

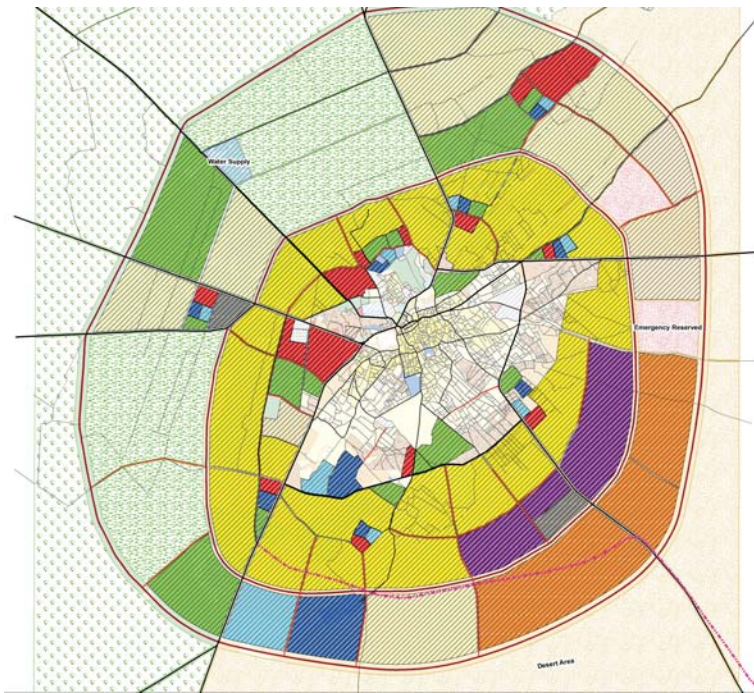


Directorate of Urban Policy Strategic Planning,
P & D Department, Government of Sindh



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

STRATEGIC DEVELOPMENT PLAN REPORT



Umerkot

February, 2021



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In Association with





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, Mitari, Badin, Thatta, Sujawal, Dadu, Jamshoro and one SDG compliance 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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The consultant is also thankful to Ex- Director Generals' UP&SP, Mr. Khair Muhammad Kalwar, Mr. Khalid Mehmood Shaikh, Mr. Muhammad Ali Khoso & Mr. Rafique Ahmed Qureshi and Mr. Mumtaz Halepoto Ex- Director Urban Policy & Planning, UP&SP.

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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 – Umerkot

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Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

Annexure – A: Sustainable Development Goals Acceleration Plans

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
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



Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

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
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

Umerkot is a part of Mirpurkhas division. It has many significant historical places including the Akbar's birth place. The eastern half of the district is the Thar Desert whereas the western part is relatively fertile. The total area of the district is 5,608 square kilometers. The district is administratively subdivided into the 4 talukas: Kunri, Pithoro, Samaro and Umerkot. According to 2017 census population of Umerkot town is 134,052 souls. Projected population of Umerkot works out to be 541,501 souls by 2037.

Most of the development in the district is found along N120 and Thar Bazaar Road. There is a main CBD also called old town area, located near Fort, connecting Thar Bazaar Road. The town's current built up area is approx. 20.1 square kilometers. The built-up area of Umerkot town comprises of around 1958.1 acres of land which is 41.71% of the total area as compare to consultant's urban boundary. Almost 28% of total urban boundary area is in use of residential purpose only and 49.2% of the area is covered by agriculture fields.

B. 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 most livable cities in the world."

C. DEMOGRAPHY

According to census of 1998, population of Umerkot TC was only 35,559, with an annual average growth rate of 5.75%. In 2017 the population of the town jumped up to 134,052 souls with an annual average growth rate of 7.23%. The town has gone through a massive transformation in terms of population dynamics in the last 20 years. Projected population of Umerkot works out to be 541,501 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.



Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

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. Being solicited.

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

As per 2017 census population results, Umerkot town had household size of 5.0 persons and a total housing stock of 27,071. The major issues of the housing sector includes neglected household below poverty line, inadequate developed land and housing ownership beyond affordability limit, poor land administration, infrastructure in dilapidated condition, growth of squatter settlements, management of urban growth and scarce land.

According to data provided by Sindh Katchi Abadis Authority (SKAA), there are fifteen sites, identified as Katchi Abadis in Umerkot MC. These are spread over 633.54 acres covering 3,907 housing units with 24,108 population approx. Thus, it is estimated that 17.98% population of Umerkot MC resides in Katchi Abadis. Out of total, twelve Katchi Abadis were notified from 1992 to 2019.

On basis of projected Population for year 2037 the increase in population is 407,449 with estimated additional housing requirement of 79,106. The strategies need to be focused on the development of plans, cater housing needs for low income group, funding should be available, planning and designing should be in harmony with the codes and standards. The short term plan involves incremental housing schemes, limit the cost of property land, and increase in small size plots, de-concentrating the metropolitan, provision of trunk infrastructure and, shifting or removal of the illegal settlements. The long term should focus on research and development programs for economic building material and modern construction technologies, formation of land bank, introduction of small town to minimize requirement in secondary cities, initiation of low cost housing schemes, and constructing based on green by-laws. The priority projects includes the establishment of affordable housing programme for low income individuals.



2. SOCIAL AMENITIES

2.1 Education

The major issues of education sector are shortage of classrooms, low enrolment level with gender disparity, shortage of teachers, lack of provision of basic facilities, poor condition of schools and colleges and lack of facilities in schools.

To achieve the future target of 100% enrolment with 1:1 male to female ratio by 2037, the need will be of classrooms standardizing as per classroom. Some of the strategies are elimination of gender inequality, improve quality of education and development of educational programmes. The short term includes the improvement of learning outcomes, enhancing the equity of resource allocation and increase the availability of schools. The long term plan focuses on strengthening existing school system and increase equitable access to quality education. The priority projects includes the addition of classrooms with allied facilities and basic utilities, improvement in quality of education, training programme for teachers and vocational and skill training centres. The immediate action plan involves rehabilitation and upgradation of schools and colleges.

2.2 Health

Current health facilities at Umerkot includes 1 Civil Hospital having 55 beds, 3 Taluka Hospitals at district having 6 beds and 4 Private Hospitals having 60 beds. The issues in the health sector are lack of health facilities—equipment and diagnostic, shortage of doctors, paramedical staff and lack of nutrition and accessibility to health facilities in rural areas. The NRM recommends 2 beds per 1000 according to which 1819 beds will be required.

On the basis of NRM 315 beds will be required to be provided gradually. According to WHO standards the future requirement of doctors comes out to be 1,591. The strategies includes the tailoring of medical and allied health education, continuous professional development and strengthening workforce. The short term plan focuses on to improve access to healthcare facilities, availability of skilled workforce, expansion of immunization coverage and availability of quality medicines. The long term plan involves to improve health hygiene practices, conduct co-ordination meetings and private sector involvement. The priority projects should focus on the extension of civil hospital for more specialized wards, provision of diagnostic facilities—ambulance, pharmacy and incinerator, and development programs for doctors and paramedical staff. The Immediate Action Plan involves rehabilitation and upgradation of DHQ Hospital by providing emergency transport facility, mother-child care wards, blood bank, waiting areas for patients, and subsidized drugs.

2.3 Recreational

In the core urban area of Umerkot Jinnah Park is the only Family Park and 2 sports facilities including Marvi Cricket Ground & Football Ground. The main issue in maintaining parks and playgrounds is the shortage



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of water. There is shortage of available public open spaces, scarcity of recreational facilities and lack of interest of local government for provision of recreational facilities.

The strategies are given in terms of short term and long term plans. The short term plan involves the restoration and maintenance of open spaces, rehabilitation and construction of family parks and recreational resorts, development of cultural village and museum. The long term plan focuses on the development of cultural heritage, protection of historical places, youth development programs and urban forestation. The priority projects includes the feasibility study for conservation/rehabilitation of heritage site of Umerkot. The immediate action plan needs to focus on the rehabilitation and provision of parks and grounds, preservation of Umerkot Fort and providing basic facilities there. provision of access road to Shiv Lingam Temple and landscaping.

3. ECONOMIC DEVELOPMENT

3.1 Agriculture

The major crops grown in Umerkot are cotton, wheat, sugarcane and chili whereas other crops like bajra and guwar are also grown in the barani belt of Umerkot. Umerkot lies in a drought/arid zone where annual rainfall is less than 40mm. Main canals of the district are Nara Canal and Mithrao Canal. The total geographical area of district Umerkot is 501,000 hectares out of this cultivated area is up to 335,000 hectare. The issues regarding agriculture are high price of inputs, lack of agriculture credit facilities and research centers, increased water logging and salinity, irrigation and drainage problem, low price of crop production and unavailability of farm to market roads.

The strategies for short term plan includes improve food production and use of modern techniques. The long term plan focuses on the agriculture technology development, cross-cutting issues-policy formulation and agriculture technology development. The priority project focuses on the construction of Chili Market at Kunri Taluka District Umerkot. To increase crop production steps to be taken are to enhance agriculture credit facilities, provision of regular water supply, increased crop production, rehabilitate canals, reduce water logging and salinity and construct farm to market roads. The projects proposed for economic development plan are Sugar/Cotton/Rice, Edible Oil, Guava Processing, Mango Processing, Dates Processing, Paste & Syrup Plan, Controlled Atmospheric Cold Storage (AEPZ), Drip Irrigation, and E-Beam Irradiation Plant.

3.2 Livestock And Fisheries

There is large variety of livestock in the district that is cattle, buffalos, sheep, goats, camels, asses and poultry. The livestock is being served by 02 veterinary Hospitals and 108 veterinary centers, 04 dispensaries, 19 sanctioned Doctors, 24 paramedics and also 24 supporting staff. There are 2 fish production farms in Umerkot District and the annual fish production is approximately 2 M Tons. The issues regarding livestock are limited knowledge, reduced area for natural grazing, landlessness, secondary source of income, climate change and environment degradation.



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The short term plan includes the establishment of new cattle and dairy farms, improving veterinary services, improve production performance of livestock, lease of fishing rights, issuance of licenses, fish seed stock replenishment and aquaculture development. The long term plan focuses on the enhancement of livestock production, establishment of model livestock farms, extension of services, training through schools, local awareness and enforcement of fisheries enactment. The priority project need to focus on the rehabilitation of Veterinary Hospital and establishment of new cattle and fish farms. The proposals for economic development plan are Halal Meat Park, Shrimp Aquaculture Farms and dairy, cattle and poultry farms.

3.3 Industries

Umerkot district is pre-dominantly agro-based. There are 7 Agro-industry, 5 Trade industry and 50 other industries. Vocational training for women workforce, training the unskilled man power and establishment of small industries are the part of need assessment.

The short and long term plans include the development of handicrafts, provision of vocational training and employable skills, establishment of Industrial Estates, sufficient market infrastructure, micro-financing and customized lending. The priority project includes establishment of a small industrial estate to provide incentives for Cottage Industry and Red Chillies Processing and Packing Plants. The immediate action plan should focus on the establishment of new industries, enhancement of colonization, modernize the service sector and development of marketing infrastructure. The proposals for economic development plan are establishment and modernization of Industrial Estate.

3.4 Trade And Commerce

Shahi Bazaar/Thar Bazar having numerous big and small shops works as a main shopping area. The immediate action plan includes the rehabilitation of Thar Bazar area, provision of pedestrian facility in Thar Bazaar area, upgradation of old Bazaar area's main road, relocation of vegetable and meat markets and banned heavy vehicles during peak hours.

4. BASIC UTILITIES

4.1 Water supply

Water is supplied from Nara Canal and Mitharo Canal. Water supply reported by PHED is 3 mgd against the demand of 4 mgd. The short fall is covered by ground water which is unfit for drinking. The issues are identified as inadequate water supply, poor quality supply, there are no chlorinators on tube wells provided, system losses have to be reduced, and U/G and O/H should be designed identifying DNIs.

Estimated water supply by 2037 for the expected population of 541,501 would be 16 mgd. The short term plan includes ensure access to safe drinking water, an open-defecation free environment, priority given to un-served areas and where there is shortage of sweet water and Government's role should be ensured as a service provider and regulator. The long term plan focuses on implementing the primary objectives to link water supply programs with other policies, participation of the private sector and partnership of public and private sectors, and promoting effective rehabilitation. The priority projects should focus on the procurement of additional land for water works, rehabilitation of existing water supply network, installation of new water supply network, and installation of tube wells and construction of OH tanks. The



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immediate action plan involves rehabilitation of water supply network, one site is proposed near to Thar bazaar construction of OH tanks road and filtration plant.

4.2 Sewerage And Drainage

2.1 mgd sewage generated at present against 3 mgd water supply. The issues include improper maintenance of sewerage facilities, inefficient record of maintenance and operation works, informal settlements, poor condition of sewerage system and no waste water treatment plant thus raw sewage is discharged into water bodies.

By 2037 11 mgd sewage will be generated against the estimated water supply of 16 mgd. The short term plan includes the provision of improved drainage and sewerage services, need based interventions, priority given to un-served areas and sewage treated before discharging. The long term plan focuses on the provision of improved services, development of sanitation plan and all other sanitation agencies will develop their plan according to overall plan. The priority projects should focus on the construction of drains, rehabilitation of waste water disposal station and construction of sewage treatment plant. The immediate action plan involves constructing WWTP, Interconnections of Open Nallis with Underground Sewers and removal of existing waste water collection pond from core urban area.

4.3 Solid Waste Management

The issues regarding SWM are related to collection system, medical waste management, no composting plant, absence of landfill site, community and private sector involvement in SWM and public awareness and education.

The short term plan includes daily sweeping of roads, daily removal of garbage, zero direct human contact with waste and allocation of proper landfill site. The long term plan focuses on developing efficient solid waste management system, work on bio-medical waste management and providing sufficient equipments and machineries for final disposal of solid waste. The priority projects should focus on the feasibility study for solid waste management mechanism and procurement for land acquisition process for landfill site. The immediate action plan involves recycling and segregation of solid waste, door to door collection, street sweeping to be done daily, secondary level collection should be encouraged and separate collection of biomedical waste.

5. INFRASTRUCTURE

5.1 Energy

No power generation facility in Umerkot, whereas power is supplied to HESCO-WAPDA transmission systems. The issues regarding energy are fuel conservation awareness, and that the alternate fuel sources are scarce and expensive.

Strategies for energy include up gradation of transmission and distribution process and up gradation of streetlight network. The priority projects are to rehabilitate the existing transmission system, expanding capacity of existing power units, apply modern technologies and study for alternate energy sources. The



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immediate action plan includes the use of Arial Bundle Cable wires, installation of streetlights, and up gradation of existing grid station and promote energy efficient appliances. The suggested proposals for economic development plan are Coal Mining, Washing and Bracketing Plants, Wind Power Projects, Run of the River Hydro Power Projects and Solar Energy production.

5.2 Gas Supply

Out of 308 houses only 3% of them has the availability of gas while 97% has no gas supply. Coal, wood, gas cylinder and kerosene oil are used as an alternative source of gas supply. Survey reveals that 71% of the houses have no gas load shedding.

5.3 Transportation

The road network in the district is about 921 kilometers. A provincial highway connects Umerkot with other districts of Sindh through Mirpurkhas. The district headquarter of Umerkot is linked with its taluka headquarters of Pitharo, Kunri and Sumaro through metaled roads. Certain common issues are encroachments, haphazard on-street parking, improper design of roads, poor pavement conditions, absence of street lightening, commercial areas creating problems of traffic and parking, unavailability of traffic signals, and shortage of public transport and lack of road safety.

The short term plan focuses on the improvement of road design, prevent encroachments, EIA and declaring private vehicles free zone. The long term plan includes the creation of Traffic Engineering Bureaus (TEBs), development and implementation of modern route permit, reduction of traffic growth and congestion, satisfying mobility needs and improving service delivery. The priority projects involves rehabilitation of existing roads and installation of traffic signals and solar lighting on main roads. The immediate action plan should focus on the dualization and rehabilitation of existing roads, placement of new monuments and land marks and provision of footpaths and street furniture.

5.4 Communication

The PTCL office is located in Umerkot. Out of 309 household surveyed only 8% are using PTCL and the remaining 92% use public call offices. 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.

6. ENVIRONMENT AND DISASTER

6.1 Environment

District Umerkot lies in Zone 2A of the Seismic zoning map of Pakistan (2015) which corresponds to (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. The major problems are water logging and salinity, water contamination, low quality of surface water, seismic risk, sewage disposed of in drainage canals and aging of surface drainage canal system.



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The short term plan focuses on setting up of National Environmental Council (NEC), need of permit to discharge waste, requirement for EIA, improving forest parks and fostering PPP. The long term plan includes to ensure environmental sustainability, preserve ecological cycles, create environmental awareness, conserve biodiversity, and strengthen forestry education. The priority projects includes the raising of forest nurseries, plantation of trees and preservation of forests. Immediate action plan would focus on enhancing tree plantation with urban forest and Neem & Ber plantation would be preferred.

6.2 Disaster Risk Management

Umerkot is a highly disaster prone area. The most frequent and damaging disasters are the floods. In December 2013, famine like droughts struck Tharparkar, Umerkot, Khairpur and Sanghar. The issues include low levels of risk awareness, development not “risk conscious”, insufficient DRR capacity and negligible involvement of the private sector in DRR.

Some of the objectives are providing quality emergency services, integrated District and provincial level capacity to monitor hazard trends, strengthening an integrated disaster preparedness and response capacity, implementation of DRM policies, strengthening Local Level Risk Reduction capacity and strengthening the structural and non-structural resilience of key infrastructure. The priority projects include setting a criteria for the identification of “disaster affected” areas, clear assessments of disaster risks, creation of an integrated multi-hazard damage loss data-base, involvement of local level actors by the DRR, and arrangements that allow the system to switch into emergency mode and clarify mutual roles and responsibilities to mobilize necessary resources in an effective and timely manner.

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



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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

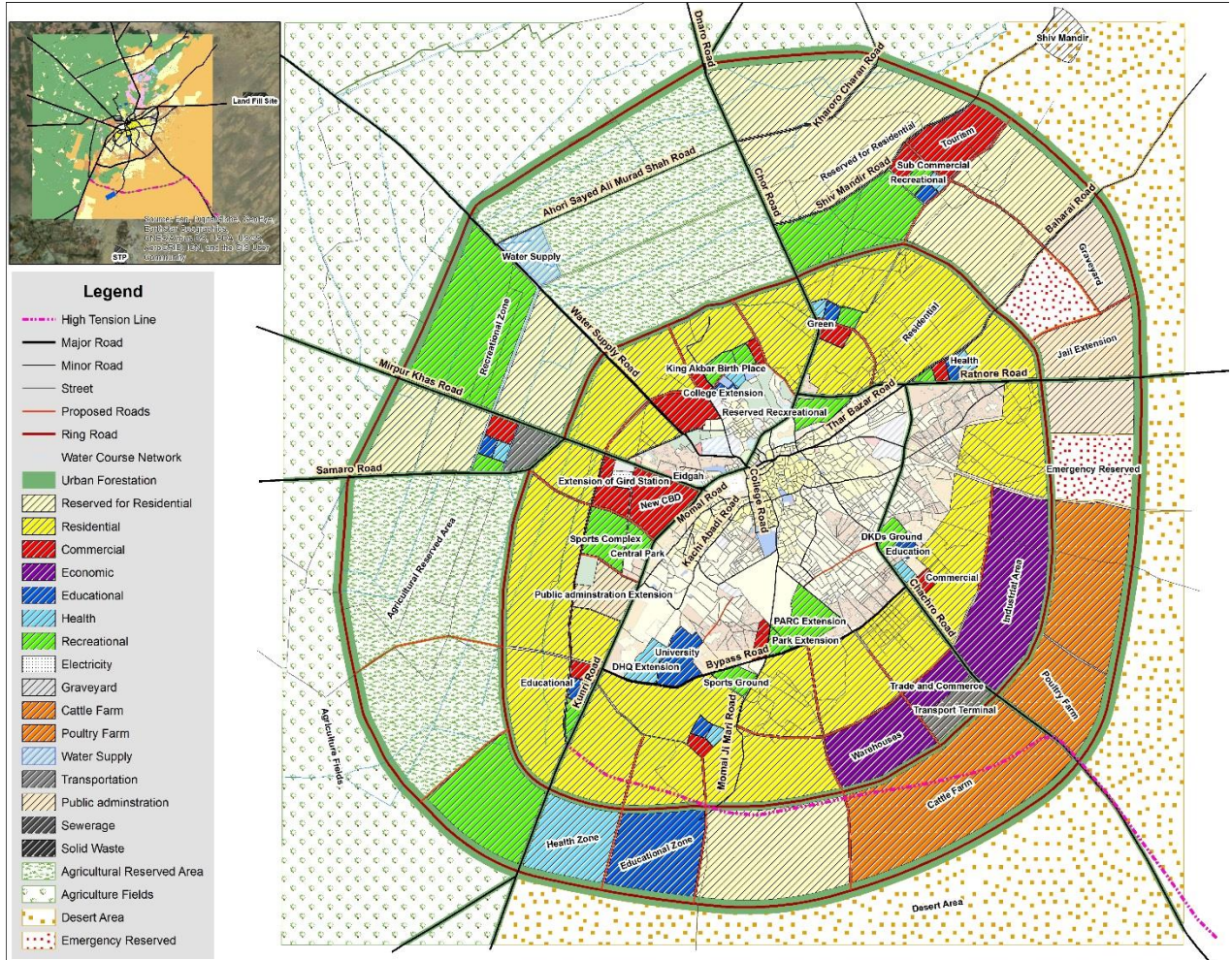
The strategies focuses on to revitalize the affordable housing, provision of basic facilities, efficient transportation and communication, energy efficient technology, modernize service sector, implement pro-active governance, develop human resources, facilitate social infrastructure, reinforce the local governance institutions, modernize administration, preservation of heritage, sustainable environment, involve community participation and implementing Public-Private Partnership.



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9. MASTER PLAN PROPOSAL

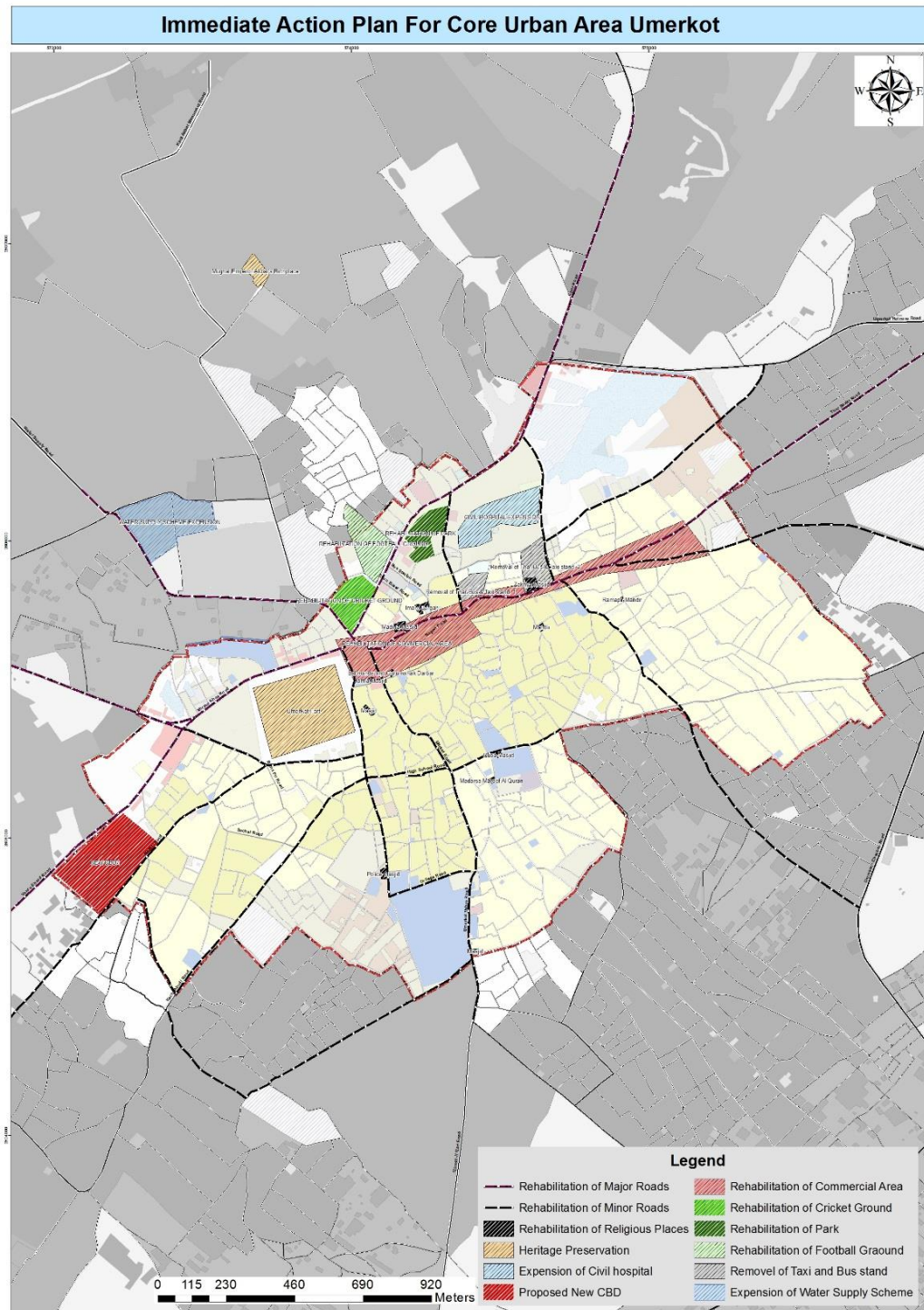
Proposed Master Plan for Umerkot Town





Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

10. IMMEDIATE ACTION PLAN





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 FOR UMERKOT TOWN



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 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 centers 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.



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- 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.

1.4 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. VISION FOR STRATEGIC DEVELOPMENT PLAN OF UMERKOT

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 in the form of a “package” rather than stand-alone project.

2.1 Vision Formulation Workshop

For Vision Formulation, a Consultative workshop was held in Mirpurkhas (Divisional Headquarter) at **Darbar Hall, DC Office Mirpurkhas on September 8th 2018** in coordination with Directorate of Urban Policy & Strategic Planning (DUP&SP) Planning & Development Department Government of Sindh.

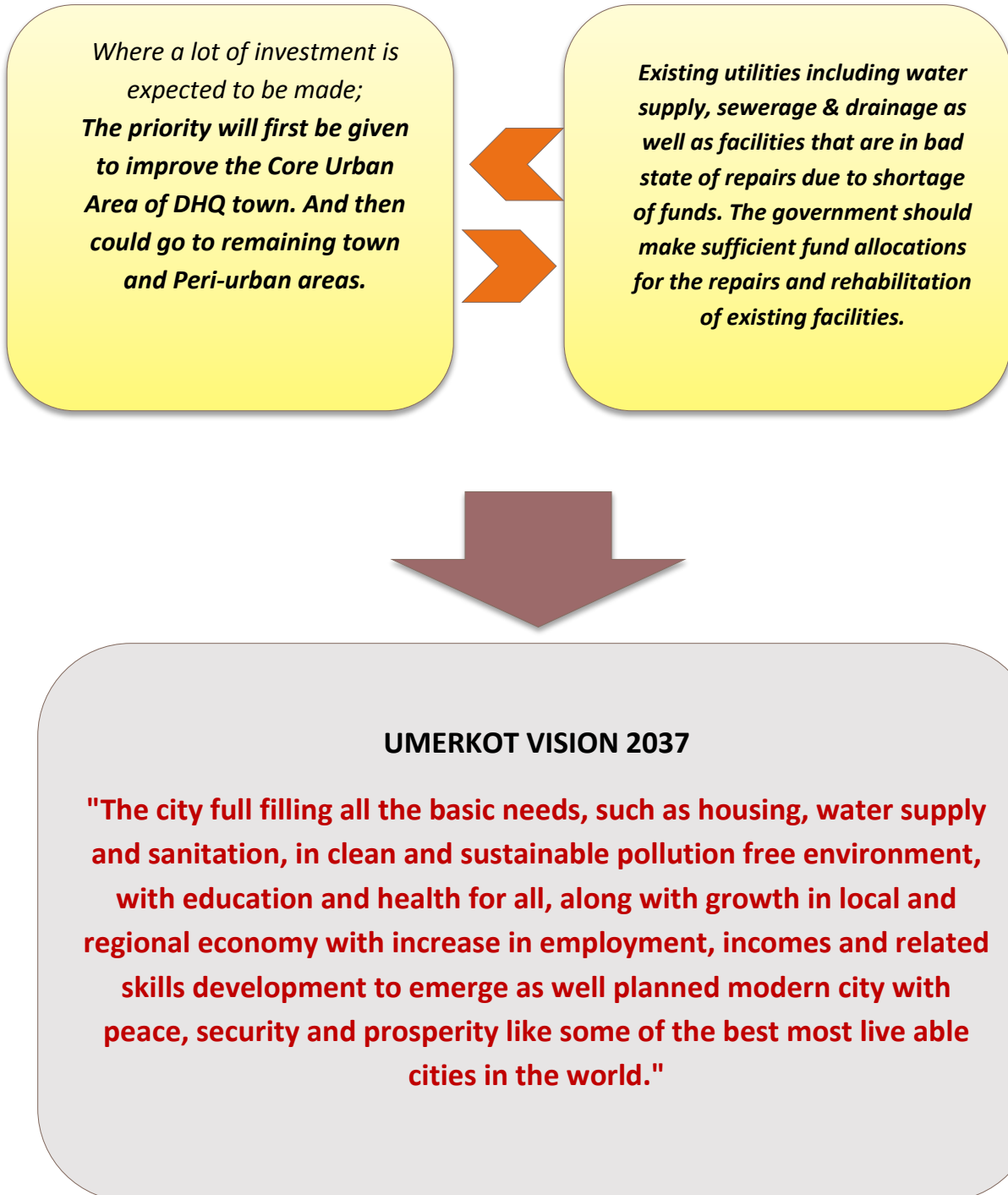
A presentation on the existing situation was made by the Consultants highlighting the issues, constraints and potential of the town. During workshop almost all stakeholders were actively participated and discussed the social & physical issues of the town. The stakeholders have also shared their views about the future development options and investment decisions for the town.

2.2 Workshop Invitees and Participation

All the relevant stakeholders were invited and also confirmed their participation. The target group was the District administration & local government representatives, members of civil society and NGOs and civil servants working in Umerkot DHQ town.

2.3 Umerkot'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:



3. AN OVERVIEW OF UMERKOT AND ITS ENVIRONMENT

3.1 History

Umerkot is a historically important administrative unit that plays an important role in the economy and trade of eastern Sindh. Formerly known as Amarkot, it was the capital of Greater Sindh Province, including some parts of present day's Rajasthan state of India. It became prominent during the time of the Mughals. The Mughal king Akbar was born in Umerkot and later become the ruler of India (Hind).

Later on, the region was ruled by different dynasties, including the Kalhoras (1657-1783) and the Talpurs (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. Under the British the province was divided into different administrative units and assigned to Zamindars (landlords) to collect taxes for the British government. The British government developed these areas as urban centers. Consequently, people migrated from other districts and provinces as well and started to reside here. The British named these small developed areas as "Talukas".



Figure 3.1: Akbar's Birth Place

Umerkot has many sites of historical significance. Here are few historic and famous places in Umerkot

- Akbar's Place of Birth
- Umerkot Fort
- Ruins of Momal Ji
- Shive Temple

Umerkot was part of district MirpurKhas till its establishment as a district, in April, 1993. But later on it was abolished and merged back with district MirpurKhas in 2000. However, it was again revived in 2004, with the same jurisdiction.

3.2 Topography and Geology

Geographically and topographically, the district is divided into two distinct regions i.e., the eastern part and the western part. The eastern half of the district, which comprises of the taluka Umerkot, is Thar Desert. This region is distinguished by its low and erratic rainfall, high atmospheric aridity, abundant sunshine and heat, strong dust-raising winds and sparse vegetation cover. High sand dunes and sandy plains covering 70% of its area. However, the region is gifted with a large variety of natural vegetation, there being over seven hundred species of grasses, shrubs and trees. The perennial amongst these are very hardy, and tenacious enough to withstand extended drought, efficient builders of biomass and yet nutritious as a feed.

The western part of the district is relatively fertile with green lands and a proper irrigation system. This western part of the district comprises of the three talukas of Pitharo, Sumaro and Kunri, though some parts of Umerkot taluka are also included in this region.

The topography within 3 kilometers of Umerkot contains only modest variations in elevation, with a maximum elevation change of 45 meters and an average elevation above sea level of 16 meters. Within 16 kilometers also contains only modest variations in elevation (93 meters). Within 80 kilometers contains only modest variations in elevation (190 meters).

The area within 3 kilometers of Umerkot is covered by cropland (50%) and bare soil (47%), within 16 kilometers by bare soil (61%) and cropland (39%), and within 80 kilometers by bare soil (73%)

3.3 Geographical Location and Area

District Umerkot is located between $69^{\circ} 10' 08''$ to $70^{\circ} 19' 44''$ east longitudes and $24^{\circ} 52' 54''$ to $25^{\circ} 47' 59''$ north latitudes. District Umerkot is bounded on the north by Sanghar district, on the west by Mirpurkhas district, on the south and east by Tharparkar district. The district is administratively subdivided into the four talukas: Kunri, Pithoro, Samaro and Umerkot which is the district headquarter as well. The total area of the district is 5,608 square kilometers.

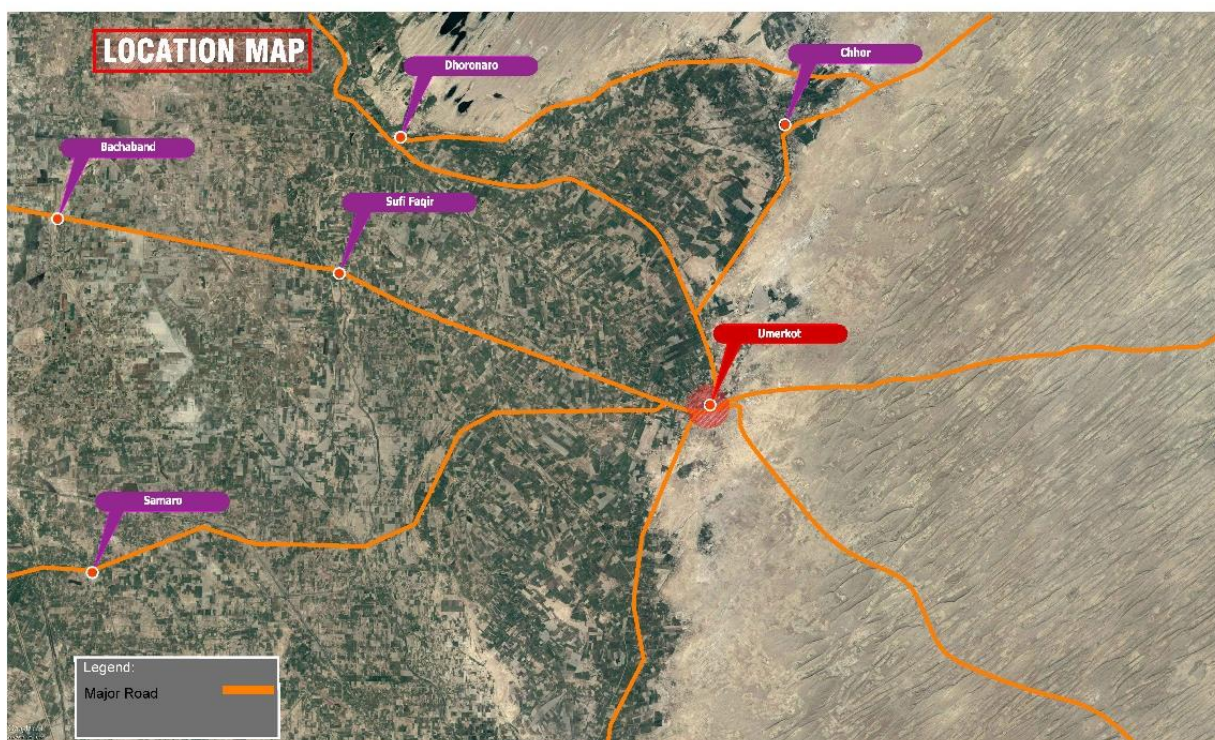


Figure 3:2: Location Map of Umerkot

3.4 Administrative Set-up

District Umerkot has its district headquarters at Umerkot city. This district has four talukas, named: Umerkot, Samaro, Kunri and Pitharo. It has 27 union councils and 235 mouzas (revenue village). Out of these mouzas, 215 are rural, 3 are urban and 17 are partly urban.

The district is under the charge of Deputy Commissioner who performs the function of the District Magistrate as well as Collector. He is also responsible for the coordination of function of all nation- building departments in the district. On the judicial side he is assisted by an Additional District Magistrate, three Assistant Commissioners and four Mukhtiarkars.

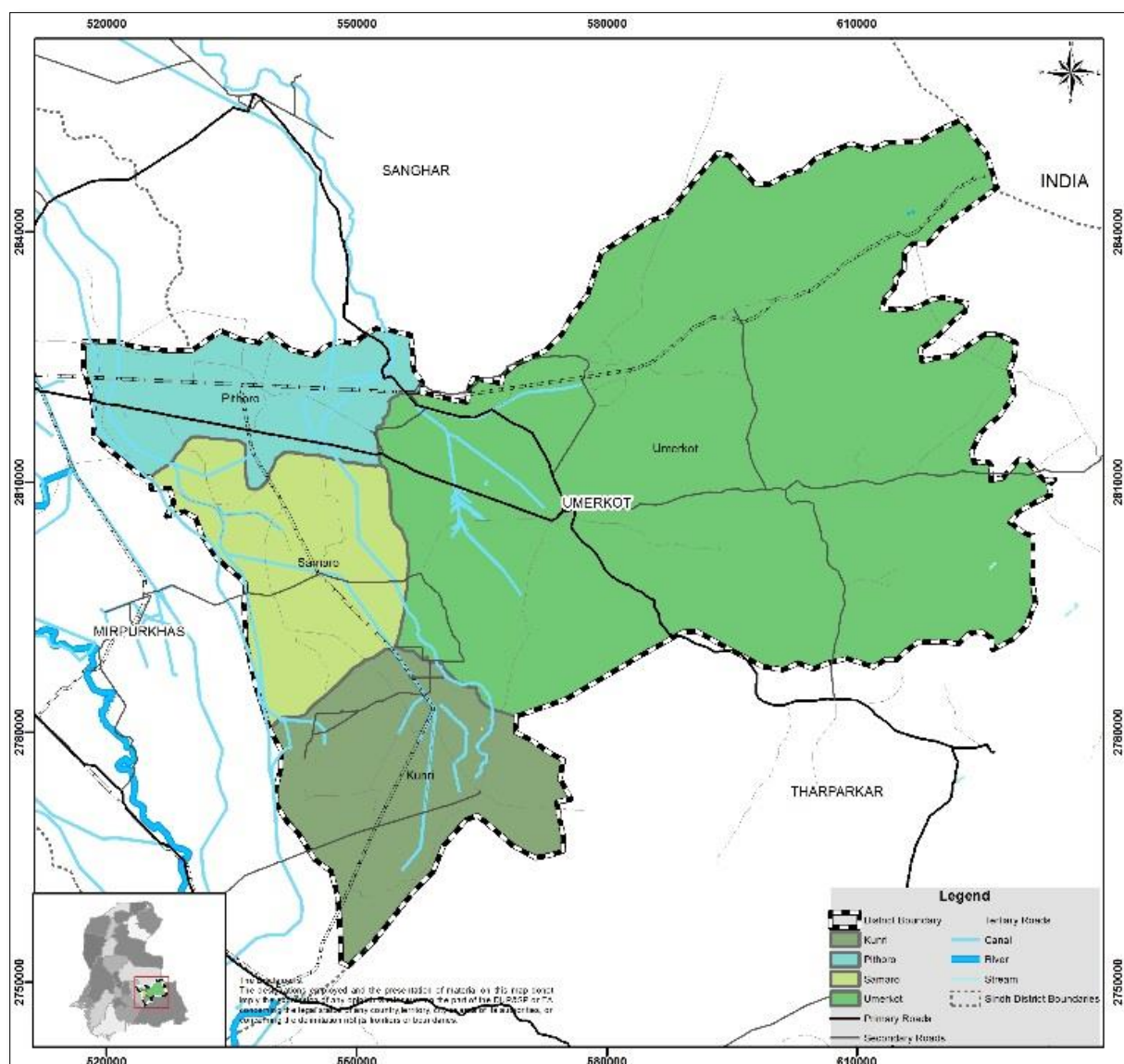




Table 3-1: Administrative Division of District Umerkot

Umerkot	Kruno Circled / Supervisory Tapas	Patwar Circles / Tapas	Number of Mouzas					
			Total	Rural	Urban	Partly Urban	Forest	Un- Populated
Umerkot	3	27	90	82	-	8	-	-
Samaro	3	17	59	58	-	1	-	-
Kunri	3	17	38	32	3	3	-	-
Pithoro	3	17	48	43	-	5	-	-
Total	12	72	235	215	3	17	-	-

Source: Mouza Statistics of Sindh 2008, Agriculture Census Organization

3.5 Population

According to census of 1998, population of Umerkot TC was only 35,559, with an annual average growth rate of 5.75%.

3.6 Present Population

According to census of 1998, population of Umerkot TC was only 35,559, with an annual average growth rate of 5.75%. In 2017 the population of the town jumped up to 134,052 souls with an annual average growth rate of 7.23%. The town has gone through a massive transformation in terms of population dynamics in the last 20 years.

Table 3-2: Present Population Statistics

Area	Population		AGR %		Average HH Size		Housing Units	
	Census	Census	Census	Census	Census	Census	Census	Census
	1998	2017	1998	2017	1998	2017	1998	2017
Umerkot MC	35,559	134,052	5.10%	7.23%	6.6	5	5,388	26,810
Umerkot Taluka	312,753	564,394	3.83%	3.20%	5.3	5.1	59,010	110,665
Umerkot District	663,095	1,073,146	3.28%	2.56%	5.4	5.1	122,795	210,421

Source: District Census 1998 and 2017



3.7 Future Projections

According to 2017 census population of Umerkot town is 134,052 souls. Umerkot has gone through a transformation not in terms of infrastructure but also in terms of population dynamics. Projected population of Umerkot works out to be 541,501 souls by 2037. There would be a rapid increase in population growth which is depicted in the table and graph below:

Table 3-3: Future Projections for Umerkot TC

Projected 2017	Projected 2022	Projected 2027	Projected 2032	Projected 2037
134,052	190,044	269,424	381,960	541,501

Source: Census 2017 and Consultant's Projections

3.8 Urban Morphology

Umerkot is a city of culturally and physically diverse neighborhoods. Since residents spend a great deal of time in their individual neighborhoods and identify themselves more strongly with their respective areas than with the City as a whole. Thus the physical design of these individual communities determines residents' quality of life. Most of the development found along N120 and Thar Bazaar Road. There is a main CBD also called old town area, located near Fort, connecting Thar Bazaar Road. The fundamental buildings present in the town are Fort, Museum, Circuit House, Government Degree College, High School, Post Office, DHQ Hospital, PARC Station, Bus Station etc.

There are no high rise buildings in the town, mostly town comprises of low density residential areas. The town's current built up area is approx. 20.1 square kilometers, which is mostly scattered as compared to 2003 that was around 6.2 square kilometers, which was congested. Within the town, it has some vacant parcels of land, which can be utilized for new and future development.

3.9 Land Use and Spatial Analysis

The built-up area of Umerkot town comprises of around 1958.1 acres of land which is 41.71% of the total area as compare to consultant's urban boundary which is 4693.9 acres. The land use analysis indicates that almost 28% of total urban boundary area is in use of residential purpose only. 49.2% of the area is covered by agriculture fields.

