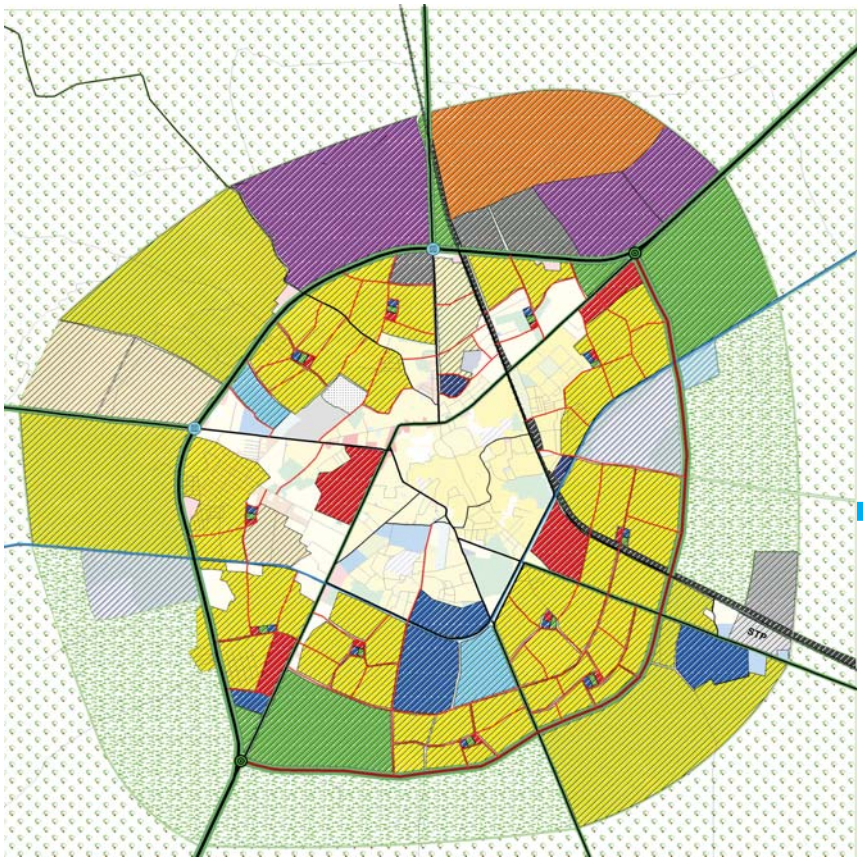
Directorate of Urban Policy Strategic Planning,
P & D Department, Government of Sindh

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

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

# STRATEGIC DEVELOPMENT PLAN REPORT

# (2017- 37)








## NAUSHAHRO FEROZE

**February, 2021**

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# TRANSMITTAL LETTER

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

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

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

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

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

## STRATEGIC DEVELOPMENT PLAN REPORT – NAUSHAHRO FEROZE

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Annexure – B: Atlas

# LIST OF ACRONYMS AND ABBREVIATIONS

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

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

| | |
|---|---|
| WATSAN | Water & Sanitation |
| WASH | Water, Sanitation & Hygiene |
| WB | World Bank |
| WHO | World Health Organization |

# EXECUTIVE SUMMARY

## A. PROJECT AREA BRIEF

Naushahro Feroze has had the status of a district since 1989.[1]The district drives its name from its headquarters town Naushahro Feroze. According to 1998 census, population of district Naushahro Feroze was 1,087,571 persons with only 18% urban population and 80% rural population, with a low average annual growth rate of 1.61%. According to latest **Population and Housing Census of 2017** population figures for district Naushahro Feroze is 1,612,373 souls with an average annual growth rate of 2.09% which shows an increasing trend. District Naushahro Feroze covered an area of 2,945 Sq.km with an average house hold size of 5.8. This district is bounded by district Khairpur on the east, district Larkana on the north, district Naushahro on the west, and district Jamshoro and Shaheed Benazirabad on the south.

The 2017 census reveals that population of Naushahro Feroze town has reached at about 38,181 souls with a growth rate of 3.41%. Projected population works out to be 100,965 souls with AGR 4.98% by 2037. The city extended in 02 directions constantly i.e. north-east and north-west direction along National Highway N-5. The land use analysis indicates that almost 32.1% of total urban boundary area is in residential use. The zonal plan of Naushahro Feroze consists of 5 zones. The built-up area of Naushahro Feroze town comprises of around 1,074 acres of land but the spread of urban area as estimated by the consultants is about 2,537 acres.

## B. VISION 2037

A vision formulating workshop was carried out with the main stakeholders on November 28, 2018.
The stakeholders were mainly local citizens, government officials, businessmen and member of civil society. They were so logged down with the immediate day to day problems that they could not articulate a long term vision. However the collections of opinions expressed produced the following vision:
Three vision formulating workshops were carried out with the main stakeholders till November 28, 2018 i.e. 1st 28, November 2018, 2nd 14 February 2019, and 3rd on 8th March, 2019. Collation of opinions expressed produced the following vision;

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

[1] https://en.wikipedia.org/wiki/Naushahro_Feroze_District

## C. DEMOGRAPHY

According to 1981 census population of Naushahro Feroze town was only 8,567 souls with a growth rate of 3.41%. In 1998 population of Naushahro Feroze increased to 15,158 souls with an average household size of 7.9. Naushahro Feroze town has a slow growth which is evident in the table and graph below. Latest Population and Housing Census of Naushahro Feroze reveal that the population of the town has increased to 27,665 with annual average growth rate of 3.22%.

| Jurisdiction | Census 1998 | Census 2017 |
|---|---|---|
| Naushahro Feroze TC | 15,158 | 38,181 |
| Naushahro Feroze Taluka | 240,326 | 372,821 |
| Naushahro Feroze District | 1,087,571 | 1,612,373 |

## D. SECTOR WISE ANALYSIS AND PROPOSAL

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, and Demand Vs Need Analysis, NRM with professional judgment and Consultant's own experience and Standards used in other developing countries.

### 1. Housing

Housing in terms of sustainable/ affordable home with basic infrastructure and facilities is the basic human need. According to 2017 population census results, Naushahro Feroze TC had household size of 6.2 persons and a total housing stock of 6,205. The major issues include large number of households below poverty line, inadequate supply of developed land, poor land administration, and housing in dilapidated condition, land prices, poor water supply and sanitation facilitation, unchecked growth of squatter settlement and lack of skills to manage urban growth.

| Administration Unit | Past Census 1998 | | | | Current Census 2017 | | | |
|---|---|---|---|---|---|---|---|---|
| | Population | AGR | No. of HH | HH Size | Population | AGR | No. of HH | HH Size |
| Naushahro Feroze TC | 15,158 | 3.41% | 1,919 | 7.9 | 38,181 | 4.98% | 6205 | 6.2 |

By 2037 the number of household have been estimated around 16,408 on fixed household size of 6.2 persons out of which additional housing requirement will be 10,203. The distribution of households by income groups is different to assess at this moment however, around fifty presents will be in the low income group. In terms of housing development, the basic infrastructure i.e area major roads, water supply, sewerage and waste disposal, electricity and gas will be the public sector responsibility while the development of housing schemes will be the responsibility of privet sector. All schemes should be self-

sufficient and cross subsidize to low income group. The long term plan includes an affordable housing programme, formulation of green building by-laws and mechanism of new housing scheme in which TC is bound to provide basic utilities. The priority projects should be focused on the Land Development Housing Project.

## 2. Social Amenities

### 2.1 Education

According to the present situation, 246,403 students are enrolled in 2,334 different level of schools i.e. primary, middle, elementary and secondary & higher secondary schools with 5,560 classrooms, facing shortage of 2,653 classrooms on the basis of 30 students per classroom. The major issues are shortage of classrooms and teachers, low enrolment level, lack of provision of basic facilities, poor condition of educational institutions and lack of allied facilities.

The long term plan target is to achieve 100% enrolment with 1:1 male female ratio by 2037; therefore 26,280 additional classrooms will be required to accommodate upcoming generation for next twenty years. This need could be fulfilled either by addition in existing buildings or more new schools and colleges will be needed to be constructed in future to serve additional estimated population of 2,440,480.The strategies for short term plan need to focus on the rehabilitation of dilapidated school buildings, provision of incentives to attract children, encouragement to open new home schools, ghost schools and absentee staff to be brought to main stream.

- The priority projects should focus on the Repair & Rehabilitation of existing school and college buildings along with allied facilities with basic utilities and provision of Capacity Building Training Programs for teachers to enhance their Capacities.

- The immediate action plan involves the repair & rehabilitation of school buildings. At present there are three educational facilities i.e. District Education Litigation Office & High School, Secondary School Boys & Pakistan Bait-Ul-Mal School and one City Library in core urban area of Naushahro Feroze. Besides repair and rehabilitation we are also proposing all allied services related to basic utilities, access road and building renovation.

### 2.2 Health

In district Naushahro Feroze, there is one civil hospital having 105 bed capacity, 2 THQ having 52 beds, 45 BHUs at district having 90 beds, 12 RHCs having 169 beds and 76 Dispensaries having 3 beds. There are 29 private hospitals having 207 beds serving at the Naushahro Feroze district. There are 388 sanctioned posts of doctors in district; whereas only 199 are filled and remaining 280 are vacant. The NRM (National Reference Manual) recommends 2 beds per thousand as the medium term target. On this basis approximately 4255 beds will be required to be provided gradually until 2037. As already discussed above according to WHO (World Health Organization) standards doctor to population ratio is 1:1000 so taking that as a reference point the future requirement of doctors comes out to be 2052 doctors for the future population of Naushahro Feroze. The strategies for short term plan includes the improved access to healthcare facilities, availability of skilled workforce, expansion of immunization coverage, functionality of equipment and availability of quality medicines. The long term plan focus on the enhancement of Mobile

Health Unit, availability of ambulance network and accommodation facilities for doctor and paramedic staff.

- The priority projects should focus on the Construction of Trauma Center along main national highway to provide instant emergency facilities and Land acquisition for Trauma Centre.
- The immediate action plan includes the Repair & Rehabilitation of Civil Hospital Naushahro Feroze

### 2.3 Recreational

The availability of parks in any city is essential for the safe and healthy environment. There are two parks in the Naushahro Feroze TC, three cricket grounds, a badminton hall and a mini cricket stadium, but due to the lack of management these may hardly be classified as proper recreational facilities as per standard requirement. There is an acute shortage of compulsory open spaces in Naushero Feroze. Present sports & recreational facilities mainly consist of Benazir Bhutto Park and Children Park. Currently existing parks are suffering from shortage of water. The strategies for short term plan are, restoration of existing open spaces present in town and provision of new open spaces and identification of land parcels and establishment of synthetic grounds, playing turf (for hockey, football) and indoor gym facility. The long term plan includes the promotion of opportunities to commercialize, promote tourism, development of tourist resorts, protection of historical places, proper organization of cultural events, youth development programme and reduce air pollution.

- The priority projects focus on the Repair & Construction/Rehabilitation of existing Recreational and Sports facilities and repair rehabilitation of gymkhana (Repair & Rehabilitation includes pavements, security system Utility Infrastructure including water supply, electricity supply, public toilets, proper seating arrangements and drainage etc.)
- Immediate action plan includes the Land Acquisition for Proposed Parks, Park 1 & Park 2

## 3. Economic Development

### 3.1 Irrigation

The District Naushahro Feroze has a well-established canal irrigation system. Rohri Canal irrigates the central and eastern parts of the district. Indus River passes along the western border of the district. Majority of the Dehs in this district are irrigated through canals. Others are irrigated with tube-wells and through river. The supply of sufficient irrigation water for future of agricultural growth is expected to be available.

### 3.2 Agriculture

Crops cultivated in Naushahro Feroze can be divided into two categories as food crops and cash crops. Food crops include wheat, rice, maize, jowar, bajra and barley while cash crops include sugarcane and cotton. In addition to these, fruit orchards are abundant in this district. The total geographical area of the district is 302,000 hectares out of this cultivated area is 209,000 hectares. Some of the major issues are the shortage of agro-based products, high price of inputs, lack of agriculture credit facilities, shortage of technical and home based industry, less demand of home grown products, less efficient local markets, high land prices and less revenue generation by local government.

The strategies for short term plan need to focus on the modernization of agriculture increase the supply and quality of agriculture crops, sufficient market infrastructure, agriculture technology development, measures to be taken to ensure maximum yield of crops and change of agriculture practices according to weather conditions. The long term plan involves the availability of job opportunities, provision of strong transport system, provision of incentives, enhancing crop productivity and provision of warehouses. The priority projects include the regular supply of irrigation water, improvement in crop yield/acre, installation of tube wells and rehabilitation of canals and drainage system. The economic development plan involves the recommendation for improvement of crops.

### 3.3 Livestock and Fisheries

District Naushahro Feroze is richly populated area having animal's population 2,701,415 of large and small animals. This district is well known with different type of breeds of cattle, Goats and sheeps. Animal population of district is highest number of Goats having 1,333,575 heads followed by buffalos 735,261 heads and Cattle 366,134. There are 10 Veterinary Hospitals and 42 Veterinary Centres. There are 139 private fish production farms working for fish farming in Naushahro Feroze District. 3433 fishermen are engaged with fishing business. The number of registered boats in district Naushahro Feroze is 510 and the production of fish in district Naushahro Feroze is approximately 1,020 M. Tons. The major issues include i.e. Veterinary subsistence farming, secondary source of income, lack of facilities, shortage of high quality feed and services are not sufficient. There is need to develop broad-based fisheries policy to modernize the fisheries sector.

The strategies need to focus on an improving the production performance of livestock, enhancement of livestock production, establishment of model livestock, new cattle and dairy farms, provision of veterinary services, large pasture land, promotion of fisheries, training through schools, enhance local awareness, enforcement of fisheries enactment, fish seed stock replenishment, aquaculture development and acquiring land for fish production.

The economic development plan includes the increase in veterinary hospitals, offering job opportunity, development of inland fisheries, prohibition of use of illegal fishing net and poison for killing fish, removal of encroachments from water bodies, demarcation of wetlands, special development package for fishing industry, lakes development and banning the conversion of lakes into agricultural land.

### 3.4 Industries

District Naushahro Feroze has agriculture related industries spanning sugar mills, cotton ginning factories and flour mills. These are the source of employments for residents of district Naushahro Feroze. These different industries provide employment to people. The short term strategies need to focus on the sufficient market infrastructure, establishment of Industrial Estates, provision of vocational training programme, promotion of international trade, increasing employment opportunities and installation of more industries. The long term plan includes the provision of infrastructure for establishment of new industries, enhancing crop productivity by adopting new technologies, support industrial development; modernize the service sector and development of Industrial estates.

- The priority projects include the revitalization of Industrial Estate, construction of warehouses and extension of Industrial Estates.

- The economic development plan focus on the establishment of separate small industrial estate under Sindh Small Business Corporation, provision of incentives to attract private investors and establishment of new industries.

### 3.5 Trade and Commerce

There is availability of financial institutions in the District. The district is well-known due to its characteristics of agriculture engine which serves all over Sindh. Some of the major issues are demise of local agriculture market, un-planned business activities, failure of PPP, lack of infrastructure, un-planned growth of business sector and encroachments. At present there is no designated fruit & vegetable market present in Naushero Feroze DHQ Town. Ordinary retail shops for vegetables and fruits are located on the main roads, which causes traffic congestion & garbage issues in the town. The long term plan should focus on the provision of fruit and vegetable market, specialized wholesale markets,

- The priority projects need to focus on the Establishment of planned Fruit and Vegetable Market at Naushahro Feroze with allied facilities which will attract entrepreneur to expand their investment and will also improve the urban environment.

## 4. Basic Utilities

### 4.1 Water Supply

At present, there is no centralized water supply scheme exists in town, reason being availability in abundance of marginally fresh ground water through hand pumps and tube wells. The majority of the households do not apply any method for water treatment.
The current demand for the town is 1.15 mgd. The water resource consists of both the surface source as well as the groundwater source. The major issues are that the old water supply system has fallen into disrepair, no treatment of raw water, depleting ground water and inadequate water supply coverage.

It is expected that the town of Naushahro Feroze will have a population of about 100,965 persons by 2037 and the daily demand of the town will be about 3 mgd. The strategies for short term plan should focus on the usage of surface water. The strategies for long term plan are that the design of water supply should ensure no contamination of water, introduction of PPP in service delivery and extension of existing irrigation system.

- The priority project includes the Construction of Water Supply Scheme, including 2.0 MGD rapid filter plant and distribution network for Naushero Feroze DHQ town. The purpose of the proposed project is the provision of surface water to the people of Naushahro Feroze. The town is depended on ground water for drinking water which has now turned unfit for consumption on variety of grounds.

### 4.2 Sewerage and Drainage

The sewerage and drainage system in the town consists of surface drains and reinforced cement concrete pipes. There are 04 disposal pumping stations and 02 existing treatment works. Presently 0.80 mgd

sewage is generated. In Naushahro Feroze 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 stinking drains and sewers. Drains are in poor condition almost in all the town and need to be repaired. About 65% of respondents from the town are dissatisfied with the current sewerage system, 81% of households in katchi Abadis and 82% in the town use roadside drains for the disposal of sewerage. The drainage and sewerage system in Naushahro Feroze consists of surface drains, and reinforced cement concrete (RCC) 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. Presently, 0.80 mgd sewage is generated against the present water demand which is 1.15 mgd. The issues include improper operation and maintenance of sewerage facilities, informal settlements, poor condition of sewerage system, no WWTP and untreated sewage disposed of in Irrigation Canals. Sewage flows at 70% of the water supply so estimated sewage flow by the year 2037 against the water supply of 3.03 mgd is 2.12 mgd. The strategies for short term plan need to focus on the provision of improved drainage and sewerage services. The long term includes the protection of canals from toxic disposals, development of well-designed trunk sewerage network, sewer system rehabilitation, usage of gravity flow systems, acquire land and proper sewage treatment plants leading up to recycling of treated affluent for landscaping and removal of land where temporary ponds have been formed.

- The priority project includes the Repair & Rehabilitation of existing Sewerage and drainage network of Naushero Feroze Town and construction of Sewerage and drainage network for remaining / un-served areas of the Naushahro Feroze TC. Construction of Sewage Treatment Plant is also part of the Priority Projects.

- The Immediate Action Plan includes; (i) Rehab of Sewerage system includes all urban core area network system with all related machinery and equipment. ii) Rehab of Storm water drain system includes all the core town area storm drain system through all steep slopes and peak areas with all linking equipment and machinery.

### 4.3 Solid Waste Management

Naushahro Feroze is one of the least populated districts of the fourteen district head quarter towns of Sindh. It occupies the north western position in the province. When we refer to “Solid Waste Management” (SWM), it is the generation, separation, collection, transfer, transportation and disposal of waste in a way that takes into account public health, economics, conservation, aesthetics, and the environment, and is responsive to public demands. After the passing of Sindh Solid Waste Management Board Act in 2014, Sindh Solid Waste Management Board (SSWMB) has been established which has the responsibility to collect and dispose all kinds of solid waste being generated in Sindh. As indicated, TC/MC is officially responsible for the entire solid waste management of the district under the directives of SSWMB. At present SSWMB has directed the municipal committees for identification of land for Garbage Transfer Stations and Landfills so that garbage collection and transfer & transport operations can be handed over to SSWMB for effective management of solid waste. Meanwhile feasibility studies of medical hazardous waste of Hyderabad, Mirpurkhas and Shaheed Benazirabad are in progress. Once the town / municipal committees would be able to allocate proper and adequate land for waste disposal on long-term basis then SSWMB will come into action for effective SWM at primary and secondary level in these District Headquarter Towns. There are 64 UCs in Naushahro Feroze District. Town office of Naushahro

feroze is being used as parking place or workshop for MSW collection vehicles / tractors / trolleys / other equipment. It's a starting as well as finishing point for all MSW Collection vehicles in their operation. According to adequacy of sanitation facilities available in the province of Sindh, Naushahro Feroze lies on the border line i.e. have just above 50% mark adequacy level of sanitation (solid waste management, water and sewerage).

The solid waste management system is of primary type i.e. collection and transport form different community collection points (disposal stations) to outside town dumping ground. Some of the major issues are that the vacant plots are used as a throw away site, no protective soil cover provided, open burning of waste, poor maintenance condition, no treatment before disposal, no policy for recycling or reduction of waste generation and mixing of solid waste into sewage.

Considering waste generation rate of 0.5 kg per capita per day, as per NRM Standards, the present (2017) waste generation would be approx. 19 tons per day.

The strategies for short term plan should focus on that the collection and disposing of solid waste (which is the responsibility of MC), effective and efficient collection system and segregation practice for biomedical waste collection system. The long term plan involves the involvement of community and private sector in SWM, public awareness and education, encourage on-site reuse and recycling and implement waste minimization.

- The priority projects include the Feasibility study for Solid waste management for Primary and Secondary Collection and recycling.

- The immediate action plan involves the Solid Waste Management System following 4Rs and installation of Collection Points in the Core Town Area.

## 5. Infrastructure

### 5.1 Energy

The power supply to Naushahro Feroze (TC) is through SEPCO-WAPDA transmission system. The issues are shortage of electricity and power supply, poor maintenance of electricity supply infrastructure, line losses and power theft, outdated network and non-availability of alternate sources. Electric power network exist in the city, but the production is going through a national energy crisis and power supply has become erratic. The Power Supply to district Naushahro Feroze is through Sukkur Electric Power Company (SEPCO) WAPDA via 132 KV grid station feeding taluka by 11 KV feeders. The distribution system will be needed to be extended to the new areas absorbing future urban growth. The Electric Power consumption (KWH per capita) in Pakistan was reported at 472 in 2014, according to the World Bank collection of development indicator, compiled from officially recognized sources. This household load projected to 2017 at the rate of 8% annual which comes round 595 KWH. The result of socio-economic survey indicated average power consumption per household in the area is about 220 KWH, which takes the total load of 1.382 MW.

The strategies for short term plan should focus on increasing the capacity of electricity generation by SEPCO, improving the capacity of grid station, alternative energy production and renewal of outdated network. The long term plan need to focus on the development of low cost energy production systems, adopting new technologies, addition of sub-stations and encourage energy efficient construction.

- The priority projects includes the feasibility study for the construction of solar power plant, promotion of energy efficient appliances, feasibility study for alternate energy sources and maintenance of power plants.

- The immediate action plan involves the provision of wall mounted street lights for core town area.

