctors	Present Need	Required Doctors
1,612,847	1,458	3,226	1,768	325	1,613	1,288

I. Future Assessment (Population, Bed Ratio) 2037

Therefore, the target up to the year 2037 is to provide 2 beds per 1000 projected district population as per standard given in the National Reference Manual on Planning and Infrastructure Standards (NRM). Therefore there is need of 4,965 additional beds & 2,158 doctors to cater the District Shaheed Benazirabad Population upto next 20years. Future Supply, Need and Gap and Population per Bed Ratio is given in table.

The Consultant considered it appropriate to consider the catchment population of the whole district to work out the present need assessment and future (2037) requirements. The NRM (National Reference Manual) recommends 2 bed per thousand as the medium term target. On this basis approximately 3,507 additional beds will be required to be provided gradually until 2037. As already discussed above according to WHO (World Health Organization) standards doctor to population ratio is 1:1000 so taking that as a reference point the future requirement of additional doctors comes out to be 2,158 for the future population.

Table 6-8 : Analysis of population to bed ratio and Doctor Ratio at District Level

Future Population 2037	Available Beds	Future need	Required Beds 2037	Available Doctors	Future Need 2037	Required Doctors
2,482,625	**1,458**	**4,965**	**3,507**	**325**	**2,483**	**2,158**

6.2.7 Policy Guidelines[28]

Enhance basic health care by making it more accessible & affordable, efficient, effective and timely. This will be achieved by diversifying outlets through the involvement and support of other organizations that provide health or health related services. An important inclusion in this direction will be the extension and enhancement of basic healthcare education in schools, colleges, universities and other technology/vocational training institutions.

Enhance and improve existing emergency care facilities and trauma centers, including ambulatory services and paramedic forces.

6.2.8 Strategic Development

The aim of this strategic development plan is to improve health indicators and also Ensuring sound access to primary and secondary health facilities for the target population with a medical care system that is effective, efficient and responsive to the needs of all socio-economic groups, in particular, those of low-income communities and women of reproductive age. Some strategies includes:

[28] Sindh Vision 2030

i. Long Term

- Extension of Teaching Hospital
- Provision of Mobile Health Unit for the peripheral area of Town (under supervision of district Hospital)
- Up gradation of BHUs, RHCs and MCHCs.
- Health awareness programme for the deprived population
- Research and development programme for doctors and paramedics staff
- Provision of diagnostic facilities, ambulance, pharmacy in all hospitals
- Tertiary Level Specialized Hospitals District
- Enhancement of Mobile Health Unit for far-flung areas of the District
- Accommodation facilities for Doctors and Paramedic Staff

ii. **Short Term**

- Improve access to healthcare facilities as due to long journeys to hospitals many patient die on the way.
- We can further improve the access through ambulance network
- Ensure availability of adequate and skilled workforce to fulfill population health needs,
- Improving functionality of equipment and availability of quality medicines.
- Health is the fundamental need of the people. Currently health institutes of District are facing lot of problems due to unavailability of Laboratory facilities. Shortage of Specialized doctors, surgical instruments, and lack of machinery are the major issues. The condition of BHUs and RHCs are also very poor, there should need rehabilitation of these institutes to provide sufficient and high quality health to the people of Shaheed Benazirabad.

6.2.9 Priority Projects

i. Provision of Missing Facilities at Civil Hospital

- **Project Justification**

  Health is the fundamental need of the people. Currently health facilities are facing lot of problems due to unavailability of laboratorial facilities, shortage of Specialist doctors, surgical instruments, and lack of medical equipments are the major issues. Ongoing project includes; the Establishment Of New OPD Building for Neurochirurgie, Neurology, Urology, Paeds Surgery and Construction of 2 Storey Operation Theater & 50 Bedded Surgical and Clinical ICU bearing cost of 847.17 million is in completion. So therefore it is proposed to provide missing facilities and equipments to cvil hospital nawabshah on priority basis.

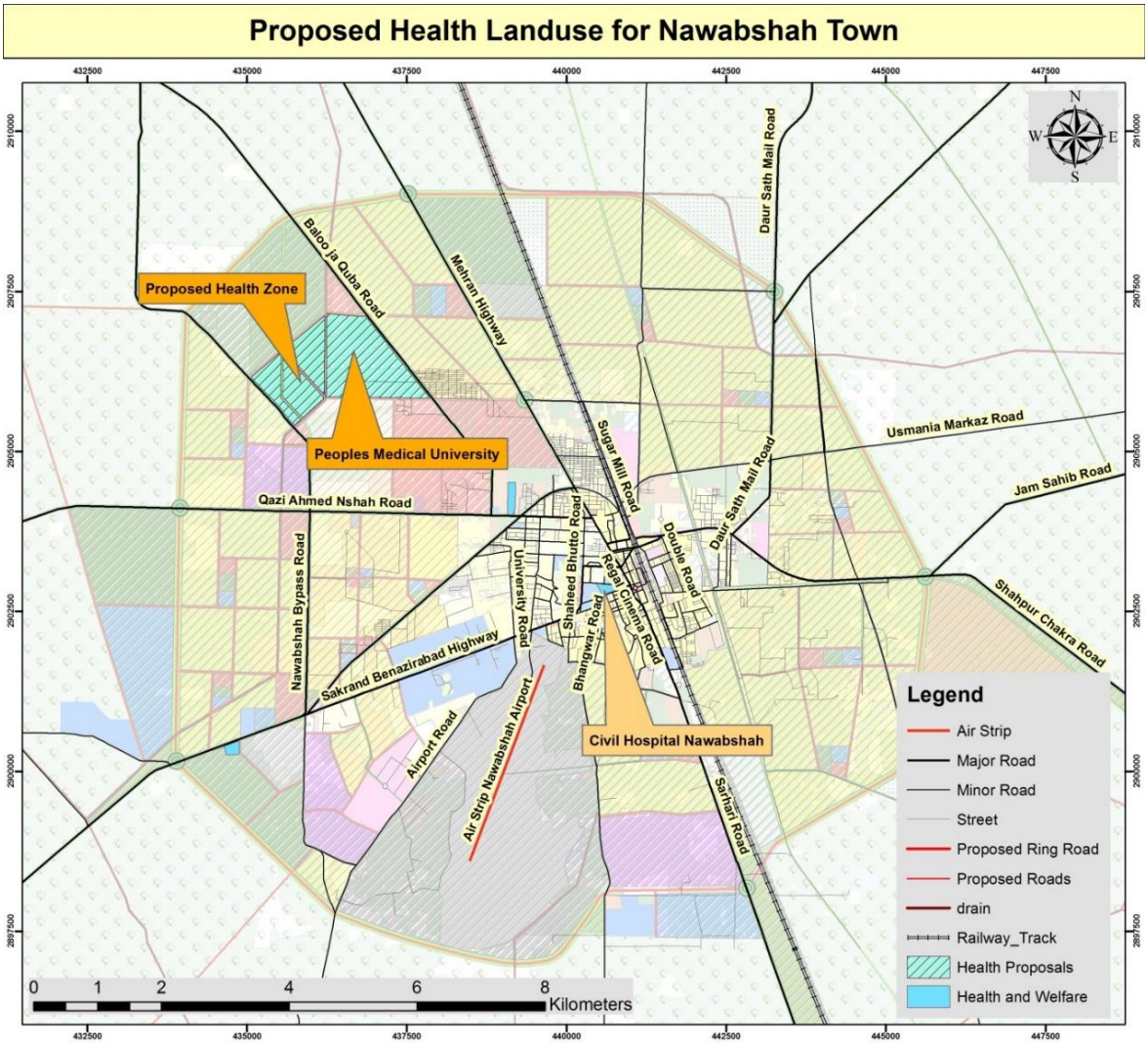
- **Project Benefits**

  This project will provide high quality health facilities and free medicines to the people of District Shaheed Benazirabad.

- **Implementing Authority -** Government of Sindh - Health Department

- **Estimated Cost:** 200 Million PKR Approx. (Short Term)

Project Name	Short Term	Proposed Area (acre) & Lengths (m)	Preliminary Cost (million /- PKR)	Justification
Provision of Missing Facilities at Civil Hospital	Short Term	27.0 acre	200.00	Installation of Incinerators, provision of pharmacy and ambulance facilities.



6.2.10 Immediate Action Plan for Core Urban Area

i. Rehabilitation and Up gradation of DHQ Hospital /Civil Hospital Nawabshah

Civil Hospital Nawabshah is suffering due to lack of basic facilities like unavailability of incinerator, waiting area for patients, subsidized drugs, Basic Laboratorial facilities, shortage of doctors' & para medic staff. Currently, civil hospital Nawabshah is providing basic health facilities to almost entire Shaheed Benazirabad division. Immediate action plan for health facilities includes; Repair & Rehabilitation of Civil Hospital.

S. No	Area / Locality / Address	Area (acre)	Repair & Rehabilitation - Activity Wise Cost in Millions			
			Street, Road & Parking	Provision of all 4 utilities	Public Facilities	Security
1	Rehabilitation of Civil Hospital	27.49	11.00	7.11	13.7	2.7
Total		**27.49**	**27.49**	**11.00**	**7.11**	**13.7**
Total PKR Rs. Million			**34.60**			

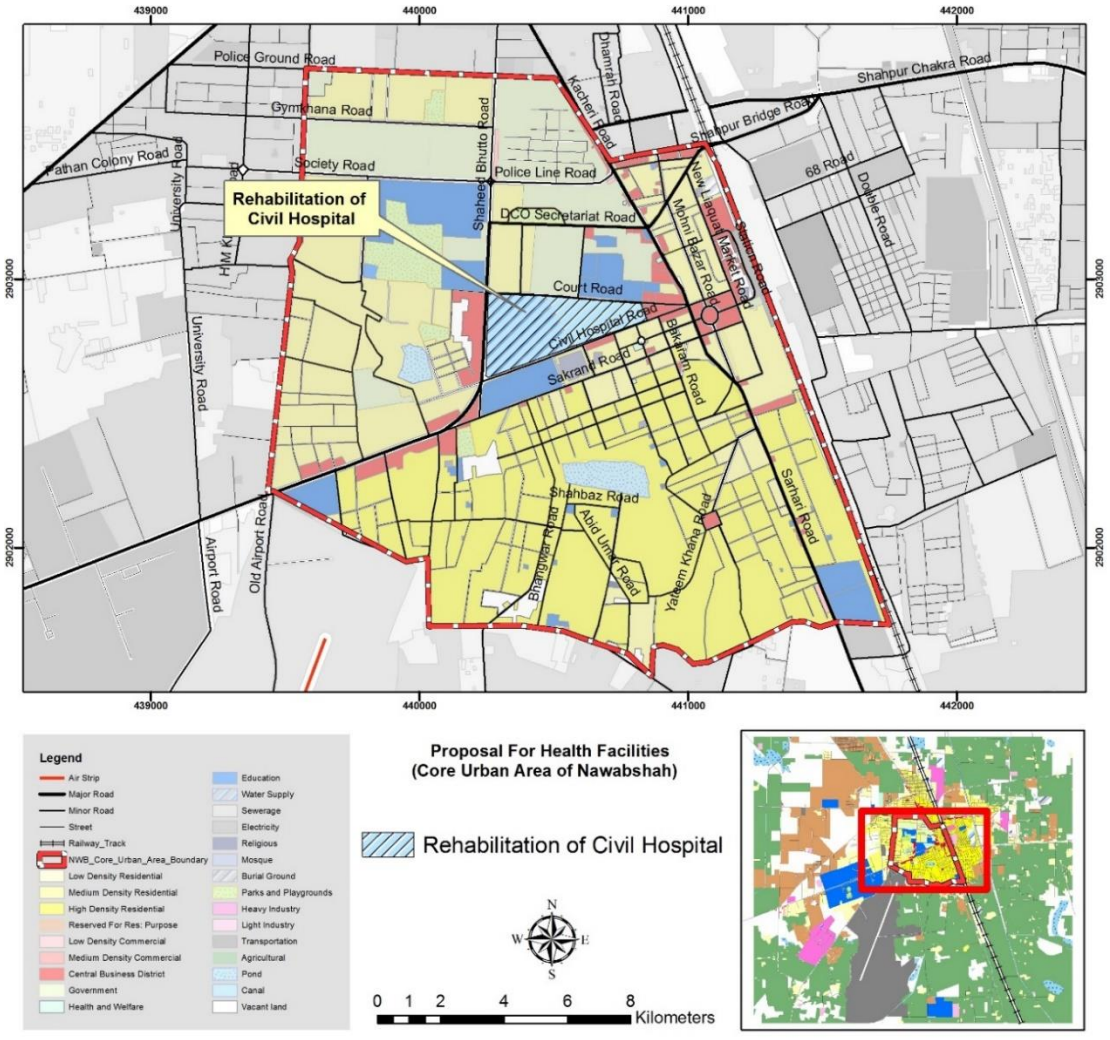


Figure 6:4: Health and Educational Facilities (Core Urban Area of Nawabshah Map)

ii. Economic Development

The above analysis shows the additional basic health units and hospitals would be needed to fill the gap to cater the need due to population growth. The standard of a bed/population is used to determine the gap. Planning is required to explore the ways by:

i. Rehabilitation and improvement in the existing hospitals
ii. Establishment of new units particularly at HQ Town and Tehsil towns as the shift from rural to urban areas is being gradually made
iii. Participation of private sector directly or through public-private partnership.

The financing of schemes for social sectors are done by both the government through Annual Development Plan (ADP) and private sector. The foreign aid agencies under multi-donor funded schemes/USAID are also actively participating particularly in the social sector to improve the services.

6.3 Recreational/Tourism/Culture

6.3.1 Existing Situation

The availability of parks in any city is essential for the safe and healthy environment. In Nawabshah recreational facilities includes nine parks, one Sports Stadium (Bilawal Stadium) with indoor & outdoor sports facilities. Due to the lack of management these may hardly be classified as proper recreational facilities as per standard requirement.

i. Public Parks and Sports Facilities

Nawabshah is famous for its pleasant environment. Although it has lost some of its green glory due to high level of water table of saline, Nawabshah town has nine public parks providing passive recreation to its residents. The local government parks wing is responsible to maintain & development of parks and plantation in incidental open spaces. Recreational facilities includes; Momal Park, HM Khoja Park, Abdul Qadir Park, Lab-e-Gajra Wah Park, Society Park, Bakhtawar Park, Lateef Park, Gajra Wah Park and Municipal Park.



Proposal for Rehabilitation of Bilawal Stadium & HM Khoja Park for Nawabshah

ii. Sports Facilities

Sports facilities present in town are SRTC Ground, Bilawal Sports Stadium and District Council and High School ground / Park.

iii. Clubs, Cinema, Theatres & Halls

The city has three clubs and three Cinema and Theater Halls providing entertainments to its members.

- ✓ Nawabshah Gymkhana
- ✓ Nawabshah Press Club
- ✓ Nawabshah Rotary Club (Mohini Bazar)
- ✓ Regal Cinema
- ✓ Nishat Cinema
- ✓ Latif Hall (capacity to accommodate about one thousand persons)

iv. Historical Places and Cultural Heritage

Famous Thull of Mir Rukan (Thul Mir Rukan is situated at a distance of 10 km from Daulatpur), and Dalel Dero (Dalel Dero is situated along main Mehran Highway Sakrand) present outskirts of Nawabshah District. Existing parks are in poor condition; therefore they should be preserved and restored for Family Park and recreational facilities.

6.3.2 Issues/Problems

- Disappearance of incidental open spaces
- Lack of preservation of recreational spots
- Lack of planned open spaces is a major problem.
- In-active tourist development program
- Tourism marketing is weak.
- Unavailability of basic facilities
- Encroachments
- In core urban area there is only one park which is in poor condition due to mismanagement and negligence of MC Nawabshah.
- There is no playground available for sports in core urban area, youngsters are forced to play on Burial grounds and vacant land etc.

6.3.3 SWOT Analysis

Strengths	Weakness	Opportunity	Threats
Sports & Recreation			
1. Present sports & recreational facilities includes Bilawal Cricket Stadium & HM Khoja Park	1. Shortage of water facility to maintain green spaces, green belts and trees plantation 2. Unavailability of enough sports facilities 3. Poor maintenance of existing infrastructure	1. Good health of local communities 2. Air pollution reduction 3. Protection of natural habitat 4. Healthy and sporting environment	1. Obesity 2. Youth involving in other unhealthy and anti-social activities
Culture			
1. The indigenous cultural activities of various social groups and minorities attract people from surrounding localities 2. Strong potential for producing traditional handicrafts used in daily life 3. Pluralism and ethnic diversity provides strong social fabric in many regions	1. Poor Management for organizing cultural events 2. Lack of infrastructure to accommodate visitors into such events 3. Lack of opportunities to commercialize / merchandize cultural goods/ souvenirs/moments	1. If organized appropriately could generate handsome amount of revenues with other spin-off effects	1. Security Threats 2. Degradation of cultural values and norms

6.3.4 Policy Guidelines[29]

- Federally-managed lands and waters afford critically needed opportunities for outdoor recreation,
- Diverse recreation opportunities on Federally-managed lands and waters are an important complement to recreation opportunities on state and adjacent lands,
- Providing enhanced and expanded opportunities for outdoor recreation can be done within the provisions of existing, multiple-use;
- Nawabshah needs infrastructure and programmes for sports activities, sport confections, gymnasium and family parks, and children play area and gardens.
- Preservation and conservation measures for historic places
- Formulation of comprehensive plan for promotion of tourism

6.3.5 Strategic Development Plan

Canal Beautification:

Nawabshah has Gajrah Branch and Khiyaroon minor running through or close by the town. For the beautification of canal (Gajrah branch and khiyaroon minor), footpaths and walk ways should be constructed and benches should be fixed on the banks of canals to turn them into recreation spots for the locals and to this effect design should be prepared in collaboration with the irrigation department.

Similarly, food courts will be set up in various places along the canal bank(Gajrah Branch), while spots should be identified for the purpose. Green belt should also be provided for the purpose of facilitating pedestrian movement. Morever embankments should be reinforced.

For the beautification of canal passing through the city wondrous pathways and vistas can be created along the bank of the canal .Providing Soothing distant tourism opportunity to capture the beauty but not destroy it through increased impact on ecosystem, this can be done by creating a buffer area.

i. Long Term Plan

- Provide Recreational Infrastructure of International Standards at District, Protect and conserve the cultural heritage, promote language, art and culture of District and dissemination of information through media.
- Feasibility Study for establishment of museum and research center at archeological site Chanhyo Jo Daro Nawabshah: District Shaheed Benazirabad is famous for heritage and culture places. Chanhyo Jo Daro is one of them. To promote the culture and tourism of Nawabshah and sindh, a detailed feasibility study project is proposed for establishment of museum and research center at this historical place of district shaheed benazirabad.
- Youth development programme for sports and recreation.
- Promote tourism through provision of support facilities.

[29] NOPRA 2005

- Proposal of new graveyard on the southern side along the railway line.
- Establishment of new open spaces as well as establishment of indoor and outdoor game facilities.

ii. Short Term Plan

- Existing open spaces in core urban area should be restored and maintained. New open spaces should be identified and created.
- The old houses marked for demolition by Municipal Committee due to danger may be purchased by MC or Local CBO. They may purchase these old houses which have out lived and these houses can be converted into small parks
- Development and preservation of cultural heritage
- Rehabilitation and construction of family parks and playground near residential areas
- Construction/rehabilitation of recreational facilities' in Nawabshah MC
- Construct more parks and rehabilitate the available parks to facilitate the people of Nawabshah mc.
- Construction of auditoriums and up-gradations for art councils
- Establishment of synthetic grounds, playing turf(for hockey, football) and indoor gym facility.

6.3.6 Priority Projects

i. <u>Construction/Rehabilitation of Existing Recreational Facilities in Nawabshah MC</u>

- **Project Justification**
  Currently the condition of public parks in Nawabshah MC is not good. There is also lack of family parks and open spaces resulting in a high level of air pollution and poor environment. The recreational facilities includes, Momal park, Hm Khoja park, Abdul Qadir park, Lab-e-Gajra park, Society park, Bakhtawar park and lateef park. The following are the recreational proposals with respect to the priority bases sets to improve present Sports/Cricket Ground.

- **Project Benefits**
  It will boost the local economic potential with significant Benefits from local to national level. It will create unique city landscape and generate number of employment opportunities.

- **Implementing Authority** - Sindh Government, Local Government and private investors.

- **Estimated Cost:** 348.38 Million PKR Approx. (Short Term)

Project Name	Short Term	Proposed Area (acre) & Lengths (m)	Preliminary Cost (million/-) PKR	Justification
Construction/Rehabilitation of Existing Recreational Facilities In Nawabshah MC (excluding Core Urban Area) ✓ Momal Park ✓ Society Park ✓ Bakhtawar Park	Short Term	5 acre	120.00	5 acre = 217,800 sft, at the rate of 1800/- PKR per sft construction cost with all infrastructure cost. (considered 30% as Built up Area)
Rehabilitation of Bilawal Cricket Stadium	Short Term	10 acre	148.38	- Spectator area 20,000 sft. Repair & Rehab; @ the rate of 1800/ sft.. Total 36.00 Million for Rehabilitation of Spectator area. - Playground Area 5.16 Acres (224,770 sft, Repair & Rehab; @ the rate of playground @ rate of 500/ sft. - Total 112.38 Million for Rehabilitation of playground area.

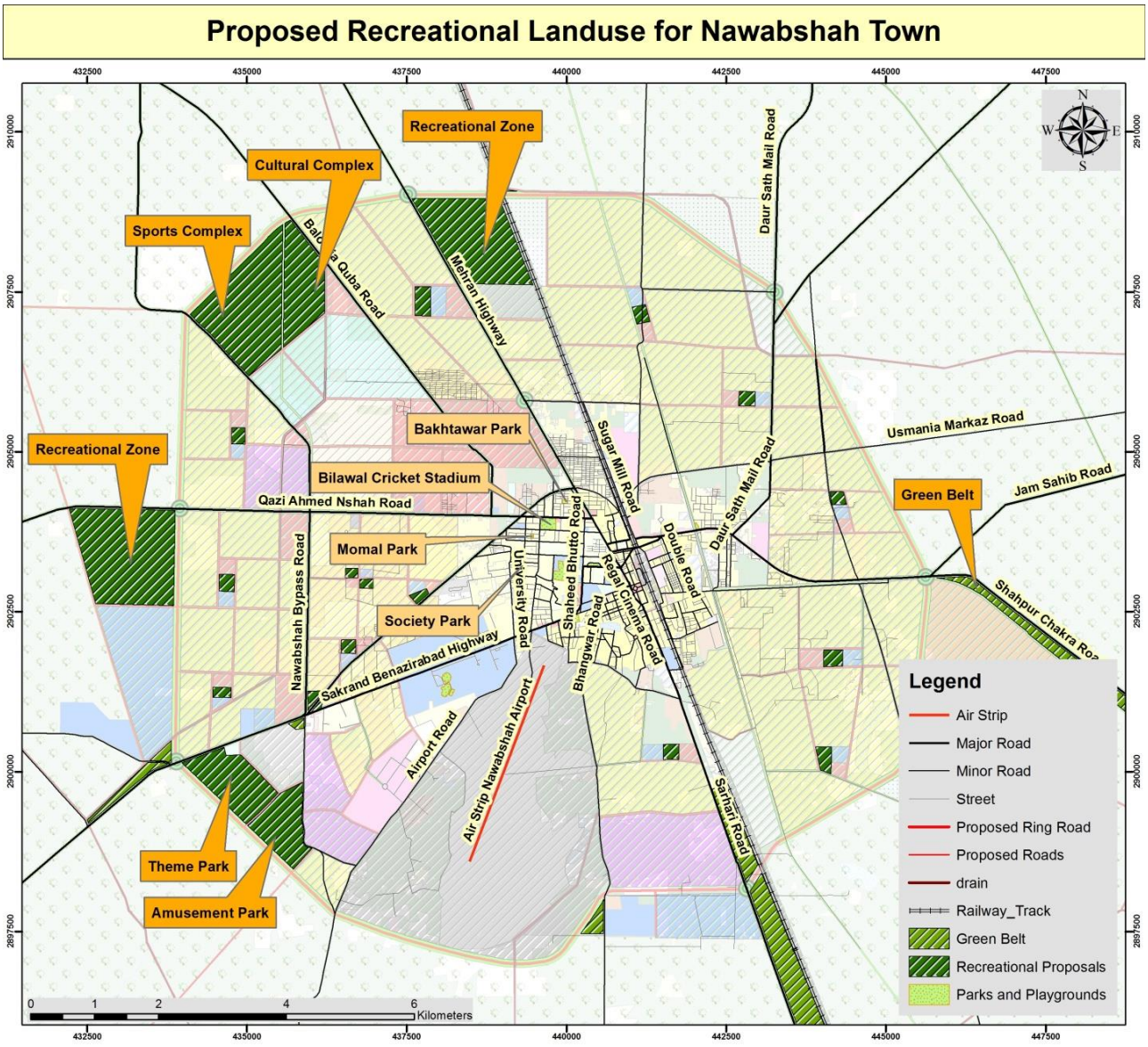


Figure 6:5: Proposed Recreational Zone Nawabshah Town

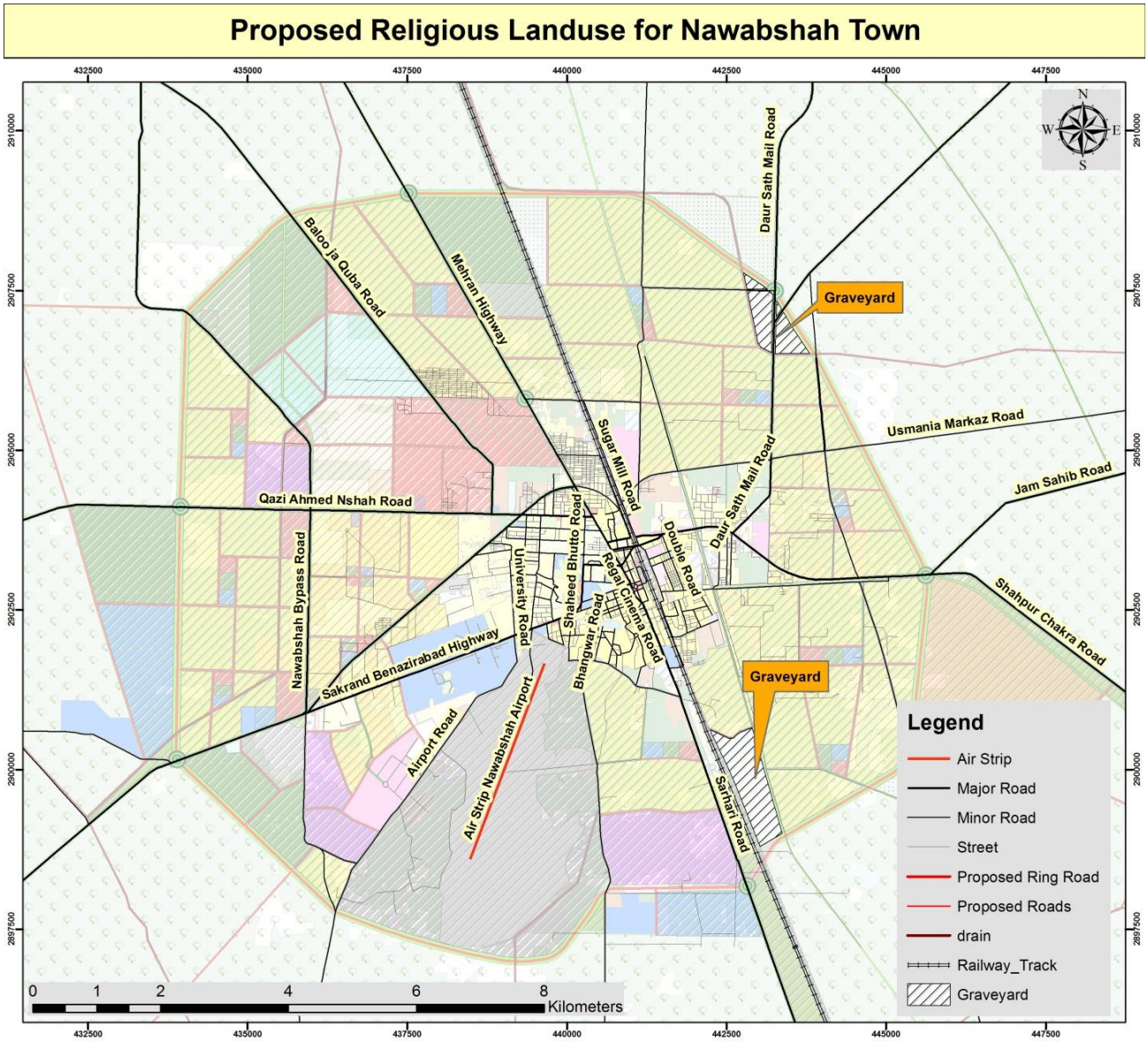


Figure 6:6: Proposed Religious Zone Nawabshah Town

6.3.7 Immediate Action Plan for Core Urban Area

- **Provision of Open Spaces and Park:** There is an acute shortage of compulsory open spaces in core urban area of Nawabshah. Present sports & recreational facilities includes Bakhtawar Park, Gajra Wah Park, Bilawal Cricket Stadium & HM Khoja Park should be restored and maintained for Family Park. Process of land acquisition should be started to facilitate core urban area with parks and playgrounds. The old property of municipality marked for demolition due to danger can be converted into small parks with allied basic facilities. This will help pedestrians to take rest while visiting core urban area of Nawabshah.

Table 6-9: Recreational Facilities Preservation

S.No	Heritage / Cultural Site Name	Area / Locality	Area (acre)	Repair & Rehabilitation - Activity Wise Cost in Millions			
				Street, Road & Parking	Utility Infrastructure	Public Facilities	Security
1	Rehabilitation of HM Khowaja Public Park	**15.50**	2.5	2.50	2.88	3.13	0.63
2	Rehabilitation of HM Khoja Sports Ground		10.0	10.0	11.50	12.50	2.50
3	Rehabilitation of Eid Gah & Provision of Wall for Existing Graveyards Present in Core Town Area		3.00	3.00	3.45	3.75	0.75
Total PKR Rs. Million				15.50	17.83	19.38	3.88
Total PKR Rs. Million			**56.58**				

Note:

- ✓ Rehabilitation of lanes, streets and connection minor and major roads.
  Utility Infrastructure rehabilitation includes basic services of Water supply, Electricity supply and Gas supply.
- ✓ Public facilities includes rehabilitation and provisioning of public toilets, proper seating arrangements.
- ✓ As per the law and order situation security concerns makes the overall impact to uplift the society life w.r.t. to secured environment.
- ✓ All these basic services in every DHQ town core areas needs to be rehab for quicker revitalization of people's life.

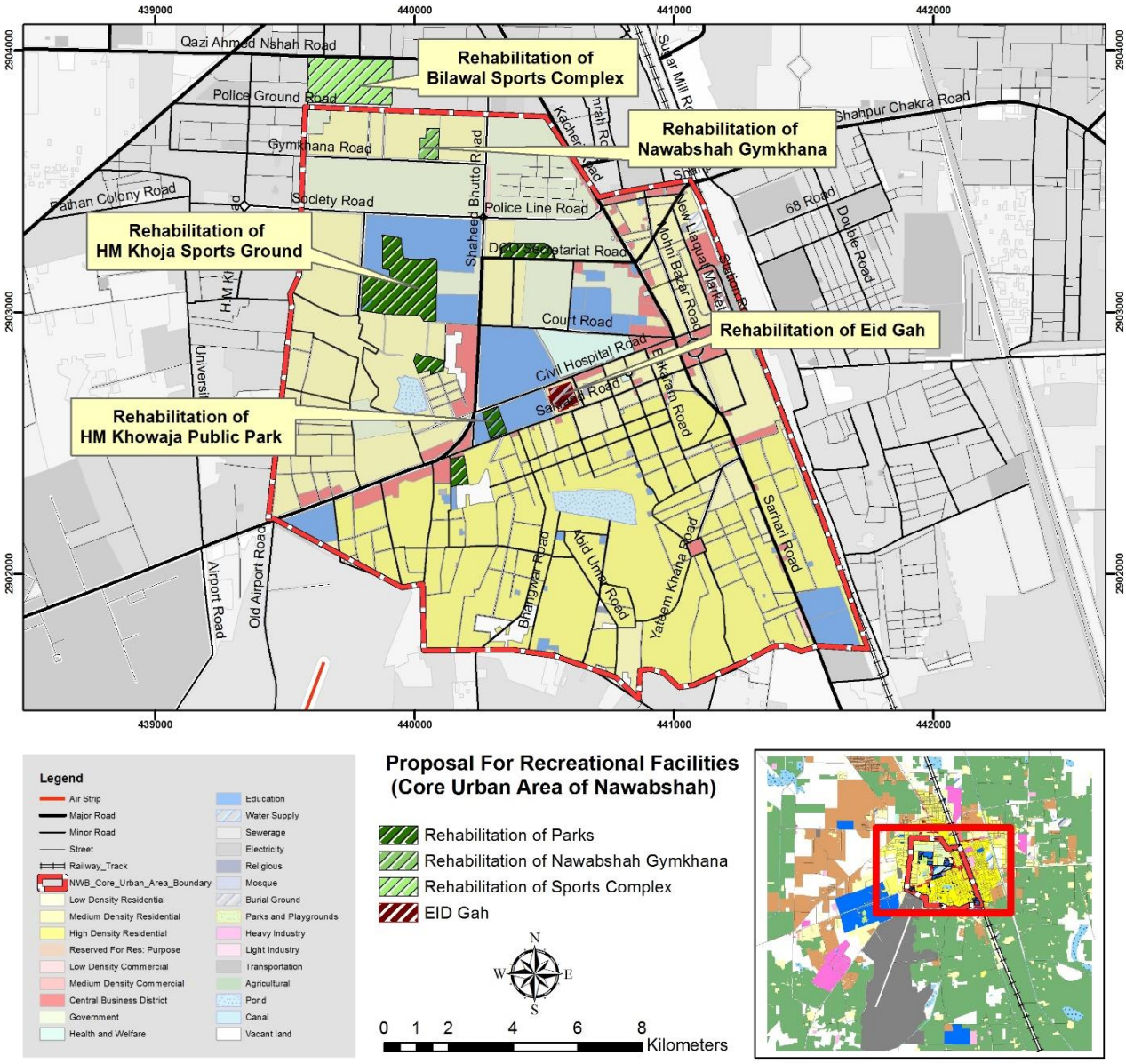


Figure 6-7: Repair & Rehabilitation Proposal for Recreational Facilities for Core urban Area

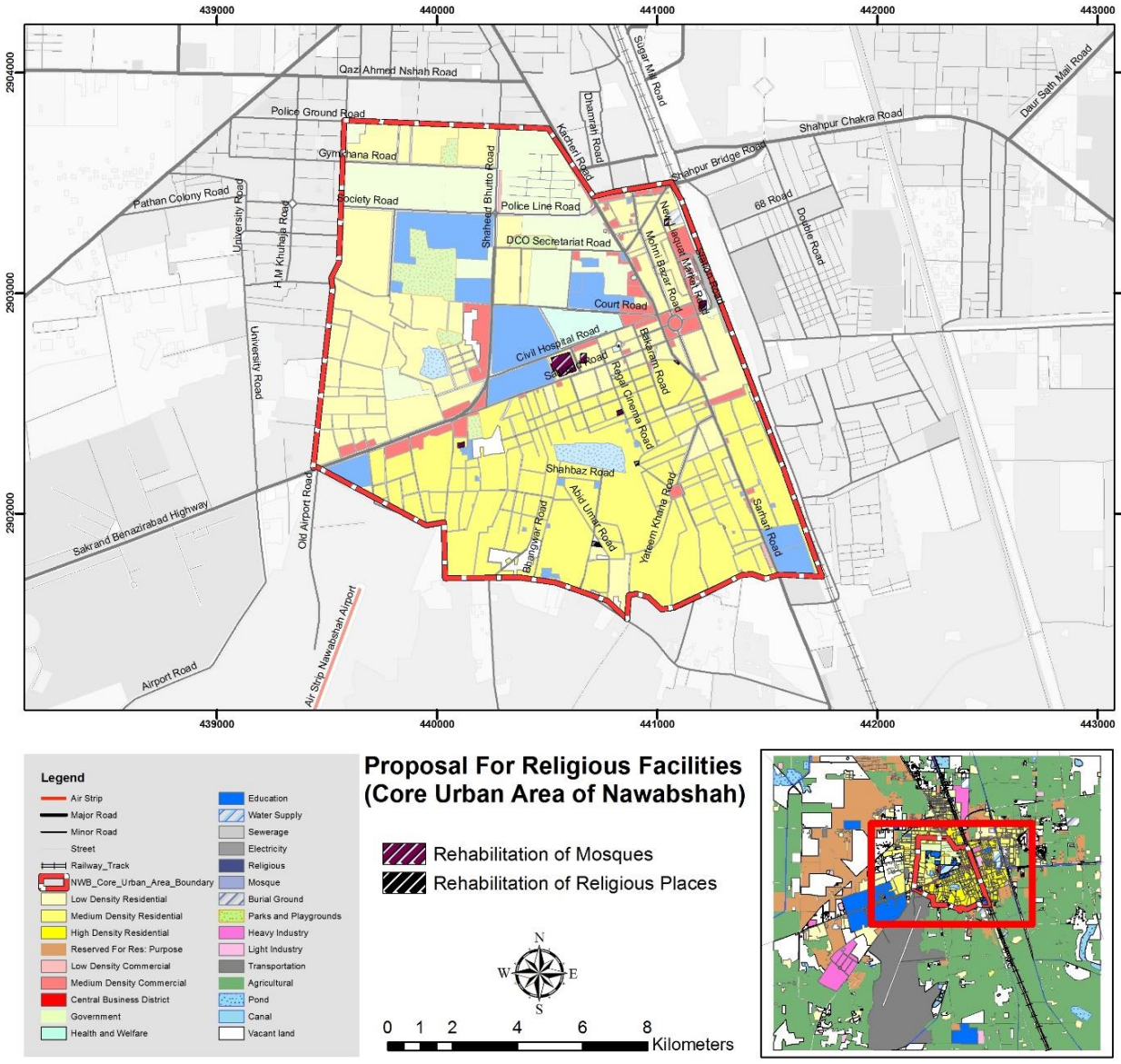


Figure 6:8: Religious Facilities (Core Urban Area of Nawabshah Map)

7. ECONOMIC DEVELOPMENT PLAN

Shaheed Benazirabad contributes significantly in agriculture sector of Sindh because its climate is suitable for production of various food items including the Kharif crops of maize, rice, sugarcane, cotton and bajra and Rabi crops of wheat, barley, Gram and barseem. In addition to these, fruit orchards are abundant in this district. Mouza statistics have reported that fruit orchards are widespread in 33% of the mouzas.

Shaheed Benazirabad is primarily an agro-based district and the industries in this district are depended on the agriculture. This district has established industries which are related to the agriculture i.e. the raw material, for these industries, is provided by the agriculture sector. Besides there are cotton factories, sugar mills, flour mills, and rice mills in this district.

i. Policy Guidelines for Overall Economic Development

- Creating a better quality of life for the citizens of the district by encouraging private sector to invest in the district.[30]
- Increase farmer's income.[31]
- Improving infrastructure and key services necessary for economic uplift.
- Providing un-interrupted power supply.

ii. Inclusion of Poverty Reduction Strategy in Economic Development Plan

The poverty reduction strategy (PRS) is aimed to act as medium-term instrument to address the challenge of poverty in Sindh. One of the intervention of PRS has its foundation resting on poverty reduction at the household level, together with the introduction of an urban programme incorporating a model of urban economic clusters for SME-based enterprise development in small cities and towns, and a model of rural growth centres at meso level that would provide a catalytic effect to the PRS. It has the strength to become a keystone for investment planning in the province, while focusing on Economic Development strategies via PRS lens that will boost the employment opportunities as well as enterprise development in the province.

iii. Strategic Plan for Overall Economic Development

- Modernize and revitalize the service sector.
- Implement proactive governance centered on accelerated and balanced economic growth.
- Develop Human resources through capacity building for employment opportunities.
- Reinforce the local governance institutions.
- Modernize local / district / divisional administration.
- Decentralization of governance authorities.
- Involve community participation.

[30] ADP 20017-18 Industries Punjab
[31] ADP 2017-2018 Agriculture Punjab

7.1 Agriculture

Economy of an area or town plays an important role for its sustainability and further growth. Nawabshah is fertile District having its economy based mostly on Agriculture, Sugarcane, Wheat and vegetable and agriculture related industries. It has Sugar Mill, Chemical Factory, Oil & Gas Companies, Cotton Factory's, Ice Factory's, Floor Mills, Handy Craft, Business & shop keeping etc. The progress of economic activities in district depends upon facilitation to farmers by using modern techniques now and surely in the future. The district as a whole is well-known due to its characteristic of agriculture and industrial engine which serves all over Sindh by using market of Hyderabad, Sanghar, Khairpur and Naushero Feroze, the regional Hubs.

7.1.1 Existing Situation

Agriculture sector provides employment opportunities to 45% of the labour force in Pakistan and provides sources of livelihood to 60% of the population in the rural areas. Agriculture contributes 21% to Gross Domestic Product (GDP) of Pakistan32 Shaheed Benazirabad contributes significantly in agriculture sector of Sindh because its climate is suitable for production of various food items including the Kharif crops of maize, rice, sugarcane, cotton and bajra and Rabi crops of wheat, barley, Gram and barseem. In addition to these, fruit orchards are abundant in this district. Mouza statistics have reported that fruit orchards are widespread in 33% of the mouzas[33].

Shaheed Benazirabad contributes significantly in agriculture sector of Sindh because its climate is suitable for production of various food items including the Kharif crops of maize, rice, sugarcane, cotton and bajra and Rabi crops of wheat, barley, Gram and barseem. In addition to these, fruit orchards are abundant in this district. Mouza statistics have reported that fruit orchards are widespread in 33% of the mouzas.

Bulk of the population resides in rural areas of which is engaged in farming and livestock rearing, and depends on these as their main sources of livelihood. While the farming sector provides a major source of employment for the people in District Shaheed Benazirabad, land ownership is much skewed. Main Crops are Sugar Cane, Rice, Wheat and sunflower. Crops cultivated in Shaheed Benazirabad can be divided into two main categories: Food Crops includes i.e. wheat, rice, Maize, Jowar, bajra and barley and Cash Crops includes i.e. Sugarcane and Cotton

The city of Nawabshah is set in a lush agricultural region. The city is famous for its sugarcane, mango, national hub of cotton production and one of the largest producer of banana in Pakistan. Economy of an area or town plays an important role for its sustainability and further growth. Nawabshah, being a Agriculture Hub consists of two Irrigation Water Supply Divisions called "Nusrat Division" and "Dad Division" in the district.

[32] Economic Survey of Pakistan (2011-12), Ministry of Finance, Government of Pakistan
[33] Sindh Mouza Statistics, 2008

7.1.2 Land Utilization

Total Reported area of District is about 451,000 hectares, out of this cultivated area is up to 385,000 hectare in 2016-2017, whereas in 2015-2016 it was 380,000. Cultivable Waste land remains as 4,000 to 6000 hectares from 2016 - 2017, whereas, 30,000 hectares are not available for utilization. There is a Minor changing in land utilization occurs in district Shaheed Benazirabad within one year as mentioned above the land utilization was decreased due to unsupplied of irrigation water and high rates of fertilizers and pesticides. The total geographical area of district Shaheed Benazirabad is 451,000 hectares out of which cultivated area is up to 385,000 hectare which is 85%. Out of cultivable land in 2016-17, actually cultivated land was to 166,000 hectares leaving 218,000 hectares as fallow:

7.1.3 Crop Production

The average crop yield per hectare of District Shaheed Benazirabad for last four years is that the production of Cotton is 202 tons/hectare, the production of sugarcane is 607 ton/Hectare and the production of wheat is 365 tons/hectare. For the year of 2013-2014 the production of Rice was 33,114 M.tons, Production of Wheat was to 338,016 M.Tons, Sugarcane 2,158,986 Bales and cotton 323,767 Bales. Fields of all crops to low comparing to provincial/ national level. To address the property issue / raising of income level waste land available be granted to land less people for utilization. Raising livestock looking to water shortage and proper crop and irrigation water management. The crops, production field and land utilization is given tables as under:

Table 7-1: Comparison Land Utilization

Sr. No.	Type of Cultivated area	2013-14	2014-15	2015-16	2016-17
1	**Cultivated area**	390,000	388,000	380,000	385,000
2	**Current Fallow**	229,000	218,000	218,000	218,000
3	**Net area sown**	162,000	170,000	162,000	166,000
4	**Cultivated Waste**	4,000	6,000	6,000	6,000
5	**Not available for cultivated**	30,000	63,000	39,000	35,000

Source: Development Statistics of Sindh 2018

Table 7-2: Comparison of Crop Production									
Major Crops		2012-13		Crops Production 2014-15		Crops Production 2015-16		Crops Production 2016-17	
Sr. No.	Crops	Area (Hectare)	Production (M. tons)	Area in Hectare	Production (M. tons)	Area in Hectare	Production (M. tons)	Area in Hectare	Production (M. tons)
1	**Rice**	10,355	33,114	10,751	34,602	-	-	-	-
2	**Wheat**	84,222	338,016	87,169	342,640	87,561	337,382	88,554	350,614
3	**Sugar Cane**	33,568	2,158,986	33,750	1 ,751,392	30,335	1,918,997	3 3,370	2,110,992
4	**Cotton**	55,153	323,767	58,973	320,700	63,440	334,259	64,500	3 58,400
5	**Maize**	25	23	22	17	25	23	33	26
6	**Gram**			129	126	134	126	131	125
Source: Development Statistics of Sindh 2018									

7.1.4 SWOT Analysis

Agriculture			
Strength	**Weakness**	**Opportunity**	**Threats**
1. Canal irrigation based Agrarian economy 2. Strong tube well system 3. The irrigation system of this district, due to the canal system, tube wells and rivers, is quite efficient 4. High production of cash crops specially sugar cane and cotton	1. Supply of Low quality seed varieties 2. High rate of interest on Agri-loan 3. Poor market mechanism to ensure reasonable returns to growers and artisans 4. Environment degradation issues (toxic chemicals and untreated waste water) 5. Farmers are not aware and prepared to adopt new trends of cropping / farming techniques	1. Job opportunity for rural population 2. Development of Strong connectivity between farms and markets 3. Outside investors show interest in agriculture sector 4. Possibility of increasing per acre yields 5. A strong formal mechanism for fixing base price for sugarcane is required	1. Shortage of educated and skilled professionals 2. Less efficient local markets 3. Shortage of agro based products 4. High land prices 5. Soil Contamination 6. Low returns to farmers of agro products 7. The conflict between farmers and sugar industry may discourage farmers to grow sugarcane.