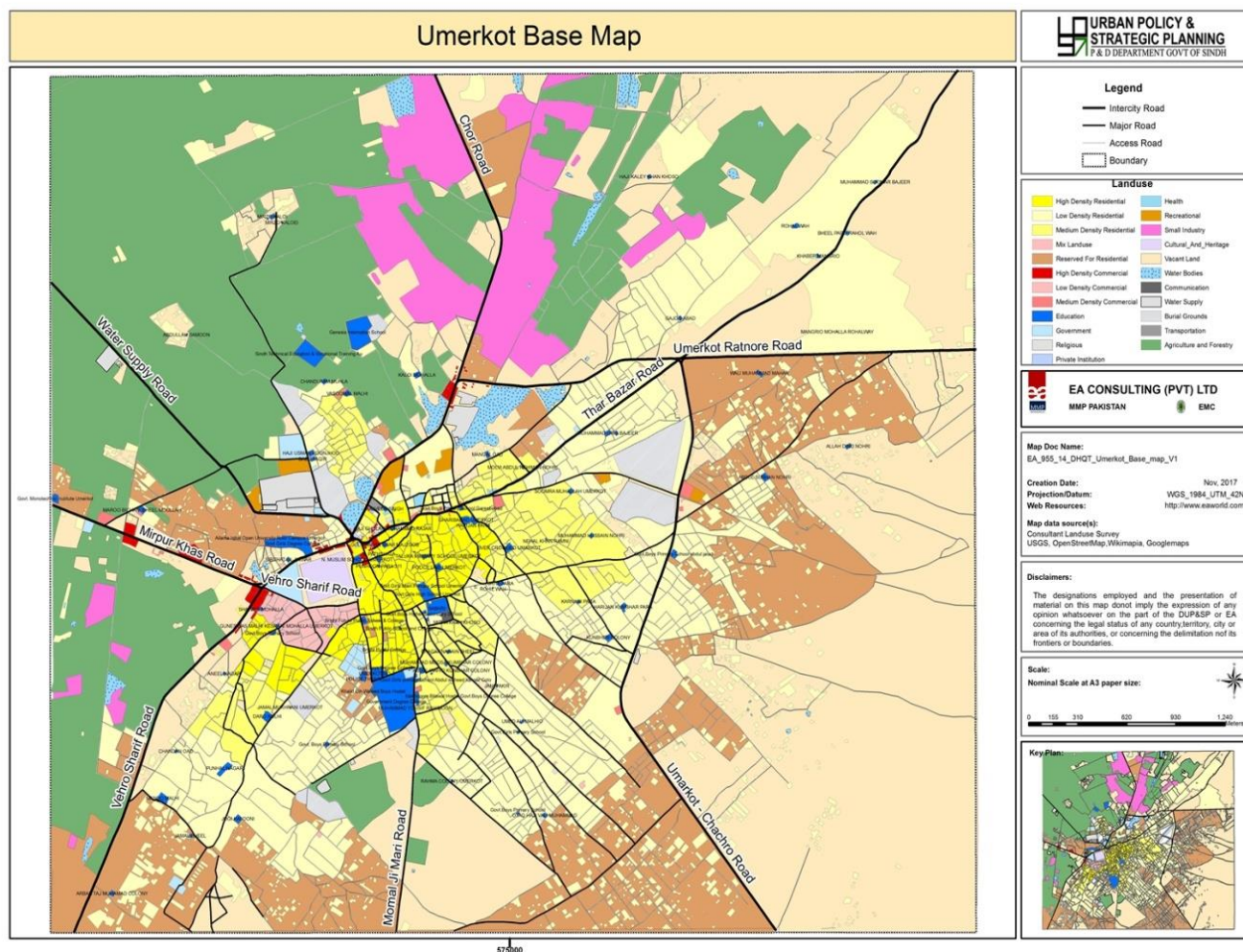


Figure 3:3: Land use Map of Umerkot



Table 3-2: Land use Classification and Percentages

UMERKOT (URBAN BOUNDARY)				4693.8952
CATEGORIES	LANDUSE CLASSIFICATION			AREA (ACRES)
URBAN	Residential	Residential	Low Density Residential	432.0
			Medium Density Residential	245.2
			High Density Residential	83.4
			Mix Development	80.7
			Proposed Housing Schemes	474.6
	Sub Total			1315.9
	Commercial	Commercial	Low Density Commercial	1.2
			Medium Density Commercial	18.7
			High Density Commercial	22.3
	Sub Total			42.2
	Parks and Playground	Parks and Playground	Parks and Playgrounds	18.7
	Sub Total			18.7
	Amenities	Institutional	Education	79.2
			Public Administration	150.3
			Health And Welfare	12.9
			Religious	7.6
		Utilities And Municipal Service Facilities	Electricity	7.6
			Sewerage	1.2
			Communication	0.0
			Water Supply	18.4
		Burial Ground	Burial Ground	29.0
	Sub Total			306.2
	Industrial	Manufacturing	Small-Scale Manufacturing/ Light Industry	1.2
			Large-Scale Manufacturing/ Heavy Industry	45.9
	Sub Total			47.0
	Transportation	Transportation	Transportation	228.1
	Sub Total			228.1
	Sub Total			1958.1
NON-URBAN	Agriculture And Forestry		Agricultural	2308.4
	Sub Total			2308.4
	Water Bodies		Canal	14.3
			Water Bodies	44.8
	Sub Total			59.1
	Vacant Area			368.3
	Total			368.3
TOTAL				4693.9

Source: Spatial Analysis done by Consultants



3.10 Town Scape

Most of the development found along N120 and Thar Bazaar Road. There is a main CBD also called old town area, located near Fort, connecting Thar Bazaar Road. The fundamental buildings present in the town are Fort, Museum, Circuit House, Government Degree College, High School, Post Office, DHQ Hospital, PARC Station, Bus Station etc. There are no high rise buildings in the town, mostly town comprises of low density residential areas.

City is divided into 5 zones with following characteristics:

Zone 1 is along Mirpurkhas Road with mostly agricultural Land. At Present Formal residential development is happening here.

Zone 2 is the core urban area of town. Majority of cultural heritage is found here like Umerkot fort. This zone is dense due to commercial, administrative and market activities. Zone 2 is the CBD of the town, along with the existence of bus stand.

Zone 3 exists on the north side of town along thar Bazar road toward Chor road .There is concentration of brick kilns in the area .Mostly it is lower density compact residential.

Zone 4 is mostly residential development where housing development has haphazard characteristic.

Zone 5 is along Momal Ji mian road leading toward bypass, the development is haphazard manner with both katchi abadi and katcha houses.

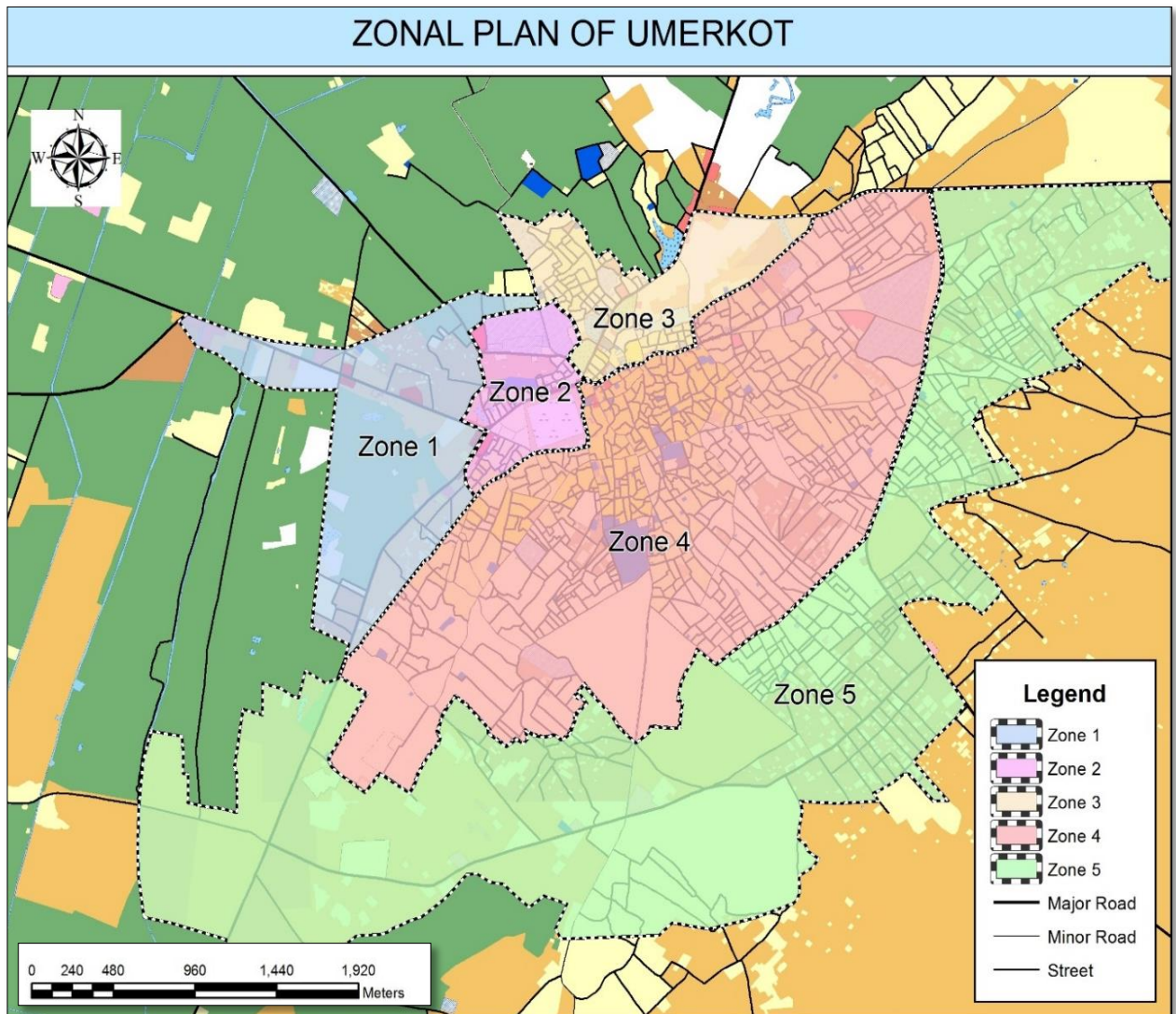


Figure 3:4 : Zonal Plan of Umerkot



3.11 Vision For Strategic Development Plan of Umerkot

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.

3.12 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 Umerkot 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.

For Vision Formulation, a Consultative workshop was held in Mirpurkhas (Divisional Headquarter) at **Darbar Hall, DC Office Mirpurkhas on September 8th 2018** in coordination with Directorate of Urban Policy & Strategic Planning (DUP&SP) Planning & Development Department Government of Sindh.

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 Umerkot 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.

3.13 Umerkot'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:





4. PROPOSED MASTER PLAN OF UMERKOT TOWN

4.1 Spatial Pattern

Umerkot is a historically important administrative unit that plays significant role in the economy and trade of eastern Sindh. Formerly known as Amarkot, it was the capital of Greater Sindh Province, including some parts of the present day's Rajasthan state of India. It has many sites of historical significance such as Akbar's Place of Birth, Umerkot Fort, Ruins of Momal Ji and Shiv Temple.

Topographically the district has two distinct portions; the irrigated area in the west and north and the desert area in the east and south. The district is irrigated by Nara and Mithrao Canals. Being situated at the tail of these canals which remain a shortage of water, while in the desert areas, the cultivation mostly depends upon rain.

One can see the sand hill spreading towards the east which consists of barren tracts of sand dunes covered with thorny bushes. The ridges are irregular and roughly parallel, that they can often enclose shelter valleys, above which they rise to a height of some 46 meters. Towards the west are the alluvial plains with vast stretches of vegetation. The fusion of these two distinct characteristics is clearly visible in form of Umerkot Town, and makes it a dual color city.

The district is connected with the railway line, in the northern side. The Mirpur Khas- Khokhrapar meter-gauge line passes through this district. A provincial highway N-120 connects Umerkot with the rest of the districts of Sindh through Mirpur Khas. This district also hosts the famous Khokhrapar border of Pakistan with India via N-120 and railway. The DHQ Town of Umerkot is linked with its taluka headquarters of Pithoro, Kunri and Samaro through metalled roads. In addition the district also has a good road network among towns and villages. The road communication, particularly in the desert area, has considerably improved. At present, a good number of trucks and buses ply in the desert from Umerkot.

Umerkot is a city of culturally and physically diverse neighborhoods. Since residents spend a great deal of time in their neighborhoods and identify themselves more strongly with their respective areas than with the town as a whole. Thus the physical design of these individual communities determines residents' quality of life.

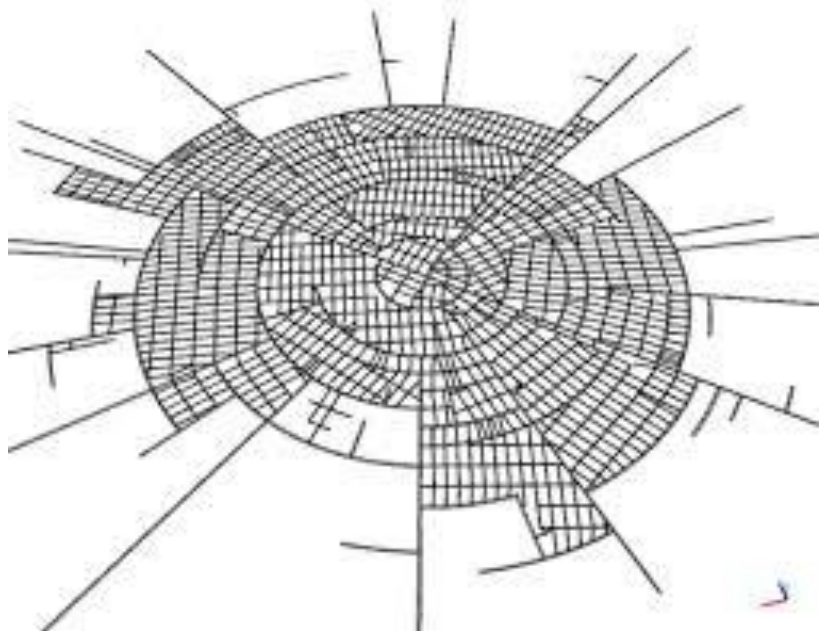
Most of the development found along N-120 and Thar Bazaar Road. There is the main commercial area also called the old town area, located near Fort, connecting Thar Bazaar Road. The fundamental buildings present in the town are Fort, Museum, Circuit House, Government Degree College, High School, Post Office, DHQ Hospital, PARC Station, Bus Station etc. There are no high rise buildings in the town, mostly town comprises of low-density residential areas. Within the town, it has some vacant parcels of land, which can be utilized for new and future 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 Pithoro, Kunri and Samaro Talukas.

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 six major roads including N-120 connects Umerkot with the Mirpur Khas and Chor Towns, all converging on the town center. Interconnection of these radiating roads with the proposed Ring Roads around the existing town, will keeps the development compact.



Since this town is not large enough in terms of its spatial spread then its projected future population, thus the alignment of two Ring Roads are made. The proposed ring roads are more of oval shape, as First Ring Road is basically formed by connecting existing spatial pattern and Second Ring Road is shaped considering the area for further development. And the portions of proposed Ring Roads will also serve as N-120 Bypasses in between Mirpur Khas and Chor Roads, in order to avoid passing through the old town center. In addition, Bypass Road is serving as an important artery in between Kunri and Chachro Roads.



4.3 Proposed Master Plan

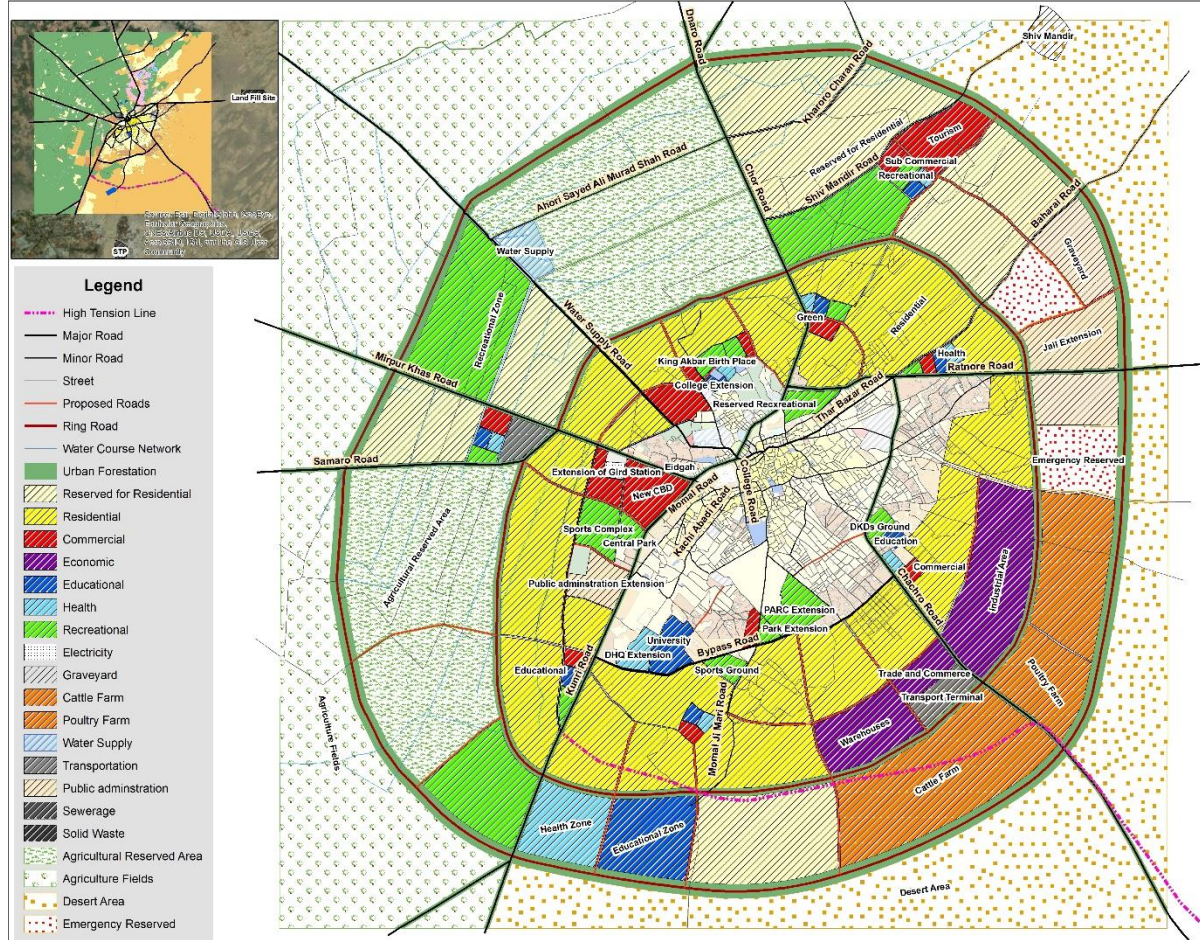
The Proposed Master Plan for Umerkot has been prepared with the consideration of three phases as follows:

- 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 Umerkot Master Plan is 22,400 acres approx. for a population of 541,500 by 2037. In this way, Umerkot Town in next twenty years is expected to have population density of 24 persons per acre and overall twelve housing units per acre with an average household size of 5.0.

The hallmark of the plan is that it is **compact without being congested**. As the future expansion of the Umerkot Town is expected to be large, thus the complete Proposed Umerkot 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.

Proposed Master Plan for Umerkot Town



The overall structure of the plan is placing Main CBD and other prime activities around the existing town, with two oval shaped ring roads. First Ring Road is around existing spatial spread with centrally placed activities, while Second Ring Road is running all around the further development, irrigated land and periphery. Furthermore, seven sub centers are placed inside First Ring Road, while the two sub centers are created in the direction of Mirpur Khas and Shiv Mandir, in between two Ring Roads. The intersection of radial roads and ring roads will also create 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.

4.4 Salient Features of Planning

- As the town is in oval shape, there is a main CBD (Central Business Districts) with tourism occurs in slightly western side of the town at the intersection of Mirpur Khas Road and Kunri Road.
- In addition, sub commercial areas are also identified to reduce the burden over the main CBD at; Akbar Birth Place, Chor Road, Shiv Mandir Road, Ratnore Road, Chachro Road, Bypass Road, Momal Ji Mari Road, Kunri Road and Mirpur Khas Road. Likewise, two more tourism area are identified near Akbar Birth Place and Shiv Mandir.
- Considering desert environment along Chachro Road; Trade and Commerce and Warehouses are placed on its one side. Moreover a much larger area for Industrial activities is proposed on other side of the Chachro Road.
- Two transport hubs are designated; one is along Mirpur Khas Road in western direction and other along Chachro Road in southeast side.
- The areas for graveyards have also been reserved at far eastern ends of the proposed town. However, these are accessible from Ratnore Road and Baharai Road.
- The cattle and poultry areas are also proposed in the southeastern direction on both sides of Chachro Road, to utilize more desert area for immense uses and to limit the town development further. It will also benefit the population of nearby villages and other settlements.
- Along Bypass Road extension of DHQ Hospital and a new University is proposed. Further large zones of health and education are placed in southern side, accessible from Kunri Road.
- Next to CBD; Sports Complex and Central Park are proposed. Further three large recreational zones are placed along Mirpur Khas, Kunri and Chor Roads.
- The new public administration area, adjacent to Sports Complex is proposed along Kunri Road, to serve and manage this beautiful city of Umerkot.
- In west and northwest of the town, the areas have been reserved for agriculture in between the Ring Roads, as these areas are benefitted with the existing irrigation network. This will be helpful in restricting housing development and preserving the agricultural farms from the onslaught of the housing projects by private sectors.

4.5 Two Ring Roads – Connecting Existing with Outer Developments

The proposed ring roads are more of oval shape, as First Ring Road is placed within the Second Ring Road. In order to limit the physical extent of the town towards agricultural land, both Ring Roads are placed at a far distance to avoid pressure of new development. And the portions of proposed Ring Roads will also serve as N-120 Bypasses in between Mirpur Khas and Chor Roads, in order to avoid passing through the old town center.

- i. The **First Ring Road** is formed by placing the main CBD and major activities within and around the existing development.
- ii. And the **Second Ring Road** is marked considering agricultural land in northwest and west, and area reserved for further development pertaining to periphery.



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 roads. As the areas on both sides of the Ring Roads will attract many developers. The land two hundred feet on both sides of the ring roads should be notified for development control where only planting of local trees should be allowed.

4.6 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 six proposed radial roads with increased ROW, which will serve as future regional connections. These includes; Mirpur Khas Road (N-120), Chor Road (N-120), Water Supply Road, Ratnore Road, Chachro Road and Kunri Road. In addition, Bypass Road is connecting radial roads and serving as one of the main artery in between Kunri and Chachro Roads. 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.



4.7 Proposed Land Use Zoning

The proposed land use zoning is broadly based on NRM Standards¹. 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 Umerkot as DHQ Town, secondary zoning i.e. Level-2, is also categorized accordingly, again in consideration to the NRM Standards². The proposed land use zoning is shown in the table:

S.No	NRM STANDARDS		PROPOSED LAND USE CLASSIFICATION		
	Land Use Zoning	Land Uses (%)	Level - 1 Functional Zoning	Areas (acres approx.)	Land Uses (%)
1	Residential	40-45%	Residential	8,925	39.9%
2	Commercial	2-3%	Commercial	609	2.7%
3	Industrial	2-10%	Economic	2,387	10.7%
			Livestock		
			Industrial		
4	Institutional	3-5%	Health and Welfare	1,551	6.9%
			Educational		
			Religious		
			Public Administration		
5	Community Open Spaces	4-6%	Recreational	1,530	6.8%
6	Graveyards	2-3%	Graveyards	413	1.8%
7	Arterial Circulation & Terminals	15-20%	Transportation	2,092	9.4%
			Utilities and Services		
8	Protected Reserved	15-25%	Urban Forestation	4,848	21.7%
			Agriculture		
			Water Bodies		
			Vacant / Reserved		
	Total Area of Proposed Master Plan of Umerkot Town			22,355	100%

¹ 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

² Standard Land Use Classification for Urban Jurisdictions in Pakistan, Appendix 10.1, page no. 398, National Reference Manual on Planning and Infrastructure Standards



Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

The total area requirement for full fledged metropolis will be around 22,400 acres. As shown in the table of proposed land use classification, the percentage of residential is slightly low and institutional is high, in comparison to the NRM standards. Subsequently, the institutional area will also contain residences for health, educational, religious and public administration employees / staff. In this way, institutional area is sharing the residential load as well.

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

PROPOSED LAND USE CLASSIFICATION FOR UMERKOT TOWN						
S.No	Level - 1 Functional Zoning	Level - 2 Functional Zoning	Areas (acres approx.)	Land Uses (%)	Areas (acres approx.)	Land Uses (%)
1	Residential	Existing Residential	1,316	8,925	39.9%	8,925
		Proposed Residential	4,703			
		Reserved for Residential	2,906			
2	Commercial	Existing Commercial	42	609	2.7%	609
		New CBD	117			
		New Tourism at Mirpurkhas Road	47			
		New Tourism near Akbar Birth Place	71			
		New Tourism near Shiv Mandir	159			
		Sub Commercial at Mirpurkhas Road	25			
		Sub Commercials near Akbar Birth Place	20			
		Sub Commercial at Chor Road	21			
		Sub Commercial at Shiv Mandir Road	27			
		Sub Commercial at Ratnore Road	10			
		Sub Commercial at Chachro Road	19			
		Sub Commercial at Bypass Road	19			
		Sub Commercial at Momal Jimari Road	15			
		Sub Commercial at Kunri Road	19			
3	Economic	Trade and Commerce	80	313	1.4%	
		Warehouses	233			
4	Livestock	Cattle Farms	1,264	1,541	6.9%	2,387
		Poultry Farms	277			
5	Industrial	Existing Industries	47	533	2.4%	
		New Industrial Area	486			
6	Health and Welfare	Existing Health and Welfare	13	367	1.6%	
		Health and Welfare Area	236			
		DHQ Hospital - District Health Complex	45			
		Dialysis Center with Extension	8			
		Health Center at Mirpurkhas Road	10			
		Health Center near Akbar Birth Place	11			
		Health Center at Shiv Mandir Road	10			
		Health Center at Ratnore Road	11			
		Health Center at Chachro Road	12			
		Health Center at Momal Jimari Road	10			
7	Educational	Existing Educational	79	632	2.8%	1,551
		Educational Area	289			
		University Area	73			
		PARC Extension	94			
		Sindh Technical Institute Extension	18			
		Educational Center at Mirpurkhas Road	11			
		Educational Center at Chor Road	11			
		Educational Center at Shiv Mandir Road	10			
		Educational Center at Ratnore Road	11			
		Educational Center at Chachro Road	11			
		Educational Center at Momal Jimari Road	11			
		Educational Center at Kunri Road	12			



Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

8	Religious	Existing Religious	8	85	0.4%		
		Shiv Mandir	68				
		Eid Gah	9				
9	Public Administration	Existing Public Administration	150	467	2.1%		
		New Public Administration Area	89				
		District Jail Extension	228				
10	Recreational	Existing Parks and Playground	19	1,530	6.8%	1,530	6.8%
		Recreational Zone Mirpurkhas	533				
		Recreational Zone Kunri	338				
		Recreational Zone Chor	301				
		Central Park	24				
		Sports Complex	82				
		Lord Ganesh Sports Ground at Bypass Road	30				
		Park Extension at Bypass Road	15				
		DKD's Ground at Chachro Road	25				
		Recreational at Akbar Birth Place	25				
		Playground near Akbar Birth Place	16				
		Park / Playground at Mirpurkhas Raod	16				
		Park / Playground at Chor Road	14				
		Park / Playground at Shiv Mandir Road	20				
		Park / Playground at Ratnore Road	7				
		Park / Playground at Kunri Road	15				
		Green Reserved	49				
11	Graveyards	Existing Graveyards	29	413	1.8%	413	1.8%
		Graveyard 1	187				
		Graveyard 2	197				
12	Transportation	Existing Transportation	228	1,486	6.6%		
		Transport Terminal at Mirpurkhas Road	58				
		Transport Terminals at Chachro Road	80				
		Road Network	1,120				
13	Utilities and Services	Existing Utilities and Services	27	607	2.7%	2,092	9.4%
		Water Supply	76				
		Sewerage	188				
		Land Fill	302				
		Electricity	14				
14	Urban Forestation	Urban Forestation	670	670	3.0%	4,848	21.7%
15	Agriculture	Agricultural Reserved Area	3,583	3,583	16.0%		
16	Water Bodies	Canals and Ponds	190	190	0.8%		
17	Vacant	Vacant Area (Emergency Reserved)	405	405	1.8%		
Total Area for Future Development of Umerkot			22,355	22,355	100%	22,355	100%

4.7.1 Residential Zone

The important features of the proposed master plan is accommodation of all income groups with diverse options for housing. Therefore in total 9,000 acres of residential land use is proposed, which will create twelve housing units per acre on average. Thus in overall town more than 108,000 housing units are expected to be in town by 2037.

There are existing vacant land parcels in overall town, specially in south 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) land of 100 acres approx. along Ratnore Road is proposed for low to medium 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:

Table 4-2: New Residential Scheme ³		
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
<ul style="list-style-type: none"> Houses Neighborhood level facilities like small commercial, parks, playgrounds, schools, religious, parking 	<ul style="list-style-type: none"> Utilities and services Road accessibility Pedestrian friendly streetscape Mixed-used structures 	<ul style="list-style-type: none"> Apartments Large health and educational Large commercial activities

³ Land Allocation for New Residential Schemes as per Sindh Building & Town Planning Regulations, Chapter 20.4.1, page no 124.

Houses - Applicable SBCA Bylaws ⁴					
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 Umerkot Town, the trend of vertical development, in form of mixed use exist in some areas. 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. 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 buildings as per the standards.

The following guidelines are for apartment zone development:

Permitted Uses	Allied Permissible Uses	Prohibited Uses			
<ul style="list-style-type: none">- Apartments- Designated parking areas- Small commercial- Parks and playgrounds- Prayer areas	<ul style="list-style-type: none">- Utilities and services- Road accessibility- Pedestrian friendly streetscape- Mixed-used structures	<ul style="list-style-type: none">- Large health and educational institution- Large commercial activities			
Apartments - Applicable SBCA Bylaws ⁵					
Types	Densities ⁶ 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)

⁴ Houses/Bungalows, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.2, page no 141.

⁵ Flat Sites Category, Zoning Regulations /Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.4, page no 144.

⁶ Residential Density Standards, as per Sindh Building & Town Planning Regulations, Chapter 20.3, page no 123.

4.7.2 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)**

Considering the shape and growth of the town, the CBD has been located in the area of central attraction accessible from Mirpur Khas Road (N-120) and Kunri 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**

Umerkot has many sites of historical significance such as Akbar's Place of Birth, Umerkot Fort, Ruins of Momal Ji and Shiv Temple. Considering the potential of tourism, three areas have been reserved for tourism purpose i.e. with main CBD, at Akbar Birth Place and near Shiv Mandir. These areas will include convention center, expo center, hotels, shopping malls, exhibition ground, etc.

- **Sub Commercial Centers**

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, nine sub commercial centers are proposed at Akbar Birth Place, Chor Road, Shiv Mandir Road, Ratnore Road, Chachro Road, Bypass Road, Momal Ji Mari Road, Kunri Road and Mirpur Khas Road. Further small commercials within the residential areas will be formed 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
<ul style="list-style-type: none">- Corporate head office buildings, towers- Huge markets, malls, outlets- Large public squares and parks- Dedicated parking lots / spaces	<ul style="list-style-type: none">- Pedestrian friendly streetscape- Mixed-used buildings- Medium to High Rise Apartments- Fueling stations

Applicable SBCA Bylaws ⁷⁸	Prohibited Uses
<ul style="list-style-type: none"> - Plot Sizes: 1,000 sq.yds. (min) - FP: 40% - 65% - FAR: 1:2.75 – 1:5.5 - Floors: G+6 & G+8 (max) 	<ul style="list-style-type: none"> - Residential housing schemes - Large health and educational institution

4.7.3 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 southeast side of the town along Chachro 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.

- **Warehouses**

The warehouses area is proposed next to trade and commerce, accessible from Chachro Road. 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.

This area will also technical services like 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.

The following guidelines are for economic zone development:

Permitted Uses	Allied Permissible Uses
<ul style="list-style-type: none"> - Warehouses and Workshops - Godowns and Cold Storage - Trade and Commerce Areas - Showrooms or Display Centers 	<ul style="list-style-type: none"> - Mixed-used buildings - Residences for workers - Fueling stations

⁷ Commercial, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.3, page no 143.

⁸ Flat Sites Category, Zoning Regulations /Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.4, page no 144.

Applicable SBCA Bylaws ⁹	Prohibited Uses
<ul style="list-style-type: none"> - Plot Sizes: <ul style="list-style-type: none"> 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) 	<ul style="list-style-type: none"> - Private Residential housing schemes - Large health and educational institution

4.7.4 Livestock Zone

Since Umerkot is not only an agricultural town, local inhabitants rely on livestock for another source of income. In this regard livestock zone is placed in southeast direction on both sides of Chachro Road, to promote livestock production. The main emphasis is to be given to cattle production and their required facilities and services. In addition poultry is another requirement to fulfil through the livestock zone.

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 Production¹⁰**

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.

The following guidelines are for livestock zone development:

Permitted Uses	Allied Permissible Uses	Prohibited Uses
<ul style="list-style-type: none"> - Cattle Farms - Poultry Farms - Pasture and grazing lands - Slaughter Houses - Dairy production - Veterinary services - Veterinary education and training 	<ul style="list-style-type: none"> - Low rise ancillary structures - Residences of caretakers - Related commercial activities - Fueling stations - Godowns and cold storage - Cattle market 	<ul style="list-style-type: none"> - Other than permitted and permissible

⁹ Industrial Areas, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.6, page no 145.

¹⁰ Dairy Plots, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.8, page no 149.

4.7.5 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 4-3: New Industrial Estate ¹¹		
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 labor and staff is allowed at rear.		

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

- **New Industrial Area**

The New Industrial Area is proposed along Chachro Road and also accessible from Ring 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 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
<ul style="list-style-type: none"> - Small Scale Industries - Processing Units - Manufacturing Activities - Warehouses or Godowns - Workshops 	<ul style="list-style-type: none"> - Showrooms - Mixed-used buildings - Residences for workers - Fueling stations

¹¹ Land Allocation for New Industrial Estate as per Sindh Building & Town Planning Regulations, Chapter 20.4.2, page no 124.

Applicable SBCA Bylaws ¹²	Prohibited Uses
<ul style="list-style-type: none"> - Plot Sizes: <ul style="list-style-type: none"> 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) 	<ul style="list-style-type: none"> - Private Residential housing schemes - Large health and educational institution

4.7.6 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.

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

- **DHQ Hospital – District Health Complex**

The DHQ Hospital is recently constructed along Bypass Road, its extension is proposed to make these a full fledge public health care like a District Health Complex. Since it will become tertiary level center for health facilities, thus medical and nursing colleges, 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.

- **Health and Welfare Area**

The new health and welfare area is marked along Kunri Road towards south, 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.

- **Health Centers**

The sub health centers are formed considering public and private health institutions at Akbar Birth Place, Chor Road, Shiv Mandir Road, Ratnore Road, Chachro Road, Momal Ji Mari Road, Kunri Road and Mirpur Khas Road. These will serve the clinical as well as regular hospitalization needs like Maternity, Emergency, Dental, OPDs, Laboratories and Diagnosis, Pharmacies, Blood Banks, Physiotherapy Centers etc.

¹² Industrial Areas, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.6, page no 145.

The following guidelines are for health and welfare zone development:

Permitted Uses	Allied Permissible Uses
<ul style="list-style-type: none"> - Large Hospitals - Specialized treatment centers - Medical College - Dental College - Pharmaceutical College - Nursing College - Laboratories and Diagnostic Centers - Blood Banks - Health Research Institutes 	<ul style="list-style-type: none"> - 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 ¹³	Prohibited Uses
<ul style="list-style-type: none"> - Plot Sizes: 1.0 acre or above - FP: 50% - FAR: 1:1.5 - Floors: G+2 (max) 	<ul style="list-style-type: none"> - Private residential housing schemes - Large commercial activities

4.7.7 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**

Likewise health, the educational area is also marked towards south, accessible from Kunri Road. The placement of educational area is also due to the presence of under construction Cadet College.

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 purpose behind is to involve regional level youth in the education and research, in order to enhance the educational attainment level. It is required for the future demand of young population and to attract private investment in the field of education as well.

¹³ Amenity Plots, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.5, page no 145.



- **University Area**

The University Area next to DHQ Hospital and along Bypass Road is mainly proposed for the public sector general university, which is lacking in the town. The idea is to first introduce common 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.

- **Extension of Sindh Technical College**

Opposite to Akbar Birth Place, Sindh Technical College is existing. It is suggested to upgrade the college, thus multiple disciplines will be available for the youth to fulfill technical requirements in different fields. Its further extension is proposed to multiply its fields of study and increase its student intake capacity.

- **Extension of PARC**

In addition Pakistan Agricultural Research Center also present along Bypass Road. Currently it comprises of large land parcel and sufficient area is vacant for its recent development. However, considering the importance of this research facility, its further extension is suggested as per demand for future educational needs. For this more agricultural research area, buildings, teaching and non-teaching staff, residences and other related facilities will be required.

- **Educational Centers**

In order to improve educational facilities at all levels, sub educational centers are developed for schools and colleges. These will serve the need of the resident within the neighborhood area. It is mainly proposed to provide more schools and colleges for both boys and girls. It is suggested to accommodate all the required facilities and service like; libraries, laboratories, playgrounds, washrooms, etc. 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 will also include; 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 area 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
<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - 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 ¹⁴	Prohibited Uses
<ul style="list-style-type: none"> - Plot Sizes: 1.0 acre or above - FP: 50% - FAR: 1:1.5 - Floors: G+2 (max) 	<ul style="list-style-type: none"> - Private residential housing schemes - Large commercial activities

4.7.8 Religious Zone

In the proposed master plan two religious sites are allocated in the Umerkot Town. One is along Mirpur Khas Road, as Eidgah and other is extension of already existing Shiv Mandir in northeast of the town.

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.

The following guidelines are for religious zone development:

Permitted Uses	Allied Permissible Uses
<ul style="list-style-type: none"> - Religious buildings like mosques, imam barghahs, mandir, churches, etc. - Religious teaching areas - Religious preaching grounds - Orphanage 	<ul style="list-style-type: none"> - 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 ¹⁵	Prohibited Uses
<ul style="list-style-type: none"> - Plot Sizes: 1.0 acre or above - FP: 50% - FAR: 1:1.5 - Floors: G+2 (max) 	<ul style="list-style-type: none"> - Private residential housing schemes - Large commercial activities

¹⁴ Ibid

¹⁵ Religious Buildings, Plots, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.13, page no 156.

4.7.9 Public Administration Zone

The exiting offices of Public Administration are mostly in core urban area of the town. Considering future requirements, the new public administration area is marked along Kunri Road, in southwest direction.

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 Umerkot 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.

- **District Jail Extension**

The extension of District Jail is proposed by adding land adjacent and behind the existing facility along Ratnore Road. 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.

The area for police lines extension is also recommended to include here. This will serve the purpose of additional needs and will also fulfill the residential requirement of the staff of various levels.

The following guidelines are for public administration zone development:

Permitted Uses	Allied Permissible Uses
<ul style="list-style-type: none"> - District Secretariat, - Development Authority - Town Committee Complex - Line Departments - Local Government Offices - Town Planning Department - Judiciary Complex - Circuit House 	<ul style="list-style-type: none"> - 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 ¹⁶	Prohibited Uses
<ul style="list-style-type: none"> - Plot Sizes: 1.0 acre or above - FP: 50% - FAR: 1:1.5 - Floors: G+2 (max) 	<ul style="list-style-type: none"> - Private residential housing schemes - Large commercial activities

¹⁶ Ibid

4.7.10 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:

- **Central Park**

Next to New CBD, a large central park is proposed in the heart of the town along Kunri Road. 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.

- **Sports and Cultural Complex**

Behind to central park, accessible from Kunri Road, a Sports and Cultural Complex is proposed. It will include cricket, football, hockey and other ground, cultural center and gymnasium. These type of sports facilities will be as per standards to promote domestic sports.

- **Large Recreational Areas**

There are three large recreational areas have been designated along major roads i.e. Mirpur Khas, Chor and Kunri Roads. In these areas 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. Considering local tradition and types of festivals, a large space is designated for such events. These grounds will be used for large population events like carnivals, eid festivals. In addition considering Umerkot is 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 Umerkot region as well.

- **Parks and Playgrounds (Sub Recreational Centers)**

In sub recreational centers; multipurpose playgrounds and family parks are proposed to place for active and passive facilities. These are ideally need to be in center of the residential areas, accessible for all.

The following guidelines are for recreational zone development:

Permitted Uses	Allied Permissible Uses	Prohibited Uses
<ul style="list-style-type: none"> - City scale parks - Large public squares - Sports facilities - Cultural activities - Amusement area - Special theme parks - Regional level gardens like botanical, zoological 	<ul style="list-style-type: none"> - Ancillary structures - Accommodation for caretakers / workers - Related commercial activities - Fueling stations - Parking - Public washrooms 	<ul style="list-style-type: none"> - Other than permitted and permissible

4.7.11 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 two proposed graveyards along Ratnore Road and Baharai Road, also accessible from Ring 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

4.7.12 Transportation Zone

In Umerkot Town, the transportation is mainly based on road network of radial roads, bypasses, ring roads, 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 and bypasses. By adding ring roads the existing roads becomes major connecting corridors and existing bypasses act as main arteries for the Umerkot Town through widening and beatification.

S. No.	Major Roads	ROW (ft)	Forestation (ft)
i.	First Ring Road	200	200
ii.	Second Ring Road	200	200
iii.	Mirpur Khas Road (N-120)	150	100
iv.	Chor Road (N-120)	150	100
v.	Kunri Road	150	100
vi.	Chachro Road	150	100
vii.	Water Supply Road	100	50
viii.	Ratnore Road	100	50
ix.	Bypass Road	100	50
ROW – property to property distance, Forestation on both side of ROW			

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:

Primary Roads: The two Ring Roads, running on the periphery of the town are considered as Primary Roads,. 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 and arteries connecting radial roads. 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 Terminals**

Two transport terminals are placed along Mirpur Khas Road in west and Chachro Road in southeast. In both Transport Terminals 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 Terminals**

Likewise, in both transport terminals separate truck terminals are also 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.

Since Umerkot is a regional trading center and it would also require containers facility. 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 and Air Connectivity**

As Chor Railway Station in north and Kunri Railway Station in south are at distances of 20 and 36 kilometers respectively, thus it is suggested that Umerkot should utilize these railway facilities. Similarly regarding air connectivity, it is recommended to use Sindhri and Mai Bakhtawar Airports at distances of 97 and 106 kilometers respectively.



The following guidelines are for transport zone development:

Permitted Uses	Allied Permissible Uses
<ul style="list-style-type: none"> - All types of parking areas - Designated ROW - Green belts - Footpaths - Traffic management devices 	<ul style="list-style-type: none"> - Drivers and staff accommodation - Support offices, rest areas, washrooms, shops etc. - Street furniture like lights, trash bins, benches etc.
Applicable SBCA Bylaws ¹⁷	Prohibited Uses
<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - Any kind of encroachment

4.7.13 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 sources are Nara and Mithrao Canals. At Water Supply Road, reservoirs for water supply are existing. With respect to this along same road an additional area has been reserved for water supply works; to extend the water reservoirs as per the town's water demand and related water supply infrastructure. This increase will also cater to water supply filtration plant and other advance purification mechanism.

- **Sewage Treatment Plant**

The area is designated for STP and its related uses, in south directions accessible from Kunri Road via local roads. The site is low in elevation level with respect to nearby main drain, 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.

- **Landfill Site**

A landfill site is proposed outside the main town area, in east side considering wind direction. This landfill site is directly accessible from Ratnore Road. As the whole town will grow according to the master plan it will serve the population for next 20 years or even beyond.

¹⁷ Highway Major Roads, General Standards, as per Sindh Building & Town Planning Regulations, Chapter 21, page no 126.

- **Grid Station**

Grid station in Umerkot Town is existing along Mirpur Khas Road (N-120). Its extension is also proposed behind to it. The extended facility will benefit the residents as per the need of the future load and requirement of the town.

The following guidelines are for utilities and services zone development:

Permitted Uses	Allied Permissible Uses	Prohibited Uses
<ul style="list-style-type: none"> - Land use for Utilities and Services like Water Supply, Filtration, Oxidation Ponds, Sewage Treatment, Landfill Sites, Grid Station etc. 	<ul style="list-style-type: none"> - Related land development and building activities - Accommodation for staff, operators and labors. - Specific parking area. 	<ul style="list-style-type: none"> - Other than permitted and permissible

4.7.14 Urban Forestation Zone

Urban forestation along both Ring Roads 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 Roads 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 Roads, 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.

It is recommended to plant locally available species for urban forestation. This region is gifted with a large variety of natural vegetation, there is over seven hundred species of grasses, shrubs and trees. The perennial amongst these are very hardy, and tenacious enough to withstand extended drought, efficient builders of biomass and yet nutritious as a feed. The following guidelines are for urban forestation zone development:

Permitted Uses	Allied Permissible Uses
<ul style="list-style-type: none"> - Land use for horticulture, landscaping, plantation, green belt, forestation. 	<ul style="list-style-type: none"> - 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.