### 5.2 Gas Supply

The socio-economic survey results reveal that, about 97% of total households have the piped Gas supply. While the remaining households depending on alternative sources i.e. wood and gas cylinder. The strategies need to be focused on feasibility study for alternate resources available, measures to cater load shedding and measures to appropriately price the energy sources.

### 5.3 Transportation

Naushahro Feroze has a central position to use any of the surrounding airports like: Nawabshah Airport, Sehwan Airport and Hyderabad Domestic Airport. The city is also linked with the main national network of Pakistan Railways.

- **Condition of Road**

  Naushahro Feroze district covers an area of 2,945 square kilometres yet it has only 472kilometers of good quality roads, which are grossly inadequate for the area and population. A National Highway (N5) connects Naushahro Feroze with Hyderabad and onwards to Karachi (capital of Sindh province). The district headquarter of Naushahro Feroze is linked with its five talukas headquarters i.e. Kandiaro, Mehrabpur, Moro and Bhiria through metaled roads. Naushahro Feroze has significant connectivity with surrounding towns as well as other parts of the country through the regional and national road network. Naushahro Feroze city is situated, 131 kilometers north-east of Sukkur, 200 Km north-west of Hyderabad 350 Km from Karachi, on the national highway (N5).

- **Internal Roads**

  Internal road network of Naushahro Feroze town is not satisfactory with deteriorated physical conditions, encroachments on roads, congestion, and road side parking and drainage issues. The main internal roads includes Market Road, Shahi Bazaar Road, Padidan Road Bypass, National Highway, Thareshar, Mithiana , Phathak Road, College Road, Deen Muhammad Babar Road/Jinnah Road, Park Road and Station Road. Famous important chowk include Hethai Chowk, Allah Wala Chowk and Shahi Bazar Chowk. Some of the major issues are unplanned street network, absence of public transport, poor traffic management, lack of integrated transport provisions, lack of co-ordination between transport operating agencies, haphazard on street parking and poor administration.

The strategies for short term plan include improving road designs, preventing encroachments, declaring private vehicles free zones, reducing traffic growth and congestion, dualization of main arteries,

construction of bus terminal and enhancing institutional efficiency to improve service delivery.—The priority projects includes the rehabilitation of major & minor roads and installation of traffic signals and solar lighting on major and minor roads. Currently, unavailability of designated Bus terminal within Naushahro Feroze town causes traffic congestion issues.

- The priority projects also include construction of Bus Terminal & Land Acquisition for New Bus Terminal
- However, the overall situation indicates narrow street width, poor pavement conditions, encroachments on footpaths and road sides, haphazard and illegal parking, open drains, etc. Space along with major roads is available for provision of missing facilities.

- The immediate action plan includes the Repair & Rehabilitation of major and minor roads i.e. Noushahro Feroze-Mithiani Road, Noushahro Feroze Padidan Road & old National highway N-5 road passing from core town area. And minor roads includes; College Road, Shahi Bazar Road, Shaikh Mohalla Road, Market Road & College Roads etc.

### 5.4 Communication

The preliminary survey of households shows that only 4% households have PTCL landline facility and 18% households have internet access. The issues are lack of shared information, most of the areas lack PTCL coverage, and internet usage is limited to educated families.

From the development point of view, media can play an important role in economic development and prosperity. It can promote immediate disaster forecasting. More over Communication network are the basic requirements for an efficient and profitable agricultural sector.

## 6. ENVIRONMENT AND DISASTER RISK MANAGEMENT

### 6.1 Environment

Seismically, Naushahro Feroze lies in zone 2A of seismic zoning map of Pakistan corresponds to minor to moderate seismic hazards. The major issues includes in this area water logging and salinity, water contamination and seismic hazards.

The short-term strategies should focus on ensuring environmental sustainability, increase productivity of rangelands, provide of recreational facilities, create environmental awareness and alleviate poverty through creation of forest based income. The long-term plan includes achieving sustainable development, multi-pronged approach to fisheries management, fostering PPP, conserve biodiversity, preserve ecological cycles and strengthening of forestry education. The priority projects include the rehabilitation of irrigated plantation, enhancement of rangeland production, rehabilitation of forest parks and afforestation.

### 6.2 Disaster Risk Management

District Naushahro Feroze was moderately hit by floods in 2010 and then again severely hit in 2011 by rain/floods. After 2010 floods, the district falls under the category of medium risk districts as declared by the PDMA Sindh. Due to droughts, approx. 25%-35% population of region migrated to work in friendly environments. The major issues includes the low level of risk awareness and knowledge, no “risk conscious” development, insufficient DRR capacity and negligible involvement of private sector.

The strategies should focus on developing co-ordination mechanism with PMD, mechanism for regulation of water discharge, monitoring mechanism, providing necessary medical facilities, close co-ordination with DDMA and the D.H.O should declare emergency at all medical units. . The long term plan needs to focus on providing medical cover to IDPs, disaster preparedness planning, involvement of local level actors and clarify mutual roles and responsibilities. The priority projects includes the vigilance of canals/drains, ensuring smooth flow of water, dewatering of stagnant water, HESCO should ensure uninterrupted supply of electricity, provision of adequate stock of medicines and medical supplies, provide medical cover to IDPs, fumigating the affected areas, ensuring that ambulances are in working condition and that there is sanitation and cleanliness in setting up relief camps.

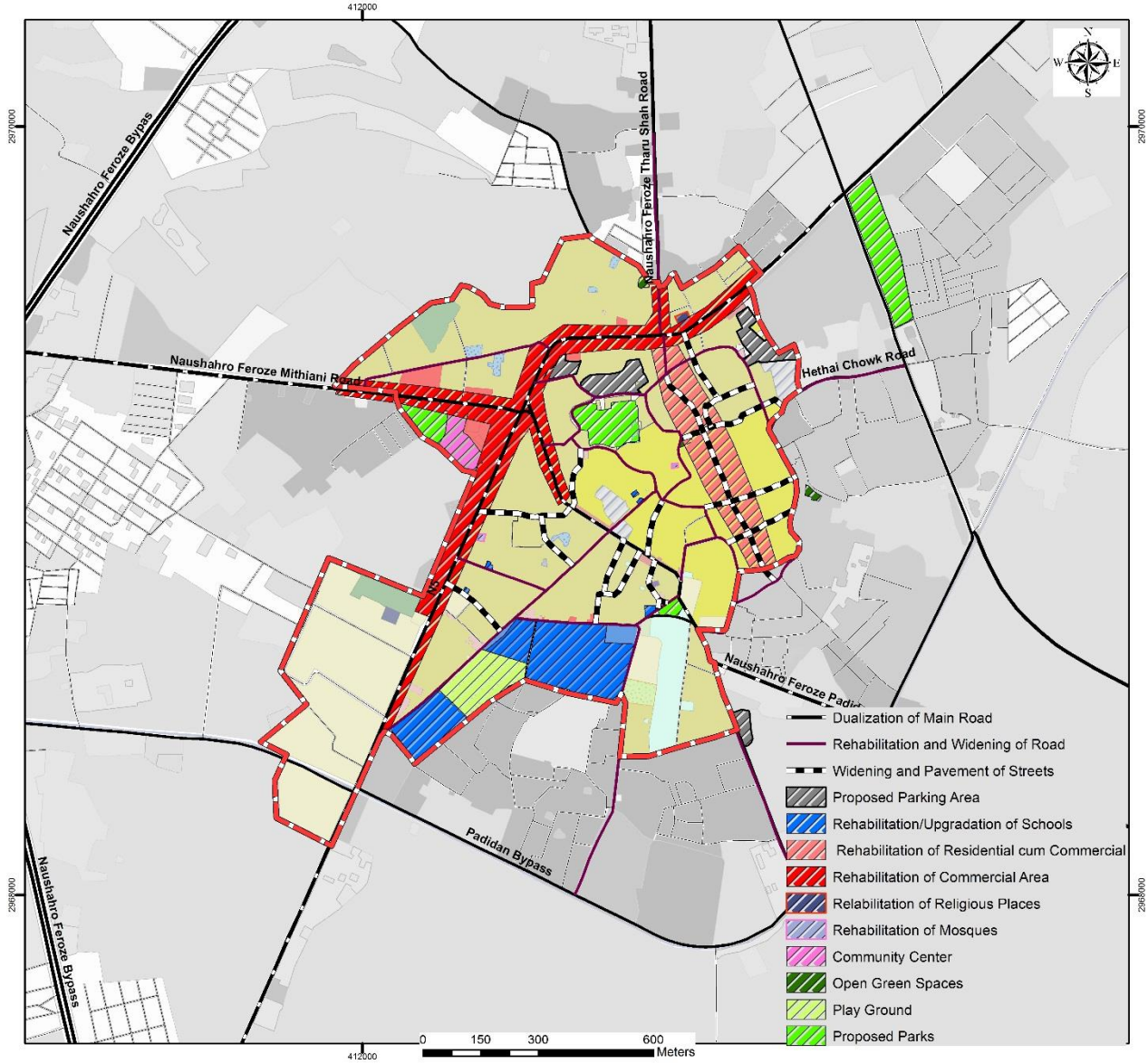
## 7. IMPLEMENTATION

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 the line department i.e. DUP&SP, Town Planning Department, Municipal Corporation, Secretariat of Commissioner and Deputy Commissioner. A committee would be formed as the “Project Management and Implementation Unit” (PMIU) to implement on the Strategic Development Plan. The “Project Management and Implementation Unit” will mainly consist of qualified town and urban planners supported by other technical staff; architects, project managers, engineers, finance officers and any other technical staff expert in their relevant fields. The “Project Management and Implementation Unit” shall supervise and coordinate respective urban developers involved in development activities, conduct monitory audits, prepare evaluation and impact reports. Planning and development department Government of Sindh shall lead “PMIU” to implement Master Plan.

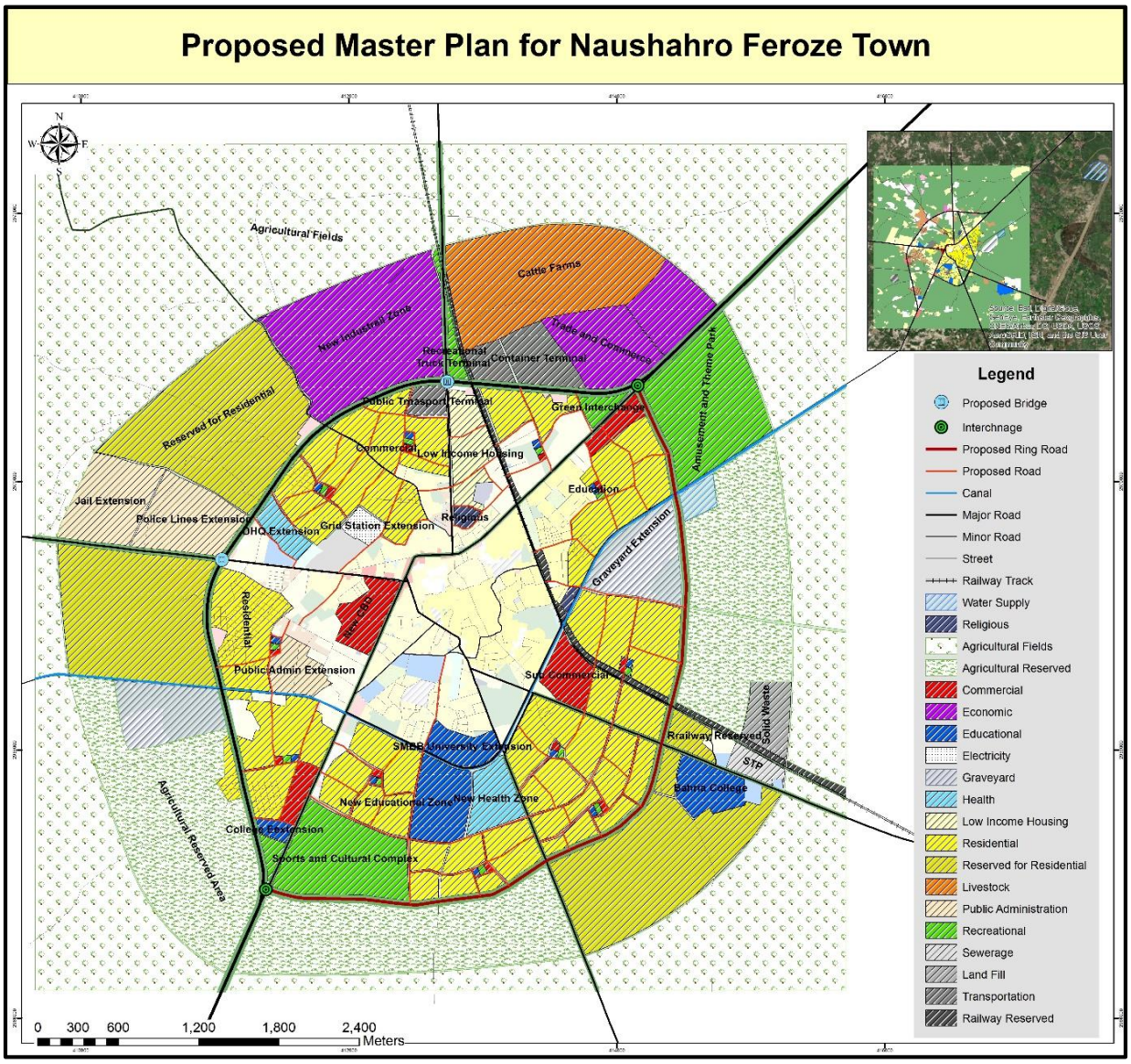
## 8. STRATEGIES FOR FUTURE DEVELOPMENT

The strategies focus on revitalization of the affordable housing, provision of basic facilities, efficient transportation and communication, energy efficient technology, active service sector, implementation of pro-active governance, 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.

## 9. IMMEDIATE ACTION PLAN



## 10. PROJECT AREA BRIEF




## 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 NAUSHAHRO FEROZE TOWN

# STRATEGIC DEVELOPMENT PLAN REPORT – NAUSHAHRO FEROZE

## 1. SINDH – AN OVERVIEW

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

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

### 1.1 Project Background

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

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

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

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

## 1.2 General Issues

Despite of its significant contribution in National GDP, Sindh has not received the priority in development funding as it deserves. DUP&SP is the medium through which grass root development / strategy is being formulated by professionals for the betterment of people and create de-centralize economical hubs to counter higher migration rate towards developed urban centres resulting better socioeconomic condition of the people. While going through the available literature so far, several issues have been identified in this regards, such as:

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

## 1.3 Objectives

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

The Consultant is tasked to prepare strategies:

- To plan for social infrastructure at affordable standards for education, health, recreation and cultural needs.
- To upgrade the existing physical infrastructure and enhance the supply of potable water and to propose the required capacity of network for water supply, sewerage, drainage, flood waters till year 2037.
- To provide for modern sanitation, solid waste management and disposal.
- To improve existing road networks, extend links, upgrade intersections, bridges and flyovers; and other means of communication and proposed where needed.
- To provide for safe and efficient public transport.
- To plan for effective traffic management, smooth transit and provide for parking facilities, where required in multi-storey car parks.

- To plan for enhancement and revitalization of economic base by expansion of industrial and commercial base, and for rapid expansion of IT and Telecom sectors, tourism, agricultural activity, etc in the means of sustainable and smart concept.
- To propose alternate energy sources as country is facing acute shortage especially in summer season.

## 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. AN OVERVIEW OF NAUSHAHRO FEROZE AND ITS ENVIRONMENT

## 2.1 History

Historically, this region has been ruled by different dynasties, including the Soomras (1024-1351), the Summas (1335-1520), the Arghuns (1520-1650), the Kalhoras (1657-1783) and the Talpurs (1783-1843). In 1783 A.D, the Kalhoras were defeated by the Talpur dynasty and Sindh was divided, for administrative purposes, into seven parts, by the Talpur Mirs. When Britain invaded the subcontinent, General Charles Napier, a commander in the British Army, defeated the Talpur dynasty and conquered Sindh in 1843. He was appointed as the first Governor General of Sindh. The province was divided into different administrative parts and assigned to Zamindars (landlords) to collect taxes for the British government.

After the independence of Pakistan, in 1947, this district remained neglected by the authorities. But the gradual process of development has changed this district significantly.

## 2.2 Topography and Geology

The soil of Naushahro Feroze is fertile and sandy with hard clay loams with negligible exception where the soil is Kalarish. Naushahro Feroze district is the part of the Indus Valley which has benefited more than any other part of Sindh from the development of irrigation under Rohri canal. The average elevation of the area is about 50 meters above sea level. Geographically, the district is in, what is termed vaguely, Vicholo or middle Sindh. Naushahro Feroze town is indeed almost the exact centre of the province of Sindh.

Indus is the only river of the district, which passes through Kandiaro, Naushahro Feroze and Moro talukas covering about 50 kilometers and having three flood protection bunds namely S.M. Bund, Munjuth Loop Bund and Bakhri Loop Bund On an average, the temperature of water is 10°C lower than that of the air.

## 2.3 Geographical Location and Area

Naushahro Feroze covered an area of 2,945 Sq. kms with an average house hold size of 5.8. This district is bounded by district Khairpur on the east, district Larkana on the north, district Dadu on the west, and district Jamshoro and Shaheed Benazirabad on the south.

## 2.4 Administrative Set-up

District Naushahro Feroze has its district headquarters in Naushahro Feroze city. This district has five talukas, named: Naushahro Feroze, Bhiria, Moro, Kandiaro and Mehrabpur. It has 51 union councils and 233 Dehs (revenue village). Out of the total Dehs, 194 are rural Dehs, 3 are urban, 15 are partly urban, 7 are forests and 3 are un-populated Dehs.

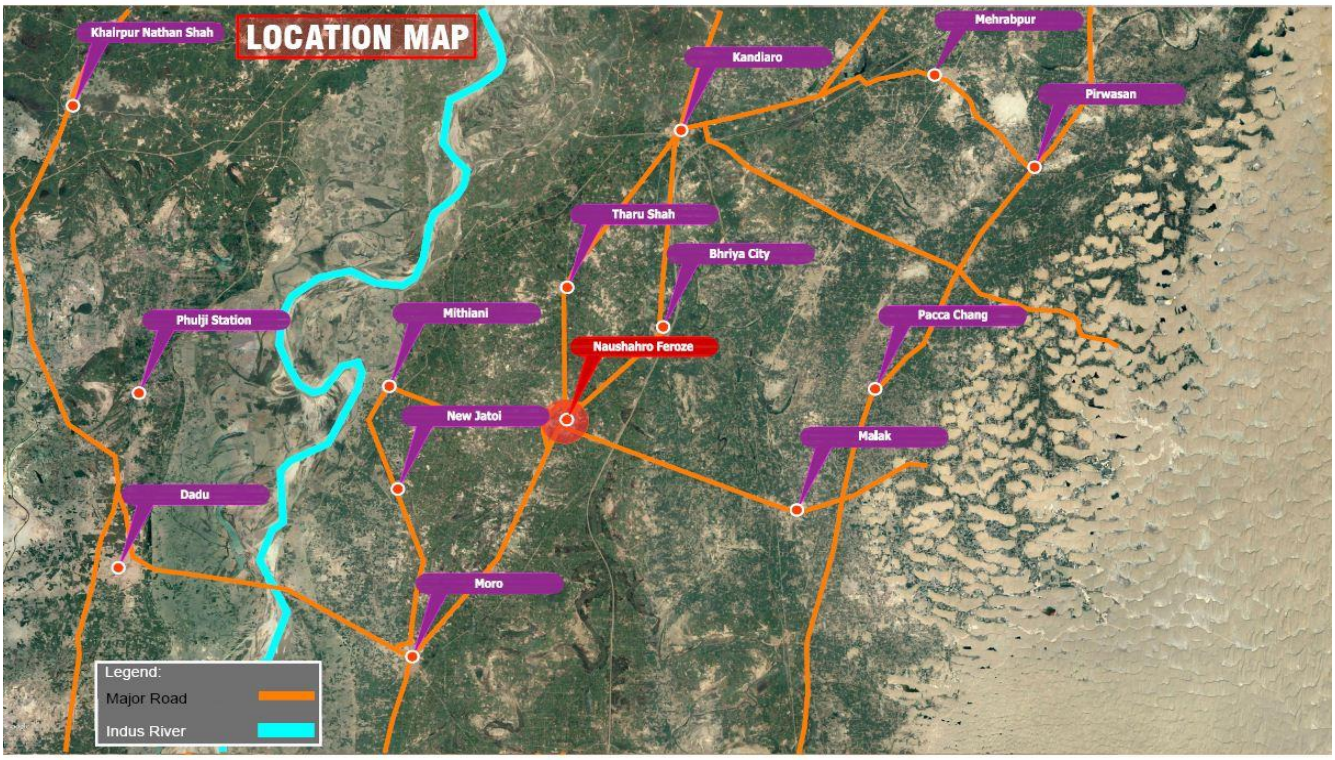



**Table 2-1: Administrative Division of District Naushahro Feroze**

| Naushahro Feroze | Krungo Circled / Supervisory Tapas | Patwar Circles / Tapas | Number of Dehs | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Total | Rural | Urban | Partly Urban | Forest | Un-Populated |
| **Naushahro Feroze District** | 14 | 97 | 233 | 194 | 2 | 27 | 7 | 3 |
| **Naushahro Feroze** | 3 | 21 | 60 | 51 | 1 | 7 | - | 1 |
| **Bhiria Taluka** | 2 | 17 | 33 | 21 | 1 | 10 | 7 | 1 |
| **Moro Taluka** | 4 | 26 | 53 | 47 | - | 2 | 3 | 1 |
| **Kandiaro Taluka** | 3 | 17 | 53 | 46 | - | 3 | 4 | - |
| **Mehrabpur Taluka** | 2 | 16 | 34 | 29 | - | 5 | - | - |

*Source: Deh Statistics of Sindh 2008, Agriculture Census Organization.*

## 2.5 Naushahro Feroze Town

### *2.5.1 History*

Historically, this region has been ruled by different dynasties, including the Soomras (1024-1351), the Summas (1335-1520), the Arghuns (1520-1650), the Kalhoras (1657-1783) and the Talpurs (1783-1843). In 1783 A.D, the Kalhoras were defeated by the Talpur dynasty and Sindh was divided, for administrative purposes, into seven parts, by the Talpur Mirs. When Britain invaded the subcontinent, General Charles Napier, a commander in the British Army, defeated the Talpur dynasty and conquered Sindh in 1843. He was appointed as the first Governor General of Sindh. The province was divided into different administrative parts and assigned to Zamindars (landlords) to collect taxes for the British government. Later on, the rulers developed these areas as urban centers. People migrated from other districts and provinces as well and started to reside here. The British Empire named these small developed areas as "Talukas". They built a network of roads, schools, dispensaries and many other civic amenities throughout the province[2]. After the independence of Pakistan, in 1947, this district remained neglected by the authorities. But the gradual process of development has changed this district significantly.