7.1.5 Issues

- High price of Inputs (Fertilizers Material, Pesticides and Quality seed)
- Lack of agriculture credit facilities.
- Less equipped Agriculture research centers.
- Water logging and salinity.
- Irrigation and Drainage problem
- Unavailability of water in the canal will play havoc with the agriculture sectors, especially cotton, sugarcane, mangoes and vegetables.
- Shortage of food godowns and warehouses.
- Insufficiency of covered storage.

7.1.6 Strategic Development Plan

i. Long Term

- Agricultural technology development, dissemination and adoption.
- To address the property issue / raising of income level ,waste land available should be granted to land less
- Enhancing crop productivity through adoption of new technologies
- Provision of agricultural infrastructure for the welfare and prosperity of local population.

ii. Short Term

- Modernize and revitalize agriculture.
- Use of modern techniques for cultivation by choosing healthy seeds and fertilizers for increasing yield per acre.
- Increase the supply and quality of agricultural crops
- Enhancement of the storage capacity.
- Provision of warehouses, food Godowns for storage of agricultural products.
- Construction of covered Godown.

In order to improve the crop production improvement and intervention from government departments are needed in the following areas:

- Agriculture credit facilities
- Regular supply of irrigation water
- Availability of fertilizer, pesticides and quality seed that results in Improvement in crop yield/acre that in turn increase the crop production for internal consumption & exports
- Installation of tube wells
- Measures to reduce water logging and salinity
- Construction of farm to market roads

7.1.7 Economic Development

District Shaheed Benazirabad is producing Cash Crops like Sugarcane, Wheat, Rice and Cotton. In addition to the said crops; Rapeseed & Mustard are also grown. The analysis translates that about 45**%** of arable land used for cultivation of wheat crop only, might be the reason that soil and climate of the region suits to Wheat crop, therefore, growers and government may focus to reclaim more waste land to convert the same into arable land and priority may be given to Wheat and Cotton Sugar crops thereafter.

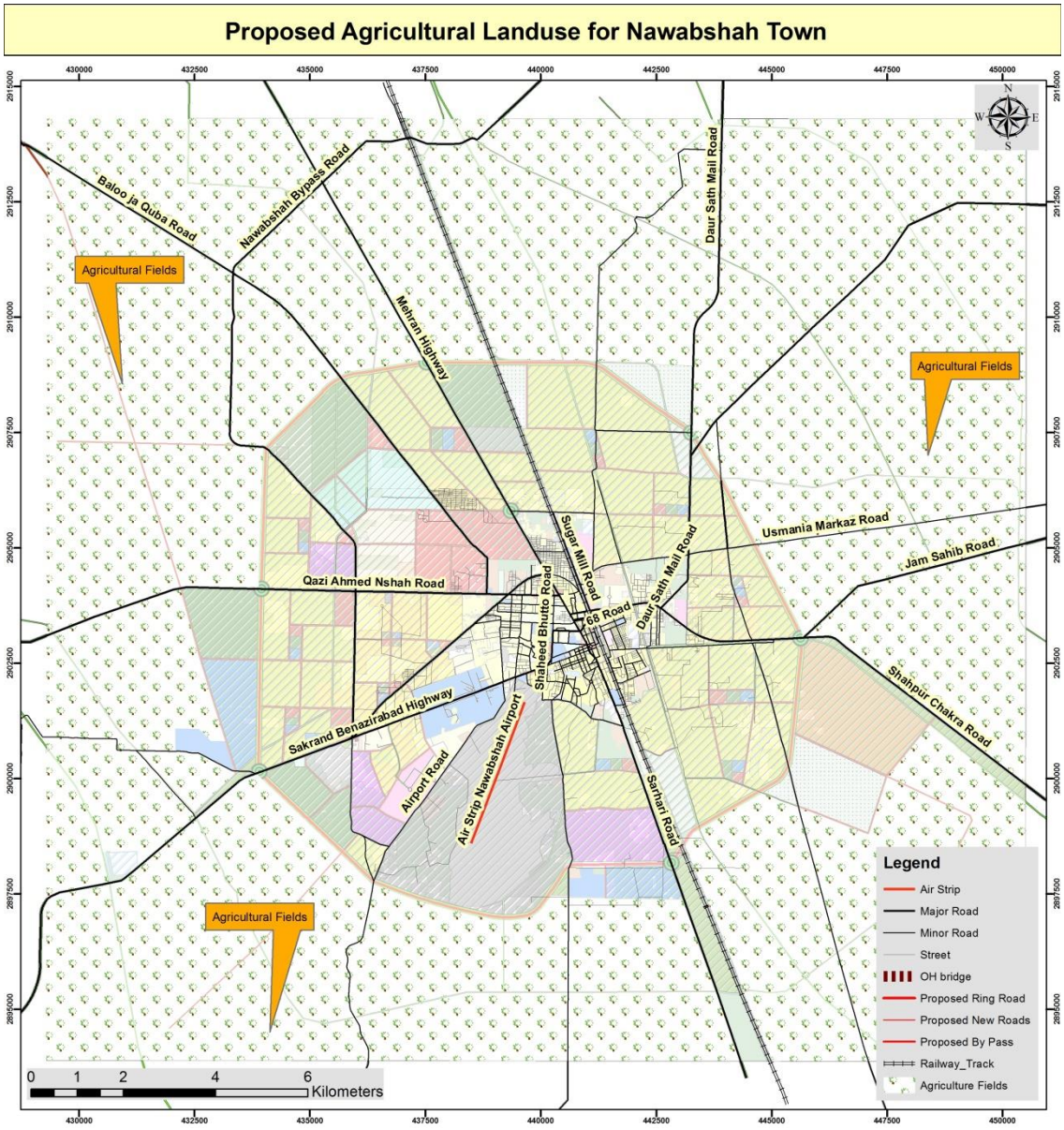


Figure 7:1: Proposed Agricultural Landuse for Nawabshah Town

7.2 Livestock

7.2.1 Existing Situation

District Shaheed Benazirabad is richly populated area having animal's population 2,619,243 of large and small animals. This district is well known with different type of breeds of cattle, Goats and sheep's. Animal population of district is highest number of Goats having 877,509 hands followed by buffalos 390,259 heads and Cattle 339,188.

Table 7-3 : Number of Livestock

Livestock & Poultry			
Sr. No.	**Category**	**District Population**	**Nawabshah Town Population**
1	Cattle	339,188	4,506
2	Buffalos	390,259	9,221
3	Sheep	101,810	1,244
4	Goats	877,509	7,375
5	Camels	4,577	137
6	Asses	42,424	195
7	Poultry	863,147	0
8	Mule	329	-

7.2.2 Issues

- Landlessness and small holding prevents the farmer to raise livestock on commercial basis mainly subsistence farming
- Limited knowledge and facilities
- Almost for every farmer, livestock farming is a secondary activity so treated as secondary source.
- Reduced areas for natural grazing and feed production in the face of increasing urbanization and food security requirements
- Veterinary services are not sufficient and not serving all the population of animals.

7.2.3 Need Assessment

The services for veterinary in district Shaheed Benazirabad are deficient though District Shaheed Benazirabad is richly populated area having animal's population 2,619,243 of large and small animals. For this population of Animals, the services are not sufficient and not serving the all population of animals.

There are 11 veterinary Hospitals and 44 veterinary centres, all are established in four Taluka's of district Nawabshah to provide better service.

Improvement in Cattle Farms and Veterinary services would be needed to maintain the sustainable growth by Livestock Department along with private sector. Livestock in the district suffers in particular from shortage of high quality feed.

7.2.4 Strategic Development Plan

- Improving the production performance of livestock in District through manipulation of different minerals and feed supplements.
- Enhancement of Livestock Production and Productivity through strategic deworming and vaccination.
- Establishment of model livestock farms linked with improved supply chain and value addition.
- Establishing new cattle & dairy farms that lead to increase in number of cattles and quantity of milk.
- Measures to increase Veterinary Services.
- Establishment of Cooperative dairy farming and in-land fisheries
- Large pasture land and labor force available for livestock growth
- Livestock based products can enhance economic activities if produced through appropriate industries.

7.3 Fisheries

7.3.1 Existing Situation

There are 81 Private fish production farms are working for fish farming in the District. Total 1,295 fishermen both part time & full time are working in fisheries sector of district Shaheed Benazirabad. The total number of boats registered in district is 610. The production of fish by annually in district is approximately 6,332 M.Tons.[34]

Table 7-4: Annual Fish Production[35]
Fisheries-Water bodies, Fish farms & Production (M.Tons)

Province/District	Fish Production	No. of Fishermen			No. of Boats		
		Full time	Part time	Total	Sail	Row	Total
SBA (2015-16)	6,030.00	930.00	365.00	1,295.00	410.00	200.00	610.00
SBA (2016-17)	6,332.00	930.00	365.00	1,295.00	410.00	200.00	610.00

[34] Fisheries Department Shaheed Benazirabad
[35] *Development Statistics of Sindh 2018*

STRENGTH	WEAKNESSES	OPPORTUNITY	THREATS
Livestock & Fisheries			
1. Mechanism for milk collection available 2. Favourable environment is available for livestock growth (Pasture) and poultry farming in surroundings of city Local skills and vet services available	1. Large scale breading has not developed 2. Lack of facilities to industrialize livestock based products.	1. Cooperative dairy farming and in-land fisheries has sufficient scope 2. Large pasture land and labour force available for livestock growth 3. Livestock based products can enhance economic activities if produced through appropriate industries	1. Theft and security issues 2. Losses due to Disasters (floods and epidemics) 3. Vet services insufficient

7.3.2 SWOT Analysis

7.3.3 Need Assessment

There is need to develop and implement a broad-based fisheries policy which is required for accelerated development of the fisheries sector. Government of Sindh has to take measures to modernize the fisheries sector including establishment of farms on district level to promote fish farming.

7.3.4 Strategic Development Plan

- Need for extension services in private sector
- Lease of fishing rights, conservation, management and promotion of fisheries
- Local publicity and awareness
- Enforcement of fisheries enactment in their respective domain
- Fish seed stock replenishment in natural water bodies in their respective domain
- Aquaculture development activities through modern techniques
- Collection of statistical data of fish and fish resources in their respective domain

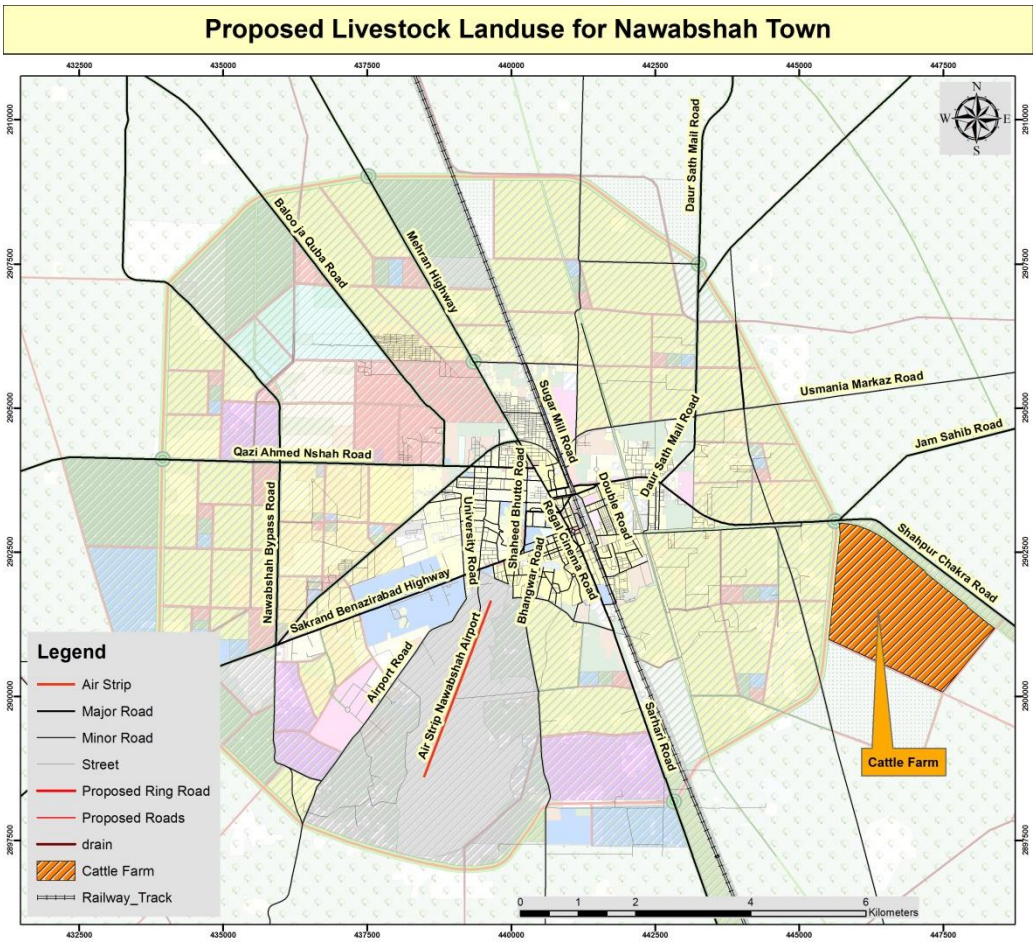


Figure 7:2 : Proposed Livestock Zone Nawabshah Town

7.3.5 Economic Development

It is expected that sustainable growth of livestock will be maintained as per main objectives of Livestock & Fisheries Department along with the participation of private sector. Hence there is possibility to:

- Establish livestock and dairy farms to meet the increasing requirement of meat and milk. Similarly new fish farms and poultry farms in the districts need to be established to generate production and income of the people engaged in this business. The cattle area is proposed in the southeast along Shahpur Chakra Road to limit the town development further and it will also benefit the population of nearby villages and other settlements.

- Moreover, there is need to develop and implement a broad-based fisheries policy which is required for accelerated development of the fisheries sector. Government of Sindh has to take measures to modernize the fisheries sector including establishment of farms on district level to promote fish farming under PPP mode.

7.4 Industries

Shaheed Benazirabad has industries pertaining to the agriculture sector. Famous among these are the sugar mills in this district as sugarcane is cultivated on large scale in this district. In the census of manufacturing industries 2000-01, 27 industries were reported in this district with a total asset value of 2.3 billion rupees in that year. These industries reported a daily employment of 3,404 persons in 2000-01.

7.4.1 Types of Industries

Shaheed Benazirabad is primarily an agro-based district and the industries in this district are depended on the agriculture. This district has established industries which are related to the agriculture i.e. the raw material for these industries is provided by the agriculture sector. Besides there are cotton factories, sugar mills, flour mills and rice mills in district.

Shaheed Benazirabad DHQ Town Nawabshah has great potential in industrial sector. Shaheed Benazirabad Chamber of Commerce & Industry has been taking initiatives for betterment. Currently there are two designated sites as industrial areas in DHQ Town like:

i. Industrial Estate, Nawabshah Established in 1985-86. Total Area designated for estate is 50 Acres. Currently estate is lacking necessary Facilities such as shortage of Power and Water. According to official sources there are 95 Plots.

ii. Special Industrial Zone, Nawabshah Established in 1995. Total Area designated for zone is 239 Acres and only 106 acres allotted actually.

Other list of industries present in Shaheed Benazirabad District includes;

S.No	Name	Sector	District
1.	Moro Textile Mills Ltd.	Textile, Wearing & Leather Products	Nawabshah(Benazirabad)
2.	Sadhuja Textile Mills Ltd.	Apparel & Leather Products	Nawabshah(Benazirabad)
3.	Anmol Rice Mills	Food, Beverages & Tobacco	Nawabshah(Benazirabad)
4.	Dastageer Rice Mills	Food, Beverages & Tobacco	Nawabshah(Benazirabad)
5.	Data Rice mills	Food, Beverages & Tobacco	Nawabshah(Benazirabad)
6.	D.T Rice Mills	Food, Beverages & Tobacco	Nawabshah(Benazirabad)
7.	Raja Rice Mills	Food, Beverages & Tobacco	Nawabshah(Benazirabad)
8.	Sachal Rice Mills	Food, Beverages & Tobacco	Nawabshah(Benazirabad)
9.	Unner Rice Mills	Food, Beverages & Tobacco	Nawabshah(Benazirabad)
10.	Al-Noor Sugar Mills Ltd.	Food, Beverages & Tobacco	Nawabshah(Benazirabad)

S.No	Name	Sector	District
11.	Habib Sugar Mills Ltd.	Food, Beverages & Tobacco	Nawabshah(Benazirabad)
12.	Sakrand Sugar Mills Ltd.	Food, Beverages & Tobacco	Nawabshah(Benazirabad)
13.	Indus Gum & Protion MFG Flour Mills Ltd.	Food, Beverages & Tobacco	Nawabshah(Benazirabad)
14.	Iqbal Flour Mills Ltd.	Food, Beverages & Tobacco	Nawabshah(Benazirabad)
15.	Qalandar Flour & Oil Mills Ltd.	Food, Beverages & Tobacco	Nawabshah(Benazirabad)
16.	Shah Latif Flour Mills Ltd.	Food, Beverages & Tobacco	Nawabshah(Benazirabad)
17.	Al- Mehran Cotton Industries & oil Mills	Metal & Metal Products	Nawabshah(Benazirabad)
18.	Asad Cotton & Ginning & Oil Mills	Metal & Metal Products	Nawabshah(Benazirabad)
19.	Al Shahbaz (Jam) Cotton Ginners & Oil Mills	Metal & Metal Products	Nawabshah(Benazirabad)
20.	Bajwa (indus Modern) C. Ginners & Oil Mills	Metal & Metal Products	Nawabshah(Benazirabad)
21.	Bismillah C. Ginners & Oil Mills	Metal & Metal Products	Nawabshah(Benazirabad)
22.	Dastaghir (Al Faisal) Cotton Ginners & Oil Mills	Metal & Metal Products	Nawabshah(Benazirabad)
23.	Ghazi Abbas C. Industries & Oil Mills	Metal & Metal Products	Nawabshah(Benazirabad)
24.	Jam Datar C. Ginners & Oil Mills	Metal & Metal Products	Nawabshah(Benazirabad)
25.	Kaynat (Sindh) C, Ginners & Oil Mills	Metal & Metal Products	Nawabshah(Benazirabad)
26.	Moula madad C. Industries & Oil Mills	Metal & Metal Products	Nawabshah(Benazirabad)
27.	Modern S.M C. Ginners & Oil Mills	Metal & Metal Products	Nawabshah(Benazirabad)
28.	Millat Farm Machinery	Metal & Metal Products	Nawabshah(Benazirabad)

S.No	Name	Sector	District
29.	Nawabshah National Engineering Complex	Metal & Metal Products	Nawabshah(Benazirabad)
30.	Maaz Dawakhana	Chemical, Petroleum, Rubber & Plastic Goods	Nawabshah(Benazirabad)
31.	Chemi Visco Fiber Ltd.	Textile, Wearing Apparel & Leather Products	Nawabshah(Benazirabad)

7.4.2 Occupation and Job Opportunities

The main occupations of the people of District Shaheed Benazirabad are agriculture, trade, labour / skilled labour, prominent educationist, agriculturist, professionals like engineers, doctors, technical experts especially in the field of sugar industry, oil exploration, lawyers, planners, housing experts are playing their prime role in the development / economical activities of the district. The occupational involvement in industry is also overwhelming. A considerable segment of society adopts government / private service as their occupation. According to socio economic survey results the main occupation of people of DHQ town are Teacher 16%, Doctor 2%, Engineer 4%, Banker 4%, Labour 30%, Self-employed / Own Business 13%, Government Job 24% and Private Job 7%.

7.4.3 SWOT Analysis

ECONOMY			
Industrial			
Strength	**Weakness**	**Opportunity**	**Threats**
1. Substantial scope of downstream agro –industries in cotton and sugar by- products.	1. Less positive behaviour towards industrial sector 2. Shortage of skilled manpower for cottage industries 3. Little official support for artisans/cottage industries (Sindhi handmade Topi & Rally).	1. Creation of Job employment. 2. Opportunities for small scale industries. 3. Vocational training and skilled development.	1. Water contamination to river Indus resources. 2. Government policies may term formers away from sugar cane production. 3. Environment & social problems (water & soil contamination and industrial garbage/waste

7.4.4 Need Assessment

Vocational training to Women force should be encouraged for establishing cottage industry in the district.

7.4.5 Strategic Development Plan

i. Long Term Plan

- Sufficient market infrastructure to ensure optimal value addition
- Development of Industrial Estates / Apparel Park / Special Economic Zone in District
- Heritage saving through empowerment of artisans for development of handicrafts
- Paradigm shift from industrial agriculture to diversified agro ecological Systems
- Provision of infrastructure for establishment of new industries.

ii. Short Term Plan

- Support industrial development.
- Modernize and revitalize the service sector.
- Enhancement of colonization in SIEs through provision of missing facilities
- Provision of vocational training and employable skills to the unemployed youth of the district
- Customized lending and micro financing to small industries

7.4.6 Priority Projects

i. Revitalization of Industrial Estate Zone of Shaheed Benazirabad (Nawabshah - Airport Road)

➢ **Project Justification**

This district has established industries which are related to agriculture i.e. the raw material, for these industries, is provided by the agriculture sector. Besides, there are cotton factories, sugar mills, flour mills, and rice mills in this district. Shaheed Benazirabad has great potential in the industrial sector. Shaheed Benazirabad Chamber of Commerce & Industry taking initiatives for betterment. Currently, there are two designated sites as industrial areas in District like: Industrial Estate which Established in 1985-86. The total area designated for estate is 50 Acres. Currently, estate is lacking necessary Facilities i.e. shortage of Power and Water. According to official sources, there are 95 Plots. The second one is Special Industrial Zone, Established in 1995. The total area designated for the zone is 239 Acres and only 106 acres allotted actually. While revitalizing the Industrial Estate of Nawabshah (Shaheed Benazirabad), the industrial zone must be bifurcated through green belts as a buffer zone to limit the adverse impacts of industrial pollution on adjoining residential areas.

Revitalization of Nawabshah Industrial Estate will covers rehabilitation of existing infrastructure, basic utilities and common facilities i.e. roads, sewerage lines, oxidation pond, raw water channel, gas, grid station for electricity and communication system.

- **Project Benefits**

  Increase industrial activity with significant employment generation and overall assistances to the city's economy.

- **Implementing Authority** – Sindh Industrial Development Board. Shaheed Benazirabad Chamber of Commerce and Industry, District Government.
- **Estimated Cost: 1,195.00** Million Approx. (Short Term)

Project Name	Sector	Proposed Area (acre) & Lengths (m)	Preliminary Cost in Million-PKR)	Justification
Economy				
Revitalization of Industrial Estate Zone of Shaheed Benazirabad (Nawabshah - Airport Road)	Economic Development	239 acre	1,195.00	239 acres at the rate of 5.0 million per acre construction cost with all infrastructure cost

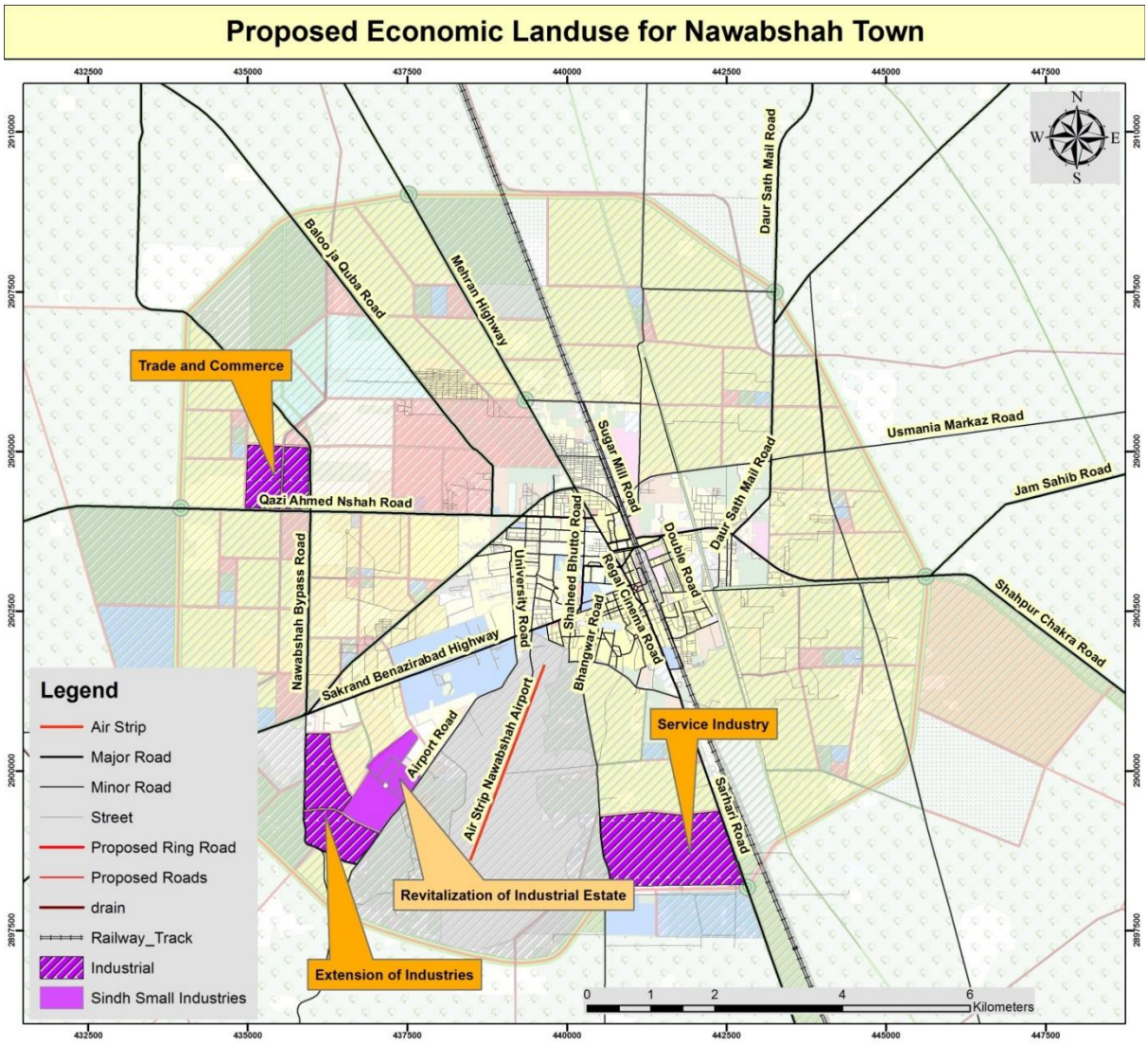


Figure 7:3: Proposed Economic Land Use for Nawabshah Town

7.4.7 Economic Development

On the basis of projected increase in crop production up to 2037 and present industrial base, there is potential for enhancing the capacity utilization of present units and establishing new industrial units.

- Addition in industrial units suggested may vary as it is dependent upon the production capacity of each unit.

- As noted earlier, full utilization of Industrial Estates to be accelerated. Improved infrastructure, supply of water and energy need to be stramlined. However, incentives to private investors will be the key element for which Sindh Investment Board and Sindh Small Industries Corporation have vital role to play.
- Considering future growth in industries, particularly cotton ginning factory, flour mills, rice husking units, ice/cold storage and cottage industry, the area for Small Industrial Estate may need extension. Therefore it is proposed an Area Extension next to Special Industrial Zone along Airport Road. This is more appropriate to develop small scale industries.
- The small scale industries may include flour mills, ice factories, packaging of fruits and vegetables, feeder crops, cottage industries of handicrafts, souvenirs etc.

The increase in industrial growth will obviously contribute towards better economy of the districts with increase in per capita income, reduction in unemployment rate and poverty alleviation.

7.5 Trade and Commerce

7.5.1 Existing

There is the presence of strong local retail market in form of Mohini bazaar. There are lots of banks such as Bank Islami, Bank Alfalah and Mezaan Bank, Apna Microfinance Bank and mobile facilitation centers. Nawabshah has the major commercial hub like; Mohini Bazar, Chakra Bazar and Liaqat Bazar along the main katchery road and bridge road. CBD includes traders, wholesale markets, and traditional embroidery shops, Auto Shops, restaurants, schools, clinics and general stores etc. Golchakra market owned by municipality old markets i.e. Golchakra market is present in old commercial area of Nawabshah. Golchakra market is in poor condition. Retailers are paying less rent to municipality.

7.5.2 Issues

- The failure of PPP (Public Private Partnership) trouble for locals and government
- Demise of local agriculture market
- Un-planned local business activities

7.5.3 SWOT Analysis

Trade & Commerce			
Strengths	**Weakness**	**Opportunities**	**Threats**
1. Active financial services available & local strong retail 2. Large number of bank branches 3. Regional trading hub 4. Chamber of Commerce & Industry 5. Strong local retail market	1. Absence of local agriculture market system 2. Un-planned local business activities 3. Lack of awareness regarding micro-financing opportunities offered by financial Institutions	1. More opportunities for PPPP (public private partnership) 2. Potential for new market 3. Support to local economy 4. Home grown handicrafts can be promoted through proper exposure to export market 5. High demand for local handcraft	1. Lack of Security 2. Rapid change (Inflation & deflation rate) 3. Political instability

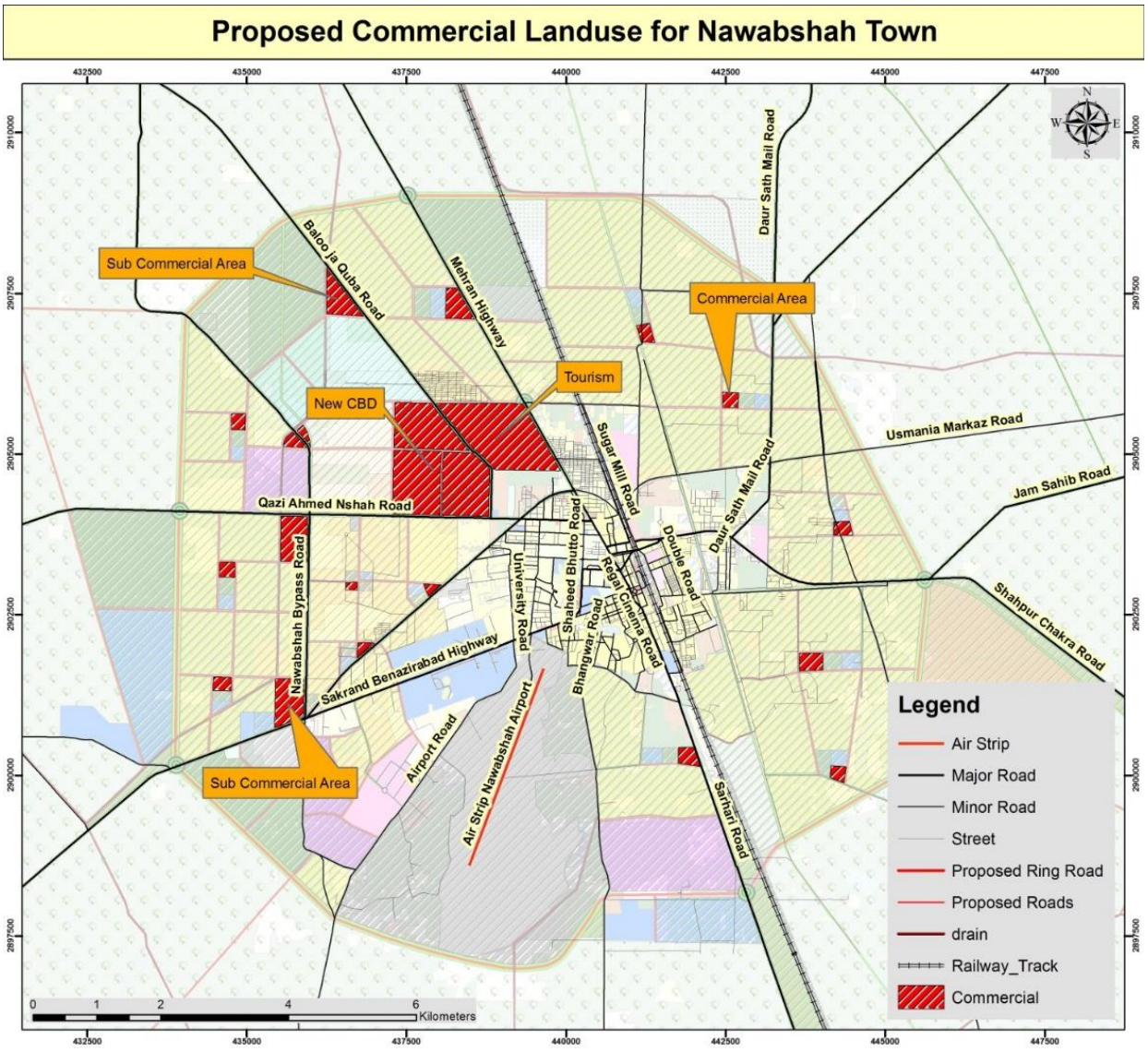


Figure 7:4: Proposed Commercial Landuse For Nawabshah Town

7.5.4 Long Term Plan

- Establishment of New CBD and
- Specialized Wholesales market
- Establishment area for service industry
- Provision of Cold spaces and warehouses

7.5.5 Immediate Action Plan for Core Urban Area

The core town area is the oldest and the most congested part of the Nawabshah town. And facing lot of problems i.e. unavailability of footpaths, outdated sewerage system, encroachments, illegal rikshaw stands etc. main CBD is thriving trade and popular retail businesses in narrow streets and high density low rise buildings occupied by population belonging to various income groups.

The proposed projects for core urban area of Nawabshah consists on; Removal of encroachments from town center and bazaars, created by the shopkeepers and hawkers; Rehabilitation of Main Commercial (CBD) Area, Rehabilitation & Beautification of main Bazar area i.e. Chakra Market, Mohini Bazar & Regal Cinema area; Provision of pedestrian facility in Bazar area; Up gradation & Rehabilitation of internal Bazaar roads.

- **Modernization of Commercial Activity in the Core Urban Area)**

Nawabshah has major commercial hub like; Mohini Bazar & Chakra Bazar along the main katchery road and bridge road. CBD includes traders, wholesale markets, and traditional embroidery shops, Auto Shops, restaurants, schools, clinics and general stores etc. Golchakra market owned by municipality Municipality old markets i.e. Golchakra market is present in old commercial area of Nawabshah. Golchakra market is in poor condition. Retailers are paying less rent to municipality.



Figure 7:5: Model of Strip Shopping Mall





Chakra Bazar Area - Core Urban Area

- Rehabilitation of Chakra Bazar area
- Provision of pedestrian facility in main Bazar area for visitors
- Banned heavy vehicles during peak hours
- Removal of encroachments
- Removal of illegal Bus stands



List of proposed propjects in Immediate action Plan for betterment of the existing CBD area are given below;

Rehabilitation of Main Commercial Area – Activity wise cost in Millions						
S. No.	**Area / Locality / Address**	**Area (acre)**	**Street / Road / Parking**	**Utility Infrastructure**	**Public Facilities**	**Security**
1	**Rehabilitation of** Main Commercial (CBD) Area	**189**	47.25	47.25	70.88	5.67
		Total PKR Rs. Million	**171.05**			

Note:

- Commercial areas should be enlisted in Govt. Agency for all services of Trade, Retail, Marketing, Sale etc.
- All commercial areas security services are associated with combine effort of commercial trade union and local Govt.
- Commercial areas accessibility for daily users and marketers is well define with ease.
- Rehabilitation & Beautification of main Bazar area i.e. Chakra Market, Mohini Bazar & Regal Cinema area
- Provision of pedestrian facility in Bazar area.

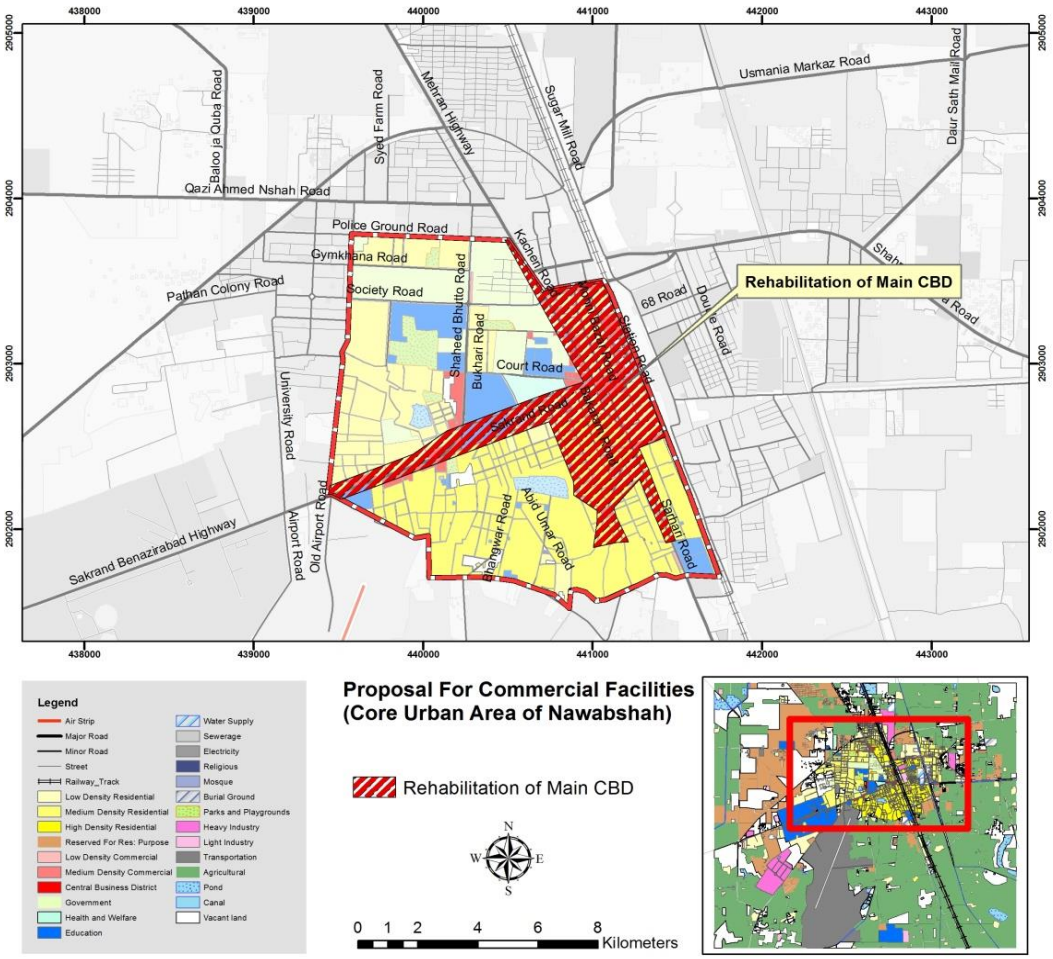


Figure 7:6: Rehabilitation of Main Commercial Facilities CBD Core Town Area Nawabshah

7.6 Economic Development Plan of Headquarter Town with Poverty Reduction Strategy (PRS)

Poverty Reduction Strategy (PRS)

Sindh province is leading the way in being the first province to have taken the bold step of formulating a specific Poverty Reduction Strategy (PRS) for the entire province, which has been approved by the Sindh cabinet on 16th October, 2018. The PRS developed is aimed to act as medium-term instrument to address the challenge of poverty in Sindh and to have a specific focus on Community Driven Local Development (CDLD). This is a logical approach for Sindh, given the GoS initiatives over the last decade in CDLD, through the Union Council Based Poverty Reduction Programme (UCBPRP).

A Vision for Poverty Reduction in Sindh

The poverty reduction strategy is aimed to act as medium-term instrument to address the challenge of poverty in Sindh. As such, the long-term intentions and aspirations of the GoS in reducing poverty should be clear, with a definable 'vision' for poverty reduction and associated goals and targets to be achieved over the specified duration of the Strategy.

Poverty Reduction Strategy (PRS) Approaches

The PRS illustrates three dimensional approaches to reduce poverty at Rural and Urban Level

I. This includes continuation of People Poverty Reduction Program to carry out interventions of financial support and capacity building at grass root level
II. The second proposal entails a model of Rural Growth Centers which will serve as a business hub by clustering the geographically connected and demographically viable village
III. The third approach envisages reducing urban poverty by adding urban economic clusters and creating linkages between rural and urban poverty reduction activities

Poverty Reduction Strategies

The three key strategies of the PRS, and their core components, are:

STRATEGY I Community Driven Local Development (CDLD) – the Foundation

The CDLD Policy is incorporated within and is a component of the PRS continuation of a CDLD approach consists of:

- Building on and expanding the UCBPRP programme
- Mainstreaming a CDLD approach, and integration of this approach with line department activities.

STRATEGY II Addressing Urban Poverty

- The direction of the strategy to address urban poverty is on emphasizing ' urban within rural' – focusing on the small towns within rural areas of Sindh

- The strategy focuses on targeting employment opportunities and enterprise development
- A key approach within this is utilising urban economic clusters as a means to facilitate cooperatives in enterprise development.

Urban Income Enhancement Program and Economic Cluster

In order to address the issues of human development and poverty in districts, the policies and programs are to be developed both for rural and urban areas. These issues for the development of city have been tackled by linking with "Urban Income Enhancement Program" which emphasizes in establishment of "Urban Economic Cluster" focusing on:

- Small Enterprise Development,
- Vocational training and
- Encouraging Women Force for establishing handicrafts and cottage industry

This would lead to creating the opportunities for income generation and employment.

STRATEGY III Rural Growth Centres, or 'Service Hubs'

- This strategy consists of a new approach in the way forward to address rural poverty and development. This involves identification of locational focal points or villages that can serve as a centre for improved facilities and provision of services to the surrounding clusters of villages
- The intention is to consolidate services and facilities in these hubs, to provide growth and development opportunities.

Rural Growth Centre – include the following components but not limited to

- Housing and village up-gradation (internal roads, drains, parks, Masjid)
- Commercial facilities to support local agri-based businesses and services - for example, storage facilities including refrigerated facilities for storage of agricultural inputs and outputs), distribution centers, sale outlets, bank, milk chilling plant, veterinary clinic
- High school for students from villages in the cluster
- Rural Health Centre
- Vocational centre and other community facilities, such as RSP centre

Drinking water plants.

iii) Mainstreaming the Poverty & Policy & Program

In order to initiate the development of a stronger economy of towns, its policies need to be embedded in sector strategies of the following departments along with Municipal Town Committee and Katchi Abadi regulators.

- Industries & Commerce Department
- Local Govt. Department
- Works & Services Department

- Transport Department
- Planning & Development Department
- Reinforce the local governance institutions.
- Modernize local / district / divisional administration.
- Decentralization of governance authorities.
- Involve community participation.
- Exploring and implementing PPP (Public Private Partnership) in all sectors.

iv. Access to Micro-Finance

Access to demand-driven microfinance provided by sustainable microfinance institutions (MFIs) has proven to be a powerful tool for poverty reduction by improving the ability of poor people to increase incomes, build assets, and reduce their vulnerability during periods of economic hardships

8. BASIC UTILITIES

8.1 Water Supply

8.1.1 Existing Situation

The water resources of the project towns complete both the surface source as well as the groundwater source. The bulk of municipal water supplied to the project towns is drawn from the irrigation canals, passing close to the towns, and comparatively much smaller part of the supplies is dependent upon groundwater extraction through tube wells. Nawabshah is Town (DHQ) in the Shaheed Benazirabad district of Sindh Province roughly 50 km from the left bank of River Indus.

At present, 9.0 MGD is reported as potable water for Nawabshah town. There are five storage reservoirs with a capacity of 4 million gallons transmitting water through 9 pumping stations via conventional treatment system of open ponds from Rohri canal, Quaid-e-Awam University and Gajra Wah. The ground water is used during closure period of the canal once every year. The water supply is intermittent but three times every day totaling about 14 hours in 24 hours which is sufficient.

- **Current Water Supply and Demand**

  The present supply as reported by PHED is 9.0 mgd and there remains no Supply / Demand gap upto 2020. On the basis of NRM (National Reference Manual), the daily water consumption to be over 30 gallons per capita per day or 136 liters / capita / day. On this basis, the present water demand is likely to be about 8.4 million gallons per day.

Table 8-1: Present Water Supply & Gap 2017

Source	Population Census	Present Water Supply in MGD	Present Need in MGD	Present Water Gap
Census 2017	279,688	9.0	8.4	There is no Gap b/w Demand & Supply

Source: *Census 2017 and Consultant's Projection*

- **Water Treatment works:**

  There are two ultra-filtration plants installed in Nawabshah, one has 10 mgd capacity and other has 6 mgd with 75% efficiency. The water is drawn from Rohri and gajra irrigation canal water services and they are susceptible to pollution from effluent discharges upstream. Water supplies are also contaminated from sewerage and wastewater leakages through old pipes and poor joints, negative pressure caused by intermittent delivery timings and pumping from empty pipes.