4.7.15 Agricultural Zone

In order to make benefit from existing irrigation network in west and northwest of the town and 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; cotton, wheat, sugarcane, bajra, jowar and red chilies.

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.

4.7.16 Water Bodies

The Nara Canal and Mithrao Canal are main water courses of the Umerkot. 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.

4.7.17 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 two large land parcels are 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 Umerkot Town but being on the peripheral area, would not disturb the town activities in general and it is directly accessible from the Ring Roads.



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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
<ul style="list-style-type: none">- Land use for proposed emergency and imminent necessities	<ul style="list-style-type: none">- 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, Umerkot town had household size of 5.0 persons and a total housing stock of 27,071. Most of them were categorized as pacca houses which include Pacca (Brick construction) and RCC houses.

General housing condition of the surveyed houses was satisfactory. Sample survey of the town reveals that approx. 33% of the houses were constructed in between 6 to 10 years. 66% of the houses were below 120sq. with an average of 5 to 6 members in each household.

With this average number of family members, 56% of the houses have only two rooms, As far as the utility services in the houses are concerned, basic services needs improvement as the sample survey reveals 39% of the houses have drained (flush system) in their houses while 61% of the houses have un-drained toilets which requires manual cleaning.

Only 24% of the houses have piped supply (House Connection) while 14% of the houses use ground water by manual hand pumps. Conditions of drains are also alarming, 88% of the drains are open and only 3% of the households have covered drains, 4% of them has semi covered drains and 5% are underground drains.

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.



5.3 Katchi Abadis in Umerkot MC¹⁸

According to data provided by Sindh Katchi Abadis Authority (SKAA), there are fifteen sites, identified as Katchi Abadis in Umerkot MC. These are spread over 633.54 acres covering 3,907 housing units with 24,108 population approx. Thus, it is estimated that 17.98% population of Umerkot MC resides in Katchi Abadis. Out of total, twelve Katchi Abadis were notified from 1992 to 2019. However, remaining three sites are still in process of regularization. The list of Katchi Abadis present in Umerkot MC is given below:

List of Katchi Abadis in Umerkot City						
S. No.	Location / Local Council	Name of Katchi Abadi	Total Area in (Acres)	No. of Housing Units	Estimated population	Date of Notification
1	Umerkot MC	Bajeerabad Goth	77.00	1000	6000	16-12-2019
2		Bajir Mohallah	56.76	80	500	05-11-1992
3		Bhan Bawani Mohallah Mitha Khan Khoso	64.18	90	500	05-11-1992
4		Chandi Ram Colony	16.18	200	1400	04-01-2018
5		Gharibabad Colony	38.24	115	690	Un-Notified
6		Haji Sirajuddin Soomro / Abdul Karim Soomro	32.20	499	2994	12-10-2017
7		Khatak Mohallah (Godam Road)	1.38	58	406	04-02-2019
8		Malang Khan Pathan Goth	8.00	200	1400	04-02-2019
9		Malhi Mohallah	52.00	105	800	05-11-1992
10		Malng Khan Phatan Goth	8.00	1200	7018	04-02-2019
11		Mangria Mohallah	30.79	80	450	Un-Notified
12		Menganhar Mohallah	76.28	95	700	05-11-1992
13		Menghwar Para	61.15	75	450	05-11-1992
14		Rupa Ram Mohallah	96.18	40	400	05-11-1992
15		Uner Mohallah	23.20	70	400	Un-Notified
Total			633.54	3,907.00	24,108	

¹⁸ Data provided by Sindh Katchi Abadis Authority, December 2019



5.4 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.

5.5 SWOT Analysis

Strengths	Weakness	Opportunity	Threats
HOUSING			
<ol style="list-style-type: none"> 1. 78% of the population lives in self-owned houses 2. Almost half of the urban area population has pacca houses. 3. The trend of new housing schemes construction by private development is increasing. 4. Most of the formal population is served by electric, gas and water supply. 5. The trend of rental housing is low just 5% of the population lives in rental housing 	<ol style="list-style-type: none"> 1. 30% of the urban town population lives in katcha houses where quality of life is low and utility services are limited. 2. High prices of houses in private sector. 3. The informal housing sector lacks provision of utility services like gas supply, clean water and drainage facilities. 	<ol style="list-style-type: none"> 1. Demand for new planned housing schemes. 2. Demand for low income housing. 3. Demand for public housing projects. 4. More housing for local people of town. 5. Opportunity for local micro financing for housing. 6. Installation of basic utility services through new projects. 	<ol style="list-style-type: none"> 1. Homelessness. 2. High housing prices and rents. 3. Development of informal housing in empty/vacant spaces available within town. 4. Increase in urban sprawl. 5. Inflation of land. 6. Shortage of open spaces in urban areas. 7. Formation of urban slums. 8. Relocation of higher income groups to other towns.



5.6 Need Assessment

On basis of projected Population for year 2037 the increase in population is 407,449 with estimated additional housing requirement of 79,106.

Table 5-1: Housing Statistics Umerkot MC			
Housing	Population	No. of HH	HH Size
Present Population 2017	134,052	27,071	5.10
Projected Population (2037)	541,501	106,177	
Additional	(Projected Pop- Present Pop) 407,449	(Projected HH-Present HH) 79,761	

5.7 Policy Guidelines

ADMINISTRATION UNIT	Current Census 2017				Projected 2037			
	Population	AGR	No. of HH	HH Size	Population	AGR	No. of HH	HH Size
Umerkot - MC	134,052	7.23%	27,071	5.1	541,501	7.23%	106,177	5.10
Umerkot - Taluka	564,394	3.16%	111,761	5.1	1,050,684	3.16%	206,017	5.10
Umerkot - District	1,073,146	2.56%	212,356	5.1	1,779,177	2.56%	348,858	5.10
Source: Census 2017 and Consultant's Projections								

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

i. Policy Measures for Land¹⁹

Priority Identification of Land for Housing

The land availability shall be enlarged through various innovative measures like land banking on continuous basis to cater for at least 5 to 10 years development plan needs.

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 Land

ii. Policy Measures for Housing Finance²⁰

- Housing finance institutions shall be encouraged to promote savings and provide micro loans for low income group through community organization, NGOs and CBOs.

¹⁹ National Housing Policy 2001

²⁰ Ibid



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- 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 & Slums²¹

- 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.
- 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.
- 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.

5.8 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.

5.9 Strategic Development Plan

The aim of this Strategic development Plan is to facilitate all for the provision of housing, In this regard following strategies need to be focused:

²¹ Ibid

- Incremental housing schemes on the lines of Orangi, Qasba, Khuda Ki Basti etc. in Karachi should be initiated based on lessons of experience.
- Development of indigenous and cost effective approaches particularly for low income group and mass production.
- Regularize notified Katchi Abadis complemented by policies to restrain the emergence of new Katchi Abadis.

i. Long Term Plan:

- Support research and development programs for economic building material and modern construction technologies.
- 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.
- A mechanism of new approved housing schemes should be established in which MC should be bound to provide piped water, sewerage, and electricity to approved scheme with coordination with other relevant authorities.
- 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 sought of housing scheme by developer further the multi housing should be engaged 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 Umerkot Town
- Improvement / provision of basic utilities and community facilities for the residential areas

5.10 Priority Projects

5.10.1 Detailed Planning and Feasibility Project

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

➤ Project Justification

Most of the population of Umerkot Town is living in slums areas and depreciated houses. A significant households in Umerkot have low income. These households are unable to acquire their own houses so resolve their housing problem

Description	Results
Present Population	134,052
05% Population of Umerkot MC living in rental houses with no houses ownership	6,703
5% rental Households	1,341

resulting rising the number of slums areas and encroachment. The living condition in such areas are poor they face so many problems and mostly don't have utility services.

To relieve the problems emerge by this situation, the public sector in Umerkot should launch as part of the urban strategy. According to the primary survey conducted in Umerkot town, the status of ownership of houses is like 78% family owned, 17% rent free and 5% on rent. The category of rental indicates the housing gap. The purpose of this project is:

- Provide affordable shelters to the poor people
- Through this process alternate resettlement of the congested part of the towns may be possible
- This process improve the living standard of the town

The project shall cover the minimum standards to reduce the cost of the project.

➤ Project Benefit

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-Government of Sindh, Umerkot Municipal Committee, HESCO, and SBICA.



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Estimate Cost: 1,005.00 million approx.

Project Name	Short Term	Proposed Area (acre)	Preliminary Cost (million/- PKR)	Justification
Development of Housing Site with allied services for Low Income People and land acquisition	Short Term	67.00	670.00	Total 1,341 households are required, having minimum size of 120 Sq Yds. Therefore for the development of proposed site it is assumed 10 million cost per acre with internal allied facilities and infrastructure.
Phase Wise land acquisition for Site Development		67.00	335.00	67 acres, considered the rate of land as 5 million per acre for land acquisition.

Proposed Residential Landuse for Umerkot Town

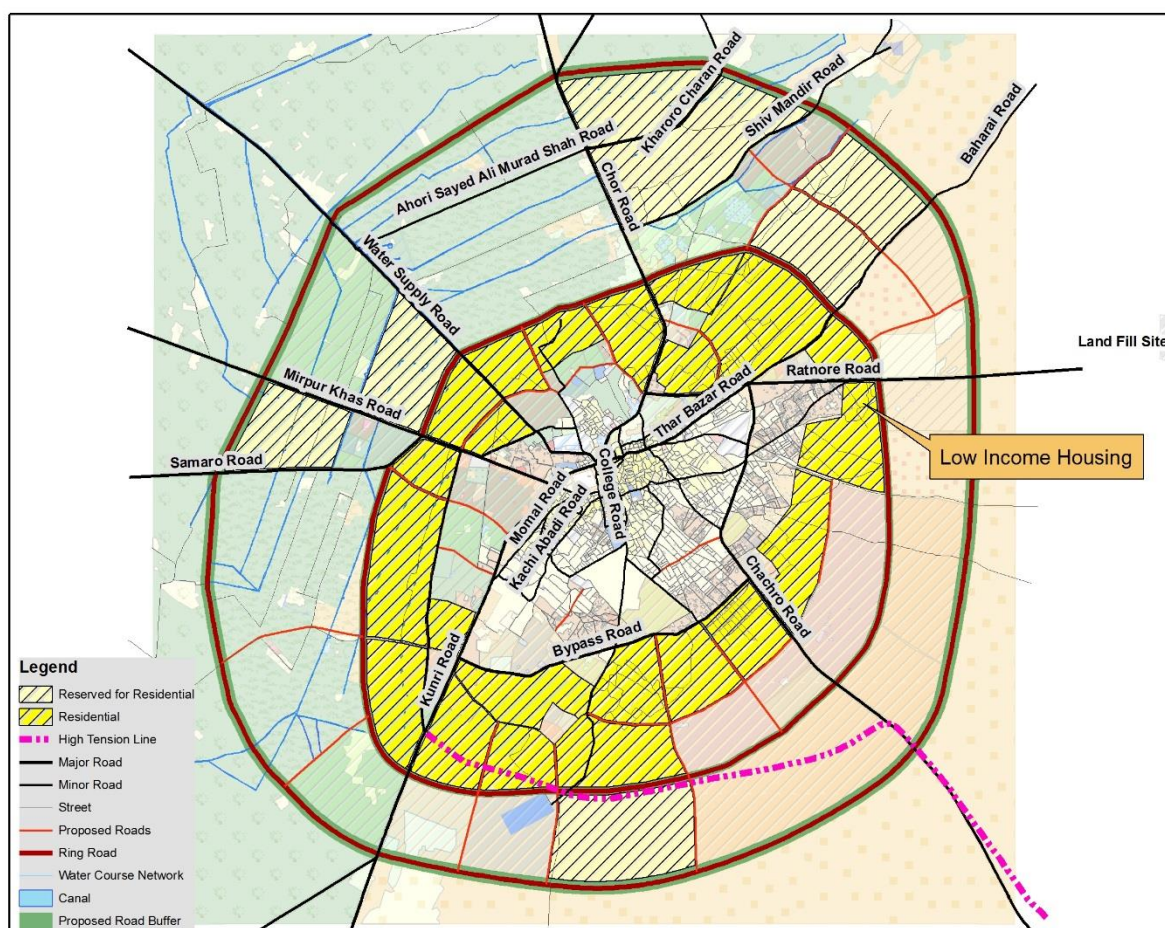


Figure 5:1: Proposed Low Housing Site

6. SOCIAL SERVICES

6.1 Education

6.1.1 Existing Situation

The reason for the deterioration of education in government schools in Pakistan, especially primary and secondary education, is that the standard of educational expenditure set by the UNESCO is minimum 4% of the GNP, but Pakistan during last 66 years has been spending on an average 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 that there 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.

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.

The tables below show the present statistics of educational institutions in Umerkot Taluka:

Table 6-1: Present Educational Institutions, Teachers and Enrolment Record at Umerkot Taluka

S. No.	Type	Numbers	Classrooms	Enrolments	Teachers	Students per classroom	Teacher Student Ratio
1	Primary School	1,067	1,742	47,724	2,063	27	1:23
2	Middle School	39	100	19,341	114	19	1:17
3	Elementary School	6	16	772	17	48	1:45
Total		1,112	1,858	15,430	2,194	27	1:23

**Table Present Educational Institutions, Teachers and Enrolment Record at Taluka Umerkot
Secondary Schools**

S. No.	Type	Numbers	Classrooms	Enrolments	Teachers	Students per classroom	Teacher Student Ratio
1	Secondary Schools	39	215	7580	187	35	1:41
High Secondary Schools							
S. No.	Type	Numbers	Classrooms	Enrolments	Teachers	Students per classroom	Teacher Student Ratio
1	High Schools	6	81	5664	164	70	1:35

Source: District Education Department Umerkot

6.1.2 Issues

Identification of major issues of education sector in Umerkot MC:

- Shortage of class rooms as per current enrolment (The available no of classrooms are not sufficient, for current enrolment. At present 81 classrooms are available, in the existing schools and colleges, whereas shortage of classrooms amount to 61)
- 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.

6.1.3 SWOT Analysis

Education			
Strength	Weakness	Opportunity	Threats
1. Urban literacy rate is higher than rural. 2. High demand rate for private schooling education system. 3. 48% of urban population is literate. 4. School buildings are also used as shelter and evacuation centres in emergency	1. The trend of losing public institutes and universities. 2. Less highly educated personnel's.	1. More people will move to urban areas for education. 2. More educational institutes are required. 3. More PPP is required for educational sector.	1. Relocation of educated class to other major towns of province. 2. Shift of educated professional to other major towns of the country.

6.1.4 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 4,681 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 6-2: Future Requirement of Classrooms in Taluka Umerkot		
S. No.	Description	Results
In Schools of Umerkot (Primary to secondary)		
1	Expected total enrolment by 2037 @ 100% enrolment	191,114
2	Total classrooms requirement in 2037	6,370
3	Present Supply (2017)	2,073
4	Additional classrooms requirement in 2037	4,297

Table 6-3: Future Requirement of Classrooms in Taluka Umerkot		
S. No.	Description	Results
In Schools of Umerkot (High Secondary)		
1	Expected total enrolment by 2037 @ 100% enrolment	18,596
2	Total classrooms requirement in 2037	464.90
3	Present Supply (2017)	81
4	Additional classrooms requirement in 2037	384

6.1.5 Policy Guidelines²²

- Impart Basic Education (free),
- Provide Vocational & applied education centers within rural, peri-urban and industrial areas;
- Introduce farmer field trainings in rural schools to ensure that the next generation of farmers is already tuned to market intelligence and opportunities.
- Construct required schools and higher education institutions .Take stock of operational and staffed schools and eliminate ghost schools.
- Maintenance of existing depilated schools and buildings should be given top priority.
- Umerkot is a flood prone district. The schools selected to act as shelter should be given top priority in repairs and utilities.
- For girl's literacy and women education, informal system of homeschool may be encouraged.

6.1.6 Strategic Development Plan

- 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.
- The permanent elimination of gender inequality in education
- Improvement in the competency of educators and teachers
- Mass education program with enhanced supply of institutional finance and long term fixed rate financing options
- Invest in human capital to improve the quality of education.

²² Sindh Vision 2030



- The Education programs would be developed as per the recommendations of this education Policy, by the Ministry of education and literacy department in consultation with the Provincial Governments and would be sustainable, both financially and environmentally, with replicable models.
- The Government would assume the role of a facilitator for the implementation of education programs.

i. Long Term 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.
- Increasing equitable access to quality ECE, primary and secondary education, with the aim of eliminating social exclusion, enhancing transitions, promoting social cohesion and providing greater opportunities for access, participation and learning to marginalized groups, particularly girls.

ii. Short Term

- 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.
- 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.
- Increase the availability of Schools; enhance the Facilities and provide high quality education.

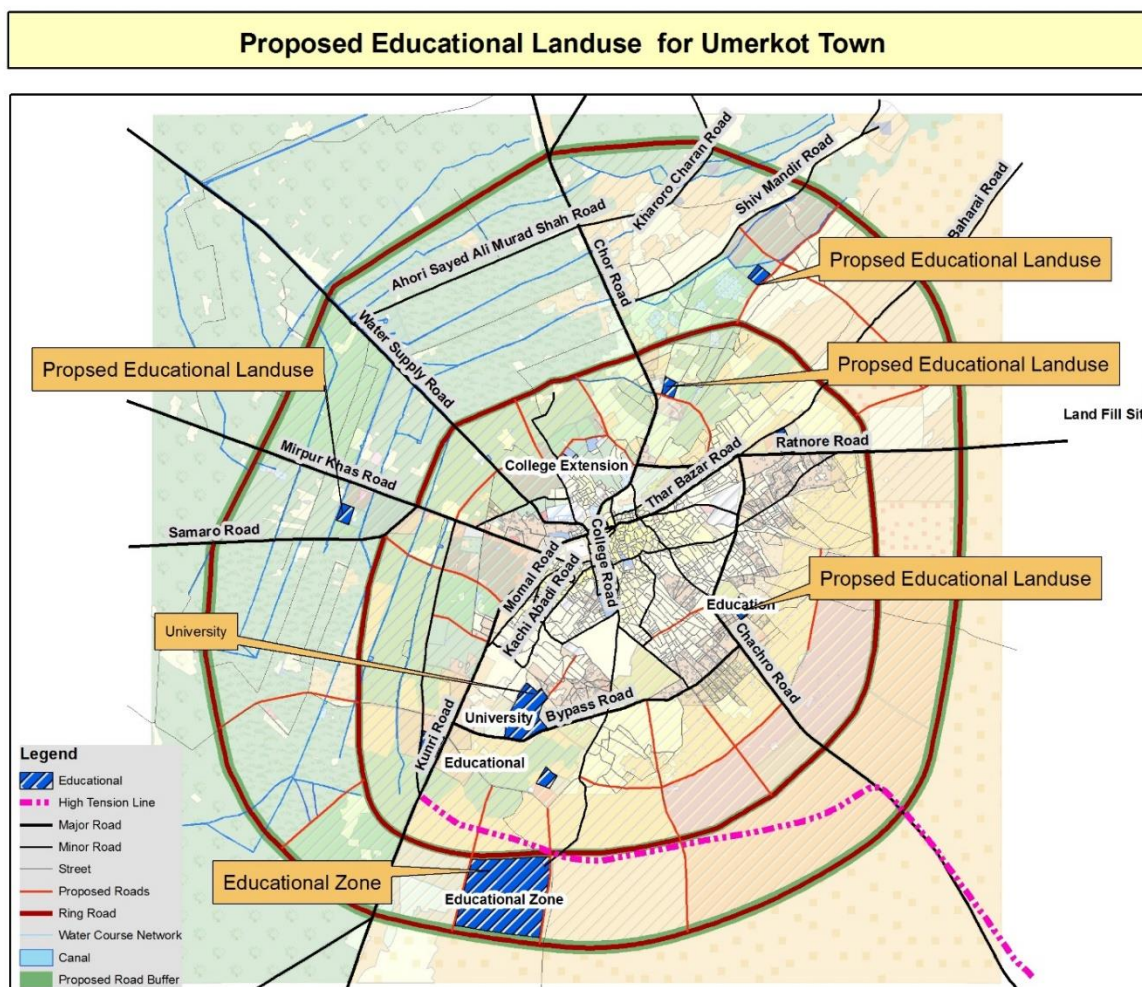


Figure 6:1: Future Education Proposal of Umerkot Town

iii. **Priority Projects**

Construction/ Rehabilitation of Schools and Allied Infrastructure

Construction/Rehabilitation of Schools & allied infrastructure and rehabilitation / construction of Vocational and skill training centers in alliance with contemporary demand.

➤ **Project Scope and Justification**

Education should be the one of major goal of any urban strategy. The situation of education sector in Tharparkar District is not at the preferred level. Importance must be placed on the schools because it was badly disregarded. 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. (these projects are excluded from the IAP projects)*. The List of the schools in this project are given below:

S. No.	School Name		Level	Area (Acres)
1	Govt. Boys Primary School Abdul jaiad	GBPS	Primary	0.41
2	Govt. Boys Primary School	GBPS	Primary	0.07
3	Govt. Girls Primary School	GGPS	Primary	0.08
4	Govt. Boys Primary School	GBPS	Primary	0.15
5	Sindh Technical Education & Vocational Training	Institute	Institute	3.86
6	Haji Kaley Khan Khoso	GBPS	Primary	0.13
7	Mangrio Mohalla Rohalway	GBPS	Primary	0.02
Total				4.72
*Excluded IAP Projects				

➤ **Project Benefit**

This relate to the basic right of the people and comes under the compulsory social services, By the increasing in the literacy ratio the living standard of the population will improve with in the district.

➤ **Implementing Authority**-Department of the Education, Provincial Government and Umerkot Municipal Committee.



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➤ **Estimate Cost: 218 million approx.**

Project Name	Area Acres	Estimated Cost In Millions	Short Term	Justification
Education				
Rehabilitation of existing schools and college buildings along with allied facilities with basic utilities. (Excluding the IAP Projects)*	0.86	67.43	Short Term	0.86 acres = 37461 sft, at the rate of 1800/- PKR per sft construction cost with all infrastructure cost.
Rehabilitation of Vocational and skill training center (*Considered as 30% built up)	3.8	150.94		3.85 acre = 167,706 sft, at the rate of 1800/- PKR per sft construction cost with all infrastructure cost.

6.1.7 Immediate Action Plan for Core Urban Area

- 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. Through which existing population could easily get satisfactory service.

At present only five educational facilities are present in core area of Umerkot. Besides repair and rehabilitation we are only proposing all allied services related to basic utilities, access road and building renovation.

S. No	Education Facility Type	Area (Acres)	Repair & Rehabilitation – Activity Wise Cost in Millions							
			Street / Road / Parking	Utility Facilities					School Building Repair/ Renovation	Security
				Power	WS	SW	Gas	PTCL		
1	Govt Girls High School Umerkot	1.23	1.2	1.2	1.2	1.2	1.2	1.2	0.3	0.2
2	Govt Boys Higher Secondary School	0.11	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
3	GGHS Gharibabad Umerkot	0.58	0.6	0.6	0.6	0.6	0.6	0.6	0.1	0.1
4	Govt. Boys Primary School Sabhri	2.69	2.7	2.7	2.7	2.7	2.7	2.7	0.7	0.3
Total		4.62	4.62	4.62	4.62	4.62	4.62	4.62	1.15	0.58
Total PKR Rs. Million			29.44							



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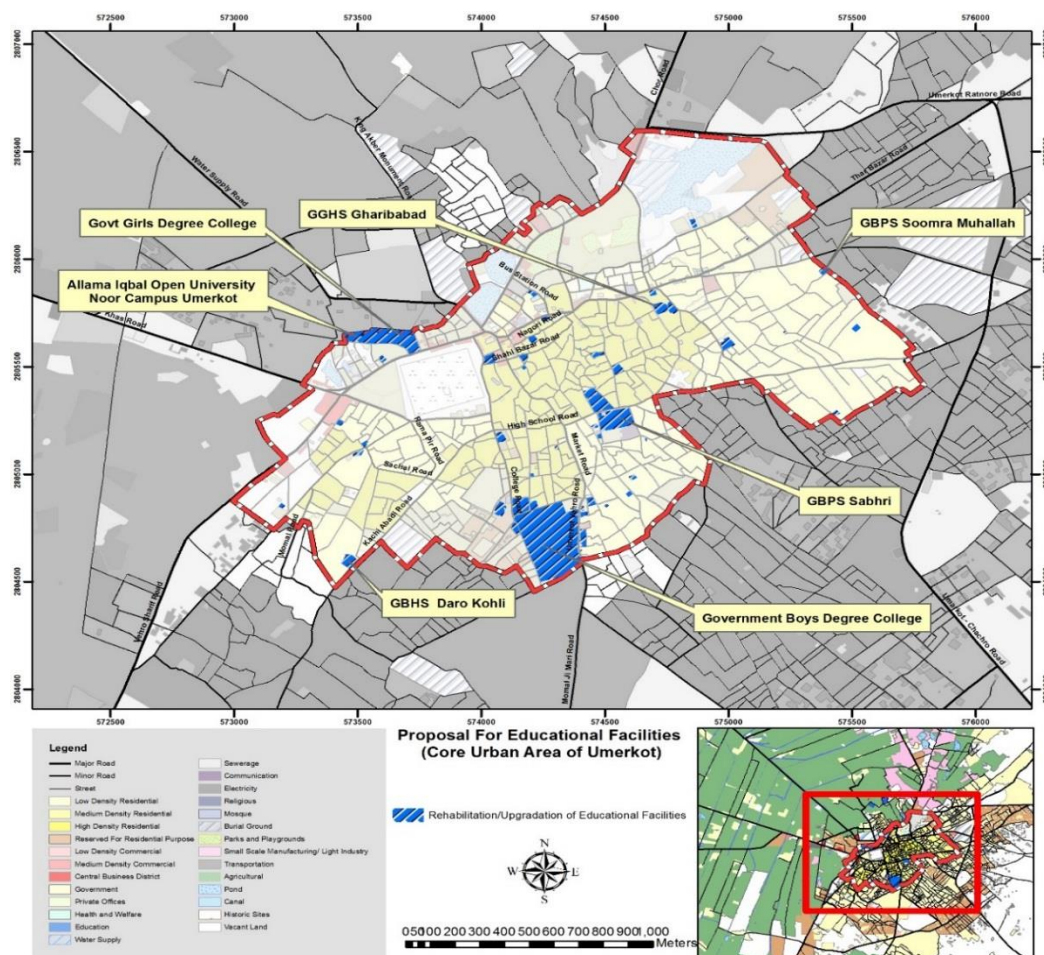


Figure 6:2: Proposed Education proposals for Umerkot

6.2 Health

6.2.1 Existing Situation

In Sindh maternal health facilities and proper reproductive care is not available at the required scale. Low levels of maternal health and nutrition coupled with high fertility rates lead to high mortality and morbidity among mothers and also children, particularly in the rural areas. The lack of such healthcare endangers the life of the mother and the child. In Sindh the fertility rates average at 6.0 births by women by the age 45-49 and more than 4,000 mothers die every year due to pregnancy related issues. Consequently, poor women's health in Sindh is as much a medical as social problem. Underlying factors here are the lack of awareness of and attention to, women's health needs; women's lower education and social status; and social constraints on women and girls, including the practice of seclusion.

Currently, tertiary level health facilities of Taluka hospital THQ and BHUs are serving the regional population of Sindh at Umerkot district. There is one civil hospital having 55 beds, 3 Taluka Hospitals at District having 60 beds and 4 private hospitals having 60 numbers of beds to serve the district. The other health facilities spread over entire district are 6 RHC (Rural Health Center) having 78 beds, 6 TB Clinics having 10 beds, 32 BHUs (Basic Health Unit) having bed strength of 64, 56 dispensaries and 2 M.C.H.C (Mother Child Health Center).

**Table 6-4 : Government and Private Departmental with bed capacity
in District Umerkot**

Type	No.	Beds
Civil	1	55
THQs	3	60
BHUs	32	64
RHCs	6	78
TB Clinics	6	10
Private	4	60
Total	52	327

Source: Health Profile of Sindh, 2017

6.2.2 Issues

The following are the major issues in the health sector

- 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
- 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
- Shortage of Nutrition

- Accessibility to health care facilities in remote rural areas is difficult.

6.2.3 SWOT Analysis:

Health			
Strength	Weakness	Opportunity	Threats
1. 40 % of population use Govt. health facilities.	1. Limited health facilities in urban area. 2. Shortage of bed 3. Shortage of doctors and other para medical staff	1. More investment is required through PPP in health sector. 2. More job opportunities for doctors. 3. More job opportunities for the paramedical staff.	1. Less emergency response to health incidents. 2. Death rate may increase. 3. Difficult to control eradication of epidemics diseases.

6.2.4 Need Assessment

a) Present Assessment at MC Level (Population, Bed Ratio, Doctors Ratio) 2017

- Currently there is one civil hospital at MC level in Umerkot District. There are 55 beds in it. . The NRM (National Reference Manual) recommends 2 bed per thousand as the medium term target. On this basis approximately 1819 beds will be required to be provided gradually at district level in Umerkot
- Currently there are 406 sanctioned posts of doctors in Umerkot out of which 310 are vacant and 97 are filled. Therefore the shortage of doctors is quite serious.
- According to NRM (National Reference Manual) there should be 1 doctor per BHU and 3 doctors per RHC. According to WHO (World Health Organization) standards doctor to population ratio is 1:1000 so taking that as a reference point currently there are 976 doctors required for the present population at District level in Umerkot.

Table 6-5 : Present Analysis of population to bed ratio and Doctor Ratio at District Level

Present Population	Available Beds	Present Need	Required Beds	Available Doctors	Present Need	Required Doctors
1,073,146	327	2146	1819	97	1,073	976

b) Future Need Assessment (Population, Bed Ratio, Doctor Ratio) 2037

The consultant considered it appropriate to consider the catchment population of the 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 315 beds will be required to be provided gradually until 2037.

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 doctors comes out to be 1591 doctors for the future population of District Umerkot.

Table 6-6 : Future Analysis of Population to bed ratio and Doctor Ratio

Future Population	Available no's beds	Future Need	Required no's of beds	Available no's of Doctors	Future Need	Required no's of Doctors
1,779,117	327	3558	3231	188	1779	1591

6.2.5 Policy Guidelines²³

- Regulate protection from disease and the quality of healthcare across the province. In this context the Health Department will regularly survey and analyze healthcare statistics, particularly on women, children and the elderly
- Enhance and improve existing emergency care facilities and trauma centers, including ambulatory services and paramedic forces.
- Assess the impact of past campaigns to arrest malnutrition, improve maternal and child healthcare and on preventing extraneous causes of fatalities caused by road accidents, poor sanitation, etc.

6.2.6 Strategic Development Plan

- The Medical and allied health education should be tailored according to the health needs of the population, focusing on social determinants of health, ethics and public health laws.
- Continuous Professional Development shall be institutionalized across both public and private sectors in conjunction with associations, and linking up with re-licensing of the health professionals.
- Owing to the rapidly growing population, disease patterns and the health needs, further expansion and strengthening of existing workforce will be done.
- Private sector should be seen as a partner in healthcare delivery and should be engaged/regulated through appropriate mechanisms.

i. Long Term Plan

- Improve health hygiene practices through awareness raising workshops, seminars, and mother and teacher meetings etc. about sanitation, hygiene and communicative diseases.
- Conduct coordination meetings with government health department regarding remote areas where vaccination is not taking place.
- Private sector should be seen as a partner in healthcare delivery and should be engaged/regulated through appropriate mechanisms.

²³ Sindh Vision 2030

ii. Short Term Plan

- 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 an “Edhi” type ambulance network financed by local charity, in connection with local government bodies and healthcare facilities
- Ensure availability of adequate and skilled workforce to fulfill population health needs,
- Expansion of immunization coverage.
- Improving functionality of equipment and availability of quality medicines.



Figure 6:3: Future Health Proposals

6.2.7 Priority Projects

- Extension of Civil Hospital for more specialized wards / sections & Provision of diagnostic facilities, ambulance, pharmacy & Incinerator in DHQ Hospital**

➤ Project Justification

Health is the fundamental need of the people. Currently DHQ hospital of Umerkot is facing lot of problems due to unavailability of Laboratorial facilities. Shortage of electricity, surgical

instruments, and lack of machineries are the major issues. Lack of female doctors and female staff. At present in DHQ of Umerkot more 70% of post are vacant which includes the doctors and para-medical staff and there is need of 1,817 additional number of beds at the district level, which may be reached at the 3,229 number of beds by the year 2037.

➤ **Project Benefit**

The project will directly provide the benefit to the poor people of the Umerkot. The health condition of the district improved.

➤ **Implementing Authority**-Department of the Health, Provincial Government

➤ **Estimate Cost**: 580.00 million approx.

Project Name	Short Term	Preliminary Cost in million	Justification
Extension of Civil Hospital for more specialized wards / sections	Short Term	500.00 Millions	Extension of civil hospital includes different wards i.e. PEADS, ENT, Gynecology, ICU, General wards, Nursery, waiting areas, trauma center & Burns Ward etc.
Provision of diagnostic facilities, ambulance, pharmacy & Incinerator in DHQ Hospital	Short Term	80.00 Millions	<ul style="list-style-type: none"> - 4 No.s of ambulances each costs 5 million = 4x5 = 20millions - Installation of incinerator - Subsidized drug & pharmacy with modern diagnostic labs etc.

6.2.8 Immediate Action Plan for Core Urban Area

i. Rehabilitation and Up gradation of DHQ Hospital Umerkot & Installation of incinerators

DHQ Hospital Umerkot 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. DHQ Hospital Umerkot is providing basic health facilities to Umerkot district & remote areas of neighboring districts i.e. Mithi and Sanghar district.

Repair & Rehabilitation of DHQ Hospital						
S. No	Area / Locality / Address	Area (acre)	Repair & Rehabilitation - Activity Wise Cost in Millions			
			Street / Road / Parking	Provision of Utilities	Public Facilities	Security
1	Repair & Rehabilitation of DHQ Hospital Umerkot	1.2	2.05	2.05	3.07	1.54
Total		1.2	2.05	2.05	3.07	1.54
Total PKR Rs. Million			8.71			

Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

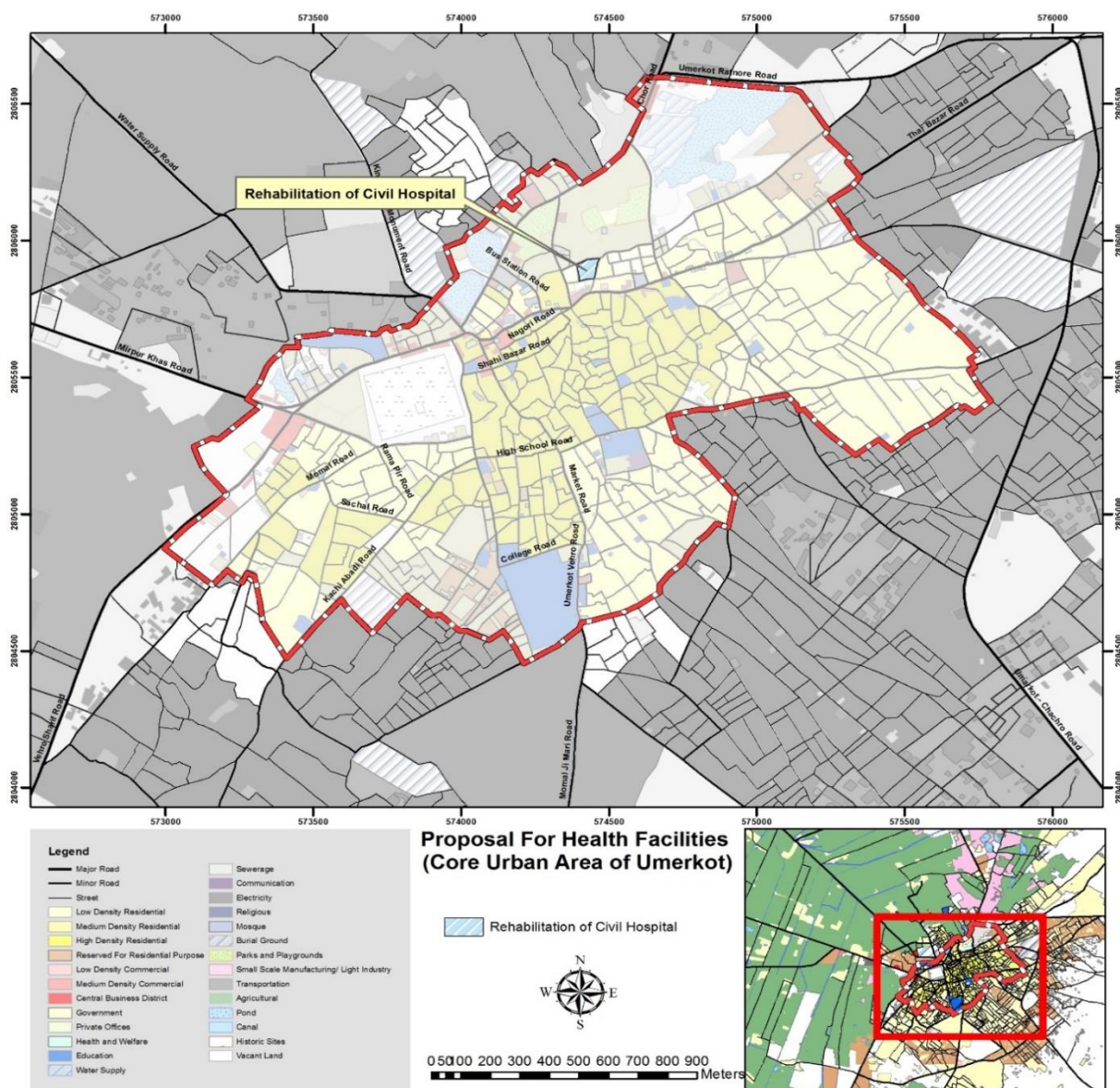


Figure 6:4: Repair and Rehabilitation of DHQ Hospital Umerkot

6.3 Recreational/Cultural

6.3.1 Existing Situation

Recreational and entertainment are necessary for the mental, physical and spiritual development of a community. Recreation can be active like organized sports or passive like breathing in a fresh air or standing in a green landscaped park with friends and family.

There is no playground available for sports in core urban area, youngsters are forced to play on Burial grounds and vacant land etc. There is also lack of Family Park and open spaces in core urban area of Umerkot.

6.3.2 Issues

The main issue is the shortage of water supply to maintain Park and trees plantation.

Culture /heritage Sites in Umerkot include:

- **Umerkot Fort**

In the core urban area of Umerkot, there is world famous fort known as the Umerkot Fort. Emperor Akbar was born in Umerkot Fort when his father Humayun fled from the military defeats at the hands of Sher Shah Suri on 15 October 1542.

- **Emperor Akbar's Birth Place**

Rana Parasad of Umerkot, who had risen to power had given refuge to Mughal Emperor Humayun and it was there Hamida Bano Begum gave birth to young Akbar. Later the Mughal Emperor Akbar became the Shahenshah of Hind and was a popular figure with both Hindus and Muslims.

This is one of tourist place in Umerkot which is decaying and losing its originality, therefore it is prime responsibility of town committee to preserve it and the open space of Umerkot fort is proposed to be converted into family/public Park for visitors and also need of beautification.

- **Shiv Lingam**

Every year on Maha Shivaratri, there is a huge three-day festival with several hundred thousand pilgrims from surrounding cities. On Maha Shivaratri, Shiv Mela also takes place, consisting of various entertaining events and has several programs to raise awareness about the Maha Shivaratri and the history of the Shiv Mandir people. On Maha Shivaratri, many Pilgrims from lower and upper Sindh come and most of them stay for the three days of festivities. It is also a place for tourists. It is one of the oldest Hindu worship places.



6.3.3 SWOT Analysis

Strength	Weakness	Opportunities	Threats
Sports & Recreation			
1. Local environment of town supports green urbanism.	<ol style="list-style-type: none"> 1. Shortage of water facility to maintain green spaces, green belts and trees plantation. 2. Unavailability of sports infrastructure. 3. No any proper recreational facility available. 4. People don't have any space available for doing exercise in morning or evening. 	<ol style="list-style-type: none"> 1. Good health of local communities. 2. Air pollution reduction. 3. Healthy environment. 4. Protection of natural habitat. 	<ol style="list-style-type: none"> 1. Give birth to passive recreation. 2. Obesity. 3. Loss of cultural values.
Culture			
<ol style="list-style-type: none"> 1. The indigenous cultural activities of various social groups and minorities comprises many events that attract people from its surrounding localities. 2. Several annual festivals are celebrated in this district. 3. Strong potential for producing culturally ornamented products used in daily life. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Proper commercialization of culturally ornamented products can generate handsome amount of revenue. 2. Cultural events if organized appropriately could generate handsome amount of revenues with other spin-off effects. 3. Arrangement of full security and residential places for the visitors can attract people towards the town. 	<ol style="list-style-type: none"> 1. Security Threats 2. Demise of cultural values and norms.



6.3.4 Need Assessment

- Shortage of Public Park, playgrounds and recreational facilities.
- Available Recreational facilities are scarce and in dilapidated condition.
- Lack of interest of local government for provision of recreational health facilities to the people of Umerkot MC.
- Provision of landscaping around the historical buildings should be carried out to improve the environment and to develop the urban core urban area in a sustainable manner. 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 Umerkot which will represent the history and grandeur of the town.

6.3.5 Policy Guidelines²⁴

- 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,
- Managed outdoor recreation can be consistent and compatible with conservation of natural
- environmental objectives are vital components of quality outdoor recreation experiences; resources including fish and wildlife and preservation of heritage resources,
- Clean air and clean water and other and providing quality recreation opportunities
- Umerkot needs infrastructure and programmes for sports activities, gymnasium and family parks, and children play area and gardens.

6.3.6 Strategic Development Plan

The aim of this strategic Development Plan is to 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. Some of the Strategies are mentioned below;

i. Long Term Plan

- 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 its age and these houses can be converted into small parks
- Development and preservation of cultural heritage
- Protection of historical places and cultural heritage
- Youth development programme for sports and recreation
- Urban Forestation

²⁴ NOPRA 2005

- Proposal of new graveyard along Umerkot Chahcro road on the southern side.
- 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.
- Rehabilitation and construction of family parks and playground near residential areas
- Development and Improvement of Cultural Village and Museum in the District may promote tourism.
- Promote tourism through provision of support facilities
- Construction of Recreational resort
- Establishment of synthetic grounds, playing turf (for hockey, football) and indoor gym facility.