The district of Naushahro Feroze was created with effect from 5th November, 1989. District has three sub-divisions namely Naushahro Feroze, Moro and Kandiaro but four talukas i.e. Naushahro Feroze, Moro, Kandiaro and Bhirya.

Naushahro Feroze is a combination of two names. Naushahro and Feroze. Naushahro mean s city of nine villages· and Feroze is the name of its founder. It is said that in 068 A.H. 'Feroze Yeehar' the head of these nine villages made an agreement for the combination of these nine small villages under the name of Naushahro Feroze.

### *2.5.2 Geography*

Naushahro Feroze district takes its name from its district headquarter town. It is located between *26°-33' to 27°- 14'* north latitudes and *67°-49' to 68°-25'* east longitudes.

### *2.5.3 Demography*

- **Past Growth Trends**

According to 1981 census population of Naushahro Feroze town was only 8,567 souls with a growth rate of 3.41%. In 1998 population of Naushahro Feroze increased to 15,158 souls with an average household size of 7.9. Naushahro Feroze town has a slow growth which is evident in the table and graph below. Latest Population and Housing Census of Naushahro Feroze reveal that the population of the town has increased to 27,665 with annual average growth rate of 3.22%.

[2] Hyderabad- An Economic Overview,(2005), Small and Medium Enterprise Development Authority (SMEDA), Hyderabad

**Table 2-2: Present Population Figures**

| Jurisdiction | Census 1998 | Census 2017 |
|---|---|---|
| **Naushahro Feroze TC** | 15,158 | 38,181 |
| **Naushahro Feroze Taluka** | 240,326 | 372,821 |
| **Naushahro Feroze District** | 1,087,571 | 1,612,373 |

*Source: District Census 1998 and 2017*

- **Future Projections**

In 1998 Population of Naushahro Feroze TC was 15,158 and in 2017 census population of Naushahro Feroze TC jumped to 27,665. Based on the annual growth rate of 2017 census population i.e. 2.09% of District and 4.98% for Town committee of Naushahro Feroze is projected as under:

**Table 2-3 : Future Projections for Naushahro Feroze**

| Year | Population (Naushahro Feroze) | |
|---|---|---|
| | District | Town Committee |
| **1998** | 1,087,571 | 15,158 |
| **2017** | 1,612,373 | 38,181 |
| **2022** | 1,788,412 | 48,689 |
| **2027** | 1,983,671 | 62,088 |
| **2032** | 2,200,249 | 79,175 |
| **2037** | 2,440,472 | 100,965 |

***Source:*** *Consultants Estimated based on AGR of 1998-2017; Population and Housing Census of Pakistan 2017.*

## 2.6 Urban Morphology

Total built up area of the city in 2010 was approximately 3.40 sq. km (840 Acres) and reached up to 4.0 sq. km (990 acres) in 2016[3]. The city extended in two directions constantly i.e. north-east and north-west along National Highway N-5. Town's spatial growth during last 6 years spread 16% in its built up area. The city grew mainly in north-south and east-west directions. The administrative complex and offices i.e. DC office, Session Court offices etc. are situated along National Highway N-5. Town has irregular shape and non-linear / unplanned street patterns.

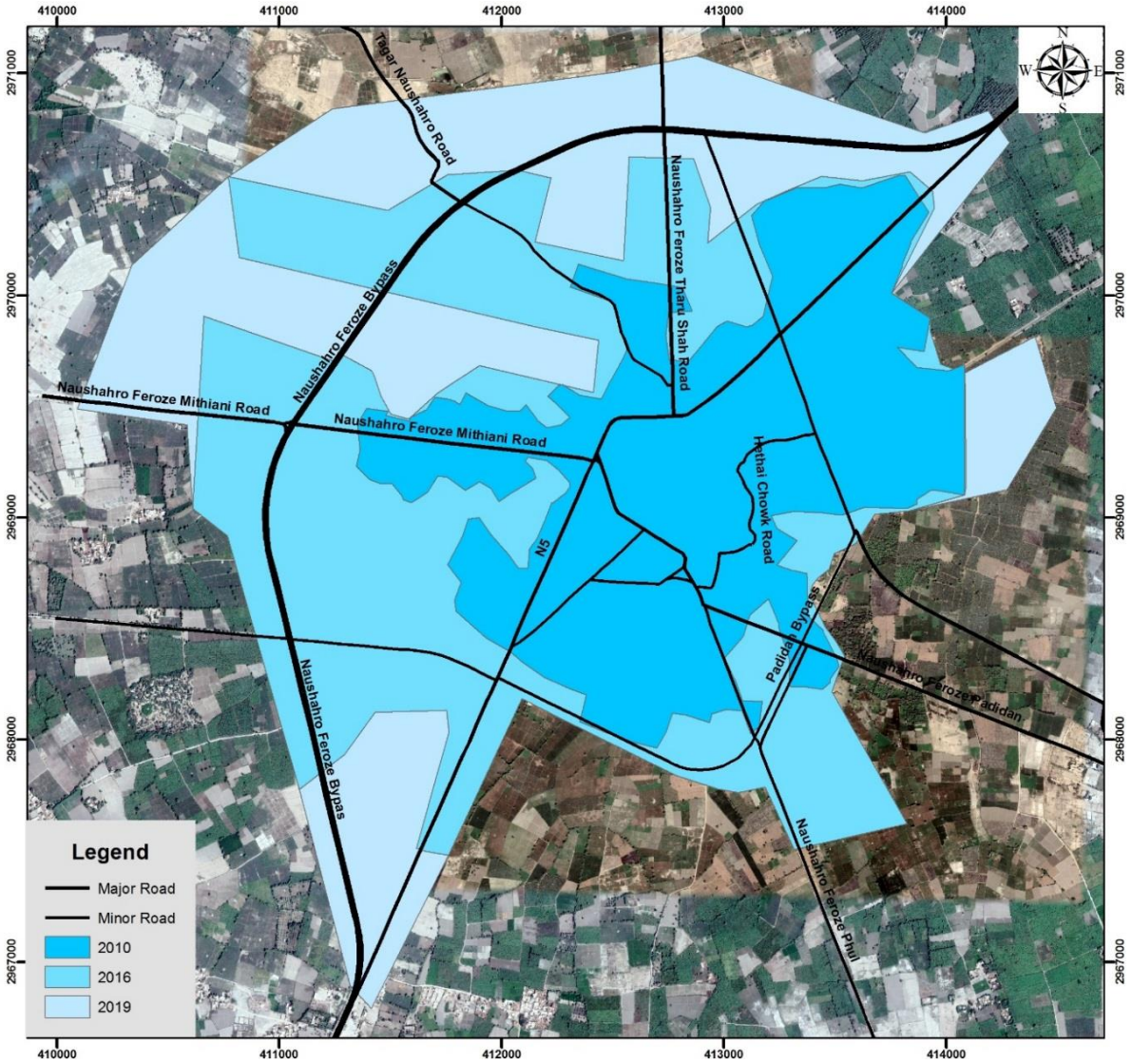



**Figure 2:1: Historical Growth of Naushahro Feroze**

[3] Google Earth

### *2.6.1 Land Use and Spatial Extension*

The built-up area of Naushahro Feroze town comprises of around 1074.4 acres of land as compare to Consultants suggested urban boundary which is 2,536.6 acres. The land use analysis indicates that almost 32.1% of total urban boundary area is in use of residential purpose only. 48.8% of the area is covered by agriculture fields.

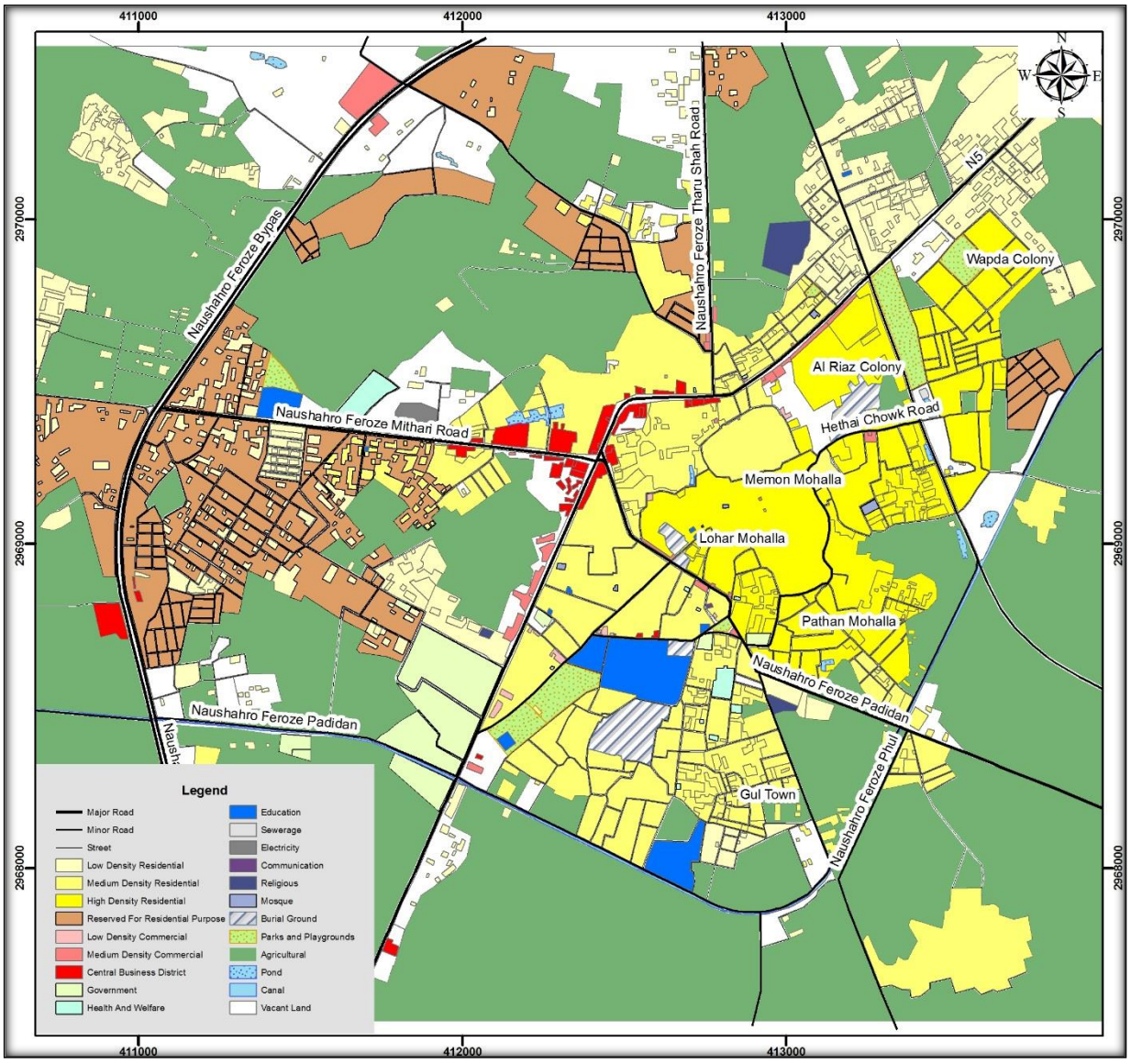



**Figure 2:2: Land use Map of Naushahro Feroze**

Source: Spatial Analysis done by Consultants

**Table 2-4 Land use Classification and Percentages**

| NAUSHAHRO FEROZE(URBAN BOUNDARY) | | | | 2536.629 |
|---|---|---|---|---|
| **CATEGORIES** | **LANDUSE CLASSIFICATION** | | | **AREA (ACRES)** |
| URBAN | Residential | Residential | Low Density Residential | 180.0 |
| | | | Medium Density Residential | 247.4 |
| | | | High Density Residential | 158.9 |
| | | | Mix Development | 15.4 |
| | | | Proposed Housing Schemes | 212.2 |
| | **Sub Total** | | | 813.9 |
| | Commercial | Commercial | Low Density Commercial | 1.2 |
| | | | Medium Density Commercial | 9.6 |
| | | | High Density Commercial | 13.4 |
| | Sub Total | | | 24.2 |
| | Parks and Playground | Parks and Playground | Parks and Playgrounds | 20.0 |
| | **Sub Total** | | | 20.0 |
| | Amenities | Institutional | Education | 21.2 |
| | | | Public Administration | 30.9 |
| | | | Health And Welfare | 5.8 |
| | | | Religious | 6.3 |
| | | Utilities And Municipal Service Facilities | Electricity | 3.0 |
| | | | Gas | 0.0 |
| | | | Sewerage | 0.2 |
| | | | Communication | 0.0 |
| | | | Water Supply | 0.0 |
| | | Burial Ground | Burial Ground | 14.0 |
| | **Sub Total** | | | 81.4 |
| | Industrial | Manufacturing | Small-Scale Manufacturing/ Light Industry | 0.0 |
| | | | Large-Scale Manufacturing/ Heavy Industry | 0.0 |
| | **Sub Total** | | | 0.0 |
| | Transportation | Transportation | Transportation | 134.9 |
| | **Sub Total** | | | 134.9 |
| | **Sub Total** | | | 1,074.4 |
| NON-URBAN | Agriculture And Forestry | | Agricultural | 1,238.6 |
| | **Sub Total** | | | 1,238.6 |
| | Water Bodies | | Canal | 6.2 |
| | | | Water Bodies | 3.8 |
| | **Sub Total** | | | 10.0 |
| | Vacant Area | | | 213.6 |
| | **Total** | | | 213.6 |
| **TOTAL** | | | | **2,536.6** |

### *2.6.2 Town Scape*

- **Zone 1:**
  Zone 1 along N-5 consist of High Density Commercial Zone with lots of communication shops (communication centres, customer care centres, and jannat mobile market), banks as well as Retail shops. It also has high density residential area .It comprises of Naushahro Feroze Police Station.

- **Zone 2:**
  Exist between N-5 and Padidan bypass road. It consist of large number of education facilities namely Shaheed Benazir Bhutto University NausherFeroze, Government Girls higher secondary school, Crescent Practical School etc., and Library

  It is also comprises of health facilities like Civil Hospital, ZA Clinic, Baloch Clinic, Sindh Clinic, Aqsa Clinic etc. There is also recreational open space available here like Mehran Public Park and Madarsah and High School Park.

- **Zone 3:**
  Future development is happening here with lot of land reserved for residential purposes. This zone is also acting as administrative hub with DCO Office, Circuit House and Sindh District Office located here.The development here is happening on grid pattern.

- **Zone 4:**
  In this zone, lot of area is agricultural green land. Some area is reserved for residential purposes. It also constitute IBA Community College and District Health Office. This is a high Density commercial along N-5.

- **Zone 5:**
  This zone has hot lots of green spaces like Children's park, WAPDA commercial cricket ground and Green Belt Park. It has low density residential area as well commercial area along the N-5 road. Shaheed Benazirabad Law College exist in this zone. Potential future development could also happen in this zone.

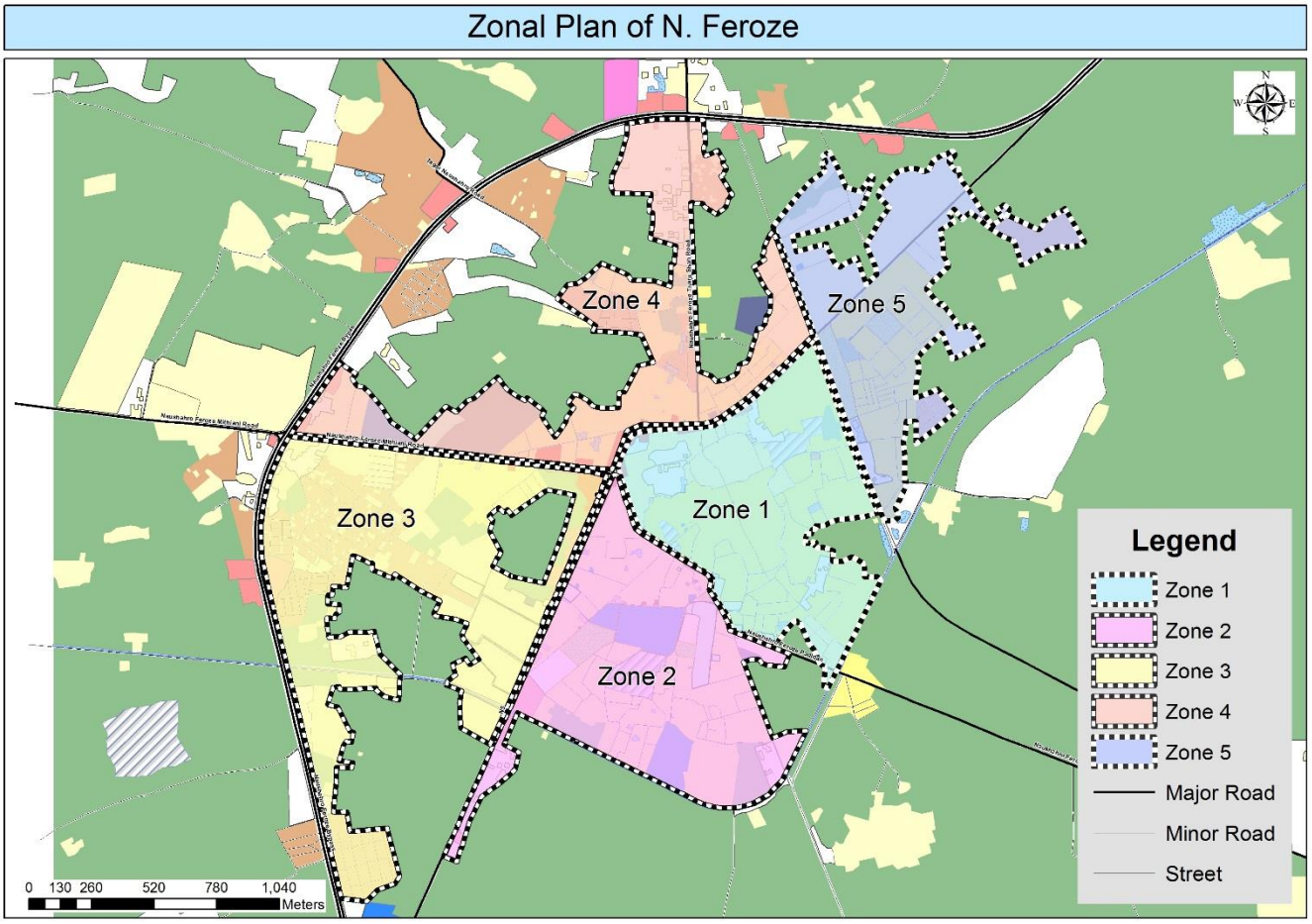



**Figure 2:3: Present Zonal Plan Naushero Feroze**

## Pictures of Various Types of Land Uses in Naushahro Feroze



***Residential area***



***Agriculture Land***



***Commercial area in Naushahro Feroze***



***District Health Complex Naushahro Feroze***



***Population Welfare Office, Naushahro Feroze***



***Bahria Foundation College***




***Govt. High School Naushahro Feroze***



***Religious building***

# 3. VISION FOR STRATEGIC DEVELOPMENT PLAN OF NAUSHAHRO FEROZE

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

## 3.1 Summation of Vision Formulation

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




The summations and conclusions are described hereunder:

1) Although the participants generally understood that vision should reflect citizens and stakeholders' aspirations as to where they want to see their town in twenty years from now. However, their focus has been 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 Naushahro Feroze Strategic Development Plan. Whereas the Vision will

remain static, the path to reach the vision may be subject to adjustments to account for ground realities.

## 3.2 Naushahro Feroze's Vision Statement

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

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

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

**NAUSHERO FEROZE VISION 2037**

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

# 4. PROPOSED MASTER PLAN OF NAUSHAHRO FEROZE TOWN

## 4.1 Spatial Pattern

Naushahro Feroze is the headquarter town of the district. Naushahro Feroze is a combination of two names; Naushahro and Feroze. Naushahro means city of nine villages and Feroze is the name of its founder, who made an agreement to combine these nine small villages under the name of Naushahro Feroze.

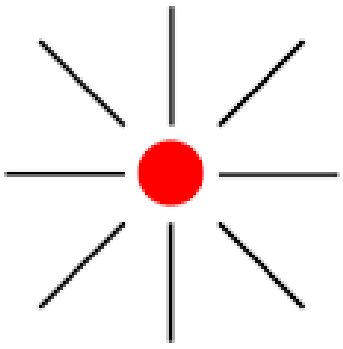
Indus River is passing from the district, through Kandiaro, Naushahro Feroze and Moro Talukas covering about 50 kilometers and having three flood protection bunds namely S.M. Bund, Munjuth Loop Bund and Bakhri Loop Bund. The soil of Naushahro Feroze is fertile and sandy with hard clay loams, as benefited with irrigation under Rohri canal and an average elevation is about 50 meters above sea level. Almost whole of the district is suitable for the production of crops, mainly cultivated crops are wheat, sugarcane and cotton. In livestock, good breed of buffalo, cow, goats and poultry are found in the district.

The Railway line from Karachi to Lahore also runs through the district touching Padidan, Bhirya Road and Mehrabpur talukas. National Highway N-5 connecting Karachi and Peshawar passing through the town. Thus, all talukas are connected with the district headquarter either by road or by rail.

The town of Naushahro Feroze is indeed almost the exact center of the province of Sindh, also termed vaguely, Vicholo or middle Sindh. In last decade, the city extended mainly in northwestern direction constantly along National Highway N-5. As the administrative complex and offices i.e. DC office, Session Court offices etc. are situated along National Highway N-5. At present the pressure of new development is crossing the Bypass on western side of the town. Therefore, as result the Town attained an irregular shape and non-linear / unplanned road patterns.