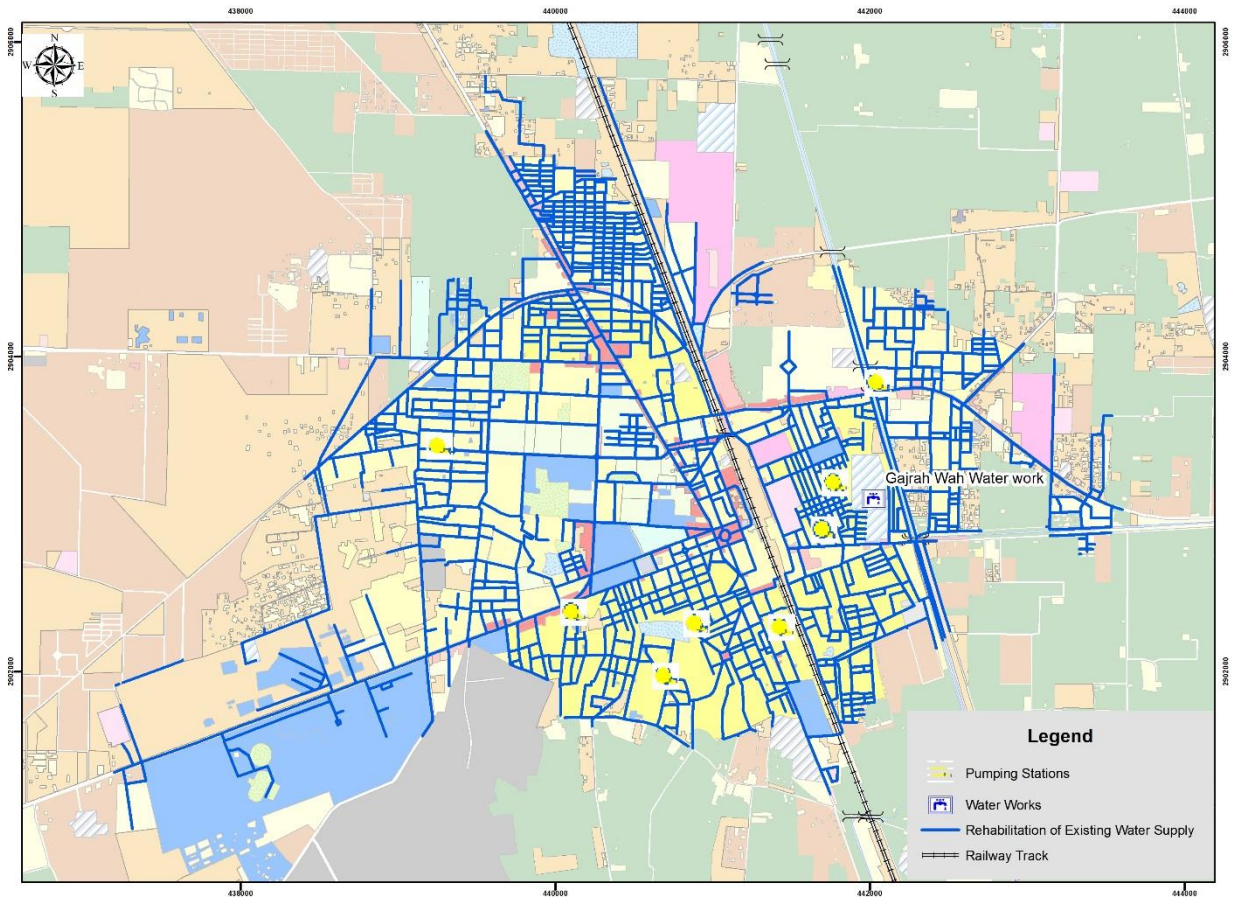


Figure 8:1: Existing Water Supply work of Nawabshah Town

8.1.2 **Issues:**

The following are issues of water supply in Nawabshah Town:

- After having two ultra-filtration plants for raw water, still water is contaminated due to Ageing infrastructure (water pipes on road level)
- Weak institutional arrangements with overlapping of roles and responsibilities
- Weak coordination mechanisms between PHED and MC
- Dysfunctional water supply due to lack of funding
- Poor water quality from polluted and contaminated sources
- The secondary survey illustrates the technical capability for water supply, sewerage and drainage lies in PHED while administrative capacity lies with local government. At present O&M functions are executed by Municipality and financing for this is being provided, which

have always capacity problem. PHED adopts 30gpcd standard for evaluation of present and future water demand

- The presence of substances in excess of approved limits for human health constitutes ground for rejection, Barium, Cadmium, Chromium, Lead Mercury, selenium and Silver are poisons that effect internal organs of human body.

8.1.3 SWOT Analysis

Water Supply & Distribution			
Strengths	**Weakness**	**Opportunity**	**Strength**
1. Intake from canal available 2. Most of the town is using hand pumps for water	1. Absence of systematic water supply system and treatment plant 2. Poor administrative setup for water supply management and distribution	1. Adequate water resources available for water supply system development 2. PPP in service delivery	1. Negative externalities on human and plant health 2. Depletion of water quality due to "draw down" 3. Quality of Canal and tube well water is hazardous for human health

8.1.4 Need Assessment

As already discussed that present supply is 9.0 MGD, so there is no gap. But it is expected that in next 20 years, water supply will remain same 30 gallon per capita per day. Therefore, after fulfilling the present need the additional water demand for Nawabshah town will be as 3.5 MGD. The population of Nawabshah will be as 415,602 by the end of 2037. Estimated water demand for the period to 2037 is shown below:

Table 8-2: Future Water Demand Upto 2037

Source	Present Water Need @ 30 Gallon /Day	Projected Population 2037	Water Demand up to 2037 (MGD)	Additional Water Demand up-to 2037 (MGD)
Census 2017	8.4	415,602	12.5	3.5

Source*: Census 2017 and Consultant's Projection*

8.1.5 Sindh Drinking Water Policy 2017[36]

Principles:

- Population should be using an improved drinking water source which is accessible i.e. located on premises, available when needed and safe that is free of faecal and priority chemical contamination.
- Access to safely managed drinking water is a fundamental right of every citizen and that it is the responsibility of the Government to ensure its provision to all citizens.
- Water allocation for drinking purposes shall be given priority over other uses.
- In order to ensure equitable access, special attention shall be given to removing the existing disparities in coverage of safe drinking and for addressing the needs of the poor and the vulnerable.
- A supportive policy framework shall be developed that encourages alternate options through private provision, public-private partnerships, the role of NGOs and community organizations.
- Low cost technologies in water and sanitation, that are easy and cost-effective to maintain shall be developed and used.

Objectives:

- Develop criteria for installation of new drinking water supply schemes and ensure that all new schemes are safely managed, rationalized and constructed through need based criteria so that all areas and communities are served.
- Develop standardized service delivery models for both urban and rural drinking water supply schemes to improve efficiency, cost-effectiveness, improve monitoring and sustainability.
- Develop mechanisms for reuse, recycle and recharge of wastewater for other municipal and productive uses.
- Ensure that all drinking water supply systems are designed and constructed in line with the national drinking water quality standards and all municipal discharges comply with National Environment Quality Standards (NEQS).
- Install water treatment plants at existing drinking water supply schemes where required and incorporate water treatment facilities in all new drinking water supply schemes.
- Ensure development of water safety plans for all drinking water supply systems.
- Institute adaptation measures and disaster risk reduction and mitigation strategies to minimize the impact of climatic events on drinking water supply systems.

[36] Sindh Water and Sanitation Policy 2017

8.1.6 Strategic Development Plan

i. Long Term Plan

- Municipality will adopt a demand led approach in providing access to safe water and sanitation to ensure that scarce resources are properly utilized and ownership and sustainability of schemes is ensured over the long-term.
- Frame a broad policy framework at the provincial level which encourages and supports city district to design and implement policy which is in-keeping with the existing capacities and strengths of institutions.
- Feasibility Study for identification of new water sources for town
- Exploration and regulation of fresh groundwater

ii. Short Term Plan

- The design and layout of water supply pipes, storage tanks etc. should ensure that there is no contamination by overflowing sewerage systems, for example by maintaining a minimum distance between the two systems.
- Wherever possible, preference should be given to rehabilitate existing schemes (functioning or not) over the construction of new schemes, unless there are special reasons to justify otherwise.
- Provision of funding for ultra-filtration Plant for O/M

8.1.7 Priority Projects

i. Rehabilitation of Water Supply Network 75% (5,468 Acres)

➢ Project Justification

Population	279,688
Total Urban Area excluding Core Urban Area (883.4 Acres)	7,291
75% of Total Urban Area	5,468
Proposal for Repair & Rehabilitation of Existing Water supply scheme shall help to supply safe potable water to 75% population of Nawabshah town. One Million per Acre = 5,468	5,468

Almost all the network of Water Supply in Nawabshah is in poor condition and most of it require repair and rehabilitation. This project will help to supply of water in those areas where the network is available and existing network is damaged. The objective of the project is to get uninterrupted water supply for treatment to supply potable water to the inhabitants of Nawabshah town. The project is to improve the collection of raw water supply collection. Repair & rehabilitation of existing Water Supply Network will cover main components i.e. Excavation, replacement of old Pipe, Gate valve/ Washout valve/ Air release valve, Joints repairs, Balancing slopes at all network, Checking of existing pipe life with rupture checker and Valves for area wise pressure maintenance.

- **Project Benefits**
  As already discussed above that existing supply network is old and needs repair and rehabilitation. So after implementing of this project, the Potable water will be supplied by piped water and connection facility will be made available to every household.

- **Implementing Authority -** Government of Sindh- PHE Department Shaheed Benazirabad

- **Estimated Cost: 5,468 Million** PKR Approx. (Short Term).

ii. Provision of New Water Supply Network for Remaining 25% of Nawabshah MC (Approx. 1,823 Acres)

- **Project Identification & Justification**

Nawabshah MC Population	279,688
Total Urban Area in Acres	7,291
25% of Total Urban Area in Acres	1,823
Installation of New water supply scheme is proposed to cover the rest 25% population / Area of Nawabshah town @ Rate of 3.0 Million Per Acre	5,469

According to socio economic survey conducted by consultants about 25% of population of Nawabshah has no water supply network & dependent on hand pump & community wells. People purchase their potable water through tankers due to unavailability of water supply network. This project will help to extend the supply of water in those areas where the network is not available. Provision of New Water Supply Network will cover main components i.e. Excavation, Pipe cost, Gate valve/ Washout valve/ Air release valve, Joints repairs, Balancing slopes at all network, Checking of pipe life with rupture checker and Valves for area wise pressure maintenance.

- **Project Benefits**
  After implementing of this project, the Potable water will be supplied to the whole of Nawabshah Town.
- **Implementing Authority - Government of Sindh- PHE Department Shaheed Benazirabad**
- **Estimated Cost: 5,468 Million PKR Approx. (Short Term)**

Priority Projects				
S. No.	**Project Name**	**Estimated Cost In Millions**	**Non ADP**	**Breakup**
Water Supply				
1	Repair & Rehabilitation of existing Water Supply Network 75% (5,468 acres) except core urban area	5,468	Non ADP	5,468 acres, at the rate of 1.0 million per acre for overall Repair and rehabilitation.
2	Provision of New water supply network for remaining 25% (1,823 Acres) except core urban area	5,468	Non ADP	1,823 acres, at the rate of 3.0 million per acre for overall construction.

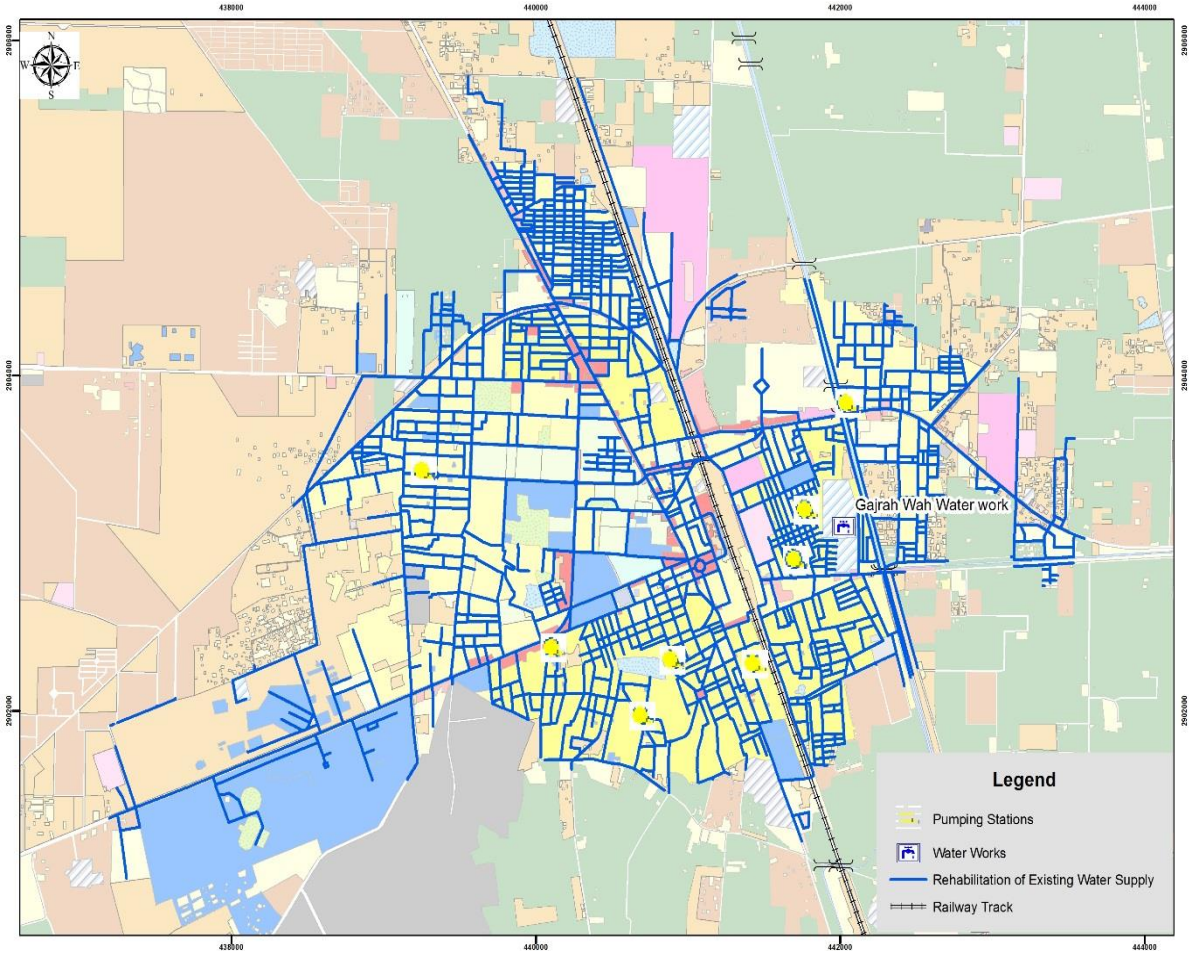


Figure 8-2: Proposed Utilities – Water Supply Proposals for Nawabshah Town

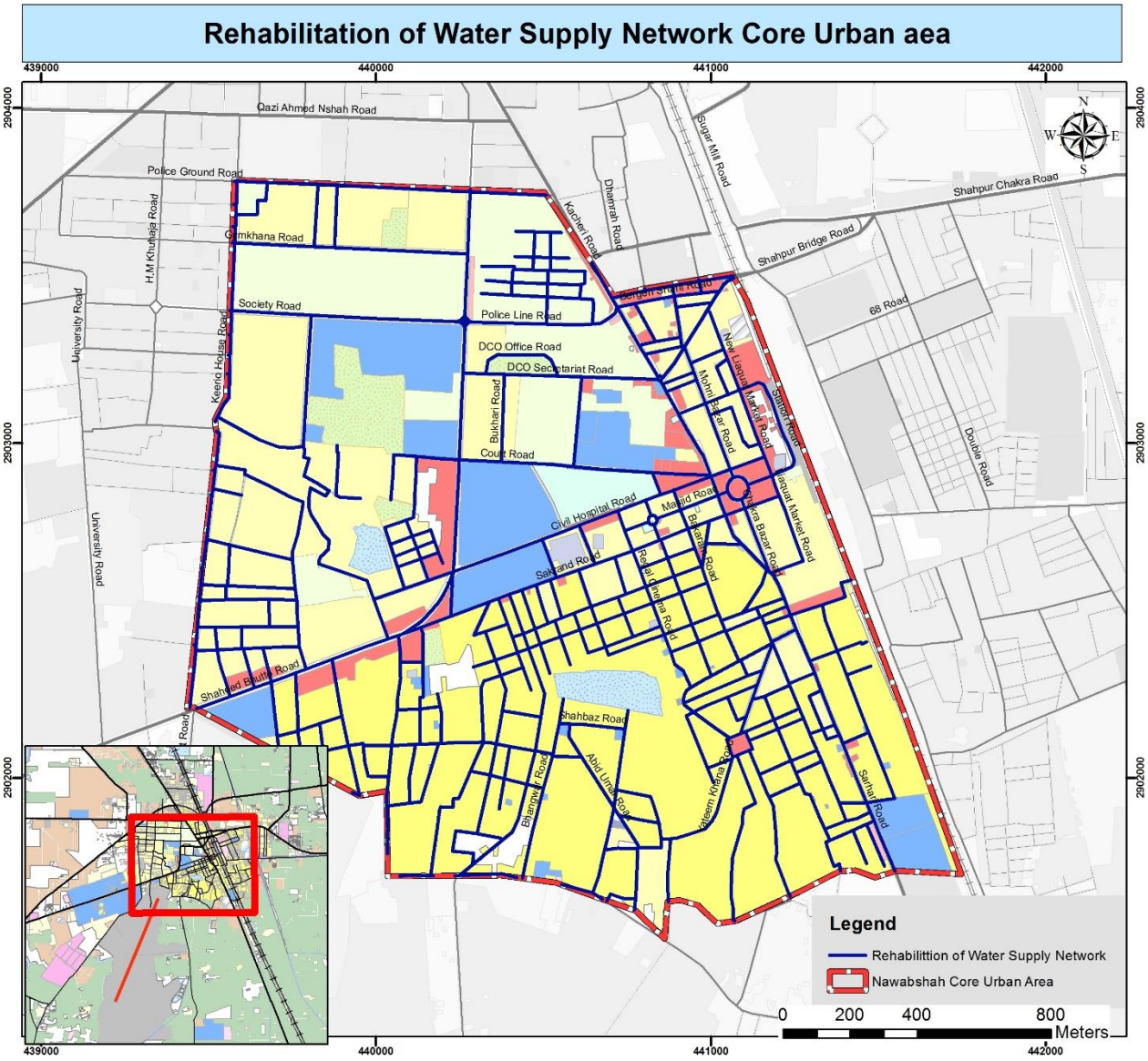
8.1.8 Immediate Action Plan for Core Urban Area

Water supply should be done for the entire town including core urban area. But on immediate basis there is requirement to supply clean potable drinking water for urban population of Core Town Nawabshah. Therefore two projects are posed on immediate basis to fulfill the present need and list of projects with tentative cost is given below;

Rehabilitation of Existing Water Supply Network of Core Urban Area Nawabshah				
S.No	**Name**	**Area (acre)**	**Per acre cost (PKR) million**	**Cost (PKR)**
Total Core Urban Area : 883.40 Acre				
1	**Water Supply System:** (Water supply system renovation includes supply pipe networks, pumping machinery and equipment's for more efficient and effective supply of water).	**883.40**	**1.0 million Per acre**	**883.40**
2	**Ultra Filtration Water Plant** Repair and Maintenance of UF plant for immediate bases annually.		**10.0 million**	**10.00**
			Total Cost (PKR). Million	**893.40**

Note:

- Water supply system renovation includes supply pipe networks, pumping machinery and equipment's for more efficient and effective supply of water.
- This water supply rehabilitation proposal includes the Existing **UF** plant repair and maintenance on an immediate bases for annually repair and maintenance.


Rehabilitation of Water Supply Network Core Urban aea
439000
440000
441000
442000
2904000
2903000
2902000
N
W
E
S
Qazi Ahmed Nshah Road
Police Ground Road
H.M Khuhaja Road
Ghumkhana Road
University Road
Society Road
Keerio House Road
Police Line Road
DCO Office Road
DCO Secretariat Road
Bukhari Road
Court Road
Civil Hospital Road
Sehrand Road
Shaheed Bhutto Road
Kachehri Road
Dhanrrah Road
Sugar Mill Road
Shahpur Chakra Road
Shahpur Bridge Road
68 Road
Double Road
Mohni Bazar Road
Jaquat Market Road
Shahbaz Road
Bhanoo Road
Abdul Umar Road
Saleem Khana Road
Sarhad Road
Legend
Rehabilittion of Water Supply Network
Nawabshah Core Urban Area
0
200
400
800
Meters

8.2 Sewerage and Drainage

8.2.1 Existing Situation

Nawabshah Drainage Schemes:



The drainage scheme in Nawabshah was installed in three phases during 1974 to 2010, and consists of a combination of pipe sewers and open drains flowing to five disposal works. The wastewater is utilized for agriculture purposes in dry seasons.

During Survey in Nawabshah, about 33% of respondents are dissatisfied with the current sewerage system. The majority (81%) of HHs use roadside drains for the disposal of sewerage-drainage in Nawabshah Town. Only 2% of town is facilitated with covered drainage network and 13% semi covered, and while remaining 85% is uncovered drainage system. The drainage operation is operated at financial loss. All HHs (100%) would prefer a "toilet connected to sewer" sewerage system. Flooding is significant in Nawabshah during the rainy season.

The work on Phase I of the drainage scheme started in 1974 and was completed at the cost of Rs. 19.859 million. During the years 1983-84, the scheme disposed of around 2.0 MGD sanitary wastewater.

Phase II was started during 1983- 84 and was completed during the year 1991-92. The project cost was Rs. 18 .441 million and 4.0 MGD Sanitary wastewater was disposed of.

Due to rapid urbanization the population of the town increased and new colonies were emerging, therefore, an urban drainage scheme,

Phase III was proposed. The government had approved the scheme with a cost of Rs.94.585 million.

The Scheme was designed to dispose of 1.780 MGD sanitary wastewater for the projected population of 74200 people up to the year 2010. However the scheme suffered halt due non availability of funds.

The main nala and drainage system is always choked because of garbage, especially plastic bags; there are swamps, and open spaces are full of sewage. The drainage system is damaged, due to the lack of proper planning and maintenance.



Raw Sewage is being discharged into open natural Nala

- **Sewage Treatment System:** There are two sewage treatment plants in Town having capacity of 6 mgd and 4 mgd respectively, both are functional with maximum 75% efficiency (7.5 MGD). Both are Moving bed biofilm reactor (MBBR).

8.2.2 Issues:

- Damaged lines and was not fully functional
- Overflowing sewage water on the streets and blockade in the sewerage lines
- Improper operation and maintenance of sewerage facilities.
- Inefficient record of operation and maintenance works including machinery and equipment available for cleaning drains / sewers – in the same manner, little information in written form is available on the performance of pumping and treatment facilities such as flow rates, operation hours, water qualities, facility failures and repairs and so forth.
- The many informal settlements are located in poorly drained low lying land can be subject to flooding, resulting in ponds of stagnant water in their midst and providing breading grounds for mosquitoes and water borne diseases. There is no standby pumping equipment at disposal stations.
- The drainage system and structures are in poor condition with open smelly drains and sewers.
- The sewerage system lacks proper operation and maintenance due to shortage of technical staff and proper equipment and vehicles.

8.2.3 SWOT Analysis

Sewage Collection & Disposal			
Strength	**Weakness**	**Opportunity**	**Threats**
1. The existing sewerage system facilitates the urban area of the city 2. Sufficient land for disposal sites is available	1. Combine system (open channel and sewer) serving most of the town area 2. Open sewers, outdated and disconnected network 3. No policy for reduction in generation of sewerage	1. An appropriate sewerage system plan should be implemented 2. Improvement of general hygiene/ public health by cleaning sewerage system 3. Canals should be saved from toxic disposals 4. The cleaning of Rohri Canal will promote inland fisheries 5. Development of well-designed trunk sewerage network with less number of disposal station 6. Revenue can be generated by charging services for cleaning 7. PPP mode in service delivery	1. Public health 2. Storm water flooding/ over flow of sewers 3. Environmental degradation 4. Removal of encroachment 5. Land grabbers
Drainage & Flood Control			
1. Most of the town is served by combined drain and sewer system	1. Drainage and sewerage systems of the town are not constructed properly and disaster risk reduction measures are not incorporated while such construction is carried out.	1. The city's old drainage system needs revival through cleaning 2. Flood protection embankments should be enhanced up to greater extent to provide maximum	1. Canal's water have been contaminated by open drains discharge 2. Open and overflowing

Sewage Collection & Disposal			
Strength	**Weakness**	**Opportunity**	**Threats**
	Consequently even small amount of rain blocks the drains, which inundates the streets, houses and markets 2. Open drain on street 3. Improper channelization of drains 4. Over flow of storm water drains 5. Poor administrative control for operating existing drainage system of the town 6. Depression areas causing permanent ponding 7. Reliance on sewer for flood/storm water	protection to surrounding villages 3. Development of surface drainage network with easy disposal to river/canals 4. Completely removal or treatment of land where temporary ponds have been formed in main town area	drains have impact upon human health and give birth to epidemic diseases

8.2.4 Need Assessment

Estimated wastewater generation for the period to 2037 is shown below

Years	2017	2022	2027	2032	2037
Water Demand	8.4 mgd	8.9 mgd	9.9 mgd	11.0 mgd	12.5 mgd
Sewerage Flows @70 % water supply mgd	5.9 mgd	6.5 mgd	7.2 mgd	7.9 mgd	8.75 mgd

Source: Consultant's estimation

8.2.5 Sindh Sanitation Policy 2017[37]

Targets:

Its key targets are:

- Eradicate Open Defecation from Sindh Province by 2025, while 70% villages of 13 high priority districts achieve the status of open defecation free by 2020.
- 100% households in Sindh have access to and use sanitary latrines by 2025, while 70% of rural households in high priority districts will achieve this by 2020.
- Strengthen and implement liquid waste management with sewer lanes and Covered/improved drains with 85% coverage of urban areas and 60% coverage in rural areas.

[37] Sindh Water and Sanitation policy 2017

- Create and develop wastewater treatment mechanisms to cover 75% of urban areas and 40% in rural areas by 2025.
- More than 90% of rural households and 100% of urban households wash hands with soap at critical times by 2025.

Principles:

- The Policy aligns itself with the goals and targets of the SDGs for sanitation, which require sanitation services to be safely managed, have a private improved facility where faecal wastes are safely disposed on site or transported and treated off-site; plus a hand washing facility with soap and water.
- Safely managed sanitation services is a fundamental right for all persons in Sindh province, and should be ensured through enhanced access to marginalized and low resource areas with equitable distribution of resources. Recognition of inequities and rights based programming will be given key emphasis during the planning, execution and monitoring of sanitation programmes.
- The policy seeks to prioritize the areas that pose the greatest risk to human health namely hygiene awareness and excreta disposal, and then address the environmental health risks that are posed by poor drainage and solid waste disposal.
- Increase access to high quality nutrition-sensitive services, including access to water, sanitation facilities, and hygiene.
- The policy shall promote the community led approaches to strengthen the demand for safely managed improved sanitary conditions that emerges from local communities. The multi stakeholder partnerships and collaborations comprising of citizens, governments, civil society, non-governmental organizations (NGOs), donors, academia, media, etc. be encouraged to maximize the synergies in designing and implementation of interventions.
- Affordable (in terms of designs as well as availability of water) and cost effective technical solutions with necessary modifications and adaptations in technical standards to be consistent with cultural sensitivities of specific communities will be identified and marketed.
- The component sharing model as envisaged in the National Sanitation Policy will be
- Institutionalized gradually in which the community is responsible to construct lane and
- neighborhood level sewers (internal development) on self-help basis and the government focuses on trunks, disposal and treatment unit (external development).
- The role of women shall be an integral component of behavioral change communication strategies and project planning, implementing and monitoring through capacity development and social mobilization of relevant stakeholders.

8.2.6 Strategic Development Plan

The aim of Strategic Development plan is Provision of adequate Sewerage and Drainage facilities to the DHQ Town through equitable, efficient and sustainable sanitation services. Lanes may continue using concrete drains and to discharge into sewers through screening chamber. Some of the objectives include:

i. Long Term Plan:

- Improving standards of public health through provision of improved services supported up by legal, regulatory and binding framework.
- Wherever existing sewerage systems discharge untreated sewerage in storm water drains or irrigation canals it should be treated before discharging, and may be used for agricultural purposes or converted into lakes and ponds as part of recreational areas.
- Continuation of funds for Waste Water Treatment Plant:

ii. Short Term Plan:

- Priority for sanitation will be accorded to un-served, under-served areas, and disadvantaged areas.
- An overall sanitation plan will be developed for Town by Public Health Department and the MC in coordination with all other agencies involved in sanitation.
- Special focus on need based interventions in sanitation sector.
- Gravity flow systems will be used for sewerage schemes so as to avoid pumping and O&M costs.

8.2.7 ***Priority Projects***

i. Repair & Rehabilitation of Primary and Secondary Drains 90% (6,562 Acres) Except Core Urban Area

➢ **Project Justification**

Almost all the secondary and tertiary drains in Nawabshah are in poor condition as most of them is open and semi covered drains. According to socio economic survey results about 90% of the areas of town are connected with drainage system.

➢ **Project Size**

Project Size	
Landuse of DHQ town excluding Core urban Area, Agriculture, Vacant Land & Water Bodies in Acres	7,291
90% Landuse of DHQ town excluding Core urban Area, Agriculture, Vacant Land & Water Bodies in Acres	6,562

The tentative Landuse of DHQ town is about 7,291 acres approximately. This tentative area is excluding core urban area, agriculture and vacant land & water bodies. According to socio economic survey results 90% (6,562 Acres) of town area is served with drainage system. Whereas almost 90% of respondents from the town were dissatisfied with the current sewerage system. Therefore it is proposed to repair & rehabilitate existing drainage scheme for DHQ town on priority basis covering an area of 6,562 acres excluding core town area. Repair & Rehabilitation of Primary and Secondary Drains will include the following components;

- Repair of Walls, bed and Top slab of drains, manholes and chambers
- Reconstruction of drains ,chambers and manholes where found completely damage
- Cleaning of pipes, chambers, drains and inlet gratings
- Laying of news pipes after replacement of old damage pipes

➢ **Project Benefits**

After the implementation of this project, the inhabitants can easily drain the sewerage water in the drains (Municipal system) provided by the Municipal committee.

➢ **Implementing Authority - Government of Sindh- PHE Department Shaheed Benazirabad.**

➢ **Estimated Cost: one Million Per Acres - 6,562.00 Million PKR Approx. (Short Term)**

ii. Construction of new drainage network for remaining 10% (729 acres) except core urban area

➢ **Project Justification**

Whereas, more than 10% of the houses have septic tanks in their houses for storage of sewage. This project will help to proper disposal of sewage water of Nawabshah Town.

Project Size	
Landuse of DHQ town excluding Core urban Area, Agriculture, Vacant Land & Water Bodies in Acres	**7,291**
10% Landuse of DHQ town excluding Core urban Area, Agriculture, Vacant Land & Water Bodies in Acres	**729**

➢ **Project Size**

The tentative Landuse of DHQ town is about 7291 acres approximately. This tentative area is excluding core urban area, agriculture and vacant land & water bodies. According to socio economic survey results 10% (729 Acres) of town area is not connected with main drainage network and count as unserved area. Therefore it is proposed to install new drainage and sewerage network for DHQ town on priority basis covering an area of 729 acres excluding core town area. Repair & Rehabilitation of Primary and Secondary Drains will include the following components;

- Repair of Walls, bed and Top slab of drains, manholes and chambers
- Reconstruction of drains ,chambers and manholes where found completely damage

- Cleaning of pipes, chambers, drains and inlet gratings
- Laying of news pipes after replacement of old damage pipes

➢ **Project Benefits**

After the implementation of this project, the inhabitants can easily drain the sewerage water in the drains (Municipal system) provided by the Municipal committee.

➢ **Implementing Authority -** Government of Sindh- PHE Department Shaheed Benazirabad.

➢ **Estimated Cost: 2,187.00 Million** PKR Approx. (Short Term)

Priority Projects				
S. No.	**Project Name**	**Estimated Cost In Millions**	**Non ADP**	**Short Term**
Sewage & Drainage				
1.	Repair & rehabilitation of primary and secondary drains 90% (6,562 acres) except core urban area	6,562.00	Non ADP	Short Term
2	Construction of new drainage network for remaining 10% (729 acres) except core urban area	2,187.00	Non ADP	(Phase Wise)

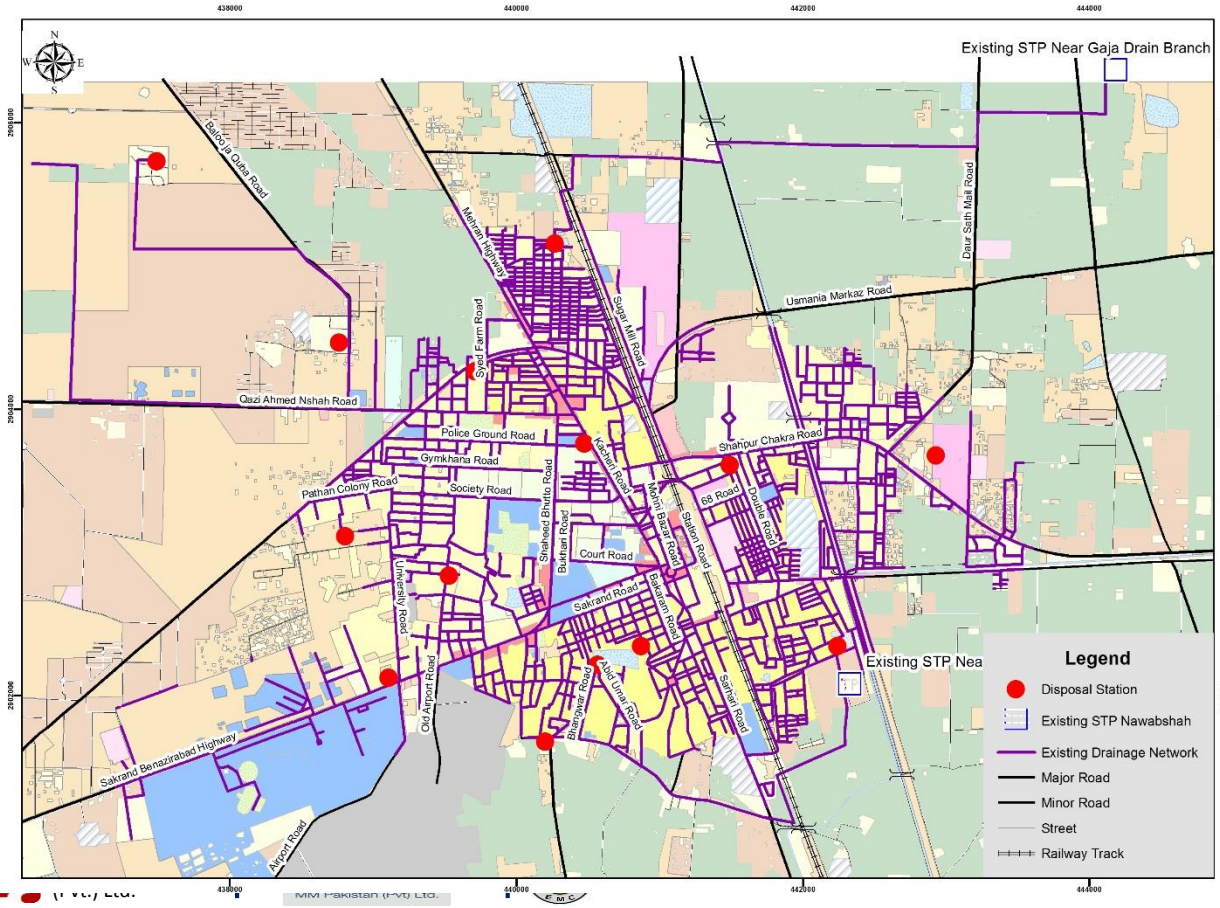


Figure 8-3: Existing Coverage of Sewerage Network of Nawabshah Town

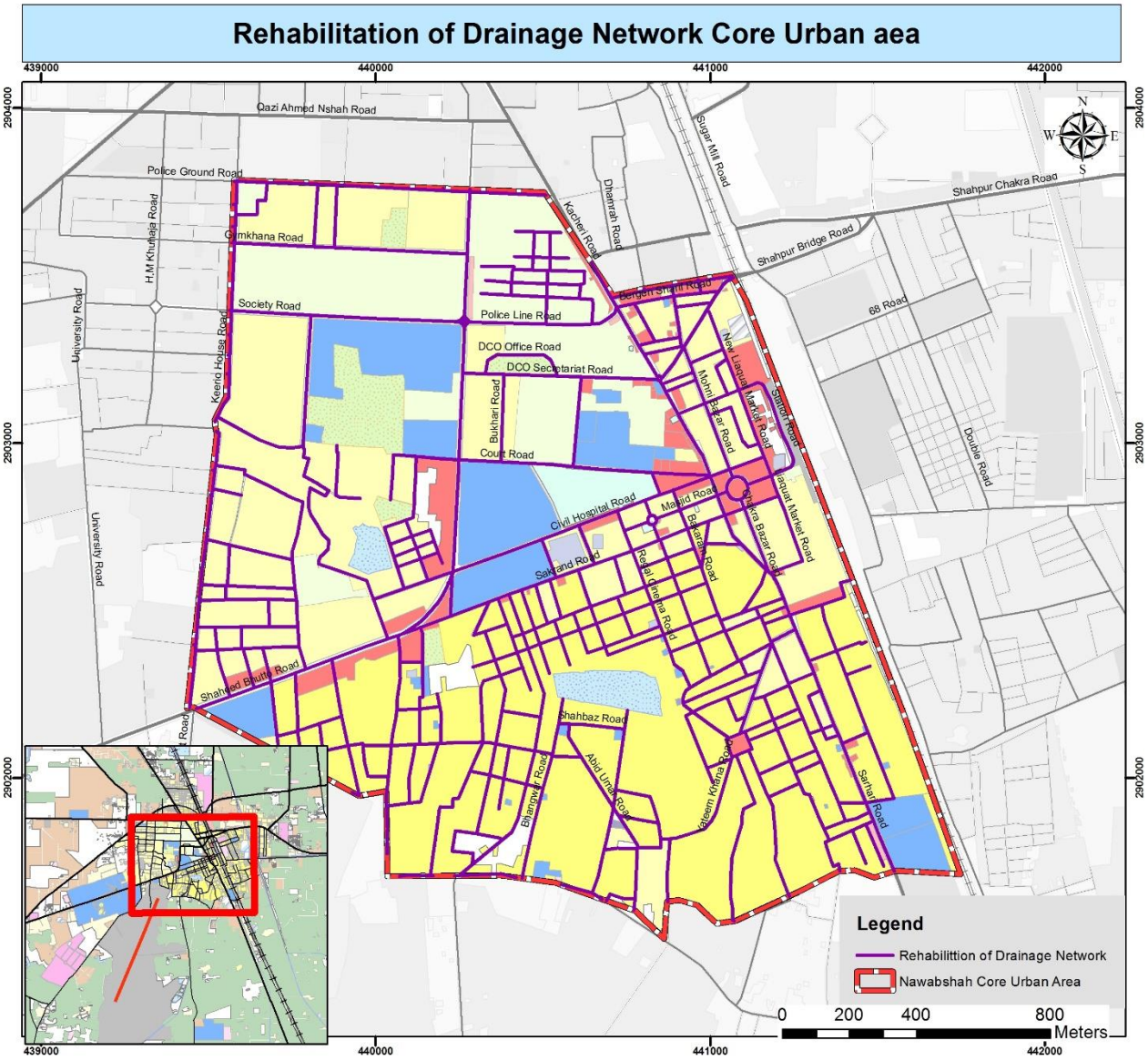
8.2.8 Immediate Action Plan for Core Urban Area

As per the existing condition combine system will remain in core urban area, although preferred to be separate in long run. Lane drainage channels in core urban areas should be covered and main sewers should be laid on all roads more than 8" wide.

Drainage channels in core urban areas should be in the form of underground drainage pipes, however at least covered drains should be used to maximized road and street space. In core urban area gully traps should be developed in all four sides of the chowks or road junctions and they may be connected to underground sewerage system or covered drain system, but it is recommended to divert the surface run off directly for landscaping. Core urban area of Nawabshah is suffering due to unavailability of planned network of drainage schemes. Population of Core urban area is facing lot of problems due to stagnant sewerage water on Narrow Street.

S.No	Name	Area in Acre	per acre cost (PKR) million	Cost (PKR)
Total Core Urban Area : 883.4 acre				
1	Sewerage System	883.4	1.0 million/ acre	**883.40**
2	Storm Water Drain System			
			Total Cost (PKR). Million	**883.40**

Note:
* Rehab of Sewerage system includes all urban core area network system with all related machinery and equipment.
* Rehab of Storm water drain system includes all the core town area storm drain system through all steeps slopes and peak areas with all linking equipment and machinery.


Rehabilitation of Drainage Network Core Urban aea
439000
440000
441000
442000
2904000
2903000
2902000
Qazi Ahmed Nshah Road
Police Ground Road
H.M Khuhawar Road
Cinmkhana Road
University Road
Society Road
Keerio House Road
Police Line Road
DCO Office Road
DCO Secretariat Road
Bukhari Road
Court Road
Civil Hospital Road
Sakrand Road
Shaheed Bhutto Road
Kachehri Road
Dhanrrah Road
Sugar Mill Road
Shahpur Chakra Road
Shahpur Bridge Road
68 Road
Bergen Shahi Road
New Liaquat Market Road
Mohni Bazar Road
Sanghi Road
Double Road
Liaquat Market Road
Shaikra Bazar Road
Rahatabad Road
Railway Phatak Road
Shahbaz Road
Bhanowal Road
Abdul Umara Road
Saleem Khuhro Road
Sarhad Road
N
W
E
S
Legend
Rehabilittion of Drainage Network
Nawabshah Core Urban Area
0
200
400
800
Meters

8.3 Solid Waste Management

8.3.1 Existing Situation

The city of Nawabshah which is the headquarter town of District Shaheed Benazir Abad is the most populous town of the 14 District Headquarter Towns. When it comes to "Solid Waste Management (SWM) it is the generation, separation, collection, transfer, transportation and disposal of waste in a way that takes into account public health, economics, conservation, aesthetics, and the environment, and is responsive to public demands".[38]

While some of analytical data/statistics regarding sanitation and solid waste management (SWM) about the concerned district can be useful for understanding the current situation. According to the preliminary information memorandum/report of 'Public Health Engineering Department & PPP Unit' (Government of Sindh; May 2010) the urban areas of Shaheed Benazir Abad generated total waste quantity of 87,989 kg/day with estimation for the year 2020 as 126,246 kg/day. The total and estimated collection efficiency was found as 75%.

After the passing of Sindh Solid Waste Management Board Act in 2014, Sindh Solid Waste Management Board (SSWMB) has been established which has the responsibility to collect and dispose all kinds of solid waste being generated in Sindh.

MC is officially responsible for the entire solid waste management of the district under the directives of SSWMB. At present SSWMB has directed the municipal committees for identification of land for Garbage Transfer Stations and Landfills so that garbage collection and transfer & transport operations can be handed over to SSWMB for effective management of solid waste. Meanwhile feasibility studies of medical hazardous waste of Hyderabad, Mirpur has and Shaheed Benazirabad are in progress. Once the municipal committees would be able to allocate proper and adequate land for waste disposal on long-term basis then SSWMB will come into action for effective SWM at primary and secondary level in these District Headquarter Towns.

The collection mechanism that exists in Nawabshah is still primary waste management system. The garbage is collected in open containers / community bins placed in streets or empty spaces designated as throw away places. The waste is collected and transfered/ transported outside limits of town to designated / non-designated dumping sites by means of refuse vehicles and tractor trolleys which are usually inadequate in numbers for handling of MSW by the sanitary / waste collection staff.

[38] *(Journal of Environmental and Occupational Science Environ Occup Sci 2012; 1(2):129-131)*

Hazardous Waste:

There are no special arrangements for the handling, storage and disposal of clinical or hazardous waste except for the breaking of needles and their collection. Hospital waste is internally collected and disposed of by the hospital sweepers No records are kept of where waste is buried as this is at discretion of the sweeper. As there is no control over the disposal of the waste it is highly likely that some is sold to middle dealers and enters the recycling sector.

Table 8-3: Hazardous waste (Healthcare waste) Source and estimation in Nawabshah

S. No.	Healthcare Facilities (HCF) * Nawabshah	No. of Beds*	HCW @ 1.1 kg/bed/day[l]
1.	Teaching Hospital 01 No.	875	962.5
2.	Taluka Hospital 01 No.	20	22
3.	Rural Health Unit 08 No.	150	165
4.	TB Clinic 06 No.	Nil	-
5.	Basic Health Unit 36 No.	74	81.4
6.	Mother & Child Health Centre 08 No.	Nil	-
7.	Dispensaries 150 No.	10	11
8.	Private HCF 12 No.	285	313.5
	Total (222)	**1414**	**1555.4 kg/day**

Source: Health Profile of Sindh by Districts - 2012, Bureau of Statistics, Govt. of Sindh

The estimated quantities of hazardous waste (risk waste) can be estimated from the bedded healthcare facilities.