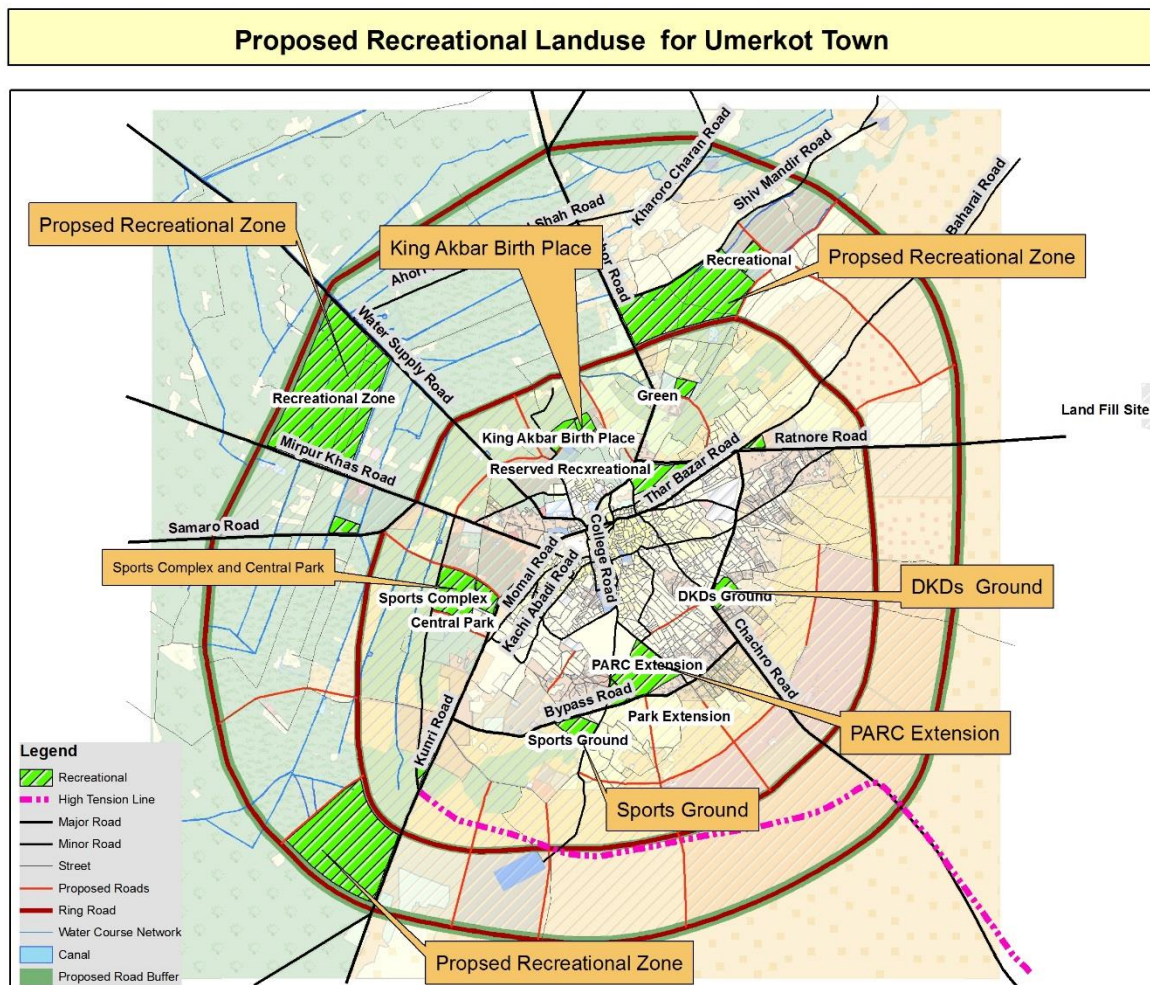


Figure 6:5: Future Recreational Proposals

6.3.7 Priority Projects

i. Preservation of Existing Heritage Sites of Umerkot

➤ Project Justification

Umerkot has many sites of historical significance such as the Mughal emperor Akbar's birthplace and Umerkot Fort. Umerkot has significance historical sites such as:

- The Mughal emperor Akbar's birthplace
- Umerkot Fort

The ancient fort of Umerkot is roughly rectangular in plan measuring 946x785 feet in all. The walls both on its interior & exterior give a tapered look, well supported on all the four corners with semi-circular bastions. On eastern side, there is an arched gateway flanked by semi-circular bastions. Originally the façade of the fortification walls of the fort were lined with burnt brick tiles laid in mud mortar and its core filled with mud. The fortification wall was originally 17 feet wide and raised to a maximum height of 45 feet. The Museum situated inside the Umerkot fort was inaugurated on 24th February 1968. Subsequently the museum was expended and shifted in a new museum building in July, 2006. The new museum building consists of three main galleries and two lobbies. For the conservation of these historical sites a detailed feasibility study needed.

➤ Project Benefit

It will provide economic opportunities to government and local people in the form of tourism activity.

➤ Implementing Authority- Culture and Tourism government of Sindh.

➤ Estimate Cost: 250.00 million approx.

ii. Construction and Rehabilitation of Football ground

➤ Project Justification

The availability of parks/playgrounds in any city is essential for the safe and healthy environment. There are several recreational places in the vicinity of Umerkot MC but due to the lack of management these may hardly be classified as proper recreational facilities as per standard requirement. There are many spaces in the city space which can ideally be converted and developed as recreational purpose. At the priority basis, the recreational areas (excluded IAP Projects)* needs rehabilitation in the DHQ town. For the priority basis, the football ground is considered for the rehabilitation.

➤ Project Benefit

It will provide better environment and contribute in the enhancement of the health of the citizen of Umerkot.



Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

- **Implementing Authority-** Culture and Tourism government of Sindh, Umerkot MC.
- **Estimate Cost:** 125.25 million approx

Project Name	Area Acres	Estimated Cost In Millions	Short Term	Justification
Recreational Priority Projects				
i. Preservation of Umerkot Fort	16.87	250.00	Long Term	Lump sum cost for Preservation
ii. Preservation of Akbar's birth place	1.18	5.00	Short Term	Lump sum cost for Preservation
Rehabilitation and Construction of Football Ground	5.25	125.25	Short Term	<ul style="list-style-type: none"> - Spectator area 10,900 sft. Repair & Rehab; @ the rate of 1500/ sft.. Total 16.35 Million for Construction of Spectator area. - Playground Area 5 Acres (217,800 sft, Repair & Rehab; @ the rate of playground @ rate of 500/ sft. <p>Total 108.9 Million for Rehabilitation of playground area.</p>

6.3.8 Immediate Action Plan for Core Urban Area/Recreational

- **Provision of open Spaces, Parks & Playgrounds**

Availability of recreational facilities can be a vehicle for positive social change for youth. Promoting recreational facilities benefits beyond the traditional aspirations of improved health and wellbeing.

- **Parks**

Existing open space is located along main chore road. Jinnah Park along with core urban area should be restored and maintained as Family Park. New land for open spaces should be identified and process of land acquisition should be started for new activities.

- **Sports Facilities**

Existing sports facilities like Marvi Cricket Stadium & City Ground are in miserable condition and should be restored and maintained for public use.

There is an acute shortage of compulsory open spaces in core urban area of Umerkot. Present recreational facilities mainly consist of Jinnah Park located along Chore Road. Existing sports facilities consist on Cricket ground and Football Ground. Both sports facilities are in miserable



Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

condition especially football grounds appear as pond of stagnant water during rainy / monsoon season. On immediate basis repair and rehabilitation of existing sports facilities like Marvi Cricket Stadium is proposed.

S. No.	Recreational Facility Type	Area (Acres)	Repair & Rehabilitation – Activity Wise Cost in Millions			
			Street / Road / Parking	Utility Infrastructure	Public facilities	Security
1	Rehabilitation of Cricket Ground (Marvi Cricket Stadium)	4.09	4.1	5.1	5.1	1.0
2	Rehabilitation of Jinnah Park	3.61	3.6	4.5	4.5	0.9
Total		7.70	7.70	9.62	9.62	1.92
Total PKR Rs. Million			28.86			
Note: <ul style="list-style-type: none">✓ Rehabilitation of lanes, streets and connection minor and major roads.✓ Utility Infrastructure rehabilitation includes basic services of water supply, electricity and gas supply.✓ Public facilities include 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 with respect to secured environment.						

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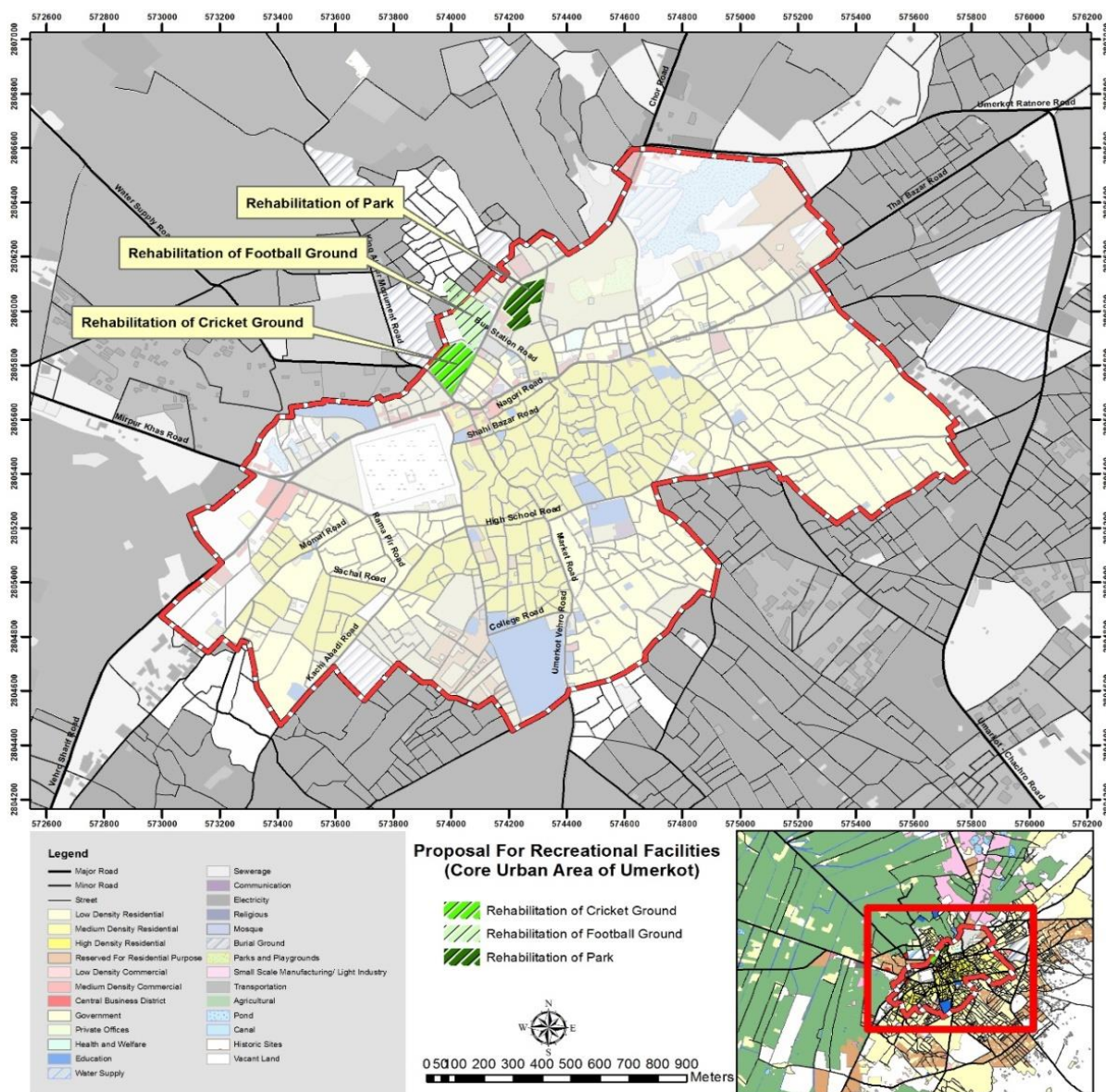


Figure 6:6: Proposal for Rehabilitation of Recreational Facilities



7. ECONOMY DEVELOPMENT PLAN

Economic development can make a town livable in every aspect of life needs and nourishment. The subject district is deprived in industrial provision and development. The people here are confronted with financial resources and as such they are virtually not in a position to install industry at their own expenses. There is only one oil factory in Kunri Taluka. All type of goods on whole sale and retail are purchased and sold in the big markets of the district. Umerkot is a trade center with eastern side of desert area. Kunri town is best known as the largest market of red chilies in Asia.

Umerkot district is pre-dominantly agro-based, and industrial activities are rare.

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.²⁵
- Increase farmer's income.²⁶
- 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.
- Develop Human resources through capacity building for employment opportunities.
- Facilitate social support and gender equality.
- Reinforce the local governance institutions.
- Modernize local / district / divisional administration.
- Involve community participation.
- Exploring and implementing PPP (Public Private Partnership) in all sectors.

²⁵ ADP 20017-18 Industries Punjab

²⁶ ADP 2017-2018 Agriculture Punjab

7.1 Agriculture

7.1.1 Existing Situation

Agricultural lands of Umerkot, particularly in the western parts, are very fertile and major crops grown here are cotton, wheat, sugarcane and chili whereas other crops like bajra and guwar are also grown in the barani (rain fed) belt (comprising of the desert parts) of Umerkot. For many people in the rural areas, lack of access to basic agricultural inputs, such as good quality seeds, fertilizers, agricultural skills, coupled with lack of basic services in education and health, and above all scarcity of irrigation water, are the determining factors that affect agriculture productivity.

The total geographical area of District Umerkot is 501,000 hectares out of this cultivated area is up to 335,000 hectares. Out of cultivable land dividing 2016-17, actually cultivated to 90,000 hectares leaving 245,000 hectares as fallow. Wasteland available to 35,000 hectares, whereas, 91,000 hectares are not available for utilization.

Table 7-1: Comparison of Land Utilization

S. No	Type of Cultivated area	2012-13	2013-14	2014-15	2015-16	2016-17
1	Cultivated area	334,000	333,000	333,000	327,000	335,000
2	Current Fallow	248,000	245,000	245,000	245,000	245,000
3	Net area sown	86,000	88,000	88,000	82,000	90,000
4	Cultivated Waste	34,000	340,00	35,000	35,000	35,000
5	Not available for cultivated	93,000	93,000	92,000	99,000	91,000

Source: Development Statistics of Sindh, 2018

During the year 2016-17, the Production of Wheat was 142,673 M.Tons, Sugarcane 181,142 Bales and cotton 156,499 Bales, and Maize 133 M.Tons. Whereas, the crops, production field, and land utilization are given tables as under:

Table 7-2: Comparison of Crops Production

S. No.	Major Crops	2013-14		2014-15		2015-16		2016-17	
		Area	Production	Area	Production	Area	Production	Area	Production
1	Rice	-	-	-	-	-	-	-	-
2	Wheat	36,617	121,647	37,566	109,279	38,485	110,316	48,600	142,673
3	Sugar Cane (Bales)	1,582	92,049	1,831	94,111	2,425	119,848	2,618	181,142
4	Cotton (Bales)	25,038	147,685	27,943	171,369	29,143	169,358	28,854	156,499
5	Maize	186	149	170	98	219	136	230	133

Source: Development Statistics of Sindh, 2018

7.1.2 Land Utilization

The cultivated area is up to 327,000 hectare. Out of cultivable land dividing 2015-2016, net sown area amount to 82,000 hectares leaving 245,000 hectares as fallow. Waste land available to 35000 hectares, whereas, 99,000 hectares are not available for utilization. To address the property issue / raising of income level waste land available be granted to land less people for utilization.

Table 7-3 Land Utilization			
S. No.	Type of Cultivated area	Land Utilization Area in Hectares 2013-2014	Land Utilization Area in Hectares 2015-2016
		Geographical area	Geographical area
1	Cultivated area	333,000	327,000
2	Current Fallow	245,000	245,000
3	Net area sown	88,000	82,000
4	Cultivated Waste	34,000	35,000
5	Not available for cultivated	93,000	99,000

Source: Development Statistics of Sindh 2017

7.1.3 SWOT Analysis of agriculture

Strengths	Weakness	Opportunities	Threats
<ol style="list-style-type: none"> 1. Umerkot is an agro-based rural district 2. Agriculture is the main source of employment for the rural population 3. Strong network of distribution of agro based products. 4. Agricultural lands of Umerkot, particularly in the western parts, are very fertile 5. Major crops grown here are cotton, wheat, sugarcane and chili whereas other crops like bajra and guwar are also grown in the barani (rain fed) belt (comprising of the desert parts) of Umerkot. 	<ol style="list-style-type: none"> 1. Supply of Low quality seed varieties 2. High rate of interest in Agriculture loan 3. Poor market mechanism to ensure reasonable returns to growers and artisans 4. Farmers are not aware and prepared to adopt new trends of cropping / farming techniques 5. Low demand of home grown food products. 6. Less revenue generation by local government. 7. Less sense of commercializing the agro based products. 	<ol style="list-style-type: none"> 1. Job opportunity for rural population. 2. Need connectivity between farms and markets 3. Possibility of increasing yield per acre. 4. Healthy population 5. Strong transport system 6. Outside investors show interest in agriculture sector. 	<ol style="list-style-type: none"> 1. Shortage of educated and skilled professionals. 2. Less efficient local markets. 3. Shortage of agro based products. 4. High land prices.



7.1.4 Issues

The issues regarding to agriculture is causing the degradation in production of crops;

- High price of Inputs (Fertilizers Material, Pesticides and Quality seed) require regulation and control
- Lack of agriculture credit facilities.
- Lack of Agriculture research centers.
- Increasing Water logging and salinity problem
- Absence of Tube well installation facilities and Shortage of irrigation water.
- Irrigation and Drainage problem
- Low price of crop production
- Unavailability of Farm to market roads
- Shortage of food warehouses
- Insufficiency of covered storage

7.1.5 Recommendations for Agriculture Sector

It is recommended to utilize the “Cultivable waste” land of 35,000 hectares to increase the yield per hector. The Monsoon rains play an important role in the irrigation of lands. In order to improve 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
- Tube well installation facilities
- Decreasing waterlogging and salinity
- Construction of farm to market roads
- Establishment of atmosphere controlled cold storage for fruit and vegetable

7.1.6 Irrigation Network

Umerkot lies in a drought / arid zone where annual rainfall is less than 40mm, and the district is at the tail end of Nara Canal command Area. Main canals of the district are Nara Canal and Mithrao Canal.²⁷ All of these are perennial canals but due to shortage of water there is a rotation system which provides weekly turns on Distributaries/Minors. The eastern Nara Canal is the demarcation line between irrigated and desert areas.

²⁷ Sindh Development Statistics 2008

Umerkot district is mostly a rain fed area .In Umerkot, majority of the mouzas are irrigated through canals. Out of the 232 rural mouzas, 205 (88%) are irrigated with the help of canals and 28 (12%) are arid (barani) mouzas.

In the year 2012-13, 49,605 hectares was irrigated out of 85,963 hectares, whereas in 2013-2014, 49,605 hectares was irrigated out of 85,963 hectares. The table below gives information regarding irrigation in the district²⁸.

7.1.7 SWOT Analysis of irrigation

Irrigation			
Strengths	Weakness	Opportunities	Threats
<ol style="list-style-type: none"> 1. District Umerkot has well established and efficient canal irrigation system in north and west zone. 2. Main canals of the district are Nara Canal and Mithrao Canal. These are the main irrigation sources for the district which help in agriculture productivity. 	<ol style="list-style-type: none"> 1. Negligence regarding timely de-siltation of canals. 	<ol style="list-style-type: none"> 1. Opportunities for enhancement of agriculture through tube well irrigation 2. Extension of existing irrigation system will boost agricultural productivity. 	<ol style="list-style-type: none"> 1. Over Flooding 2. Water contamination

7.1.8 Strategic Development Plan

i. Long Term Plan

- Promotion of technical and home based industry.
- Cater to the Low demand of home grown food products by providing incentives.
- Enhancing crop productivity through adoption of new technologies
- Agricultural technology development, dissemination and adoption.
- Cross-cutting issues-policy formulation and review, agricultural statistics.

ii. Short Term Plan

- Modernize and revitalize agriculture.

²⁸ Sindh Development Statistics 2015

- Improved food production to reduce hunger including emergencies and disasters that require agricultural support.
- Increase the supply and quality of agricultural crops
- Provision of warehouses for storage of agricultural products
- Use of modern techniques for cultivation by choosing healthy seeds and fertilizers for increasing yield per acre.
- Enhancement of the storage capacity.
- Provision of warehouses, food godowns for storage of agricultural products.
- Construction of covered godown.

Proposed Reserved Agricultural Landuse for Umerkot Town

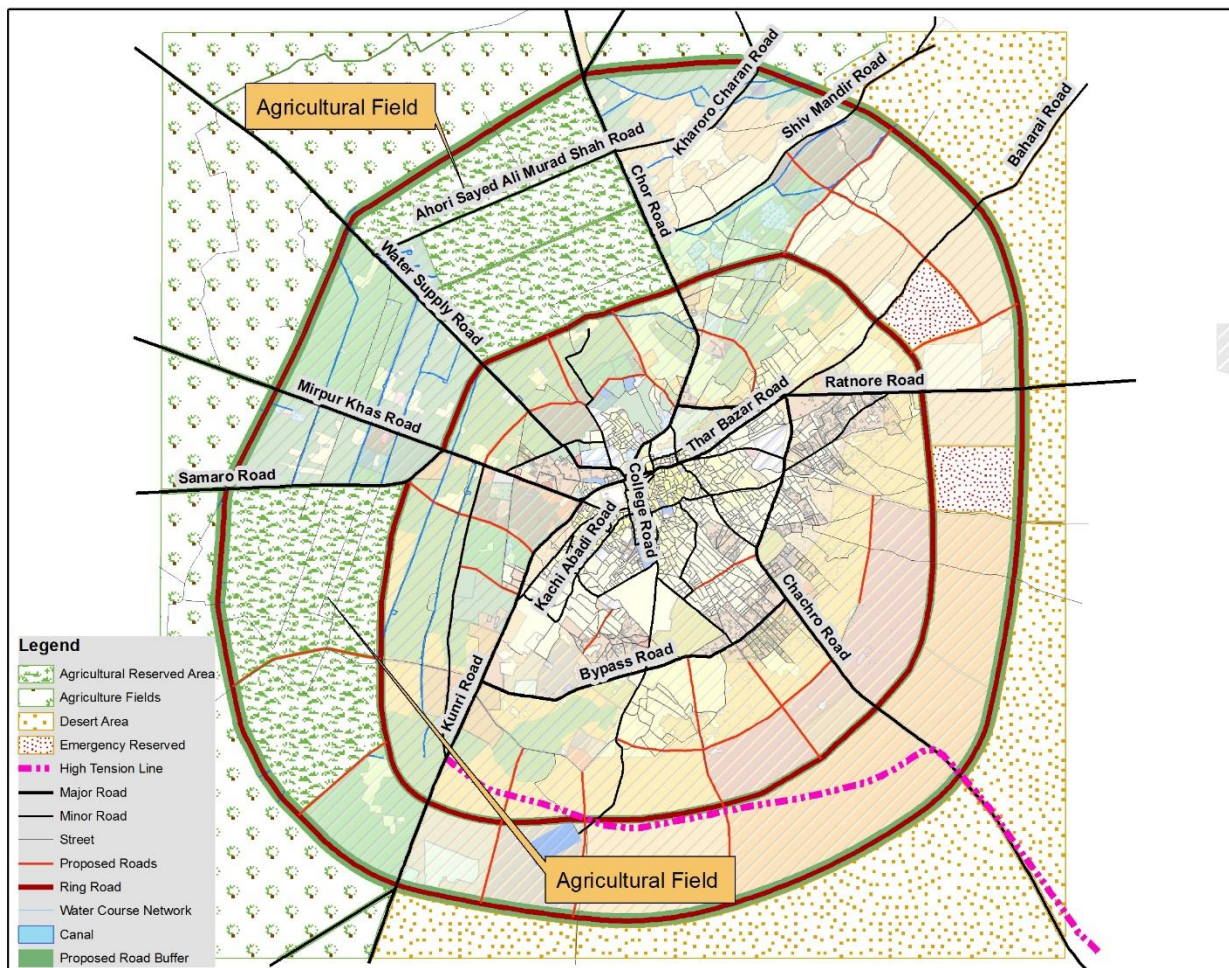


Figure 7:1: Proposed Reserved Agricultural Landuse for Umerkot Town

7.2 Livestock

7.2.1 Existing Situation

The livestock sector maintains a unique position within the agriculture sector of Pakistan. It contributes 51% to the value added in the agriculture sector of Pakistan. It also contributes 9% to the GDP of Pakistan. Besides, this sector provides foreign earnings, dairy products' needs, food security and daily cash income to the people of Pakistan. It helps to reduce income inequalities, especially in case of emergencies (floods, crop failure). Hence this sector is considered as the most secure source of livelihood for small farmers and landless poor. The share of Sindh province in livestock population of Pakistan is 20%.

7.2.2 Livestock

There are a good number and a large variety of livestock in the district. For the welfare and improvement of local cattle breed of Thar and Kachi sheep, an experiment station has been set up at Nabisar Road which is sponsored by the Government of Sindh. The statement showing the number of livestock in the district is as under.

Availability of fodder crops for animals includes: farmers own growing fodder, Available from the city market and irrigated area supply.

Table 7-4: Number of Livestock

Sr. No	Livestock by Type	District	Umerkot Town
1	Cattle	197000	2150
2	Buffalos	98000	1200
3	Sheeps	149000	1500
4	Goats	536000	4500
5	Camels	6000	25
6	Asses	29000	--
7	Poultry	180,000	--

Source: Development Statistics of Sindh 2018/ Departmental Data Collection, Livestock Department

• Veterinary Service

The livestock is serving by 02 veterinary Hospitals and 108 veterinary centres, 04 dispensaries, 19 sanctioned Doctors, 24 paramedics and also 24 supporting staff. There are a good number and a large variety of livestock in the district. For the welfare and improvement of local cattle breed of Thar and Kachi sheep, an experiment station has been set up at Nabisar Road which is sponsored by Government of Sindh. Other veterinary services include; Veterinary Center Okraro Panhwar, Veterinary Center Handa Kar (Pandi Nohri Paro), Veterinary Center Okraro Panhwar, Veterinary Center New Chhore, Veterinary Center Haji Suleman Rajar, Veterinary Center Qazi Samejo, Veterinary Center Bandio soomra, Veterinary Center Haji Fateh Muhammad Rajar, Veterinary Center Mir Wali Muhammad Talpur, Veterinary Center Village Marohar (Jameel Paro) and Veterinary Center Ahori Farm.

Table 7-5 Veterinary Service

S. No.	Items	Numbers
1	Veterinary Hospital	2
2	Veterinary Centers	108
3	Veterinary Dispensaries	04
4	Veterinary Doctors	19
5	Veterinary paramedics	20
6	Supporting Staff	24
7	Animal Treated	
7a	Vaccinated	277,149
7b	Treated	31,096
7c	Castrated	3,652

Source: Development Statistics of Sindh 2018

7.2.3 Issues

- Landlessness and small holding prevents the farmer to raise livestock on a commercial basis mainly subsistence farming
- Limited knowledge and facilities
- Almost for every farmer, livestock farming is a secondary activity so treated as a secondary source.
- Reduced areas for natural grazing and feed production in the face of increasing urbanization and food security requirements
- Climate change and environment degradation

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 cattle's 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 2 fish production farms in Umerkot District. 14 fishermen out of which 6 are full time and 8 are part-time experiencing their luck. There are no registered boats in district Umerkot and the annual fish production in district Umerkot is approximately 3 M.Tons.²⁹

Table 7-6 Annual Fish Production in M. Tons		
S. No	Items	Numbers
1	Number of Fish Farms	2
2	Number of Fishermen	14
3	Annual Fish Production in Metric ton	3

Source: Development Statistics of Sindh 2018

²⁹ Development Statistic of Sindh 2018

7.3.2 Issues

- To provide the extension services in the private sector
- Lease of fishing rights, conservation, management and promotion of fisheries
- Training through open training schools
- Issuance of district angling licenses
- 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

7.3.3 Need Assessment - Fisheries

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
- Training through open training schools
- Issuance of district angling licenses
- 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

7.3.5 Recommendations for Livestock, Fisheries & Poultry

It is expected that sustainable growth of livestock will be maintained as per objectives of Livestock Department hence there is a possibility of:

- The increasing number of livestock and dairy farms to meet the requirement of meat and milk.
- Establishing new fish farms and poultry farms in the districts to generate production and income of the people engaged in this business.
- Using a public-private partnership to promote livestock & fisheries.

It is expected that sustainable growth of livestock will be maintained as per objectives of Livestock & Fisheries Department with the participation of private sector. Hence there is possibility for increasing number of livestock and dairy farms to meet the 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. For this there is should any proposal for Cattle Farming in the Town, while Fish farms need to be identified by concerned authority to attract the private investment, where water is available.

7.3.6 SWOT Analysis

Strength	Weakness	Opportunity	Threats
Livestock & Fisheries			
1. Rich in livestock i.e. cattle, buffalo, goat and sheep are found in every part of district Umerkot. 2. Livestock also provides rich food such as meat, milk, eggs, and poultry meat. 3. Good breed of buffalos and cows are found in the district. 4. Mechanism for milk collection available 5. Favorable environment is available for livestock growth (Pasture) and poultry farming in surroundings of city.	1. Large scale breeding has not developed 2. Lack of facilities to industrialize livestock based products. 3. Livestock in the district suffers in particular from shortage of high quality feed.	1. Cooperative dairy farming and in-land fisheries has sufficient scope 2. Large pasture land and labor 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. Drought

7.3.7 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.

7.3.8 Strategic Development Plan

a) Long Term Plan

- Need for extension services in private sector
- Training through open training schools
- Local publicity and awareness
- Enforcement of fisheries enactment in their respective domain

b) Short Term Plan

- Lease of fishing rights, conservation, management and promotion of fisheries

- Issuance of district angling licenses
- Fish seed stock replenishment in natural water bodies in their respective domain
- Aquaculture development activities through modern techniques.

7.3.9 Economic Development Plan

There is a huge potential in the Livestock, Dairy & Fisheries sector in Sindh. In the context of livestock, 28% buffaloes, 27% cattle, 24% sheep, 28% camels and 40% poultry population in Pakistan is found in Sindh. The proposed projects include:

- Halal Meat Park (Abattoir, Processing, Certification, Packaging, Storage)
- Shrimp Aqua Culture Farms
- Dairy & Cattle Farms
- Poultry Farms

Proposed Livestock Landuse for Umerkot Town

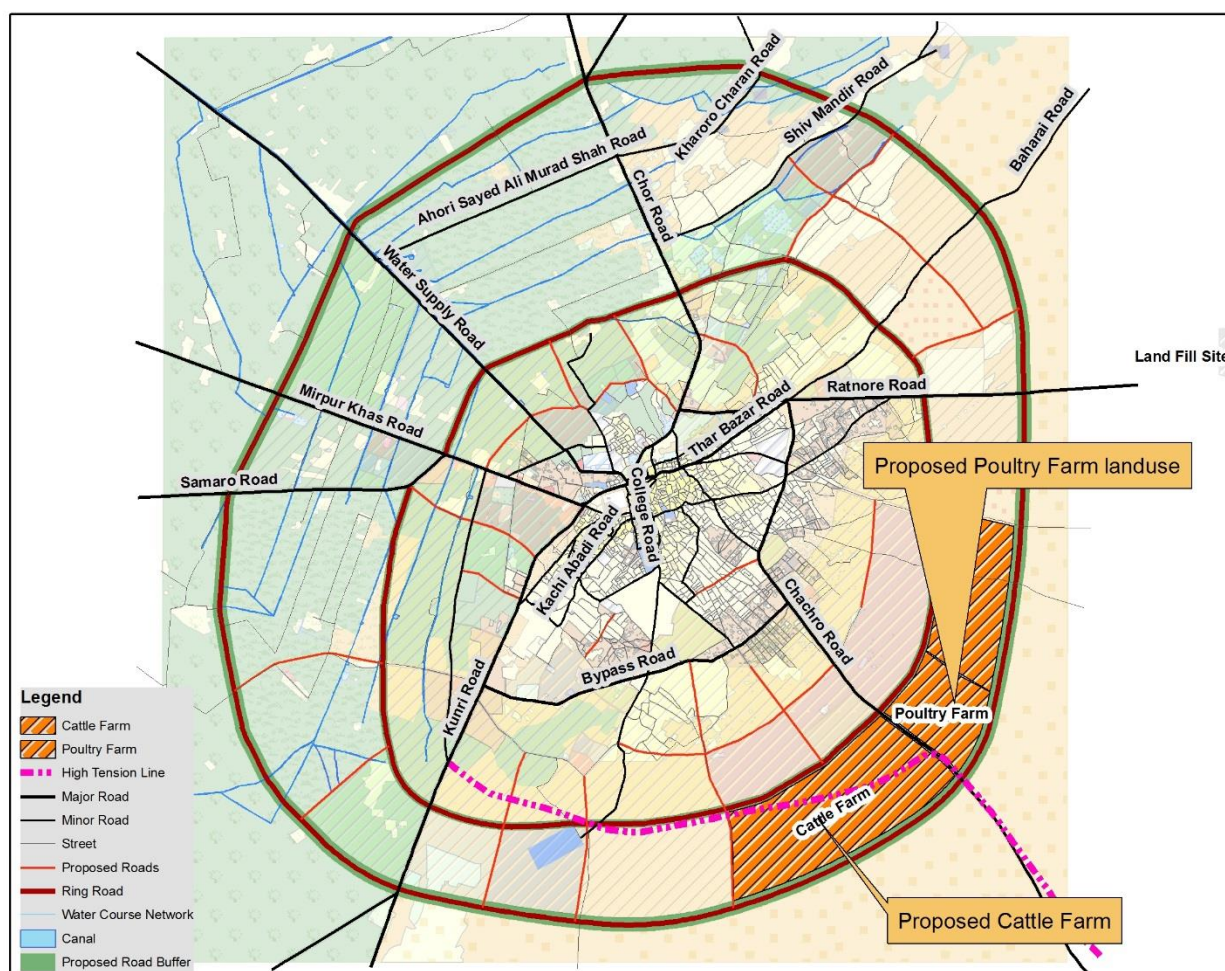


Figure 7:2 Proposed Livestock Landuse for Umerkot

7.4 Industries

7.4.1 Existing Situation

Umerkot district is pre-dominantly agro-based, and industrial activities are rare. Due to the insignificance of industrial sector, the some data on the industrial establishment is available for this district.

a) Types of Industries

Most of the industries in Umerkot are pertaining to the agriculture. Famous among these are the Cotton ginning factories and Flour Mills since Wheat and sugarcane is cultivated on large scale in this district.

Table 7-7 List of Industries		
Sr. No.	Category	Numbers
1	Agriculture	00
2	Agro-industry	07
3	Wood Works	00
4	Trade	05
5	Mining	00
6	Others	50

b) Technical and Vocational Training

Training and Vocational training is a continuous process to train unskilled manpower to become active skilled workers for the participation in development of local economy.

c) Occupation and Job Opportunities

The main occupations of the people of District Umerkot are agriculture and its related industries. With the improvement in agriculture, crop production will be increased which also will improve industrial production, the number of active members of population will also increase creating jobs opportunities. Employment in Agro Based industries plays important role.

7.4.2 SWOT Analysis

Industrial			
Strength	Weakness	Opportunities	Threats
1. District Umerkot is pre-dominantly agro-based, as most of the industries in Umerkot are pertaining to the agriculture.	1. Less job opportunities for this sector. 2. Limited industrial profile. 3. Industrial activities are rare.	1. Job employment. 2. Opportunities for small scale industries. 3. Vocational training and skilled development	1. Isolated economy. 2. Uneducated social group. 3. Air pollution 4. Water contamination

7.4.3 Need Assessment

- Vocational training to Women force should be encouraged for establishing cottage industry in the district.
- Establishment of small industrial in Umerkot

7.4.4 Strategic Development Plan

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. Establishment of a Small Industrial Estate is required to provide incentives for Cottage Industry and Red Chillies Processing and Packing Plants. Sindh Small Industries Corporation have vital role to play in this regard.

i. Long Term Plan

- Paradigm shift from industrial agriculture to diversified agro ecological Systems
- Development of Industrial Estates / Apparel Park / Special Economic Zone in District
- Provide Sufficient market infrastructure to ensure optimal value addition
- Customized lending and micro financing to small industries

ii. Short Term Plan

- Heritage saving through empowerment of artisans for development of handicrafts
- Provision of vocational training and employable skills to the unemployed youth of the district
- Establishment of new industrial estates/Zone
- Support industrial development.

iii. Economic Development Plan

There is potential for enhancing the capacity utilization of present units and establishing new industrial units with the following limitation:

- An Industrial Estate for Medium-large scale manufacturing industries may be setup. The object is to establish planned industrial areas where industrialists could have all the facilities such as land, road, railway, water supply, electricity, gas, telephone, godowns, sanitation, drainage, labour colonies, and other necessary public amenities.
- Establishing Mango juice/pulp extracting factories
- Establishment of Market rout for Red chillies
- Establishment of cottage industries for handicrafts, souvenirs, and embriodary
- Training should be provided to local workers in mining techniques and women working force to establish a cottage industry.
- Incentives to private investors for the establishment of workshops, cold storage etc. will be provided by Sindh Investment Board and Sindh Small Industries Corporation have a vital role to play.
- The increase in industrial growth will obviously contribute towards a better economy of the districts with an increase in per capita income, reduction in the unemployment rate and poverty alleviation.

Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

This will cause Increase in industrial Capacity and production that will enhance Availability of products for internal consumption and to export, Increase in jobs generation and Increase in revenues and tax collection.

Proposed Economic Landuse for Umerkot Town

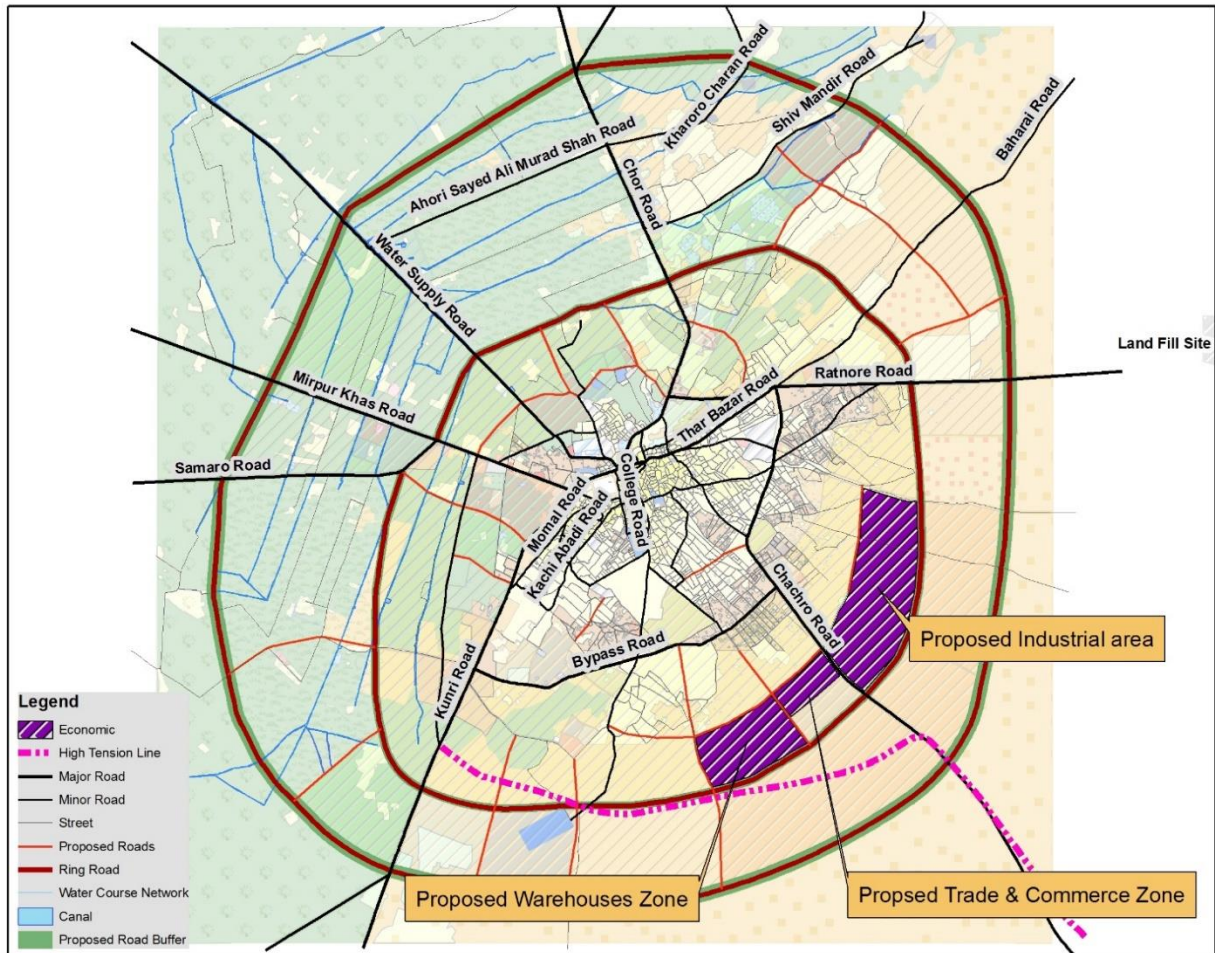


Figure 7:3: Proposed GIS Map for Economic Industrial Land Use Umerkot Town

7.5 Trade And Commerce

7.5.1 Existing Situation

Umerkot has commercial hub in main CBD called Thar Bazar especially along the main Thar bazar road Umerkot. Thar bazar road includes traders, wholesale markets, and traditional embroidery shops, Auto Shops, schools, clinics and general stores etc. Main Thar Bazar road, Mirpurkhas Road, Chore Road, kunri Road & Vehro Sharif Road covers almost all main institutional buildings, security offices and banks etc. Municipality old markets are present in old commercial area of Umerkot. Land encroachers grabbed few municipality properties and not paying any fares. Shahi Bazaar. Another large bazaar in Umerkot houses numerous big and small shops and works as a main shopping area of town. The bazaar is the only big marketplace of Umerkot and can be good place to hunt down the Sindhi handicraft and souvenirs. The bazaar surely gives a good example of a traditional bazaars and worth to take a stroll.

7.5.2 Issues

- The failure of PPP trouble for locals and government
- Demise of local agriculture market
- Un-planned local business activities.

7.5.3 SWOT Analysis

Trade & Commerce			
Strength	Opportunities	Weakness	Threats
<ol style="list-style-type: none"> 1. The district as a whole is well-known due to its characteristic of agriculture engine which serves all over Sindh by using market of Hyderabad, the regional trading Hub. 2. Large number of local skilled artisans available. 3. Strong local retail. 	<ol style="list-style-type: none"> 1. Demise of local agriculture market. 2. Un-planned local business activities. 3. Lack of awareness regarding micro finance opportunities offered by financial Institutions 	<ol style="list-style-type: none"> 1. More opportunities for public private partnership. 2. Support to local economy. 3. Home based handicrafts can be promoted through proper exposure to export market. 4. Large number of business interest groups. 	<ol style="list-style-type: none"> 1. Security issues (which lead a large number of agriculturists and business persons to migrating from the city). 2. Inflation. 3. Low subsidies provided by local and provincial government.



7.5.4 Strategic Development Plan

- Provision of Slaughter House
- Provision of parking for existing commercial areas
- Up gradation of old bazaar area
- Establishment of Fruit and vegetable market
- Specialized Wholesales market
- Construction of Building for service industry
- Provision of Cold storage and warehouses
- Relocation of existing Food Godown in Umerkot

7.5.5 Priority Project – (Trade & Commerce)

There are two principal crop seasons in Pakistan namely “Kharif”, with sowing beginning in April and harvest between October and December and “Rabi” beginning in October-December and ending in April-May. Existing Food Godown is located in main city area of Umerkot. People of Umerkot facing lot of problems during storage of grains and dust issues during off season. That’s why it is suggested to relocate existing Wheat Godown. Existing area of the food Godown is approx. one acre which needs more area for proper storage of food.

i. Establishment of New Food Storage / Food Godown

➤ Project Justification

As towns expand, the relocation of Food Godown to the fringes becomes imperative. In order for this major operation to be successful, it is necessary to provide good level of access and infrastructure in the project area. Close linkages with bus and truck stands must be ensured. Approximately 5 acres out of total land is reserved for Food Godown area with 65% built-up area within Trade and Commerce zone.

➤ Project Benefits

It will help to increase in earnings of local population, reduce congestion and also help to increase revenues & employment.

➤ Project Benefit - For the people of Umerkot, this project generate economy opportunities.

➤ Implementing Authority-Trades and Commerce, Government of Sindh

➤ Estimate Cost: 283.14 million approx.



Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

Project Name	Sector	Short Term	Proposed Area (acre)	Preliminary Cost (million/- PKR)	Justification
Establishment of New Food Storage / Food Godown "Considered 65% as a Built Up Area"	Economic Development (Trade & Commerce)	Short Term	5 acres	283.14	65% Built-up of 5 acre = 141,570 sft, at the rate of 2,000/- PKR per sft, construction cost with all infrastructure cost.