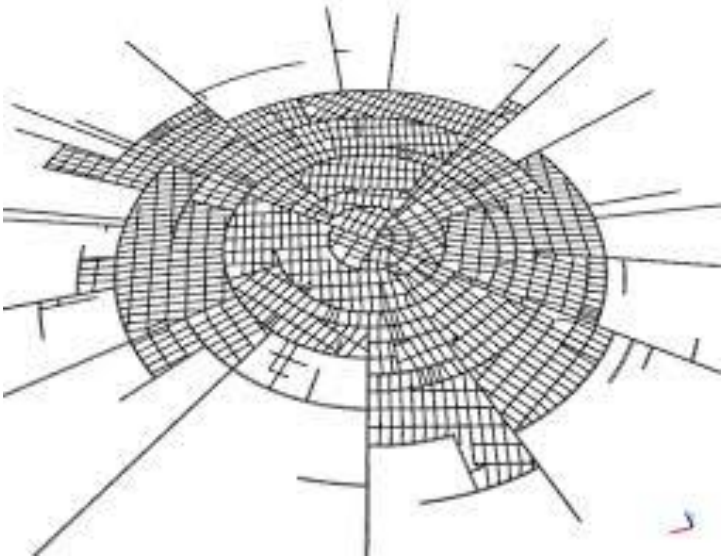
## 4.2 Basic Urban Form

The existing town is a small lively and thriving urban center that fulfils the socio-economic and financial needs of its population and that of surrounding towns. Specially those are not along major national road network are benefited with N-5; like Mithiani, Tharu Shah, Padidan and Phull.



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 future town, and the future development will radiate from it in all directions in form of different sectors. At present four major roads and N-5 connects Naushahro Feroze with the other cities, all converging on the town center. Interconnection of these radiating roads with the proposed Ring Road around the existing town, will keeps the development compact.



Since this town is not large enough neither in terms of its spatial spread nor its projected future population, thus the efforts are made to keep it compact by providing eastern bypass, which will in combination with existing western bypass formed a Ring Road.

## 4.3 Proposed Master Plan

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

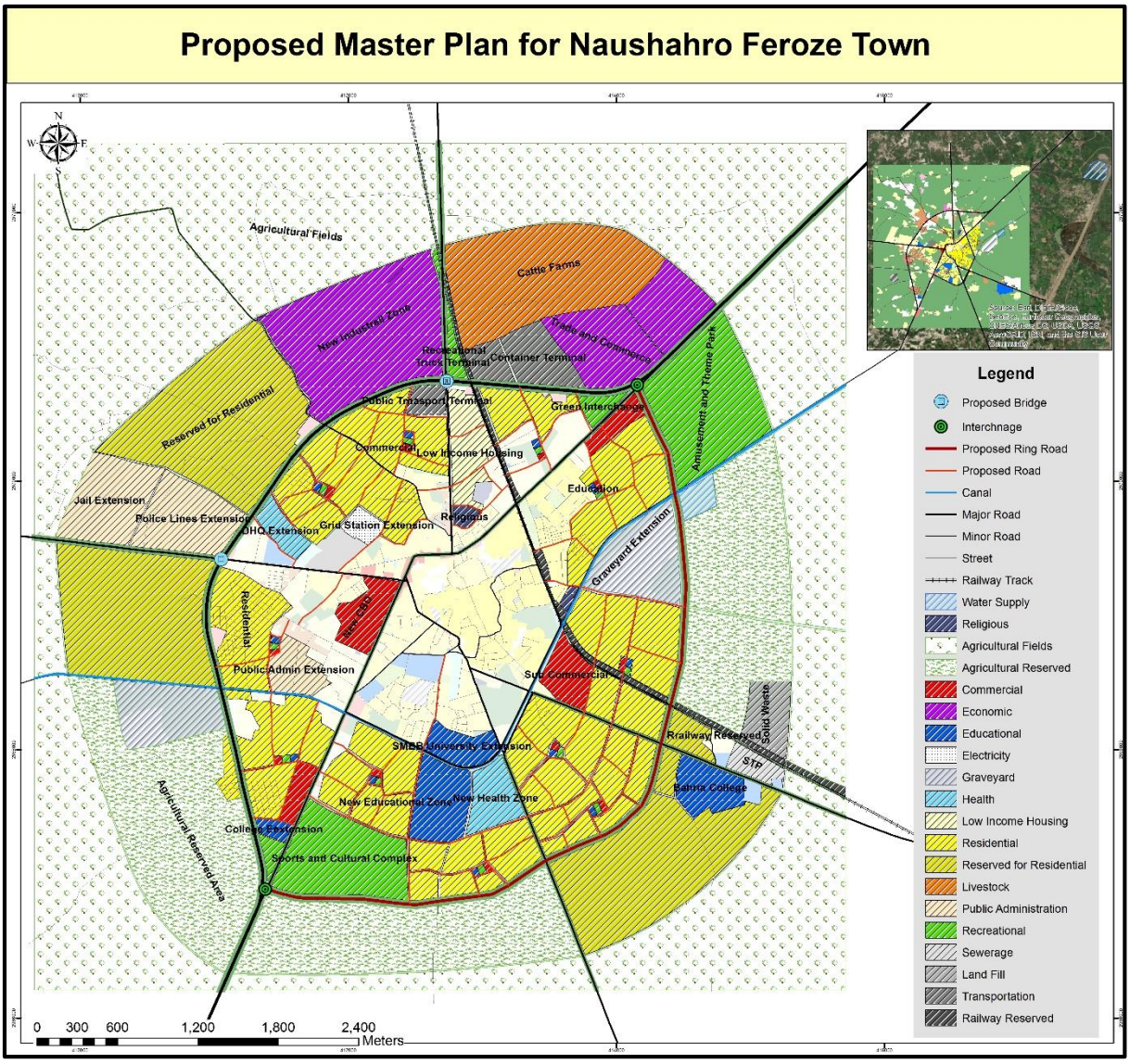
i. Immediate Phase - Immediate Action Plan
ii. Short Term Phase - Priority Projects
iii. Long Term Phase – Strategic Development Plan

The total extent of the area included in the overall proposed Naushahro Feroze Master Plan is 6,800 acres approx. for a population of 101,000 by 2037. In this way, Naushahro Feroze Town in next twenty years is expected to have population density of 15 persons per acre and overall six housing units per acre with an average household size of 6.2.

The hallmark of the plan is that it is **compact without being congested**. Although future expansion of the Naushahro Feroze Town is expected to grow at an average speed, however considering the present up hazard pattern of development in mono direction, the Proposed Naushahro Feroze Master Plan is catering for all the needs of a full-fledged city of the future. Thus the plan will afford balanced development containing all required land uses and will not burden one sector of the town.

The overall structure of the plan is in radial form that the existing major roads, serving as radial roads and proposed ring road is making circle all around. Further the intersection of radial roads and ring road creates main junctions and forming different sectors.

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



### *4.3.1 Salient Features of Planning*

- As the city span is not much bigger, so the extension is made near existing commercial hub, to formally call it a New CBD (Central Business District). It is located at intersection of N-5 and Mithiani Road, which is almost center of attraction from all sides.
- Since not enough piece of land is available for central commercial activities, secondly to distribute the burden of commercial activities, three sub commercial centers also proposed. Their placements are chosen due to accessibility from major roads and to serve the population without entering the town center.
- All economic activities are placed along existing western bypass towards north with respect to existing industrial activities. These activities includes industrial estate, trade and commerce and warehouses.
- The three types of transport terminals are proposed along existing western bypass in northern direction. Out of which public transport terminal is placed at the intersection of bypass and Tharu Shah Road. Other two terminals are placed next to each other on the outer side of existing western bypass, specially for trucks and containers transports.
- There is a graveyard on eastern side which is proposed to further extend. And another site for graveyard is proposed on western side of the town.
- The cattle area is proposed in the north accessible from Tharu Shah Road, to limit the town development further and it will also benefit the population of nearby villages and other settlements.
- The extension of public administration area is proposed just adjacent to the existing setup of administrative units, along Padidan Bypass. Likewise, extension of District Police and District Jail are also suggested next to respective existing facilities.
- Both new educational and health areas are recommended along Padidan Bypass and Pull Road. In addition extension of DHQ Hospital at Mithiani Road and Shaheed Benazir Bhutto University at Padidan Bypass are also proposed.
- In addition two major recreational areas are designated at both north and south ends of the town along N-5, in order to balanced distribution.
- The areas reserved for agriculture beyond the ring road will be helpful in restricting housing development and preserving the agricultural farms from the onslaught of housing projects by private sector.

### *4.3.2 Ring Road – Connecting Existing and Proposed Bypasses*

The half of the ring road is already existing in terms of western bypass, further eastern bypass is proposed to give it a complete shape. Thus the proposed ring road is formed by connecting two crescents (western and eastern bypass) via proposed Moro and Bhiria Interchanges, and N-5 is passing from the center to divide the city in two half circles. 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 existing and proposed bypass to form a ring road

with same cross section and standards. As the areas on both sides of the Ring Road will attract many developers. The land two hundred feet on both sides of the ring road should be notified for development control where only planting of local trees should be allowed.

### *4.3.3 Radial Roads – Regional Connectivity*

All proposed radial roads are existing major roads, providing transport connectivity with other urban and rural regional areas. Most of these roads are converging to core urban area, or in other words these roads are originating from the existing town. In this way, the existing town will remain focal point of all development along the roads. However, these roads are also serving as vital radial regional connections. As a result, there are six proposed radial roads with increased ROW, which will serve as future regional connections. These includes; N-5 towards Moro, N-5 towards Bhiria, Mithiani, Tharu Shah, Padidan and Phull Roads. However it is very important to control upfront development along the Major Roads. Likewise, ring road on both sides of major roads as well as planting of local trees is also recommended.

## 4.4 Proposed Land Use Zoning

The proposed land use zoning is broadly based on NRM Standards[4]. 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 Naushahro Feroze as DHQ Town, secondary zoning i.e. Level-2, is also categorized accordingly, again in consideration to the NRM Standards[5]. The proposed land use zoning is shown in the table:

[4] 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

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

| S.No | NRM STANDARDS | | PROPOSED LAND USE CLASSIFICATION | |
|---|---|---|---|---|
| | Land Use Zoning | Land Uses (%) | Level - 1 Functional Zoning | Land Uses (%) |
| 1 | Residential | 40-45% | Residential | 41.1% |
| 2 | Commercial | 2-3% | Commercial | 2.0% |
| 3 | Industrial | 2-10% | Economic | 9.7% |
| | | | Livestock | |
| | | | Industrial | |
| 4 | Institutional | 3-5% | Health and Welfare | 7.1% |
| | | | Educational | |
| | | | Religious | |
| | | | Public Administration | |
| 5 | Community Open Spaces | 4-6% | Recreational | 5.3% |
| 6 | Graveyards | 2-3% | Graveyards | 2.6% |
| 7 | Arterial Circulation & Terminals | 15-20% | Transportation | 11.1% |
| | | | Utilities and Services | |
| 8 | Protected Reserved | 15-25% | Urban Forestation | 21.1% |
| | | | Agriculture | |
| | | | Water Bodies | |
| | | | Vacant / Reserved | |

The total area requirement for full fledge metropolis will be around 6,800 acres. As shown in the table of proposed land use classification, the percentage of residential is 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.

| S.No | PROPOSED LAND USE CLASSIFICATION FOR NAUSHAHRO FEROZE TOWN | | | | | | |
|---|---|---|---|---|---|---|---|
| | Level - 1 Functional Zoning | Level - 2 Functional Zoning | Areas (acres approx.) | | Land Uses (%) | Areas (acres approx.) | Land Uses (%) |
| 1 | Residential | Existing Residential | 814 | 2,783 | 41.1% | 2,783 | 41.1% |
| | | Proposed Residential | 1,148 | | | | |
| | | Reserved for Residential | 821 | | | | |
| 2 | Commercial | Existing Commercial | 24 | 136 | 2.0% | 136 | 2.0% |
| | | New Central Business District | 38 | | | | |
| | | Sub-Commercial near Moro Interchange | 15 | | | | |
| | | Sub-Commercial near Bhiria Interchange | 17 | | | | |
| | | Sub-Commercial at Padidan Bypass | 33 | | | | |
| | | Commercials | 9 | | | | |
| 3 | Economic | Trade and Commerce | 88 | 148 | 2.2% | 657 | 9.7% |
| | | Technical Services | 60 | | | | |
| 4 | Livestock | Cattle Farms | 250 | 250 | 3.7% | | |
| 5 | Industrial | New Industrial Area | 259 | 259 | 3.8% | | |
| 6 | Health and Welfare | Existing Health and Welfare | 6 | 65 | 1.0% | 478 | 7.1% |
| | | Extension of DHQ | 20 | | | | |
| | | New Health Zone | 38 | | | | |
| 7 | Educational | Existing Educational | 21 | 164 | 2.4% | | |
| | | College with extension | 8 | | | | |
| | | Bahria Foundation College | 40 | | | | |
| | | SMBB University with extension | 29 | | | | |
| | | New Educational Zone | 57 | | | | |
| | | Schools | 8 | | | | |
| 8 | Religious | Existing Religious | 6 | 15 | 0.2% | | |
| | | Religious 1 | 6 | | | | |
| | | Religious 2 | 3 | | | | |
| 9 | Public Administration | Existing Public Administration | 31 | 235 | 3.5% | | |
| | | Extension of Public Administration | 33 | | | | |
| | | District Police Lines with extension | 83 | | | | |
| | | District Prision / Jail with extension | 87 | | | | |
| 10 | Recreational | Existing Parks and Playground | 20 | 357 | 5.3% | 357 | 5.3% |
| | | Sports and Cultural Complex | 125 | | | | |
| | | Amusement and Theme Parks | 174 | | | | |
| | | Green at Moro Interchange | 8 | | | | |
| | | Green at Bhiria Interchange | 11 | | | | |
| | | Green at Thuru Shah Road | 11 | | | | |
| | | Parks and Playgrounds | 8 | | | | |
| 11 | Graveyards | Existing Graveyards | 14 | 179 | 2.6% | 179 | 2.6% |
| | | Graveyard at Padidan Bypass | 86 | | | | |
| | | Graveyard at Bypass | 79 | | | | |
| 12 | Transportation | Existing Transportation | 135 | 633 | 9.4% | 751 | 11.1% |
| | | Public Transport Terminal | 15 | | | | |
| | | Truck Terminal | 20 | | | | |
| | | Containers Terminal | 46 | | | | |
| | | Railway Reserved Land | 36 | | | | |
| | | Road Network | 381 | | | | |
| 13 | Utilities and Services | Existing Utilities and Services | 3 | 118 | 1.8% | | |
| | | Water Supply | 45 | | | | |
| | | Sewerage | 18 | | | | |
| | | Land Fill | 40 | | | | |
| | | Electricity | 13 | | | | |
| 14 | Urban Forestation | Urban Forestation | 329 | 329 | 4.9% | 1,427 | 21.1% |
| 15 | Agriculture | Agricultiral Fields | 1,088 | 1,088 | 16.1% | | |
| 16 | Water Bodies | Canals and Ponds | 10 | 10 | 0.1% | | |
| 17 | Vacant | Vacant Area | | - | 0.0% | | |
| | Total Area for Future Development of Naushahro Feroze | | 6,768 | 6,768 | 100% | 6,768 | 100% |

### *4.4.1 Residential Zone*

The important features of the proposed master plan is accommodation of all income groups with diverse options for housing. Therefore in total 2,800 acres of residential land use is proposed, which will create six housing units per acre on average. Thus in overall town more than 17,000 housing units are expected to be in town by 2037.

There are existing vacant land parcels in overall town, specially in the northwest and northeast 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) 60 acre of land is proposed along Tharu Shah Road for medium to high density development; while for other income groups, mixed density (low, medium and high) residential areas are proposed. Moving ahead, for the long term phase, areas are also being reserved for residential development as per future requirement, which might 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:

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

**Table 4-1 : New Residential Scheme [6]**

| 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 |

- **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.

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

The following guidelines are for houses zone development:

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

**Table 4-2: Houses - Applicable SBCA Bylaws[7]**

| 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**

  Since new migrants are expected from other urban areas as well, thus there is a need to fulfill the modern residential need like apartments. On the other hand, apartments are more effective in accommodating large number of households in less acres of land due to increased density in comparison to houses.

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

  The following guidelines are for apartment zone development:

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

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

**Table 4-3 : Apartments - Applicable SBCA Bylaws[8]**

| Types | Densities[9] 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) |

### *4.4.2 Commercial Zone*

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

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

- **New CBD (Commercial Business District)**
  The New CBD has been located as an extension of present commercial center, in the heart of the city, at an intersection of Mithiani Road and N-5. 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,

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

communications and other infrastructures, favorable economic development, environment friendly places; which are convenient for commercial activities.

Considering the potential of tourism and to meet the demand of facilities related to tourism; the New CBD could also accommodate the convention center, expo center, hotels, shopping malls, etc.

- **Sub Commercial**

  In addition three sub commercial centers are also proposed at Moro Interchange, Bhira Interchange and Padidan Bypass. Further small commercial in the residential areas are also located for retail commercial activities of everyday goods required to fulfill the daily need of the residents.

The following guidelines are for commercial zone development:

| Permitted Uses | Allied Permissible Uses |
|---|---|
| - Corporate head office buildings, towers<br>- Huge markets, malls, outlets<br>- Large public squares and parks<br>- Dedicated parking lots / spaces | - Pedestrian friendly streetscape<br>- Mixed-used buildings<br>- Medium to High Rise Apartments<br>- Fueling stations |
| **Applicable SBCA Bylaws[10][11]** | **Prohibited Uses** |
| - Plot Sizes: 1,000 sq.yds. (min)<br>- FP: 40% - 65%<br>- FAR: 1:2.75 – 1:5.5<br>- Floors: G+6 & G+8 (max) | - Residential housing schemes<br>- Large health and educational institution |

### *4.4.3 Economic Zone*

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

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

- **Trade and Commerce**

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

In northeast of the town at Bhiria Interchange along N-5, trade and commerce area is positioned next to truck and containers terminals. This will provide in and out trading activities of the region specially to other areas of the district. It will includes grains, fruit and vegetable markets, wholesale markets, slaughter house, storage areas etc. For all of these trading activities large to small scale warehouses will be required, comprises of general, bulk, liquid, dry and cold storage as well. These should be well equipped with all the required technology of good storage and management like CCTV surveillance, in and out data entry.

- **Technical Services**

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

The following guidelines are for economic zone development:

| Permitted Uses | Allied Permissible Uses |
|---|---|
| - Warehouses and Workshops<br>- Godowns and Cold Storage<br>- Trade and Commerce Areas<br>- Showrooms or Display Centers | - Mixed-used buildings<br>- Residences for workers<br>- Fueling stations |
| **Applicable SBCA Bylaws[12]** | **Prohibited Uses** |
| - Plot Sizes:<br>  o Small size: upto 0.5 acres<br>  o Medium size: 0.5 to 5 acres<br>  o Large size: 5 acres or above<br>- FP: 60% - 70%<br>- FAR: 1:2.5 - 1:1.5<br>- Floors: G+1 & G+2 (max) | - Private Residential housing schemes<br>- Large health and educational institution |

### *4.4.4 Livestock Zone*

Since Naushahro Feroze is not only an agricultural town, local inhabitants rely on livestock such as cattle, buffaloes, goats and poultry for another source of income. In this regard livestock zone is placed in extreme north along Tharu Shah Road, to promote livestock production.

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

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

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

- **Dairy Production**[13]
  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 cattle, poultry, ostrich, camel etc. with pasture and grazing lands around the farms.

The following guidelines are for livestock zone development:

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

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

### *4.4.5 Industrial Zone*

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

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

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

**Table 4-4 : New Industrial Estate [14]**

| S. No. | Land Use | SBCA Standards |
|---|---|---|
| 1 | Industrial | 70% max |
| 2 | Commercial | 1% max |
| 3 | Parks / Playground | 3% min |
| 4 | Public Uses | 6% min |
| 5 | Roads | 20% min |
| 6 | Residential | 8% min |

No roads shall be less than 40 feet in small industries.
No roads shall be less than 50 feet in medium and large industries.
Industrial plot of 5 acres or more, residential area for labour and staff is allowed at rear.

- **New Industrial Area**

  The proposed industrial area is on the left side of Tharu Shah Road and outer side of the Ring Road to develop for small, medium and large 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.

  Mainly the small industries will include ice factories, packaging of fruits and vegetables, feeder crops, cottage industries of handicrafts, souvenirs etc. While medium to large scale industries will include flour mills, sugar mills, cotton ginning factories and rice husking mills. Since wheat, cotton, rice and sugarcane are cultivated on large scale in this district, thus it is recommended to emphasis industrial production of these agricultural products.

  The following guidelines are for industrial zone development:

| Permitted Uses | Allied Permissible Uses |
|---|---|
| - Small, Medium and Large Scale Industries<br>- Processing Units<br>- Manufacturing Activities<br>- Warehouses or Godowns<br>- Workshops | - Showrooms<br>- Mixed-used buildings<br>- Residences for workers<br>- Fueling stations |

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

| Applicable SBCA Bylaws[15] | Prohibited Uses |
|---|---|
| - Plot Sizes:<br>  ○ Small size: upto 0.5 acres<br>  ○ Medium size: 0.5 to 5 acres<br>  ○ Large size: 5 acres or above<br>- FP: 60% - 70%<br>- FAR: 1:2.5 - 1:1.5<br>- Floors: G+1 & G+2 (max) | - Private Residential housing schemes<br>- Large health and educational institution |

### *4.4.6 Health and Welfare Zone*

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

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

- **Extension of District Health Complex**
  The District Health Complex is located at Mithiani Road, thus its extension is proposed next to it, just behind IBA College. In this area it is suggested to have medical and nursing colleges as well. Since it will become tertiary level center for health facilities, thus staff residence, hostels, community and allied facilities will also be accommodated here. It could also include; Rehabilitation Centers, Special children, Edhi Homes (orphanage / old age / women) etc.

- **New Health and Welfare Area**
  The new health and welfare area is marked at intersection of Padidan Bypass and Pull Road, 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.