8.3.2 Issues

Some of the major issues faced by TMA are as follows:

- Shortage of machineries and equipment
- Lack of properly organized waste Collection System
- Arrangement of segregation, collection and disposal of infectious hospital waste
- Segregation of Organic waste from Municipal Solid Waste (MSW) and Treatment
- Safe disposal of hazardeous waste in an environmentally sustainable manner
- Directives for implementation of waste policy framework and execution of its management system.
- No care is taken to separately dispose of health care and other type of hazardous waste. Commingled MSW along health care and other type of hazardous waste is dumped at disposal point. Soil cover neither spread on the dumped waste nor it is compacted at any of the dump sites.
- Intermittent but open and uncontrolled burning of waste is done on discretion of sanitary staff whenever desired or ordered. There is no arrangement of leachate control or collection at any of these dump sites.

➢ **Some of the other issues faced by Municipal Committee are as follows:**

- Shortage of machineries and equipment

- Lack of properly organized waste Collection System
- Arrangement of segregation, collection and disposal of infectious hospital waste
- Segregation of Organic waste from Municipal Solid Waste (MSW) and Treatment
- Safe disposal of hazardeous waste in an environmentally sustainable manner
- Directives for implementation of waste policy framework and execution of its management system.

8.3.3 SWOT Analysis

Solid Waste Management			
Strengths	**Weakness**	**Opportunities**	**Threats**
1. Active participation of Municipality Committee 2. System in place with improving efficiency, there is a slight improvement in garbage collection and allocation of landfill site to dispose of toxic waste	1. Poor financial and operational management system 2. There is no system to identify toxic wastes produced by various activities 3. Majority of the households do not have provision of infrastructure for sanitation purpose 4. No separate collection of medical waste	1. Appropriate measures should be adopted for collection and re-cycling of SWM 2. SWM recycling will help to generate revenue 3. More landfill sites should be identified for future disposals 4. Establishing of a charged primary collection system would add more revenue resources 5. Opportunity for recycling and reuse of solid waste, such as RDF, bio-gas etc. 6. PPP mode in service delivery	1. Improper sanitation 2. Poor public health 3. Outdated drainage system 4. Threats to plant and animal life

8.3.4 Need Assessment

It is recommended to undertake the field study for the determination of waste generation and characterization for Nawabshah in order to plan and design the solid waste management system.

Considering waste generation rate for design purpose as 0.45 kg per capita per day with the current (2017) population of the municipal committee of Nawabshah as 279,688 the total municipal solid waste load arising in the municipality is approx. 125,860 kg or 125.9 tons per day.

The waste generation rate estimated from the studies conducted earlier suggests to be around 0.4 – 0.45 kg per capita per day[39]. However it is recommended to undertake the field study for the determination of waste generation and characterization for Nawabshah in order to plan and design the solid waste management system. Considering waste generation rate for design purpose as 0.45 kg per capita per day with the current (2017) population of theNawabshah MC as 279,688 the total solid waste load arising in the town is approx. 126 tons per day. Future waste generation will be as 187 Matric tons per day.

Estimated Solid Waste generation for the period 2037			
Present Population (Census 2017)	**Current SW generation (M.Tons) @ 0.45kg/ pcpd**	**Projected Population 2037**	**SW generation (M. Tons) upto 2037 @ 0.45kg/ pcpd**
279,688	**126**	**415,602**	**187.0**

Based on National Refrence Manual (NRM): on population of 10, 000, one acre of landfill area is required. So for the population of 279,688 in 2017, landfill area of 27.96 acre is needed and for the projected population in 2037 of **415,602**, landfill area of approx. 41.56 acre is required.

8.3.5 Policy Guidelines[40]

Implement integrated solid waste management with 100% coverage in urban areas and 60% in rural areas of Sindh by 2025.

Principle

- Develop integrated solid waste management system.
- Conduct a study on wastewater and solid waste to develop town level profiles (including Infrastructure, equipment and staffing)
- Conduct waste characterization studies.
- Smooth and efficient Solid waste collection and disposal by providing door to door collection services.
- Ensure Effective solid waste management by developing a list of staffing, hardware and equipment for solid waste management.
- Efficient Solid waste disposal and recycling by establishing transfer stations to reduce disposal time.
- Recycle solid waste by systematic separation.
- Sanitary landfill options identify for towns where it is feasible.

[39] Consultants Estimates
[40] Solid Waste Management Policy for Sindh
Sindh Water and Sanitation Policy 2017

- Formalize contracts with companies for waste to energy options. At least each mega/intermediate city has a WTE (Waste to energy options) in place.
- Provide each town with a centralized and functional high risk hospital waste disposal facility.
- Update status of all slaughterhouses (recognized and unrecognized) in each district and prioritize those for rehabilitation, solid waste and wastewater management.
- Provide refresher training on slaughterhouse safety and hygiene practice guidelines to 100% slaughterhouse staff in recognized slaughterhouses in safe handling and disposal of carcass, entrails, hides, and wastewater.
- Efficient and effective management of Industrial solid waste by determining the current status of industrial solid waste production and disposal and development of strategies and actions for efficient and effective management of industrial solid waste.

8.3.6 Strategic Development Plan

The aim of this strategic development plan is to improve the quality of life of the people of DHQ Town and the physical environment and also provide guidelines for the management of solid waste in the town.

i. Long Term

- Community and Private Sector Involvement in SWM: The active involvement of local communities and the private sector is essential for an effective waste management system. It would be beneficial to start involving local communities and the private sector in waste management, which has been a slow process. This process needs to be accelerated in a well planned manner.
- Public Awareness and Education: It can be brought about in many different ways through the electronic and printed media and street talks, through community organizations such as schools, institutions, and households, using a public-address system, distributing leaflets, for public awareness.
- Implement Waste minimization: It is done through pilot and demonstration projects. These pilot and demonstration projects can be used to raise awareness of basic waste-minimization measures.

ii. Short Term

- The collection and disposing of solid waste is the responsibility of the MC. The mechanism for solid waste management is not available, so therefore a detailed feasibility is proposed to develop an efficient solid waste management in Nawabshah town.
- Techno-economic feasibility and detail study of characterization of waste is proposed on basis of the policy guidelines.
- Develop integrated solid waste management system keeping in mind the method, procedure and design at front end, middle end and back end, based on best possible public health practices and environmental protection laws/rules.
- The collection system needs to be made more effective and efficient.
- Municipal Committee has already initiated some work on biomedical-waste management. It should immediately start segregation practice for biomedical waste collection system.

- Encourage On-site Reuse and Recycling: This method will reduce material consumption and the quantity of hazardous waste generated. As a result, material cost and waste treatment cost will be reduced.
- Industrial waste disposal should be treated seperately and safely.

8.3.7 Priority Project

Feasibility Study for Solid Waste Management Mechanism

The collection and disposing of solid waste is the responsibility of the Nawabshah municipal committee. The municipal committee has contributed to keeping the city clean by providing basic services including solid waste management. Solid waste collections is carried out by vehicles such as, tractor trolleys and refuse vehicles as required to transport the waste to a dumping site. As street sweeping and collection in TMA's waste management system are by far the most expensive, the collection system needs to be made more functional and reliable. A comprehensive feasibility study to establish an effective method for the management of solid waste is proposed.

- **Project Benefits**

  This project will help to find a feasible solution to provide an efficient mechanism of solid waste management and also help to improve the health conditions of the town which are causing un-hygienic due to the unavailability of solid waste management in the town.

- **Implementing Authority -** Government of Sindh- PHE Department and Nawabshah MC
- **Estimated Cost: 70.00 Million PKR Approx.** However, a Feasibility study is required for the designing and costing of the project.

Priority Projects				
S. No.	**Project Name**	**Estimated Cost in Millions**	**Non ADP**	**Short Term**
Solid Waste Management				
1.	Feasibility study for construction of Central Composting Plant.	20.00	Non ADP	Short Term
2	Procurement for land acquisation process for Landfill Site (10 acre).	50.00	Non ADP	Short Term

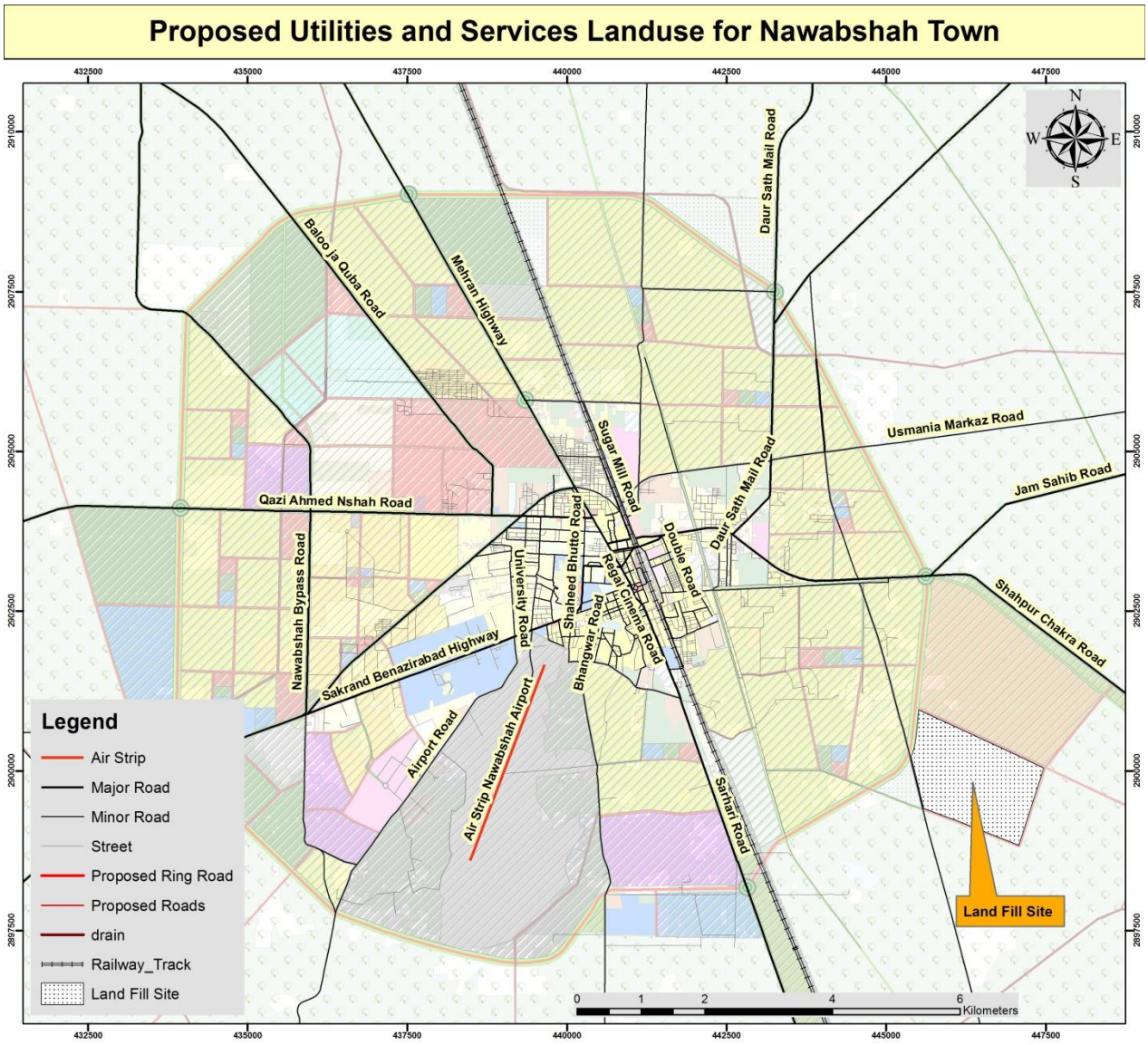


Figure 8:4: Proposed landuse for Utilities Related Services(Solid Waste) Nawabshah Town

8.3.8 Immediate Action Plan for Core Urban Area

There are number of recognized / established active primary collection points in the town. These are not permanent structures but rather empty corners or vacant places. Besides regularly served designated collection points, every locality has got throw away sites in the form of depressions, empty areas, cuttings areas etc. These types of non-designated points if come in the collection route are often served by the municipality staff or usually avoided due to shortage of time and resources constraints.

No any specific information regarding, generation of Solidwaste specific to core urban area is not available. That's why below below map is showing tentative disposable points for collection of solidwaste.

S.No	Name	Containers Nos.	Cost / Container	Cost (PKR)
Total Core Urban Area : 883.40 acre				
1	Placing of Garbage Container at different sites/locations in core town area	250	520,000.00	**130,000,000.00**
			Total Cost (PKR). Million	**130.00**

Note:
1. Each site located for garbage container must be strictly followed by MC to collect and manage solid waste from this site for proper management of the core area.
2. Containers must be fully get maintained by MC office.
3. Sindh solid waste management department/authority should kept control on each project for the uplifting of town as per master plans.

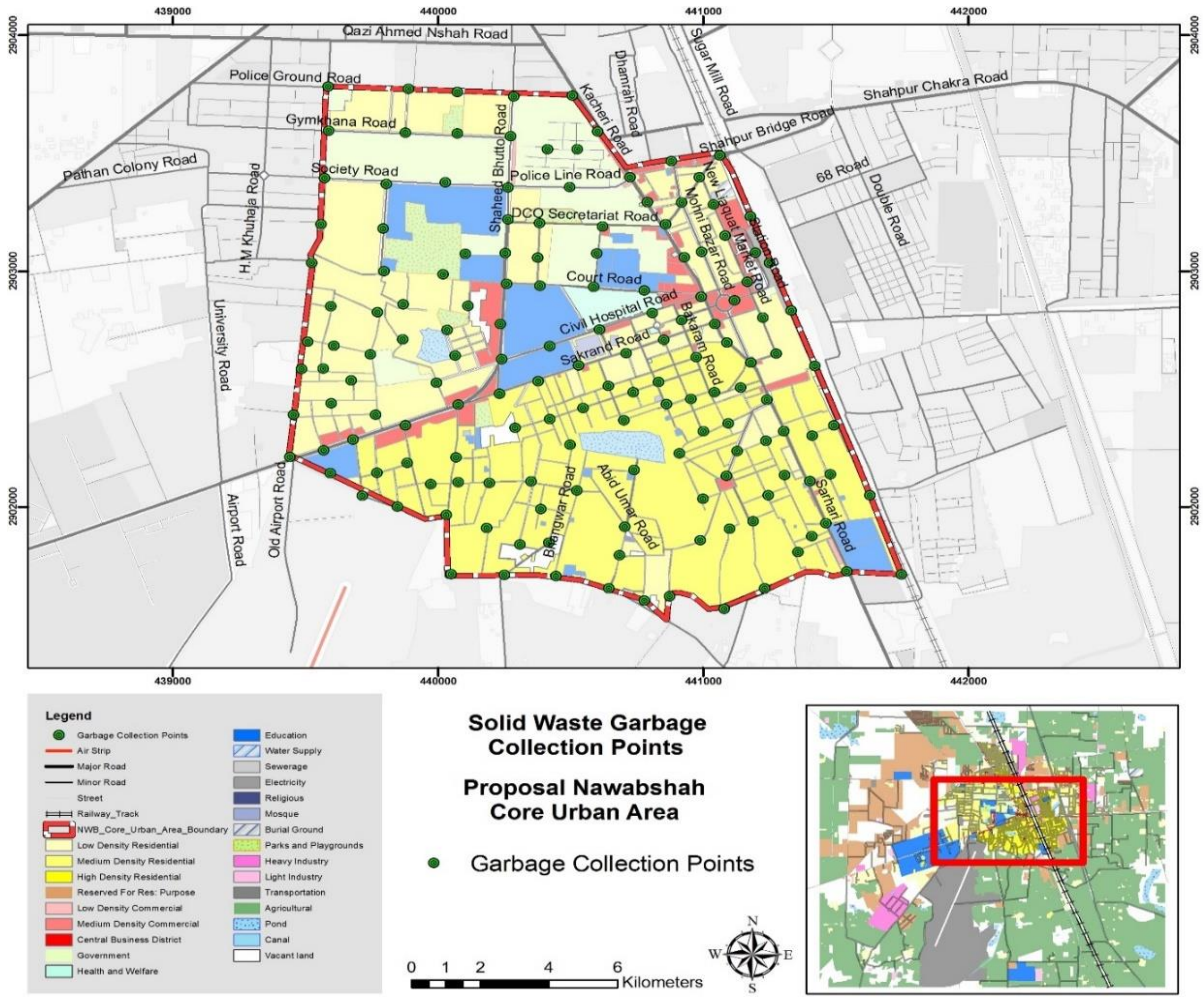


Figure 8:5: solid waste garbage collection points Core urban area Nawabshah

8.4 Firefighting

8.4.1 Existing Situation

Currently there is one fire brigade station situated in Nawabshah with 26[41] firefighting staff and 2 heavy and 2 light fire brigade vehicles. The Municipal committee Nawabshah has no separate budget for firefighting and no vehicle maintenance facility in the station.

8.4.2 Need **assessment**

As the current total population of Nawabshah is 279,688 which will be 415,602 in 2037. As per National reference manual the one fire station is recommended for 0.1 million population and one fire engine is required for 50,000 population. Currently there are 2 vehicles available with municipal committee. So six more vehicles are needed for Nawabshah Town.

8.4.3 Strategies

- City committee people would need to be trained about local early warning systems, evacuation, first aid search and rescue, firefighting etc.
- Provision of Sprinkler protection should be ensured in each multi story building for firefighting.
- Assure that all areas of the Town have the highest level of fire protection, at the lowest possible cost, to meet existing and future demand.
- Establishment of fire-stations to accommodate required number of fire vehicles.
- Establish sub-stations at different locations to ensure short response time for the whole city.
- Increase service efficiency through number of vehicles, dedicated staff and financial mechanism.
- To ensure readiness of all vehicles with ample stocks of POL and spares.

[41] MC office Umerkot

9. INFRASTRUCTURE

9.1 Transportation

9.1.1 Existing Situation

Geographically, district Shaheed Benazirabad is the center of Sindh province of Pakistan which makes it a major railways and road transportation hub in the province. By road, the district headquarters of Nawabshah is at a 4 hours' drive from the provincial capital Karachi. National highway (N5) passes through Sakrand and Kazi Ahmad talukas of this district. This district has a well-connected road network and has 349 kilometers of good quality roads in the entire district. District headquarters is connected with other talukas through metaled roads. N-5 National Highway and Mehran highway are the major connecting roads with rest of the country. Most of the Private transporters run passenger buses and vans on all the regional and national routes.

i. Regional Connectivity (Air, Rail, Road)

- **Airport**
  Nawabshah Airport is located about 3 kilometers (1.9 mi) southwest of Nawabshah. It has one runway, which has a length of 2,743 meters (8,999 ft). PIA had closed its commercial flights for Nawabshah back in 2002, however, a private airline Air Blue started commercial flights in 2004 which were also suspended within months due to unknown reasons.

- **Railway Station**
  The City is also linked with the national network of Pakistan Railways through Karachi-Lahore railway line via Karachi-Lahore lane. Nawabshah railway is located in the city of Nawabshah on main railway line in Pakistan.
  It is a major railway station of Pakistan Railways and was the junction of Nawabshah-Tando Adam loop and Nawabshah-Mirpur Khas meter gauge railway lines. It is the stop of almost all Express trains. The station is staffed and has advance and current reservation offices. Food stalls are also located on it platforms.

- **Bus and Truck Stand**
  There are no major Bus and Truck stands within Nawabshah. Inter-city buses are very limited and do not operate with regulations or proper stands. Illegal bus and Qinqui stands of public transport are evident in Nawabshah. Unregistered Qingqi and Rikshaws are more than buses. Some bus and truck stands are observed on the periphery of District Nawabshah near Sakrand bypass.

9.1.2 Local Road Network

Condition of Road

- Geographically, district Shaheed Benazirabad is the center of Sindh province of Pakistan which makes it a major railways and road transportation hub in the province. By road, the district headquarters of Nawabshah is at a 4 hours' drive from the provincial capital Karachi. National highway (N5) passes through Sakrand and Kazi Ahmad talukas of this district. This district has a well-connected road network and has 349 kilometers of good quality roads in the entire district. District headquarters is connected with other talukas through metaled roads. N-5 National Highway and Mehran Highway are the major connecting roads with rest of the country. Most of the Private transporters run passenger buses and vans on all the regional and national routes.

- Drainage issues on road side are evident due to which roads are worsening day by day. Absence of street furniture is another issue due to which traffic incidents takes place. Encroachments and unorganized/illegal Qinqui and Rickshaw stands are also evident on the road side which causes on street and off street parking issues. Occasional institutional and religious gatherings (Urs etc.) are also one of the major reasons for traffic congestion.

- **Name of Existing Roads Include**:
  Main Nawabshah bucheri Road, Press club road, police line road, katchri road to sabzi market, Mohni Bazar to Gol Chakra Road, Old Jam Sahib Road, Old Jam Sahib road to Habib Sugar Mill, Nawabshah - Qazi Ahmed road, Society Road to Shaheed Bhutto to Main Circuit House Road.

- **Main Major Intersection of Nawabshah City:**
  Intersection at :Nawabshah Qazi Ahmed Road, HM Khoja Road, Civil Hospital Road, New University Naka Road, Allah Wala Chowk/press club road, Mohni bazar Goal Chakra complex road, Nawabshah Sanghar Road Naka ,Sugar Mill Road/Sanghar Bus stop, Rangers Petrol Pump road, Main Nawabshah sakrand road @ zero point.

9.1.3 Issues and Problems

- Tertiary and Secondary Roads are in very poor condition
- No formal Bus Terminal
- Traffic Congestion at intersections
- Improper design of roads and intersections,
- Unavailability of Traffic signals and street furniture
- Absence of street lightening and non-uniform right of way
- Encroachments and unorganized/illegal Qinqui and Rickshaw stands are also evident on the road side which causes on street and off street parking issues.
- Lack of Road Safety
- Unregularized Qinqui system

- Road side encroachment is evident the in core urban area. Visitors are facing congestion and traffic problems in market due to encroachment and lack of parking spaces
- Drainage issues on road side are evident due to which roads are worsening day by day.
- There is unplanned street network and absence of public transport also poor maintenance of bus bays.

9.1.4 SWOT Analysis

LAND USE &TRANSPORTATION			
Land Use Pattern & Transportation			
Strength	**Weakness**	**Opportunity**	**Threats**
1. Good national / regional connectivity through railway and road networks 2. Strong network of inter and intra city, transport 3. Sufficient road right of ways are available in intra city routes 4. Mixed land uses (residential, commercial, industrial, administration)	1. Unplanned street network 2. Absence of public transport 3. Ribbon type commercial development in residential neighbourhoods 4. Poor traffic management 5. Lack of coordination between different transport operating agencies 6. Lack of parking spaces and street furniture 7. Haphazard on street parking reduces road capacity 8. Poor design of bus bays 9. Encroachments around bus bays and railway land sites 10. Drainage issues on road are evident	1. Promotes compact development 2. Opportunities in the form of wide roads available for mass transit system development 3. Wider road space can be used to facilitate multiple transport activities by implementing road space design standards 4. Adequate space available for street furniture installation 5. If properly administrated and space utilized, could promote smooth flow of traffic on nearby corridors 6. A new transport terminal for goods transport will facilitate timely supply of industrial goods	1. Encroachments on road space 2. On street parking 3. Reduced flow of traffic (low speed) 4. Inconvenience due to traffic congestion

9.1.5 Policy Guidelines

- Decrease in private vehicles, especially during peak hours and in CBD areas.
- Decrease in traffic delay.
- Decrease/stability in air and noise pollution.
- Involvement of private sector in transportation infrastructure and services projects.
- Establishment of Mass Transit System.
- Efficient operations and effective regulation of transport services.
- Infrastructure development and up-gradation.
- Integration of public transport services and networks.
- Modernize goods transport and freight facilities.

9.1.6 The Sindh Empowerment of 'Persons with Disabilities' act, 2018

Keeping in view 'Persons with Disabilities' act, 2018 while planning, designing & executing any kind of infrastructure projects i.e. public places, markets, parks, educational institutions, health facilities, Roads Street and pathways centers and etc, it is now mandatory to apply Universal Design and Accessibility criteria for ease of access of differentially abled persons. Also during the planning & designing phase universal guidelines for differently abled friendly construction should adhered for e.g provision of ramps, specialized tiles (Tactile Paving) used for visually impaired personals, signage, street furniture, foot path steps, parking, mechanical access, railings, opening of doors & windows, toilet design, lighting and illumination and etc.

Specifically planning & designing for the transport sector, universal access is the goal of enabling all citizens to reach every destination served by their public streets and pathway system. Universal access is not limited to access by persons using automobiles. Travel by bicycle, walking, or wheelchair to every destination is accommodated in order to achieve transportation equity, maximize independence, and improve community livability. Wherever possible, facilities are designed to allow safe travel by young, old, and disabled persons who may have diminished perceptual or ambulatory abilities. The universal design has following principles;

i. **Universal access to destination**:
All destinations served by the public road system shall be accessible by pedestrians and by drivers of all vehicles (including bicycles), except that vehicle operation may be restricted for reasons of excessive weight, noise or size, or extraordinary potential for damage to property or person.

ii. Equal Right of use:
People's right to use that portion of a street designed for travel is not diminished by less weight, less size, or less average speed associated with their travel mode. Demand actuated tra-c signals must detect and serve a diversity of users including bicycle operators in the roadway and pedestrians using crosswalks.

iii. Accessible surfaces:

To the extent practicable, travel surfaces should accommodate travel on foot with minimal trip hazards and via common assistive devices such as wheelchairs. Roadway surfaces should be as clear as possible of hazards for narrow tires such as bicycle wheels.

iv. Crossable Roadways:

Crossing distances at non-signalized access locations must not exceed the distance that can be covered at walking speed before tra-c may arrive from beyond sight distance, or during reasonable gaps in roadway tra-c. Refuges provided to reduce crossing distances should be large enough to store assistive devices such as wheelchairs and strollers. Tra-c signal timing should provide adequate clearance intervals for safe crossing by pedestrians and slow vehicles.

It is suggested that necessary provision of the above recommendation may be mandated in the laws and regulations of SBEA and other agencies which drafting the buildings and highway regulations.

9.1.7 Strategic Development

The aim of strategic development plan is envisions providing equal and equitable sustainable transport system to all groups of society on affordable basis with minimal impacts on environment, also Provision of Citizen-centric, Sustainable and Growth Oriented Modern Transport system and rehabilitation of existing roads.

i. Long Term

- Create Traffic Engineering Bureaus (TEBs) at divisional level to perform functions as specified in Karachi Division (Traffic Engineering) Act 1985.
- Environmental Impact Assessment (EIA) should be mandatory for all transportation projects.
- Declaring private vehicle free zones, especially in peak hours, in CBD areas to reduce noise and air pollutions.
- Satisfy mobility needs via integration of existing and planned routes, services and Infrastructure.
- Implementation of Axle Load Management.
- Dualization of main arteries.
- Improvement of existing roads geometry.

ii. Short Term

- Expansion of railway station
- Improve road design to make safer roads.
- Prevent encroachments on footpaths through litigation.
- Rehabilitation of Farm to Market road network.
- Reduce traffic growth and congestion by achieving a mode shift.

9.1.8 Priority Projects

i. Rehabilitation and Improvement of Major Roads, Minor Roads and Streets

- **Project Justification**

  The condition of secondary and tertiary roads of Nawabshah is in very poor condition. There is an unplanned street network, absence of public transport and lack of bus stand in the core urban area. Drainage issues on the roadside are evident as the roads deteriorate day by day. The absence of street furniture is another issue that causes traffic incidents. It is proposed to improve and rehabilitate the roads of Nawabshah.

- **Implementing Authority -** Works and Service Department government of Sindh, Local Government
- **Estimated Cost: 380.00 Million PKR Approx. (Short Term)**

ii. Installation of Traffic Signals and new solar Street Lighting on Main Roads

- **Project Justification**

  Nawabshah is the district headquarter town of the district Shaheed Benazirabad. In the census 2017, the population of the town is 279,688. The town has a pressure of traffic congestion. At the present the available traffic signals of the DHQ town are not working properly, due to this the traffic congestion accurse on daily basis which creating problems for the inhabitants of DHQ town and most of the major, central and heavy populated areas of the town are not facilitated from this facility. So this project is proposed to rehabilitate the existing traffic signals and to construct more traffic Signals in those areas where this facility is not available, through this project the burden of traffic congestion will decrease and will help to the easy flow of traffic in DHQ town.

- **Implementing Authority - C**ommunication & Works Department Government of Sindh & Nawabshah Local Govt. Department (Municipal Committee)

- **Estimated Cost: 50 Million PKR Approx. (Short Term).**

Priority Projects				
S. No.	**Project Name**	**Estimated Cost In Millions**	**Non ADP**	**Short Term**
Roads and Communication Network				
1.	Repair & Rehabilitation of Major & Minor Urban Roads (Excluding Core Urban Area) (Approx. 73.41 Kms @ rate of 4500 per running meter) 330 Million • Repair & Rehabilitation of Major & Minor Roads i.e. Qazi Ahmed Road, Sakrand Benazirabad Road, Shahpur chakra road, Shaheed Bhutto Road, and Nawabshah Bypass road • Pedestrian pathways • Designated Parking Spaces • Provision of Footpaths and Street Furniture **Lump sum Amount 50.00/ Million**	380.00	Non ADP	Short Term
2	Installation of traffic signals & new solar Street Lighting On main roads **Lump sum Amount 50.00/ Million**	50.00	Non ADP	Short Term

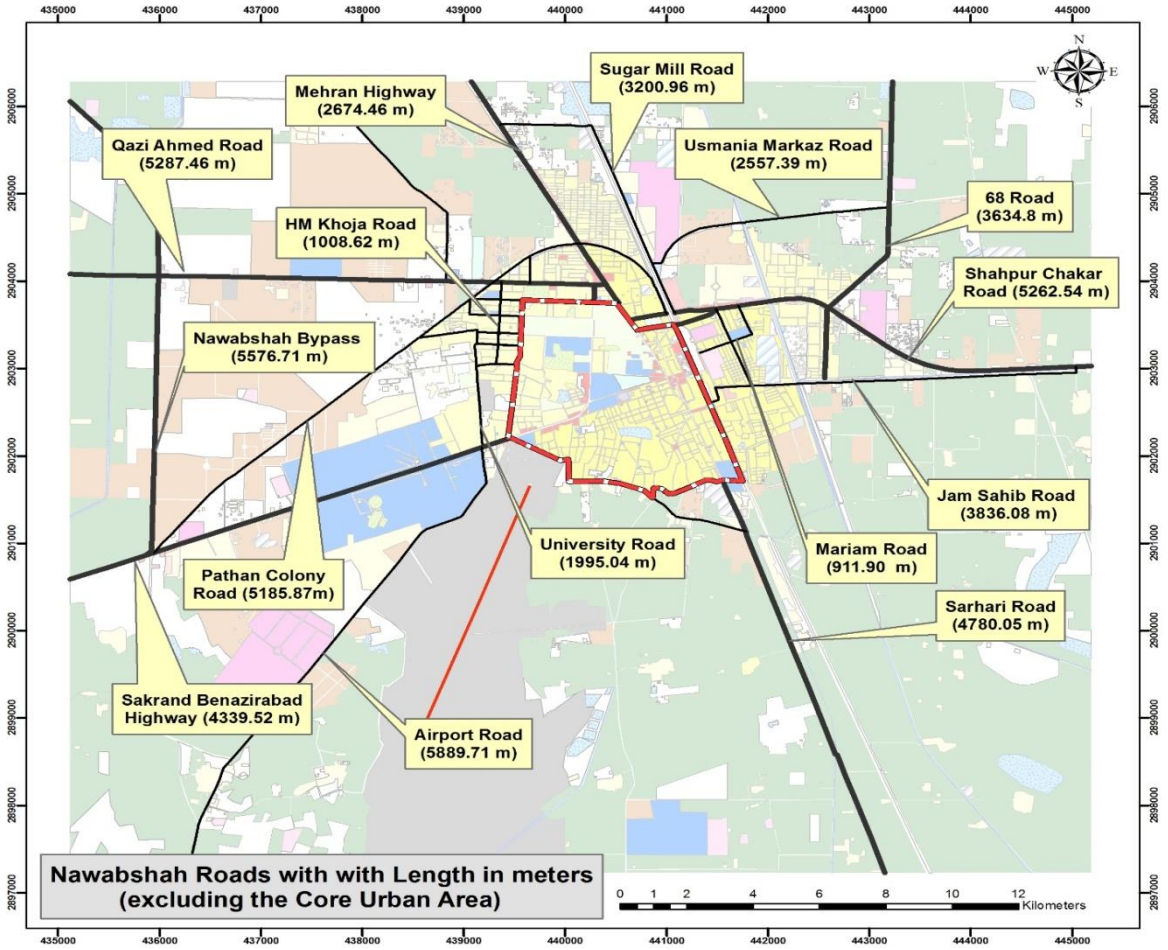
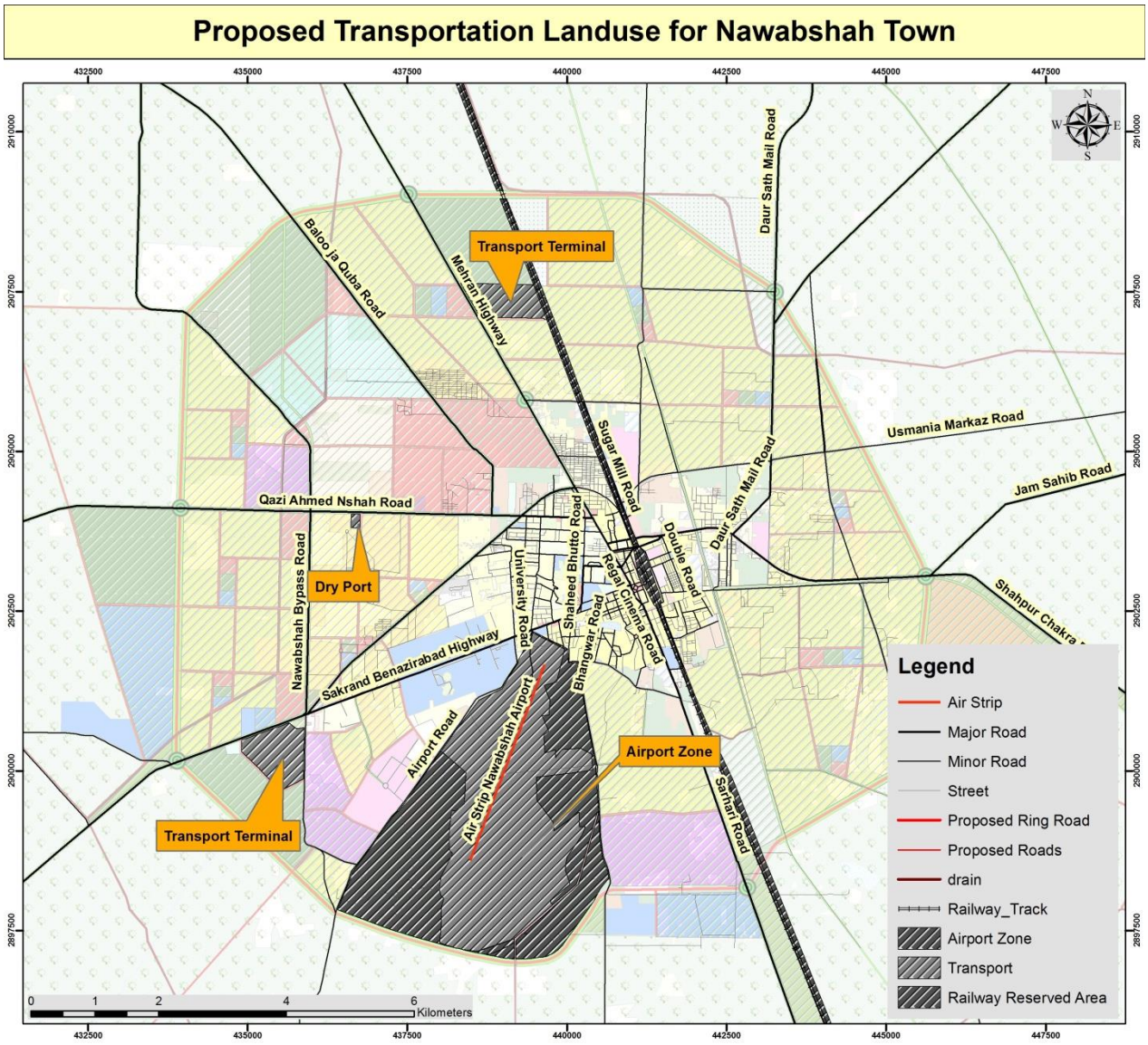


Figure 9:1: Proposed Transportation Landuse for Nawabshah Town



9.1.9 Immediate Action Plan

i. Dualization & Rehabilitation of Existing Roads

Repair & Rehabilitation Shahpur Bridge Road, Regal Cinema Road, Gymkhana Road, Police Ground Road, Court Road & Civil Hospital Road. The improvement in road pavements with green medians, road markings, signals, pedestrian crossings, will be developed.



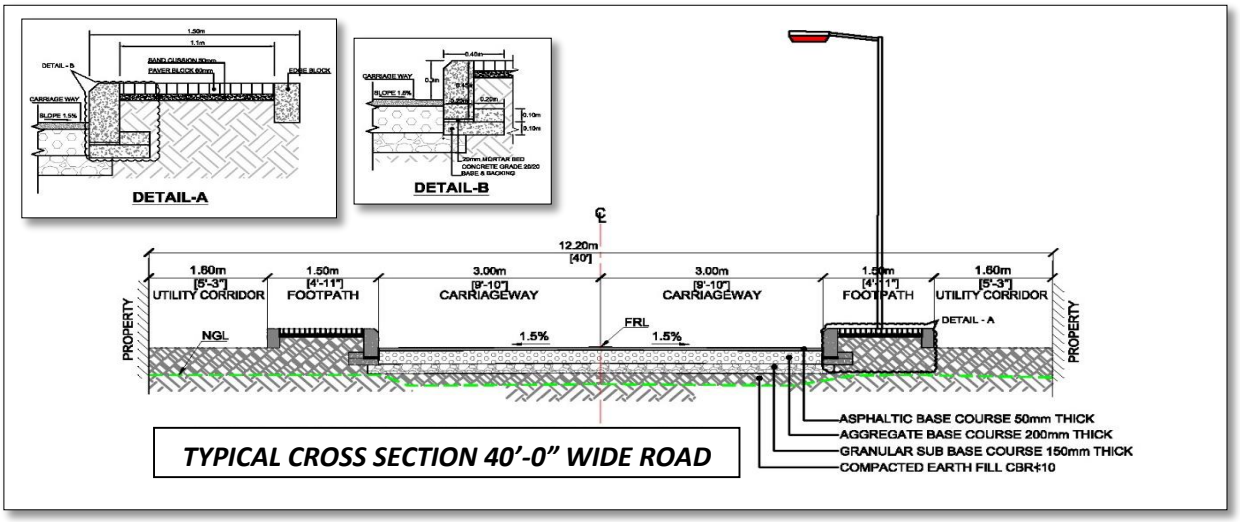
The main parameter for rehabilitation of existing roads is to draw a property line, which require very practical approach in such a way that no massive destruction will happen. In this regard community participation will be highly needed to take them on board and to make awareness that this realignment is for the betterment of their area. Thus, the community ownership will make the idea workable, other than this forceful action will not work in long run.

List of proposed projects in immediate action Plan for betterment of the existing roads located in Core Urban Area are given below;

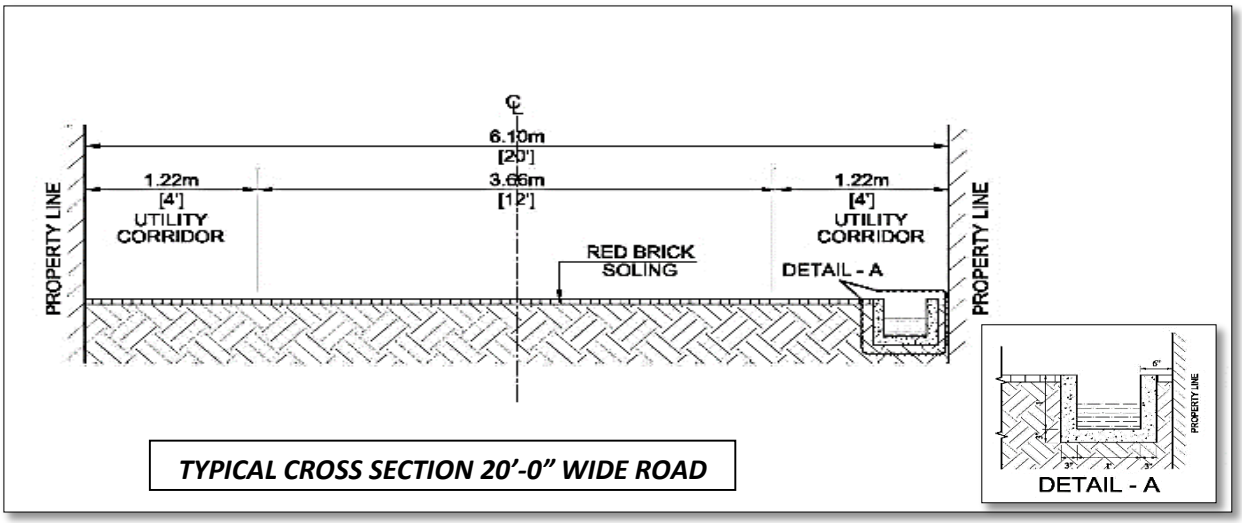
Table 9-1: Nawabshah- Core Town Area Repair & Rehabilitation of Roads

S. No	Area / Locality / Address Major Roads	Length (km)	Length (m)	Width (feet)	Width (m)	Area (sq.m)	Per sq.m cost (PKR)	Total Cost (PKR)
1	DCO Secretariat Road	0.58	582.36	40.00	12.20	7,101.98	4,500	31.96
2	Shaheed Bhutto Road	1.50	1495.04	40.00	12.20	18,232.18	4,500	82.04
3	Sarhari Road	1.64	1637.74	40.00	12.20	19,972.39	4,500	89.88
4	Shahpur Bridge Road	0.37	374.53	40.00	12.20	4,567.44	4,500	20.55
5	Kacheri Road	0.39	394.12	40.00	12.20	4,806.33	4,500	21.63
							Total PKR Rs. Million (A).	**246.06**
				Minor Roads				
1	23 Nos. Minor Roads	5.64	5639.70	20.00	6.10	34388.40	2500.00	85.97
2	Yateem Khana Road	0.37	369.22	20	6.10	2,251.36	2,500	5.63
3	Chakra Bazar Road	0.23	232.95	20	6.10	1,420.43	2,500	3.55
4	Police Line Road	0.48	478.79	20	6.10	2,919.48	2,500	7.30
5	Sakrand Road	1.20	1196.61	20	6.10	7,296.41	2,500	18.24
6	Gymkhana Road	0.70	703.52	20	6.10	4,289.75	2,500	10.72
7	Society Road	0.70	703.78	20	6.10	4,291.34	2,500	10.73
8	Shaheed Bhutto Road	0.55	548.43	20	6.10	3,344.08	2,500	8.36
9	Bhangwar Road	0.55	549.05	20	6.10	3,347.86	2,500	8.37
10	Bergen Sharif Road	0.30	303.48	20	6.10	1,850.50	2,500	4.63
11	Golchakra Road	0.21	207.75	20	6.10	1,266.78	2,500	3.17
12	Mohni Bazar Road	0.61	605.57	20	6.10	3,692.51	2,500	9.23
13	Police Ground Road	0.93	933.46	20	6.10	5,691.81	2,500	14.23
14	Keerio House Road	0.33	326.98	20	6.10	1,993.79	2,500	4.98
15	Liaquat Market Road	0.37	374.82	20	6.10	2,285.46	2,500	5.71
16	Station Road	0.41	407.29	20	6.10	2,483.49	2,500	6.21
17	Station Road	0.16	158.10	20	6.10	964.02	2,500	2.41
18	New Liaquat Market Road	0.52	523.66	20	6.10	3,193.08	2,500	7.98
19	Civil Hospital Road	0.99	991.03	20	6.10	6,042.86	2,500	15.11
20	Qazi Faiz Muhammad Road	0.39	389.90	20	6.10	2,377.45	2,500	5.94
21	Court Road	0.75	751.95	20	6.10	4,585.09	2,500	11.46
22	Regal Cinema Road	0.81	806.79	20	6.10	4,919.46	2,500	12.30
23	Bakaram Road	0.74	744.61	20	6.10	4,540.32	2,500	11.35
							Total PKR Rs. Million (B).	**273.59**
							Total PKR Rs. Million (A+B).	**519.65**

Sample Typical Road Cross section for Major & Minor Roads is given as below;



TYPICAL CROSS SECTION 40'-0" WIDE ROAD



TYPICAL CROSS SECTION 20'-0" WIDE ROAD

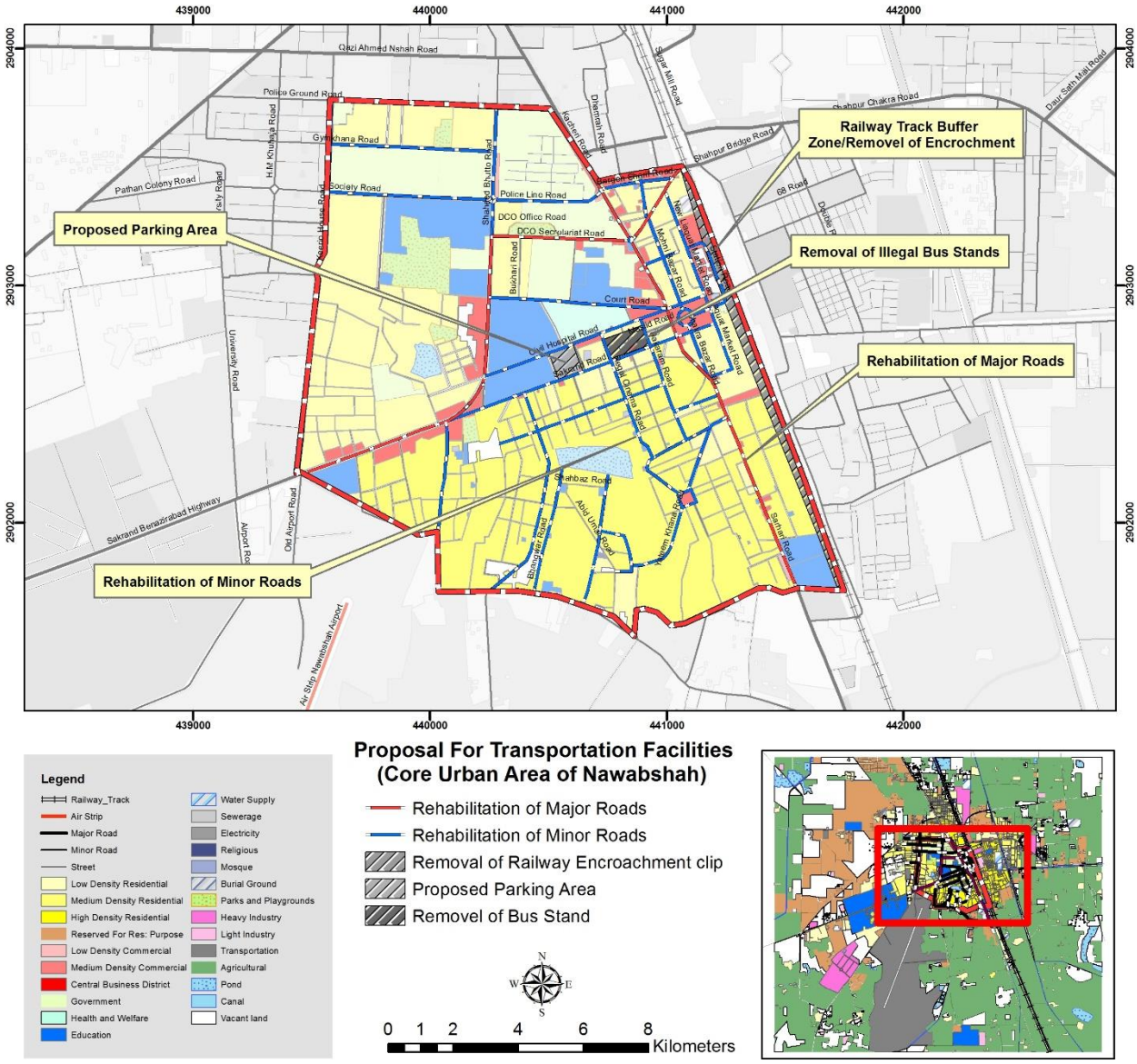


Figure 9:2: Proposal for Transportation Facilities for core urban area Nawabshah.