Proposed Economic Landuse for Umerkot Town

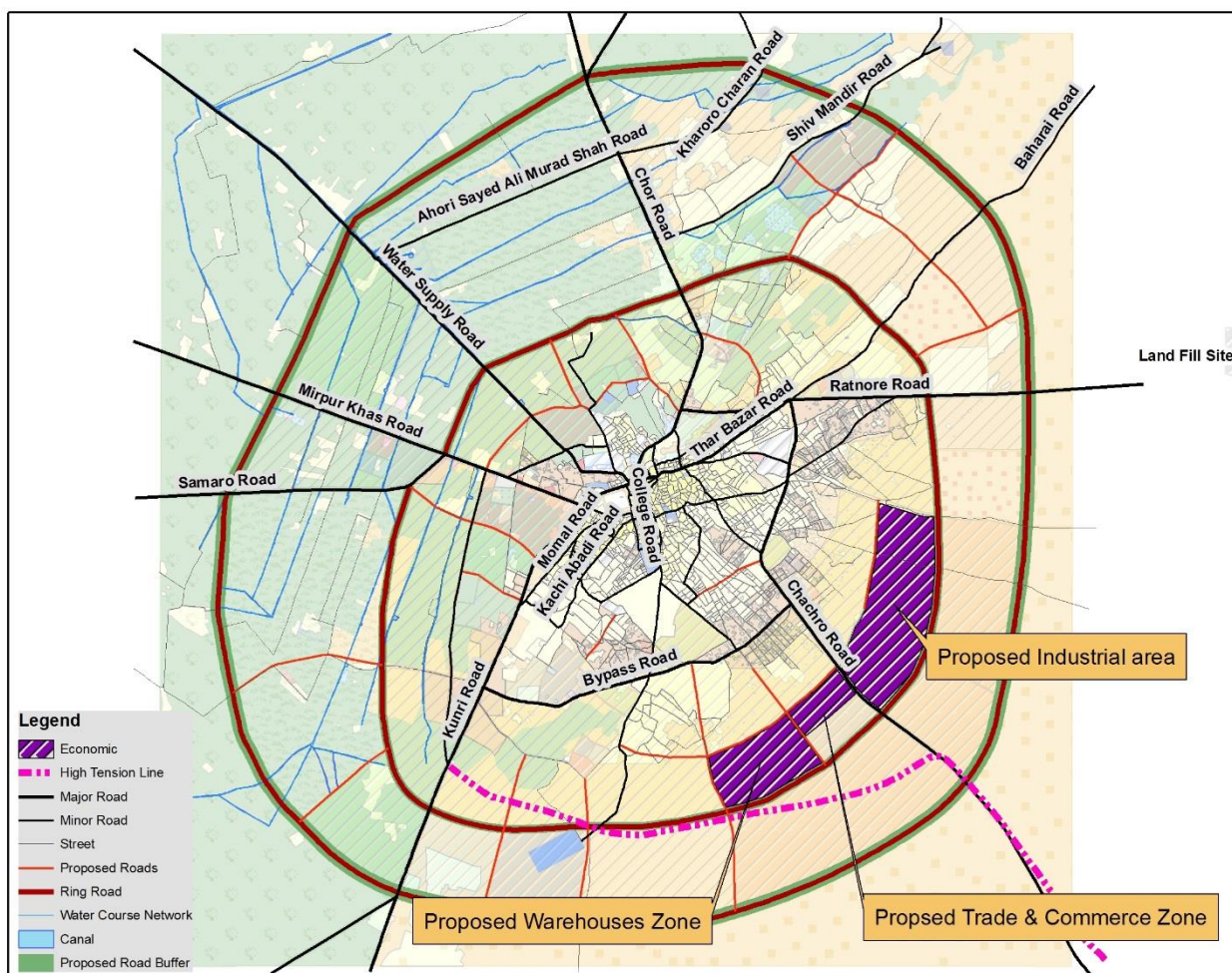


Figure 7:4: Proposed Trade and Commerce Zone

7.5.6 Immediate Action Plan for Core Urban Area

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

The proposed projects for core urban area of Umerkot consists of; Removal of encroachments from town center and bazaars, created by the shopkeepers and hawkers; Rehabilitation & Beautification of main Bazar area i.e Thar Bazar area; Rehabilitation of bazaars located along main Chore road, veharo road, mirpurkhas road and katchi abadi road etc. Provision of pedestrian facility in Bazar area; Up gradation & Rehabilitation of internal Bazaar roads.

➤ Modernization of Commercial Activity in the Core Urban Area

Umerkot has commercial hub in main CBD called Thar Bazar especially along the main Thar bazar road Umerkot. Thar bazar road includes traders, wholesale markets, and traditional embroidery shops, Auto Shops, schools, clinics and general stores etc. Main Thar Bazar road, Mirpurkhas Road, Chore Road, kunri Road & Vehro Sharif Road road covers almost all main institutional buildings, security offices and banks etc. Municipality old markets are present in old commercial area of Umerkot. Municipal market & Taxi stand encroached by land grabbers without paying any fares.



- Rehabilitation of Thar Bazar area (Beautification)
- Relocation of vegetable & Meat Markets
- Banned heavy vehicles during peak hours
- Removal of encroachments



Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

Rehabilitation of Main Commercial Area – Activity wise cost in Millions						
S. No	Area / Locality / Address	Area (acre)	Cost in PKR million.			
			Street / Road / Parking	Utility infrastructure	Public Facilities	Security
	Rehabilitation of Main Commercial (CBD) Area	30.61	30.61	91.83	38.26	7.65
	<ul style="list-style-type: none">• Rehabilitation & Beautification of main Bazar area i.e. Thar bazar road commercial activities along Chore Mirpurkhas Road, Chore Road, kunri Road & Vehro Sharif Road• Provision of pedestrian facility in Bazar area.• Up gradation & Rehabilitation of internal Bazaar roads· Removal of encroachments					
Total PKR Rs. Million			168.36			
Note: 1. Commercial areas should be enlisted in Govt. Agency for all services of Trade, Retail, Marketing, Sale etc. 2. All commercial areas security services are associated with combine effort of commercial trade union and local Government. 3. Commercial areas accessibility for daily users and marketers is well defined with ease.						

Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

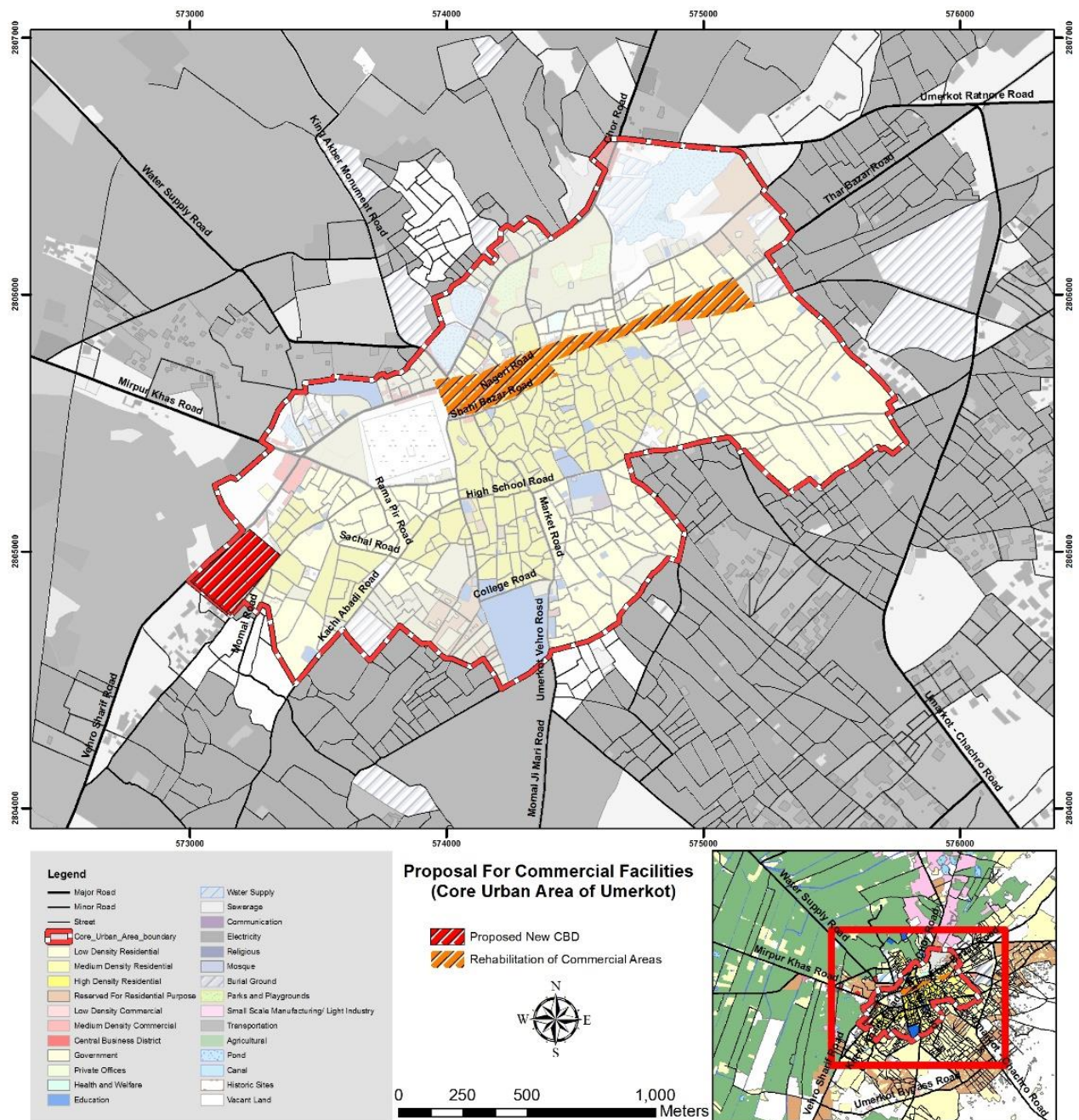


Figure 7:6: Proposal for Commercial Facilities (Core Urban Area of Umerkot Town)

7.6 Economic Development Plan for 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.

I. 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 Committees and Katchi Abadi regulators:

- Industries & Commerce Department
- Local Government Department
- Works & Services Department
- Transport Department
- Planning & Development Department

II. 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 income, 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 town comprise both the surface source as well as the groundwater source. The municipal water supplied to the Project town is drawn from the irrigation canals, passing close to the towns, and comparatively some part of the supplies are also dependent upon groundwater extraction through tube wells. **The current water supply to Umerkot is about 3.0 mgd.**



Hand pump in Umerkot

Existing Water Supply Components

As informed by PHED that mostly the water is directly pumped into water mains at the following locations

1. Water works rear side of eye Hospital
2. Chachro Road
3. Kolh Daro
4. HSR near Khoso Muhalla 100,000 mg capacity & supply by gravity. Underground Reservoirs – 4 Nos (1.72 mg capacity) PE & UPVC pipes of 3" to 18" have been used as distribution Networks.

8.1.2 Issues

The following key challenges in drinking water supply are identified.

- Weak institutional arrangements with overlapping of roles and responsibilities
- Weak coordination mechanisms
- High proportion of non-revenue water
- Dysfunctional water supply schemes
- Ro Plants O&M cost is very high
- Ageing infrastructure
- Water supply schemes driven by political interests – they are not demand driven and not based on need assessment
- Poor water quality from polluted and contaminated sources
- No zoning system adopted.

Overall services conditions can be characterized by;

- Inadequate water supply coverage, poor quality and intermittent supply;
- No-chlorinators on tube wells are provided.
- Reduce system losses (NRW & UFW).
- U/G and O/H supply zones to be designed identifying DNIs as priority

8.1.3 SWOT Analysis

Water Supply & Distribution			
Strengths	Weakness	Opportunity	Threats
1. Intake sources available	1. Absence of systematic water supply system and treatment plant. 2. Poor administrative setup for water supply management and distribution. 3. Absence of Master Plan	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 drought

8.1.4 Need Assessment

The present water Supply as reported is 3.0 mgd against demand of 4.0 mgd. The short fall is covered by ground water which is unfit for drinking purposes.

(a) Current Water Supply and Demand

Estimated water demand for the period to 2037 is shown below:

Table 8-1: Population, Current Water Supply & Demand Projected up to Year 2037

years	2017	2022	2027	2032	2037
Population	134,052	190,044	269,424	389,610	541,501
Per Capita daily demand @30 gpd)	4.02 mgd	5.7 mgd	8.1 mgd	11.5 mgd	16.24 mgd

Source: Consultant Estimation

It is expected that the town of Umerkot will have a population of about 541,919 persons by 2037.

8.1.5 Sindh Drinking Water Policy 2017

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.

8.1.6 Strategic Development Plan

i. Long Term Plan

- To develop guidelines for the evolution of an effective institutional and financial framework to implement the primary objectives.
- To link water supply and sanitation programs with environment, housing, sanitation and city and regional planning policies and programs.
- Develop a framework that allows the participation of the private sector, and encourages public-private partnerships, and the role of NGOs in the sector.
- Promote effective rehabilitation and efficiency improvements in existing water supply and sanitation systems, through justifiable investments, significant reductions in non-revenue water, increased water-metering, user-charges and other initiatives.

ii. Short Term Plan

- To ensure access to safe drinking water, and the promotion of health and hygiene practices
- To ensure an open-defecation-free environment; the safe handling and disposal of liquid waste; and the promotion of health and hygiene practices
- All municipalities 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.

- Priority for water supply and sanitation will be accorded to un-served, under-served areas, and disadvantaged areas. In water security zones, additional surface water should be arranged specially the hot summer season.
- Priority for water supply will be given to brackish water zones, coastal zones and those areas where there is shortage of sweet water in the underground aquifers. Those areas will be especially targeted where women have to walk more than 0.5 kilometers to acquire access to safe drinking water.
- Focus on the role of the Government, as both a service provider and regulator, to ensure that water quality and sanitation standards are properly articulated, maintained and enforced.

Proposed Utilities and Services Landuse for Umerkot Town



Figure 8:1: Water Supply Proposal

8.1.7 Priority Projects

i. Repair & Rehabilitation of Water Supply Network 90% (1089 Acres)

➤ Project Justification

According to PHE department Umerkot, about 90% of Umerkot town is served with municipal water supply network. Almost all the network of Water Supply in Umerkot town 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 Umerkot town. Repair and rehabilitation of existing water supply network cover below main components such as;

- Excavation
- Pipe cost
- Gate valve/ Washout valve/ Air release valve
- Joints repairs
- Balancing slopes at all network
- Checking of pipe life with rupture checker
- Valves for area wise pressure maintenance

Population	134,052
Total Urban Area excluding Core Urban Area and other Non-Urban Areas in Acres	1,210
90% of Total Urban Area in Acres	1,089
Proposal for Repair & Rehabilitation of Existing Water supply scheme shall help to supply safe potable water to 90% population of Umerkot town. One Million per Acre = 1,089	1,089

➤ 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.

Population	134,052
Total Urban Area excluding Core Urban Area and other Non-Urban Areas in Acres	1,210
10% of Total Urban Area in Acres	121
Installation of New water supply scheme is proposed to cover the rest 10% population / Area of Umerkot town @ Rate of 3.0 Million Per Acre	363

- **Implementing Authority** - Government of Sindh- PHE Department Umerkot

- **Estimated Cost:** 1,089 Million PKR Approx. (Short Term).



ii. Provision of New Water Supply Network for Remaining 10% of Umerkot town (Approx. 121 Acres)

➤ Project Justification

According to PHE department Umerkot, about 10% of Umerkot town has no water supply network & dependent on hand pump & community wells. Mostly 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 Umerkot Town.

➤ Implementing Authority - Government of Sindh- PHE Department Umerkot

➤ Estimated Cost: 363 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 90% (1089 acres) except core urban & Non-Urban area	1,089	Non ADP	1,089 acres, at the rate of 1.0 million per acre for overall Repair and rehabilitation.
2	Provision of New water supply network for remaining 10% (121 Acres) except core urban & Non-Urban area	363	Non ADP	121 acres, at the rate of 3.0 million per acre for overall construction.

8.1.8 Immediate Action Plan for Core Urban Area

Water supply work should be done for the entire town including core urban area. But on immediate basis keeping in view the requirement of clean drinking water of the community of Umerkot, there is need to rehabilitate the water supply network of Core urban area.

Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

Rehabilitation of Existing Water Supply Network of Core Urban Area Umerkot					
S. No.		Name	Area (acre)	Per acre cost (PKR) million	Cost (PKR)
Total Core Urban Area : 748.15 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).		748.15	1.220 million Per acre	913.25
Total Cost (PKR). Million			913.25		
Note:					
• Water supply system renovation includes supply pipe networks, pumping machinery and equipment's for more efficient and effective supply of water.					

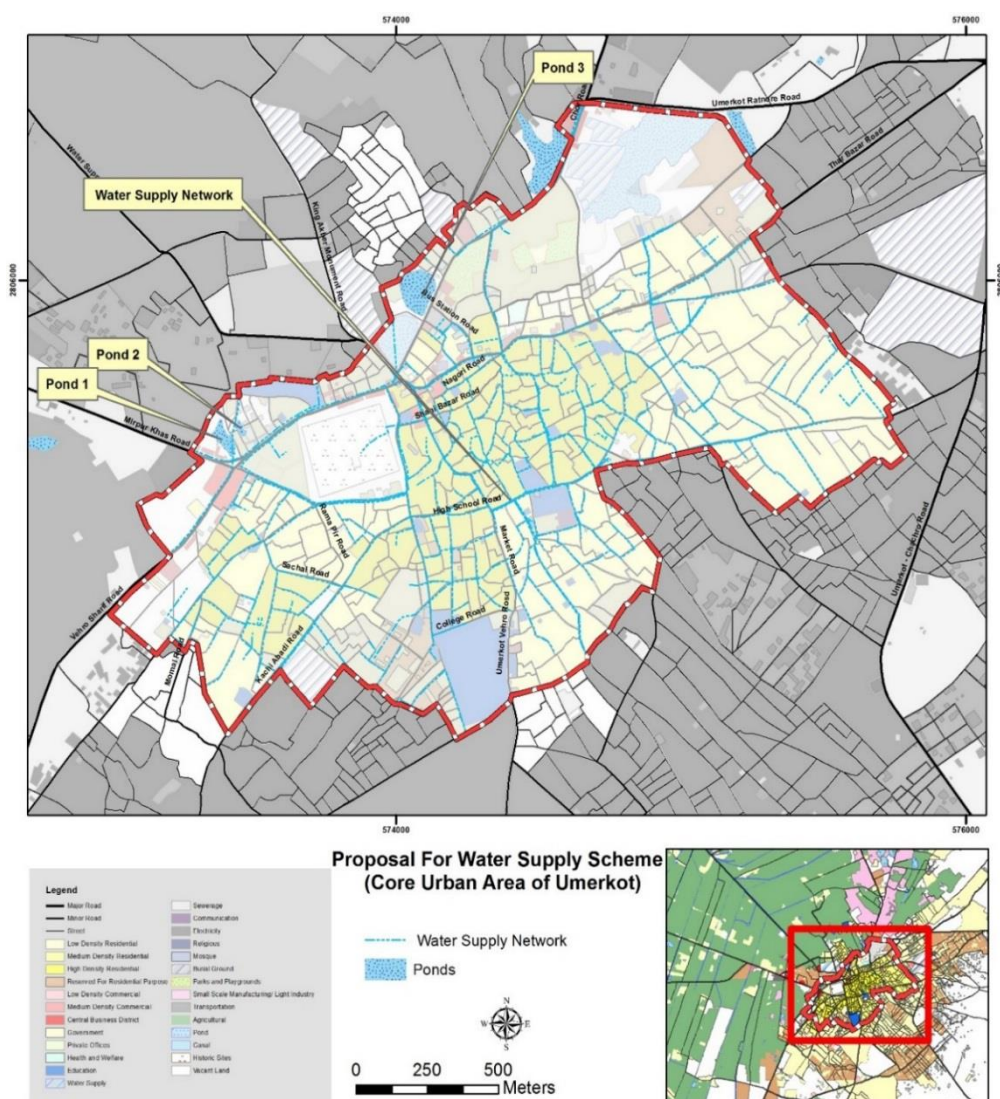


Figure 8.2: Proposal for Extension of Water Supply Scheme

8.2 Sewerage & Drainage

8.2.1 Existing Situation

The drainage and sewerage system in Umerkot consists of surface drains, and AC pipe sewers in part of the town. The sewerage system lacks proper operation and maintenance due to funding constraints, shortage of technical staff and proper equipment and vehicles. Use of AC pipes is not allowed as per WHO standards. The sewerage/wastewater generated is collected through drains and sewers in screening chambers and collection wells at 7 disposal pumping stations, and is pumped through rising mains for ultimate disposal into Farm Lands or Sand dunes.

Details on the infrastructure are summarized below.

- 2.1 mgd sewerage generated at present from 3.0 mgd water supply.
- Conveyance is by gravity flow in surface drain and pipe sewers to 7 pumping stations for final disposal to Farms.
- AC Pipes used for laying 10" to 18" sewers.
- Disposal pumping stations = 7 Nos.
- Existing Drains Type A, B, C = 44500 ft.
- RCC. NALA 6970ft.
- Rainfall is occasionally due to which no separate drains exist for storm water
- System is undersized and shallow sewers laid
- No treatment plant
- Poor condition of sewerage and drainage is main municipal services problem, and cause of waterborne diseases.
- Rehabilitation and extension of system is needed.
- Underground sewerage system, but needs to be properly designed & installed.

8.2.2 Issues

- 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 breeding 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.
- There is no sewerage treatment and untreated sewerage collects in ponds / swamps or directly discharge in to irrigation canal. The residents were dissatisfied with current sewerage system.
- No waste water treatment plant, thus raw sewerage is being discharged into water bodies.

8.2.3 SWOT Analysis

Sewerage and Drainage			
Strength	Weakness	Opportunities	Threats
<ol style="list-style-type: none"> 1. Combine system (open channel and sewer) serving most of the town area. 2. Sufficient land for disposal sites is available. 	<ol style="list-style-type: none"> 1. Poor maintenance condition; garbage enters into sewers, which requires desisting. 2. Drain water is disposed of untreated into canals and drains. 3. Open drains 4. Outdated and disconnected network. 5. No treatment before disposal 6. No policy for re-cycling, and reduction in generation of sewerage 7. Mixing of solid waste disposal into Sewerage. 8. Rain/Flood water still standing in town centre areas 	<ol style="list-style-type: none"> 1. An appropriate sewerage system plan can be implemented. 2. Improvement of general hygiene/ public health by cleaning sewerage system 3. Canals should be saved from toxic disposals. 4. Development of well-designed trunk sewerage network with less number of disposal station. 5. Planning for well-connected gravity based open drainage system covering ponds 6. Job opportunities for skilled staff for proper maintenance 7. Revenue can be generated through charging services for cleaning. 8. PPP in service delivery 	<ol style="list-style-type: none"> 1. Storm water flooding/ over flow of sewers 2. Environmental degradation 3. Funding & policies. 4. Removal of encroachment 5. Land grabbers

8.2.4 Need Assessment

Estimated wastewater generation for the period to 2037 is shown below:

Table 8-2 : Estimated Wastewater generation for the period 2037

Town	Water Demand	2017	2022	2027	2032	2037
Umerkot		4.02 mgd	5.7 mgd	8.1 mgd	11.5 mg	16.2 mgd
	Sewerage Flows @70 % water supply mgd	2.8 mgd	4.0 mgd	5.7 mgd	8.02 mgd	11.4 mgd

Source: Consultant's Estimation



8.2.5 Sindh Sanitation Policy 2017³⁰

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.
- 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).

³⁰ Sindh Water and Sanitation policy 2017



- 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.
- An overall sanitation plan will be developed for all urban settlements by city District governments and the Town Committee in coordination with all other agencies involved in sanitation.
- The plan will focus mainly on the details of the trunk sewers, treatment and disposals and re-use options. All other sanitation related agencies (cantonments boards, railways, etc.) will develop their plans in accordance with the overall plan.

ii. Short Term Plan

- To raise living standards of community by providing improved drainage and Sewerage services.
- Special focus on need based interventions in sanitation sector
- Priority for sanitation will be accorded to un-served, under-served areas, and disadvantaged areas.
- 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.

Proposed Utilities and Services Landuse for Umerkot Town

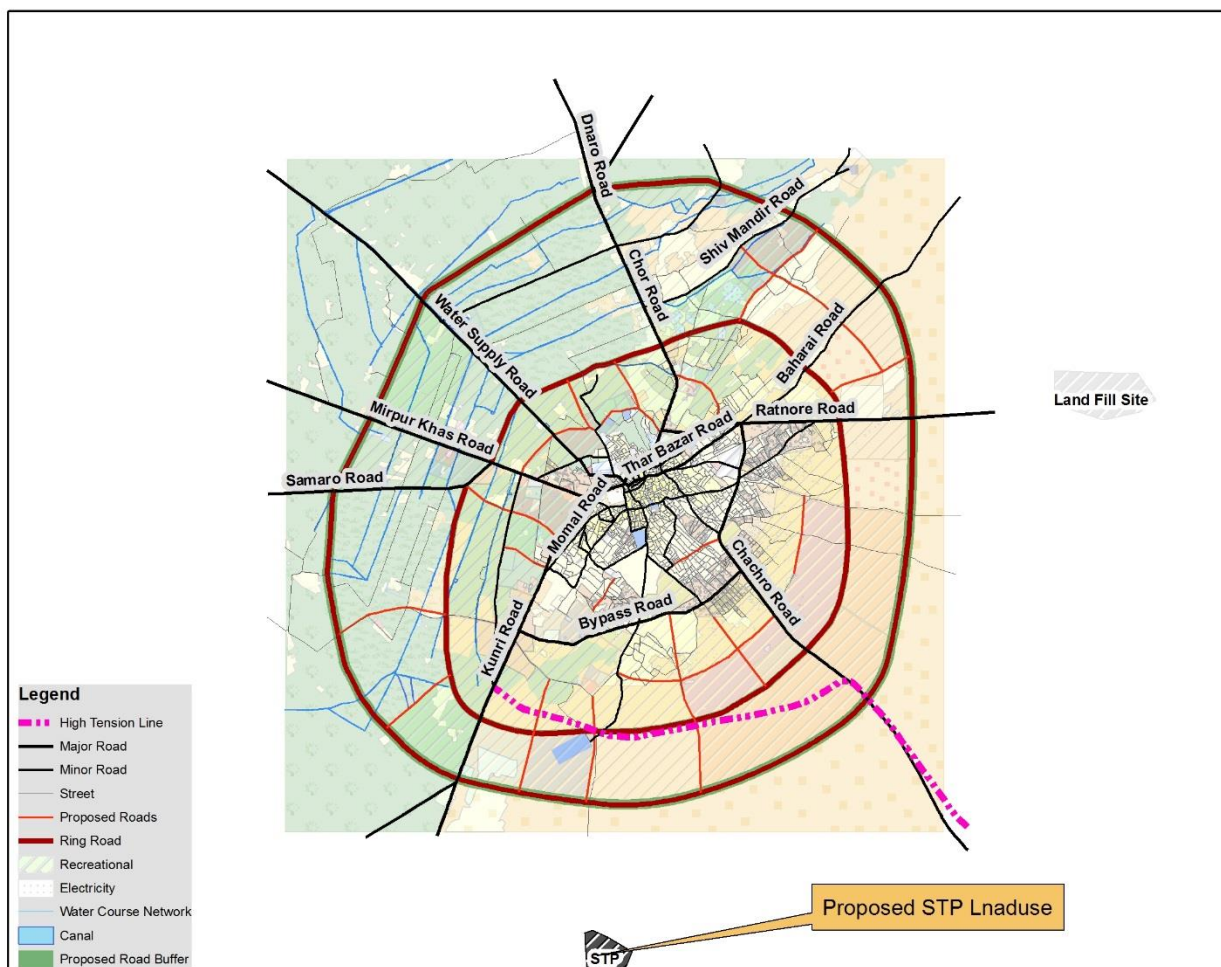


Figure 8:3 Future Sewerage Proposal

8.2.7 Priority Projects - Sewerage and Drainage Proposals for Priority Base Development

i. **Repair & Rehabilitation of Primary and Secondary Drains 69% (835 Acres) Except Core Urban & Non-Urban Area**

Almost all the secondary and tertiary drains in Umerkot town are in poor condition as most of them is open and semi covered drains. According to socio economic survey results about 69% of the areas of town are connected with drainage system.

➤ **Project Justification**

In Umerkot Sewage is mainly disposed of in roadside drains, and untreated sewage collects in ponds/swamps. The drainage system and structures are in poor condition with open smelly drains and sewers. The tentative Landuse area of DHQ town is about 1,210 acres approximately. According to socio economic survey results 69% (835 Acres) of town area is served with drainage system. Whereas almost 65% 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 835 acres excluding core town area. Repair & Rehabilitation of Primary and Secondary Drains will include the following components;

Total Population of MC	134,052
Present Waste water generation	3.4
Drainage Served Area in acres (excluding the Core Area)	835
Drainage served Area in Acres (excluding the Core Urban area)	835

- 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 Benefit**

After the implementation of the project of surface drainage network with easy dispose after the treatment.

- **Implementing Authority**-Government of Sindh, PHED Umerkot, and Umerkot MC.
- **Estimate Cost**: 835.00 million approx.

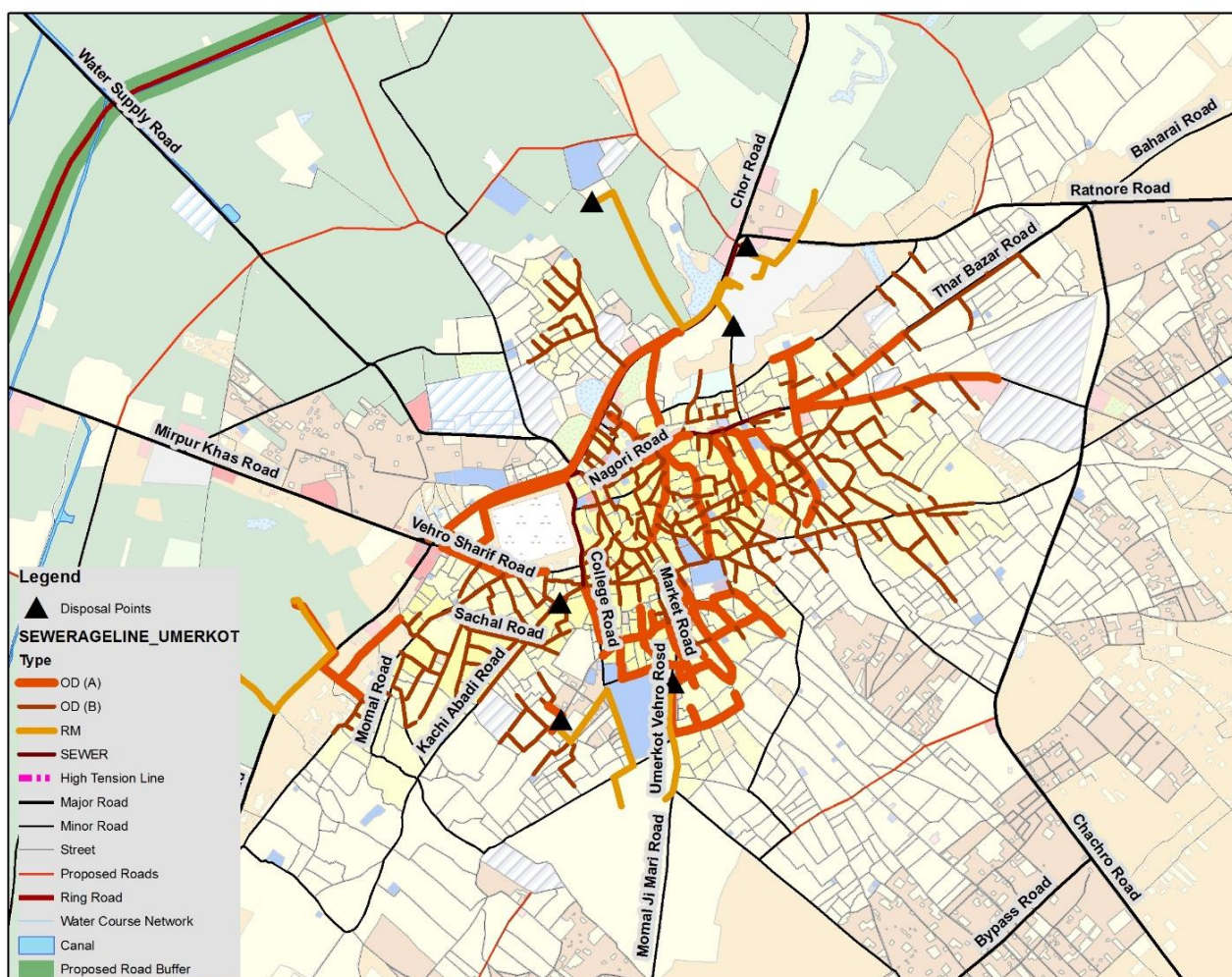


Figure 8:4 Proposed Repair & Rehabilitation of Primary and Secondary Drainage Network

ii. Construction of new drainage network for remaining 31% (375 acres) except core urban area

➤ Project Justification

According to socio economic survey results approximately 31% of the houses have septic tanks in their houses for storage of sewage. This project will help to proper disposal of sewage water of Umerkot Town. According to socio economic survey results 31% (375 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 375 acres excluding core town area.

Total Population of MC	134,052
Drainage Un-Served Area in acres (excluding the Core Area)	375
Drainage Unserved Area in Acres (excluding the Core Urban area)	1,125



Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

➤ **Project Benefit**

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, PHED Umerkot, and Umerkot MC.**

➤ **Estimate Cost: 1,125 million approx.**

Project Name	Area Acres	Estimated Cost In Millions	Short Term	Justification
Sewerage & Drainage Network				
Repair & Rehabilitation of Primary and Secondary Drains 69% (835 Acres) Except Core Urban & Non-Urban Area	835.00	835.00	Short Term	835 acres, estimated as one million per acre for the Repair & Rehabilitation of Primary and Secondary Drains of umerkot town.
Construction of new drainage network for remaining 31% (375 acres) except core urban area	375.00	1,125.00	Short Term	375 acres, estimated as 3 million per acre for Construction of new drainage network

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 Umerkot 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 streets. Below pictures shows the drainage issues of core urban area.

Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

Proposal for Repair & Rehabilitation of Sewerage & Drainage for Core Urban Area				
S. No.	Name	Area (acre)	Per acre cost (PKR) million	Cost (PKR)
Total Core Urban Area : 748.15 Acre				
1	Existing Sewerage, Storm Water & Drainage System	748.15	1.0 million Per acre	748.15
Total Cost (PKR). Million				748.15
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 steep slopes and peak areas with all linking equipment and machinery.				

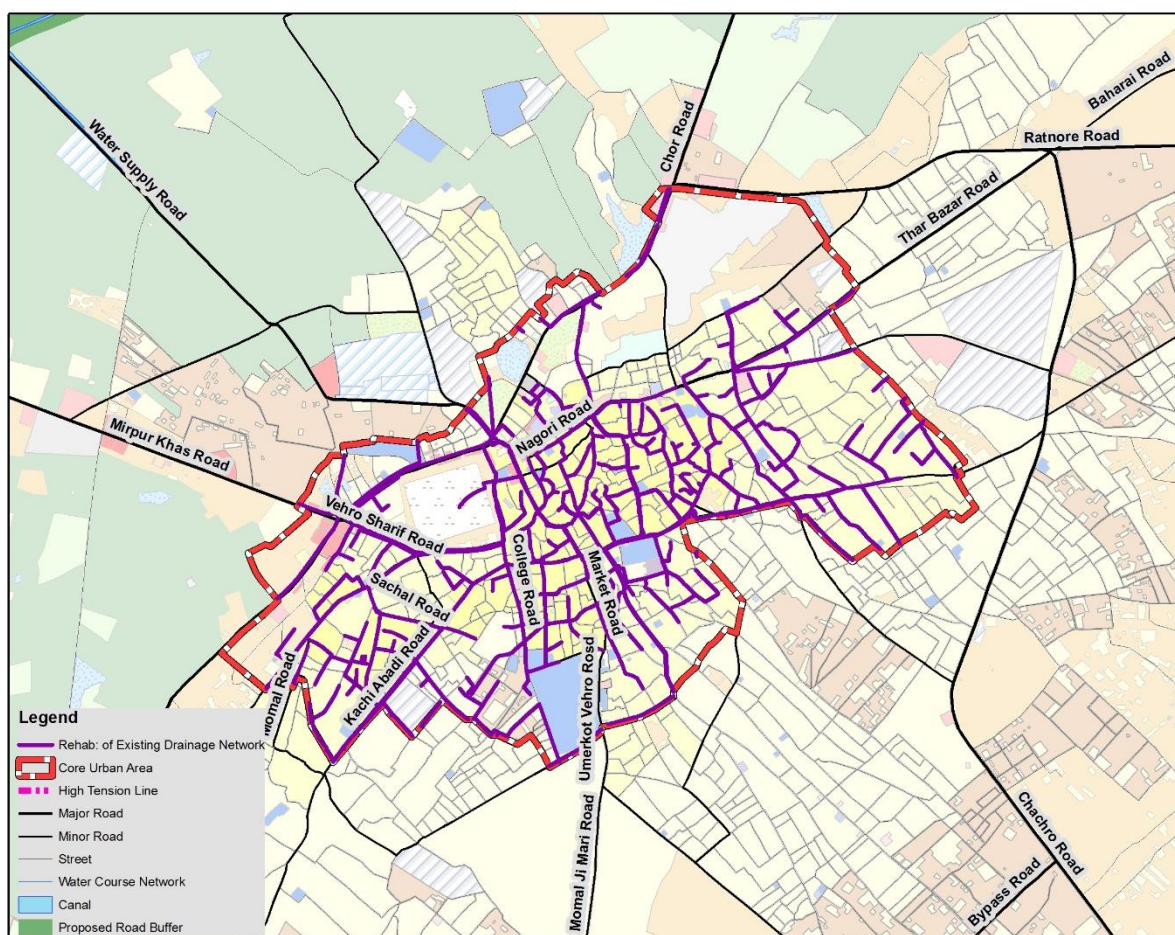


Figure 8:5: Proposal for Repair & Rehabilitation of Sewerage & Drainage for Core Urban Area

8.3 Solid Waste Management

8.3.1 Existing Situation

The solid waste management system of Umerkot is of primary level i.e. based primarily collection of garbage from streets and transportation to dumping grounds. According to earlier observations, for MSW collection purpose there are mainly three types of vehicles; two types of tractor towed trolleys and one refuse van i.e, Mazda Master truck. The larger and smaller ones both make 4 trips a day, while the refuse van is hydraulically operated tipping system to off load the MSW collected from various secondary collection points. It makes 8 trips a day. Refuse van trolley (skip) has got loading capacity of 2.5-3 tons. MSW collection is done 6 days a week.

MSW of all UCs of Umerkot is finally dumped at two places, one is known as New Khand area located at zero point bypass road while the other area is known as Old Khand, on Chhor road which is near Umerkot weighing bridge. This waste is burnt intermittently by municipality staff to reduce its volume. There are more than 80 secondary collection points. Some of these are permanent structures but most points are empty corners or vacant places. Besides, every locality has got throw away sites in the form of depressions, empty areas, cuttings areas etc. These type of un-notified points if come across in the collection process are often served by the municipality staff or avoided due to shortage of resources. Approximately **85-90** tons of waste is generated daily. Out of this waste only **50-55** tons is collected, transported and dumped at final disposal site.

Identification of Disposal Points

Garbage collection points are more or less permanent structures however majority points are empty corners or vacant places. Besides, every locality has got throw away sites in the form of depressions, empty areas, cuttings areas etc.

There had been little if any planning in the location of the landfill sites and there has been no planning for the replacement of existing dumping ground(s). Those sites were originally located at some distance from the town, but have now been enveloped by increasing urbanization. None of the sites had undergone EIA as required by SEPA Review of IEE & EIA Regulations 2000.

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.

The disposal of untreated municipal and industrial effluent into water bodies wreaks havoc for water quality especially near and downstream from the outfall points. Pulp and paper, textile, fertilizer, cement and sugar factories are responsible for this pollution. This is also damaging the aquatic system and also reducing revenues from fisheries, causing diseases and contaminating groundwater.

8.3.2 Issues

- 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.
- Though Umerkot is comparatively a larger town with all basic amenities like electricity, natural gas, water supply, waste collection, street sweeping etc but the general public lacks basic awareness on negative impacts of improper waste disposal and related health issues.
- So far no concern has been shown by municipal committee or provincial government to establish a sanitary landfill. Some places however be considered as potential landfill sites. Its further study can qualify the site for establishment basing on socio-economic, aesthetic and health aspects. Besides the water table is very high in the area, making surrounding area unfit for Sanitary Landfill establishment. Hence some area in outskirts of Umerkot with impervious ground layers may be selected as potential landfill.

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 hazardous waste in an environmentally sustainable manner
- Directives for implementation of waste policy framework and execution of its management system.

8.3.3 SWOT Analysis

Strength	Weakness	Opportunity	Threat
Sewerage and Drainage			
1. Combine system (open channel and sewer) serving most of the town area. 2. Sufficient land for disposal sites is available.	1. Poor maintenance condition; garbage enters into sewers, which requires desisting. 2. Drain water is disposed of untreated into canals and drains. 3. Open drains 4. Outdated and disconnected network. 5. No treatment before disposal	1. An appropriate sewerage system plan can be implemented. 2. Improvement of general hygiene/ public health by cleaning sewerage system 3. Canals should be saved from toxic disposals. 4. Development of well-designed trunk sewerage network with less number of disposal station.	1. Storm water flooding/ over flow of sewers 2. Environmental degradation 3. Funding & policies. 4. Removal of encroachment 5. Land grabbers



Strength	Weakness	Opportunity	Threat
	6.No policy for re-cycling, and reduction in generation of sewerage 7. Mixing of solid waste disposal into Sewerage. 8.Rain/Flood water still standing in town Centre areas	5.Planning for well-connected gravity based open drainage system covering ponds 6.Job opportunities for skilled staff for proper maintenance 7. Revenue can be generated through charging services for cleaning. 8. PPP in service delivery	

8.3.4 Need Assessment

- **Collection System:** street sweeping and collection are by far the most expensive activities in MC's waste-management system
- **Medical Waste Management:** At present all biomedical waste is mixed with ordinary municipal waste, which is a dangerous practice. MC has already initiated some work on biomedical-waste management
- **Central Composting Plant:** In order to handle a large quantity of waste it is essential that there is a set up of large-scale central composting plant.
- **Landfill Site:** Since MC does not have a proper landfill, it urgently needs to find and develop proper site. It is recommended to undertake the field study for the determination of waste generation and characterization for Umerkot 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 Umerkot as 134,052 the total municipal solid waste load arising in the municipality is approx. 60,323 kg or 66.49 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 134,052 in 2017, landfill area of 13.40 acre is needed and for the projected population in 2037 of 541,501 landfill area of approx. 54.2 acre is required.
- **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.
- **Public Awareness and Education**

8.3.5 Policy Guidelines³¹

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

³¹ Solid Waste Management Policy for Sindh
Sindh Water and Sanitation Policy 2017

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.
- Formalize contracts with companies for waste to energy options. Atleast 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.
- Develop and use technologies that are affordable, applicable and cost effective to maintain the solid waste management.

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 Plan

- The collection and disposing of solid waste is the responsibility of the Umerkot MC. The mechanism for solid waste management is not available in Umerkot so therefore a detailed feasibility is proposed to develop an efficient solid waste management in Umerkot town.
- The collection system needs to be made more effective and efficient.
- MC has already initiated some work on biomedical-waste management. It should immediately start segregation practice for biomedical waste collection system. Separate collection, treatment and disposal of healthcare and other hazardous wastes.
- Providing sufficient equipment's and machineries for final disposal of solid waste.

ii. Short Term Plan

- Perform daily sweeping of streets and roads in urban areas using appropriate tools and equipment.

Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

- Daily removal of all garbage / waste from primary-secondary collection / transfer points, and cleaning is to be carried out where necessary.
- Where possible, zero direct human contact with waste from primary collection to disposal, and covering of waste during transportation.
- Shops, restaurants, healthcare centers etc. to contribute towards waste management costs.
- Allocation of proper landfill sites outside of the urban area and Final disposal of waste at least 500m from housing to a contained area chosen and designed according to geological conditions, water table, wind etc.
- 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.
- Municipal Committee has already initiated some work on biomedical-waste management. It should immediately start segregation practice for biomedical waste collection system.
- Industrial waste disposal should be treated separately and safely.