[15] 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 |
|---|---|
| - Large Hospitals<br>- Specialized treatment centers<br>- Medical College<br>- Dental College<br>- Pharmaceutical College<br>- Nursing College<br>- Laboratories and Diagnostic Centers<br>- Blood Banks<br>- Health Research Institutes | - Staff Residences (medical and paramedic)<br>- Separate Hostels for Boys and Girls<br>- Auditoriums, seminar halls, workshop spaces<br>- Community facilities (parks, playgrounds, schools, clinic, neighborhood commercial)<br>- Support facilities (gym, health club, bus stops, taxi stand, banks, fueling stations) |
| **Applicable SBCA Bylaws[16]** | **Prohibited Uses** |
| - Plot Sizes: 1.0 acre or above<br>- FP: 50%<br>- FAR: 1:1.5<br>- Floors: G+2 (max) | - Private residential housing schemes<br>- Large commercial activities |

### *4.4.7 Educational Zone*

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

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

- **Extension of Technical College**
  At present Mono Technical College is present near Moro Interchange at N-5, it is suggested to upgrade this to polytechnic college. In this way, multiple disciplines will be available for the youth to fulfill technical requirements in different fields.

- **Bahria Foundation College**
  A campus of Bahria Foundation College is also available in southeast of the town at Padidan Road. It comprises of large land parcel and sufficient area is vacant for its future development. Although it is a private entity, however it could cater the demand for future educational needs.

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

- **SMBB University Extension**
  Shaheed Benazir Bhutto University is established in south of the town at Padidan Bypass. Its further extension is proposed to multiply its fields of study and increase its student intake capacity. For this more buildings, teaching and non-teaching staff, residences and other related facilities will be required.

- **New Educational Area**
  The educational area opposite to SMBBU is mainly proposed for the public sector large scale 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.

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

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

It will also include; more poly technical college for boys and girls, women development center (working women hostels, day care centers), certified computer and IT training centers, research centers, etc.

The vocational training center are also suggested to be placed in this zone to cater need of under privileged youth for better skills and technical knowledge. This will provide space for skill development centers, technical education for the local and surrounding population to accommodate in the current job market.

As the society is moving towards global dynamics, diversified fields of education will be prerequisite. It could include upcoming need of the job market like; engineering, business, management, finance, media, IT and software, etc.

The specific area for Future Universities is reserved along Padidan Bypass. The purpose behind is to involve regional level youth in the education and research, in order to enhance the educational attainment level.

The following guidelines are for educational zone development:

| Permitted Uses | Allied Permissible Uses |
|---|---|
| - Large scale educational areas<br>- General Education Universities<br>- Scientific Research Institutes<br>- Engineering colleges / universities<br>- Business and management schools<br>- Finance and accountancy Institutes<br>- IT and media Institutes<br>- City level libraries, book banks, data and information centers | - Staff Residences (teaching and non-teaching)<br>- Separate Hostels for Boys and Girls<br>- Auditoriums, seminar halls, workshop spaces<br>- Community facilities (parks, playgrounds, clinics, schools, neighborhood commercial)<br>- Support facilities (gym, health club, bus stops, taxi stand, banks, fueling stations) |
| **Applicable SBCA Bylaws[17]** | **Prohibited Uses** |
| - Plot Sizes: 1.0 acre or above<br>- FP: 50%<br>- FAR: 1:1.5<br>- Floors: G+2 (max) | - Private residential housing schemes<br>- Large commercial activities |

### *4.4.8 Religious Zone*

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

[17] Ibid

The following guidelines are for religious zone development:

| Permitted Uses | Allied Permissible Uses |
|---|---|
| - Religious buildings like mosques, imam barghahs, mandir, churches, etc.<br>- Religious teaching areas<br>- Religious preaching grounds<br>- Orphanage | - Residences for religious leaders<br>- Accommodation for religious scholars, students<br>- Small parks, playgrounds, clinics, commercial<br>- Support facilities (bus stops, taxi stand, banks, fueling stations) |
| **Applicable SBCA Bylaws[18][19]** | **Prohibited Uses** |
| - Plot Sizes: 1.0 acre or above<br>- FP: 50%<br>- FAR: 1:1.5<br>- Floors: G+2 (max) | - Private residential housing schemes<br>- Large commercial activities |

### *4.4.9 Public Administration Zone*

The exiting offices of Public Administration are mostly along N-5, almost in the center of the town. Further District Jail and Police Lines are already exist after Western Bypass along Mithiani Road. Considering future requirements, the extension of public administration areas are marked behind the respective areas.

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

- **Extension of 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 Naushahro Feroze 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 is proposed 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.

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

- **Extension of Police Lines**
  The area adjacent and behind the existing Police Lines are recommended to add in same use. 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.

- **Extension of District Jail**
  Likewise Police Lines, extension of District Jail is also proposed by adding adjacent land. 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 |
|---|---|
| - District Secretariat,<br>- Development Authority<br>- Town Committee Complex<br>- Line Departments<br>- Local Government Offices<br>- Town Planning Department<br>- Judiciary Complex<br>- Circuit House | - Employees Residences (for all grades)<br>- Auditoriums, seminar halls, workshop spaces<br>- Community facilities (parks, playgrounds, clinics, schools, neighborhood commercial)<br>- Support facilities (gym, health club, bus stops, taxi stand, banks, fueling stations) |
| **Applicable SBCA Bylaws[20]** | **Prohibited Uses** |
| - Plot Sizes: 1.0 acre or above<br>- FP: 50%<br>- FAR: 1:1.5<br>- Floors: G+2 (max) | - Private residential housing schemes<br>- Large commercial activities |

### *4.4.10 Recreational Zone*

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

[20] Ibid

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

- **Sports and Cultural Complex**
  At Moro Interchange along N-5, Sports and Cultural Complex is proposed. It will include cricket, football, hockey and other ground, cultural center and gymnasium. A large park could also be accommodated in the heart of the proposed complex. This will be a general public park, however its sub portions could be reserved for families (ladies and children). Thus it will also contain area for swings, sitting, walking, jogging with allied facilities of washrooms, tuck shops, parking etc.

  Naushahro Feroze 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 Naushahro Feroze region as well.

- **Amusement, Theme Parks and Festival Grounds**
  The recreational area specifically for amusement and theme parks is designated in northeast of the town at Bhiria Interchange along N-5. In this area large scale amusement facilities like thrilling rides in a safe and pleasant manner will be provided. Moreover theme parks like art park, ice park, floral garden, glow garden etc. could also be introduced as per the demand of the region.

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

The following guidelines are for recreational zone development:

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

### *4.4.11 Graveyards Zone*

At present there is a very large graveyard along Padidan Bypass, which have sufficient space available for near future need, thus its extension is proposed. However, for long term the area along Western Bypass is another proposed graveyard, it is already a small existing graveyard, designated for long term phase considering accessibility.

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<br>- Accommodation for caretaker | - Other than permitted and permissible |

### *4.4.12 Transportation Zone*

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 provision of airport in Naushahro Feroze is not seems viable, as Nawabshah and Sukkur Airports are fulfilling the required demand. However, revival of railway is recommended for public as well as goods transport for trading activities in the region.

In Naushahro Feroze Town, the transportation area is a combination of radial roads and ring road, with terminals and intersections. Moro and Bhiria Interchanges are proposed at the intersection of western, eastern and N-5. While at Mithiani and Tharu Shah Roads overhead bridges are recommended.

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 eastern bypasses in connection to existing western bypass, it completes the proposed Ring Road. And the existing roads becomes major connecting corridors for the Naushahro Feroze Town through widening and beatification.

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

**Table 4-5 Proposed Road Network**

| S. No. | Major Roads | ROW (ft) | Forestation (ft) |
|---|---|---|---|
| i. | Ring Road | 200 | 200 |
| ii. | N-5 towards Moro | 150 | 100 |
| iii. | N-5 towards Bhiria | 150 | 100 |
| iv. | Mithiani Road | 150 | 100 |
| v. | Tharu Shah Road | 150 | 100 |
| vi. | Padidan Road | 100 | 50 |
| vii. | Pull Road | 100 | 50 |
| ROW – property to property distance<br>Forestation on both side of ROW | | | |

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

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

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

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

- **Truck Terminal**
  A separate truck terminal at outer side on the Ring Road, in north part of the town, adjacent to containers terminal. Since from this point all industrial and economic activities are connected, it found more appropriate location for heavy traffic and goods transport. This proposed terminal will help in transporting goods from / into the town, which will benefit and boost the economic activities of the town.

- **Containers Terminal**
  Likewise truck terminal, containers terminal is placed next to it. This will mainly comprises 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.

- **Public Transport Terminal**
  At Tharu Shah Road and inner side of the Ring Road, public transport terminal is placed in order to provide better and nearby multi intermodal transport connectivity. Since major regional communication of general public is expected via Ring Road; as most of residential, educational and health related traffic will be generated.

This 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 other staff.

- **Railway Reserved Area**
  The railway line coming from Padidan side and going towards Tharu Shah, is now almost abandoned and encroached. Consequently, the available vacant land parcels have been marked as Railway Reserved Area, in order to avoid further violation of railway ROW. Further it is recommended to revitalize the railway service for better cost effective connectivity for the town's economy.

The following guidelines are for transport zone development:

| Permitted Uses | Allied Permissible Uses |
|---|---|
| - All types of parking areas<br>- Designated ROW<br>- Green belts<br>- Footpaths<br>- Traffic management devices | - Drivers and staff accommodation<br>- Support offices, rest areas, washrooms, shops etc.<br>- Street furniture like lights, trash bins, benches etc. |
| **Applicable SBCA Bylaws[21]** | **Prohibited Uses** |
| - No direct access to major roads will be allowed except through service road<br>- No structure or part of a structure may project beyond building line | - Any kind of encroachment |

### *4.4.13 Utilities and Services Zone*

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

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

- **Water Supply**
  Although the main water supply source is near Bhiria, from where Rohri Canal is passing. However, water supply area is suggested along Ring Road opposite to existing graveyard; to build the water reservoirs as per the town's water demand and related water supply infrastructure. This will also cater to water supply filtration plant and other advance purification mechanism.

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

- **Sewage Treatment Plant**
  An area along Padidan Road is designated for STP and its related uses. This site is low in elevation level, which will helpful to relay mainly on gravity flow. From very first it is not necessary to setup a fully mechanized STP, but it is suggested to start with oxidation ponds then proceed toward advance management of waste water.

- **Landfill Site**
  A landfill site is proposed outside the main town area, in extreme east considering wind direction, which is from southwest to northeast. This landfill site is accessible from Padidan Road via local road. As the whole town will grow according to the master plan it will serve the population for next 20 years or even beyond.
- **Grid Station**
  Grid station in Naushahro Feroze Town is existing along Mithiani Road. Its extension is also proposed behind to it. The extended facility will benefit the residents as per the need of the future consumption of the town.

The following guidelines are for utilities and services zone development:

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

### *4.4.14 Urban Forestation Zone*

Urban forestation along Ring Road 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 Ring Road after urban forestation reserved areas.

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

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

The following guidelines are for urban forestation zone development:

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

### *4.4.15 **Agricultural Zone***

In order to limit the town development agricultural reserved areas are proposed. In this manner not only town spatial growth will be confined but also essence of agriculture activities will remain close to the town. It will also create a healthy environment and less burden will be on spread of infrastructure network. The existing villages or settlements in the periphery of the town will also be benefited and not removed from their place of livelihood.

The 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.<br>- Accommodation for farmers and labor in associations with MC. |

### *4.4.16 **Water Bodies***

The branch of Rohri Canal is passing from the east of the Naushahro Feroze Town. 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.<br>- Temporary accommodation for labor and security persons. |

### *4.4.17 **Vacant Zone***

The objective of providing vacant area with in the town limit is to cater the emergency need at time of any disaster. With this respect a huge land parcel is kept reserved for emergency need, which could be utilized for portable homes, mobile health care facilities, camping for vulnerable of calamities, temporary storage of bulk material etc. The proposed vacant area is within the Naushahro Feroze Town but being on the peripheral area, would not disturb the town activities in general and it is directly accessible N-5.

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

The following guidelines are for vacant zone development:

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

# 5. HOUSING

## 5.1 Existing Situation

Adequate housing is fundamental to improve living standards among poor and low-income households because it is one of the major components of the social infrastructure, the lack of which begins to offset the positive effects of economic development. Without adequate shelter, families are condemned to poverty, poor health, low educational attainment, vulnerable to natural disasters and the chaos of civil conflict. Lack of safe, affordable, decent housing is a major contributor to poverty and affects all aspects of a family and community's life.

Based on 1993-98 estimates 134,648 housing units are required annually in urban Sindh. Only about 25% of the needs are met in the formal housing sector[22].

| ADMINISTRATION UNIT | Past Census 1998 | | | | Current Census 2017 | | | |
|---|---|---|---|---|---|---|---|---|
| | Population | AGR | No. of HH | HH Size | Population | AGR | No. of HH | HH Size |
| Naushahro Feroze TC | 15,158 | 3.41% | 1,919 | 7.9 | 38,181 | 4.98% | 6,205 | 6.2 |
| Naushahro Feroze Taluka | 240,326 | 1.98% | 41,436 | 5.8 | 372,821 | 2.34% | 63,464 | 5.9 |
| Naushahro Feroze District | 1,087,571 | 1.61% | 211,354 | 5.8 | 1,612,373 | 2.09% | 275,693 | 5.8 |

General housing condition of the surveyed houses was satisfactory. Sample survey of the town reveals conducted by Consultants that approx. 39% of the houses were constructed in between 6 to 10 years. 59% of the houses were below 120sq. with an average of 6 to 7 members in each household.

With this average number of family members, 29% 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 65% of the houses have drained (flush system) in their houses while 35% of the houses have un-drained toilets which requires manual cleaning.

Only 22% of the houses have piped supply (House Connection) while 67% of the houses use ground water by manual hand pumps. Conditions of drains are also alarming, 85% of the drains are open and only 2% of the households have covered drains and 13% of them has semi covered drains.

[22] http://siteresources.worldbank.org/PAKISTANEXTN/Resources/293051-1114424648263/Session-VII-GhulamKhero.pdf

Major reasons for this housing backlog are lack of resources, inadequate planning, and wrong land development policies that favour elite at the cost of poorer sections of the society.
In urban areas the problem manifests as unstoppable growth of squatter settlements known as katchi abadis and encroachment of state and private land. It is estimated that 50% of urban population now lives in katchi abadis and slums[23].

### *5.1.1 Katchi Abadis in Shaheed Benazirabad Division*

As per Katchi Abadi's officials In Shaheed Benazirabad division there were 144 katchi abadis, including 60 in Sanghar, **31 in Naushahro Feroze** and 53 in Benazirabad / Nawabshah. Only 90 abadis were notified, 60 others were under the process while 54 had not been taken up for notification.

## 5.2 Issues

The following are the major issues in the housing sector:

- Low Supply of Public Housing.
- High prices of houses in private sector.
- The informal housing sector lacks provision of utility services like gas supply, clean water and drainage facilities.
- The households below poverty line have remained neglected, in all housing policies.
- Poor land administration with inadequate legal and regulatory systems.
- Unchecked growth of squatter settlements: Katchi Abadis encroachment on state and vacant land is a direct outcome of the housing shortage.
- Legal documentation procedures for property transactions is very tough and costly.
- Real estate investors and builders is another reason for boosting land prices.

## 5.3 SWOT Analysis

| HOUSING | | | |
|---|---|---|---|
| **Strengths** | **Weakness** | **Opportunity** | **Threats** |
| 1. 89% of the population lives in self-owned houses<br>2. More than half of the urban area population has pacca houses<br>3. The trend of new housing schemes construction by private | 1. Low supply of public housing.<br>2. High prices of houses in private sector<br>3. The informal housing sector lacks provision of utility services like | 1. Demand for low income housing<br>2. Demand for public housing projects<br>3. Opportunity for local micro financing for housing. | 1. Homelessness<br>2. High housing prices and rents<br>3. Development of informal housing in empty/vacant spaces available within town. |

[23] http://www.sindh.gov.pk/dpt/phc/policy.html

| HOUSING | | | |
|---|---|---|---|
| **Strengths** | **Weakness** | **Opportunity** | **Threats** |
| development is increasing<br>4. Most of the formal population is served by electric, gas and water supply<br>5. The trend of rental housing is low just 9% of the population lives in rental housing | gas supply, clean water and drainage facilities | 4. Installation of basic utility services through new projects | 4. Increase in urban sprawl.<br>5. Inflation of land.<br>6. Shortage of open spaces in urban areas<br>7. Formation of urban slums |

## 5.4 Need Assessment

**Table 5-1: Projected Housing Need 2037 (Naushahro Feroze TC)**

| Housing | Population | No. of HH |
|---|---|---|
| Total need (2037) | 100,965 | 16,408 |
| Present | 38,181 | 6,205 |
| Additional | (Projected POP - Present Pop) 62,784 | (Projected HH - Present HH) 10,203 |

On basis of projected Population for year 2037 the number of households have been estimated around 100,965 out of which additional Housing Requirement will be 7,436.

## 5.5 Policy Guidelines

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

i. ***Policy Measures for Land***[24]

- 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

[24] National Housing Policy 2001

- 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.
- 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.
- Pat of the sale proceeds of available public land shall be set onside to subsidize low income housing and housing for the poor and needy.

***ii. Policy Measures for Housing Finance[25]***

- Housing finance institutions shall be encouraged to promote savings and provide micro loans for low income group through community organization, NGOs and CBOs.
- Subsidized loaning facilities shall be extended for rural housing construction and improvements through micro-financing system and institutions like Khushhali Bank, Zakat funds, etc.

iii. ***Policy Measures for Katchi Abadis, Squatter Settlements & Slums***[26]

- 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
- 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.
- 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.

## 5.6 Strategic Development Plan

The aim of this Strategic development Plan is to facilitate all for the provision of housing; especially to poor and deprived population in the town. In this regard following strategies need to be focused.

- Provision of trunk infrastructure shall be the responsibility of utility agencies
- The Provincial Government and development agencies shall ensure that any approvals for implementation are only given after assessment of both technical and environment adequacy of the infrastructure planned in the area.

[25] Ibid
[26] Ibid

- Public and private housing development schemes, within planned areas, shall only be undertaken/ approved when the availability of trunk infrastructure is ensured for such development.
- Fully serviced plots become unaffordable for poor as the cost of services raises the initial cost of the plot. (i) Water + (ii) transportation + (iii) sanitation + (iv) electricity+ (v) natural gas is the most common sequence of service needs of the urban poor. By using appropriate technologies, modes of construction and eliminating contractor at the lane cluster level infrastructure, the cost can be greatly reduced.
- To limit the cost of property land at a specific limit so that it may come under the affordable limits of people.

**i. Long Term Plan**

- 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.
- 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.

**ii. Short Term Plan**

- Incremental housing schemes on the lines of Orangi, Qasba, Khuda Ki Basti etc. should be initiated based on lessons of experience.
- 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.
- Regularize notified Katchi Abadis complemented by policies to restrain the emergence of new Katchi Abadis.
- Concepts of small towns should be worked out to minimize the housing requirement in secondary cities.
- Increase in proportion of small size plots could be made for low income groups in all new housing schemes.
- Legal and regulatory framework to be followed in order to facilitate the housing development for all income group.
- 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
- Improvement / provision of basic utilities and community facilities for the residential areas

## 5.7 Priority Projects

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

➢ **Project Scope & Justification**

| Description | Results |
|---|---|
| Present Population | 38,181 |
| 09% population of Naushahro Feroze is living in rental houses with no houses ownership | 3,526 |
| Households Required @ 6.2 | 569 |

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

According to the primary survey conducted in Naushahro Feroze town, the status of ownership of houses is like 89% family owned, 2% rent free and 9% on rent. The category of rental indicates housing gap.

The private sector is usually very active in the development of land and construction of house but the issue is with the affordability for low income groups. The public sector will need to facilitate the private sector.

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 will improve the living standard of the town

The housing scheme will be as per 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 –** P & D Government of Sindh, Naushahro Feroze TC, HESCO
- **Estimated Cost: Rs.1200.00 Million Approx.**

| Project Name | Short Term | Proposed Area in Acres | Preliminary Cost in Million/- PKR) | Justification |
|---|---|---|---|---|
| Land Development for low income housing scheme | Short Term | 60 acres | 1200.00 | 569 housing units size upto 120 SY @ rate of 18,00/- sft. For this we have assumed 20.0 million per acre cost covers land development & land acquisition for 60.0 Acres. |

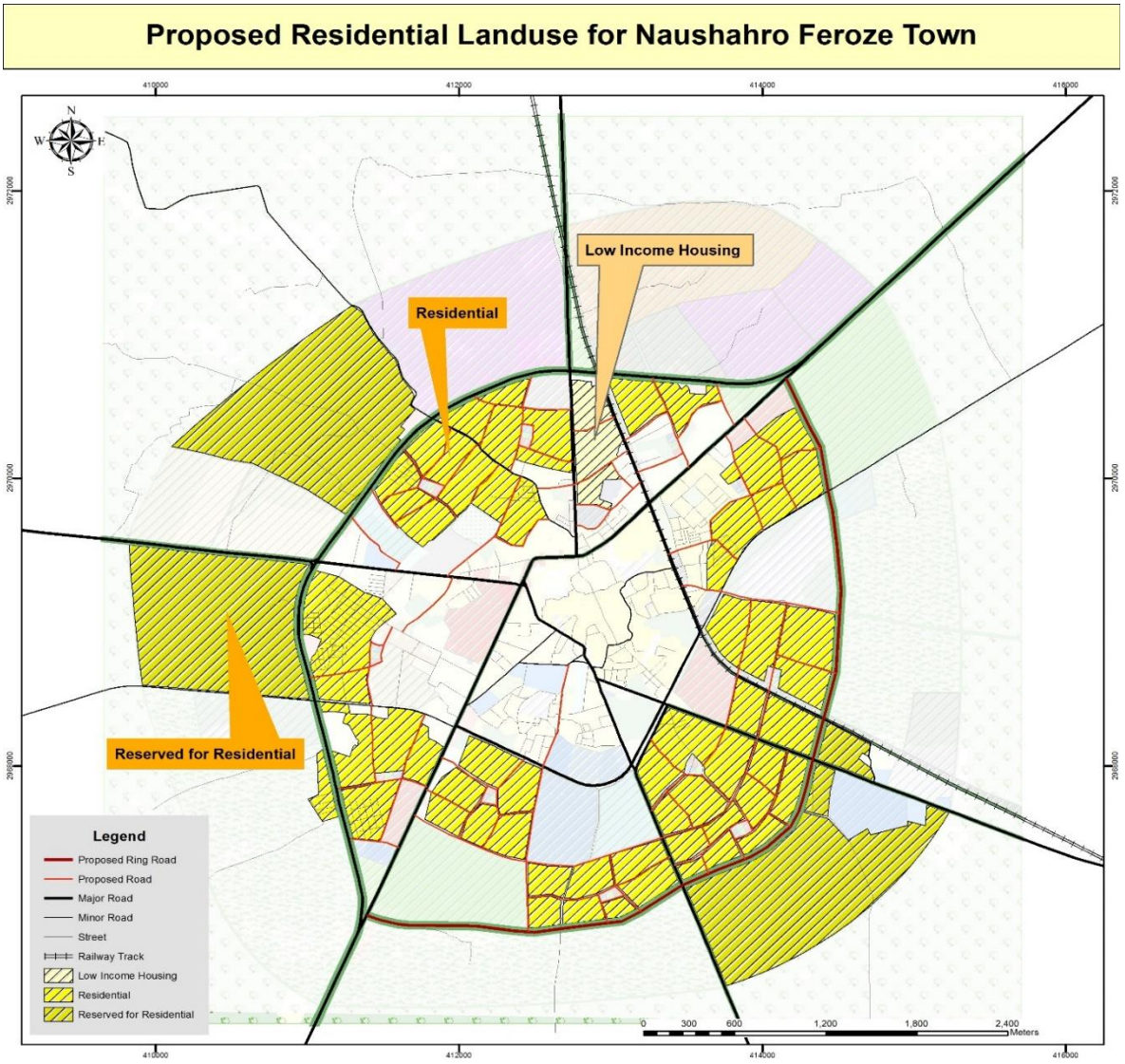



**Figure 5:1: Proposed Area for Future Housing**

# 6. SOCIAL INFRASTRUCTURE

## 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.

In district Naushahro Feroze, there are 2,105 primary schools out of which 1,920 are for male student and 185 are for female students. The enrolments is 163,179 (male 96,009 and female 67,170) with Teaching Staff available is 5,164 out of which 4,059 are male and 1,105 are Female. There are 157 Middle Schools in district Naushahro Feroze out of which 120 are for male and 37 for female, with enrolment of 21,778 (male 13,204 and female 8,574) having Teaching Staff of about 960 out of which 691 are male and 269 are female. The number of Secondary Schools in Naushahro Feroze are 52 in number out of which 42 are for male and 10 are for female students, with a total enrolment of 35,252 (male 23,623 and female 11,629), targeted by 1,319 teachers (male 974 and female 345)**.** There are 20 Higher Secondary Schools in district Naushahro Feroze out of which 14 are male and 6 are female, with enrolment of 26,194 (male 17,393 and female 8,801) having Teaching Staff of about 649 out of which 448 are male and 201 are female.