- **Monuments**

  Some new monuments and land marks should be placed in the Chowks of core urban area for beautification purposes. Monuments should be installed on important chowks and junctions of the core urban area of Nawabshah which will represent the history and grandeur of the town.



Figure 9:3: Model of Monuments

- **Pedestrian Movement and Street Furniture**

  Pedestrian movement will be encouraged in core urban area by restoring footpaths on both sides of the roads in the city center. All existing encroachments on the footpaths should be removed to allow walkability in the city canter. Additionally some walkways should be designed in the CBD area by applying the pedestrianization policy there.



Figure 9:4: Model of walkways with Street Furniture

- **Provision of Footpaths and Street Furniture**

  Provision of street furniture in the core urban area also needs immediate attention. Street lights, benches, footpaths restoration, traffic signals, zebra crossings and bus stops with shades should be installed on immediate basis.

ii. Immediate action plans for Core Urban Area

Immediate action plans for Core Urban Area in Nawabshah requires that the right of way of roads should be restored by removing all encroachments along the main Mohini Bazar & Chakra Bazar area.

- Removal of existing bus stops i.e. Karachi/ Hyderabad bus stop, Sukkur Bus stop, Naushero Feroze / Moro bus stop and Sanghar bus stop.
- Alternatively, parking meters should be installed for Curb-side parking in the city centre / core area at a very high rate of hourly parking charges.

9.2 Energy

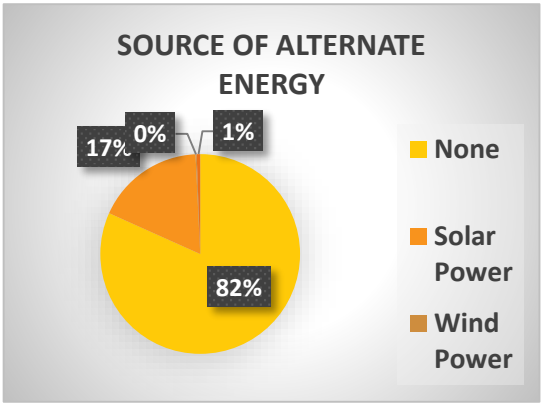
9.2.1 Existing Situation

There is no power generation facility in Nawabshah (MC) vicinity. The power supply is through HESCO-WAPDA transmission system.

To meet the requirement of consumers, HESCO purchases the electricity from WAPDA and further distribute at consumer's doorstep.

Consultant survey highlight the fact that about 81% of the households in Nawabshah have no alternative power source in addition to HESCO supply, some 17.5% of the households have solar energy and only 0.5% household has wind power.

The commercial sector mostly use diesel generator to meet their requirement during the load shedding time. It has been observed that the consumers are now planning to have solar power as an additional source of electricity. Pakistan has potential to produce electricity from Coal sources which is the cheapest source of fuel in the thermal production. We have 185 billion tons amount of coal reserves. Pakistan also has potential to produce electricity from solar and wind power.



9.2.2 Current Power Supply/Demand

The Power Supply to Nawabshah (MC) is through Hyderabad Electric Supply Company (HESCO) WAPDA via 132 KV Grid station feeding district by 11 KV feeders. Electric power network exist in the city, but the production is going through a national energy crisis and power supply has become erratic. Nawabshah (MC) is categorized as domestic, commercial, industrial, agriculture and other services. The major portion of electricity is being consumed by industrial sectors, followed by domestic. In the current national energy crisis electricity is facing shortage. Greater emphasis should be laid on alternative energy like solar, wind and biogas. Solar energy should be immediately applied for street lighting and tube wells.

9.2.3 Issues

- Advocacy efforts have not been made to promote efficient fuel use; consequently, there is little public awareness about fuel conservation measures,
- Alternative fuel sources are scarce and expensive. Liquid Petroleum Gas (LPG) and kerosene are available but costly, putting them out of the reach of the rural poor
- Maintenance of power plants
- Circular Debt

- Transmission and distribution losses are directly connected to Leakage Current Losses, Dielectric Losses, open circuit Losses and theft of electricity.

9.2.4 Strategic Development Plan

Strategies for Electricity includes:

- The effective development of low cost energy production systems can be used
- To offset water scarcity by either deep drilling for freshwater or direct desalinization of brackish water.
- Success in achieving fuel efficiency, adopting new technologies and altering existing fuel-use
- Habits depends largely on women who are the primary users of fuel wood. They must be made aware of the long-term ramifications of adopting these innovations
- Addition of sub stations as per requirement
- Encourage energy efficient building construction

9.2.5 Priority Projects

- Up gradation of grid station
- Promote energy efficient appliances and devices
- Feasibility study for alternate energy sources (Solar, wind, biogas etc)

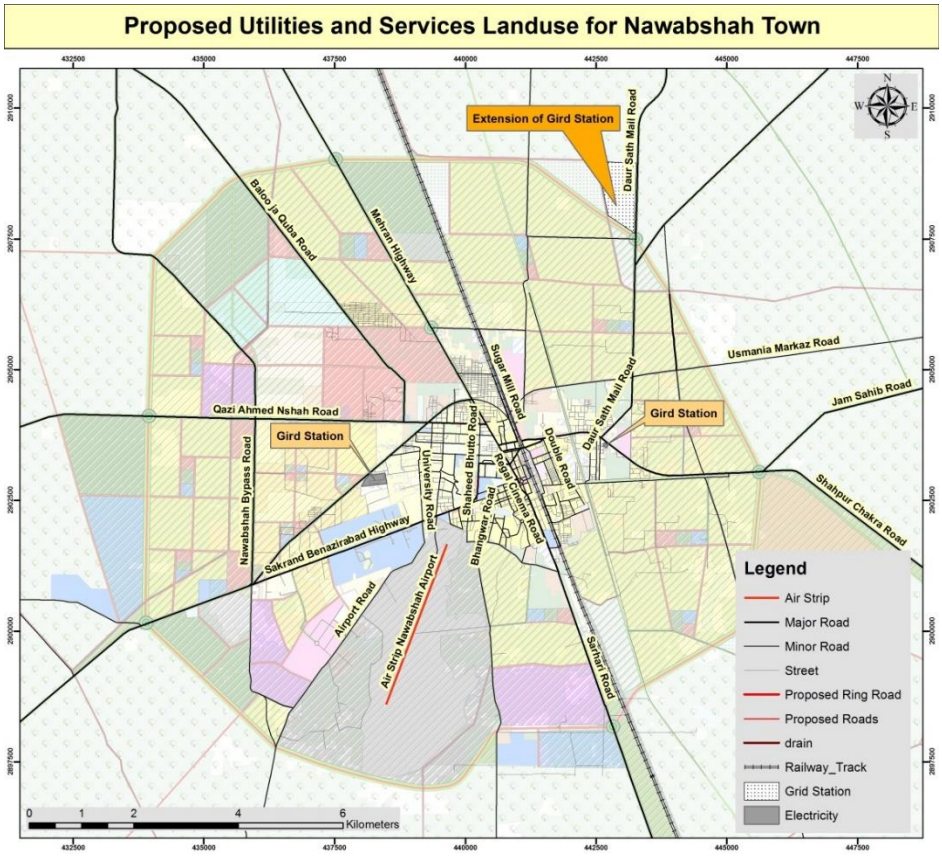


Figure 9:5: Proposed Utilities Services (Electricity) for Nawabshah Town

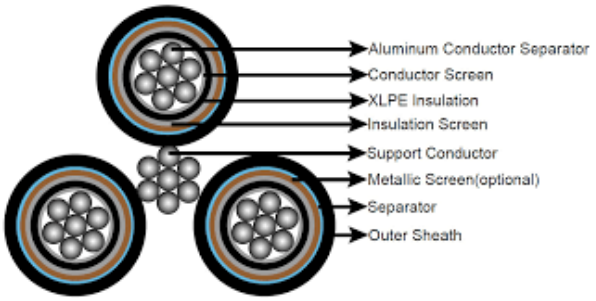
9.2.6 Immediate Action Plan

❖ **Power Supply**

ABC wires should be used in the core urban area to avoid short circuits and thefts. This will also increase the beauty of the core urban area.

❖ **Arial Bundle Cable wires**

In present circumstances it is suggested that Arial Bundle Cable wires should be used to avoid short circuits and thefts issues. This will also increase the aesthetics and beauty of the core urban area.



❖ **Streetlights**

It is proposed to installed streetlight in all over core urban area. It is suggested to use streetlights with LED panel and solar power battery support. This can save energy and light can be lit even during the load shedding hours, but need regular maintenance. Considering Narrow Street and road width, it is recommended to use wall mounted poles in narrow streets, while floor mounted poles on other roads.



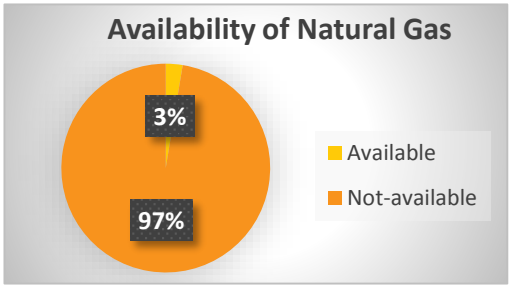
- Promote energy efficient appliances and devices
- Replace ordinary street lights with solarized Wall Mounted street lights

Proposed Wall Mounted Street Lights				
S.No	**Name**	**length (m)**	**Length (feet)**	**Cost (PKR)**
1	Proposed Total Length of Street (km) for wall mounted streets lights.	25.00	82,021	20,505,250.00
			Total Cost (PKR). Million	20.51

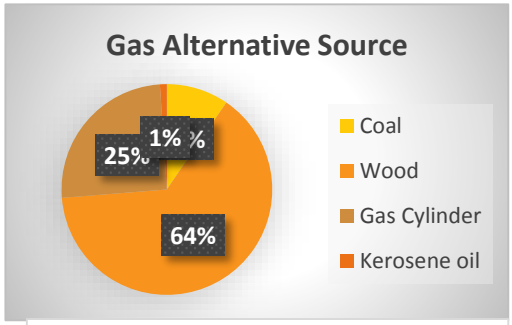
- Wall mounted street lights approximately should be placed on distance of 15 to 20 feet apart.
- Each wall mounted street light cost (Rs. 5000/-).
- As per total length of Streets for this proposal 4,100 No.s of street lights/wall mounted streets should be placed in core town area.
- Operation and maintenance is the 1st priority to ensure after installation of all equipment's and machinery and kept under strict control of TC office for proper usage of facilities.

9.3 Gas Supply

9.3.1 Existing Situation



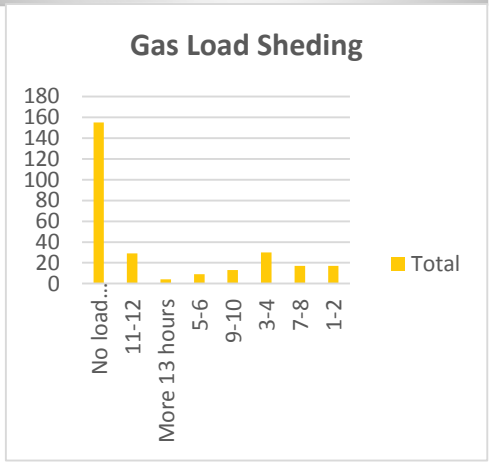
According to suitable sample size 308 houses were surveyed and a maximum number of the house residents had responded to the questions asked on availability of Gas. As given in the table below, only 3% of the houses had the gas available to them, while the gas was not available to 97% of the houses which is really alarming. Residents are forced to use alternate source of gas for their daily routine requirements.



Households not having Natural Gas provided by utility service providers are dependent of alternate sources. 97% out of 308 respondents not having gas availability are using following alternate resources. Some of them are using multiple sources as alternate.

- **Sufficiency of Gas Pressure**

  The below table shows that, sufficiency of gas pressure as provided by 755 (70%) HHs. Around 30% of the households suffer with low gas pressure. Survey results also reveal that more than 70% of the households do not have gas load shedding. While only few of the household's complaints that 5-6 hours gas load shedding is being done in their area on daily



9.3.2 Strategic Development Plan

- Feasibility study for alternate resources available
- Measures to cater Load Shedding of both electricity and gas.
- Measure to appropriately priced the energy resources

9.4 Communication Network

9.4.1 Telephone, Mobile, Internet

The epicentre of growth in mobile phone services in Nawabshah is gradually covering to semi-urban and rural areas localities. Remote areas have started showing growth, led by the expansion in cellular networks, increasing awareness of the usage of voice and data connections and availability of mobile handsets at affordable prices.
A significant rural population uses phones to remain connected with their outstation relatives and friends, who have gone there for education and in search of livelihood.

However, the usage of internet in Nawabshah is slightly different from that in the urban cities. Most of them use internet to enjoy audio and video songs and to watch movies.

Information and communications technology expert say that mobile phone internet usage was increasing as all new SIMs being issued to the subscribers were 3G-enabled.

The PTCL offices are located at many places in Nawabshah. The present-day situation of Nawabshah falls in the developed urban area; as per the survey there are about 13% households using PTCL land line out of 1037 households surveyed. Others 87% household use public call offices in the area or cell phone.

9.4.2 SWOT *Analysis:*

STRENGTH	WEAKNESSES	OPPORTUNITY	THREATS
Information & Communication Technology			
1. Strong networks available for advanced technologies, e.g. internet, cellular networks, broadcasting, satellite communication 2. All cellular service provider offer facilities and service station. 3. Town is covered by PTCL services, station and network	1. Lack of information sharing regarding agricultural activities, public health, veterinary, disaster forecasting etc. 2. The internet usage is limited to educated families	1. Media can play important role in economic development and prosperity 2. Immediate disaster forecasting through disaster emergency response centre 3. Marketing campaign support of development initiative	1. Negative cultural and ethical exposure to young minds (youth), if not regulated properly 2. No check and balance of non-authorized/ non-biometric SIM's usage

9.4.3 Importance of Communication Infrastructure in Agriculture Sector:

Swift transportation facilities, farmer friendly marketing arrangements and, above all, a well-maintained. Communication network are the basic requirements for an efficient and profitable agricultural sector. The district government needs to improve market and support service infrastructure including farm-to market roads. This sector will need increased and sustained investments in communication infrastructure in rural areas.

10. ENVIRONMENT

10.1 Existing Situation

The district lies in 67° 52’ to 68° 27’ 2” east longitudes to 25° 59” to 26° 38’ 5” north latitudes. The district is bounded by district Khairpur and Sanghar on the east, district Jamshoro on the west, district Khairpur and Naushahro Feroze on the north and district Matiari on the south.

This district is located in the center of the Sindh province of Pakistan, and is therefore commonly known as the heart of Sindh. Indus River flows on the left bank of the district. Total geographical area of the district is 451,000 hectares. The land structure of this district can be divided into three parts. First, on the northern side of the district is the katcha (the lands alongside the Indus River), these lands are very fertile but are prone to riverine floods. Second, the central and major part of the district comprises of the irrigated cultivable lands. This area consists of very productive agricultural land. Third, the eastern part of the district that comprises of the barren desert lands in Daur taluka.

The Seismic zoning map of Pakistan (2015) places Nawabshah in Zone 2A which corresponds to which corresponds to peak ground acceleration (PGA(g)) of 0.08 to 0.16 and a possibility of minor to moderate seismic hazards i.e. probability of earthquakes of intensity (MM Scale) 6 to 7.5.

Surface water source is the Rohri canal emerging from Sukkur Barrage. It is a perennial canal that supplies water for irrigation and domestic purposes. Most of the canals, branch canals and water courses are unlined and require periodic maintenance. Rohri canal is the major source to provide water for drinking and irrigation in District Shaheed Benazirabad. It is the largest canal serving about 2.6 million acres. The canal takes off water from the left border of Sukkur Barrage from the Indus River.

The district is entirely under irrigational settlements. Indus is the only river of the district and flows along western boundary of the district for about 90 kilometers of its length. The irrigation in the district mainly depends on canal-water, tube wells and spill of Indus river. The main canals in the district are Rohri canal and Nasrat canals and district receives perennial water supply from these canals and their channels. Out of the 305 rural mouzas, 287 (94%) are irrigated with the help of canals[42].

Generally, the left bank is underlain with saline groundwater unsuitable for agriculture and domestic and potable use. The fresh groundwater is mostly restricted to the narrow corridor along the Indus River, and occasional lenses and perched water. In the freshwater zone, freshwater is mostly pumped by the private tub wells to supplement the canal supplies. In the saline groundwater zones the public sector tube wells drain out groundwater to dispose that into canals or in to the drainage network

As per the consultant analysis of groundwater quality, it is observed that the groundwater is not fit for human consumption and is contaminated with heavy metals like Antimony, Cadmium, Mercury, Barium and Boron. Also the water is bacteriologically contaminated.

[42] Pakistan Emergency Situational Analysis, A profile of District Shaheed Benazirabad

10.1.1 Wildlife

The hog deer (Axis porcinus) is vulnerable ungulate species that was the key species of the district area and reserve forest present in the district. Wild boar (Sus scrofa) is another ungulate commonly found in forest along the Indus River. The wildlife department and local people report that the population of this species in the district has recently grown. The Indian crested porcupine (Hystrix indica) is reported from some parts of the district, but they have not been seen for some time. Bengal fox (Vulpes bengalensis) and desert cat (Felis silvestris lybica) were the common species of the district. The population of Bengal fox depends highly on the availability of rodents in large numbers. The desert cat is common in the scrub areas of the district. It is threatened because of loss of habitat, and being hunted for its fur, as well as being killed when it attacks peoples' domestic fowl. Other common large mammals that are reported from the area include palm squirrels (Funambulus palmarum). The common species of small mammals that are reported from the district are cairo spiny mouse (Acomys cahirinus), house rat (Rattus rattus), house mouse (Mus musculus), pigmy gerbil (Gerbillus henleyi), Indian gerbil (Tatera indica), and desert jird (Meriones hurrianae).

10.1.2 Birds

The most commonly observed bird is the white-cheeked bulbul (Pycnonotus leucotis), which is the most numerous species in the scrublands and, although found mainly in the plains, is also common on slopes. Other common birds are the little brown dove (Spilopelia senegalensis), black crowned finch lark (Eremopterix nigriceps), Persian short-toed lark (Calandrella acutirostris), Indian short toed lark (Calandrella brachydactyla), lesser white throat (Sylvia curruca), common white throat (Sylvia communis), house bunting (Emberiza sahari), gray-necked bunting (Emberiza buchanani), and crested lark (Galerida cristata).

Less common birds observed and recorded in the past include the Indian sparrow hawk (Accipiter nisus), tawny eagle (Aquila rapax), common kestrel (Falco tinnunculus), gray partridge (Perdix perdix), Indian sand grouse (Pteroclididae), pintail sand grouse (Pterocles alchata), Collared dove (Streptopelia decaocto), great gray shrike (Lanius excubitor), gray-backed shrike (Lanius tephronotus), hooded wheatear (Oenanthe monacha), Rufous treepie (Dendrocitta vagabunda), hoopoe (Upupa), pied wagtail (Motacilla alba), black winged stilts (Himantopus himantopus), red-wattled lapwings (Vanellus indicus), sandpiper (Scolopacidae), white backed vulture (Gyps africanus), griffon vulture (Gyps fulvus), black vulture (Coragyps atratus), golden eagle (Aquila chrysaetos), rock partridge (Alectoris graeca), and black-shouldered kite (Elanus axillaris).

10.1.3 Ecologically Sensitive Areas

Deh Akro II Wildlife Sanctuary Complex is situated in the district of Shaheed Benazirabad (Nawabshah), Sindh province, Pakistan. The sanctuary is 46 kilometers northeast of Nawabshah City. The whole complex extends over 205 square kilometers. The wetland complex is a distinctive instance of desert wetland ecosystem that hosts a variety of unique and endangered wildlife species.

It is a natural wetland containing 32 lakes and a complex of 4 major habitats kinds, desert, wetland, marsh and agricultural lands. The wetland complex has a distinctive instance of desert wetland ecosystem that hosts a variety of rare and endangered wildlife species. Deh Akro II Wildlife Sanctuary supports more than

eighteen species of mammals, sixteen species of reptiles, 14 species of fish, and 101 species of birds and regularly supports over 20,000 waterbirds. The fauna involves waterfowl, crocodiles, otters and fish.

The Deh Akro II Wildlife Sanctuary lakes together cover an area of 50 square kilometers; the greatest one has a surface of 7.5 sq. km and the smallest lake a surface of 0.4 sq km. The water of 5 lakes has drinking water quality; the water of the other 31 lakes is brackish water. The depth varies – the deepest lake is 15 meters and the shallower lakes are between 2-3 meters deep.

In the south-west of the Deh Akro Wetlands, the landscape is dominated by agricultural fields. In the side of north-east, the Nara Desert borders the wetlands complex. In the year of 1988, the wetland was announced as a Wildlife Sanctuary of international importance. On the day of 5 November 2002, Deh Akro Wetlands Complex was announced as a Ramsar site.
The wetland is a significant feeding and spawning ground for various indigenous fish species. The desert is characterized by sand dunes with well-developed herbs/shrubs and trees. The agricultural land consists of patches of irrigated agricultural fields lying adjacent to the desert.

10.1.4 Forest resource

PAI forest is situated at a distance of 2 Km from Sakrand town. It surrounded by Deh Marvi and Sakrand in the North, Deh Tali and Morio Lakho in the south. Deh sakrand and Deh Batho in the east and on its western boundaries lie Deh Morio Lakho and Deh Marvi (source: Sindh forest department, Revenue departments). The entire plantations spread over an area of 1933 ha. Out of total area only 1502 ha (78%) are under tree cover while remaining 319 and 112 ha are either blank or high lying areas, respectively.

The game reserve is under the influence of political pressure especially from the influential local farm owners. These formers not only control the canal water but also keep on encroachment the Pai forest land. Currently, Pai forest receives no canal water and solely depends on ground water supplied through 13 functional and nonfunctional tube wells.

Though hunting licenses are issued, the limits are rarely adhered to and no guidelines for hunters are available. Hunting also increase disturbance which has ultimately led to the dispersal of wildlife from the area[43].

10.1.5 Ecologically Sensitive Areas

Deh Akro II Wildlife Sanctuary Complex is situated in the district of Shaheed Benazirabad, Sindh province, Pakistan. The sanctuary is 46 kilometers northeast of Nawabshah City. The whole complex extends over 205 square kilometers. The wetland complex is a distinctive instance of desert wetland ecosystem that hosts a variety of unique and endangered wildlife species.

It is a natural wetland containing 32 lakes and a complex of 4 major habitats kinds, desert, wetland, marsh and agricultural lands. The wetland complex has a distinctive instance of desert wetland ecosystem that hosts a variety of rare and endangered wildlife species. Deh Akro II Wildlife Sanctuary supports more than

[43] Importance of PAI forest and Threats to the PAI Forest Nawabshah, Sindh, Pakistan

eighteen species of mammals, sixteen species of reptiles, 14 species of fish, and 101 species of birds and regularly supports over 20,000 water birds. The fauna involves waterfowl, crocodiles, otters and fish.

10.1.6 Issues and Problems

- Water logging and salinity
- Water Contamination
- Low quality of surface water that is not fit for drinking
- Seismic Risk
- Aging of surface drainage canal system
- Inner city air is polluted by high volume of traffic.

10.1.7 SWOT Analysis

Strengths	Weakness	Opportunity	Threats
ENVIRONMENT			
Urban Area & Areas Suitable For Urban Development			
1.Land available for future development within town urban boundary	1.Loss of agricultural land through land development for housing purpose 2.Water logging 3.Unplanned growth inside town 4.Lack of utility services	1.Mixed land uses may create activity centres 2.High density can overcome housing shortages	1.Land grabbing 1.Slums 3.Unplanned growth 4.Threat to agricultural land 5.Private sector may increase the cost of services
Land			
1. The central and major part of the district consists of very productive agricultural land. 2. The whole district has irrigation facility resulting in the grasslands and irrigated crop lands 3. Rural rich fertile agriculture land that produces quality crops	1. Unplanned land uses 2. Incomplete development of agricultural land parcels (scattered agricultural growth) 3. Poor administration by agencies monitoring urban growth of the city	1. If treated through appropriate urban design principals & standards, can be transmitted into mixed land uses and strong activity centres 2. May increase productivity if cultivated at full strength	1. Land shortage for new development 2. Slum formation 3. Contamination of land in un-irrigated areas 5.
Climate			

Strengths	Weakness	Opportunity	Threats
1. The climate is suitable for producing crops.	1. Rainfall shortages affect the efficiency of canal system	1. Agricultural practices can be changed in accordance with weather condition for maximum production	1. Droughts 2. Heavy rains affects agricultural production.
AIR			
1. Air quality in the rich agricultural belt is good for human health, and also keeps ecological balance in atmosphere 2. Most of the area is air pollution free	1. Inner city air is polluted by high volume of traffic	1. Development planned with respect to air circulation can provide relief to inner city's polluted environment 2. In future the town can be planned as Green City	1. Air pollution 2. Respiratory diseases 6.
Fresh Water Bodies			
1. Nawabshah has an efficient canal irrigation system which helps in agriculture productivity 2. There are approx. 80 fish farms existing in the district	1. Water contamination due to direct disposal of waste water 2. Contamination of standing water bodies created by rain and flood water at open lots is an invitation to malaria and dengue	1. Temporary water bodies can also be used for fish farming 2. To provide the extension services in private sector 3. To acquire land for fish production in district 4. Lease of fishing rights, conservation, management and promotion of fisheries. 5. Proper space and environment for fish breading farms can generate handsome amount of revenue	1. Contaminated water is a serious threat for human health 2. Standing water gives birth to diseases 3. Threat to agricultural land 4. Affect agricultural production 5. Water logging

10.1.8 Policy Guidelines[44]

- Enhancing role of local governments in sustainable management of natural resources
- Conservation of biological diversity, protection and sustainable use of indigenous flora and fauna
- Sustainable Management in Reserved, Protected, Flora and Fauna
- Management of irrigated and linear plantations
- Promotion of indigenous species
- Increase the efficiency of surface drainage.

10.1.9 Strategic Development

i. Long Term Plan

- Drainage can be improved on many sites and is the first thing to consider once a waterlogging problem has been identified. Options might vary from shallow surface drains (ie. Spoon- and 'W'-drains) to more intensive drainage using wide-spaced furrows, to the intensive drainage form of raised beds
- Achieving sustainable development, while overcoming environmental challenges such as land degradation, watersheds and marine fisheries, deforestation, waste management and pollution control, and climate change
- Multi-pronged approach to fisheries management should be adopted that takes account of economic, environmental, and social performance

ii. Short Term Plan

- Ensuring environmental sustainability
- Need of Permits to discharge waste and pollutants into the environment;
- Restoration and maintenance to preserve ecological cycles, functions and services of environment
- Increase the productivity of rangelands
- Provide recreational facilities for public by improving forest parks, wild life sanctuary
- Rehabilitate degraded ecosystems and create environmental awareness
- Develop and implement policies that integrate the objectives of conservation and development to reduce pressure and protect environmental values and conserve biodiversity
- Fostering public-private partnerships

[44] National Forest Policy 2010

11. DISASTER RISK MANAGEMENT

11.1 Existing Situation

Nawabshah is the main city and DHQ of Shaheed Benazirabad District in Sindh, Pakistan. This district is located in the center of the Sindh province of Pakistan, and is therefore commonly known as the heart of Sindh. Indus River flows on the left bank of the district. Total geographical area of the district is 451,000 hectares. The land structure of this district can be divided into three parts. First, on the northern side of the district is the kacha (the lands alongside the Indus River), these lands are very fertile but are prone to riverine floods. Second, the central and major part of the district comprises of the irrigated cultivable lands. This area consists of very productive agricultural land. Third, the eastern part of the district that comprises of the barren desert lands in Daur taluka. The district is prone to floods.

Table 11-1 : Hazards Matrix of Nawabshah[45]

Hazard	Frequency	Area Affected / Union Council	Severity / Force	Year
Riverine floods	Monsoon	Talukas Sakrand and Qazi Ahmad	Medium	1973,1976, 1992,2010
Heavy Rainfall	Monsoon	Entire district	Medium	2011, 2013
Epidemics	Seasonal	Entire district	Medium	Every Year
Droughts	Rare	Taluka Daur [Akro 1 and Akro 2]	High	1999-2002
Earthquakes	Rare	Entire district	Very Low	2013
Transport Accidents/fire	Frequent	Entire district	Low	Throughout
Fire	Rare	Entire district	Low	Every Year

11.2 Impacts of Floods

As given in the previous section, District Shaheed Benazirabad is on the borderline of food insecurity. Floods of 2010/2011 worsened the existing situation of the population and the indicators of food security i.e. availability, access, utilization and stability showed dismal situation in this district.

11.2.1 Food Security

District Shaheed Benazirabad is agro-based with majority of the households engaged in agriculture farming and livestock rearing activities and still others depend on non-agriculture activities/casual labour. Among these three types of the households, empirical studies have shown that poverty is relatively higher in the non-agriculture households, followed by livestock households and small farmers. It has been shown in the

[45] Pakistan Emergency Situational Analysis: District Matiari

previous section that many individuals of this flood affected district lost their homes (9,982 houses were damaged), their crops (171,076 Acers of crop area affected) and heads of livestock (22,630 livestock died).

Through the destruction of roads, transport and market infrastructure, the floods had a significant negative impact on commodity market. As a result, the functioning capacity of markets (transporters, processors, wholesalers and retailers) decreased with upward movement of transaction costs and shortage of food commodities. This phenomenon hindered the socio-economic access to food in the district.

The losses to crops and livestock along with the poor functioning capacity of the market have significantly reduced the expected income of the population of this district. Thus the floods and rains affected people of the District Shaheed Benazirabad had to face a number of key challenges to recover their livelihood, agriculture and livestock; directly affecting the food security situation.

11.2.2 Health

Severe floods can not only cause destruction to health care infrastructure but also affect health indicators of the affected population. The Floods, in 2010 and heavy rains in 2011 resulted in damage to the public health infrastructure in Sindh Province. According to PDMA report 2011, 70,001 Households needed health relief in district Shaheed Benazirabad.

As per data collected after flood 2011, the flood affected health facilities in district had marginally adequate stocks of medicines, equipment and other consumables for one to two weeks.

11.2.3 Education

Due to the floods of 2010, 48 school facilities were damaged (primary 63, middle 5, and secondary 7).46 Out of these 48 damaged facilities, 3 were boys' schools, 4 girls' schools and 41 mixed schools.

11.2.4 livestock

Beside loss to natural resources, crops, agricultural lands and human life and activities, livestock's life is always endangered by droughts. Thus, alternate arrangements for emergency response facilities like nutritious fodder, vaccines and livestock sanctuaries must be established to prevent the migration or demise of livestock during droughts. The responsibility to implement such measures falls upon the Livestock Department.

As the fodder depletes, livestock are fed on dry grass, leading to a host of digestive problems such as diarrhea, toxemia and metabolic disorders; compromising their immune systems and affecting milk production. This adds to the woes of livestock owners, whose total income generation dependency.

[46] Flood report on Education Sector of Sindh Province (2010-11), Reform Support Unit, Government of Sindh

11.3 Public Safety

Public safety is the priorities principal of any governance whether it is Federal, Provincial, Divisional or District.

To spread terror in residents, terrorists mainly focused / target crowded places e.g. educational institutions, stadium, shopping centres, malls, religious centres, institutional setups like press club etc., which are less protected in Sindh especially. Terrorist activities can be performed in any shape but mainly on crowded places.

- **Crowded Places**

  Crowded places will remain an attractive target for terrorists, who have demonstrated that they are likely to target places which are easily accessible, regularly available and which offer the prospect for an impact beyond the loss of life alone (for example serious disruption, or a particular economic/political impact).

- **Responsibilities of National / Provincial / Local Government**

  Police and Local Administration Government have the primary responsibility for preventing, preparing for, responding to, and recovering from terrorist attacks in their jurisdiction.

  The protection and resilience of crowded places—particularly those at an elevated security risk—is a key focus of National / Provincial Police / Local Government Administration. While the owners and operators of crowded places remain responsible for implementing protective security measures, National / Provincial Police / Local Government Administration acknowledge that responsibility for building and sustaining resilience to terrorism is shared between government, owners and operators, and communities.

  National / Provincial Police / Local Government Administration are responsible for providing threat information to owners and operators of crowded places. This includes material developed by National / Provincial Police / Local Government Administration, Law Enforcement Agencies (LEA) etc. Police provide specific information on the local threat context to help owners and operators develop protective security measures.

  Police are also responsible for running and administering Crowded Places Forums. These Forums are the primary means of collective engagement between police and local owners and operators of crowded places, including businesses and local councils. Members of the Crowded Places Forum can share information, guidance, and lessons learned relevant to their local circumstances.

- **Responsibilities of Stakeholders**

  Implementation of protective security measures and reducing the vulnerability of crowded places to terrorist attack was not just a job for the Government (Federal / Provincial / Division / District) and the police alone. To be most effective, this work requires engagement from a range of local partners, including local authorities and businesses, in order to identify vulnerable sites and prioritize work to reduce those vulnerabilities.

- **Identification of Land uses for Potential Terrorists Attack**

  Consultant identified different land uses in Dadu which are potential crowd pulling places.

Table 11-2 Potential Terrorists Threat

S. No.	Landuse	Terrorist Threat
1	Education	Secondary Schools/College/ University
2	Health	BHU/Hospitals/Medical Collages
3	Commercial	CBD/Mandi/Shopping Mall
4	Religious	Eid Gah / Shrines/Minority Religious Places/Imam Barghas
5	Government Offices	District Court/DCO Office/SSP Office/District Jail/Police Head Quarter/LEA
6	Recreational	Tourism Places
7	Transportation	Bus Stop/Railway Station/Airport

- **Existing Situation**

  Concerned authorities have not come up with any plan for terrorist's activities / attack to reduce potential threats, incident management, crisis management, business / life continuity and recovery phases.

- **Possible Terrorist Intensity Places of DHQ Town Nawabshah**

  Consultants identified some possible terrorist Intensity places of DHQ Town Nawabshah on the basis of Crowd and most visiting places by the residents of DHQ Town Nawabshah, the places are classified in below map according to the given the above table;

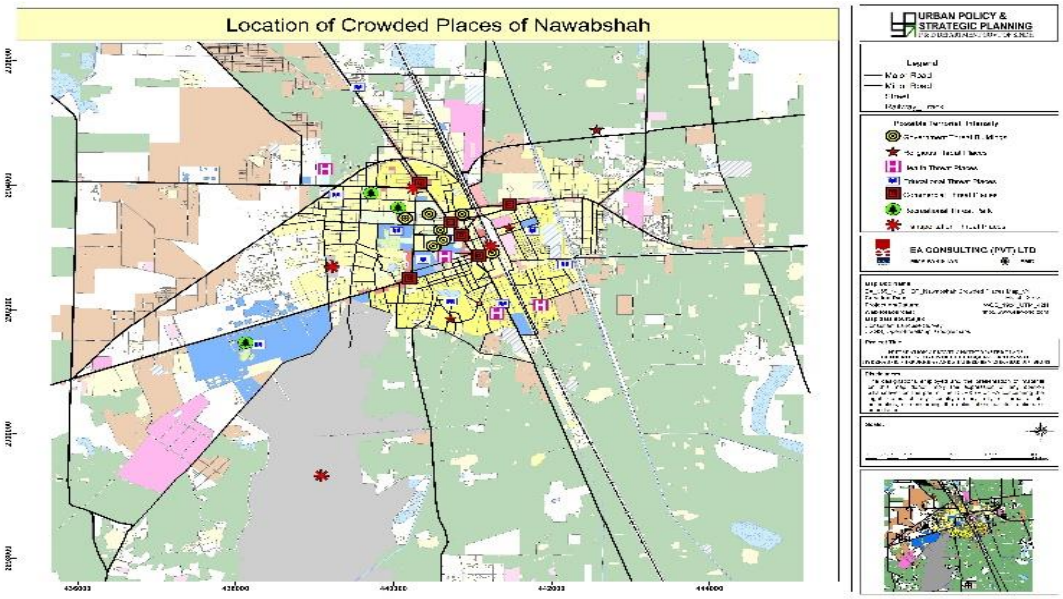


Figure 8-11:1 Crowded Places of DHQ Town Nawabshah

- **Proposed Strategy to Counter Potential Threat Measures**

  Proposed Strategy for Protecting Crowded places from Terrorism is based on strong, trusted partnerships between all levels of government and those responsible for crowded places. It aims to make crowded places as resilient as possible to terrorist attacks while preserving our use and enjoyment of these places. A nationally consistent approach will help achieve this objective in an effective and efficient manner.

  The Strategy involves four core elements which provide a structure for building a consistent national approach to protecting crowded places that can be applied flexibly.

  - **Building Stronger Partnerships**
  - **Enabling Better Information Sharing and Guidance**
  - **Implementing Effective Protection Security**
  - **Increasing Resilience**

- **Building Stronger Partnerships**

  Protecting crowded places from terrorism is not just a job for governments, it is a responsibility shared by the private sector and the community. The success of this Strategy rests on sustainable and strong partnerships between all governments and owners and operators of crowded places, including businesses and local governments.

  Trusted relationships between governments and owners and operators of crowded places are fundamental to the effective implementation of this Strategy. The Crowded Places Partnership sets out a range of mechanisms to support this engagement, but none of these replace the ability for all police and intelligence agencies to engage directly with owners and operators when required.

- **Enabling Better Information Sharing and Guidance**

  Protecting crowded places from terrorism in an evolving threat environment requires trusted and routine information sharing and guidance between all governments, industry sectors, business, and communities.

  It is a key responsibility of government to ensure those who own and operate crowded places have access to high quality threat information.

  The flow of information between governments and those responsible for crowded places is not one-way. Owners and operators should be willing to share information, advice, and lessons they have learned with governments and their peers. Building a strong and inclusive security culture is a responsibility shared by all.

- **Implementing Effective Protection Security**

  Implementing protective security measures can be a complex process which, if done incorrectly, can be costly and ineffective. Owners and operators have a responsibility to undertake a risk assessment and/or vulnerability analysis of their crowded place, implement the appropriate mitigations, monitor them for effectiveness (including through audits), and review them at appropriate junctures.

- **Guidance**

  Before owners and operators make decisions about protective security measures they must first understand how attractive their location may be for a terrorist to attack.
  Crowded places encompass a significant range of different locations, venues and businesses. They differ substantially in size and have different levels of risk to manage.

- **Layered Security**

  The goal of layered security is to reduce the likelihood of a successful terrorist attack on a crowded place by building multiple layers of redundancy into a site's security architecture.
  Layered security describes the practice of securing a site by applying multiple layers of complementary protective security measures.
  The following represents some examples of protective security measures that can be used within each layer. Some security measure can strengthen multiple layers. For example, the effective use of security officers can help to delay, detect, deter, respond to, and recover from an attack.
  Deterring a potential terrorist attack can involve the presence of obvious physical and electronic target hardening measures, including:
  - Fencing indicating demarcation;
  - Perimeter security lighting;
  - Warning signs and notices;
  - High visibility security patrols;
  - CCTV cameras;
  - Perimeter vehicle security barriers.

Detecting a potential terrorist attack can occur through visual detection and alert systems, including:

- CCTV cameras;
- Electronic intruder detection systems;
- Reporting of suspicious behaviour by security officers, staff, or members of the public;
- Vehicle screening and searching;
- Canine explosive trace detection;
- Screening—x-ray machines, metal detectors, explosive trace detection, and bag inspections.

Delaying a potential terrorist attack can occur through physical counter-measures and other approaches including:

- Security fences;
- Environmental barriers including water features, natural topography, and vegetation;
- Vehicle security barriers and measures to slow the speed of vehicles;
- Pedestrian and vehicle access control points;
- Trained staff interventions;
- Rapid security officer response.

Responding to a potential terrorist attack requires a timely and coordinated security response throughout a crowded place's area of control. Important elements of response include:

- Security staff who can respond quickly and possess the requisite training, competence and equipment to deal with or limit the impact of threats to the location;
- Reliable emergency communication systems throughout the location;
- Comprehensive security plans that are understood by all staff and security personnel, regularly exercised, and compatible with local emergency services plans.

Cost and Proportionality

Security measures can be resource intensive, costly and, if not correctly managed and communicated, can alienate staff and the public and significantly disrupt the day-to-day operations of a crowded place. This is why expert specialist advice is essential and why careful consideration and planning is required before implementing any protective security measures. The following principles should underpin all decision-making:

- It is not possible to protect everything, so owners and operators must **prioritise** the highest risk areas of a crowded place;
- All protective security measures should be **proportionate** to the level and type of threat;
- Security is more **cost effective** when incorporated into the design phase of a crowded place.

Reputation

The success of governments and businesses rests on building and maintaining a good professional reputation. Reputation is prone to serious and permanent damage if owners and operators of crowded places give a less than robust, responsible professional priority to protecting people against attack. Being security minded and better prepared could not only deter an attack, it reassures customers and staff that those responsible for crowded places are taking security issues seriously.

Recovery

Recovery from a terrorist attack is the process of rebuilding, restoring and rehabilitating affected individuals, communities, and physical assets. This process usually begins once an incident has been

resolved, continues until disruptions have been rectified, demands on services have returned to normal levels, and the needs of those affected have been met.

Increasing Resilience

Even the most the most robust and thorough protective security plan may not stop a terrorist attack on a crowded place from occurring or succeeding. But what well-considered and tested protective security does is reduce both the likelihood of a terrorist attack occurring and the consequences of such an attack.

Resilient crowded places can do more to prevent a terrorist attack, can reduce the damage caused by an attack, and can recover more quickly after an attack has occurred. Building a strong security culture is central to developing resilience to terrorism and other types of criminal activity.