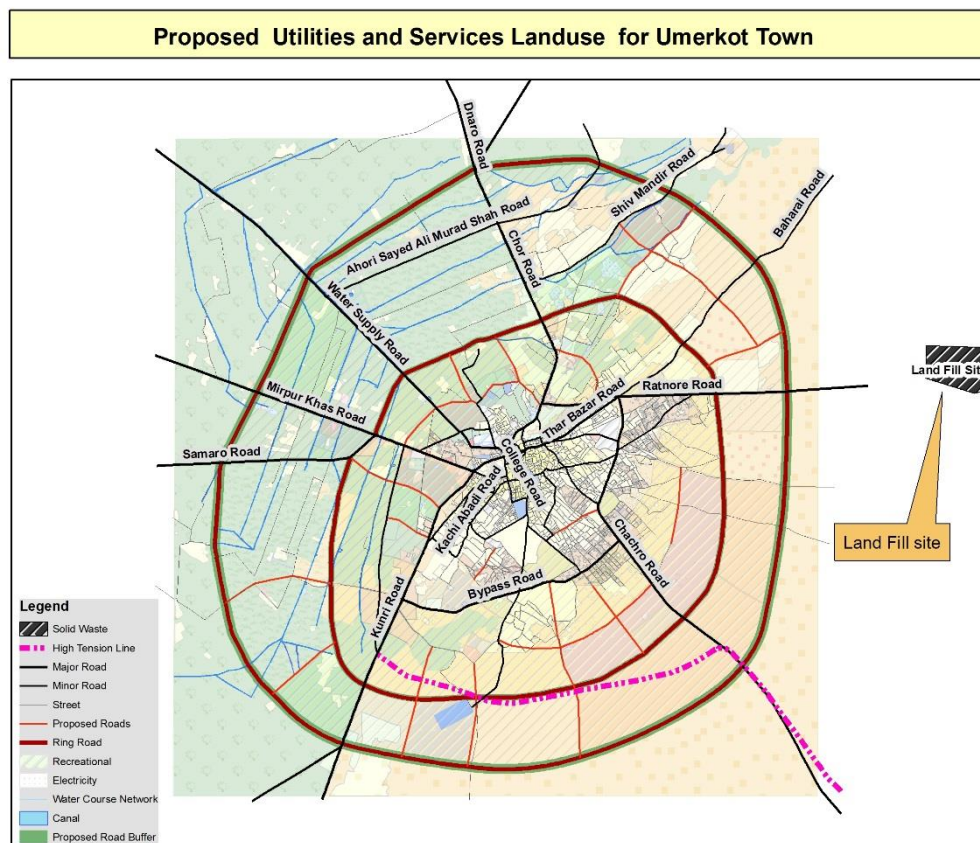


Figure 8:6 : Future Solid Waste Proposal

8.3.7 Priority Project - Solid Waste Management priority base development projects

Feasibility Study for Solid Waste Management Mechanism and Mechanism for Primary and Secondary Collection and recycling

➤ Project Justification

The collection of the solid waste is the responsibility of Umerkot MC. Umerkot MC have been contributing to keep clean the city by providing the basic municipal services includes solid waste management. As street sweeping and collection are by far the most expensive activities in MC's waste-management

Present Vehicles, Machineries and Equipment	Quantity
Tractors Trolleys	06
Dozer (Tractor with front blade)	01
Sucker Machine Vehicle	01
Jetting Machine Vehicle	01
Ching chi Rickshaw (refuse pickup)	07
Fire Tenders	02

system, the collection system needs to be made more effective and efficient. A detailed feasibility study is proposed to develop the efficient solid waste management mechanism. . The waste is collected and transferred/ transported outside limits of the town to designated / non-designated dumping sites utilizing refuse vehicles and tractor trolleys which are usually inadequate in numbers for the handling of MSW by the sanitary / waste collection staff. The total actual numbers of Sweepers /and Cleaning staff is 103. The employed staff in the municipality is 274 in numbers and the sanctioned employees are 506 in numbers.

Central Composting Plant: In order to handle a large quantity of waste it is essential that organic waste is segregated from the municipal solid waste (with possible recovery of recyclable items) for which a setup of large-scale central composting plant is required. This should be done with private sector participation.

Landfill Site: Landfill is an ultimate safe disposal option for Municipal Solid Waste and is imminently required. Land fill should be in the radius of 4-5 km of the town.

➤ Project Benefit

The project will identify the feasible solution to improve hygienic conditions of the town. A positive impact over the whole population.

➤ Implementing Authority-Government of Sindh, Umerkot MC

➤ Estimate Cost: 120 million approx.

S. No.	Project Name	Area (acres)	Estimated Cost In Millions	Short Term	Justification
Solid Waste					
1.	Feasibility Study for Solid Waste Management Mechanism and Mechanism for Primary and Secondary Collection and recycling	---	100.00	Short Term	At the present, the town is lacks in the provision of integrated mechanism of municipal solid waste management.
2.	Procurement for land acquisition process for Landfill Site.	05	10.00	Short Term	At the rate of 2 million per acre



8.3.8 Immediate Action Plan for Core Urban Area

Heaps of solid waste is evident in the core urban area. It is proposed that primary level collection i.e. door to door collection system should be launched immediately by Municipal Committee. Waste generated by the market of the core urban area should be picked on daily basis.

Shopkeepers can pay a small amount on monthly basis to the sweepers say 250rs/month and domestic consumers availing this facility can pay a small amount on monthly basis say 100rs/month. Street sweeping should be done on daily basis and this should be ensured by TC Umerkot. Secondary Level Collection (Collection from Preliminary dumping area at ward level to the main Landfill/ dumping site) should also be encouraged.

However, it is highly proposed to introduce recycling of reusable items and segregation of solid waste into paper, plastic and glass from household level. These could be achieved from awareness campaign and installation of segregated bins at mohallah level. Recycling and Segregation of solid waste into paper, plastic, glass etc and Mechanism for Separate collection of biomedical waste s

The waste generation rate estimated from the studies conducted earlier in the SCIP-3 project suggests being around 0.4 – 0.45 kg per capita per day³². However, it is recommended to undertake the field study for the determination of waste generation and characterization for Umerkot to plan and design the solid waste management system. Considering the waste generation rate for design purposes as 0.45 kg per capita per day with the current (2017) population of the town committee of Umerkot as 134,052 the total municipal solid waste load arising in the municipality is approx. 60,323 kg or 60.3 tons per day.

8.3.9 Suitable locations for Disposal Points

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 otherwise usually avoided due to shortage of time and resources constraints.

Solid Waste Management System (Solid Waste Garbage Collection Containers)				
S.No	Name	Containers Nos.	Cost / Container	Cost (PKR)
Total Core Urban Area : 748.15 acre				
1	Placing of Garbage Container at different sites/locations in core town area	100	520,000.00	52,000,000.00
Total Cost (PKR). Million				52.00
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.				

³² SCIP-03 Program Management, Project Preparation and Implementation Support for Planning & Development Department, Solid Waste Management Studies of Towns of Central Cluster of Province of Sindh, 2013, Brisbane City Enterprises Pty Ltd, & MMP

Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

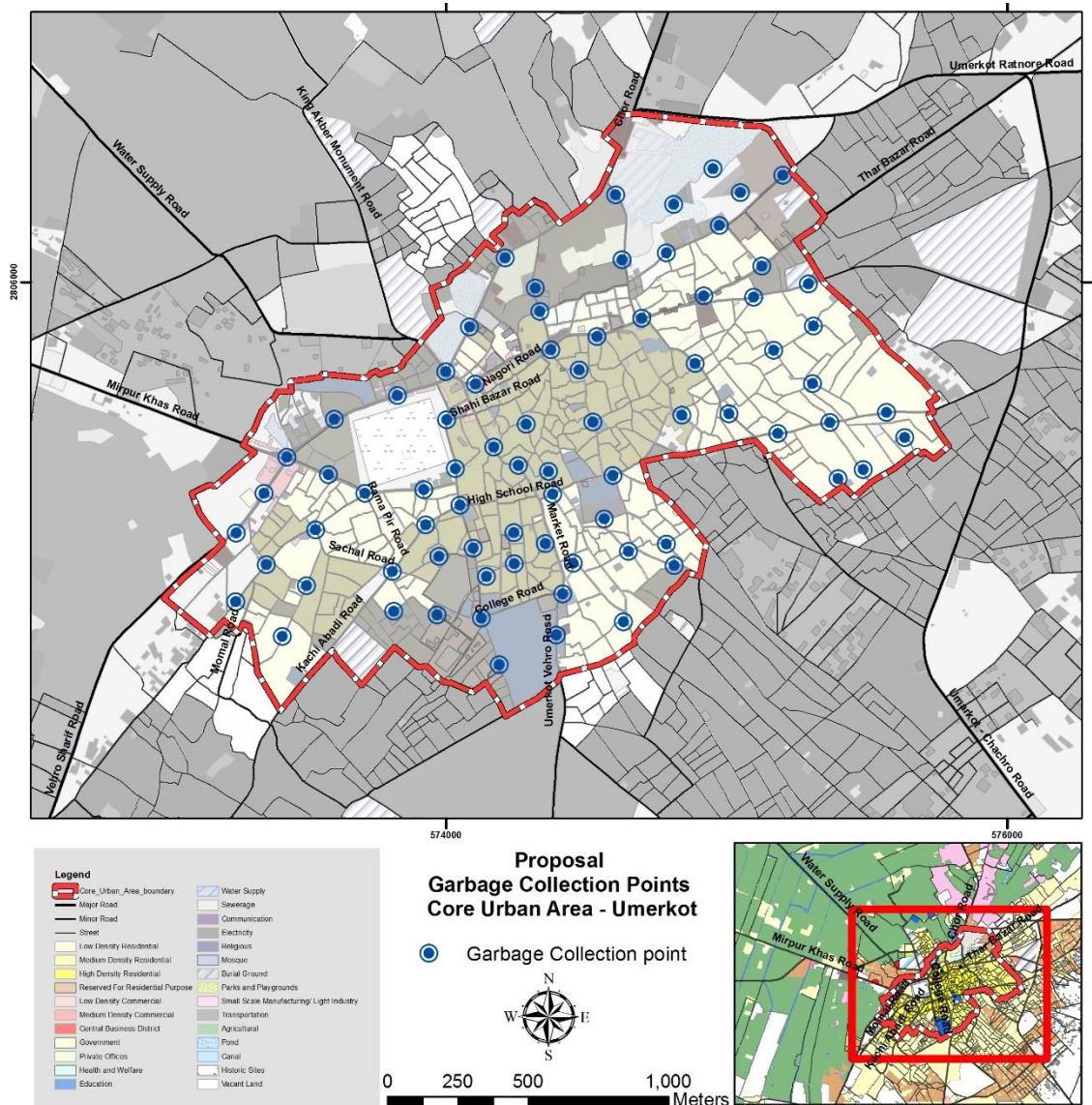


Figure 8:7: Proposal for Solid Waste Garbage Collection Container for Core Urban Area



8.4 Firefighting

8.4.1 Existing Situation

Currently there is one fire brigade station situated in Umerkot with 04³³ firefighting staff and 2 functional firefighting vehicles. The Municipal committee Umerkot 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 Umerkot is 134,052, which will be 541,501 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 nine more vehicles are needed for Umerkot 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.

³³ MC office Umerkot



9. INFRASTRUCTURE

9.1 Transport

9.1.1 Existing Situation

The district has a good network of roads from town to town and villages spreading over the whole of the district. The road network in the district is about 921 kilometers. The road communication particularly in desert area has considerably improved. Before 1950 transportation in the desert area was entirely by animals or private jeeps. A provincial highway connects Umerkot with rest of the districts of Sindh through Mirpurkhas. This district also hosts the famous Khokhrapar border of Pakistan with India. The district headquarter of Umerkot is linked with its taluka headquarters of Pitharo, Kunri and Sumaro through metaled roads.

9.1.2 SWOT Analysis:

Strength	Weakness	Opportunities	Threats
LAND USE & TRANSPORTATION			
Land Use Pattern & Transportation			
<ol style="list-style-type: none"> Mixed land uses (residential, commercial, industrial, administration) Good national / regional connectivity through railway and road networks Local public transport provisions by auto-rickshaws Strong network of inter and intra city. Bus stops are available for intra region trips. 	<ol style="list-style-type: none"> Unplanned street network Ribbon type commercial development in residential neighborhoods. Poor traffic management. Lack of opportunities for integrated transport provisions Lack of coordination between different transport operating agencies. No parking space for rest hours for drivers. Less provision of street furniture Non-aesthetic streetscape 	<ol style="list-style-type: none"> Promotes compact development. Activity centers (support local business) Opportunities in the form of wide roads available for mass transit system 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. After removal of encroachments adequate space available for traffic signs, lane markings and foot paths 	<ol style="list-style-type: none"> Encroachments Congestion On street parking (paid/unpaid) Security issues Economic losses due to transporters strikes Inconvenience due to traffic congestion On street parking Traffic congestion.

Strength	Weakness	Opportunities	Threats
	8. Haphazard on street parking reduces road capacity 9. Poor administration and management control 10. Encroachments around bus bays.	7. A new transport terminal for goods transport will facilitate timely supply of agricultural goods.	
LOCATION & CONNECTIVITY			
1. The district is well-connected with other districts through good quality roads. 2. This district also hosts the famous Khokhrapar border of Pakistan with India. 3. The district headquarter of Umerkot is linked with its taluka headquarters of Pitharo, Kunri and Sumaro through metaled roads.	1. These roads are inadequate for the area and its population. 2. River Indus causes severe seasonal floods. 3. Majority of town population resides in rural setting having less means of public transportation services. 4. Highway is not equipped to accommodate full functioning mass transit service.	1. May grow as a large size green and planned settlement in future, if planned in accordance with appropriate planning measures. 2. Contribution in positive regional and local economic development.	1. Loss to local business. 2. Flooding 3. Contamination of canals. 4. Shortage of clean water for multiple uses. 5. Conversion of agricultural land for housing purpose.

9.1.3 Issues

Certain common issues have been identified in Umerkot town regarding transport and road infrastructure. That also form the required need of Umerkot Town.

- Encroachments that require regulatory and planning solution
- Haphazard on-street parking,
- Improper design of roads and intersections,
- Poor pavement conditions,
- Absence of street lightening and non-uniform right of way
- Lack of coordination between different stakeholders.
- Commercial areas and markets are creating problems of traffic and parking
- Tertiary and Secondary Roads are in very poor condition
- No formal Bus Terminal
- Traffic Congestion at intersections

- Unavailability of Traffic signals and street furniture
- Shortage of Public Transport

9.1.4 Policy Guidelines

- Develop and implement modern traffic fines system for public transport and private vehicles by incorporating traffic cameras to detect violations and online system for payment of fines.
- Develop and implement modern route permit renewal and issuance system for public transport services.
- Declare freight transport as an industry.
- Periodically update and implement the pavement and geometric design standards in coordination with experts of the field.
- Involvement of private sector in transportation infrastructure and services projects.²⁰
- Establishment of Mass Transit System.³⁴
- Efficient operations and effective regulation of transport services.²¹
- Infrastructure development and up-gradation.²¹
- Integration of public transport services and networks.²¹
- Modernize goods transport and freight facilities.²¹

9.1.5 Sindh Empowerment of 'Persons with Disabilities' Act, 2018³⁵

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:

³⁴ ADP 2017-18 Transport Punjab

³⁵ For detail please refer; The Sindh Empowerment of 'Persons with Disabilities' Act, 2018 (<https://depd.sindh.gov.pk/sindh-empowerment-of-persons-with-disabilities-act-2018>)

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

9.1.6 Strategic Development Plan

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. Short Term Plan

- Improve road design to make safer roads.
- Prevent encroachments on footpaths through litigation.
- Environmental Impact Assessment (EIA) should be mandatory for all transportation projects.

ii. Long Term Plan

- Create Traffic Engineering Bureaus (TEBs) at divisional level to perform functions as specified in Karachi Division (Traffic Engineering) Act 1985.
- Develop and implement modern route permit renewal and issuance system for public transport services.
- Reduce traffic growth and congestion by achieving a mode shift.
- Satisfy mobility needs via integration of existing and planned routes, services and Infrastructure.

- Enhance institutional efficiency to improve service delivery
- Declaring private vehicle free zones, especially in peak hours, in CBD areas to reduce noise and air pollutions.

Proposed Transportation Landuse for Umerkot Town

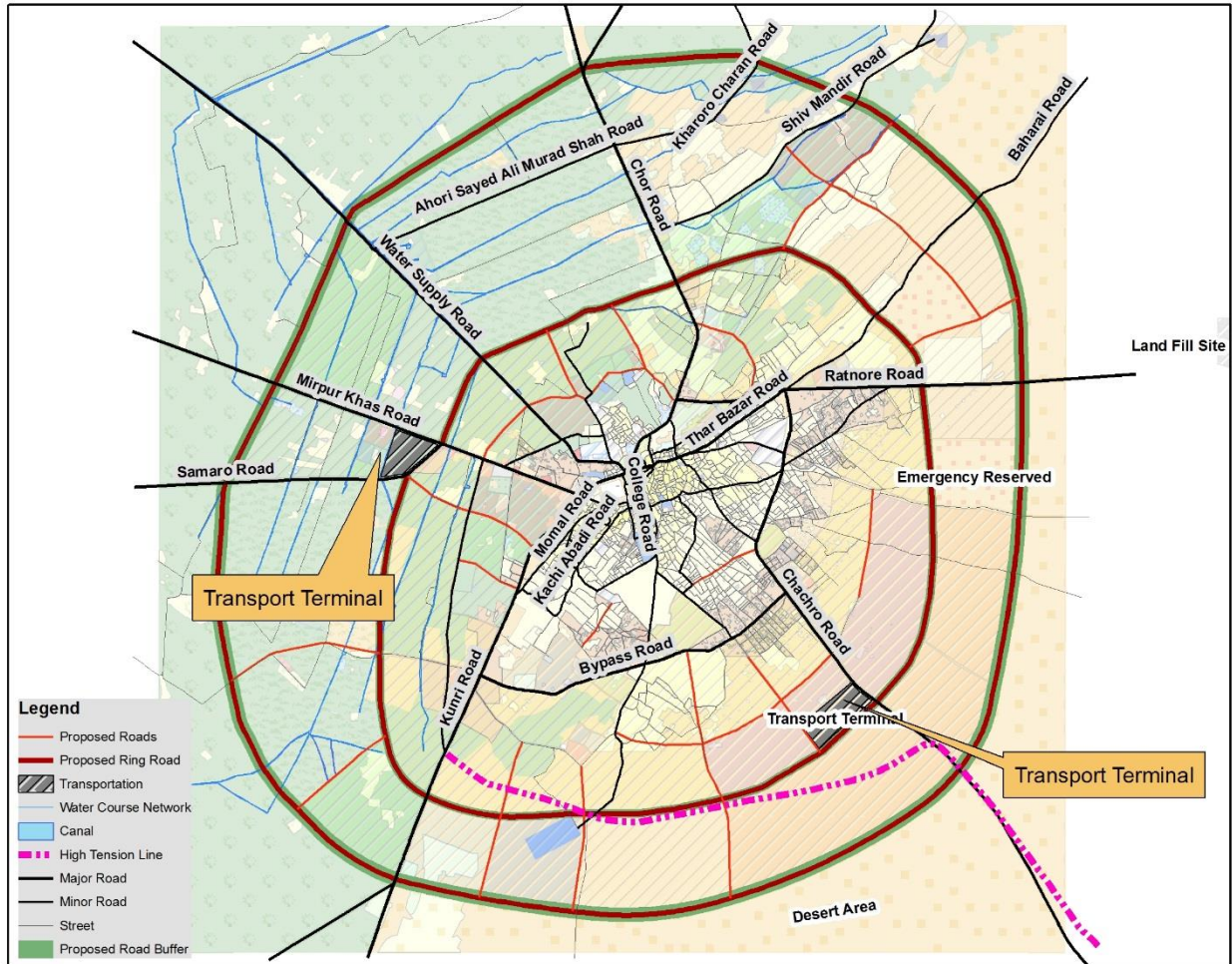


Figure 0:1 Future Transportation Proposals

9.1.7 Priority Projects:

Umerkot district covers an area of 5,608 sq.km. The district has a good network of roads from town to town and villages spreading over the whole of the district. The road network in the district is about 921 kilometers. The road communication, particularly in a desert area, has considerably improved. Before 1950 transportation in the desert area was entirely by animals or private jeeps. At present, a good number of trucks and buses travel in the desert from Umerkot.



Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

A provincial highway connects Umerkot with the rest of the districts of Sindh through Mirpurkhas. This district also hosts the famous Khokhrapar border of Pakistan with India. The district headquarter of Umerkot is linked with its taluka headquarters of Pitharo, Kunri and Sumaro through metaled roads.

Umerkot district covers an area of 10,608 sq. kms yet it has only 868 kilometers of good quality roads, which are inadequate for the area and its population. Just like most of the Southern districts of Sindh, there is no national highway which could connect Umerkot with other major cities of the province, only a metaled road exist, which serves this purpose.

I. Construction / Rehabilitation and Improvement of major and minor roads (excluding the Core Urban area Roads).

➤ **Project Justification**

The communication linkages of Umerkot with other parts of regions are imperative for overall economic progress of the region because Umerkot is the trade center with eastern side of desert area. To reinforce the backward and forward linkages between agricultural production, industry, and services to strengthen the local and regional economy of Umerkot. Umerkot is facing traffic and transportation problems like most of other towns of Sindh. Conditions of roads in Umerkot are not very good. Drainage issues on road side are evident due to that, the roads are worsening day by day.

➤ **Project Benefit**

By implementation of the project agricultural, industry sector could be enhanced.

➤ **Implementing Authority**

Government of Sindh, Umerkot MC, Works and Services Department Umerkot.

➤ **Estimate Cost:** 650 million approx.

S.No	Project Name	Estimated Cost In Millions	Non ADP	Short Term
Roads and Communication Network				
1	Beautification & Rehabilitation of Major Urban Roads.	300.00	Non ADP	Short Term
2	Installation of traffic signals & new solar Street Lighting On main roads	150.00	Non ADP	Short Term
3	<ul style="list-style-type: none"> Rehabilitation of Existing Roads and Streets Pedestrian Friendly Streets Monuments at intersections/junctions Designated Parking Spaces Provision of Footpaths and street furniture 	200.00	Non ADP	Short Term

9.1.8

9.1.9 Immediate Action Plan

i. Repair & Rehabilitation of Existing Roads

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.

- Immediate action plan for core urban area in Umerkot requires that the right of way of roads should be restored by removing all encroachments along the CBD roads.
- The road pavements will be improved and tree lined medians will be developed on all main roads having a right of way of more than 80 feet.
- Removal of existing old bus stop located along Thar bazar road.
- 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.

ii. 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 Umerkot which will represent the history and grandeur of the town.

iii. 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 center. Additionally some walkways should be designed in the CBD area by applying the pedestrian policy there.

iv. 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.



Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

v. Minor & Major Road Rehabilitation Proposals

UMERKOT - CORE TOWN AREA REPAIR & REHABILITATION OF ROADS								
Major Roads								
S. No.	Name of Major Roads	Length (km)	Length (m)	Width (feet)	Width (m)	Area in sq.m	Cost / sq.m	Total Cost (M)
1	Vehro Sharif Road	0.37	372.69	40	12.2	4546.80	4,500	20,460,599.96
2	Mirpurkhas Road	0.33	330.59	40	12.2	4033.25	4,500	18,149,624.96
3	College Road	0.60	602.19	40	12.2	7346.69	4,500	33,060,104.96
4	Water Supply Road	0.16	163.60	40	12.2	1995.94	4,500	8,981,729.96
5	Thar Bazar Road	1.51	1510.74	40	12.2	18431.02	4,500	82,939,589.96
6	Chor Road	1.07	1069.37	40	12.2	13046.36	4,500	58,708,619.96
Total Cost in PKR RS.								222,300,269.77
Total PKR RS. Million (A)								222.30
Minor Roads								
1	Kachi Abadi Road	0.98	981.39	24	12.2	11,973.01	3,500	41,905,531.87
2	Momal Road	0.52	517.70	24	12.2	6,315.96	3,500	22,105,874.16
3	Umerkot Vehro Road	0.36	360.95	24	12.2	4,403.54	3,500	15,412,395.82
4	Vehro Sharif Road	0.64	639.58	24	12.2	7,802.86	3,500	27,310,021.72
5	High School Road	0.28	280.09	24	12.2	3,417.15	3,500	11,960,020.93
6	College Road	1.15	1150.80	24	12.2	14,039.78	3,500	49,139,244.72
7	Market Road	0.82	816.30	24	12.2	9,958.88	3,500	34,856,072.94
Total Cost in PKR RS.								202,689,162.16
Total PKR RS. Million (B)								202.70
Streets								
1	Widening and Pavement of Streets	10	10,000.00	10	3.05	30,487.80	2,500	76,229,512.20
Total Cost in PKR RS.								76,219,512.20
Total PKR RS. Million (B)								76.23
Total PKR RS. Million (A+B+C)								501.22

Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

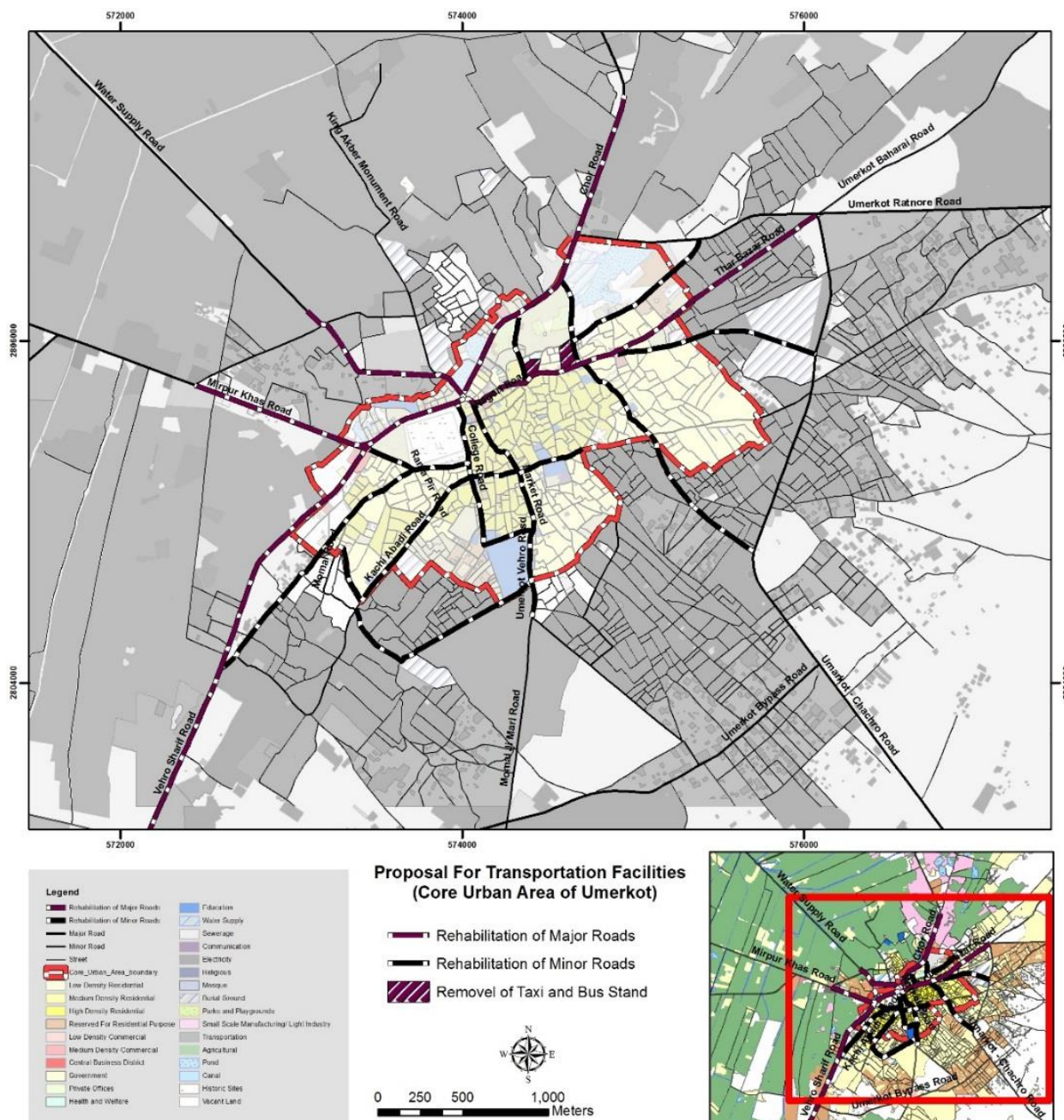


Figure 0:2 : Transpiration Facilities in Core urban Area

9.2 Communication

9.2.1 Telephone, Mobile, Internet

The epicenter of growth in mobile phone services in Umerkot 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.



PTCL Office in Umerkot

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 Umerkot 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 office is located in Umerkot. The present-day situation of Umerkot falls in the developing urban area; as per the survey there are about 8% households using PTCL land line out of 309 households surveyed. Others 92% household use public call offices in the area or cell phone.

9.2.2 SWOT Analysis

Information & Communication Technology			
Strength	Weakness	Opportunities	Threats
<ol style="list-style-type: none"> Strong networks available for advanced technologies, e.g. internet, cellular networks, broadcasting, satellite communication. All cellular service provider offer facilities and service station. 	<ol style="list-style-type: none"> Lack of information sharing regarding agricultural activities, public health, veterinary, disaster forecasting etc. The internet usage is limited to educated families. 	<ol style="list-style-type: none"> Media can play important role in economic development and prosperity. Immediate disaster forecasting through disaster emergency response centre. Marketing campaign support of development initiative. 	<ol style="list-style-type: none"> Negative cultural and ethical exposure to young minds (youth), if not regulated properly. No check and balance of non-authorized/ non-biometric SIM's usage.



9.2.3 Mode of Communication

Mobile phones and televisions rank as two of the most commonly owned consumer electronic items in Pakistan. The difference in mobile phone ownership between urban and rural areas is not significant (94.7% compared to 83% respectively). However, the difference in percentage of households that have an internet connection is notable, with 17.4% of urban homes having access to internet compared to 1.3% of rural homes.

The second most commonly owned electronic consumer item on the list was the television, found in 60.2% of households nationwide.

At present the internet usage is limited to educated families, and it is by the pace of time increasing with the decline of illiteracy rate.

As per socio-economic survey about 310 numbers of households i.e. 5% are using internet and remaining 95% are still without using this new technology, the users are increasing day by day.

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.

9.3 Energy

9.3.1 Existing Situation

a) Source of Power Supply

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

b) Availability of Electric Power

Results of primary data reveals that out of 305 households 235 have HESCO Power Supply connection, a small portion of 70 households have no HESCO supply and are using alternative source of power supply. This indicate that 77% of the households have availability of electric power, whereas 23% of the households does not have electric power supply from HESCO and use alternate source for their daily living. Some of them are far from the supply feeder and other do not afford the heavy bill of electricity.

c) Source of alternate energy

The survey also bring the fact that about 93% households in Umerkot have no alternative power source in addition to HESCO supply, some 6% houses have solar energy and only 1% household has both power supplies.

Source of Alternate Energy

S. No	Source of alternate energy	No. of Respondents	Percentage
1	None	289	93 %
2	Solar Power	18	6 %
3	Wind Power	0	0%
4	Both	1	1%
Total		310	100%
<i>Source: Consultant's Survey, July 2017</i>			

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.

9.3.2 Issues and Problems:

- 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

9.3.3 SWOT Analysis:

Power Supply & Distribution			
Strength	Weakness	Opportunity	Threats
1. Electricity supply network for urban area. 2. Almost whole urban area gets coverage of electricity.	1. Poor maintenance of electricity supply infrastructure. 2. Power shortage due to non-payments of bills. 3. Line losses and power theft. 4. Outdated network in old town areas. 5. Existing capacity of electricity supply is short to meet the growing demand of utility. 6. No alternate source of electricity is available in the district.	1. By increasing the capacity of grid station , it will minimize electricity shortage & maximize production 2. Opportunities available for alternative energy production through solar energy and wind power. 3. Renewal of outdated network to meet existing and future demand.	1. Load shedding. 2. Threat to agriculture and industrial production and overall economy. 3. Crime rate. 4. Lack of Political will 5. Licensing and legal issues. 6. Investment protection, law & order. 7. Electricity theft

9.3.4 Strategic Development Plan

- 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.
- The distribution system will be needed to be extended to the new areas absorbing future urban growth.

I. Long Term Plan

- Success in achieving fuel efficiency, adopting new technologies and altering existing fuel-use
- Encourage energy efficient building construction

II. Short Term Plan

- Reduce power theft and enhance existing power supply for project area.
- Addition of sub stations as per requirement

Proposed Utilities and Services Landuse for Umerkot Town

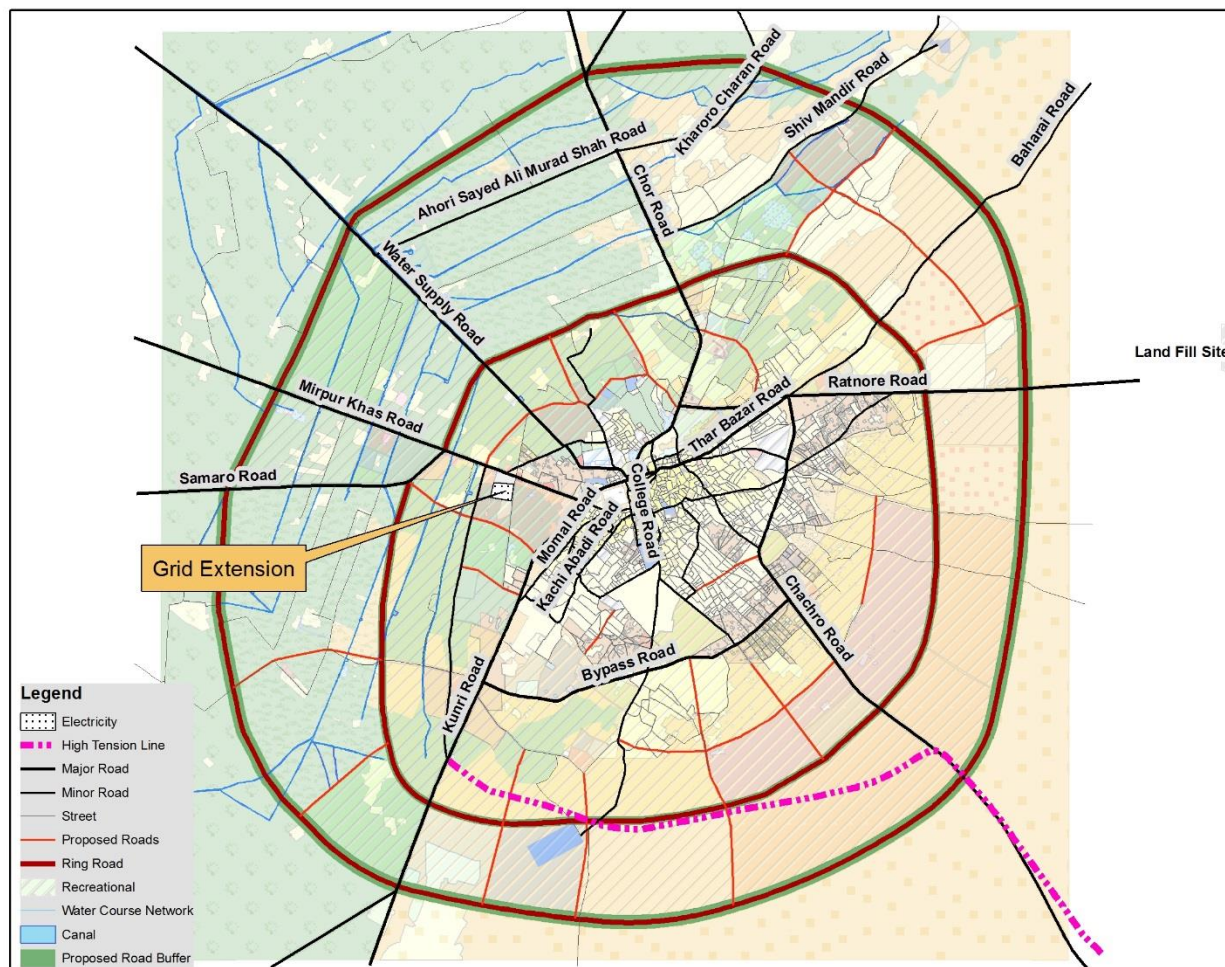


Figure 0:3 Proposed Grid extension

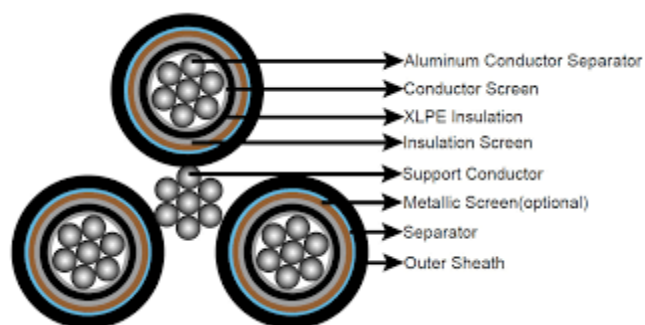
9.3.5 Immediate Action Plan:

- 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



PREPARATION OF DEVELOPMENT MASTER PLAN FOR DHQ TOWN UMERKOT				
CORE TOWN AREA		REHABILITATION AND PROPOSED STREET LIGHTS		
S.No	Name	length (km)	length (feet)	Cost (PKR)
1	Proposed Total Length of Street (km) for wall mounted streets lights.	10.07	33,038	8,259,514.70
Total Cost (PKR). Million				8,259,514.70
				8.260
Note: * Wall mounted street lights approximately should be placed on distance of 15 to 20 feet apart. * Each wall mounted street light cost (Rs. 5,000/-) * As per total length of Streets for this proposal 2,882 No.s of wall mounted streets should be placed in core town area.				

9.4 Gas Supply

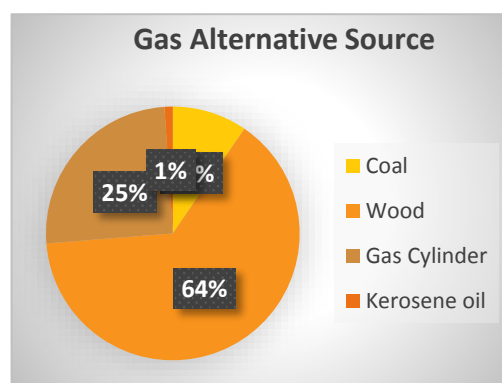
9.4.1 Existing Situation:

There is no natural gas available in Umerkot, residents use alternative sources.

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

Table 0-1: Gas Alternate Source

S. No.	Gas Alternate Source	Percentage
1	Coal	12%
2	Wood	78%
3	Gas Cylinder	31%
4	Kerosene oil	1%





10. ENVIRONMENT

10.1 Existing Situation

Geographically, the district is divided into two distinct regions i.e., the eastern part and the western part. The eastern half of the district, which comprises of the taluka Umerkot, is Thar Desert. This region is distinguished by its low and erratic rainfall, high atmospheric aridity, abundant sunshine and heat, strong dust-raising winds and sparse vegetation cover. High sand dunes and sandy plains covering 70% of its area. However, the region is gifted with a large variety of natural vegetation, there being over seven hundred species of grasses, shrubs and trees. The perennial amongst these are very hardy, and tenacious enough to withstand extended drought, efficient builders of biomass and yet nutritious as a feed.

The western part of the district is relatively fertile with green lands and a proper irrigation system. This western part of the district comprises of the three talukas of Pitharo, Sumaro and Kunri, though some parts of Umerkot taluka are also included in this region.

Deserts have acute problems of shifting sand dunes and salinity. The irrigated areas are infested with the twin-menace of water logging and salinity. The following are the key issues for Umerkot District related to soil loss and degradation includes Wind erosion, Loss of Biodiversity, Water logging and Salinity, Drought and Flooding and Soil Nutrient Degradation.

District Umerkot lies in Zone 2A of the Seismic zoning map of Pakistan (2015) 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.

The district is at the tail end of Nara Canal Command Area. Main canals of the district are Nara Canal and Mithrao Canal. Both of these are perennial canals but due to shortage of water there is a rotation system which provides weekly turns on Distributaries / Minors. The topography of the district has two distinct portions, the irrigated area in the west and north and the desert area with sandy dunes covered with thorny bushes in the east and south. The eastern Nara Canal is the demarcation line between irrigated and desert areas. The district consists of 27 Union Councils out of these, 7 union councils constitute desert portion of the district. Some villages have water storage facilities but mostly villagers are dependent on canal water. On average, farmers receive canal water once a month for irrigation purposes. The region is distinguished by low and erratic rainfall, high atmospheric aridity, abundant sunshine and heat; strong dust-raising winds and sparse vegetation cover. High sand dunes and sandy plains cover 70% of its surface. Umerkot district is mostly a rain fed area.³⁶

EMC conducted real-time water supply quality assessment (which is used for drinking purposes) on 11 November, 2017 and collected a grab sample from District Government Municipal office.

³⁶ PESA, Umerkot (June 2014)



As per above analysis of supplied water quality for drinking purposes, it is observed that the water is not fit for human consumption and is contaminated with heavy metals like Cadmium, Lead and Barium. Also the water is bacteriologically contaminated and do not contain sufficient amount of residual chlorine. District Umerkot is adjacent to Tharparkar and faces similar climatic changes as Tharparkar. Umerkot also has huge desert area and droughts are common in this geographical spread.

District Umerkot is agro-based and majority of the households are engaged in agriculture farming and livestock rearing activities but there are still others who are engaged in non- agriculture activities/casual labor.

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 the 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 district³⁷. The losses to crops and livestock along with the poor functioning capacity of the markets reduced the expected income of the population of this district. Thus the floods and rains affected people of the district Umerkot had to face a number of key challenges to recover their livelihood, agriculture and livestock; directly affecting the food security situation.

10.2 SWOT Analysis

Strength	Weakness	Opportunity	Threats
ENVIRONMENT			
Land			
<ol style="list-style-type: none"> 1. The western part of the district is relatively fertile with green lands and a proper irrigation system. 2. Rural rich fertile agriculture land that produces quality crops. 	<ol style="list-style-type: none"> 1. Unplanned land uses 2. Limited availability of govt. land for future spatial growth 3. Incomplete development of agricultural land parcels (scattered agricultural growth) 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Slum formation 2. Contamination of land in un-irrigated areas. 3. Urban Sprawl

³⁷ PESA, Umerkot, June, 2014



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Strength	Weakness	Opportunity	Threats
	4. Poor administration by agencies monitoring urban growth of the city.		
Climate			
1. The district has extreme climate in both the portions, which differs considerably. 2. In the irrigated portion, the climate is temperate, being neither extremely hot in summers nor very cold in winters as compared to the eastern desert area. 3. Most of the rain falls in the monsoon months between June and September.	1. Rainfall shortages affect the efficiency of canal system. 2. The climate of the district is extremely hot during summer 3. Very high temperature not only affects vegetation but also creates problem for the individuals like heat stroke, skin burn and sometimes death of a person. Children, women, old and disabled people are vulnerable to severe hot climate.	1. Agricultural practices can be changed in accordance with weather condition for maximum production.	1. Droughts 2. Heavy rains Climate change affects agricultural production
Air			
1. Air quality in the rich agricultural belt is good for human health, and also keeps ecological balance in atmosphere.	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	1. Air pollution 2. Respiratory diseases



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Strength	Weakness	Opportunity	Threats
		planned as Green City.	
Urban Area & Areas Suitable for Urban Development			
<ol style="list-style-type: none"> 1. Land available for future development within town urban boundary. 2. The land use analysis indicates that almost 41% of total urban boundary area is in use of residential purpose only where as 49% of the area is covered by agriculture fields. 	<ol style="list-style-type: none"> 1. Loss of agricultural land through land development for housing purpose 2. Water logging 3. Unplanned growth inside town. 4. Lack of utility services 	<ol style="list-style-type: none"> 1. Mixed land uses may create activity centers. 2. High density will overcome housing shortages. 	<ol style="list-style-type: none"> 1. Land grabbing 2. Slums 3. Unplanned growth 4. Threat to agricultural land 5. Private sector may increase the cost of services.
Drainage & Flood Control			
<ol style="list-style-type: none"> 1. Town is served by combined drain and sewer system. 	<ol style="list-style-type: none"> 1. Drainage and sewerage system of the urban areas are not constructed properly and disaster risk reduction measures are not incorporated 2. Small amount of rain blocks the drains, which inundates the streets, houses and markets. 3. Open drain on street. 	<ol style="list-style-type: none"> 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 protection to surrounding villages 3. Development of surface drainage 	<ol style="list-style-type: none"> 1. Canal's water have been contaminated by open drains discharge. 2. Medium level flood disaster threat to local communities living near to main course of River Indus. 3. Open and overflowing drains have impact upon human health and give birth to epidemic diseases.



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Strength	Weakness	Opportunity	Threats
	4. Improper channelization of drains 5. Over flow of storm water drains 6. Lack of interest among stakeholders involvement in disaster relief activities. 7. Poor administrative control for operating existing drainage system of the town.	network with easy disposal to river/canals 4. Complete removal or treatment of land where temporary ponds have been formed in main town area.	

10.2.1 Issues

- Water logging and salinity
- Water Contamination
- Low quality of surface water that is not fit for drinking
- Seismic Risk
- The sewage from all the urban centers and sugar industries in Umerkot district are disposed of in the nearest drainage canals
- Aging of surface drainage canal system

10.2.2 Policy Guidelines³⁸

- 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.