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 **Naushahro Feroze Taluka**:

| Table 6-1 Present Educational Institutions, Teachers and Enrolment Record at Naushero Feroze Taluka level | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Primary ,Middle and Elementary Schools** | | | | | | | |
| **S. No** | **Type** | **Numbers** | **Class Rooms** | **Enrolments** | **Teachers** | **Students per class Room** | **Teacher Student Ratio** |
| **1** | Primary School | 469 | 862 | 34708 | 1121 | 40 | 1:31 |
| **2** | Middle School | 25 | 128 | 3889 | 162 | 30 | 1:24 |
| **3** | Elementary School | 16 | 66 | 2868 | 80 | 43 | 1:36 |
| | **Total / Average** | **510** | **1056** | **41465** | **1363** | **39** | **1:30** |
| **Source: District Education Department Naushero Feroze** | | | | | | | |

| Table 6-2: Present Educational Institutions, Teachers and Enrolment Record at Taluka Naushero Feroze | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Secondary and Higher Secondary Schools** | | | | | | | |
| **S. No** | **Type** | **Numbers** | **Classrooms** | **Enrolments** | **Teachers** | **Students per classroom** | **Teacher Student Ratio** |
| **1** | Secondary Schools | 14 | 126 | 6892 | 266 | 55 | 1:26 |
| **2** | Higher Secondary Schools | 4 | 45 | 3621 | 92 | 80 | 1:39 |
| | **Total / Average** | **18** | **171** | **10513** | **358** | **61** | **1:29** |
| **Source: District Education Department Naushero Feroze** | | | | | | | |

| Table 5-3 Present Educational Institutions, Teachers and Enrolment Record at Taluka Naushahro Feroze Colleges and University | | | | | | | |
|---|---|---|---|---|---|---|---|
| **S. No.** | **Type** | **Numbers** | **Classrooms** | **Enrolments** | **Teachers** | **Students per classroom** | **Teacher Student Ratio** |
| 1 | College (Boys) | 1 | 16 | 1138 | 40 | 71 | 1:28 |
| 2 | College (Girls) | 1 | 9 | 69 | 23 | 8 | 1:03 |
| 3 | College(Co-Education) | 2 | 42 | 700 | 60 | 17 | 1:12 |
| 4 | Shaheed Benazir Bhutto University | 1 | 6 | 151 | 8 | 25 | 1:19 |
| | **Total / Average** | **5** | **73** | **2058** | **131** | **16** | **1:28** |
| Source: District Education Department Naushahro Feroze | | | | | | | |

### *6.1.2 Issues*

Major issues of education sector:

- Shortage of class rooms as per current enrolment
- Low enrolment level
- 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 | | | |
|---|---|---|---|
| **STRENGTHS** | **WEAKNESS** | **OPPORTUNITY** | **THREATS** |
| 1. Urban literacy rate is higher than rural<br>2. High demand rate for private schooling education system.<br>3. 61% of urban population is literate | 1. Illiteracy in rural areas at district level<br>2. Unavailability of universities beside Sindh university Campus<br>3. Less highly educated personnel's | 1. More people will move to urban areas for education<br>2. More educational institutions are required<br>3. More PPP is required for educational sector | 1. Relocation of educated class to other major towns of province.<br>2. Migration of technical professionals to other areas of country |

### *6.1.4 Need Assessment*

| Table 5-5 : Present Need of Classrooms in Naushahro Feroze | | |
|---|---|---|
| **S. No.** | **Description** | **Results** |
| **In Schools of Naushahro Feroze(Primary, Middle and Elementary)** | | |
| 1 | Total present enrolments | 41,465 |
| 2 | Classrooms available at present | 1,056 |
| 3 | Students per classroom at present | 39 |
| 4 | Classrooms required for present need @ 30 students per classroom | 1,382.17 |
| 5 | Present shortage of classrooms | 326 |
| Source: District Education Department Naushahro Feroze and Consultant's estimates | | |

| Table 5-6:Present Need of Classrooms in Naushahro Feroze | | |
|---|---|---|
| **S. No** | **Description** | **Results** |
| **In Schools of Naushahro Feroze(Secondary and Higher Secondary)** | | |
| 1 | Total present enrolments | 9,868 |
| 2 | Classrooms available at present | 163 |
| 3 | Students per classroom at present | 61 |
| 4 | Classrooms required for present need @ 30 students per classroom | 328.93 |
| 5 | Present shortage of classrooms | 166 |
| Source: *District Education Department Naushahro Feroze and Consultant's estimates* | | |

| Table 5-7 Present Need of Classrooms in Naushahro Feroze | | |
|---|---|---|
| **S. No.** | **Description** | **Results** |
| **Naushahro Feroze (Colleges and University)** | | |
| 1 | Total present enrolments | 2,058 |
| 2 | Classrooms available at present | 73 |
| 3 | Students per classroom at present | 16 |
| 4 | Classrooms required for present need @ 30 students per classroom | 68.60 |
| 5 | Present shortage of classrooms | (4) |
| Source: District Education Department Naushahro Feroze and Consultant's estimates | | |

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 3528 additional classrooms for schools and 1,069 in high school and colleges, 2216 In Colleges and Universities 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 5-8: Future Requirement of Classrooms in Naushahro Feroze Taluka | | |
|---|---|---|
| **S. No.** | **Description** | **Results** |
| **In Schools of Naushahro Feroze** | | |
| 1 | Expected total enrolment by 2037 @ 100% enrolment | 147,304 |
| 2 | Total classrooms requirement in 2037 | 4,910 |
| 3 | Additional classrooms requirement in 2037 | 3,528 |
| **In Secondary schools and higher schools of Naushahro Feroze Taluka** | | |
| 1 | Expected total enrolment by 2037 @ 100% enrolment | 55,929 |
| 2 | Total classrooms requirement in 2037 | 1,398 |
| 3 | Additional classrooms requirement in 2037 | 1069 |
| **In Colleges and University of Naushahro Feroze Taluka Level** | | |
| 1 | Expected total enrolment by 2037 @ 100% enrolment | 91,383 |
| 2 | Total classrooms requirement in 2037 | 2,285 |
| 3 | Additional classrooms requirement in 2037 | 2,216 |
| Source: *Consultant's estimates based on population projection on 2017 census and 1998 census age pyramid* | | |

### *6.1.5 Policy Guidelines*[27]

- Development of Teachers and professional substitutes
- Encourage young women and girls through opportunities and facilities for participation in sports; develop women development centers.
- Construct required schools and higher education institutions in all districts. Take stock of operational and staffed schools and eliminate ghost schools.
- Ghost Schools and absentee teacher should be identified and removed.
- Maintenance of existing depilated schools and buildings should be given top priority.

### *6.1.6 Strategic Development*

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

[27] Sindh Vision 2030

needs of youth in rural and remote areas. This will increased the literacy ratio, living standard, employment opportunities of the future population.

**i. Long Term Plan**

- Sustainable construction of new schools and colleges with all facilities available to cater additional future enrolment.
- Cater to the high demand rate for private schooling education system.
- To bring universal education ratio there is need to bauble the efforts by engaging teachers, increasing capacity of schools, operationalization of existing closed school and opening of new schools.
- 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.
- Strengthening governance and service delivery by improving the functioning capacity from the school community level up to district and province level.
- 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.

**ii. Short Term Plan**

- Most school buildings are in dilapidated conditions and without Toilets, drinking water, furniture etc. While it is important to construct new schools in Time, sufficient funds should be provided for rehabilitation of dilapidated school buildings.
- A large number of school going age children are currently out of school. The provincial government should device incentives to attract out of school children in schools such as free Lunch and drinks and some gifts.
- In far off remote rural areas, some educated local persons (female of male) should identified to new home schools with some encouragement from the Government including salary, books, stationary etc.
- Ghost schools and absentee staff should be brought to the mainstream in collaboration with the private sector.

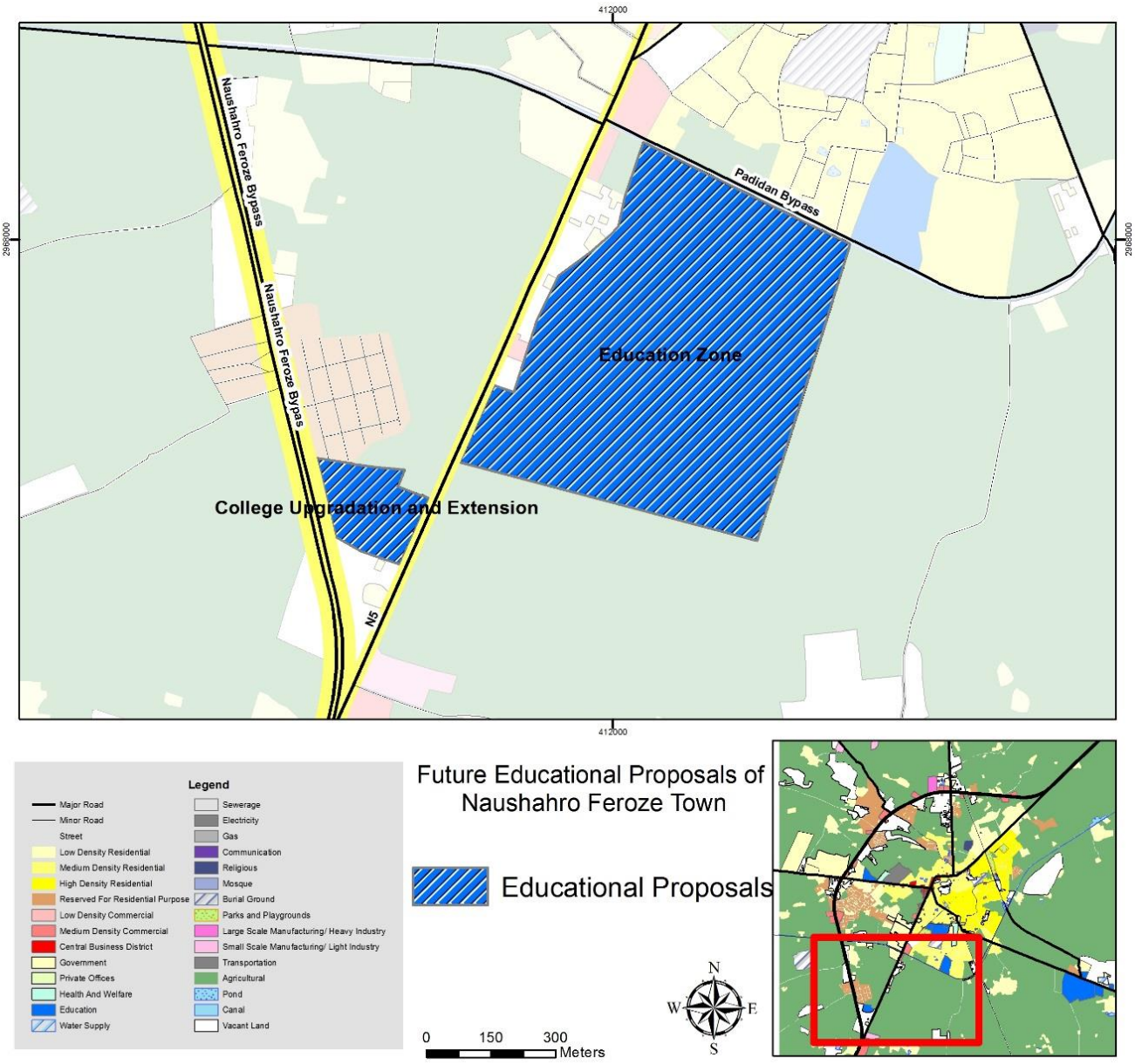



***Figure 6:1 : Educational Proposals of Naushahro Feroze Town***

### *6.1.7 Priority Projects*

**i. Repair & Rehabilitation of schools with allied infrastructure (Excluding IAP projects)**

- **Project Scope & Justification**

Education should be the one of major goal of any urban strategy. The sitution of education sector in Naushahro Feroze is not at the preferred level. Importance must be placed on girls schools because it was badly disregarded. At present, the condition of exisiting schools in DHQ town needs rehabilation and improvement of the infrastructure and Allied basic facilities like water, electricity, toilet, playgrounds etc. The List of the schools and colleges in this project are given bellow:

| Name | Area | Category |
|---|---|---|
| Degree College Naushahro Feroze | 8.68 | College |
| Mono Technical College Naushahro Feroze | 4.51 | College |
| National Trust Special Education Complex | 2.42 | School |
| Government Girls Degree College | 5.29 | College |

- **Project Benefit**

This relate to the basic right of the people and comes under the compulsory social services, By the increasing in the litracy ratio the living standard of the population will improve with in the district. Attempts will be made eleminate the gender gap and attracts more girls in the school.

- **Implementing Authority – District Education Works & Services Department GoS.**
- **Estimate Cost: Rs.819.36 million approx.**

| Project Name | Area Acres | Estimated Cost In Millions | Short Term | Justification |
|---|---|---|---|---|
| **Education** | | | | |
| Rehabilitation of existing school and college buildings along with allied facilities with basic utilities. (Excluding the IAP Projects)* | 20.90 | 819.36 | Short Term | 20.90 acres = 910,404 sft, at the rate of 1800/- PKR per sft construction cost with all infrastructure cost. |

*considered 30% as Built up Area

**ii. Capacity Building Training Programs to Enhance Capacities.**

- **Project Scope & Justification**

  Sindh Teacher Education Development Authority (STEDA), Provincial Institute of Teacher Education (PITE) is providing the professional development of teachers for increasing their teaching skills. In Naushahro Feroze, the peoples are significantly deficit in technical skills.

- **Project Benefits**

  By implementation of this project, people will enhance their academic skills and it also increase the employment status of the district.

- **Implementing Authority - Sindh Teacher Education Development Authority (STEDA), Provincial** Institute of Teacher Education (PITE) Government of Sindh

- **Estimated Cost: Rs.15 Million PKR Approx.**

| Project Name | Short Term | Preliminary Cost in Million | Justification |
|---|---|---|---|
| Capacity Building Training Programs to Enhance Capacities. | Short Term | 15.00 | Teachers Capacity building programs can also strengthen their teaching skills for better results. |

### *6.1.8 Immediate Action Plan for Core Urban Area*

**I. Rehabilitation and Up gradation of Schools**

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

Immediate plan for Naushero Feroze Includes Govt. Girls Higher Secondary School & Pakistan Bait-Ul-Mal School.

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.

| S. No | Education Facility Name | Area (acre) | Repair & Rehabilitation - Activity Wise Cost in Millions | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Street/ Road/ Parking | Utility Facilities | | | | | School Building Repair / Renovation | Security |
| | | | | Electricity | Water Supply | Sewerage | Gas | PTCL | | |
| 1 | Govt. Girls Higher Secondary School | 2.02 | 2.33 | 3.03 | 3.03 | 2.02 | 0.51 | 1.01 | 0.51 | 2.02 |
| 2 | Pakistan Bait-Ul-Mal School | 0.07 | 0.07 | 0.08 | 0.11 | 0.11 | 0.07 | 0.02 | 0.04 | 0.02 |
| **Total** | | **2.10** | **2.10** | **2.41** | **3.14** | **3.14** | **2.10** | **0.52** | **1.05** | **0.52** |
| **Total PKR Rs. Million** | | | **14.99** | | | | | | | |

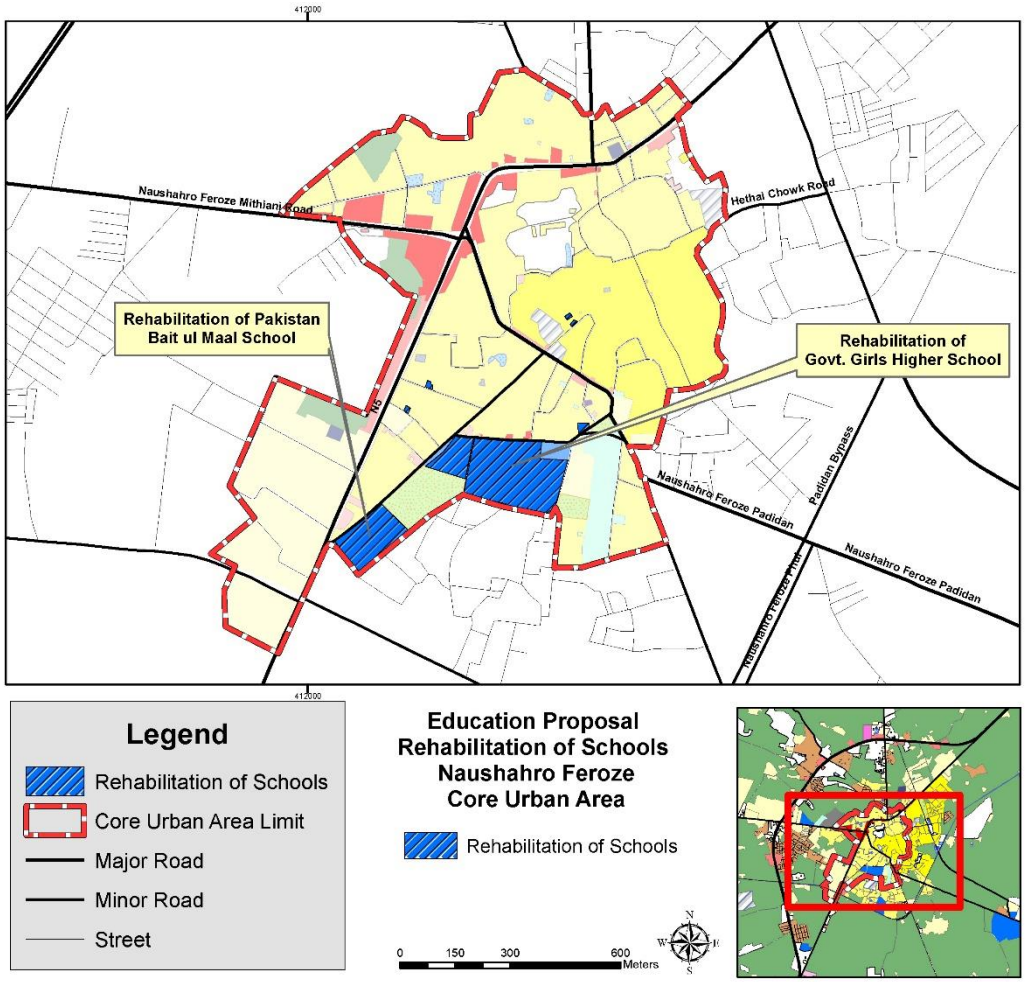



**Figure 6:2: Proposal for Rehabilitation of Educational Institutes in Core Urban Area**

## 6.2 Health

### *6.2.1 Existing Situation*

In Sindh maternal health facilities and proper reproductive care is not available at the required scale. Many women, especially in rural localities, find themselves at risk due to poor provision and lack of access to knowledge and health professionals. 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 Naushahro Feroze district. There is one civil hospital having 105 beds, 2 Taluka Hospitals at District having 52 beds and 29 private hospital having 207 to serve the district. The other health facilities spread over entire district are 12 RHC (Rural Health Center) having 169 beds, 11 TB Clinics, 45 BHUs (Basic Health Unit) having bed strength of 90, 76 dispensaries having 3 number of beds and 3 M.C.H.C (Mother Child Health Center).

**Table 6-3: Government and Private Departmental with bed Capacity In district Naushahro Feroze**

| Type | No. | Beds |
|---|---|---|
| Civil | 1 | 105 |
| THQs | 2 | 52 |
| BHUs | 45 | 90 |
| RHCs | 12 | 169 |
| Private | 29 | 207 |
| Dispensaries | 76 | 3 |
| **Total** | **165** | **626** |

*Source: Health Profile of Sindh, 2017*

In district Naushahro Feroze there are only 2 Unani Shifa Khana which serving the whole district population.