Other elements of building an effective security culture can include:

- Ensuring that security is a permanent feature of executive decision making and agendas;
- Requiring senior management to demonstrate personal commitment to and compliance with security values and standards;
- Understanding commercial, reputational and legal risk that could result from inadequate protective security measures being in place to prevent or mitigate a terrorist attack;
- Providing staff with clear, succinct and jargon-free guidance about security standards and procedures;
- Promoting good security practice to both staff and visitors by making use of internal communication systems, posters, message boards and newsletters;
- Adopting effective and lawful staff screening processes during recruitment;
- Providing staff training in security practices;
- Exercising all staff in security scenarios;
- Self-initiated security penetration and breach testing;
- Sharing information with staff about security breaches;

Encouraging and rewarding staff for identifying and reporting security vulnerabilities

11.4 Issues and Problems

- Low levels of risk awareness and knowledge.
- Development not “risk conscious” and DRR not yet effectively integrated.
- Insufficient DRR capacity at all levels of society.
- The involvement of the private sector in DRR is as of yet negligible.
- Riverine Flood
- Food Security Problem

11.5 Policy Guidelines[47]

- Provide training and awareness courses to district, municipal and local authority personals dealing with management of hazard prone areas
- Develop public awareness materials (e.g. posters, brochures, booklets, videos).
- Update media about its role in disaster risk management process and how awareness through media can be broadcasted to local community
- Arrange and conduct need assessments of damages / losses.
- Ensure application of proper mechanism for evacuation and relocation of affected community to safer places.
- Establish Relief Camps with necessary arrangements.
- Initiate relief and rescue activities in their respective areas with the help of all stakeholders which also include provision of shelter, food, medicines etc. to the affected communities as well as to IDPs who are settled in makeshift Relief camps
- Arrange coordination meetings with health units.
- Mobilize entire health network functioning in the district for situation analysis and need assessments.
- Arrange mobile teams / Mobile Medicine Units for pre-medication of affected communities in all near and remote areas.
- Delegate responsibilities for regular inspection and maintenance of irrigation channels and drains.
- Coordinate and communicate with DDMA.
- Identify and strengthen the vulnerable points in the banks of all canals and drains running through the district.
- DRM plans and initiatives need to be based upon assessments that identify the nature and degree of vulnerability or risk (including the identification of particularly vulnerable groups), that allow prioritizing problems or geographical areas on a rational basis and that inform the design of appropriate and technically sound DRM interventions.
- DRM initiatives need to build upon existing community organizations and relevant coping mechanisms to be sustainable.
- Clearly defined division of roles and responsibilities between different layers of government.

[47] National Disaster Risk Reduction Policy 2013

11.6 Strategic Development

The aim of the policy is to advocate an approach to disaster management that focuses on reducing risks – the probability of losing one's life or health, assets and livelihoods.

i. Long Term Plan

- There is a need to have clear arrangements that allow the system to switch into emergency mode and mobilize necessary resources in a timely and effective manner.
- There is need to clarify mutual roles and responsibilities (horizontal and vertical) and coordination arrangements in an updated, multi-hazard national response plan that is based upon current legislation.
- The DSM, PPHI shall also be responsible for providing medical cover to the IDPs in the catchment area of BHUs assigned to them particularly, and will perform their due role in supplementing the overall medical cover provided by the District Health Department.
- National risk assessment would identify highly vulnerable districts and be complemented by higher resolution work at local level to diagnose the underlying causes of risk, explore concrete risk reduction options and inform development planning and prioritization exercises and/ or disaster preparedness planning.
- DRR needs to address and involve local level actors in high-risk communities to be effective and produce sustainable results.
- There is need to clarify mutual roles and responsibilities (horizontal and vertical) and coordination arrangements in an updated, multi-hazard national response plan that is based upon current legislation.

ii. Short Term Plan

Some of the objectives in this aspect includes:

- Develop coordination mechanism with PMD for ascertaining flood discharge.
- Develop mechanism for regulation of water discharge into canals, distributaries and drains before onset of monsoon season.
- Develop monitoring mechanism for inspection of embankments, weak parts of drains, IPs (inspection parts) and NIPs (Non-Inspection Parts) of all irrigation channels.
- Provide necessary medical facilities at relief camps.
- Close coordination and communication with DDMA.
- Depending on the calamity, the D.H.O will declare emergency at all medical points/health facilities.
- Detail of medical/paramedical staff at all points requiring medical health cover during any disaster.

11.7 Recommendations

- There is a need to set criteria for the identification and declaration of "disaster affected" areas. Disaster declarations may temporarily restrict individual rights (such as property rights or mobility).
- DRM strategies and initiatives need to be based upon clear assessments of disaster risks i.e. a quantitative and qualitative understanding of the underlying causes and vulnerabilities, geographical distribution of vulnerability and hazards , the probability of hazard occurrence and predicted losses.
- Vigilance of canals / drains round the clock.
- Closure of canals at the heads as soon as possible in case of any breach or heavy downpour, etc.
- Ensure smooth flow of water, plugging up of breaches, if any, in the shortest possible time.
- Prompt dewatering of stagnant water from affected and low lying areas of the district.
- The Executive Engineers, HESCO Division shall ensure uninterrupted supply of electricity particularly to municipal services such as pumping stations for draining out rain water from the low lying and slum areas. Shall make arrangements for immediate removal/repair of fallen live wires to avoid any untoward incident of electrocution
- Arrange and provide adequate stock of medicines and medical supplies including Anti-Snake Venoms (ASVs) and Anti-Rabbi Venoms (ARVs), blood plasma, Saline Water, and other medical fluids for victims.
- Arrange medical teams for providing medical cover to the IDPs settled in any relief camp.
- Fumigate the affected areas and areas at risks of spread of any of epidemic disease.
- Ensure that all ambulances are in working order and road worthy conditions.
- Ensure vacant possession of all schools buildings at the time of emergency for setting up relief camps.
- Ensure sanitation and cleanliness as well as clean drinking water facilities wherever possible at all school buildings declared as relief camps through by binding down their concerned Headmasters.

12. Climate Change Emergency Contingency Plan

12.1.1 District Level Plan

Shaheed Benazirabad District is prone to canal flooding and floods caused by heavy rainfall.

- **Broad `Contours of the Plan**
  - Early warning of approaching weather system will be provided by Pakistan Meteorological Department (PMD) and communicated to the District Disaster Management Authority (DDMA). DDMA is expected to translate weather forecast and flood warnings into usable early warning for vulnerable communities and ensure its timely dissemination to all concerned.
  - In case, there is continuous rise in major canal water level the people residing near major canals will be evacuated to safer places.
  - Threatened population will be evacuated by DDMA.
  - DDMA would be responsible for provision of search and rescue, medical and emergency responses.
  - Camps will be established at pre-selected sites by DDMA.
  - DDMA would be responsible for effective and transparent relief distribution including relief provided by Provincial Disaster Management Authority (PDMA), National Disaster Management Authority (NDMA) and other Humanitarian Agencies.
  - All stakeholders would take necessary actions to facilitate early recovery and rehabilitation of affected population.
  - In case the district falls short of meeting the humanitarian needs, PDMA will assist by making available the required stocks. In case when disaster exceeds capacities of the provincial government, NDMA will be requested to make available the additional stocks from national reserves, prepositioned across the country.
  - When required, Armed Forces may be requested for assistance by PDMA Sindh at any stage, particularly for rescue, evacuation and emergency relief phases. Thus, the DDMA will have to submit the request to PDMA for assistance of armed forces in aid of civil administration.
  - Special requirements of Aviation / Naval support by any agency will be coordinated by PDMA.
  - Resources of Government Departments and Agencies such as, Pakistan Red Crescent Society and domestic philanthropy may be requisitioned, if the intensity of the situation so entails for an effective response.

12.1.2 Early Warning

a. Pakistan Meteorological Department

- Pakistan Meteorological Department (PMD) has a broad mandate of supporting agro-based economic activities, air and maritime traffic safety, disaster mitigation efforts and disseminating weather forecast to numerous end users. PMD will ensure the following during monsoon season:
- Inform public on the weather forecast and issue warning in case of potential threat like Rainfall.
- Collect rain data on a regular basis, consolidate and share it with all concerned.
- Disseminate flood information to the NDMA/PDMA on a daily basis during flood season.
- Share weather forecasts and early warning information with NDMA, F/G/S PDMAs, and the media on a regular basis in the monsoon period.
- Coordinate with FFC, WAPDA, PCIW, FFD, and SUPARCO in the Monsoon period to generate flood warning where wanted.

I. Flood Forecasting Division (FFD)

- FFD is an affiliated organization of PMD. It disseminates flood early warning and river flow updates to relevant National, Provincial and District Governments and National Response Agencies, especially in the context of Monsoon Season.

II. Pakistan Space and Upper Atmosphere Research Commission (SUPARCO)

- SUPARCO deploys its satellite imagery capacities for disaster impact mitigation and for early warning of disaster occurrence and trends monitoring. SUPARCO will play the following role during monsoon season:
- Provide remote sensing and satellite maps before and during disasters in order to show their impact.
- Provide remote sensing and satellite maps for hazard risk zones to enable relevant agencies to take measures for minimizing damage to population and property.
- Assist post-disaster damage assessment.

III. District Disaster Management Authority (DDMA) Response

- DDMAs shall activate District Emergency Operation Centers (DEOCs)
- In the event of a disaster, organize emergency response through the District Emergency Operation Center (DEOC)
- Setup early warning mechanisms and dissemination of proper information to public, prepare district level response, plans and guidelines, establish stockpiles of relief and rescue material; provide information to PDMA on different aspects of Disaster Management.

- Inform/update PDMA regarding the overall situation.
- Organize evacuation on priority basis.
- Conduct initial and subsequent assessment of disaster affected areas and determine the extent of loss and damage.
- Collect information on damage status and promptly plan for the resources requirement for relief operation and share it with the PDMA.
- Provide food, drinking water, medical supplies and NFIs to the affected population
- Preferably, set up tent cities / relief camps on open land and provide relief to the affectees in camps.
- Coordinate with PDMAs to deploy resources for emergency response.
- Mobilize community volunteer groups and civil defense for emergency operations.
- Forward timely situation reports (SITREP) on daily basis to PDMA for its timely dissemination to concerned quarters.
- Ensure registration of all relocated population in the camps and overall affected population on gender-segregated basis.
- Prioritize vulnerable segments of society in their relief operations.
- Facilitate early return of relocated population and help in restoring their livelihoods.

*12.1.3 **Health Department***

I. <u>Pre-Disaster</u>

- Provide specific information required regarding precautions for epidemics
- Establish a health mobile team in district & town headquarter hospital
- Setup an Information Center to collect and share information amongst relevant stakeholders.
- Collaboration with relevant organizations/partner NGOs.
- Stocking of life saving drugs and vaccines.

II. <u>During Disaster</u>

- Providing emergency treatment to the affected
- Provision of First-aid & water testing kits, chloramines and anti-snake venom serum & other emergency support
- Deployment of mobile medical teams & health staff
- Collaboration with all relevant stakeholders

III. <u>Post Disaster</u>

- Establishment of medical camps, vaccination, ensuring safe food & water in camps
- Conduct impact assessment on health, intervene to stop outbreak of diseases
- Rehabilitation of health infrastructure

b. Education Department

I. Pre-Disaster

- Providing the necessary information, training to teachers & students regarding disasters with tips to save their families & themselves during disaster.
- In collaboration with Civil Defense and Boy Scouts / Girl Guides Association and gear up the volunteer's force.
- Educate students about Healthcare Precautions

II. During Disaster

- Mobilize the human resources for intervention during disaster
- Arrangement for evacuees to setup relief & temporary shelter camps
- Deployment of volunteers for camp management & emergency support

III. Post-Disaster

- Assessment of damages & needs of affected educational institutes
- Rehabilitation of affected educational institutes
- Continuing education of children at camps and helping them to recover from shock by providing toys etc.

12.1.4 Agriculture Department

I. Pre-Disaster

- Assessment of high risk prone areas and estimation of possible damage
- Create community Seed Bank at UC level
- Regular surveillance of Irrigation water supplies
- Close coordination with Meteorological Department & other stakeholders for weather information.
- Testing, functioning and pre-positioning the available machinery.

II. During Disaster

- Immediate mass awareness and update of situation
- Arrangements for relief & temporary shelter camps in canal rest houses
- Vigilance for protection of agriculture crops
- Immediate activation of machinery and equipment

III. Post-Disaster

- Assessment of damages & needs of affected crop area and submit to DDMA
- Assistance in repair & rehabilitation of Irrigation Systems.
- Timely compensation to affected farmers

- Mass awareness campaigns regarding epidemics & diseases to crops
- Inform the affected population regarding the land use and crop management on damaged/devastated areas.

12.1.5 Livestock and Fisheries Department

I. Pre-Disaster

- Estimation of possible damage
- Mass awareness regarding precautions
- Close coordination with agriculture, irrigation, meteorological department and other stakeholders.
- Vaccination of livestock.
- Stocking of fodder and vaccines.

II. During Disaster

- Update local communities of ongoing situation.
- Provide livestock vaccination
- Arrangements for relief and transportation of livestock.
- Provision of fodder for livestock in affected area.

III. Post-Disaster

- Assessment and submission of damages and need of affected livestock to DDMA
- Timely compensation to affected livestock owners
- Mass awareness campaign regarding epidemics & diseases to livestock

12.1.6 Planning and Development Department

I. Pre-Disaster

- Gathering statistical data regarding possible damages and recovery needs from all relevant departments
- Plan and identify potential resources
- Facilitation to other department in planning

II. Post-Disaster

- Gathering statistical data regarding actual damaged and recovery needs from all relevant departments
- Plan and Identify potential resources
- Facilitate other departments in planning and execution of rehabilitation in cost effective manner
- Coordinate with all line departments

12.1.7 Revenue Department

I. Pre-Disaster

- Assessment of high risk prone areas and estimation of possible damage and needs for recovery.
- Arrangement of financial resources.
- Identification of high grounds for establishment of tent cities.

II. During Disaster

- Establish relief distribution centers/camps and accept relief donation/relief support
- Timely release of funds to DDMA.

III. Post-Disaster

- Assessment of damages to industrial/business, crops and livestock and settlement of applicable taxes accordingly.
- Support DDMA in conduct of authentic damage assessment and compensation need.

12.1.8 Police Department

I. Pre-Disaster

- Information dissemination through "15 helpline service" to local residents
- Deploying and giving security cover to government agencies, which are working/preparing for the monsoon season in areas where law and order is not good.

II. During Disaster

- Providing easy access and security to rescue and relief teams.
- Maintain law and order and divert traffic on alternative safe routes as and when necessary.
- Maintaining law and order and provide security to relief stockpiles and camps.

III. Post-Disaster

- Ensure security to workers of NGOs/INGOs
- Provide security in unsafe areas
- Facilitating institutions/NGOs/INGOs, which focus on rehabilitation activities

12.1.9 Civil Defense

I. Pre-Disaster

- Information sharing regarding technical and personnel expertise with DDMA.
- Conduct training for volunteers in first aid & other activities
- Effectively train & mobilize volunteers and initiate mass awareness regarding necessary first aid rescue activities

II. During Disaster

- Deployment of volunteers at the disposal of DDMA for Rescue, Evacuation and initiated basic first aid.
- Communicate to DEOC any additional resources required for performing rescue and evacuation activities
- Taking precautionary measures to stop fire incidents in camps and perform firefighting in emergency.
- Management of relief camps where required.

III. Post-Disaster

- Identify gaps and make plan to overcome weaknesses
- Assisting District Administration and other Line Departments in Rehabilitation works

12.1.10 ***Civil Society And Private Sector Response***[48]

The response of civil society organizations and the private sector to floods should be rapid and extensive. Local NGOs, will work extensively with the Government to provide emergency relief support provisions which include ration packs, water purification kits and tablets, shelter items (including tents, blankets and mosquito nets), sanitation kits and hygiene supplies, doctors and medical supplies, mobile and basic health care units especially for women and children. A particular focus will be placed on healthcare services to avoid the spread of water- borne infections and other disease and to provide basic health care services. Media on their part will cover the event extensively and play a significant role in raising awareness and mobilizing local and international resources for the disaster. Individuals and organizations from the private sector, both from Pakistan and the global community will contribute significantly to the flood relief effort alongside the government and donor community.

12.1.11 ***Scouts***

I. Pre-Disaster

- Nominate the scouts, which can be trained to handle flood emergencies
- Training will be imparted in the scouts regarding boat handling and first response to the affected during the emergency.

II. During Disaster

- Trained scouts will be deployed/placed at the disposal of Deputy Commissioner
- The scouts will perform the duties as per training and will report to respective Deputy Commissioner

III. Post-Disaster

[48] Government of Sindh Rehabilitation Department Provincial Disaster Management Authority, 2012. Sindh Provincial Monsoon/Floods Contingency Plan, Karachi: Government of Sindh

- The trained scouts would continue to impart the training in other scouts and volunteers in the district.

12.1.12 ***Standard Operating Procedures (Sops)***

- The Deputy Commissioner shall keep close liaison with all departments like Local Government, Health, Agriculture, Civil Defense, Irrigation, Works & Services, Education & Literacy, Police & other Law Enforcement Agencies. Meetings in this regard are to be held on regular basis with concerned departments and minutes are to be shared with DDMA.
- If there is likelihood of heavy rains, flood emergency would be declared in the District and all government functionaries and NGO's would be kept on high alert.
- Control rooms would be established at District and Taluka level in the offices of the Deputy Commissioner, Assistant Commissioner, Qanoongo (Revenue) and all other line departments during the emergency. These control rooms shall function round the clock.
- The Executive Engineer Irrigation will establish round the clock control room in his/her office for making liaison with all concerned & activate contingency plan of the department. They shall identify the vulnerable points of the irrigation canals and intimate DDMA. Executive Engineer will be in touch with DDMA and the Meteorological Department and inform the concerned agencies about any development emergency. He/She will make special arrangements for watching and patrolling of vulnerable points.
- Immediate arrangements for necessary machinery, sand bags and other material to be used for strengthening of embankments of canals and plugging breach shall be ensured and availability of communication network must be made at all vulnerable points.
- The Executive Engineer Irrigation shall ensure regular, timely and proper de-silting of all canals, distributaries, drains, sub-drains and submit a certificate to his/her higher authorities with an information copy to DDMA.
- The Deputy Commissioner shall ensure activation of Central District Control Room and already established control rooms at each Qanoongo (Revenue) Offices round the clock, under the supervision of Assistant Commissioner concerned. They shall also ensure preparedness at proposed relief camps and ensure immediate evacuation of people residing in low-lying areas to safer place / relief camps, if required. He/She shall also make immediate arrangements for the availability of sufficient quantity of relief material like food, blankets, tents, plastic sheets etc.
- The Deputy Commissioner shall constitute Supervisory Committee for relief works at district level.
- The Deputy Commissioner must further ensure that special attention is given to disabled people, women and children and extra ordinary measures are taken for such purpose.

- The Deputy Commissioner shall nominate the Assistant Commissioner as focal person to coordinate with the Taluka and Town level local council for drainage of accumulated rainwater.
- The Assistant Commissioner shall be focal person in Taluka for the entire operations of rescue and relief. He/She must ensure the respective arrangements for tractor trolleys and labor in coordination with Civil Defence, Boy Scouts Association and Police Department if needed and mobilize the village staff in the pre-and-post emergency work. He/She shall also ensure proper distribution of relief material among the actual needy persons.
- The Executive Engineer Irrigation Department shall ensure availability of bulldozers, excavators and earthmoving machines in sufficient quantity and in proper working condition in case of emergency.
- The Director Agriculture shall arrange for protection of standing crops from damages and diseases that may be caused from the stagnant rainwater in the fields. He/She shall manage required machinery from mechanical wing and must have the inventory of such machinery and equipment.
- The Deputy District Officer Livestock and his/her staff shall ensure safety of livestock from flood diseases and losses and Veterinary Officer shall ensure regular and timely vaccination of cattle in the district. They shall make all necessary arrangements for fodder for the livestock to be shifted from marooned areas.
- The Deputy Controller, Civil Defense should ensure the enrolment of volunteers as early as possible in order to avoid any chaotic situation during emergency. He/She will continuously remain updated of weather forecast reports and with meteorological departments and will arrange for warnings in emergency through sirens, loudspeakers and media at Taluka and town level. He/She shall ensure presence of the volunteers and scouts for rain relief and rescue activities in case of any emergency.
- The Deputy Director Food shall ensure availability of sufficient stock of wheat and other grains and shall coordinate with Deputy Commissioner for supply of food grains from local food grain dealers in case of need. He/She will also ensure that no stocks of government wheat, placed at depots, are damaged due to water accumulation, fire or rioting.
- The Divisional Engineer Telephone should ensure full function ability of telephones all over the district and provide assistance to all departments on demand at the time of need.
- Continuous supply of gas and proper safety of gas lines in the district must be ensured. Immediate repair work should be performed in case of any damage to the gas lines.
- The Deputy Commissioner shall ensure mobilization of the NGO's and business community in the rescue and relief activities in case of emergency and shall depute volunteers on different emergency tasks.
- The Regional Director Information shall keep close liaison with all control rooms of the district to provide correct and exact information to media regarding emergency. He/She shall also arrange briefings about the latest situation in case of emergency.

- The Red Crescent Society and other welfare associations and NGO's of the district shall provide food packets and other required material to the affected persons in relief camps in case of emergency.
- Proper arrangement for lifting of trees fallen due to heavy rain and gusty winds from the main roads shall be made by the Executive Engineer Provincial Highways department.
- The in charge Utility Store Corporation shall ensure the availability of sufficient stock of edible items in case of need.
- The Revenue Department shall also conduct the survey of any loss of life, houses, cattle, standing crops and other infrastructure after the disaster. In the event of the highest degree of emergency, Pakistan Army may be requested to help the district administration in rescue and relief operations.

12.1.13 Implementation and Monitoring

I. Indicators

- **Quantitative Indicators**

OECD (2002) defines an indicator as a ''quantitative or qualitative factor or variable that provides a simple and reliable means to measure achievement, to reflect the changes connected to an intervention, or to help assess the performance of a development actor.'' Quantitative indicators are numerical representations of complex phenomenon. Quantitative indicators can be useful in determining the level of achievement at all stages of a resilience project and can even be used to measure the strength of resilience characteristics, though this is better attained by using qualitative indicators[49].

- **Qualitative Indicators**

Qualitative indicators evaluate the quality of a plan using subjective data (relying on people instead of instruments). Many qualitative indicators use a 1-5 scoring system, however, this is not the only way; Sovacool (2012) points out that indicators could ''rely on a simple scoring technique of 'positive,' 'negative,' or 'neutral,' as in a given metric can worsen, improve, or stay the same over time.'

[49] Brown, C., Shaker, R. R. & Das, R., 2018. A review of approaches for monitoring and evaluation of urban climate resilience initiatives. Environment, Development and Sustainability, 20(1), pp. 23-40

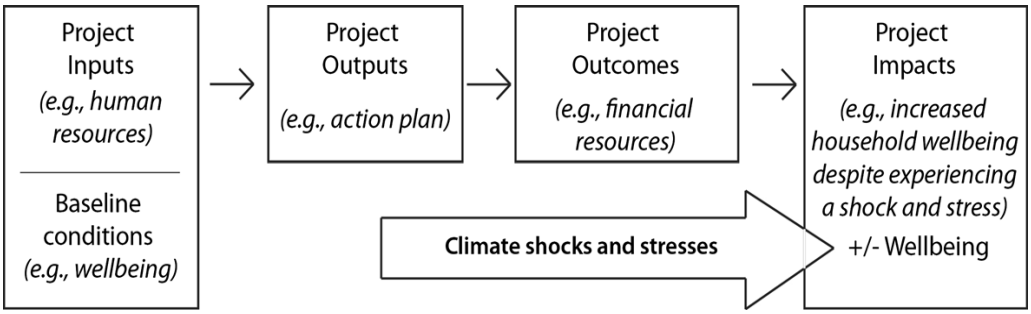


Figure 12:1: Four phases of a resilience initiative, and the timing of baseline and post-shock measurements of wellbeing (Brown, et al., 2018)

These qualitative values can be used to create baselines and/or to indicate that a particular resilience impact/outcome has been achieved. The challenge with a qualitative indicator that uses a scale from 1-5 is that the scale should be created based on criteria that is fair and well informed.

- **Process Indicators**

  There are many processes that underlie resilience planning and action, and process indicators outline the extent to which these processes have been undertaken. Moser and Boykoff (2013) write that given the challenges (e.g., attribution) in adaptation and resilience measurement, ‘‘tracking and evaluating the adaptation process—with all of its individual components (e.g., assessment, planning, stakeholder engagement, decision-making, implementation, institutionalization, monitoring, and social learning)—becomes at least as important as the questions of success in outcomes’’.

  An example of a process indicator is the level of participatory involvement in resilience decision making. If one’s definition of resilience encompasses participatory involvement, then the extent to which this has been applied can be used as a process indicator. This can be assessed qualitatively (on a scale of 1-5) or quantitatively (number of stakeholder types represented).

- **Impact Indicators**

  Determining the impact of resilience initiatives is a bit difficult, as these impacts are often difficult to interpret or understand and can often not be measured until after a disaster, or at least until the slower onset effects of climate change have started to occur (e.g. sea level rise). One approach could be to assess the process and outcome indicators and inferring from the results that climate change resilience has been reasonably ensured.

Wellbeing and financial losses after a disaster are the two most important climate resilience indicators that can help to assess the success of climate change resilience initiatives. By evaluating these indicators, evaluators can gain an insight to the effect of climate change resilience initiatives on the community. By assessing these two indicators, a city can determine whether it has the adaptive capacity to remain resilient in the face of shocks and stresses resulting from climate change.

- **Identified Indicators**[50]

Collection of Data to Perform Vulnerability Assessments to Floods

- Number of exposure and socio-economic datasets on current exposure to floods at district level.
- Geographic coverage of all datasets (% of all exposed areas).
- Number of reports detailing data collection and summarizing information.
- Number of policy and technical documents based on datasets and modeling scenarios.

Building Technical Capacity to Generate Vulnerability Assessments to Floods

- Number of technical staff trained to acquire competence in computer modelling techniques and able to perform Vulnerability Analysis (VA).
- Average staff performance on end-of-training comprehension tests.
- Proportion of ministries using datasets to generate vulnerability analysis or proportion of sectors covered by analysis at district level.
- Number of policy and technical documents incorporating results from VA's.
- Proportion of government investment/program documents using results from VA's as a priority-setting or screening tool.

Institutional Framework and Mechanisms to Support Adaptation and Adaptive Capacity

- Number of laws and regulations created or amended to clarify land and carbon property rights.
- Existence of a dispute resolution mechanism.
- Number of materials (presentations, briefs, papers) developed for legal literacy programs.
- Number of people participating in legal literacy programs.
- Number of individuals and community groups participating in Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (REDD+) financed projects.
- Average number of days and money spent in REDD+ project preparation.
- Total value of REDD+ projects and value per participant.

[50] McCarthy, N., winters, P., Linares, A. M. & Essam, T., 2012. Indicators to Assess the Effectiveness of Climate Change Projects, Washington DC: The Inter-American Development Bank

- Percentage reduction in production variability from forest-based activities and/or farm production at the forest margins.
- Number of early warning and health hazards dissemination outlets, by type of outlet (e.g. radio, newspaper, and website), geographic coverage, and level of disaggregation of system information (e.g. district-specific).
- Percentage languages used in dissemination materials of total number of languages spoken in district.
- Number of extension materials containing climate change-relevant materials.
- Percentage change in government budget allocations towards climate change information dissemination.
- Percentage reduction in property damage.
- Percentage reduction in mortality and in disease prevalence for diseases related to weather patterns (e.g. malaria, dengue).

Investment in Projects that Directly Support Adaptation and Improve Adaptive Capacity

- Percentage increase in the number of seed varieties developed, documented and made available in the market.
- Documentation of seed varieties and their characteristics.
- Documentation of procedures and partnerships created to transfer seeds either directly to farmers or to market traders.
- Percentage increase in number of seed varieties available in rural markets.
- Number of climate resistant seed varieties available in the market and percentage increase in use of climate resilient seed varieties.
- Percentage crop yield improvement in years of climate extremes.
- Percentage greater performance in average crop yields.
- Percentage decrease in proportion of rural and urban populations malnourished.
- Number of energy facilities built or retrofitted to withstand greater range of climate shocks.
- Percentage of total capacity built or retrofitted by type of facility and by “threat” level identified in vulnerability analysis.
- Percentage decrease in monetary damages to energy facilities due to climate extremes (adjusted for degree, or extent, of climate shock).
- Percentage decrease in customers losing access to energy due to climate shock-induced power failures.

12.2 Responsibility of Plan Implementation

Table 12-1: Authorities Responsible for Implementation		
S#	**Department**	**Designation**
1	**Administration**	District Commissioner
		Assistant District Commissioner-I
		Assistant District Commissioner-II
2	**Irrigation**	District Irrigation Officer
3	**Agriculture**	District Agriculture Officer
4	**Health**	District Health Officer
5	**Education**	District Education Officer
6	**Social Welfare**	District Officer
7	**Livestock**	District Officer

Monitoring and Evaluation[51]

There are three ways to monitor and evaluate climate change adaptation and resilience:

- Measuring against project objectives
- Measuring against baselines
- Measuring against emerging understanding of good adaptation measures

a) Measuring against Baselines

Baseline comparisons can be used to monitor and evaluate the effectiveness of climate resilience initiatives. During this process, an initial measurement is taken (e.g., number of civic organization per 10,000 people). This measurement is then taken at different stages of the project to measure the effectiveness of strategies used to improve that particular indicator. This approach could be applied to resilience characteristics (e.g. flexibility). In order to do this, a more qualitative assessment (subjective scoring from 1 to 5) could be employed to create a baseline value.

b) Measuring against Definitions

Relatively straightforward definitions exist for climate adaptation, but in the context of resilience – with its emphasis on system level interaction and inherent qualities – this approach can prove to be much more difficult. How you define resilience is a key determinant in how the monitoring and evaluation approach will be adopted. For example, if resilience is defined as a decrease in post-

[51] Brown, C., Shaker, R. R. & Das, R., 2018. A review of approaches for monitoring and evaluation of urban climate resilience initiatives. Environment, Development and Sustainability, 20(1), pp. 23-40

disaster recovery time, specific indicators will be evaluated which would not be useful when concerned with the resilience characteristics with cities.

c) Measuring against Project Objectives

As mentioned above, the objectives of a resilience program differ depending on the way resilience is defined and also at which phase of the project the assessment is being made. Alexander et al. (2016) define process as the ''inputs, throughput and outputs of the decision-making process,'' outcomes as ''the implementation of the outputs from the decision-making process'' and impact as ''the resulting effect of the decision-making process and outcome''. Similarly, Spearman and McGray (2011) use the following sequence: inputs, initiatives, outputs, outcomes, and impacts. Monitoring and evaluation can take place at each of these temporal locations (i.e., process, outcome, impact). Many people also advocate that monitoring and evaluation be carried out throughout the duration of the project rather than just at the beginning and the end of the project.

d) Key Principles of Monitoring, Evaluation and Reporting System[52]

i. Use of Mixed Methods

The monitoring and reporting system combines quantitative and qualitative methods to collect and analyze data, and generate knowledge and lessons in implementing the plan.

ii. Ownership

District focal points for each sector (mentioned in the table above) are responsible for collecting, aggregating and submitting their reports annually to the District Administrative Unit.

iii. Stakeholder Engagement

Empowering stakeholders and ensuring their active contribution to the monitoring and reporting process is a key feature of the monitoring and evaluation system. The monitoring and reporting system is rooted in the desire to maintain a programmatic approach in the implementation of the investment plans through projects and programs. It aims to engage the stakeholder groups, including government institutions at national, sub-national and local levels, as well as civil society, local communities and the private sector, in discussing progress with the implementation of the monitoring plan. The monitoring and reporting process will also be used to share lessons learned and discuss the challenges encountered with a view to identify feasible solutions.

iv. Learning by Doing

Monitoring and reporting is an iterative learning process. It is expected that the quality of monitoring will improve over time as the authorities gain experience.

[52] Williams, A., 2016. Options for Results Monitoring and Evaluation for Resilience-Building Operations, Washington DC: World Bank Group

13. URBAN LAND MANAGEMENT

13.1 Introduction

Urban areas throughout the developing world are experiencing a problem in the supply of adequate and affordable serviced land to meet the housing needs of their rapidly expanding urban populations. As a result, low income groups who are mostly denied access to land due to shortfall in supply are forced to either seek for residential land through illegal means or to crowd into existing low income settlements, creating slum conditions. In Sindh, the shortfall in land supply arises not from the lack of virgin land but partly from the lack of resources, capacity to service the lands and land ownership by landlords and make them ripe for development and also partly from the use of ineffective and inappropriate land and landuse policies and practices.

"Land management" is defined as an activity on the ground, using appropriate technologies in the respective land use systems. It is known by different names in different parts of the world; basically all are land management tools. In Pakistan land management is not being practiced till yet because of non-absence of policies / framework. Strong land owner opposition to forcible land acquisition, combined with extremely limited fiscal capacity has left the urban local bodies (ULBs) with very few options to develop well-planned and serviced urban land. Land pooling and reconstitution (LPR) is a tool that addresses both these issues by allowing the land owners to share the gain in the land value post provision of infrastructure and services. In lieu, the land owners pay betterment charges and contribute a part of their land to fund the infrastructure and services.

13.2 Goals

As most of towns in Sindh strive to become centers of global production, trade and development, they are increasingly concerned with improving their attractiveness for foreign direct investment and employment generation. For example, towns must have efficient spatial structures, adequate infrastructure and urban services, affordable housing and healthy environments. Effective urban land management is required to promote urban regeneration and development of new industrial and commercial districts, investments to upgrade and expand critical infrastructure systems, programs to enhance and protect the environment, and initiatives to upgrade social overhead capital (housing, education, healthcare).

13.3 Objectives

To implement these initiatives for Nawabshah, there is a need to develop urban land management strategies to provide land for industrial and commercial development, to facilitate the formation of public-private partnerships, and to finance the provision of infrastructure and social overhead capital investments. Unfortunately, in many cities around the world such strategies do not exist and foreign investment is either stifled or, if it does take place, causes significant adverse side effects.

Cities and towns are crucial to the economic well-being of Sindh. For this, it is imperative that its cities and towns are transformed and pressures of new growth are dealt with so that they are more liveable, efficient, and environmentally sustainable. Only then will the rapid pace of economic growth that Sindh is undergoing be sustained and the targets of environmental sustainability achieved. To manage the transformation of Sindh's cities and towns and effectively manage new growth requires effective urban planning protocols, processes, and institutions underpinned by effective legislation. To effectively manage the new growth implies that the agricultural land at the periphery of the cities and towns or smaller settlements that are not yet "urban" is transformed to be made suitable for urban or non-agricultural uses. This essentially means that the irregular landholdings and plots will have to be given regular shapes; they must be ordered; each plot must be given access; infrastructure services such as water supply and drainage must be provided; land must be appropriated for providing roads, parks, social amenities, and low-income housing, development controls must be prescribed to result in a good quality-built form and levy development or betterment charges to offset the cost of developing the physical and social infrastructure. But most importantly, all of this must happen in a timely and such manner that it is acceptable to the "landowners" to avoid conflict in the growth management process.

13.4 Urban Land Management in Nawabshah

Due to absence of provincial policy / framework for utilizing Urban Land especially in District headquarter towns, planners / development authorities have not carefully assessed the land use and transportation impacts of foreign investment. Due to non-existence / less effectiveness of Development authority mechanism, schemes / projects in private sector faces low exposure due to non-availability of basic facilities and monitoring mechanism by approval authority. As a result traffic congestion and infrastructure problems with the water supply and sewerage treatment are mounting.

Getting access to land for factories and commercial facilities is problematic, particularly in agricultural rich fertile land. Decades of inefficient allocation of land for industrial uses have literally blighted / dis-courage agricultural activities in the region. Unfortunately, a lack of clarity over land rights, corruption and bureaucratic inertia are impeding redevelopment. To compound matters, land use plans in many transition economy towns have not been planner to reflect the new land use requirements necessary to support post-industrial development.

To effectively exploit the benefits of inward investment flows and to ensure that social and environmental goals are met, the public sector needs to take the lead in planning and formulating urban land management strategies to promote sustainable urban economic development.

13.5 Land Pooling and Reconstitution

Simply put, in LPR, a number of small holdings are pooled together, a part of land is taken from each plot for provision of infrastructure and public facilities and the rest returned to the original land owners. It is basically a land management tool and is used all over the world under different names with slight modifications in their working.

13.5.1 Land Management Techniques

The strategies available for access to urban land could be through Guided land development for large areas; Land pooling and reconstitution; Land reconstitution / redevelopment; Acquisition for public purpose under the Land Acquisition Act, 1894; Joint Sector Model of land assembly and development; Transferable Development Rights (for built up areas); Saleable FAR and mixed use concept (for regeneration of inner city); Land Pooling and Redistribution Scheme.

A. Land Acquisition Act, 1984

In Pakistan, the Land Acquisition Act, 1894 gives the right for Government authorities to acquire parcels of land for the implementation of development projects. The origin of the practice of land acquisition by public entities in Subcontinent goes back to 1824, when the British Government of India instituted regulations to facilitate urban land public acquisition from private owners. In fact, the obligation for owners to give up their land had to find a legitimate justification. The initial reason advanced to acquiring the land against their will was the need for constructing public buildings in Bengal provinces. These regulations enabled the British government to take possession of the land for the construction of roads and canals. From 1850 on, the scope of these laws was extended to other provinces in order to facilitate the operation of further infrastructure projects such as railways.

The Land Acquisition Act was edited in 1894. It harmonized and consolidated previous regulations into one single act, applicable within the whole British India. After Pakistan's independence in 1947, the Pakistan Government started using this act as a tool to purchase land at a lower price than that on the regular market, as it was meant to be used in the public interest. Several amendments have been made on this act, but its procedures have not changed.

B. Land readjustment / pooling

Land readjustment / pooling Land re-adjustment is a process whereby a public authority assembles numerous small parcels of raw land without paying compensation to the owners. The authority then sub-divides such assembled lands for urban use returning most of the building sites to the original owners in proportion to the value of their land contribution and permitting them the right of alienating such sites. The authority retains a portion of the assembled lands, applying them partly to provide civic amenities such as roads, parks and gardens or schools, and the remainder land for public sale to recover the cost of development. Thus, land re-adjustment acts as tool to achieve unified control over large areas of land and as an instrument of financing public service installations in the process of planned urban growth.

C. Guided Urban Development

The concept of Guided Urban Development (GUD) emerged in response to ad hoc, uncontrolled urban development with no regard to infrastructure services. It also aims to secure a limited availability of urban land for economically weaker sections. GUD has been practicing in India and developing world. The objectives of the scheme are as follows:

- Ensure provision of serviced plots for low income families at affordable prices (approximately 75% of total plots to be reserved for EWS / LIG); and
- Provide incentives to the land owner / private developer to participate in the provision of low income shelter by guaranteeing fair return on investments (profit of 20-30%).

D. City Survey

City survey is very important to manage land records for city. City survey will help to resolve present hassle in property transactions besides impeding planning & development. It will also help to resolve several issues i.e. Verification of ownership & Land grabbing issues respectively. Therefore it is suggested to conduct city survey & deal as separate project for Shaheed Benazirabad.

13.6 SWOT Analysis and Need Assessment

Strength	Weakness	Weakness	Threats
GOVERNANCE			
Planning Actors			
1. Politicians 2. Existence of Local government 3. Public Health Engineering Department	1. Lack of co-ordination among departments. 2. Weak technical support of government departments. 3. Weak financial base of departments. 4. Absence of development authority. 5. Shortage of technical staff, town planners, urban designer and policy makers at SMC, Regional Office of SBCA) 6. Overlapping of administrative functions 7. Need based ad-hoc planning system (day-to-day basis)	1. Strengthen the institutions, responsible for planning and execution 2. Immediate preparation of overall urban development strategy 3. Detailed land use zoning plan 4. Sectoral development plans 5. Detailed subject plans to regulate with density development. 6. Enhancing the role of local government on sustainable basis.	1. Inaccurate funding in development projects. 2. Wastage of local resources 3. Infrastructure development of poor quality, non-standard infrastructure. 4. Failure to provide technical support on issues required innovation. 5. May give birth to unwilling political interference and hidden interests based on nepotism and discrimination.
Coordination of Public Agencies / Department			
1. Town Committee / Taluka Municipal Administration 2. Politicians in charge 3. Participation of Sindh Building Control Authority (SBCA)	1. Weak co-ordination mechanism. 2. Lack of information sharing between line departments.	1. Preparation of local co-ordination standard procedures through policy frameworks. 2. Organizing events to make strong coordination between different departments.	1. Week coordination may give birth to poor governance. 2. Political interference

Strength	Weakness	Weakness	Threats
Local Council			
1. Availability of Town Committee.	1. Not actively pursuing the stated objectives.	1. With awareness and training of councilors the local councils can be more effective. 2. Workshops and meetings can enhance the coordination as well as clear the vision about development perspectives.	1. Confusion and chaos in the local development affairs at present until local bodies are established.
Financial Resources			
1. Institution and system are in place. 2. Regular provincial grants available for development project. 3. Programme based medium-term donors funding.	1. The council does not affectively generate funds. 2. Less efforts offer by local councils for revenue generation through available local resources. 3. High dependency on provincial grant. 4. Lacking capacity in collection and financial management. 5. Very low capacity for capital investment in development projects.	1. Self-sustainable financial system needs to be effectively introduced. 2. Development of self-reliance and suitable financial model. 3. Resource generation through PPP. 4. Exploitation of local potentials for resource generation. 5. To curb mismanagement and corruption.	1. Poor maintenance of infrastructure relating utility services. 2. Political pressure and financial leakages. 3. Lacking M&E and implementation of strict accountability measures during audits.

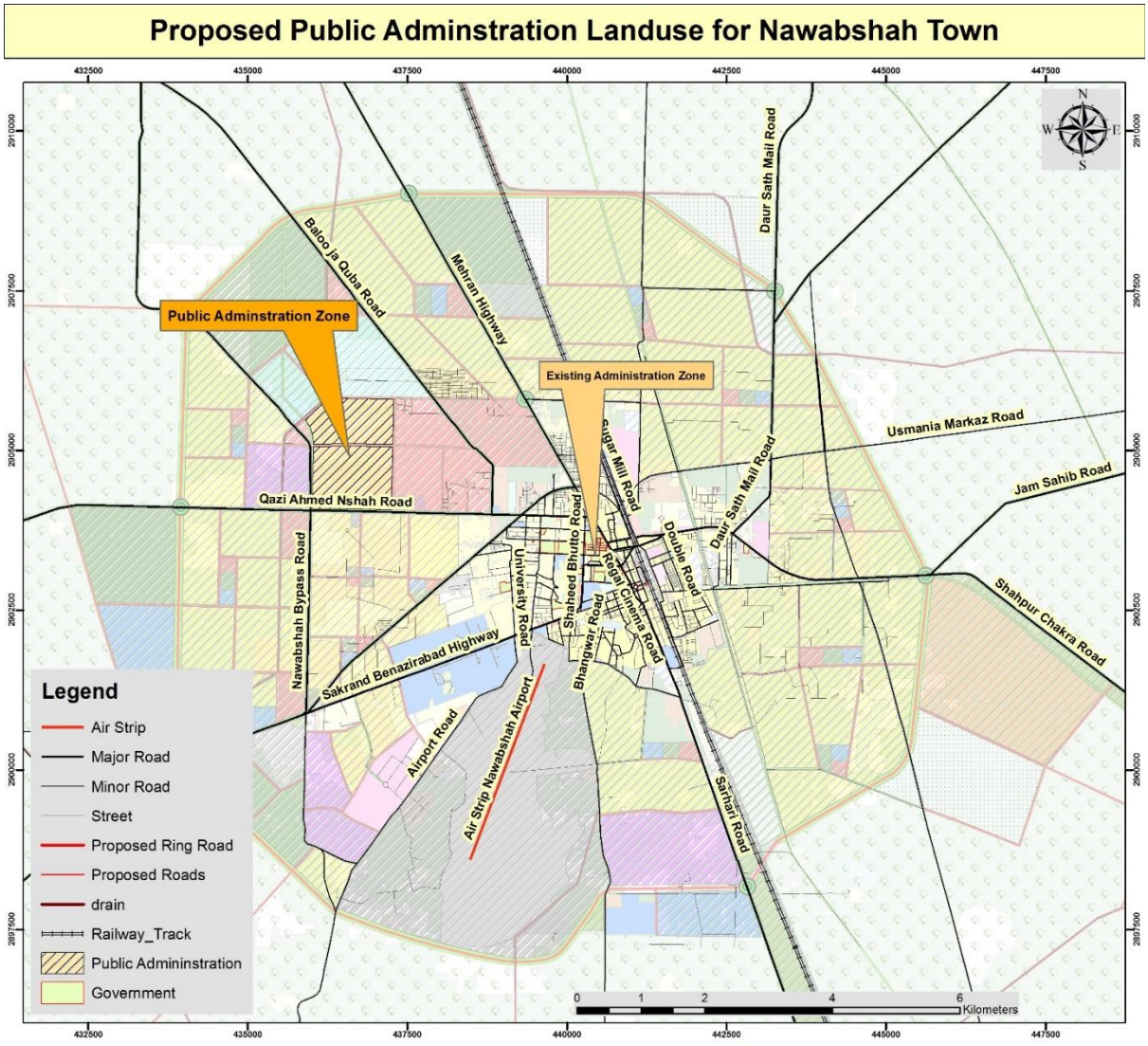


Figure 13-1: Future Administrative Proposal of Nawabshah

14. IMPLEMENTATION STRATEGY

This part of the report aims to provide an implementation framework for various development proposals recommended in 'Strategic Development Plan' to drive future growth of Nawabshah DHQ town up to 2037, under the present governance framework of Government of Sindh.

14.1 Process of Implementation

The implementation of development plan is basically the process of prioritizing, phasing, coordinating, budgeting, scheduling, monitoring and making adjustments. There are number of management systems and charting procedures available to help a city manager to control this process. Issues that must be addressed in this regard are:

- Determine priorities within and among the sub plans
- Determine the phasing or sequence of activities among the sub plans.
- Address timeframes and budget availability
- Creating master schedule of activities with a progressive cost table so that the program can be appropriately expanded or contracted to meet implementation contingencies and budget fluctuations.
- Assign the various activities to be undertaken by qualified managers.
- Establish a timely monitoring and report system to keep the city officials and the public informed of progress and activities.