³⁸ National Forest Policy 2010



10.3 Strategic Development

i. Long Term Plan

- Ensuring environmental sustainability
- Restoration and maintenance to preserve ecological cycles, functions and services of environment
- 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
- Strengthening forestry education and research institutions to cope with the emerging challenges of deforestation and climate change

ii. Short Term Plan

- The setting up of a National Environment Council (NEC) to coordinate the Formulation of environment related policies and plans;
- Need of Permits to discharge waste and pollutants into the environment;
- The requirement for Environment Impact Assessments to be binding on all parties including government;
- Provide recreational facilities for public by improving forest parks
- Alleviate poverty through creation of forest based income generating opportunities
- Fostering public-private partnerships

11. DISASTER RISK MANAGEMENT

11.1 Existing Situation

Umerkot is a highly disaster prone area and disasters of different types have occurred in the past. The most frequent and damaging disasters are the floods. District Umerkot is adjacent to Tharparkar and faces similar climatic changes as Tharparkar. Umerkot also has huge desert area and droughts are common in this geographical spread. In December 2013, famine like droughts struck Tharparkar, Umerkot, Khairpur and Sanghar. Though more damage is reported in Tharparkar as almost all the human and livestock population got severely affected, Umerkot also suffered from this drought. The failure of monsoon rains, since Nov-2013, resulted in severe shortage of food, fodder and water.

i. Floods / rains.

District Umerkot was hit by 2011 rains/ flood. River Indus, after receiving water from 5 of its tributary rivers, causes floods in the northern and southern parts of Sindh province.

- **Floods 2011**

The district was severely hit in 2011 by rains/floods. Overall 78.31% of the population was affected due to rains/floods in all 27 union councils of the district. However, according to the PDMA Sindh's assessments, after floods 2010, the district falls under the category of very low risk districts.

Along with the demographic loss, due to flood 2011, the loss to agriculture sector exacerbated the sources of livelihood for the people of this district. The following table shows the loss to agriculture sector of this district.

- **2012 Floods**

The extent of damage in the district, comparatively, remained substantially low in the district during the recent floods of 2012. A total of 1,200 people were affected and 6 casualties were reported by the concerned authorities. A total of 331 housing units were partially affected in 93 villages and a crop area of 1,262 acres was inundated by rains/floods.

ii. Cyclones/ Tsunamis

As per Pakistan hazard map statistics, the Umerkot District has not suffered from any cyclone and Tsunami due to its proximity to deserted area. However, due to its proximity to Arabian Sea located at its south direction, the district may counter vulnerable flood, a large scale cyclone and Tsunami caused by climate change in future. However, no incident of such hazard has been recorded in district history yet.

iii. earthquakes

According to the seismic zone map of Pakistan, the Umerkot district is situated at zone where moderate to severe damage can occur.

Accordingly, a seismic risk factor of 0.1 needs to be incorporated in the design for constructions and installations in the coastal zone, for operational basis earthquakes (OBE) pertaining to damage due to moderate level earthquakes.

iv. droughts

District Umerkot is adjacent to Tharparkar and faces similar climatic changes as Tharparkar. Umerkot also has huge desert area and droughts are common in this geographical spread. In December 2013, famine like droughts struck Tharparkar, Umerkot, Khairpur and Sanghar. Though more damage is reported in Tharparkar as almost all the human and livestock population got severely affected, Umerkot also suffered from this drought. The failure of monsoon rains, since Nov-2013, resulted in severe shortage of food, fodder and water.

v. hot wind twisters

Umerkot district frequently accommodates hot wind and dust storm twisters during peak summer season starting from May and ending till mid of August every year. However the rich agricultural belt that surrounds the district provides natural protection against such small scale twisters and hot wind whirls. The hot wind twisters cause loss to agriculture normally occurring in the month of May every year. However protective measures found are limited in terms of effectiveness for crops protection.

vi. fire

- **Accidental Fires**

No such event of large scale accidental fire has been noticed/ identified within the history of the district.

- **Minor Fire Accidents -2017**

No such event of minor scale accidental fire has been noticed/ identified within the history of the district

A. impacts of Floods

i. food

District Umerkot is agro-based and majority of the households are engaged in agriculture farming and livestock rearing activities but there are still others who are engaged in 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.³⁹ It has been shown in the previous section that many individuals of this flood affected district lost their homes (122,103 houses were damaged), their crops (108,303 acres of crop area affected) and heads of livestock (17,334 livestock died). Due to the lack of a strong industrial base, the sources of income of households, situated in this severely affected district, are less diversified, with their heavy dependence on agriculture, livestock and casual labour. This further exacerbated the food security situation. Given the deplorable social indicators i.e., large household size, poor literacy level, higher mortality rate, inadequate infrastructure with poor access to education and health facilities show the higher level of poverty and deprivation in this district.

³⁹ Arif, et al (2010), "The 2010 Flood and Poverty in Pakistan: A Preliminary District-level Analysis", Pakistan Institute of Development Economics Islamabad, Background Paper for Conference on the "The Environments of the Poor", 24-26 Nov. 2010, New Delhi

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.

ii. Health

Severe floods can not only cause destruction of health care infrastructure but also affect health indicators of the affected population. Umerkot district was severely hit in 2011 heavy rains that resulted in damage to the public health infrastructure.

According to initial health assessments, conducted by WHO and Government of Sindh, after floods 2011, 9 out of 34 Basic Health Units (BHUs) were damaged, but no Rural Health Center was affected. There is only 1 district headquarter hospital and 3 Taluka hospitals which were affected too.⁴⁰ Health conditions before floods 2011 were already unsatisfactory and floods worsened the situation even more.⁴¹

In 2012 floods, 7,589 moderate acute malnourished children, 4,595 severe acute malnourished and 6,498 malnourished PLWs needed to be treated and out of them 2,039 moderate acute malnourished children, 1,131 severe acute malnourished and 2,073 PLWs were treated. 10,028 women were provided with relevant information on Infant and Young Child Feeding (IYCF).

iii. Education

Due to the floods/rains of 2011, 204 school facilities were damaged, out of which 68 were fully destroyed and 136 were partially damaged. Also, heavy rains affected the school going children. Due to the damages to the schools, houses and roads; education of 16,320 students was affected (Girls: 7,018, Boys: 9,302). Teachers numbering 544 were also affected.⁴² No loss was reported to the school facilities due to floods 2010 and 2012.

iv. 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

⁴⁰ WHO, G. N. (8th to 12th September, 2011). Health Initial Rapid Assessment, 22 flood affected districts in Sindh. Islamabad

⁴¹ Mouza Statistics Sindh, 2008

⁴² Damage Need Assessment, Sindh-EMIS Reform Unit, Department of Education and Literacy, Government of Sindh

affecting milk production. This adds to the woes of livestock owners, whose total income generation dependency is upon production of milk produced by cattle, for the benefit of their families and affordability.

As weak and diseased livestock migrate with their owners to barrage areas, a trend of collapse in livestock prices has also noticed, with a healthy goat that sold at full price, once weakened by drought, normally worth only 35% of its original price.

11.2 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

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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 Umerkot which are potential crowd pulling places.

Table 11-1 : 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

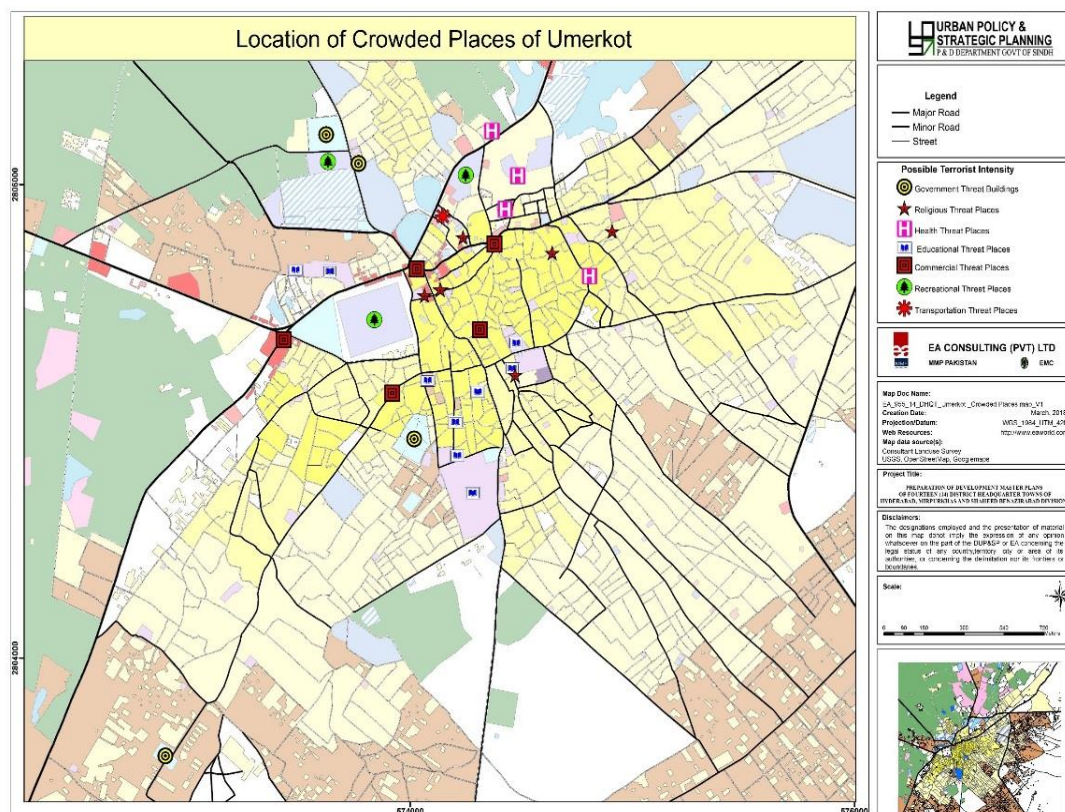


Figure 9-2 Crowded Places of DHQ Town Umerkot

11.3 Existing Situation

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

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

Consultants identified some possible terrorist Intensity places of DHQ Town Umerkot on the basis of Crowd and most visiting places by the residents of DHQ Town Umerkot, the places are classified according to the given the above table.

- **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**

- i. **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.

- ii. **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.

iii. 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.

Detering 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.

iv. Increasing Resilience

Even 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.

11.5 Policy Guidelines⁴³

- 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.
- Engaging communities in vulnerability and capacity assessments provide entry points to build awareness, commitment and resilience in the face of disasters.
- DRM requires the involvement of women as stakeholders to build resilient communities.
- Clearly defined division of roles and responsibilities between different layers of government.

⁴³ National Disaster Risk Reduction Policy 2013



11.6 Strategic Development Plan

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.

Some of the objectives in this aspect includes

- Provision of the right to timely emergency care by providing quality emergency service as per international standards.
- Creating an integrated District and provincial level capacity to identify and monitor vulnerability and hazard trends including potential climate change impact.
- Strengthening an integrated disaster preparedness and response capacity from the local to the national level.
- Promoting development planning that considers and addresses disaster risks alongside environmental and climate change concerns.
- Strengthening capacity at national and provincial levels to facilitate and provide support to the implementation of DRM policies, plans and programs across sectors and in high-risk areas
- Strengthening Local Level Risk Reduction capacity focusing upon communities, and supportive linkages with Union Councils, tehsils and districts.
- Strengthening the structural and non-structural resilience of key infrastructure and lifelines in Pakistan.

11.7 Priority Projects

- 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.
- The creation of an integrated multi-hazard damage loss data-base is therefore a prerequisite for systematic vulnerability and risk monitoring.
- DRR needs to address and involve local level actors in high-risk communities to be effective and produce sustainable results.
- 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.



12. CLIMATE CHANGE EMERGENCY CONTINGENCY PLAN

12.1 District Level Plan

Umerkot 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.

12.2 Early Warning

12.2.1 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 PDMA, 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

- DDMA 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 PDMA 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.

12.2.2 Health Department

I. Pre-Disaster

- 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. During Disaster

- 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. Post Disaster

- 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.

12.2.3 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.

12.2.4 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.

12.2.5 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

12.2.6 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

12.2.7 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.

12.2.8 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.

12.2.9 Civil Defense

- **Civil Society and Private Sector Response**⁴⁴

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

⁴⁴ Government of Sindh Rehabilitation Department Provincial Disaster Management Authority, 2012. Sindh Provincial Monsoon/Floods Contingency Plan, Karachi: Government of Sindh

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.

12.2.10 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

- The trained scouts would continue to impart the training in other scouts and volunteers in the district.

12.3 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.



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- 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



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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.

13 URBAN LAND MANAGEMENT

12.1 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.

12.1.1 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).

12.1.2 Objectives

To implement these initiatives for Umerkot, 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.

12.2 Urban Land Management in Umerkot

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 / discourage 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.

12.3 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.

12.4 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%).

12.5 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 Umerkot.

12.6 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 SBICA) 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.



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Strength	Weakness	Weakness	Threats
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. Weak coordination may give birth to poor governance. 2. Political interference
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.	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	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.

Strength	Weakness	Weakness	Threats
	5. Very low capacity for capital investment in development projects.	resource generation. 5. To curb mismanagement and corruption.	

Proposed Public Administration Landuse for Umerkot Town

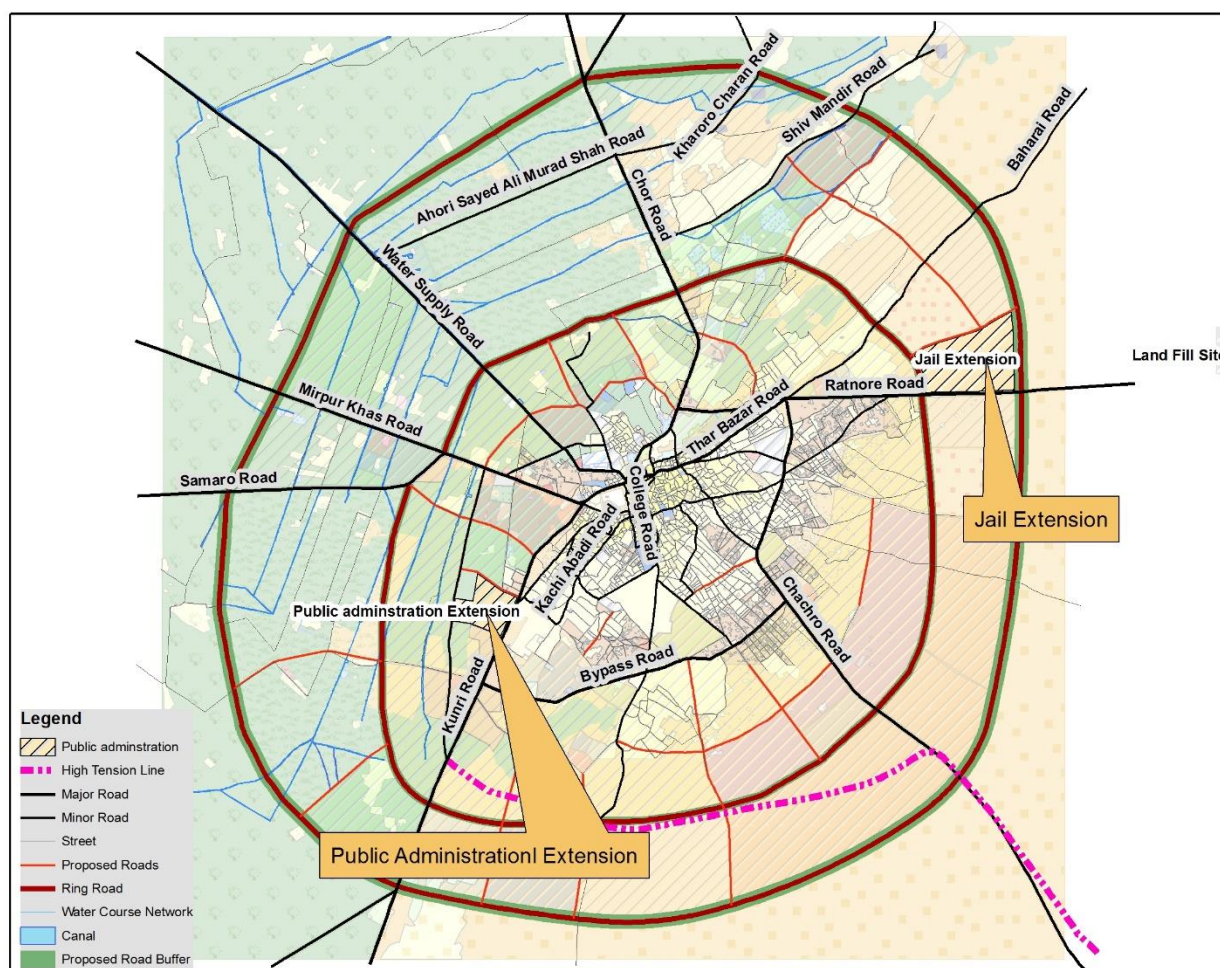


Figure 13.1: Future Administrative Proposal of Umerkot

13 IMPLEMENTATION AND MONITORING

15.2 Indicators

15.2.1 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 indicators⁴⁵.

15.2.2 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.”

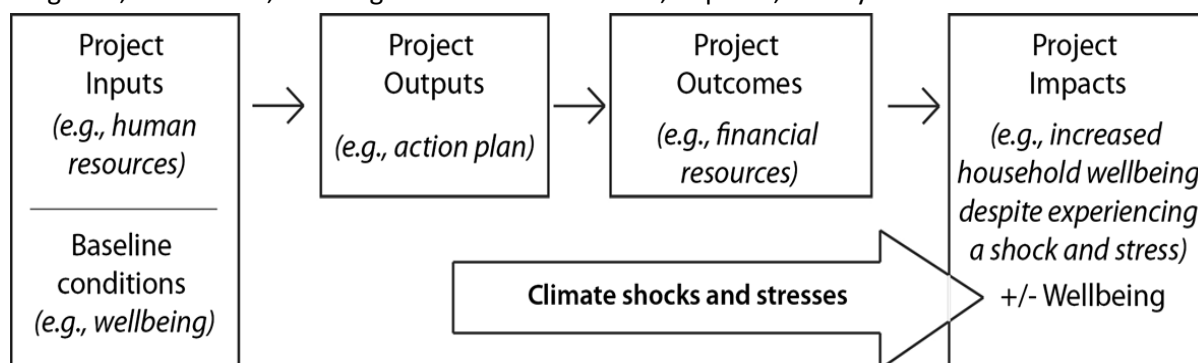


Figure 13:1: Four phases of a resilience initiative, and the timing of baseline and post-shock measurements of wellbeing (Brown, et al., 2018)

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.

⁴⁵ 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

15.2.3 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).

15.2.4 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.

15.2.5 Identified Indicators⁴⁶

a) 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.

b) 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).

⁴⁶ 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

- 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.

c) 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.
- 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).

d) 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.

Table 13-1 : Authorities Responsible for Implementation

S. No.	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

15.3 Monitoring and Evaluation⁴⁷

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

⁴⁷ 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

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-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 System⁴⁸

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.

a) 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.

b) 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

⁴⁸ Williams, A., 2016. Options for Results Monitoring and Evaluation for Resilience-Building Operations, Washington DC: World Bank Group

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.

c) 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.

15.4 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 Umerkot DHQ town up to 2037, under the present governance framework of Government of Sindh.

15.4.1 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.

15.4.2 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 Umerkot 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 Umerkot. The concerned agency must ensure that the overall process must go after following themes of implementation process.

a) *The overarching theme of the implementation of Strategic Development Plan Umerkot 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 supply of financial resources

15.4.3 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 through 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 Umerkot may develop their own regulatory frameworks/ building code's to regularize the status of development with consent of local/provincial government authorities, if necessary.

15.4.4 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 Management and Implementation 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 Management and Implementation Unit*' shall supervise and coordinate respective urban developers involved in development activities, conduct monitoring 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 '*Project Management and Implementation 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.



15.4.5 Implementation Schedule

<p>Strategy for: Balanced Urban Growth</p>	<p>Programs/ Policies</p> <p><u>Land Use Zoning</u></p> <p>Decongestion specially in the Core Urban area</p> <p><u>Development Control</u></p> <p>Amendment in Zoning Bye laws Restrict the provision of utility services for approved planned areas Peri-Urban Land use control The housing density is quite high in the core urban area of Umerkot, causing congestion and issues of poor light and ventilation (Proposed Vertical growth options)</p> <p><u>Bus Stop</u></p> <p>Removal of existing old bus stop located along Thar bazar road. (Bus and Truck Stand) for Umerkot Town.</p> <p><u>Roads</u></p> <p>Dualization & Rehabilitation of Existing Roads.</p>
<p>Responsibilities to Plan:</p> <p>Detailed Urban Design Strategy Development Assessment Impact of property Assessment Environmental Impact Study (EIA,IEE)</p>	<p>Implementation Responsibilities:</p> <p>Public Sector/ Private developers</p>
<p>Concerned Agencies:</p> <p>P & D Department Government of Sindh/ District Government/ Line Departments of local Government /Private Developers</p>	<p>Time of Implementation:</p> <p>Short Term (1 year to 5 Years) Long Term (5 years to 20 Years)</p>



<p>Strategy for:</p> <p>Future Transport Sector Development & Improvement</p>	<p>Programs/ Policies</p> <p><u>(A)Traffic Management Program</u></p> <ul style="list-style-type: none"> • 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 <p><u>(C) Congestion Reduction in Core Urban /CBD Area</u></p> <ul style="list-style-type: none"> • 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.
<p>Responsibilities to Plan</p> <ul style="list-style-type: none"> • Enforcement of encroachment and road space improvement byelaws • Traffic corridors detailed study • Encroachment Removal & Relocation Study • On Street & Off Street Parking Feasibility Study • Beautification plan 	<p>Implementation Responsibilities</p> <p>International Development and Fund Supporting Agencies/Public Sector/ Private developers</p>
<p>Concerned Agencies</p> <p>Provincial Works & Services Department Government of Sindh./ District Highways Department/ Local Municipal Government/District Government/ Private Developers Line Departments of local Government.</p>	<p>Time of Implementation</p> <p>Short Term (1 year to 5 Years) Long Term (5 years to 20 Years)</p>



Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

<p>Strategy for:</p> <p>Water Supply System Improvement</p>	<p>Programs/ Policies</p> <ul style="list-style-type: none"> • 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).
<p>Responsibilities to Plan</p> <ul style="list-style-type: none"> • Need Assessment/Demand & Supply Study • Separate Master Plan for water supply and infrastructure development plan 	<p>Implementation Responsibilities</p> <p>Public Sector/ Private developers</p>
<p>Concerned Agencies</p> <p>Provincial / Local Government/ Public Health Engineering Department</p>	<p>Time of Implementation</p> <p>Short Term (1 year to 5 Years)</p>



Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

<p>Strategy for:</p> <p>Drainage & Sewerage System Improvement</p>	<p>Programs/ Policies</p> <ul style="list-style-type: none"> 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.
<p>Responsibilities to Plan</p> <ul style="list-style-type: none"> Need Assessment/Demand & Supply Study New Master Plan for Drainage & Sewerage services improvement. 	<p>Implementation Responsibilities</p> <p>Public sector / Private developers</p>
<p>Concerned Agencies</p> <p>Provincial / Local Government/ Public Health Engineering Department Municipality (MC)</p>	<p>Time of Implementation</p> <p>Short Term (1 year to 5 Years)</p>

<p>Strategy for:</p> <p>Solid Waste Disposal System Improvement</p>	<p>Programs/ Policies</p> <ul style="list-style-type: none"> Immediate designation of walled Landfill Site with special attention for hospital waste disposal. Collection and disposal of solid waste through specialized waste management companies.
<p>Responsibilities to Plan</p> <ul style="list-style-type: none"> Disposal Generation Assessment Study New Master Plan for Solid Waste Disposal System improvement. 	<p>Implementation Responsibilities</p> <p>Public / Private Sector</p>



Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

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 for: Improving Efficiency of Municipal Committee's (MC) <ul style="list-style-type: none"> Municipal Committee 	Programs/ Policies <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 for: Improving Fire Fighting Capacity	Programs/ Policies <ul style="list-style-type: none"> 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.



Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

	<ul style="list-style-type: none"> 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 Umerkot Town Committee.	Time of Implementation Short Term (1 year to 5 Years)

Strategy for: Energy (Gas, Electric Power, Energy Generation through Alternate Resources)	Programs/ Policies <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> SSGC-Sui Southern Gas Company WAPDA Developers 	Time of Implementation Short Term (1 year to 5 Years)



Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

<p>Strategy for:</p> <p>Health Sector</p> <p>Improve access to healthcare facilities & minimize the long journeys to access basic medical facilities</p>	<p>Programs/ Policies</p> <ul style="list-style-type: none"> • Check and balance to accomplished existing health care projects. • Addition of 3231 beds to achieve the target of 2 beds per 1000 district population • Hiring of 1591 doctors and paramedical staff to cater future population. • Installation of incinerators.
<p>Responsibilities to Plan</p> <ul style="list-style-type: none"> • Health reforms 	<p>Implementation Responsibilities</p> <p>Public Sector and Welfare Agencies</p>
<p>Concerned Agencies</p> <p>State Government/District Health Department. Provincial and District Health Department</p>	<p>Time of Implementation</p> <p>Short Term (1 year to 5 Years) Long Term (above 5 year)</p>

<p>Strategy for:</p> <p>Education Sector Strategy</p>	<p>Programs/ Policies</p> <ul style="list-style-type: none"> • Short term plan provision of 61 classrooms at High Secondary level • Repairing of school existing buildings with furniture • Training of teaching staff • 4681 additional classrooms by 2037 • New schools and colleges for estimated population of 541,501.
<p>Responsibilities to Plan</p> <ul style="list-style-type: none"> • Education Infrastructure Improvement Mater Plan 	<p>Implementation Responsibilities</p> <p>Public Sector</p>



Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

Concerned Agencies	Time of Implementation
Provincial Government/District Education Department.	Short Term (1 year to 5 Years) Long Term (more than 5 years)

Strategy for: Improving Recreation Sector	Programs/ Policies <ul style="list-style-type: none"> 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. Provision of touristic facilities for Umerkot fort and Shiv Lingam Feasibility Study For Conservation/ Rehabilitation Of Heritage Site Of Umerkot Facilitate annual festivals that are being celebrated in this district. Existing sports facilities like Marvi Cricket Stadium & City Ground are in miserable condition and should be restored and maintained for public use Encourage Private Investment in recreational sector
Responsibilities to Plan <ul style="list-style-type: none"> 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) Medium Term (2 year to 5 Years)

Strategy for: Disaster Risk Management	Programs/ Policies <ul style="list-style-type: none"> Engage all stakeholders of entire district in overall disaster rehabilitation process.
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Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

	<ul style="list-style-type: none"> 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 <i>Pakistan National Disaster Risk Management Act 2010</i>, <i>National Disaster Risk Management Guidelines</i> and <i>Disaster Risk Management Plan, Sindh</i>. 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 <ul style="list-style-type: none"> 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 (6 months to 2 Years)



Preparation of Development Master Plans of Fourteen (14) District Headquarter Towns of Hyderabad, Mirpurkhas & Shaheed Benazirabad Divisions

<p>Strategy for:</p> <p>Economic Development Plan</p>	<p>Programs/ Policies</p> <ul style="list-style-type: none"> • 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 Godown 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
<p>Responsibilities to Plan</p> <p>Feasible studies for economic potentials</p>	<p>Implementation Responsibilities</p> <p>Public /private developers</p>
<p>Concerned Agencies</p> <p>Provincial Government/District Government/Local Government/Umerkot Chamber of Commerce and Industries</p>	<p>Time of Implementation</p> <p>Medium Term (1 year to 5 Years) Long Term (5 years to 20 Years)</p>

Annexure – A

Sustainable Development Goals Acceleration Plan

Sustainable Development Goals (SDGs) Acceleration Plan

Umerkot 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 fields¹.

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, Government of Sindh with effect from May 2017. The Unit

¹United 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 Mainstreaming SDGs in local development plans and strategies clearly delineating the resource requirements.	Data Reporting Strengthening coordination, reporting and monitoring mechanisms for SDGs	Financing Financing flows increasingly aligned with 2030 Agenda	Innovation Supporting integrated and innovative approaches to accelerate progress on SDGs on priority areas.
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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 - Umerkot 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 17.98% of the urban town population lives in katcha houses	<ul style="list-style-type: none"> - 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) 	<p>Sindh Katchi Abadis, Squatter Settlements & Slums Policy</p> <ul style="list-style-type: none"> - 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
					<p>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.</p> <ul style="list-style-type: none"> - 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	74% people have access to public transport. ³	<ul style="list-style-type: none"> - 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. 	<p>Sindh empowerment of Persons with Disabilities' Act, 2018⁴</p> <p>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</p> <p>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</p>

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			<ul style="list-style-type: none"> - 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. <p>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</p>	<p>diversity of users including bicycle operators in the roadway and pedestrians using crosswalks.</p> <p>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.</p> <p>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.</p>

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 Umerkot DHQ town in the future.	<ul style="list-style-type: none"> The total extent of the area included in the overall proposed Umerkot Master Plan is 22,400 acres approx. for a population of 541,500 by 2037 	<p>Sindh Colonization of Government Lands Act 1912 and Disposal of Government Lands Rules, 2005.⁵</p> <p>National Housing Policy 2001⁶</p>
	11.4 Strengthen efforts to protect and safeguard the world's	11.4.1 Total expenditure (public and private) per capita spent on the	<ul style="list-style-type: none"> Culture /heritage Sites in Umerkot include 	<ul style="list-style-type: none"> Protection of historical places and 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)	<ul style="list-style-type: none"> • Umerkot Fort • Emperor Akbar's Birth Place • Shiv Lingam 	Development and preservation of cultural heritage	<p>(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---</p> <p>(a) the maintenance and custody of the protected heritage and the duties of any person who may be employed to watch it;</p> <p>(b) the restriction of the owner's right to destroy, remove, alter or deface the protected heritage;</p> <p>(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;</p> <p>(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;</p> <p>(e) the payment of any expenses incurred by the owner or Government in connection with the preservation of the protected heritage; and</p> <p>(f) any matter connected with the preservation of the protected heritage which is a subject of agreement between the owner and Government.</p>

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	<p>Sindh Data ⁸</p> <p>No of deaths (1988-2013) = 241</p> <p>No of People effected (1988-2013) =24,096,173</p> <p>Deaths per 100,000 population = 0.2491</p> <p>Affected people per 100,000 population = 241</p>	<ul style="list-style-type: none"> 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
				<ul style="list-style-type: none"> • 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 Umerkot DHQ town is 66 tons per day. Regular	<ul style="list-style-type: none"> - 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 Umerkot

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 50-60%	<p>biomedical-waste management. It should immediately start segregation practice for biomedical waste collection system.</p> <ul style="list-style-type: none"> - 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 separately and safely 	
	11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in	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 0.95% (18.7 acres) out of total 1958 (7.9 Sq KM ¹²) acres park area is available in Umerkot	<ul style="list-style-type: none"> • Establishment of Sports Complex along with old SRTC bus stand • Existing open spaces in core urban area should be restored and maintained. New open spaces should be identified and created. 	Adopt-a-park policy 2019 (PPP unit, Finance dept. GoS) is still in progress

¹² Based on Landuse Calculations

SN	SDG Target	Indicators	Baseline Survey	Supportive Strategies given in SDP	Policies
	particular for women and children, older persons and persons with disabilities	persons with disabilities		<ul style="list-style-type: none"> • Development and preservation of cultural heritage • 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	<ul style="list-style-type: none"> • 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. • Discourage direct link roads with bypass • The Consultant suggest that the Master Planning should be reviewed every five years to estimate the land use and area requirement according 	<ul style="list-style-type: none"> • Preparation of Development master plans of DHQ towns by Govt of Sindh • Poverty Reduction Strategy for Sindh approved by cabinet 2018 <p>The key conceptual underpinnings of this strategy are:¹³</p> <ul style="list-style-type: none"> • 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

¹³ Poverty Reduction Strategy for Sindh

SN	SDG Target	Indicators	Baseline Survey	Supportive Strategies given in SDP	Policies
				to the growth rate and economic investment	<ul style="list-style-type: none"> Consolidation of services, for improved service deliver and better impact. <p>The combined effect aims to provide improved facilities, services and opportunities for households in the surrounding cluster of villages served by the hub</p>
	11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change,	<p>11.b.1 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030a</p> <p>11.b.2 Number of countries with</p>	Provincial policies and strategies in placed	<p>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.</p> <ul style="list-style-type: none"> 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 ¹⁴

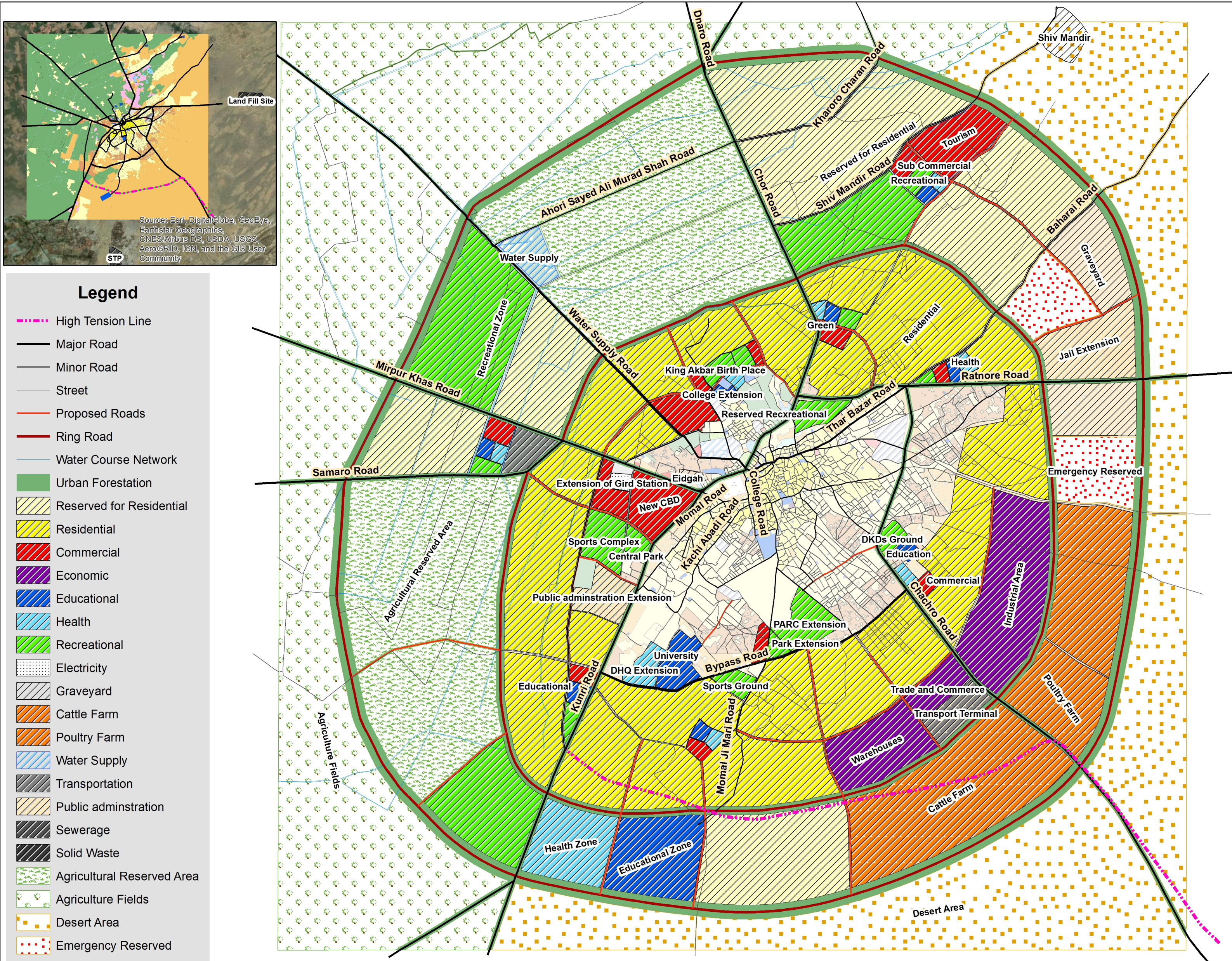
¹⁴ <http://www.pdma.gos.pk/new/resources/Sindhidrr-policy.pdf>

SN	SDG Target	Indicators	Baseline Survey	Supportive Strategies given in SDP	Policies
	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	national and local disaster risk reduction strategies		<ul style="list-style-type: none"> 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. 	

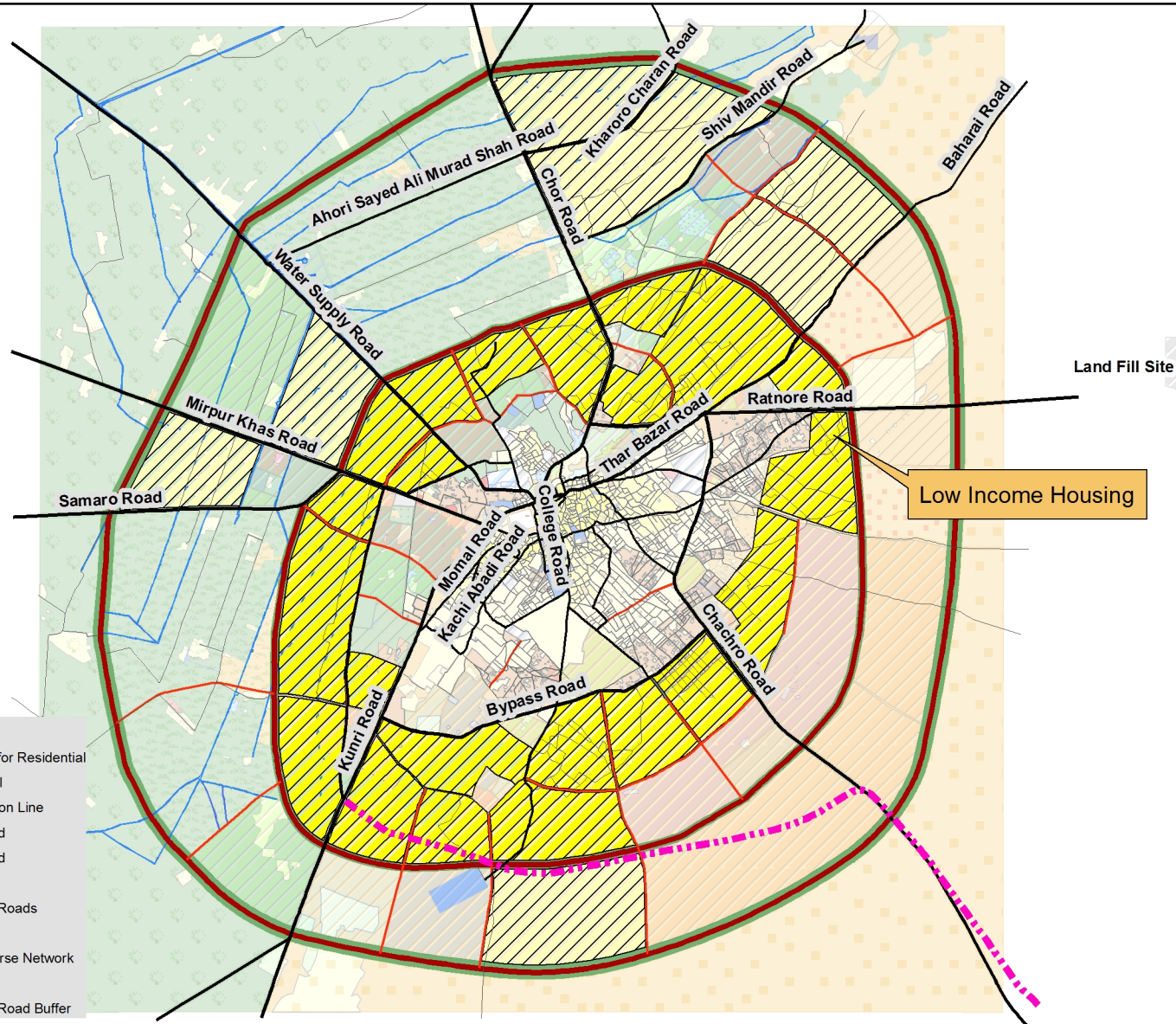
Annexure – B

Atlas

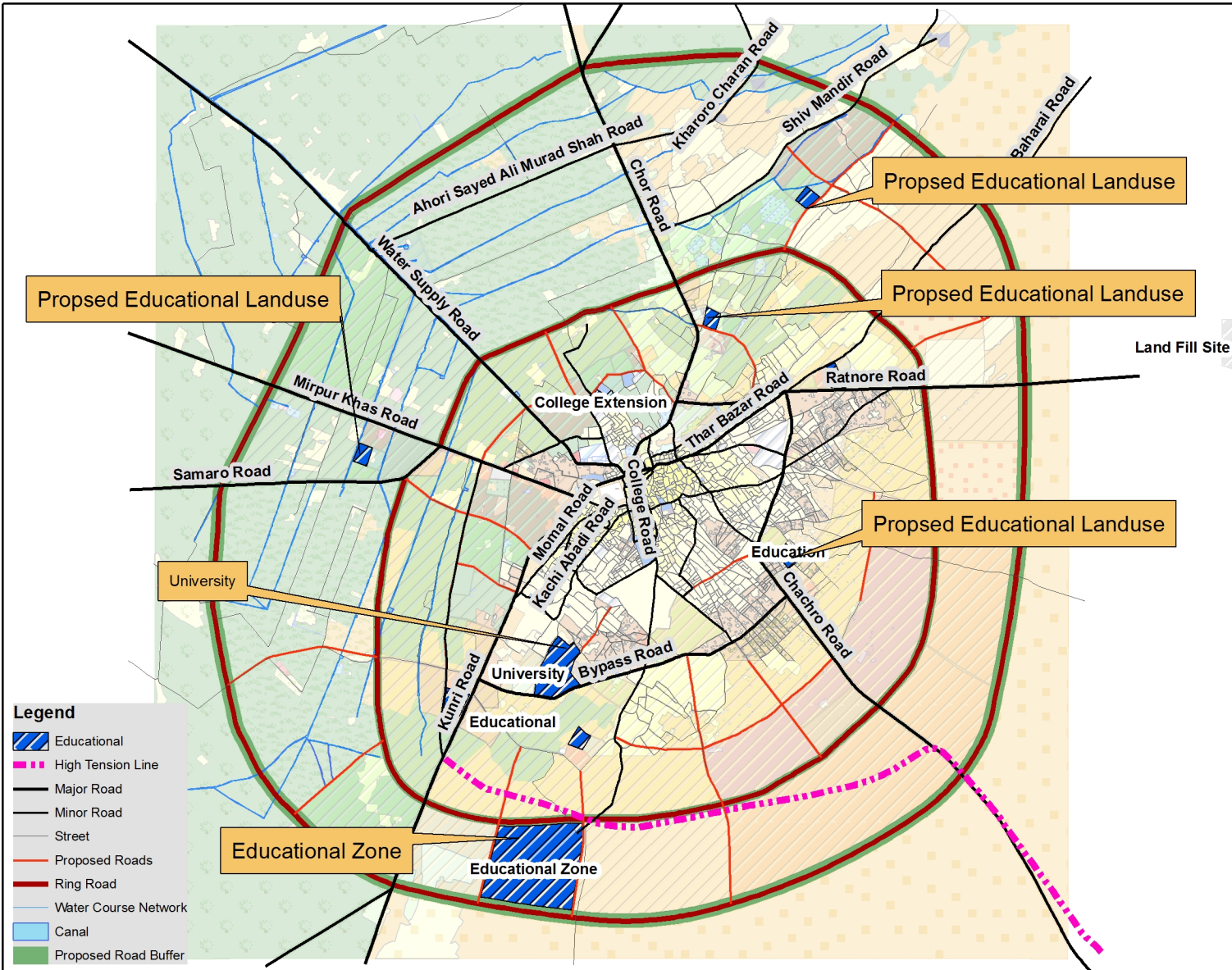
Proposed Master Plan for Umerkot Town



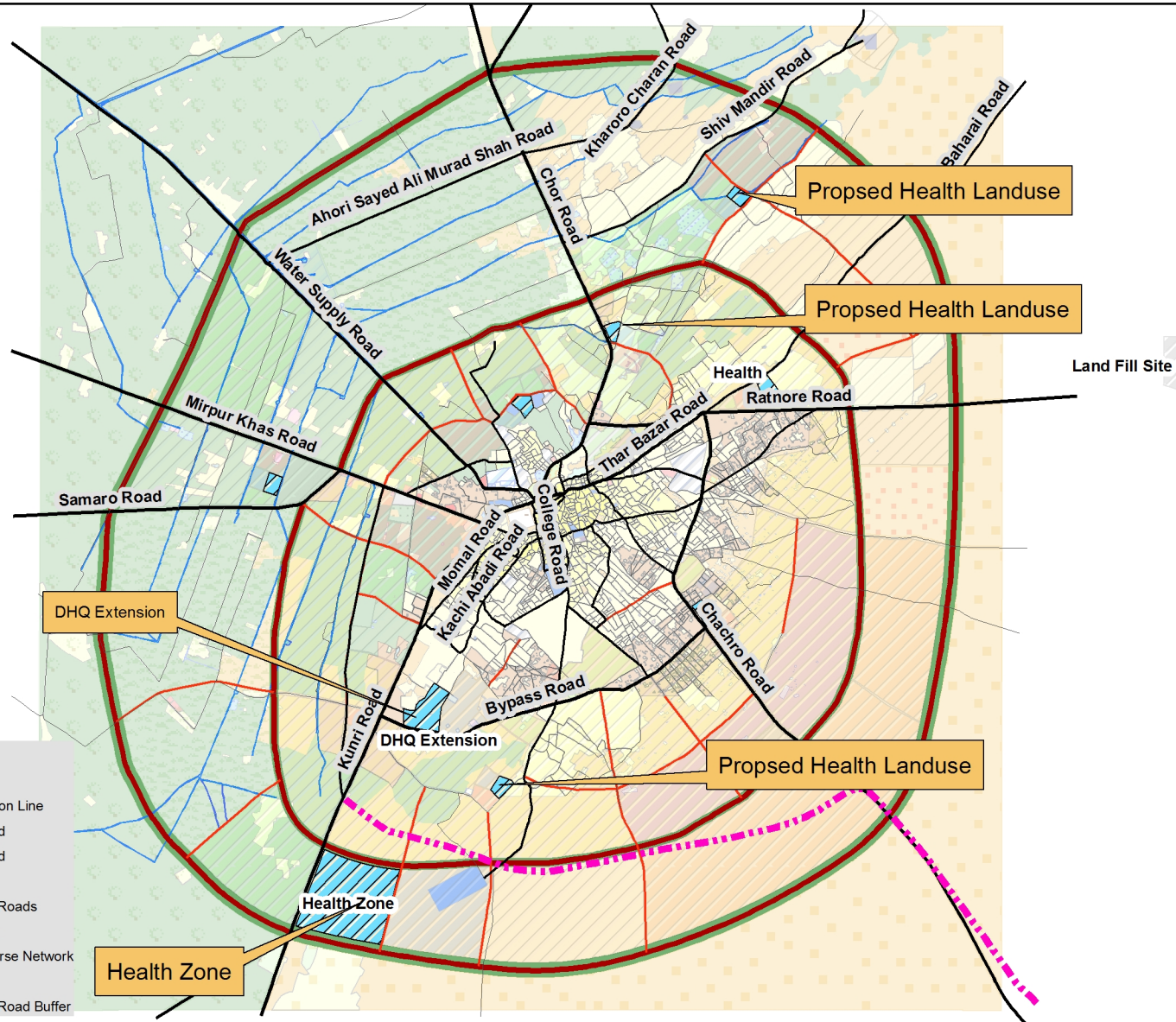
Proposed Residential Landuse for Umerkot Town