The present total number of doctors at district Naushahro Feroze are 388. There are 2 Physicians, 2 Surgeons, 2 Gynecologist, 3 Pediatricians and 8 Dentists in government hospital. There are 371 GMO doctors in district Naushahro Feroze hospitals.

### 6.2.2 *Issues*

The following are the major issues in the health sector include:

- 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 institutions of the District.
- Lack of training and housing facilities for LHW and paramedical staff
- Accessibility to health care facilities in remote rural areas is difficult.

### 6.2.3 *SWOT Analysis*

| HEALTH | | | |
|---|---|---|---|
| **Strengths** | **Weakness** | **Opportunity** | **Threats** |
| 1. Availability of DHQ hospital in Town | 1. There are 626 beds for total population which are insufficient for the present population<br>2. Shortage of Doctor and para medical staff | 1. More investment is required through PPP in health sector.<br>2. More job opportunities for doctors<br>3. More job opportunities for the paramedical staff | 1. Less emergency response to health incidents<br>2. Increase in Death rate due to multiple factors<br>3. Difficult to control eradication of epidemic diseases |

### 6.2.4 *Need Assessment*

- **Present Assessment at District level (Population, Bed Ratio, Doctor Ratio) 2017**

The NRM (National Reference Manual) recommends 2 bed per thousand as the medium term target. On this basis approximately 2599 beds will be required to be provided gradually. The shortage of doctors and para medical staff, laboratory equipment, diagnostic services and quality of buildings are an evident problem in small towns and will need to be tackled with increase in beds.

**Table 6-1 Present Health Need at District Naushahro Feroze**

| Present Population | Available Beds | Present need | Required Beds | Available Doctors | Present Need | Required Doctors |
|---|---|---|---|---|---|---|
| 1,612,373 | 626 | 3,225 | 2,599 | 388 | 1,612 | 1,224 |

According to WHO (World Health Organization) standards doctor to population ratio is 1:1000 so taking that as a reference point currently there are 1224 doctors required for the present population of district Shaheed Benazir Abad District.

- **Future Need Assessment at District Level (Population, Bed Ratio, Doctor Ratio) 2037**
  The Consultant considered it appropriate to consider the catchment population of the whole district to work out the present need assessment and future (2037) requirements. The NRM (National Reference Manual) recommends 2 bed per thousand as the medium term target. On this basis approximately 4255 beds will be required to be provided gradually until 2037. As already discussed above according to WHO (World Health Organization) standards doctor to population ratio is 1:1000 so taking that as a reference point the future requirement of doctors comes out to be 2052 doctors for the future population of Naushahro Feroze.

**Table 6-2 Future Health Need at District Naushahro Feroze**

| Future Population | Available Beds | Future need | Required Beds | Available Doctors | Future Need | Required Doctors |
|---|---|---|---|---|---|---|
| 2,440,472 | 626 | 4,881 | 4,255 | 388 | 2,440 | 2,052 |

### *6.2.5 Policy Guidelines*[28]

- Enhance basic health care by making it more accessible & affordable, efficient, effective and timely.
- 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.

### *6.2.6 Strategic Development*

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

[28] Sindh Vision 2030

**a) Long Term Plan**

- Enhancement of Mobile Health Unit for far-flung areas of the District
- Availability of ambulance network may be created especially for rural areas
- Accommodation facilities for Doctors and Paramedic Staff

**b) Short Term Plan**

- Improve access to healthcare facilities as due to long journeys to hospitals many patient die on the way.
- It also can be 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.

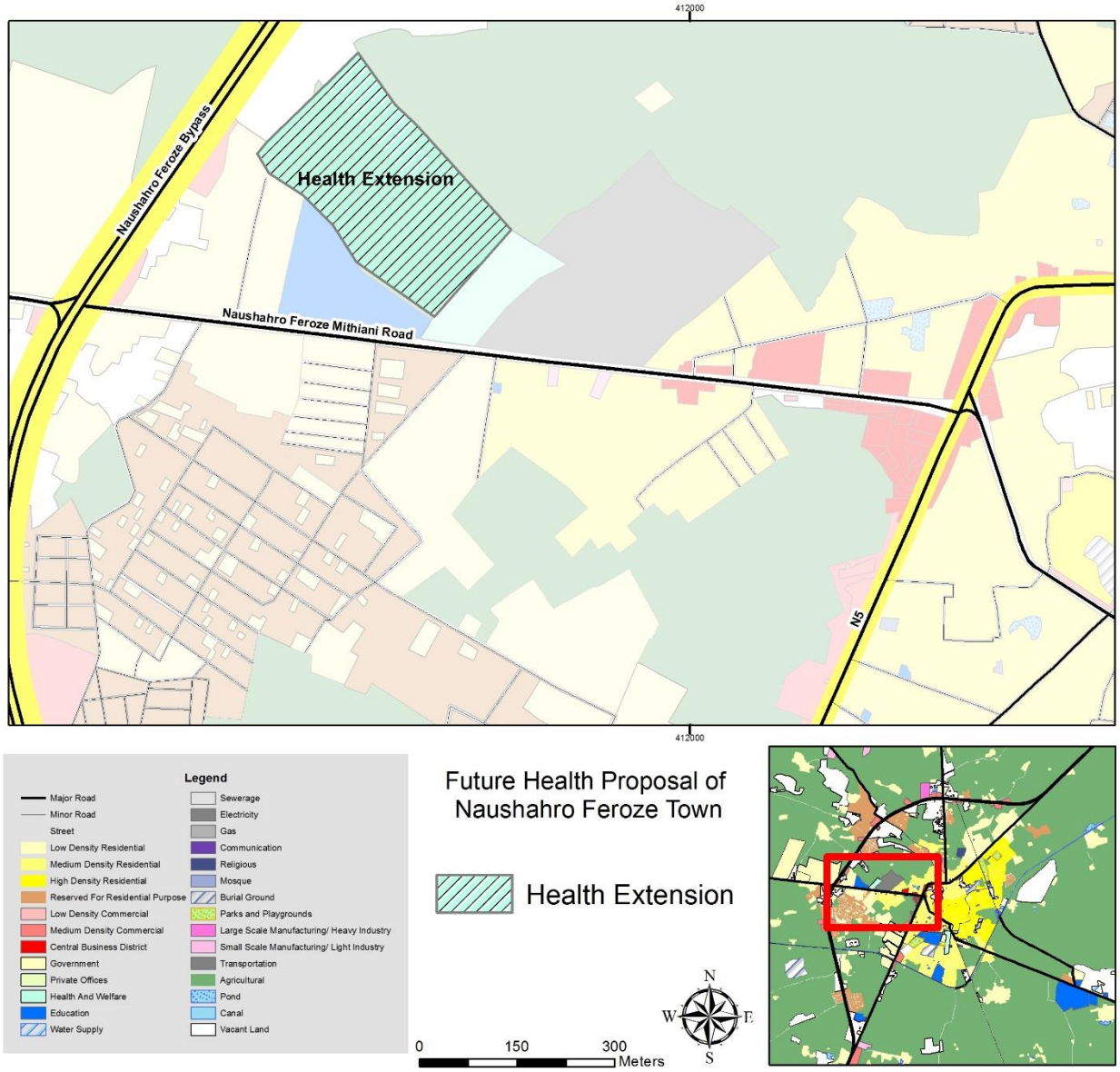



**Figure 6:4 Future Health Proposal of Naushahro Feroze Town**

### *6.2.7 Priority Projects*

**i. Construction of Trauma center at proposed health extension land (5 acres approx.)**

- **Project Scope & Justification**

  Health is the fundamental need of the people. Currently, DHQ hospital of Naushahro Feroze is facing lot of problems due to unavailability of laboratorial facilities, shortage of electricity, surgical instruments, lack of emegency services and lack of equipments are the major issues. At present in DHQ of Naushahro Feroze more than 50% of post are vacant which includes the Doctors and pera-medical staff. There is a need of 2,599 additional number of beds at the district level, which may be reached at the 4,255 number of beds by the year 2037. Out of total health extension area for development master plan of Naushahro Feroze consultant has suggested 05 acres for construction of trauma center for the priority base development within this zone of Health facilities of total Aprrox. 20 acres. This project shall provide an easy access to all inhabitants of the district for acquring health facilties and the existing population of the town shall not face any emergency of health facility and other related problems.

- **Project Benefit**

  The project will direct provide the benefit to the poor people of the Naushahro Feroze at DHQ level. The health condition of the district will be improve substantially.

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

- **Estimate Cost: Rs.417.00 million approx.**

| S. No. | Project Name | Area (acres) | Estimated Cost In Millions | Short Term | Justification |
|---|---|---|---|---|---|
| **Health** | | | | | |
| **1** | Construction of Trauma Center (the total built up area would be 20% of the total area, which is 1 acre) | 5 | 217.00 | **Short Term** | (One acre is equal to 43,560 sft at the rate of 5000/- PKR per sft construction cost with all infrastructure cost. |
| **2** | Land acquisition for health extension ( 10 million per acre) | 20 | 200.00 | **Short Term** | |

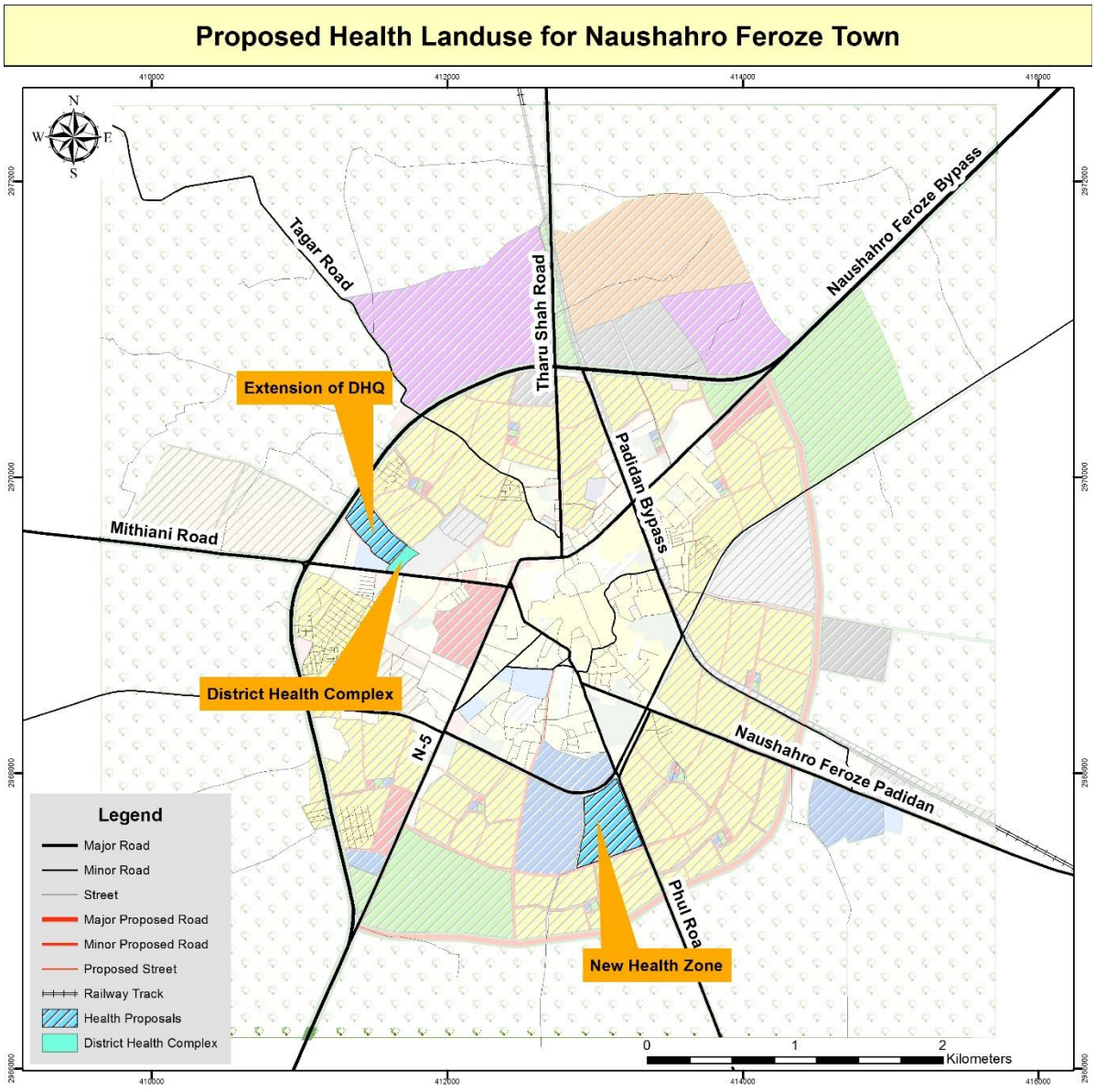



**Figure 6:5: Proposed Health Facilities**

### *6.2.8 Immediate Action Plan for Core Urban Area*

#### I. Rehabilitation and Up gradation of DHQ Hospital Naushahro Feroze

DHQ Hospital Naushahro Feroze is lacks of basic facilities like unavailability of incinerator, waiting area for patients, subsidized drugs, Basic Laboratorial facilities, shortage of doctors' & para medic staff. DHQ Hospital Naushahro Feroze providing basic health facilities to almost entire District.

- Repair & Rehabilitation of Civil / District headquarter Hospital Naushero Feroze

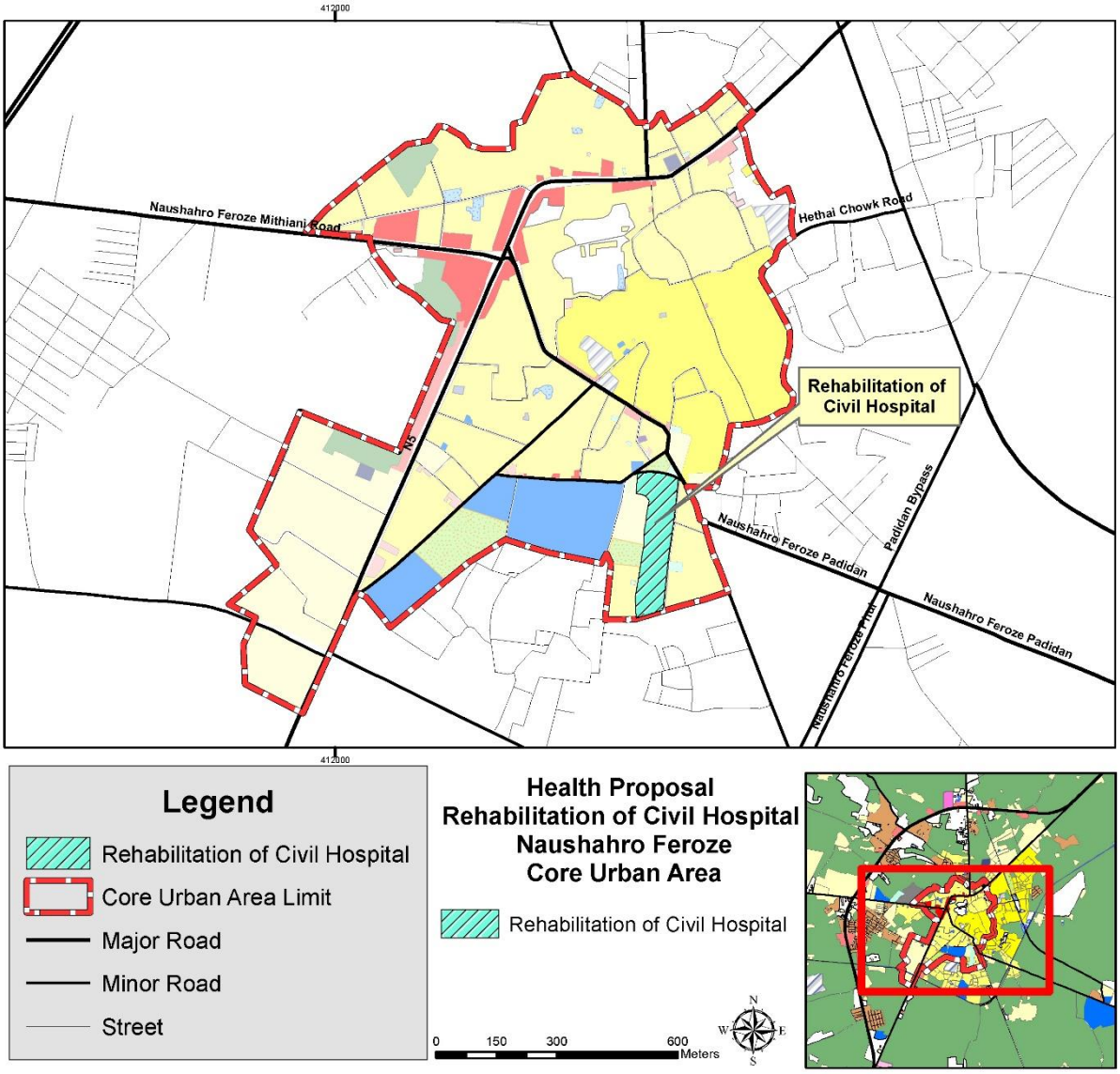



**Figure 6:6: Proposal for Rehabilitation of Health**

| S. No. | Area / Locality / Address | Area (acre) | Repair & Rehabilitation - Activity Wise Cost in Millions | | | |
|---|---|---|---|---|---|---|
| | | | Street, Road & Parking | Provision of all utilities* | Public Facilities | Security |
| 1 | Repair & Rehabilitation of Civil Hospital | 6.31 | 6.31 | 4.08 | 7.88 | 1.58 |
| **Total** | | **6.31** | **6.31** | **4.08** | **7.88** | **1.58** |
| **Total PKR Rs. Million** | | | **19.85** | | | |
| ***all four utilities include gas, water supply, sewerage & drainage PTCL** | | | | | | |

### *6.2.9 Economic Development*

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

(i) Rehabilitation and improvement in the existing BHUs and hospitals
(ii) Establishment of new units particularly at HQ Town and Tehsil towns as the shift from rural to urban areas is being gradually made
(iii) Participation of private sector directly or through public-private partnership.
(iv) Government may facilitate and encourage Welfare organization / NGOs and private sector to develop health facilities in the District.

## 6.3 Recreational/Tourism

### *6.3.1 Existing Situation*

Amusement is both goal and subjective in nature. The target amusement which have a place with and continues from the individual and is the declaration of his/her own particular impossible to miss, mental, enthusiastic and physical motivation. It is the work appearance of one's own contemplations, emotions and prisoner alongside learned capacities with respect to activity. Then again, the subjective amusement comprises of perception, thought and reflection upon the entertainment of others. The bounteous life is the one which is expressive in entertainment of the whole person's ability for activity, where some on a position of high expertise and as per great taste with respect to the standard of refined society. Diversion is mental recognitions which can't be summed up. As such the meaning of diversion varies from man to man, as indicated by its mental and potential emotions.

### 6.3.2 *Recreational* Spaces in Naushahro Feroze

There are two parks in Naushahro feroze town, Named Benazir Bhutto Park and children Park. According to Cultural Department of Naushahro Feroze Recreational facilities include:

1. Three cricket ground that belong to Government School/Colleges
2. Badminton Hall Naushahro Feroze
3. Mini Cricket Stadium Moro
4. Three Libraries
   - Naushahro Feroze
   - Bhiriya
   - Mihrabpur

### *6.3.3 SWOT Analysis*

| SPORTS AND RECREATION | | | |
|---|---|---|---|
| **Strength** | **Weakness** | **Opportunity** | **Threats** |
| 1. Local environment of town supports green urbanism | 1. Shortage of water facility to maintain green spaces, green belts and trees plantation<br>2. Unavailability of sports infrastructure<br>3. No any proper recreational facility available | 1. Good health of local communities<br>2. Air pollution reduction<br>3. Healthy environment<br>4. Protection of natural habitat | 1. Give birth to passive recreation<br>2. Obesity<br>3. Loss of cultural values |

| CULTURE | | | |
|---|---|---|---|
| 1. The indigenous cultural activities of various social groups and minorities comprises many events that attract people from their surrounding localities<br>2. Strong potential for producing culturally ornamented products used in daily life | 1. Poor Management for organizing cultural events<br>2. Lack of infrastructure to accommodate visitors into such events<br>3. Lack of opportunities to commercialize / merchandize cultural goods | 1. If organized appropriately could generate handsome amount of revenues with other spin-off effects<br>2. Arrangement of full security and residential places for the visitors can attract people towards the town | 1. Security Threats<br>2. Demise of cultural values and norms |

### 6.3.4 *Need Assessment/Issues*

- Shortage of Public Park, playgrounds and recreational facilities.
- Available Recreational facilities are scarce and in dilapidated condition.
- Local environment of town supports green urbanism.
- The indigenous cultural activities of various social groups and minorities comprises many events that attract people from its surrounding localities.
- Strong potential for producing culturally ornamented products used in daily life.
- In-active tourist development program
- Less heritage preservation.
- Tourism marketing is weak.
- Unavailability of basic facilities for tourism.

### 6.3.5 *Policy Guidelines*[29]

- Managed outdoor recreation can be consistent and compatible with conservation of natural resources including fish and wildlife and preservation of heritage resources,
- Providing enhanced and expanded opportunities for outdoor recreation can be done within the provisions of existing, multiple-use;
- Clean air and clean water and other environmental objectives are vital components of quality outdoor recreation experiences; and providing quality recreation opportunities
- Naushahro Feroze needs infrastructure and programmes for sports activities, sport confections, gymnasium and family parks, and children play area and gardens.
- Measures to improve bilateral dialogue with all the stakeholders involved in development of tourist sites

[29] NOPRA 2005

### *6.3.6 Strategic Development*

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:

**Canal Beautification:**

For the beautification of canal (Sarhal Minor 2), footpaths and walk ways should be constructed and benches should be fixed on the banks of canals to turn them into recreation spots for the locals and to this effect design should be prepared in collaboration with the irrigation department.

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

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

**i. Long Term Plan**

- Promoting opportunities to commercialize / merchandize cultural goods.
- Provision of infrastructure and allied facilities for the promotion of tourism.
- Preservation and development of existing and potential tourist resorts.
- Mass awareness to promote domestic tourism.
- Commodity attraction to enhance tourist potential in MC level development.
- Protection of historical places and cultural heritage
- Cultural events should be organized appropriately, so they could generate handsome amount of revenues with other spin-off effects.
- Youth development programme for sports and recreation
- Promote tourism through provision of support facilities
- Measures should be taken for Air pollution reduction.
- Long term data collection on potential adverse effect on environment by tourism and in reverse.
- 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.
- 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.
- Construction of Recreational and Facilitation near Bahria College chowk includes Parks Zoo Sport Complex with indoor and outdoor games cinema etc,
- Establishment of synthetic grounds, playing turf(for hockey, football) and indoor gym facility.