14.2 Implementation Agency

The office of the Deputy Commissioner and in case of Local Bodies/Local Government, the Chairman of district council and Mayor of metropolitan city will be the key implementation agency to execute Strategic Development Plan Nawabshah 2037.

The Government of Sindh would take responsibility of implementing various development proposals by utilizing its maximum resources and by engaging various public offices of government of Sindh, established in Nawabshah. The concerned agency must ensure that the overall process must go after following themes of implementation process.

a) ***The overreaching theme of the implementation of Strategic Development Plan Nawabshah is:***

- Consultation with stakeholders during implementation at all levels.
- Decentralize decision making to the greatest extent possible.
- Promote transparency and accountability of decision making and implementation enforcement.
- Rationalize impacts where necessary;

- Ensure compensation to affected communities
- Enhance the quality of infrastructure provisions, promote utility services opportunities, and focus facilitating poor segments of society.

b) ***The principals that implementation process will follow:***

- The overall implementation process to be carried out in coordination with Town Planning and Urban Development Standards (Frameworks) in which redevelopment will be phased to prioritization;
- The implementation process will be based on updated planning codes and regulations;
- Special consideration will be paid to implement planning standards relating to disaster (Drought) preparedness in all development proposals/projects;
- Facilitate communities, government machinery, and other organizations of community to participate in overall implementation process;
- Educate stakeholders for technical assistance;
- Be comprehensive, coherent, and coordinate to avoid errors through continuous monitoring and evaluation
- Arrange supple of financial resources

14.3 Legal Frameworks

Local governance agencies dealing with any development proposal must ensure that all development related activities and their approval consent should be carried out in accordance with urban planning statutory frameworks of government of Pakistan operational at all government level levels. This includes all legal frameworks substantiated through the relevant articles of constitution of Pakistan and the primary act (LAA 1984) governing land acquisition and compensation.

a) ***National Level Policy Frameworks***

The constitution of the Islamic Republic of Pakistan passed on the 10th April 1973 and as modified thereafter, is the supreme law of Pakistan Government. This constitution provides legal cover to all laws and acts, particularly those embedded in chapter-3 pertaining with land acquisition, development and compensation.

b) ***State level Statutory Frameworks pertaining to planning and development Control***

On 14th Feb 2011, the government of Sindh notified the extension of the jurisdiction of Karachi Building Control Authority to the whole of Sindh. The five Regions of Sindh Building Control Authority notified by the Government of Sindh are: **Karachi, Hyderabad, Mirpurkhas, Sukkur & Larkana,** having the Head Quarter **Karachi. Thus, any development activity within juridical boundary of these districts must be carried out in accordance with the primary planning instrument ' *Sindh Town Planning and Building Control Regulation*'.**

c) ***Local Planning Instruments***

There is variety of regulations dealing with municipal services offences and penalties (Fines) in case of violation have been constituted in Schedule-VI (Section 139) 'Offences under the Act' Part-1 of Local Government Act-2013 (Third Amendment 2016) of Sindh Government.

In this regulation, various well defined public activity management and control regulations dealing with Public Health Safety, Land use Planning, Development Control, Encroachments, preparedness of safety measures from Natural & manmade disaster, quality of Drinking water, Solid Waste & Waste Water generating though multiple activities, Preservation of Heritage Sites, Open Space management and associated penalties, in case of violation, have been defined in detail.

d) ***Other relevant planning and design standard instruments***

There are varieties of other documents that support assessment of development proposals prior to implementation. e.g. 'National Reference Manual' - Ministry of Housing and works, Environment and Public Affair Division, etc.

If regularization requirements of any of development proposal is beyond the capacity of regularity frameworks mentioned above, the concerned agency dealing with development/implementation process in Nawabshah may develop their own regulatory frameworks/ building codec's to regularize the status of development with consent of local/provincial government authorities, if necessary.

14.4 Institutional Enhancement

While implementing the Strategic Development Plan "SDP', the respective Provincial and District Government may seek technical assistance from all the line department i.e. DUP&SP, Local Development Authority, Municipal Corporation, secretariat of Commissioner and Deputy Commissioner.

The "*Project Implementation and Management Unit"* will mainly consist of urban planners supported by other technical staff; architects, project managers, engineers, finance officers and any other technical staff expert in their relevant fields.

The "*Project Implementation and Management Unit"* shall supervise and coordinate respective urban developers involved in development activities, conduct monitory audits, preparer evaluation and impact reports and will report to the head of respective governance agency.

Development authorities will be responsible for implementing new approved town planning and building codes with the assistance of office of head of respective governance agency. The office of district coordinator will be responsible for the overall coordination and monitoring and will provide support for development/redevelopment activity from federal to district level.

The district Urban Management Unit would also facilitate the office of district coordinator/ deputy commission for all development/ implementation related (a) needs identification (b) revision of annual plans (c) coordination (d) financial management and (e) monitoring of all development activities assigned to developers or government departments.

14.5 Implementation Schedule

Strategy:	**Programs/ Policies**
Balanced Urban Growth	**1. <u>Land Use Zoning</u>** The recently developed Nawabshah- Qazi Ahmed Road and Nawabshah-Sakrand Road are hub of Low Density Sprawl and catering major population to act as pull for inward growth of population. Nawabshah town expand from 2004 to 2017 in between two major roads, Sakrand road and shahpur chakar road along two major housing societies like Quaid-e-awam colony on Shaheed Bhutto road and airport road. **2. <u>Development Control</u>** High prices of houses and developed land The informal housing sector lacks provision of utility services like gas supply, clean water and drainage facilities. Required Amendment in Zoning Bye laws Restrict the provision of utility services for approved planned areas Nawabshah development isn't in particular form due to absence of development authority. The infrastructure in town is continuously under pressure due to un-planned development. **3. <u>Transportation</u>** The district is well-connected with other districts through good quality roads Contribution in positive regional and local economic development **<u>Roads</u>**

	Need Dualization & Rehabilitation of Existing Roads.
Responsibilities to Plan: Detailed Urban Design Strategy Development Assessment Impact of property Assessment Environmental Impact Study (EIA,IEE)	**Implementation Responsibilities:** Public Sector/ Private developers
Concerned Agencies: P & D Department Government of Sindh/ District Government/ Line Departments of local Government /Private Developers	**Time of Implementation:** Short Term (1 year to 5 Years) Long Term (5 years to 20 Years)

Strategy: **Future Transport Sector Development & Improvement**	**Programs/ Policies** **<u>(A)Traffic Management Program</u>** • Parking restrictions / Charged parking system • Control traffic movement specially cargo Qingqis and Pick-ups • Manage unidirectional traffic flow. • Enforcement of traffic rules • Improved road infrastructure and street furniture • Implementation of traffic bylaws **<u>(C) Congestion Reduction in Core Urban /CBD Area</u>** • Designated stands for qingqi / rickshaws • Specified spaces for charged parking system • Alternate route for loading and unloading vehicles • Unidirectional traffic flow pattern • Removal of encroachments from major distributors • Development of infrastructure for pedestrian movement in old precinct.
Responsibilities to Plan • Enforcement of encroachment and road space improvement byelaws • Traffic corridors detailed study	**Implementation Responsibilities** International Development and Fund Supporting Agencies/Public Sector/ Private developers

• Encroachment Removal & Relocation Study • On Street & Off Street Parking Feasibility Study • Beautification plan	
Concerned Agencies Provincial Works & Services Department Government of Sindh./ District Highways Department/ Local Municipal Government/District Government/ Private Developers Line Departments of local Government.	**Time of Implementation** Short Term (1 year to 5 Years) Long Term (5 years to 20 Years)
Strategy: **Water Supply System Improvement**	**Programs/ Policies** • In the long term, piped water supply system for 100% population by 2037 • Installation of localize network in the planned housing schemes first and gradually cover the whole population in five year plans. • Reuse of treated effluent • Implementation of Tariff System for utilities through Water Metering (first for water usage above marginal consumption then in long run for all users). • Construction / Rehabilitation Of Water Supply Network • Improvement of Water Intake Works
Responsibilities to Plan • Need Assessment/Demand & Supply Study • Separate Master Plan for water supply and infrastructure development plan	**Implementation Responsibilities** Public Sector/ Private developers
Concerned Agencies Provincial / Local Government/ Public Health Engineering Department	**Time of Implementation** Short Term (1 year to 5 Years) Long Term (above 5 years)

Strategy: **Drainage & Sewerage System Improvement**	**Programs/ Policies** • Improvement and reconstruction of existing Combined system of sewerage and drainage (Phase-wise approach of replacing open drains with covered sewers of PE pipes). • Provision of wastewater treatment plant.
Responsibilities to Plan • Need Assessment/Demand & Supply Study • New Master Plan for Drainage & Sewerage services improvement.	**Implementation Responsibilities** Public sector / Private developers
Concerned Agencies Provincial / Local Government/ Public Health Engineering Department Municipality (MC)	**Time of Implementation** Short Term (1 year to 5 Years)

Strategy: **Solid Waste Disposal System Improvement**	**Programs/ Policies** • Immediate designation of walled Landfill *Site* with special attention for hospital waste disposal. • Collection and disposal of solid waste through specialized waste management companies.
Responsibilities to Plan • Disposal Generation Assessment Study • New Master Plan for Solid Waste Disposal System improvement.	**Implementation Responsibilities** Public / Private Sector
Concerned Agencies Provincial / Local Government/ Public Health Engineering Department Municipality (MC)/ Sindh Solid Waste Management Company SSWMB	**Time of Implementation** Short Term (1 year to 5 Years)

Strategy: **Improving Efficiency of Municipal Committee's (MC)** • Municipal Committee	**Programs/ Policies** • Acquire the required additional sanitary workers as per requirement. • Make Municipal Committee self sufficient • Strengthening Municipal Committee's Financial Capacity • In long term introduce 4R Solid Waste Management System (reduce-reuse-recycle-reject)
Responsibilities to Plan • Municipal Committee's Progress Assessment Study	**Implementation Responsibilities** Public / Private Sector
Concerned Agencies Provincial / Local Government/ Public Health Engineering Department Municipal Committee (MC)	**Time of Implementation** Short Term (1 year to 5 Years)

Strategy: **Improving Fire Fighting Capacity**	**Programs/ Policies** • Establishment of fire-stations to accommodate required number of fire vehicles. • Establish sub-stations at different locations to ensure short response time for the whole city. • Increase service efficiency through number of vehicles, dedicated staff and financial mechanism. • To ensure readiness of all vehicles with ample stocks of POL and spares.
Responsibilities to Plan Assessment on Municipality's firefighting potential	**Implementation Responsibilities** Public Sector
Concerned Agencies Nawabshah Municipal Committee.	**Time of Implementation** Short Term (1 year to 5 Years)

Strategy: **Energy (Gas, Electric Power, Energy Generation through Alternate Resources)**	**Programs/ Policies** • Development of alternative energy resources such as wind, solar and bio-gas etc. • To Improve existing infrastructure of WAPDA • Solar street lights project • Energy generation through solar panel system for residential and commercial purpose. • Installation of Gas Network for entire DHQ Town.
Responsibilities to Plan • Demand and Assessment of various energy resources. • Feasibility study for solar Park • Rehabilitation of solarized street lights.	**Implementation Responsibilities** Public/ Public Private Partnerships
Concerned Agencies • SSGC-Sui Southern Gas Company • WAPDA • Developers	**Time of Implementation** Short Term (1 year to 5 Years)

Strategy: **Health Sector** Improve access to healthcare facilities & minimize the long journeys to access basic medical facilities	**Programs/ Policies** • Check and balance to accomplished existing health care projects. • Addition of 5060 beds to achieve the target of 2 beds per 1000 district population • Hiring of 3214 doctors and paramedical staff to cater future population. • Installation of incinerators.
Responsibilities to Plan • Health reforms	**Implementation Responsibilities** Public Sector and Welfare Agencies
Concerned Agencies State Government/District Health Department. Provincial and District Health Department	**Time of Implementation** Short Term (1 year to 5 Years) Long Term (above 5 year)
Strategy: **Education Sector Strategy**	**Programs/ Policies** • Short term plan provision of 385 classrooms at school and college level. • Repairing of school existing buildings with furniture • Training of teaching staff • 4409 additional classrooms (school and colleges) by 2037
Responsibilities to Plan • Education Infrastructure Improvement Mater Plan	**Implementation Responsibilities** Public Sector
Concerned Agencies Provincial Government / District Education Department.	**Time of Implementation** Short Term (1 year to 5 Years) Long Term (more than 5 years)

Strategy: **Improving Recreation Sector**	**Programs/ Policies** • Repairing of existing recreational facilities and completion of under construction work. • Introduce financial mechanism i.e. facility use charges, to generate revenue to make them self-sustaining. • Special arrangement for security, parking and alternate route during religious and cultural activities in the city. • Feasibility study for establishment of museum and research center and archeological site chanhyo jo daro Nawabshah • Construct More Parks And Rehabilitate The Available Parks To Facilitate The People Of Nawabshah MC. • Construction of auditoriums and up-gradations for art councils • Conservation and Preservation Of Heritage Sites .
Responsibilities to Plan • Provisions of New Recreation sites	**Implementation Responsibilities** Public Sector
Concerned Agencies Provincial Government / Culture, Tourism & Antiquities Department/ Government of Sindh/ District / Local Government	**Time of Implementation** Short Term (1 year to 2 Years) Long Term (More than 5 years)

Strategy: **Disaster Risk Management**	**Programs/ Policies** • Engage all stakeholders of entire district in overall disaster rehabilitation process. • Recognize the commitment of stakeholders and the need for collaboration across all levels of government, community, industry, commerce, and government owned corporations, private and volunteer organizations and

	local communities within all aspects of disaster management. • Aligned job responsibilities of key stakeholders with job descriptions mentioned in principal guidelines proposed in *Pakistan National Disaster Risk Management Act 2010*, *National Disaster Risk Management Guidelines* and *Disaster Risk Management Plan, Sindh.* • Ensure establishment of straight relationships, trust, teamwork, consultative decision-making and shared responsibilities among stakeholders. • Develop disaster risk assessment system through statistical information, risk maps, emerging hazards information and their affects. • Adopt measures of sustainability of local communities by utilizing local resources available to avoid post disaster cataclysms (dearth, theft, spread of epidemic diseases, etc). • Promote economic sustainability after disasters.
Responsibilities to Plan • Identification of Disaster Prone Areas and Early warning and shelter homes • Development of Community Training and Drill Organization Manual and SOP. • Development Local stakeholders Roles and Responsibility SOP.	**Implementation Responsibilities** Public Sector and National /International Welfare agencies
Concerned Agencies NDMA/PDMA/ P & D department Gos/ SUPARCO/ Provincial Irrigation Department Gos/ Line departments of local government/District Disaster Management Authority.	**Time of Implementation** Short Term (1 year to 5 Years)

Strategy **Economic Development Plan**	**Programs/ Policies** • Rehabilitation of Infrastructure in existing Small Industrial Estate (roads, street lights, parking for loading/unloading goods vehicles, etc.) • Increase strategic storage through construction of cold storage / Godowns for agro products to cater drought situation. • Provide good incentives near peripheries for shifting / re-location of whole sale markets from the inner city to reduce congestion. • Encourage Local Private Investors by giving them subsidies. • Consider changing trends of crop production through periodically revise Economic Policy Framework (feasible studies for economic potentials) • Ensure measures for security / risk recovery plan for economic zone. • Market and logistics should also be added to enhance trade and commerce. • Livestock and dairy sector needs to encourage and facilitated. • Centralize wholesale markets to create connectivity with regional markets. • Drought measures
Responsibilities to Plan Feasible studies for economic potentials	**Implementation Responsibilities** Public /private developers
Concerned Agencies Provincial Government/District Government/Local Government/Nawabshah Chamber of Commerce and Industries	**Time of Implementation** Short Term (1 year to 5 Years) Long Term (5 years to 20 Years)

Annexure – A

Sustainable Development Goals Acceleration Plan

Sustainable Development Goals (SDGs) Acceleration Plan
Nawabshah DHQ Town

Sustainable Development Goals:

The Agenda 2030 comprises of Sustainable Development Goals (SDGs) which are a call for action by all countries – poor, rich and middle-income – to promote prosperity while protecting the planet. They recognize that ending poverty must go hand-in-hand with strategies that build economic growth and address a range of social needs including education, health, social protection, housing and job opportunities, while tackling climate change and environmental protection.

The 17 goals of SDGs provide a direction for targeting human prosperity and have a global scope – applying on both developed and developing countries. SDGs have come into action since the beginning of 2016 and will continue as the leading global development agenda until 2030. The SDGs targets are defined as aspirational, with each government setting its own national/subnational targets while considering its circumstances and priorities. In consultation with stakeholders, governments are also to decide how to incorporate SDGs in its planning processes, policies and strategies, and to recognize the link between sustainable development and other relevant ongoing processes in the economic, social and environmental fields[1].

Pakistan signed the international agreement on the 2030 agenda in September 2015 during the United Nations General Assembly (UNGA) Session for sustainable development, committing to achieve the 17 SDGs between 2016 and 2030. In February 2016, under a unanimous resolution, the National Assembly of Pakistan endorsed SDGs as Pakistan's national development agenda. The country has thereafter made rapid progress in adopting and formally launching the 17 SDGs.

SDGs in Sindh:

In line with the National Initiative on SDGs, Government of Sindh (GoS) has also made focused efforts to support the mainstreaming, localization, and implementation of the 2030 Agenda through a support project for SDGs implementation in Sindh, jointly-funded by the GoS and United Nations Development Programme (UNDP), with the aim to address socio-economic challenges in the province and steer it in a progressive direction towards achievement of the SDGs. Under the project, the SDGs Support Unit Sindh has been established in Planning & Development Department, Governement of Sindh with effect from May 2017. The Unit

[1]United Nations Development Group, Reference Guide to UN Country Teams -Mainstreaming the 2030 Agenda for Sustainable Development, March 2017 Update

contributes towards accelerating progress on SDGs in the province by working through following four approaches:

Policies and Plans	Data Reporting	Financing	Innovation
Mainstreaming SDGs in local development plans and strategies clearly delineating the resource requirements.	**Strengthening coordination, reporting and monitoring mechanisms for SDGs**	**Financing flows increasingly aligned with 2030 Agenda**	**Supporting integrated and innovative approaches to accelerate progress on SDGs on priority areas.**

GoS has also taken the crucial step towards mainstreaming and localizing SDGs in the province by approving prioritization of SDGs in the immediate, medium and long-term for the province. The prioritization has been done by considering severity of development issues and challenges, resource availability, and Sindh's economic and social endowments, value for money, and magnitude of impacts, in line with Sindh 2025 vision and other policies and strategies.

Sindh's SDGs Priorities

Ranking of Priorities	Goal #	Sustainable Development Goals (SDGs)	Immediate Priorities	Intermediate Priorities (Up-to 2025)	Long-term Priorities (Up-to 2030)
1	Goal 4:	**Quality Education**			
2	Goal 3:	**Good Health and Well Being**			
3	Goal 6:	**Clean water and Sanitation**			
4	Goal 7:	**Affordable and Clean Energy**			
5	Goal 2:	**No Hunger**			
6	Goal 8:	**Decent work and Economic Growth**			
7	Goal 9:	**Industry, Innovation and Infrastructure**			
8	Goal 16:	**Peace and Justice**			
9	Goal 11:	**Sustainable cities and communities**			
10	Goal 1:	**No Poverty**			
11	Goal 12:	**Sustainable Consumption and Production**			
12	Goal 10:	**Reduce Inequalities**			
13	Goal 5:	**Gender Equality**			
14	Goal 17:	**Partnership development**			
15	Goal 13:	**Climate Change**			
16	Goal 14:	**Life Below Water**			
17	Goal 15:	**Life on Land**			

The above table indicates that the SDG Goal # 4, 3, 6,7,2 and 8 are on the Immediate priority, whereas Goal # 1,9,16,11,12 and 10 are on Intermediate priority i.e. upto year 2025. The remaining goals which are Goal # 5, 17, 13, 14, and 15 will be on the Long term priority i.e upto year (2030).

Urban Development Planning and the SDGs:

Today's common urban development challenges like affordable housing, provision of basic services, municipal functions, controlling crime, poverty, disease and the exhaustion of natural resources do not respect regional borders or limits between the built and the non-built domains. Therefore, the scope of urbanization should always include the livable environment while also considering the regional dimension. In this connection, the rigorous consultation and analysis being done by GoS to prepare Development Master Plan of 14 DHQ Towns of Sindh, it is being realized with even more significance that sustainable development cannot be achieved without significantly transforming the way we plan, build and manage our urban spaces. The rapid growth of cities resulting in rising population and increasing migration that has led to a boom in urban areas and slums, is becoming a more significant challenge for urban areas.

Under the contract of the preparation of development Master Plan of 14 DHQ towns, SDG Acceleration plan was not part of the approved TORs but keeping in view the Sindh government's initiatives to mainstream SDGs targets in provincial planning (taking Islamkot as a model SDG Taluka) the Directorate and Consultant after due consultative process felt the need to include brief SDG Acceleration Plan as part of Development Master Plans. Accordingly in consultation with SDG unit Sindh, SDG 11 was selected for SDG Acceleration Plan for 14 DHQ towns since is pertinent to urban planning and development.

SDG 11 – *Sustainable Cities and Communities* sets the basis for urban-planning techniques and policies for the future. For a tangible acceleration towards achievement of SDG 11, simultaneous interventions will need to be executed directly through urban-planning interventions. While this involves investments in public transport, housing, creating green public spaces and improved urban planning and management in participatory and inclusive ways, an in-depth review of SDG 11 targets reveals a much stronger interlinkage with other SDGs such as poverty, health, education, clean energy, provision of basic services (social services as well as urban municipal services), etc. thereby generating a holistic societal impact, which is of prime importance in the context of Agenda 2030.

Using the key mechanism for periodic updating of the Development Master Plan after every five years, the SDGs Acceleration Plan also proposes embedding SDGs agenda targets against projects and schemes designed at local level and assesses the available and potential financing flows in context of future opportunities. Therefore, the targets and indicators of

SDG 11 – Sustainable Cities & Communities is being reviewed against the Master Plan, along with identification of supportive plans, policies and interventions.

The SDGs Acceleration Plan table below explicitly underlays the outline for how the Master plan of the town addresses the targets and indicators under SDG 11 – Sustainable Cities & Communities. The plan also takes note of the local social and economic data to identify services provision gaps at the local level, as well as key challenges at district level.

SDG Acceleration Action Plan - Nawabshah DHQ Town

SDG Goal 11 : Make Cities and Human Settlements Inclusive, Safe, Resilient and Sustainable

SN	SDG Target	Indicators	Baseline Survey	Supportive Strategies given in SDP	Policies
	Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable				
	11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	11.1.1 Proportion of urban population living in slums, informal settlements or inadequate housing	[2]10.07 % of the urban town population lives in katcha houses	- Increase in proportion of small size plots (Plot size will be depend on land value) could be made for low income groups in all new housing schemes. - Affordable housing program for low income group in different phases up to 2037, through one window operation (including technical guidance, easy loan provisions, legal procedures)	Sindh Katchi Abadis, Squatter Settlements & Slums Policy - The process of regularization and up-gradation of the pre-1985 katchi abadis shall continue as per current policy. However, katchi abadis, which are hazardous by virtue of being close to railways tracks or located under high tension power lines, or are on or close to the riverbeds, or on lands needed for operational /security purposes, need to be relocated at appropriate places by LOAs. - Formation of new katchi abadis shall not be allowed and shall be discouraged by exercising strict development controls in all urban areas. - Formation of Resettlement Plans - Resettlement plans shall be prepared by the concerned Land Owning Agencies (LOAs) in consultation with

[2] Data provided by Sindh Katchi Abadis Authority, December 2019. Katchi abadi is defined as by Katchi abadi authority

SN	SDG Target	Indicators	Baseline Survey	Supportive Strategies given in SDP	Policies
					affected communities for shifting of katchi abadis dwellers who fall within hazardous or security/operational zones. These plans shall primarily be on a self-financing basis. - The internal infrastructure and services shall be provided on incremental basis depending on the needs and priorities of the residents to make them affordable and cost effective. Trunk infrastructure and services shall be provided by public sector organizations and the cost shall be met from Government exchequer
	11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in	11.2.1 Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities	82% people have access to public transport.[3]	- Improve road design to make safer roads. - Prevent encroachments on footpaths through litigation. - Environmental Impact Assessment (EIA) should be mandatory for all transportation projects. - Declaring private vehicle free zones, especially in peak hours, in CBD areas to reduce noise and air pollutions.	Sindh empowerment of Persons with Disabilities' Act, 2018[4] i. Universal access to destination: All destinations served by the public road system shall be accessible by pedestrians and by drivers of all vehicles (including bicycles), except that vehicle operation may be restricted for reasons of excessive weight, noise or size, or extraordinary potential for damage to property or person ii. Equal Right of use: People's right to use that portion of a street designed for travel is not diminished by less weight, less size, or less average speed associated with their travel mode. Demand actuated tra-c signals must detect and serve a

[3] Socio Economic Survey 2017
[4] https://depd.sindh.gov.pk/sindh-empowerment-of-persons-with-disabilities-act-2018

SN	SDG Target	Indicators	Baseline Survey	Supportive Strategies given in SDP	Policies
	vulnerable situations, women, children, persons with disabilities and older persons			- Reduce traffic growth and congestion by achieving a mode shift. - Enhance institutional efficiency to improve service delivery. - Dualization of main arteries - Improve road design to make safer roads. - Prevent encroachments on footpaths through litigation. It is suggested that necessary provision of the above recommendation may be mandated in the laws and regulations of SBEA and other agencies which drafting the buildings and highway regulation	diversity of users including bicycle operators in the roadway and pedestrians using crosswalks. iii. Accessible surfaces: To the extent practicable, travel surfaces should accommodate travel on foot with minimal trip hazards and via common assistive devices such as wheelchairs. Roadway surfaces should be as clear as possible of hazards for narrow tires such as bicycle wheels. iv. Crossable Roadways: Crossing distances at non-signalized access locations must not exceed the distance that can be covered at walking speed before tra-c may arrive from beyond sight distance, or during reasonable gaps in roadway tra-c. Refuges provided to reduce crossing distances should be large enough to store assistive devices such as wheelchairs and strollers. Tra-c signal timing should provide adequate clearance intervals for safe crossing by pedestrians and slow vehicles.

SN	SDG Target	Indicators	Baseline Survey	Supportive Strategies given in SDP	Policies
	11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries	11.3.1 Ratio of land consumption rate to population growth rate 11.3.2 Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically	Baseline will be established at the start of implementation of Master plan. Vision formulation exercise through multiple consultative workshops were conducted to establish a shared and common vision for the development of Nawabshah DHQ town in the future.	o The total extent of the area included in the overall proposed Nawabshah Master Plan is 41,200 acres approx. for a population of 416,000 by 2037	Sindh Colonization of Government Lands Act 1912 and Disposal of Government Lands Rules, 2005.[5] National Housing Policy 2001[6]
	11.4 Strengthen efforts to protect and safeguard the world's	11.4.1 Total expenditure (public and private) per capita spent on the	Thull of Mir Rukan (Thul Mir Rukan is situated at a distance of 10 km	• Protection of historical places and cultural heritage • Development and preservation of cultural heritage	Heritage act for policies 2012[7]

[5] http://sindhlaws.gov.pk/setup/publications_SindhCode/PUB-16-000113.pdf
[6] http://mohw.gov.pk/mohw/userfiles1/file/National%20Housing%20Policy.pdf
[7] https://antiquities.sindhculture.gov.pk/index.php/about-us/acts/343-heritage-act-1994

SN	SDG Target	Indicators	Baseline Survey	Supportive Strategies given in SDP	Policies
	cultural and natural heritage	preservation, protection and conservation of all cultural and natural heritage, by type of heritage (cultural, natural, mixed and World Heritage Centre designation), level of government (national, regional and local/municipal), type of expenditure (operating expenditure/investment) and type of private funding (donations in kind, private non-profit sector and sponsorship)	from Daulatpur), and Dalel Dero (Dalel Dero is situated along main Mehran Highway Sakrand) present outskirts of Nawabshah District		(2) An agreement under this section may provide for the following matters or 'for such of them as it may be found expedient to include in the agreement--- (a) the maintenance and custody of the protected heritage and the duties of any person who may be employed to watch it; (b) the restriction of the owner's right to destroy, remove, alter or deface the protected heritage; (c) the facilities of access to the public or to any portion of the public and to persons deputed by the Committee to inspect or maintain the protected heritage; (d) the notice to be given to Government in case the land on which the protected heritage is situated is offered for sale by the owner, and the right to reserve by Government to purchase such heritage, or any specified portion of such heritage, at its market value; (e) the payment of any expenses incurred by the owner or Government in connection with the preservation of the protected heritage; and (f) any matter connected with the preservation of the protected heritage which is a subject of agreement between the owner and Government.

SN	SDG Target	Indicators	Baseline Survey	Supportive Strategies given in SDP	Policies
	11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations	11.5.1 Number of deaths, missing persons and persons affected by disaster per 100,000 population	Sindh Data [8] No of deaths (1988-2013) = 241 No of People effected (1988-2013) =24,096,173 Deaths per 100,000 population = 0.2491 Affected people per 100,000 population = 241	• The DSM, PPHI shall also be responsible for providing medical cover to the IDPs in the catchment area of BHUs assigned to them particularly, and will perform their due role in supplementing the overall medical cover provided by the District Health Department. • National risk assessment would identify highly vulnerable districts and be complemented by higher resolution work at local level to diagnose the underlying causes of risk, explore concrete risk reduction options and inform development planning and prioritization exercises and/ or disaster preparedness planning. • Arrange medical teams for providing medical cover to the IDPs settled in any relief camp. • Fumigate the affected areas and areas at risks of spread of any of epidemic disease.	National Disaster Risk Reduction Policy 2013[9]

[8] PDMA (2017)
[9] http://www.pdma.gos.pk/new/resources/Sindhidrr-policy.pdf

SN	SDG Target	Indicators	Baseline Survey	Supportive Strategies given in SDP	Policies
				• Ensure that all ambulances are in working order and road worthy conditions. • Ensure vacant possession of all schools buildings at the time of emergency for setting up relief camps. • Ensure sanitation and cleanliness as well as clean drinking water facilities wherever possible at all school buildings declared as relief camps through by binding down their concerned Headmasters. • The creation of an integrated multi-hazard damage loss data-base is therefore a prerequisite for systematic vulnerability and risk monitoring	
	11.6 By 2030, reduce the adverse per capita environmental impact of cities,	11.6.1 Proportion of urban solid waste regularly collected and with adequate final discharge out of	[10] Present Total solid waste generation in Nawabshah DHQ town is 125.9 tons per day. Regular	- The collection and disposing of solid waste is the responsibility of the TC. - The collection system needs to be made more effective and efficient. - Town Municipal Committees has already initiated some work on	The Sindh Solid Waste Management Board Act, 2014 [11]

[10] Municipal Committee Nawabshah
[11] http://www.pas.gov.pk/uploads/acts/Sindh%20Act%20No.IV%20of%202014.pdf

SN	SDG Target	Indicators	Baseline Survey	Supportive Strategies given in SDP	Policies
	including by paying special attention to air quality and municipal and other waste management	total urban solid waste generated, by cities	collection by municipal is about 70-75%	biomedical-waste management. It should immediately start segregation practice for biomedical waste collection system. - Techno-economic feasibility and detail study of characterization of waste is proposed on basis of the policy guidelines. - Develop integrated solid waste management system keeping in mind the method, procedure and design at front end, middle end and back end, based on best possible public health practices and environmental protection laws/rules. - Industrial waste disposal should be treated seperately and safely	
	11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for	11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age and	Only 0.58% (48 acres)park area is available in Nawabshah DHQ	• Existing open spaces in core urban area should be restored and maintained. New open spaces should be identified and created. • Development and preservation of cultural heritage	Adopt-a-park policy 2019 (PPP unit, Finance dept. GoS) is still in progress

SN	SDG Target	Indicators	Baseline Survey	Supportive Strategies given in SDP	Policies
	women and children, older persons and persons with disabilities	persons with disabilities	Town (8,174 acres) 33.07 Sq KM[12]	• Cater the problem of Shortage of water facility to maintain green spaces, green belts and trees plantation. • Availability of sports infrastructure. • Provision of infrastructure to accommodate visitors into cultural events	
	11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning	11.a.1 Proportion of population living in cities that implement urban and regional development plans integrating population projections and resource needs, by size of city	Through inclusive and participatory development of SDP and collaborative implementation, the target for development plan integration is achieved	• Build a local / district / regional transportation system. • Rehabilitation of existing roads should be scratched from its compaction level and reconstruct as per specification of design perimeters. • Promotes compact development. • Wider road space can be used to facilitate multiple transport activities by implementing road space design standards • Proper management can promote public transport services.	• Preparation of Development master plans of DHQ towns by Govt of Sindh • Poverty Reduction Strategy for Sindh approved by cabinet 2018 The key conceptual underpinnings of this strategy are:[13] • The policy is focused on creation/facilitation of rural hubs: • Using principles of agglomeration to support and drive growth • Focusing on those interventions that will have a catalytic effect • Consolidation of services, for improved service deliver and better impact.

[12] Based on Landuse Calculations
[13] Poverty Reduction Strategy for Sindh

SN	SDG Target	Indicators	Baseline Survey	Supportive Strategies given in SDP	Policies
				• After removal of encroachments adequate space available for traffic signs, lane markings and foot paths If properly administrated and space utilized, could promote smooth flow of traffic on nearby corridors. • Rural infrastructure and trade related capacities for improved market access (Farm-to-market road concept) • Proper mechanism should be addressed for maintaining sustainable traffic flow. • A new transport terminal for goods transport will facilitate timely supply of industrial goods	The combined effect aims to provide improved facilities, services and opportunities for households in the surrounding cluster of villages served by the hub
	11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing	11.b.1 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line	Provincial policies and strategies in placed	National risk assessment would identify highly vulnerable districts and be complemented by higher resolution work at local level to diagnose the underlying causes of risk, explore concrete risk reduction options and inform development planning and	National Disaster Risk Reduction Policy 2013[14]

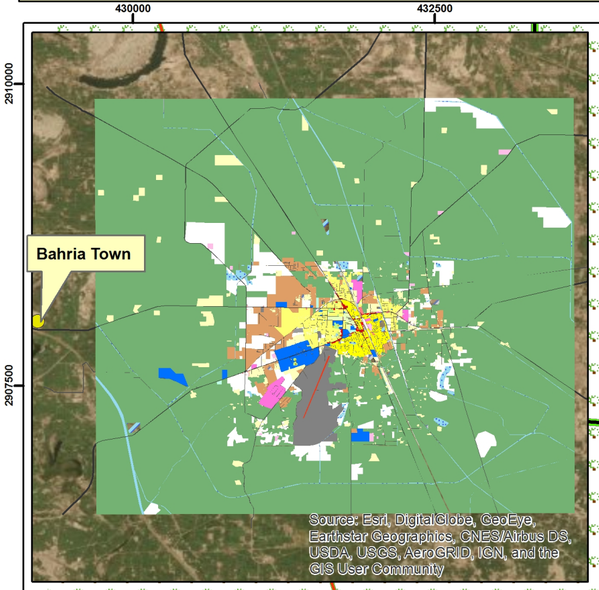
[14] http://www.pdma.gos.pk/new/resources/Sindhidrr-policy.pdf

SN	SDG Target	Indicators	Baseline Survey	Supportive Strategies given in SDP	Policies
	integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels	with the Sendai Framework for Disaster Risk Reduction 2015-2030a 11.b.2 Number of countries with national and local disaster risk reduction strategies		prioritization exercises and/ or disaster preparedness planning. • Arrange medical teams for providing medical cover to the IDPs settled in any relief camp. • Fumigate the affected areas and areas at risks of spread of any of epidemic disease. • Ensure that all ambulances are in working order and road worthy conditions. • Ensure vacant possession of all schools buildings at the time of emergency for setting up relief camps.	

Annexure – B

Atlas

Proposed Master Plan for Nawabshah Town



Legend

- OH bridge
- Proposed Ring Road
- Proposed Roads
- Canal
- Drain
- Air Strip
- Major Road
- Minor Road
- Street
- Railway_Track
- Intersection
- Proposed Land Fill Site
- Agriculture
- Airport Zone
- Education
- Commercial
- Cattle Farm
- Transport
- Graveyard
- Green Belt
- Utilities and Services
- Health
- Housing
- Industrial
- Public Admininstration
- Railway Reserved Area
- Recreational

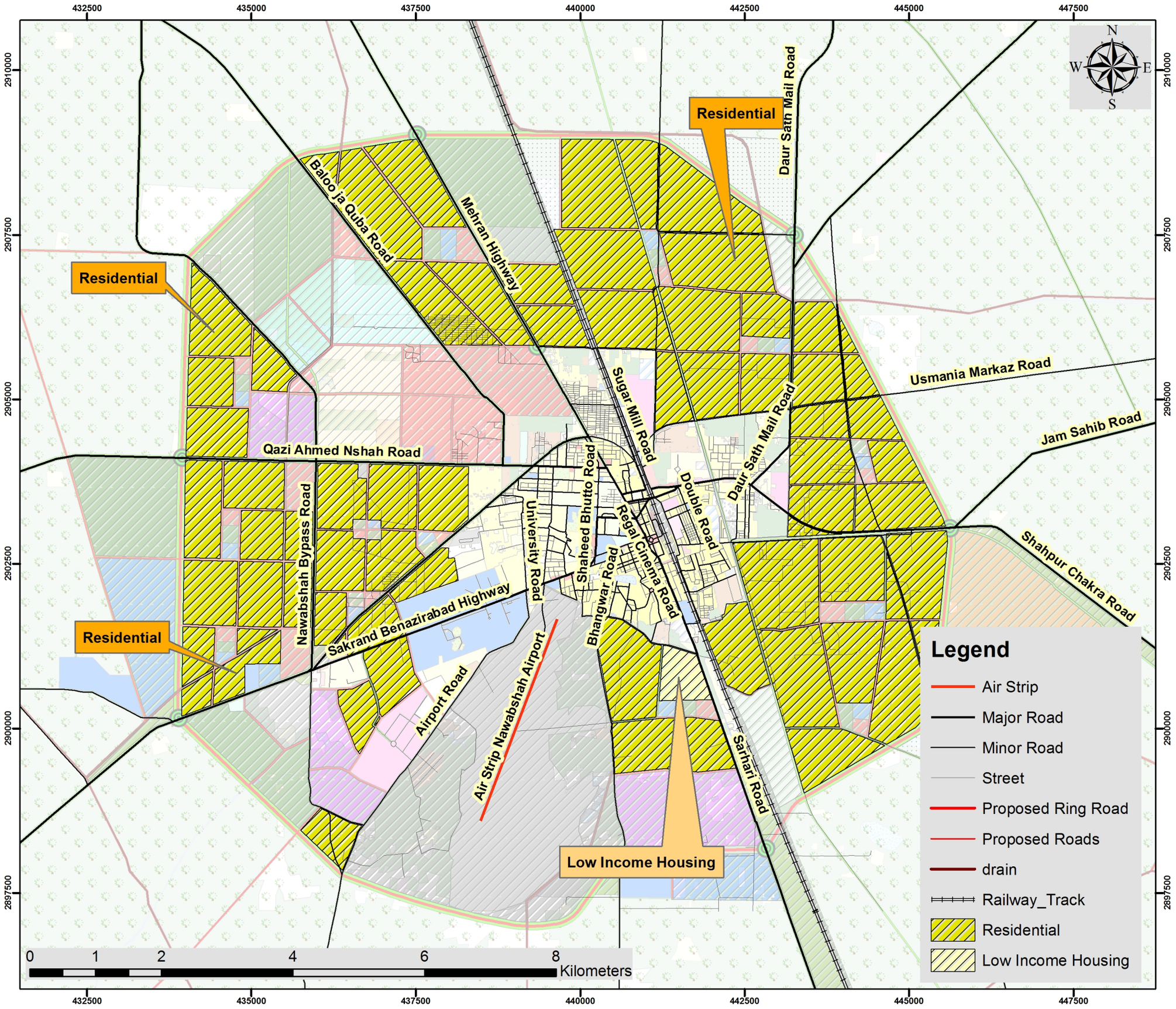
Agricultural Fields
Sports Complex
Cultural Complex
Commercial
Health
Peoples Medical University
Baloo ja Quba Road
Mehran Highway
Water Supply
STP
Gird Station
Daur Sath Mail Road
Public Adminstration
Tourism
Sugar Mill Road
Usmania Markaz Road
Jam Sahib Road
Trade and Commerce
CBD
Qazi Ahmed Nshah Road
OH Bridge Under Construction
Container Terminal
Gymkhana Road
Kachiri Road
Station Road
Double Road
Shaheed Bhutto Road
University Road
Recreational
Nawabshah Bypass Road
Sakrand Road
Railway Buffer
Residential
Green Belt
Education
Sakrand Benazirabad Highway
Bhangwar Road
Abid Unar Road
Cattle Farm
Shahpur Chakra Road
Sub Commercial
Proposed OH Bridge
Airport Road
Air Strip Nawabshah Airport
Bus Terminal
Them Park
Amusement Park
Industrial Extension
Plantation
Sahiari Road
Graveyard
Proposed Land Fill Site
Nawabshah Airport
Service Industry
Airport Zone
Restricted Area
Proposed Junction
Green Space

0 1 2 4 6 Kilometers

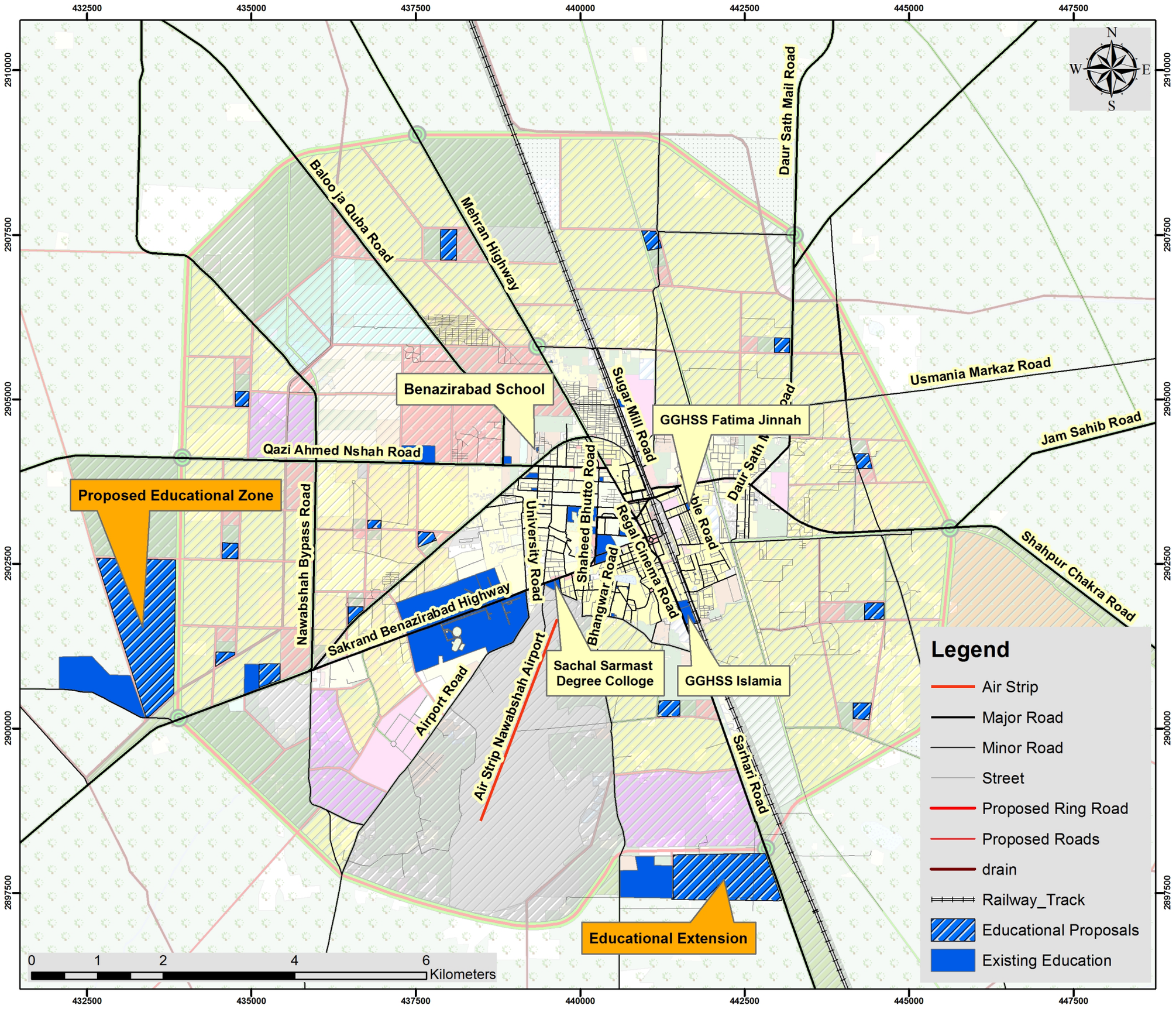
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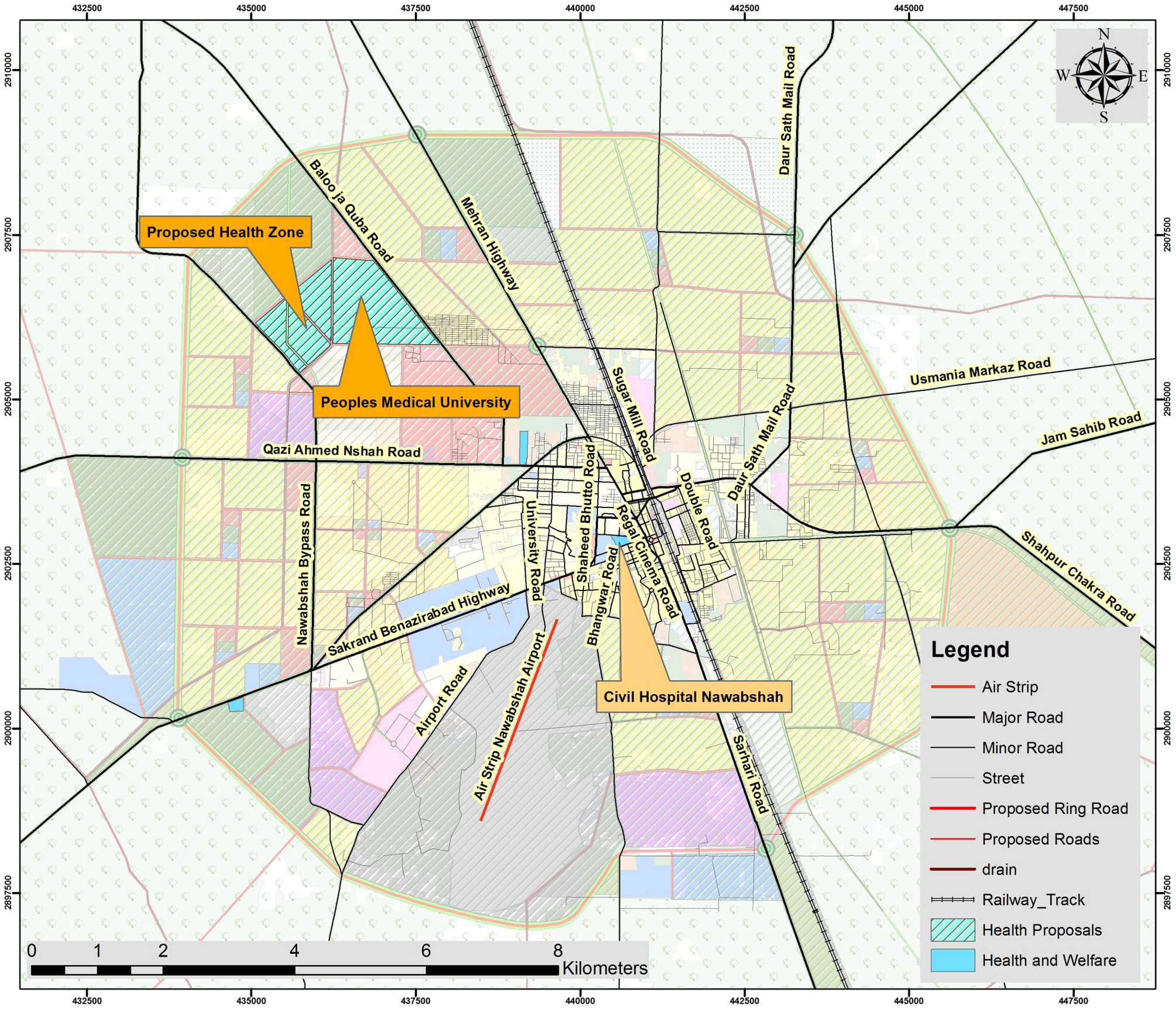
Proposed Residential Landuse for Nawabshah Town