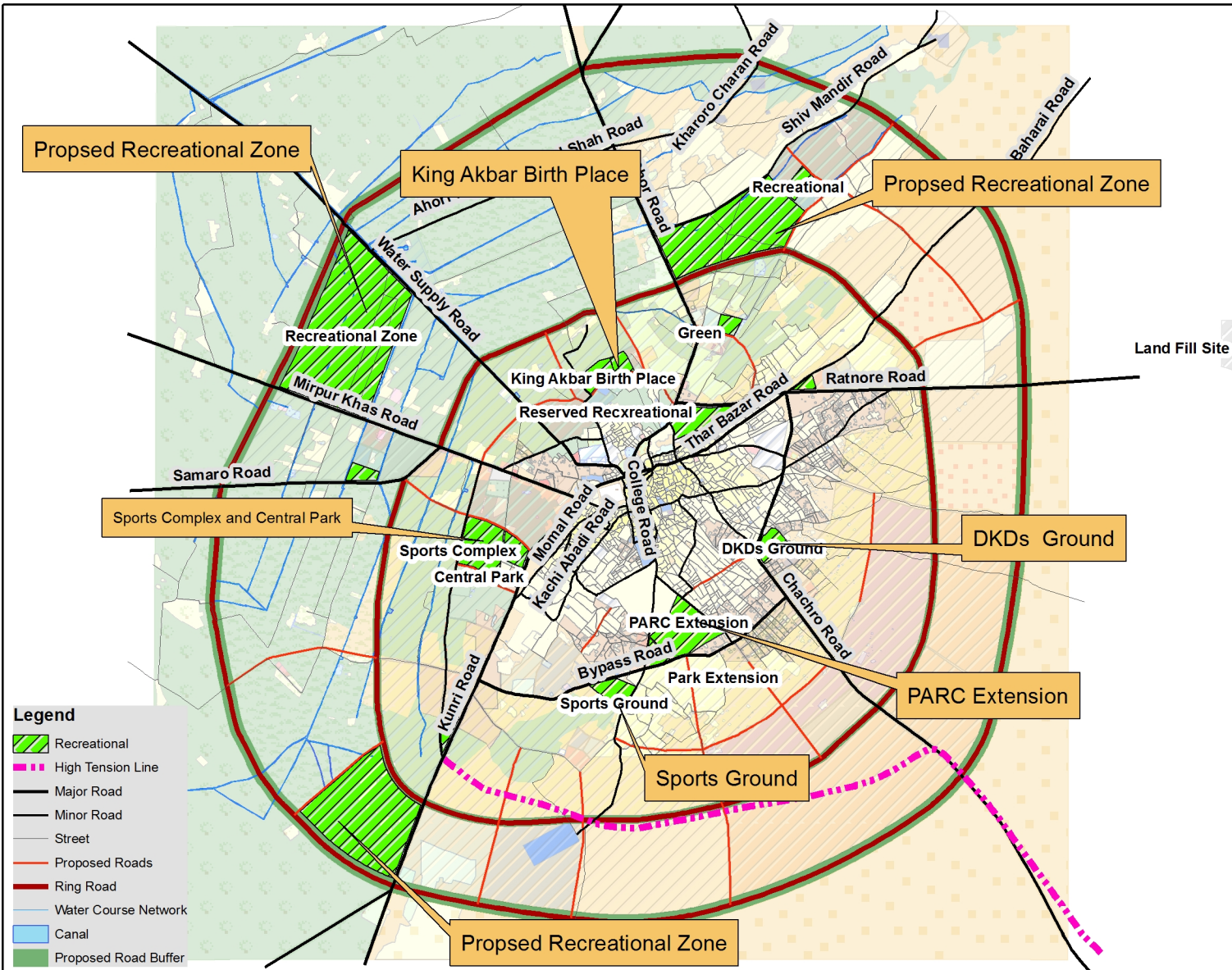
Proposed Educational Landuse for Umerkot Town



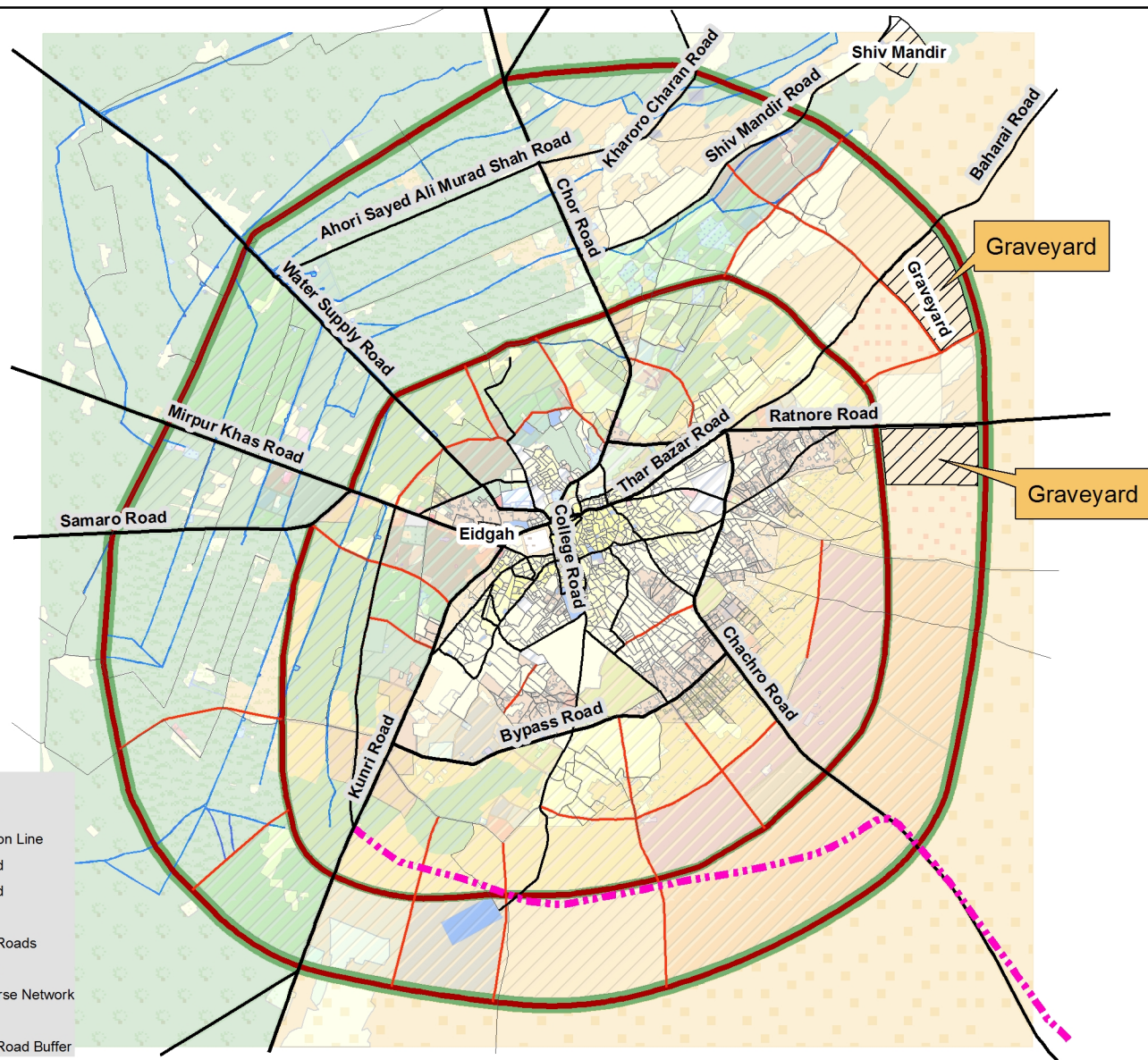
Proposed Health & Welfare Landuse for Umerkot Town



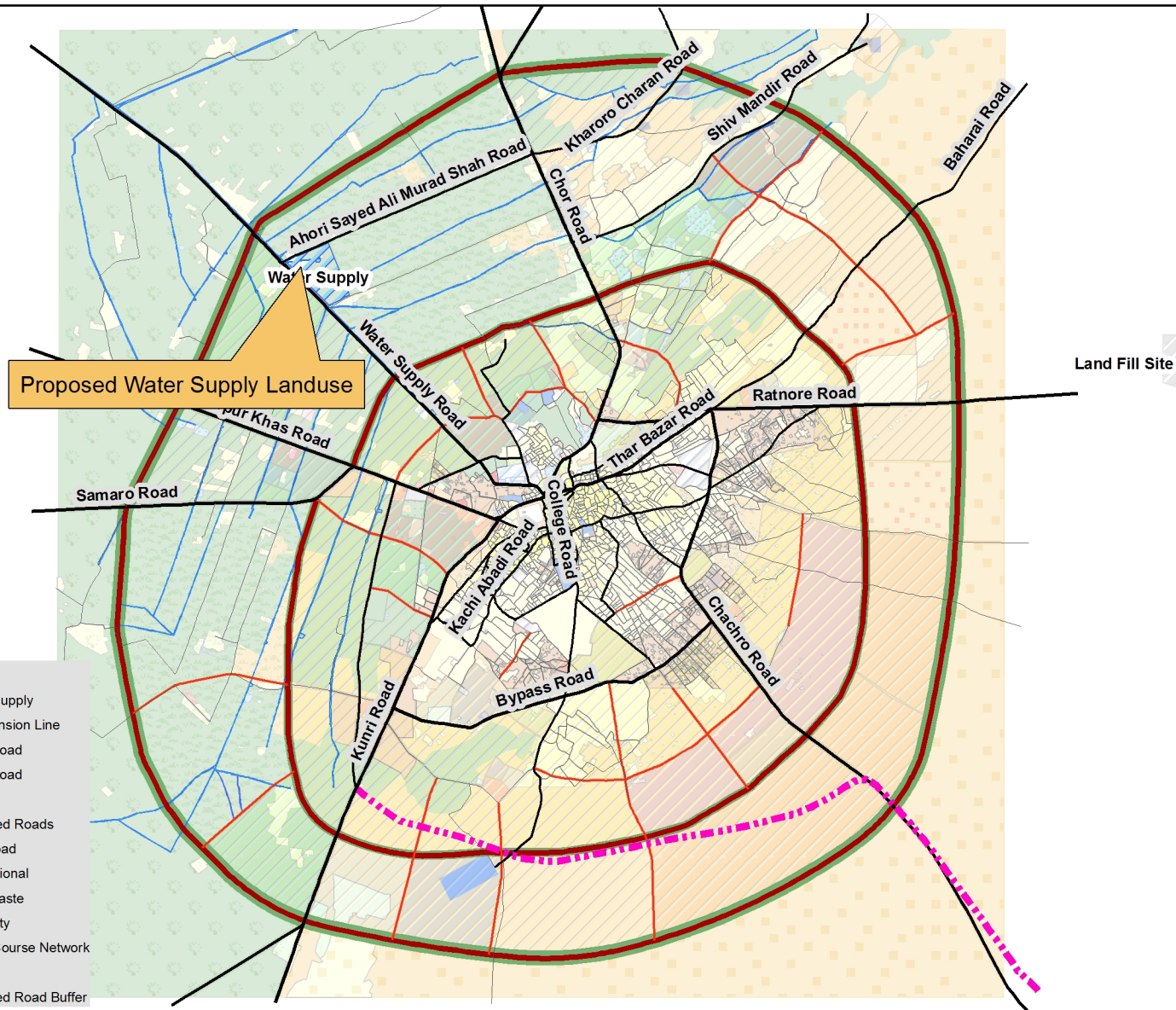
Proposed Recreational Landuse for Umerkot Town



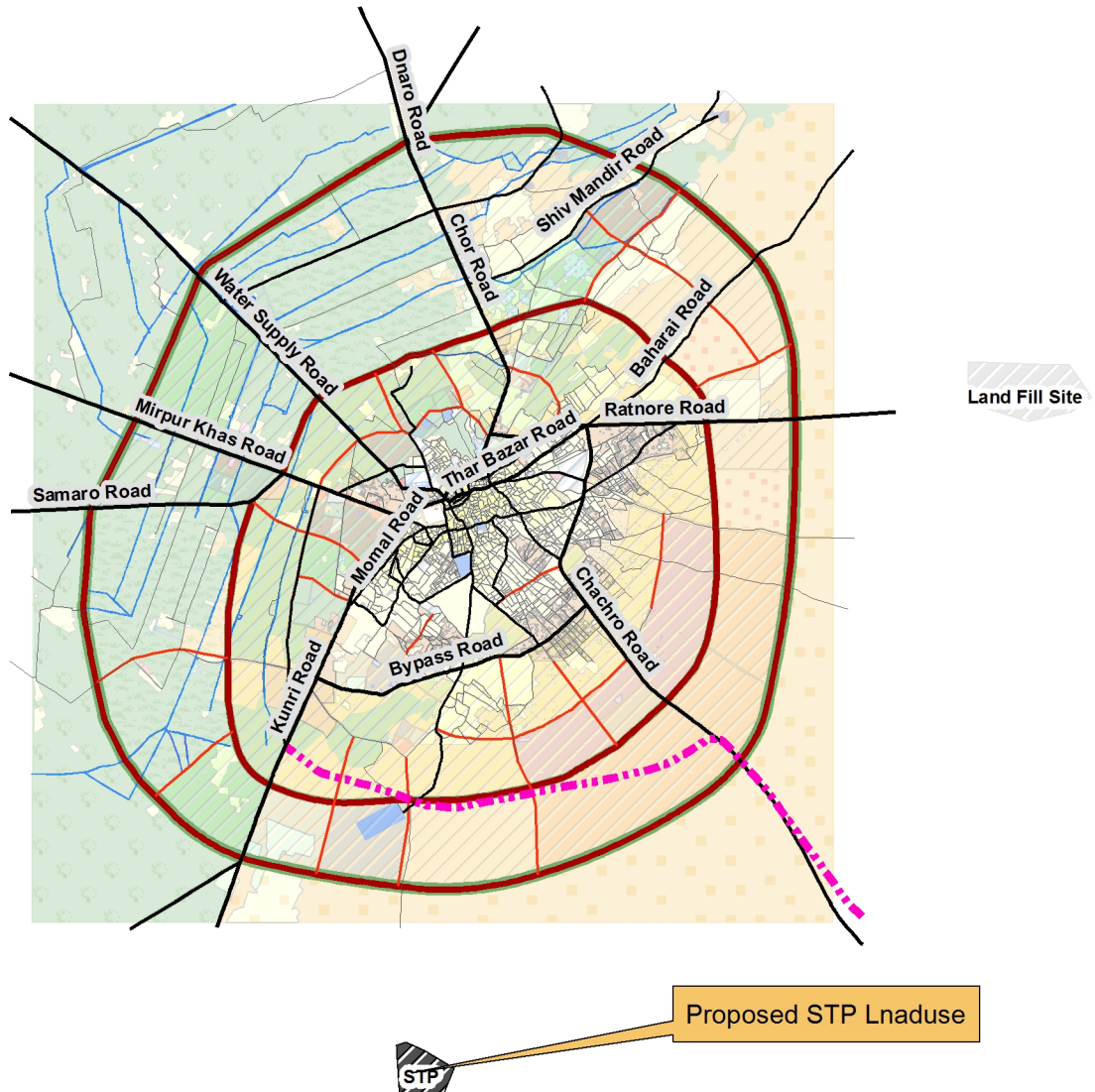
Proposed Graveyard Landuse for Umerkot Town



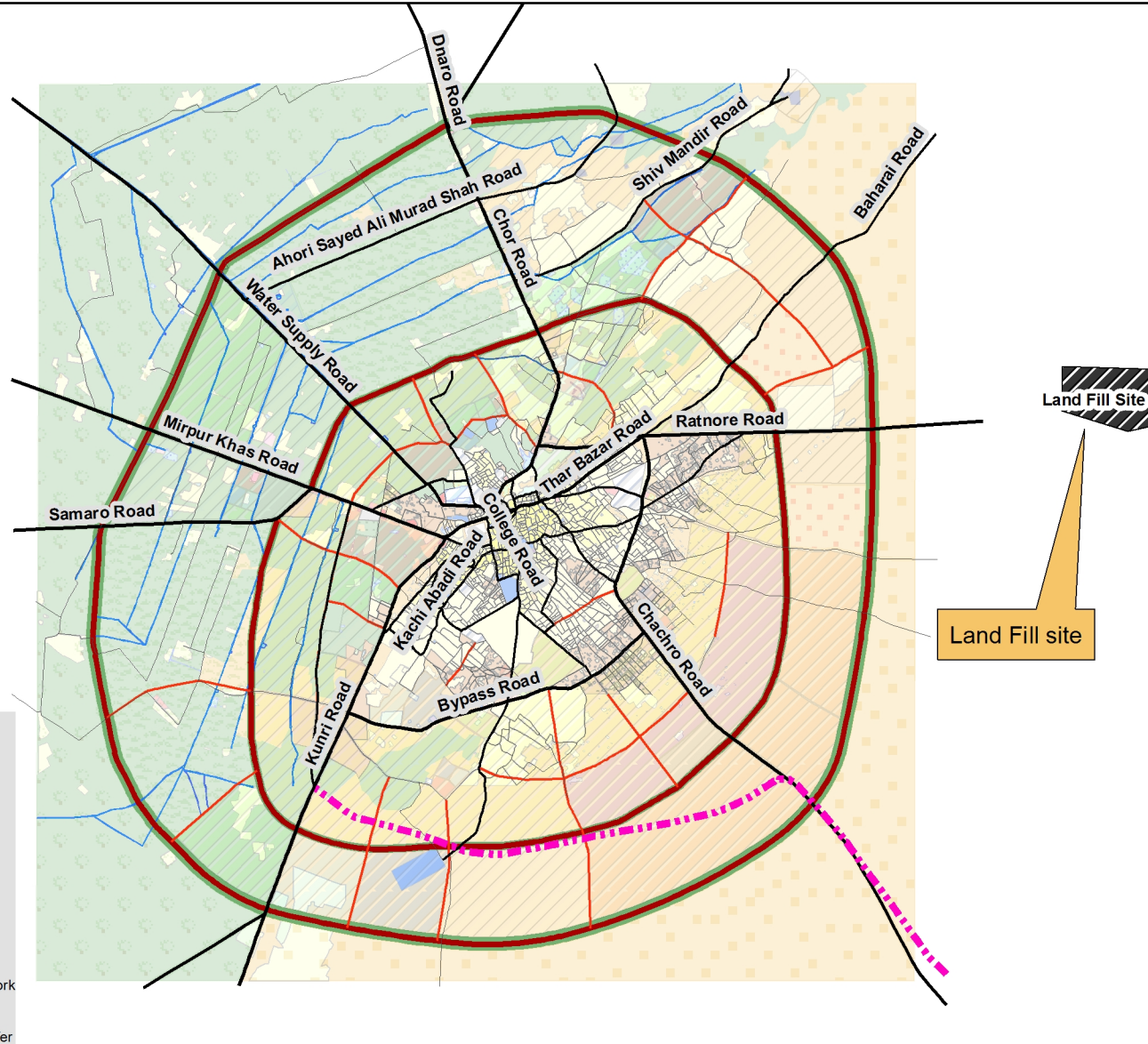
Proposed Utilities and Services Landuse for Umerkot Town



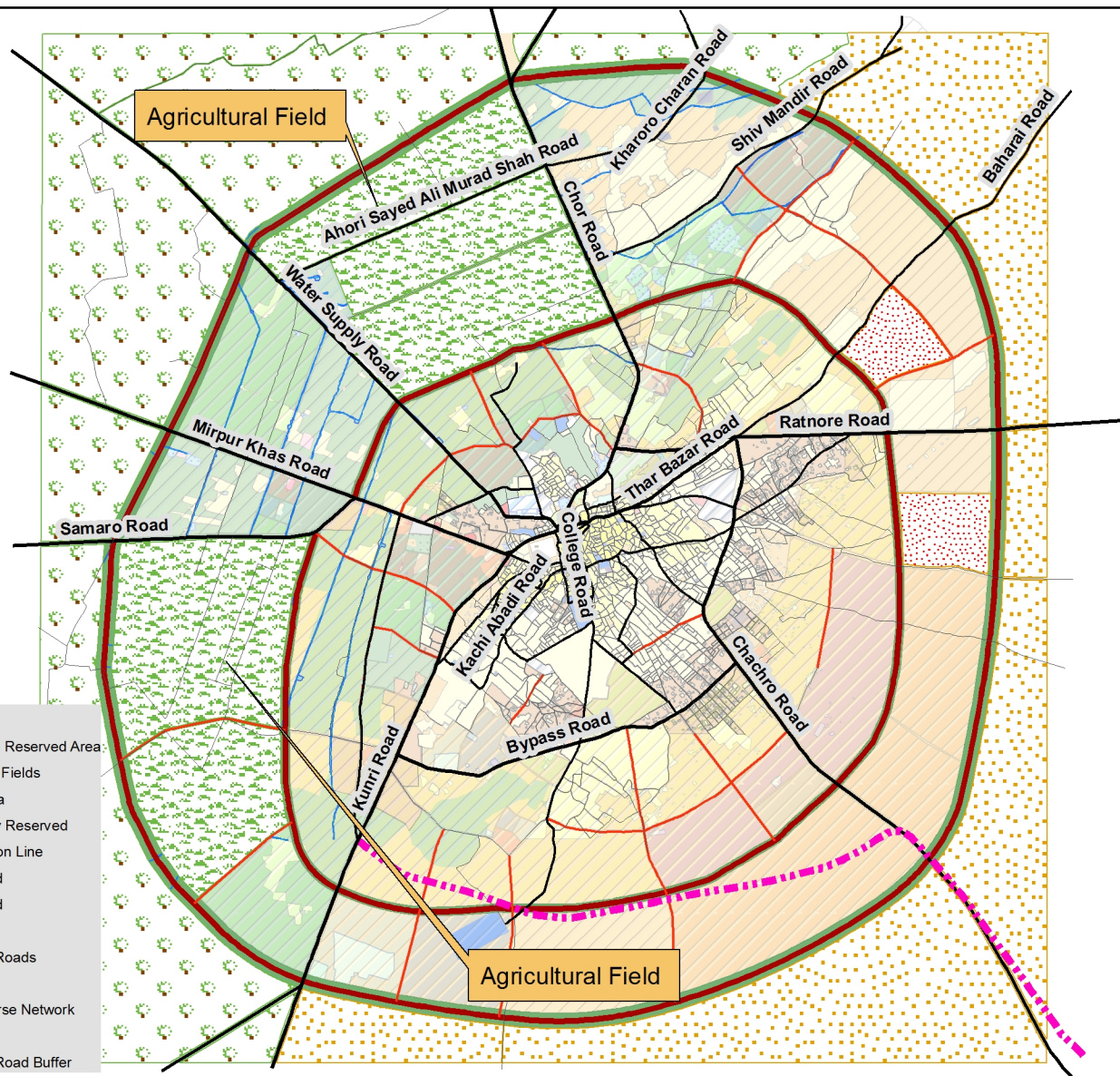
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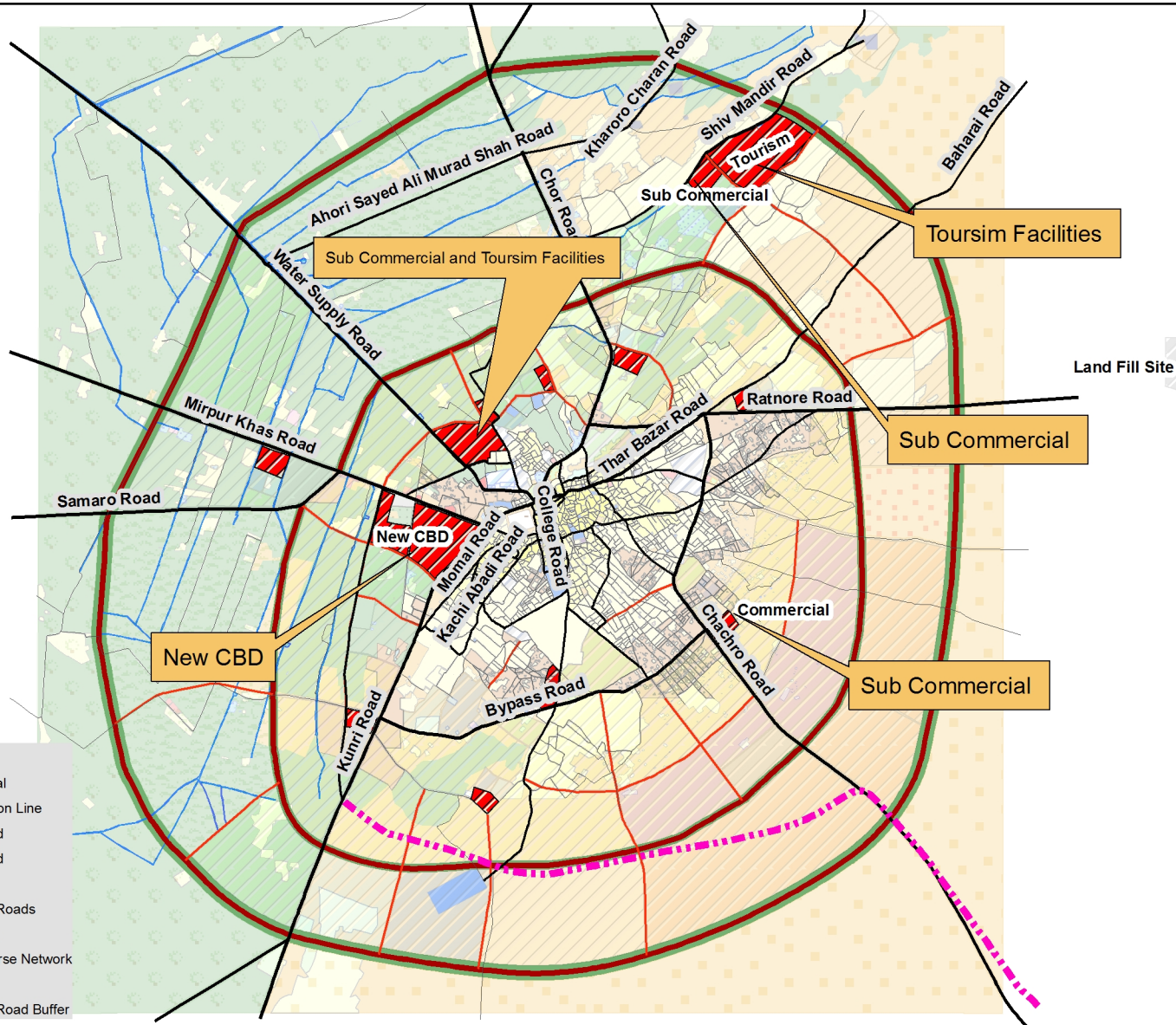
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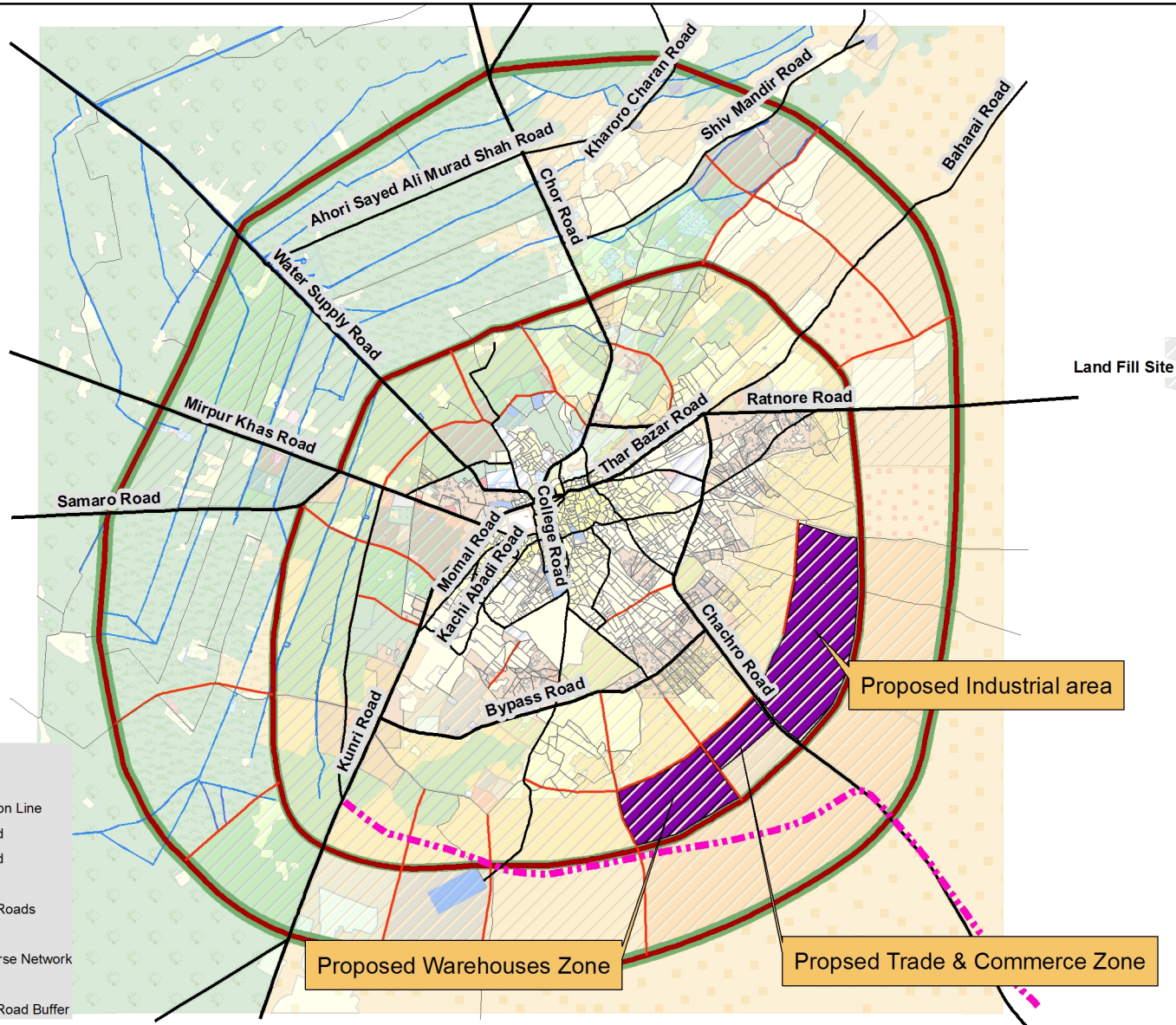
Proposed Reserved Agricultural Landuse for Umerkot Town



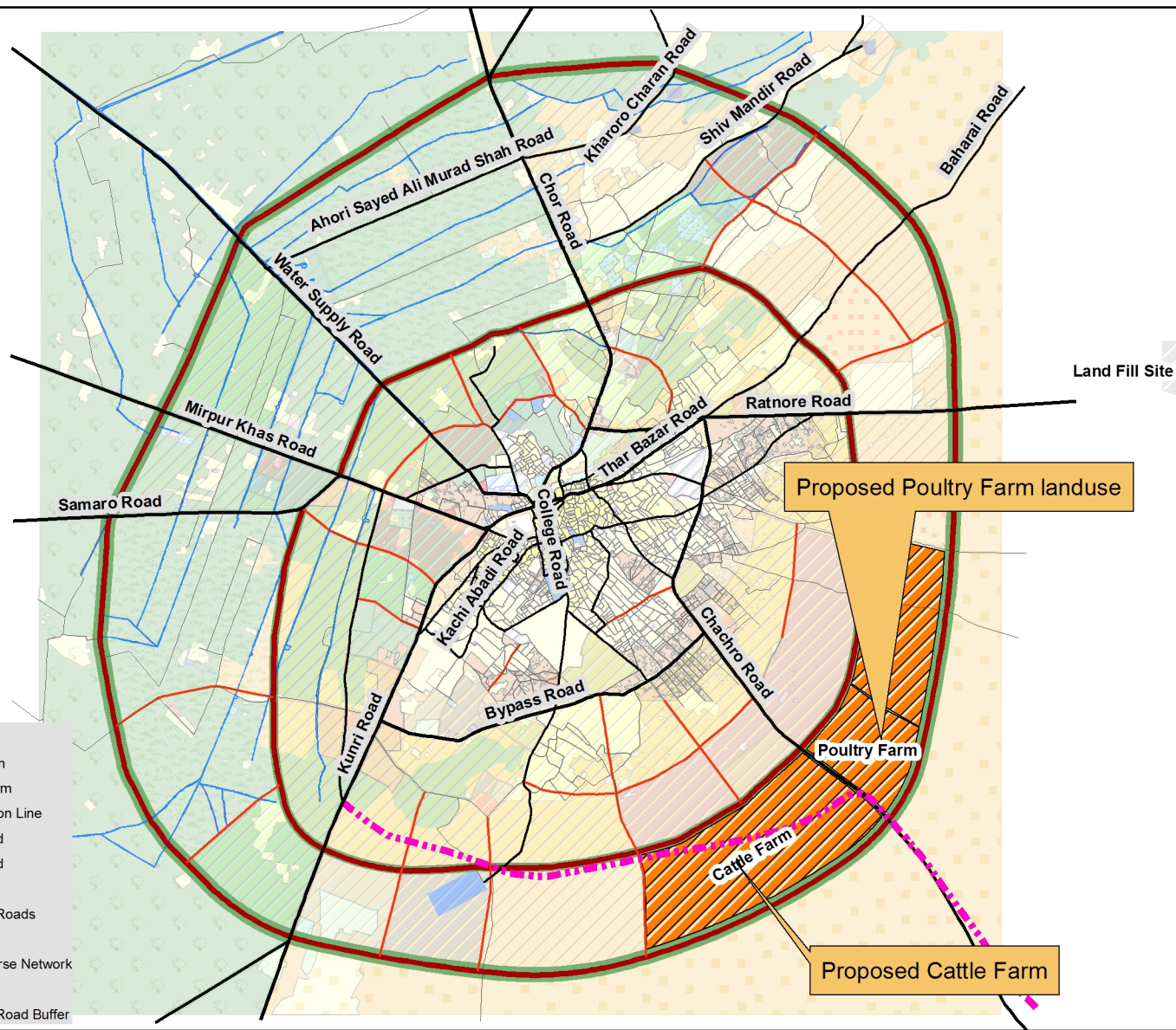
Proposed Commercial Landuse for Umerkot Town



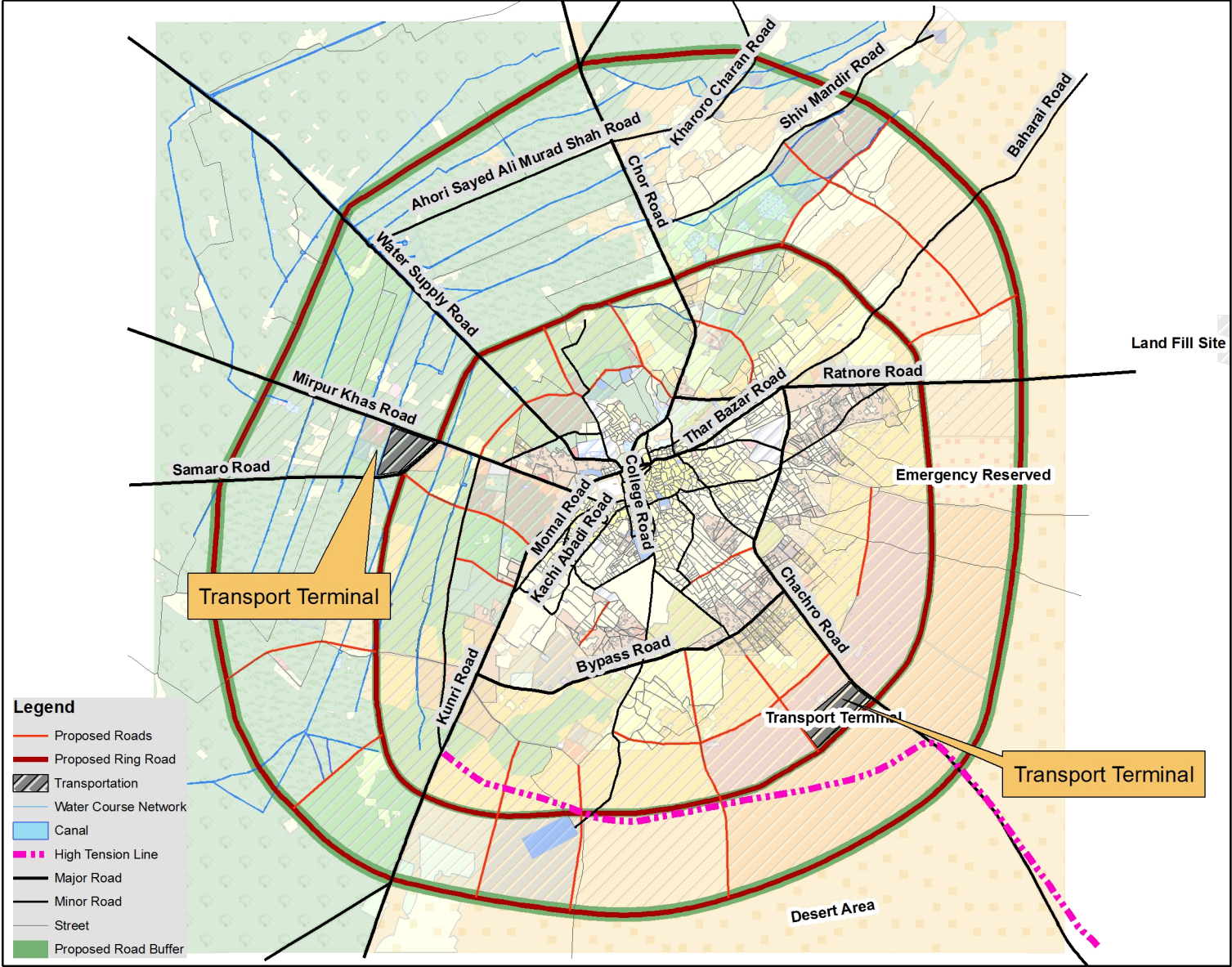
Proposed Economic Landuse for Umerkot Town



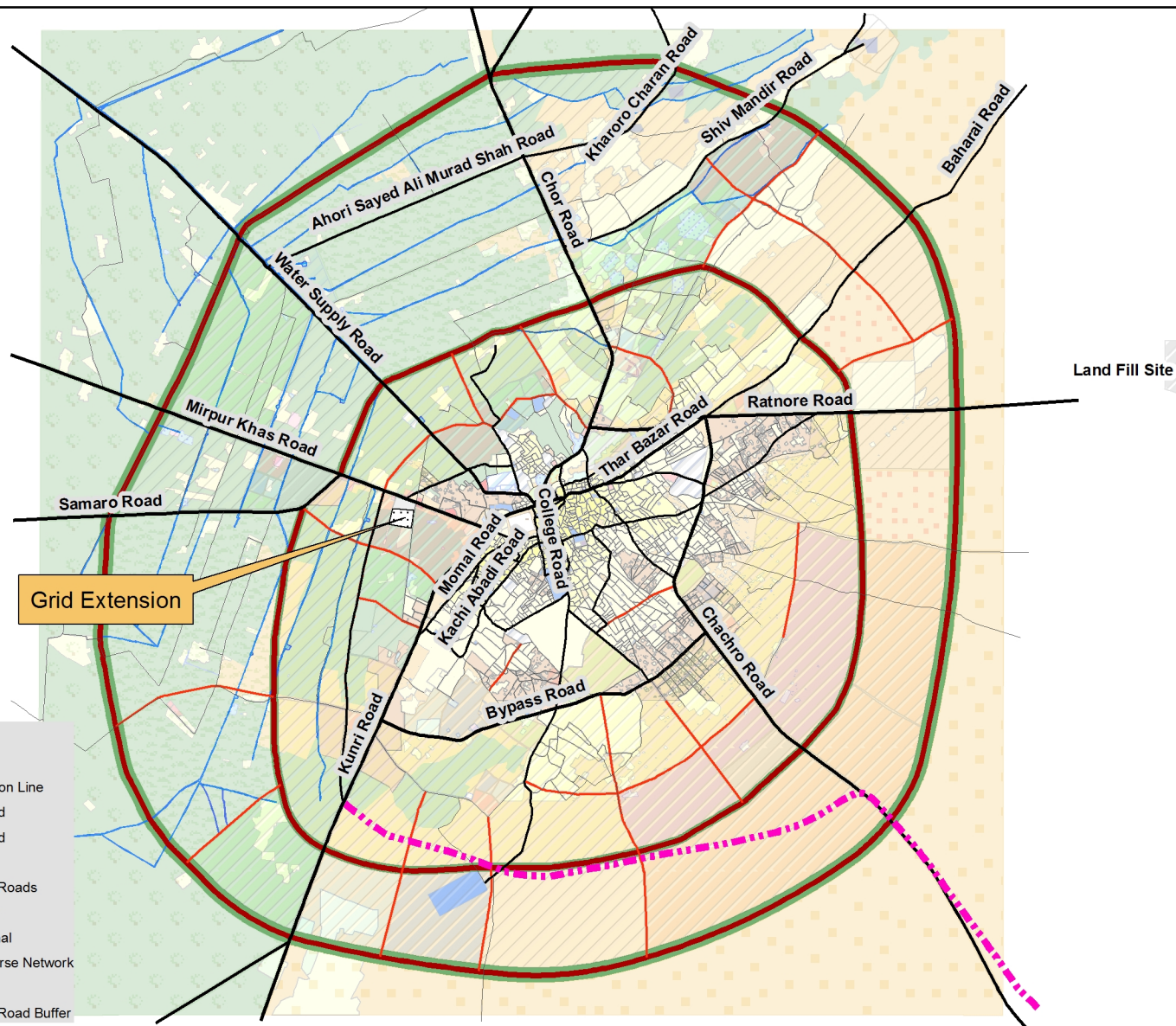
Proposed Livestock Landuse for Umerkot Town



Proposed Transportation Landuse for Umerkot Town



Proposed Utilities and Services Landuse for Umerkot Town



Proposed Public Administration Landuse for Umerkot Town