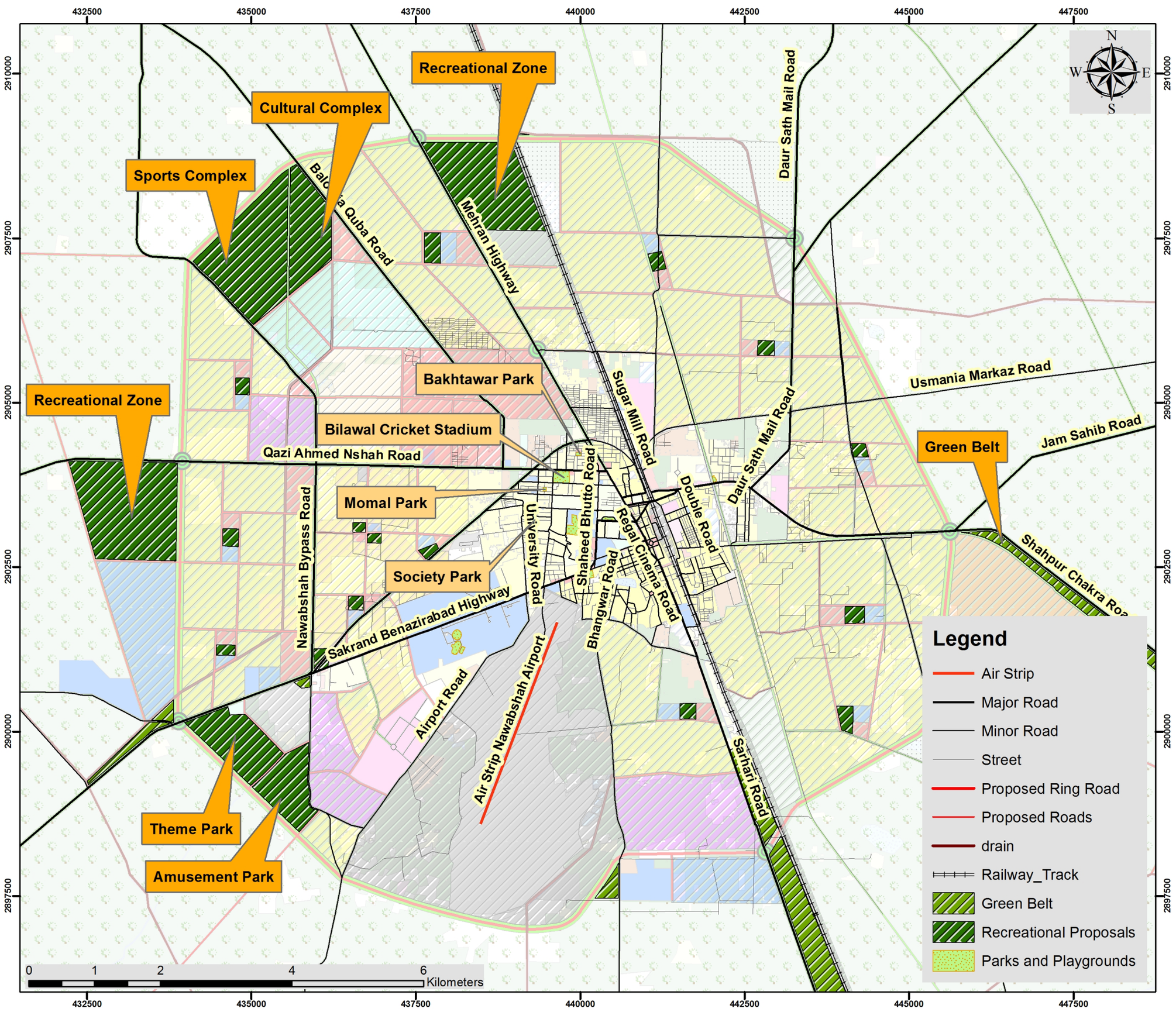
Proposed Educational Landuse for Nawabshah Town



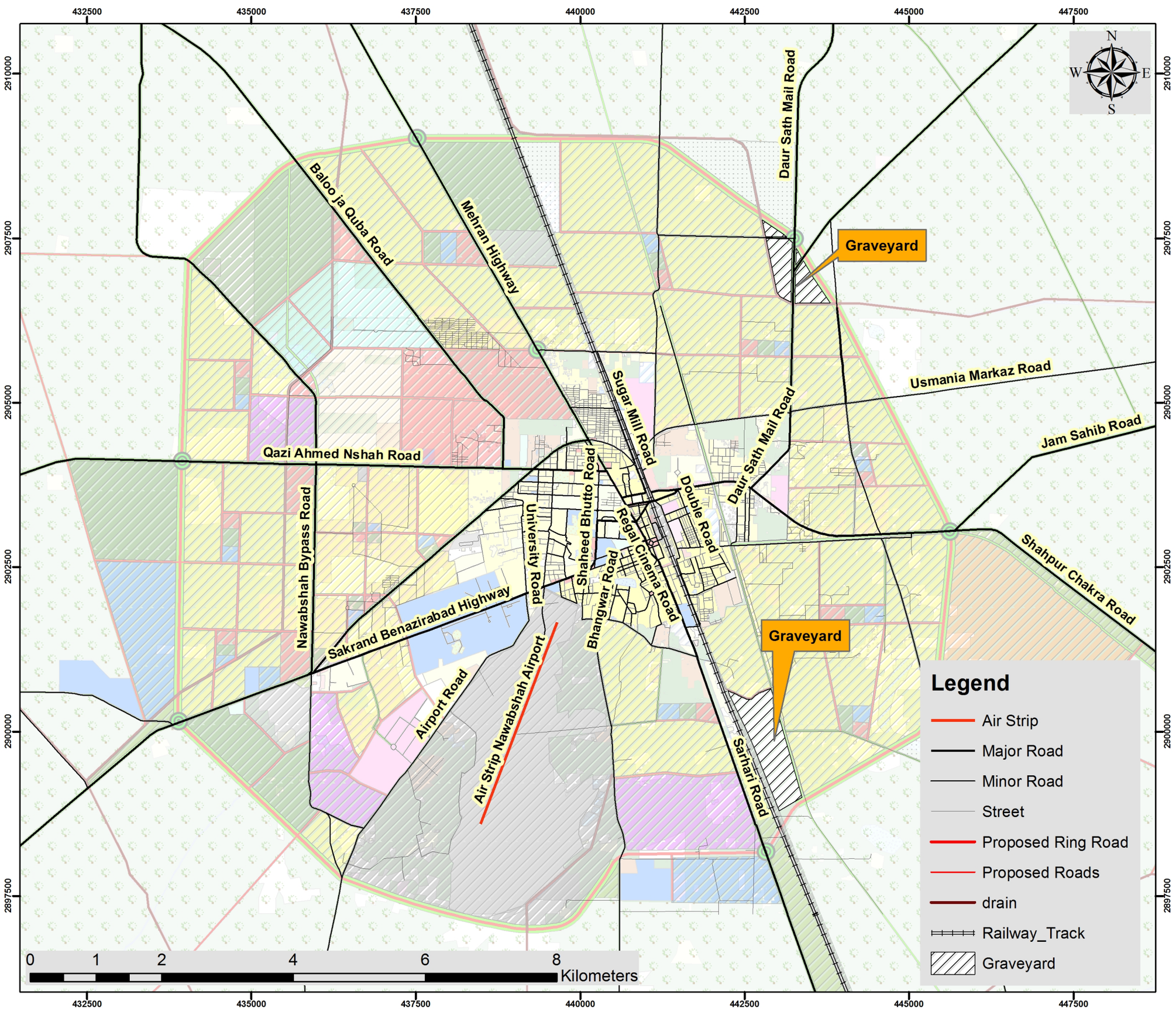
Proposed Health Landuse for Nawabshah Town



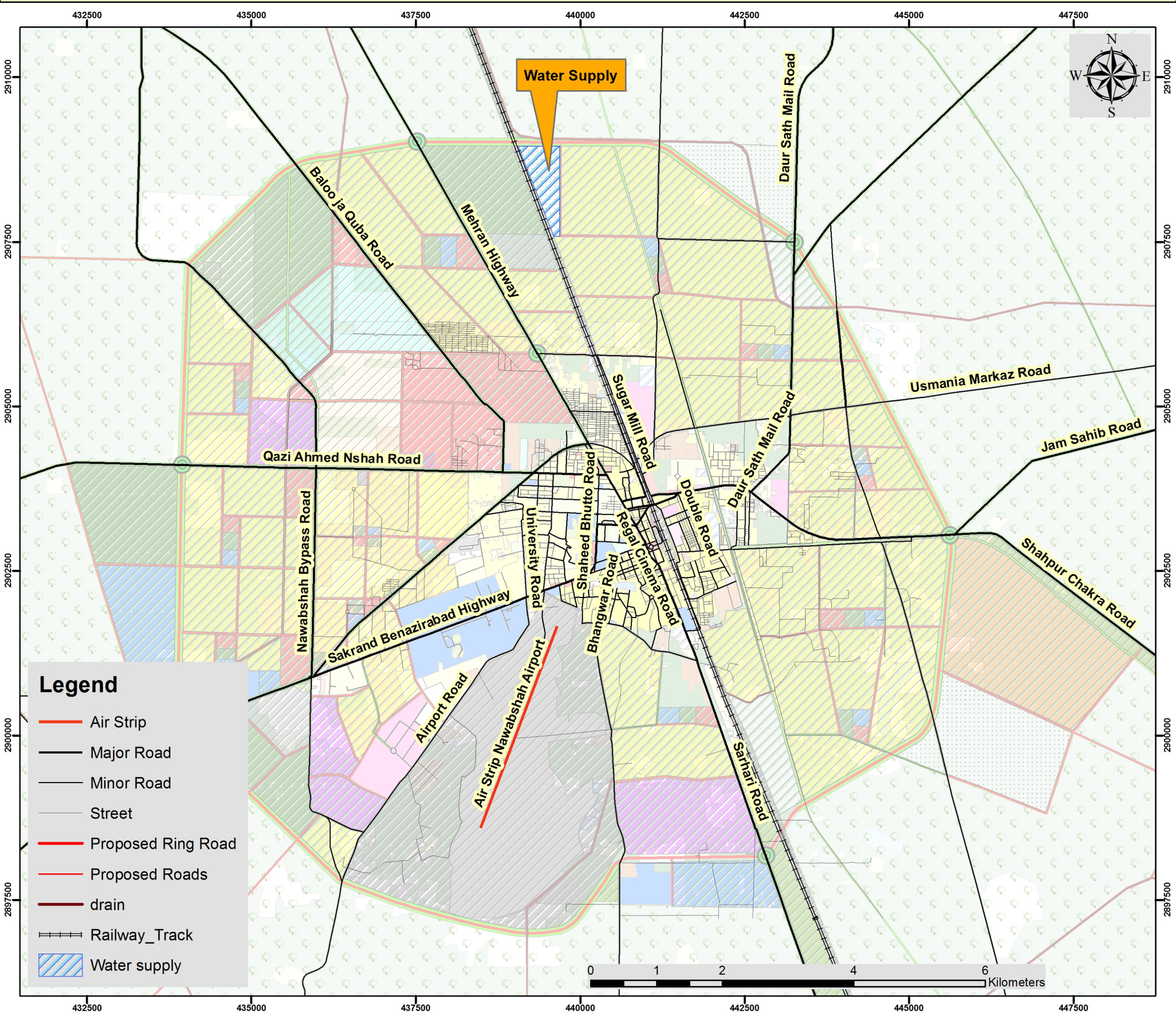
Proposed Recreational Landuse for Nawabshah Town



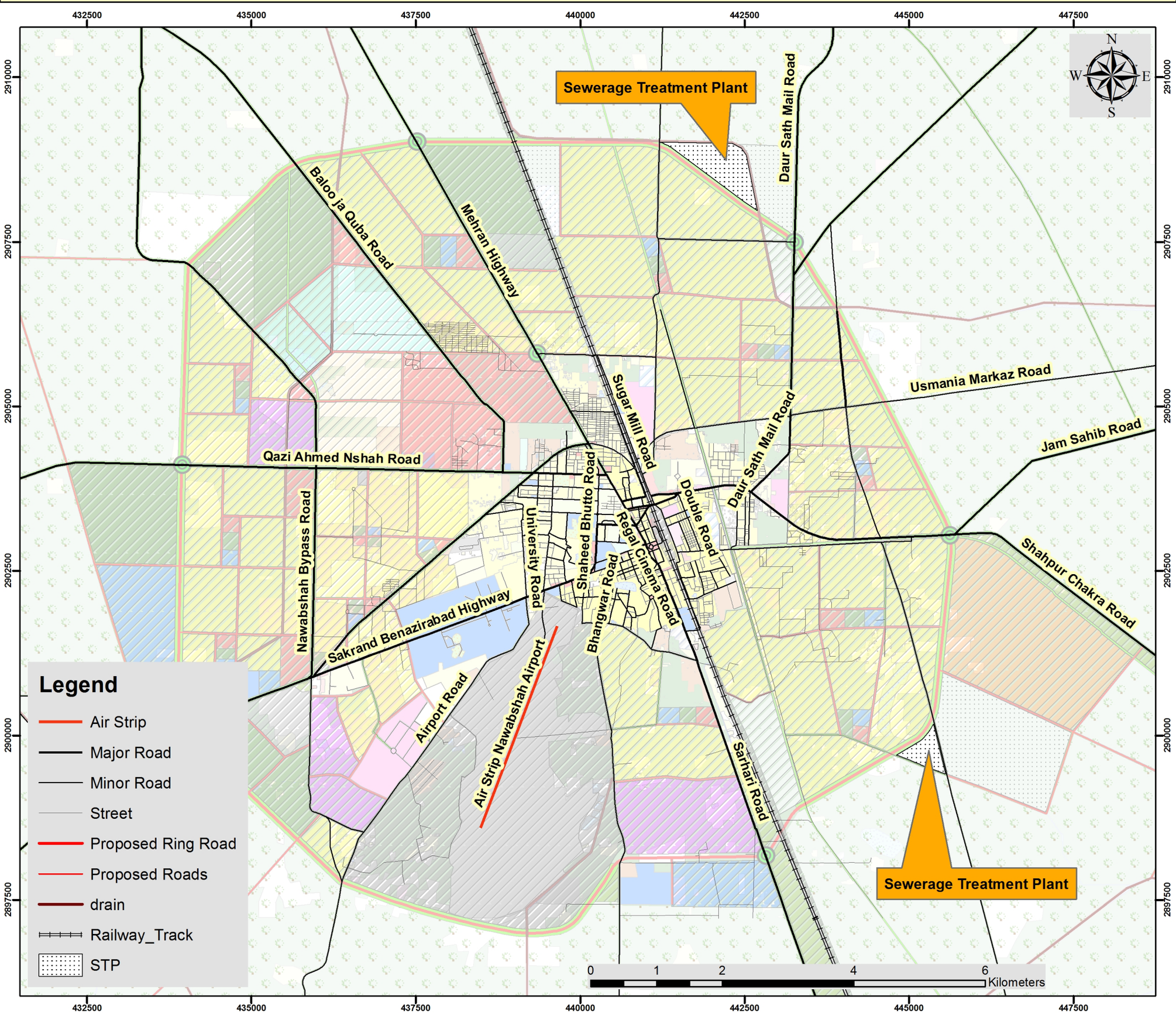
Proposed Religious Landuse for Nawabshah Town



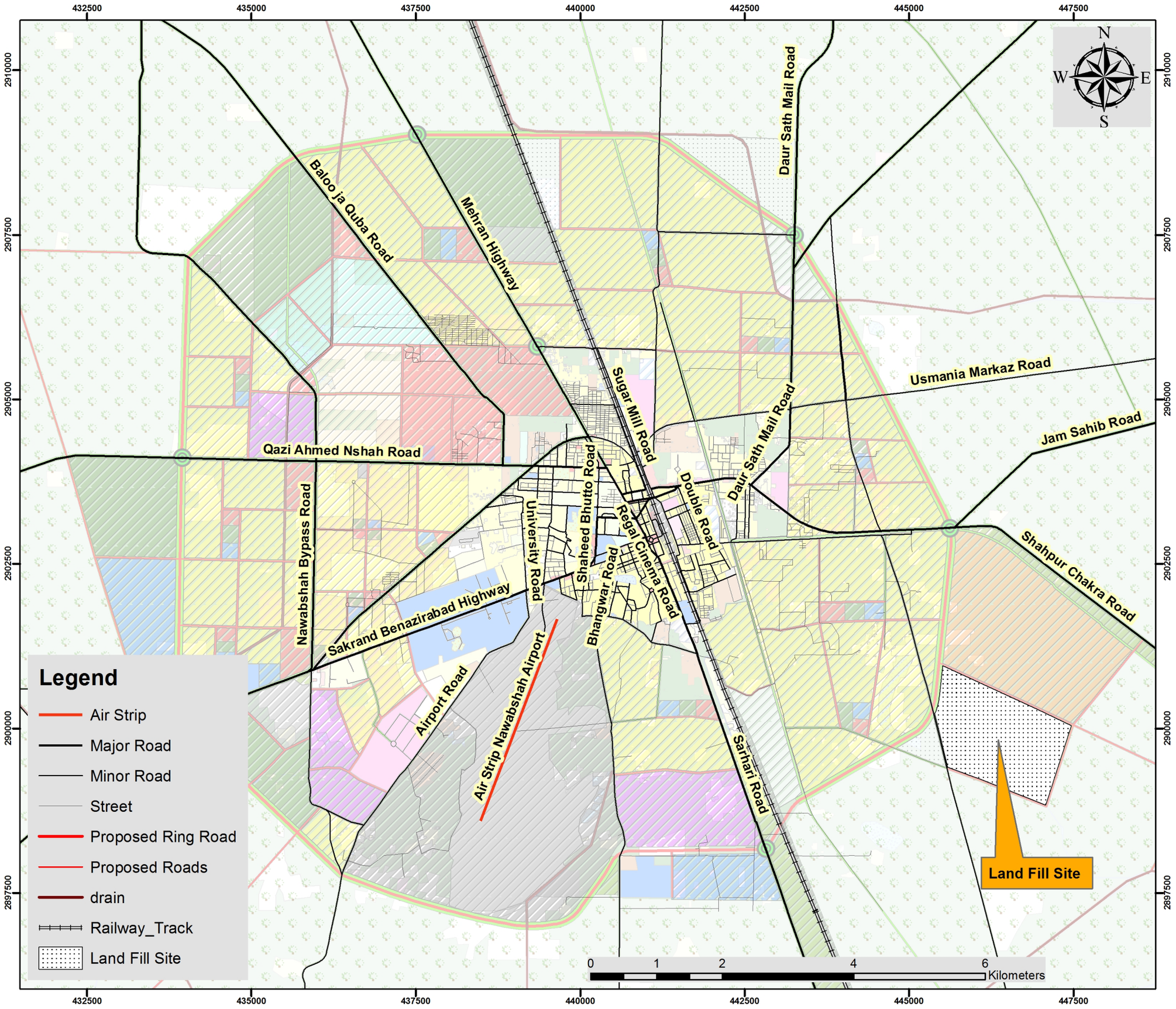
Proposed Utilities and Services Landuse for Nawabshah Town



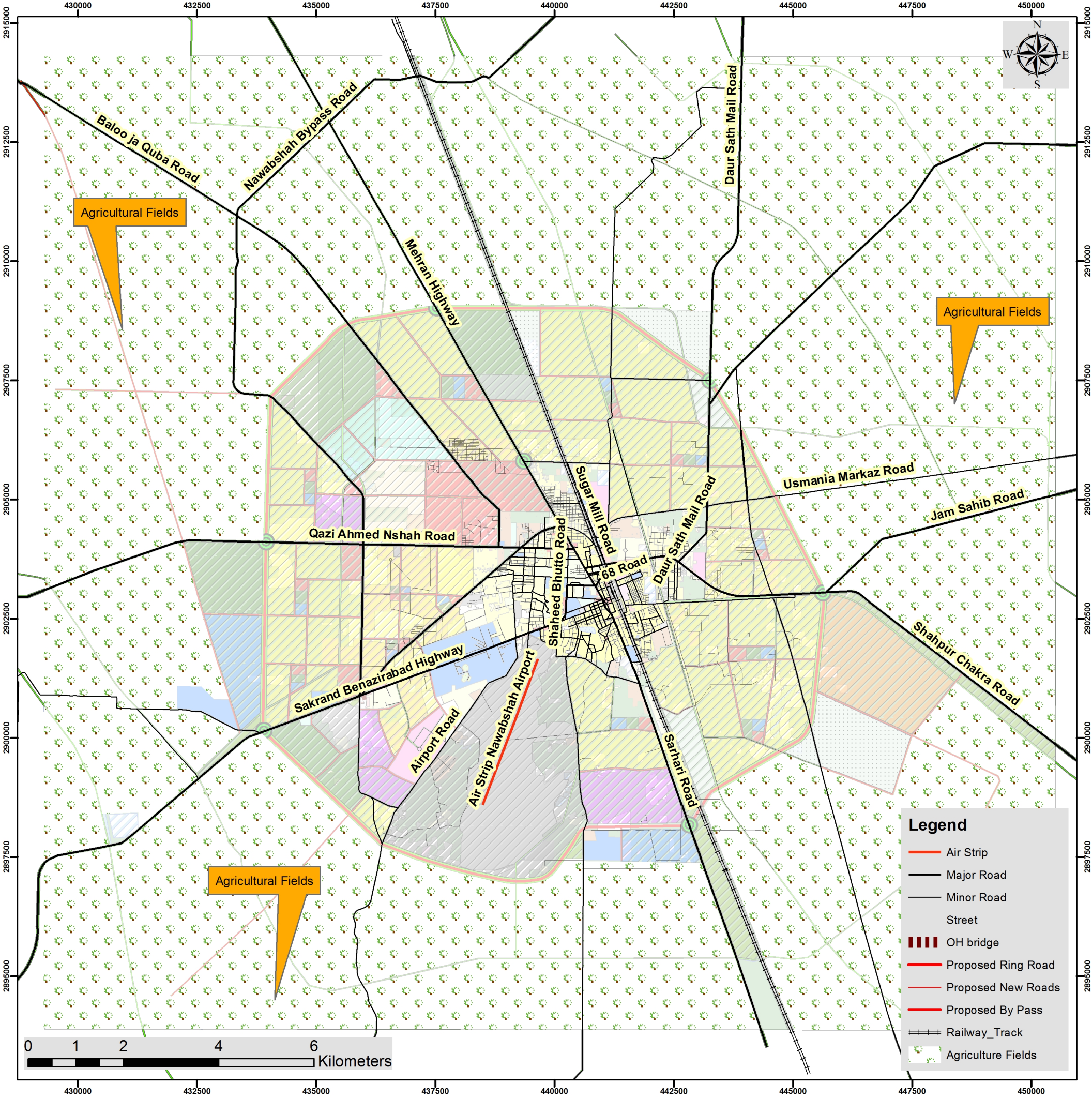
Proposed Utilities and Services Landuse for Nawabshah Town



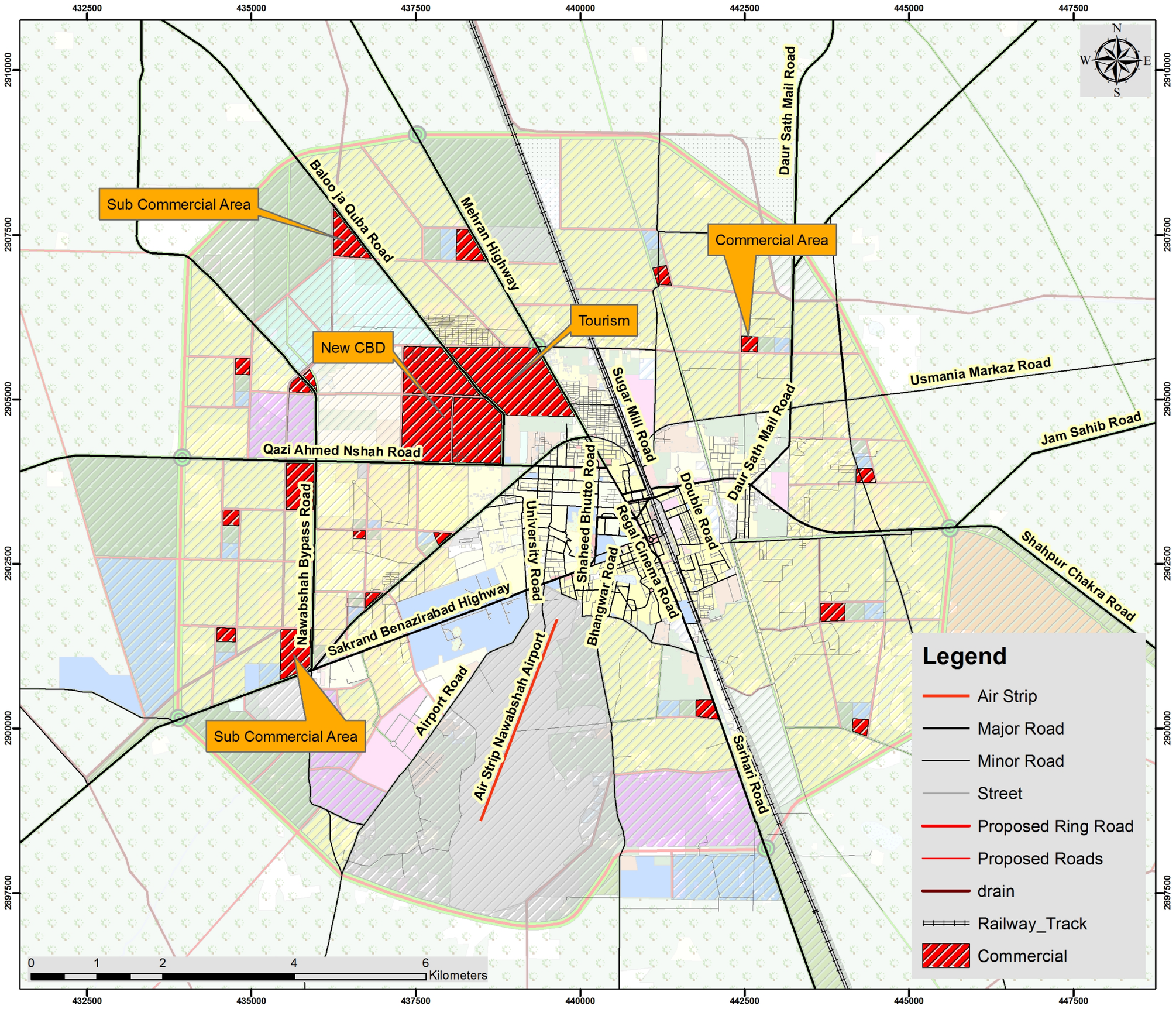
Proposed Utilities and Services Landuse for Nawabshah Town



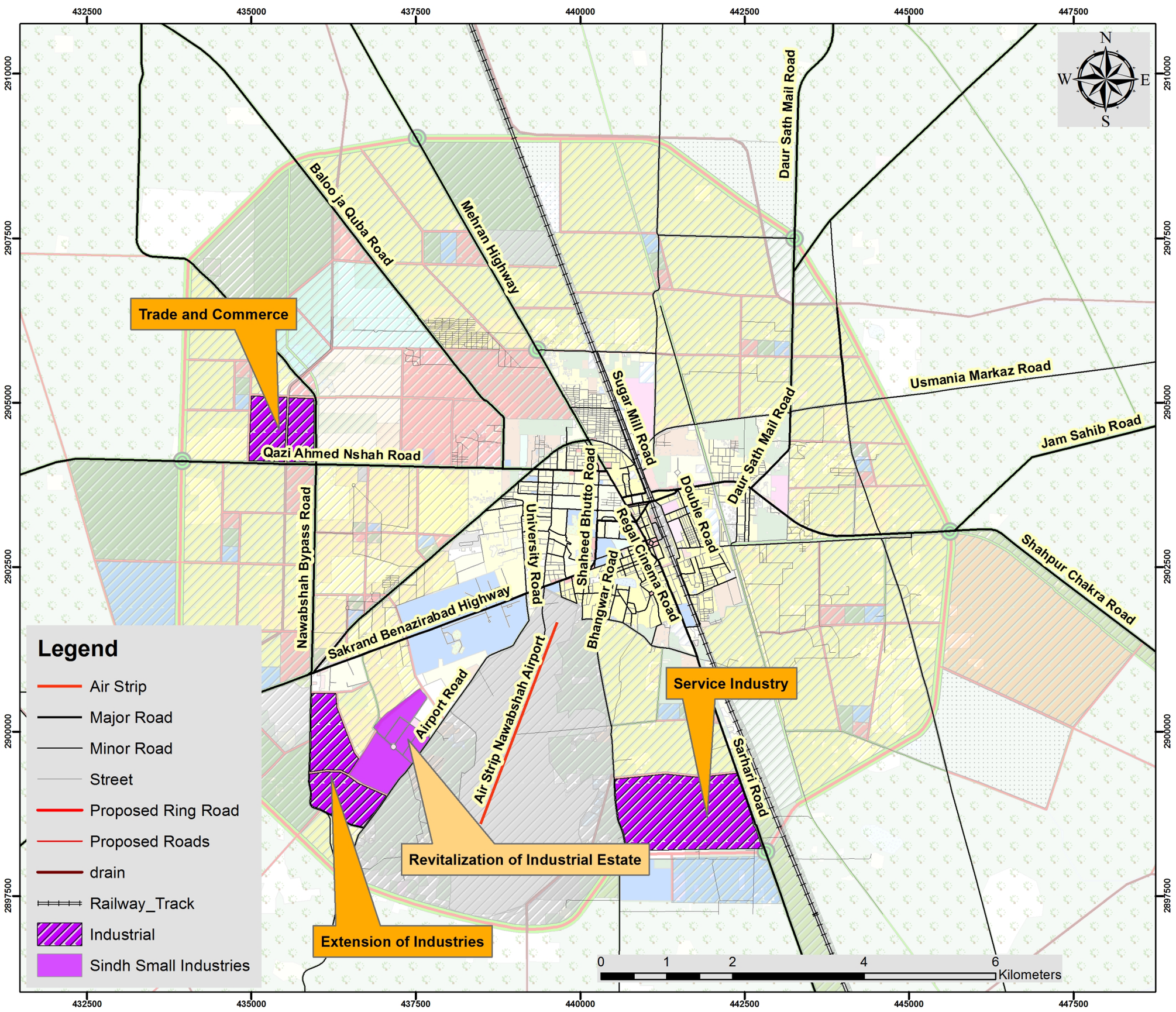
Proposed Agricultural Landuse for Nawabshah Town



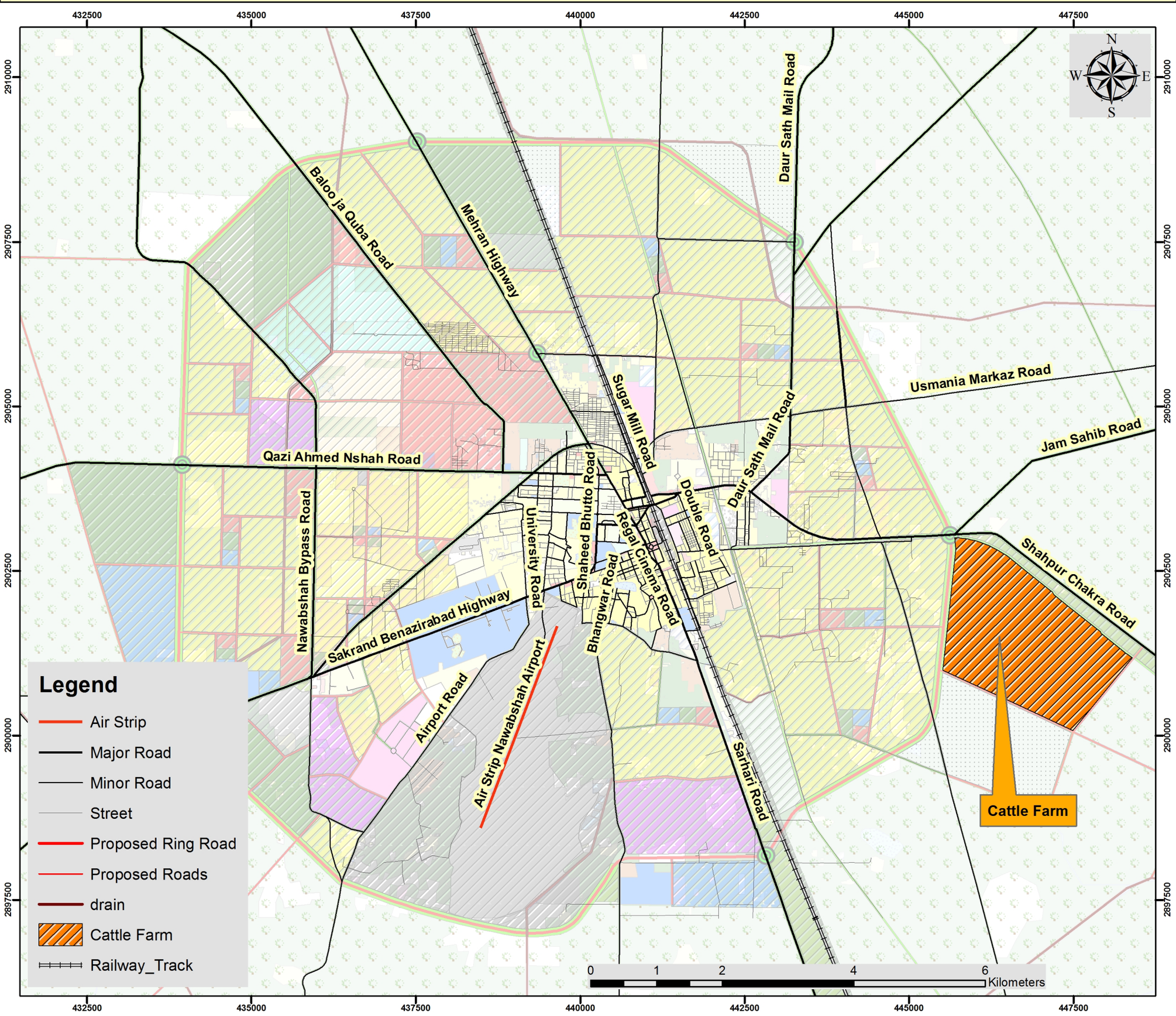
Proposed Commercial Landuse for Nawabshah Town



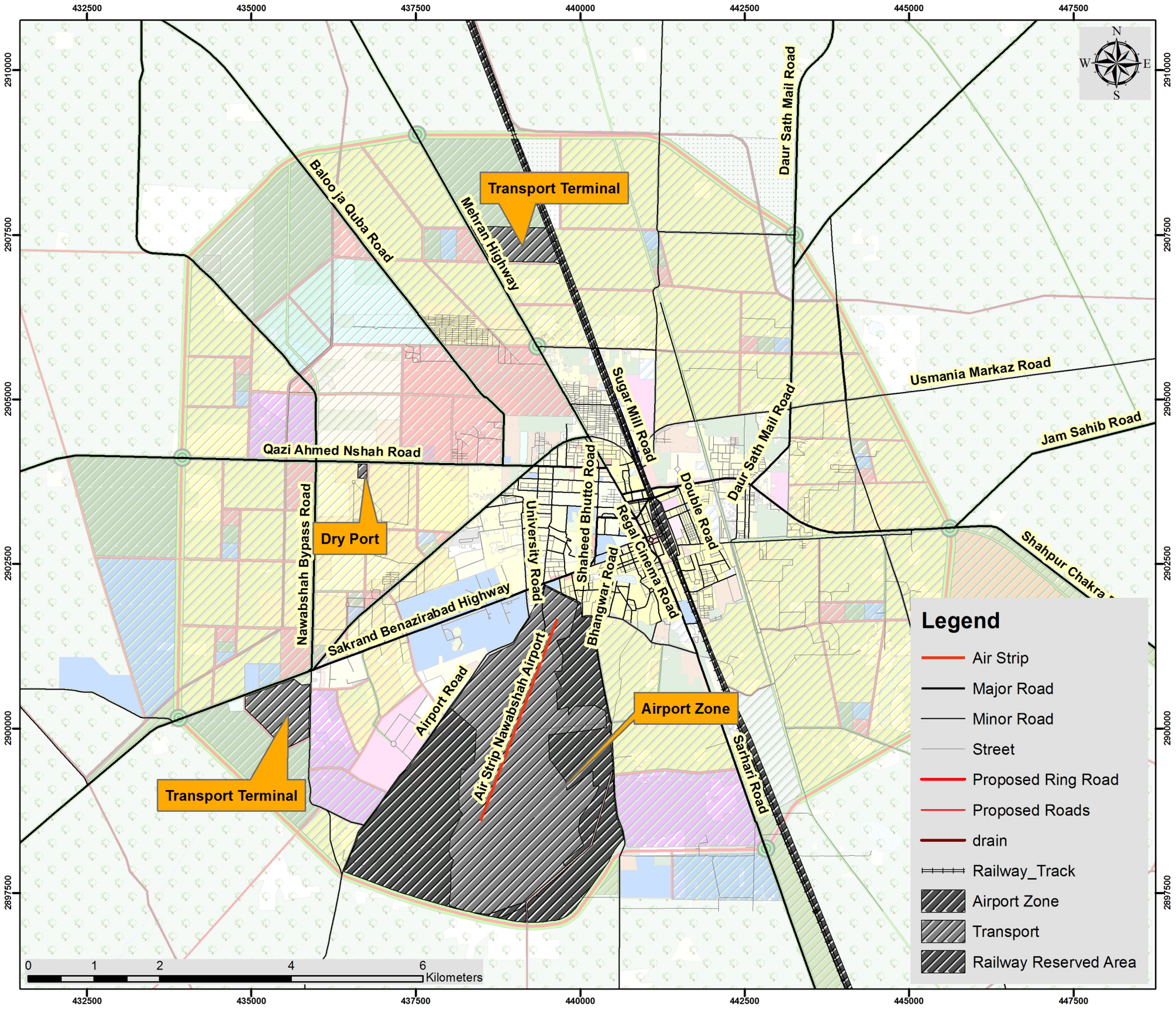
Proposed Economic Landuse for Nawabshah Town



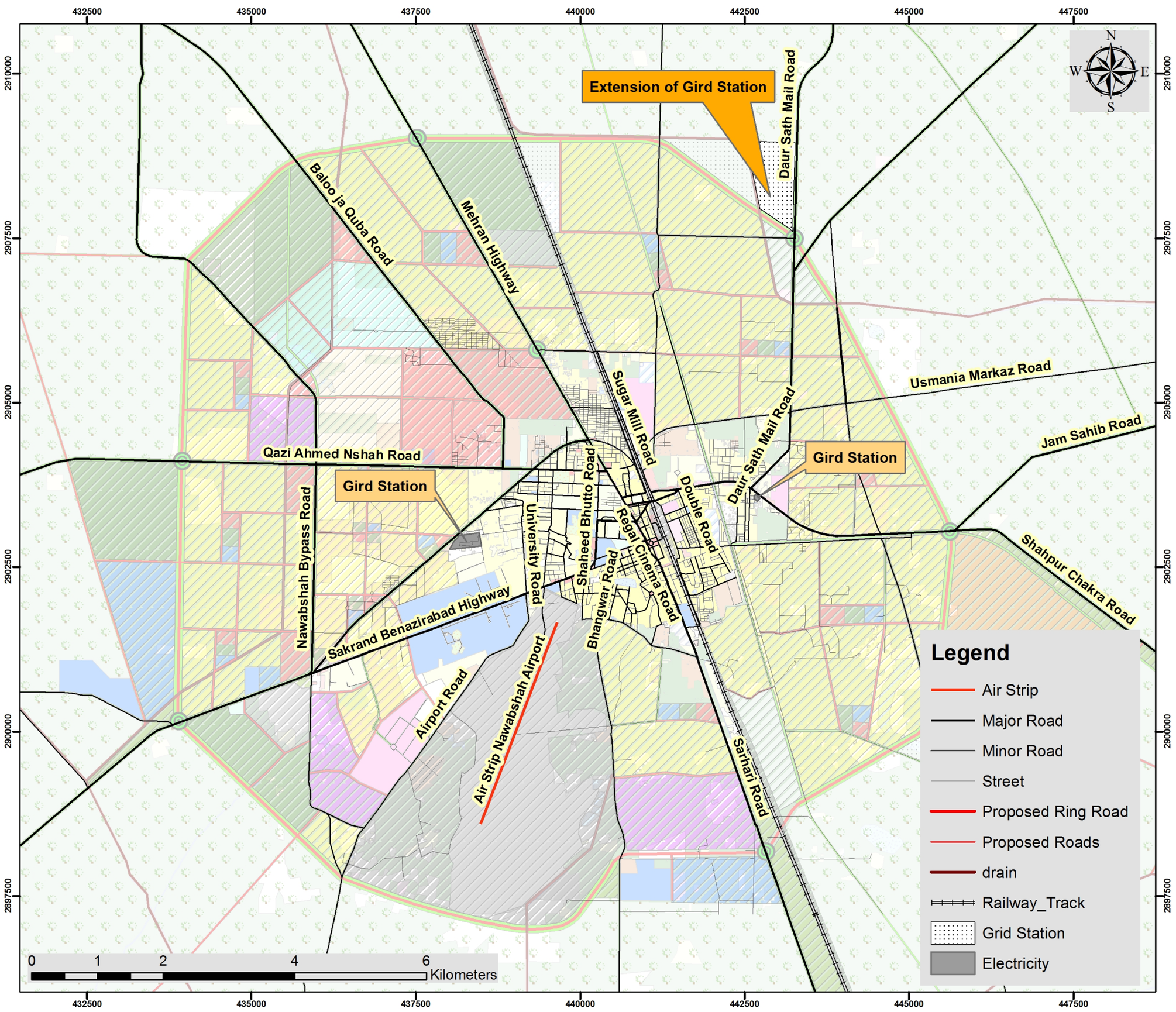
Proposed Livestock Landuse for Nawabshah Town



Proposed Transportation Landuse for Nawabshah Town



Proposed Utilities and Services Landuse for Nawabshah Town



Proposed Public Adminstration Landuse for Nawabshah Town