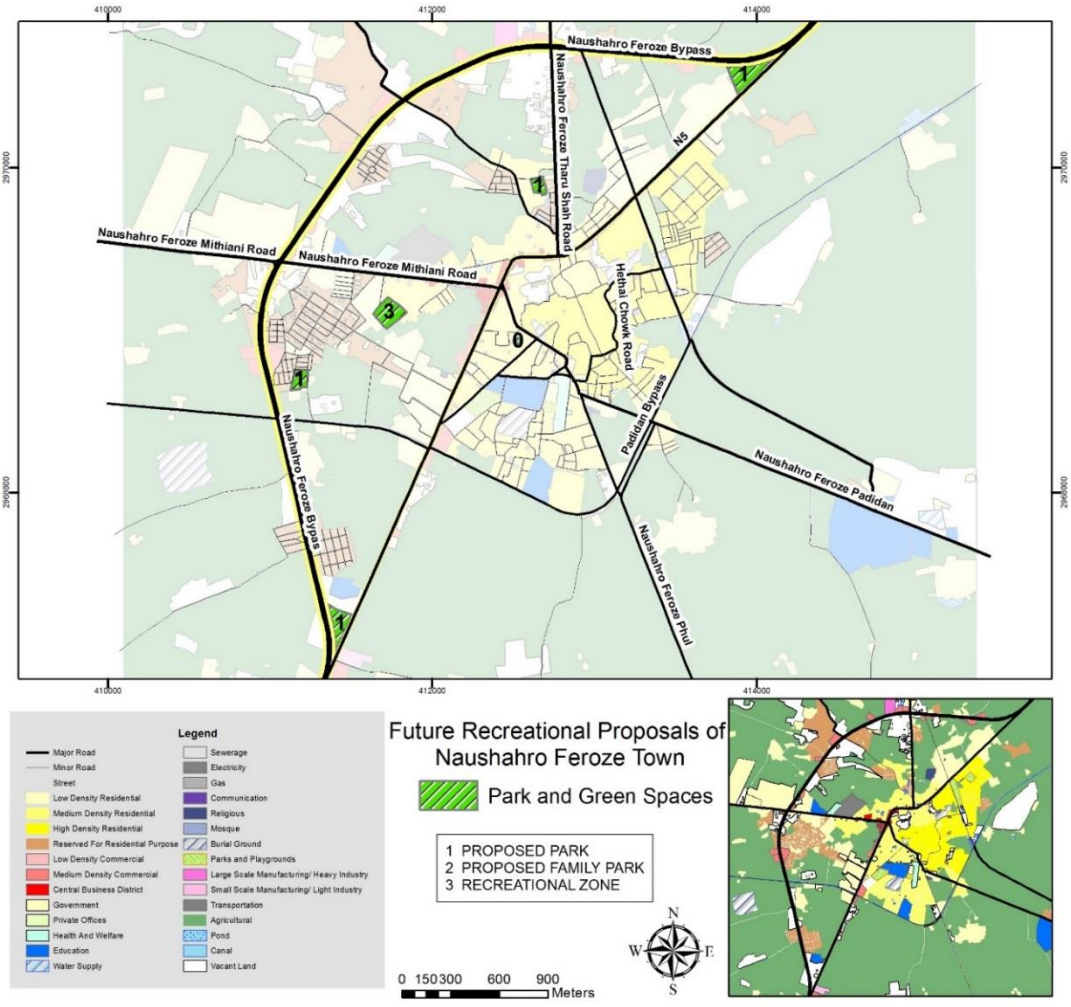



***Figure 6:7 : Recreational Proposal Naushahro Feroze Town***

### *6.3.7 Priority Projects*

#### i. Construction/ Rehabilitation of Recreational Facilities

- **Project Scope & Justification**

The availability of parks in any city is essential for the safe and healthy environment. There are five recreational places in the vicinity of Naushahro Feroze TC 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 prirority basis, the recreational areas (excluded IAP Projects)* needs rehabilitation in the DHQ town. For the priority basis following recreational areas are considered for the rehabilitation:

| S. No. | Name | Category | Area |
|---|---|---|---|
| 1 | **Local Children Park** | Park | 6.55 |
| 2 | **Wapda colony Cricket Ground** | Play Ground | 2.98 |
| **Total** | | | **9.54** |
| ***Excluded IAP Projects** | | | |

- **Project Benefit**

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

- **Implementing Authority** - Naushahro Feroze TC

- **Estimate Cost: Rs.224.40 million approx.**

| S. No. | Project Name | Area Acres | Estimated Cost In Millions | Non ADP | Short Term | Justification |
|---|---|---|---|---|---|---|
| **Recreational Areas** | | | | | | |
| 1. | Rehabilitation and construction of parks and playground (Excluding the IAP Projects) | 9.54 | 224.40 | Non ADP | **Short Term** | 9.54 acres = 415,564.4 sft, at the rate of 1800/- PKR per sft construction cost with all infrastructure cost. |

*considered 30% as Built up Area

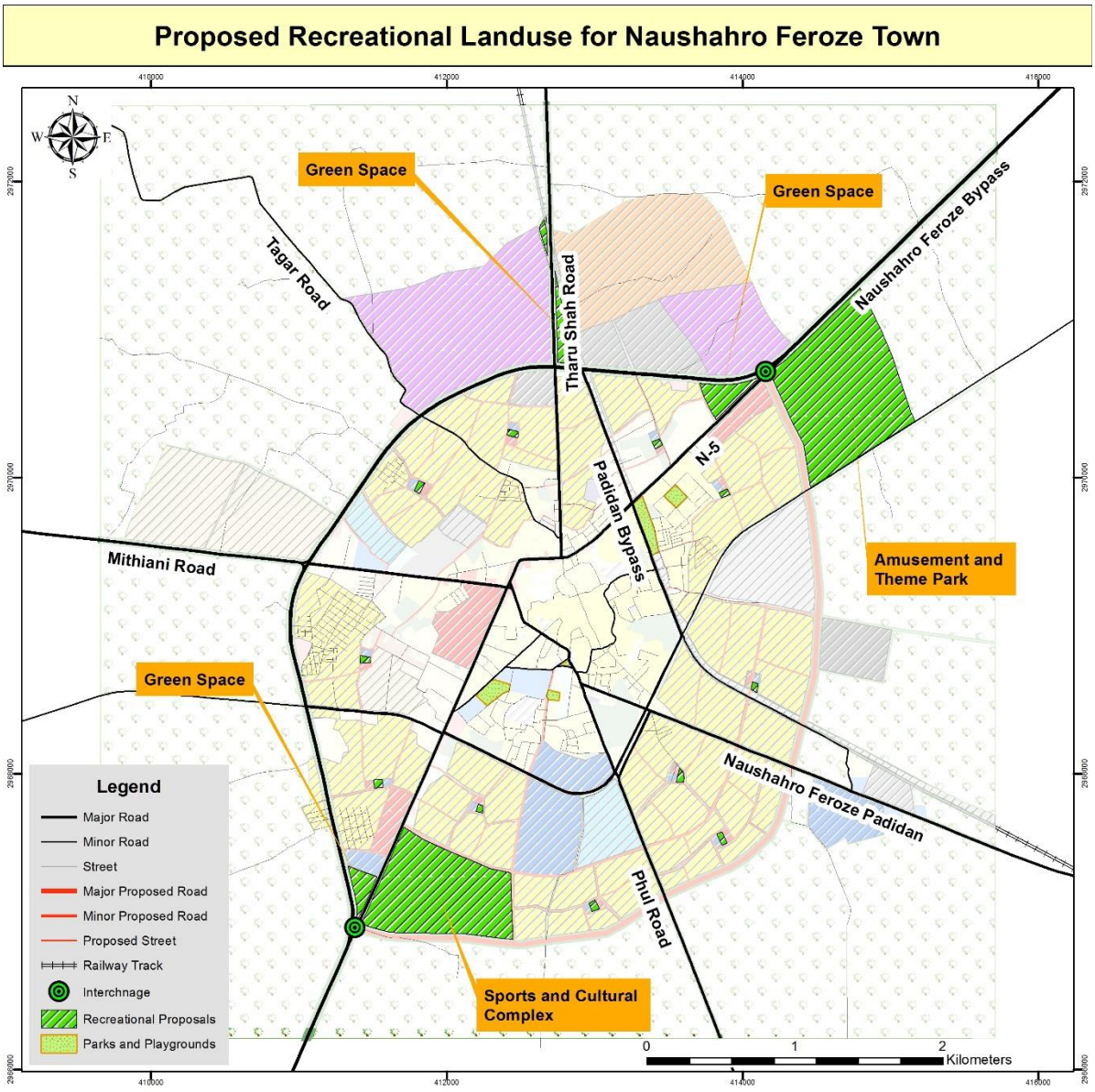



**Figure 6:8: Proposed Recreation areas**

### *6.3.8 Immediate Action Plan For Core Urban Area*



**Figure 6:9 Provision of Parks**

**i. 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**

  Currently Naushero Feroze core town area is suffering due to acute shortage of compulsory open spaces. Majority of recreational facilities are present outside of core urban area except Benazir Park. To achieve the short term plan on immediate basis the process of land acquisition should be started to meet the present need.

- **Sports Facilities**

  Existing sports facilities like three Cricket Grounds that belong to government schools and colleges, Badminton Hall and Mini Cricket Stadium should be restored and maintained for public use.

| Recreational Facilities Preservation & Rehabilitation | | | | | | | |
|---|---|---|---|---|---|---|---|
| **S. No** | **Recreational Preservation Site Name** | **Area / Locality /Address (acre)** | **Area (acre)** | **Area (sft)** | **Rehabilitation Required Area wise or job wise cost (PKR)** | | |
| | | | | | **Unit** | **Rate** | **Total Amount.** |
| 1 | Rehabilitation of Benazir Park | **5.75** | **0.43** | 18,848 | sft | 250.00 | 4,711,950.54 |
| 2 | Rehabilitation of Playground | | **5.32** | 231,642 | sft | 250.00 | 57,910,537.08 |
| | | | | | | **Total PKR Rs. Million** | **62,622,487.62** |
| | | | | | | | **62.62** |

**Note:-**

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

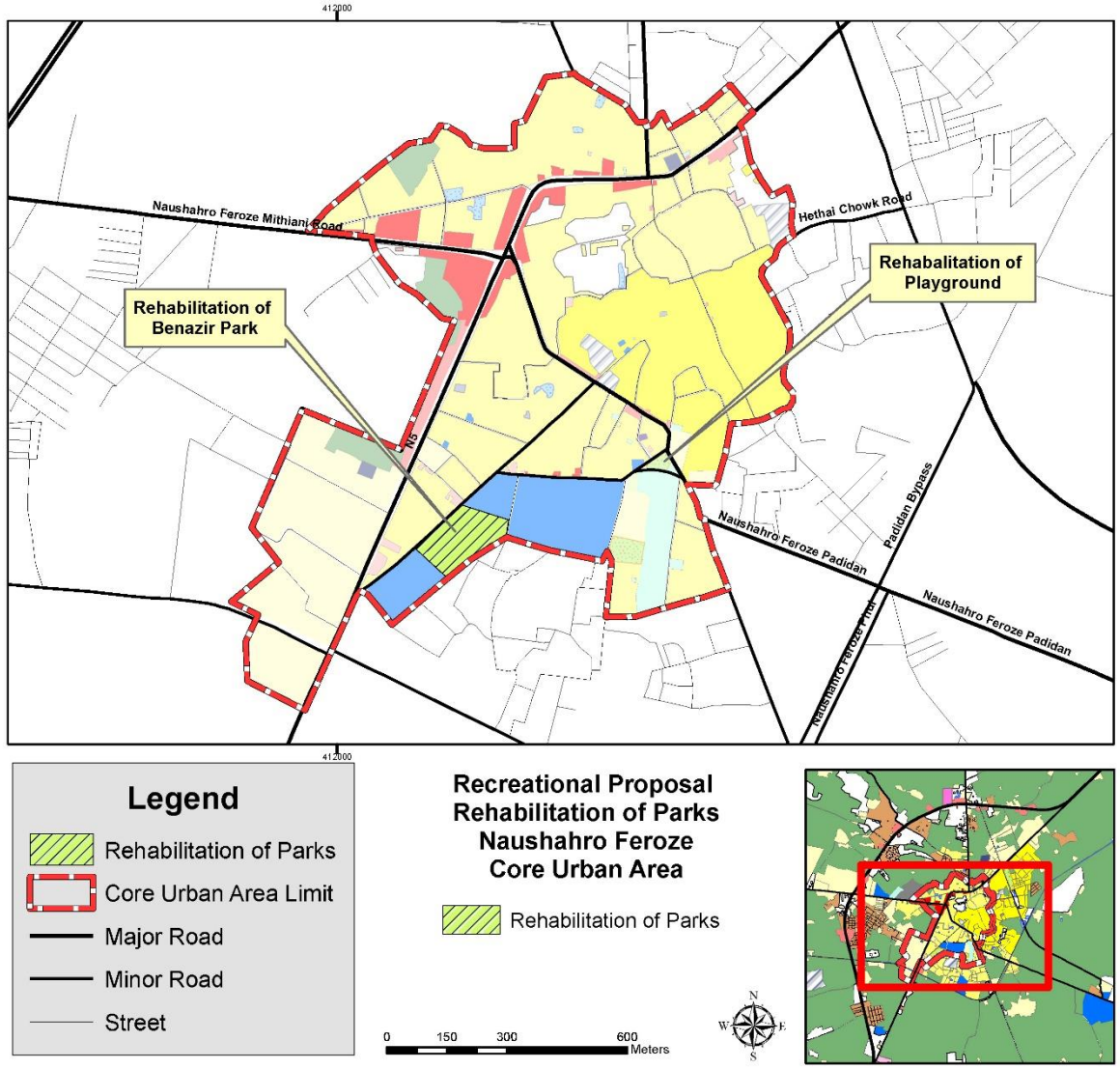



**Figure 6:10: Proposal for Rehabilitation of Recreational Facilities in Core Urban Area**

### ii. Rehabilitation of Religious and Historical Places

Rehabilitation of religious sites includes; Eid Gah Ground and Jamia Masjid Qadriya Sikandariya.

| Preservation of Cultural & Heritage Sites & Rehabilitation | | | | | | |
|---|---|---|---|---|---|---|
| S. No. | Heritage / Cultural Site Name | Area (acre) | Area (sft) | Rehabilitation Required with Area wise cost (PKR) | | |
| | | | | Unit | Rate | Total Amount. |
| 1 | Eid Gah | 0.64 | 27,901 | sft | 200.00 | 5,580,236.38 |
| 2 | Jamia Masjid Qadriya Sikandariya | 0.38 | 16,694 | sft | 250.00 | 4,173,396.48 |
| | | | | | **Total PKR Rs. ( Million)** | **9,753,632.86** |
| | | | | | | **9.75** |

**Note:-**

1) Rehabilitation of lanes, streets and connection minor and major roads
2) Utility Infrastructure rehabilitation includes basic services of Water supply, Electricity supply and Gas supply.
3) Public facilities includes rehabilitation and provisioning of public toilets, proper seating arrangements
4) As per the law and order situation security concerns makes the overall impact to uplift the society life w.r.t. to secured environment.
5) All these basic services in every DHQ town core areas needs to be rehab for quicker revitalization of peoples life.

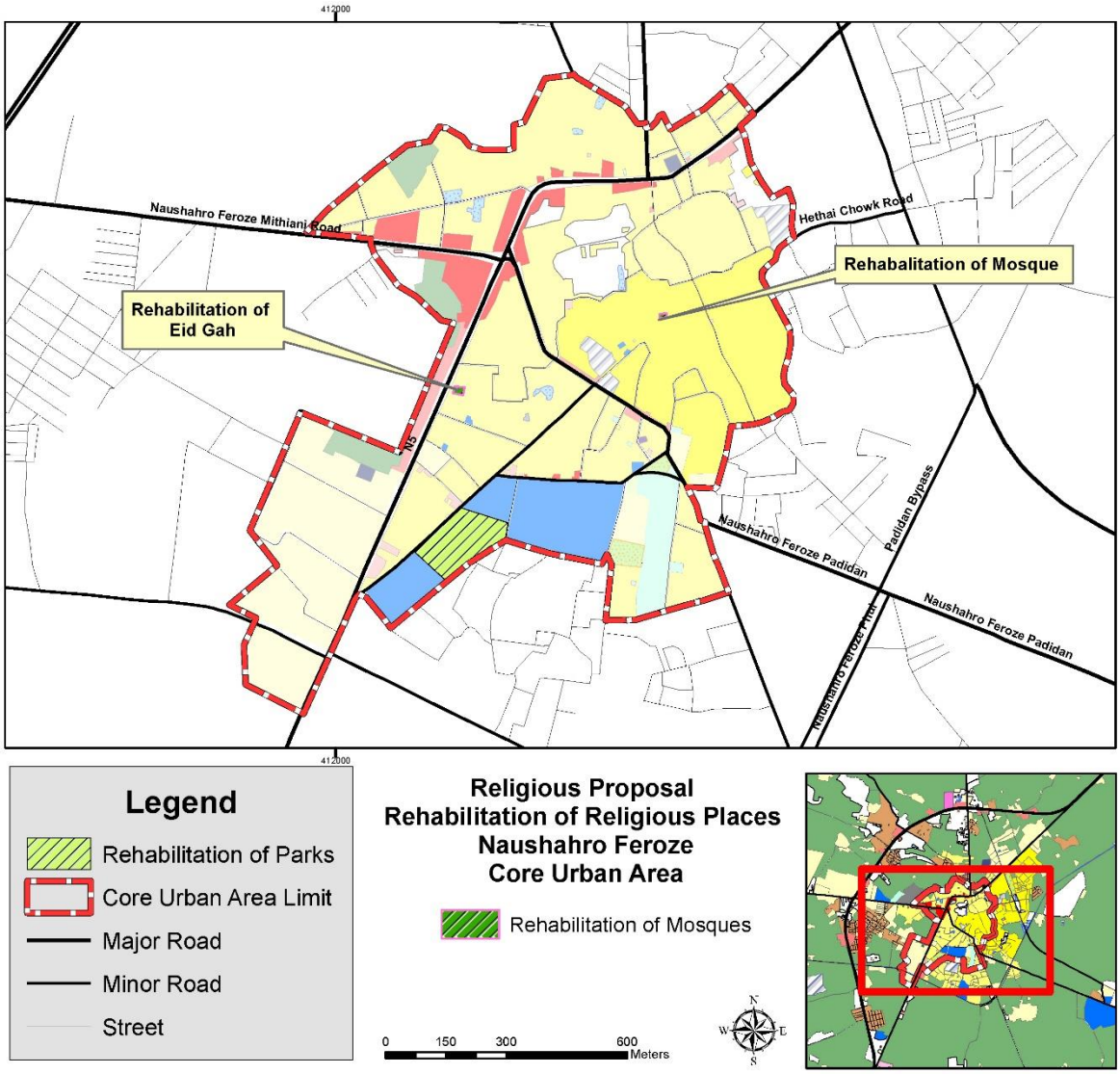



**Figure 6:11: Proposal for Rehabilitation of Religious places & Mosques in Core Urban Area**

# 7. ECONOMIC DEVELOPMENT PLAN

Economy of an area or town plays an important role for its sustainability and further growth. Naushahro Feroze city is the main trading center of this district. Majority of the male population is associated with agriculture (in 45% of rural Dehs). Since district Naushahro Feroze is a rural district, where 82% of the population resides in rural area, sources of livelihood are less diversified for the resident population and as mentioned above, Agriculture sector is the dominant employer for the population of this district.

### i. Policy Guidelines for Overall Economic Development

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

### ii. Inclusion of Poverty Reduction Strategy in Economic Development Plan

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

### iii. Strategic Plan for Overall Economic Development

- Modernize and revitalize the service sector.
- Implement proactive governance centered on accelerated and balanced economic growth.
- Develop Human resources through capacity building for employment opportunities.
- Facilitate social support and gender equality.
- Reinforce the local governance institutions.
- Modernize local / district / divisional administration.
- Decentralization of governance authorities.
- Involve community participation.
- Exploring and implementing PPP (Public Private Partnership) in all sectors.

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

## 7.1 Agriculture

### *7.1.1 Existing Situation*

Bulk of the population resides in rural areas of which 65 per cent is engaged in farming and livestock rearing, and depends on these as their main sources of livelihood. While the farming sector provides a major source of employment for the people in District Naushahro Feroze, land ownership is much skewed. There are either large cultivators/absentee landlords or very small cultivators (mainly small owners-cum tenants and sharecroppers) or laborers. For majority of the population, most agriculturally related income comes from labour on other people's farms, which easily outweighs income from crop sales. Main Crops are Sugar Cane, Rice, Wheat and sunflower.

*Crops cultivated in Naushahro Feroze can be divided into two main categories:*

- Food Crops
- Cash Crops.

Food Crops Include wheat, rice, Maize, Jowar, bajra and barley while cash crop includes Sugarcane and Cotton.

Naushahro Feroze contributes significantly in agriculture sector of Sindh because its climate is suitable for production of various food items including the Kharif crops of maize, rice, sugarcane, cotton and the Rabi crop of wheat. In addition to these, fruit orchards are abundant in this district. Mouza statistics have reported that fruit orchards are widespread in 57% of the mouzas i.e Guava

### *7.1.2 Land Utilization*

The total geographical area of district Naushahro Feroze is 302,000 hectares out of this cultivated area is 209,000 hectare. Out of cultivable land dividing 2016-2017, actually cultivated to 160,000 hectares leaving 49,000 hectares as fallow. Waste land available to 29,000 hectares, whereas, 54,000 hectares are not available for utilization.

**Table 7-1: Comparison of Land Utilization**

| Sr. No. | Land Utilization (Hectares) 2014-15 | | Land Utilization (Hectares) 2015-16 | Land Utilization (Hectares) 2016-17 |
|---|---|---|---|---|
| | Type of Cultivated area | Geographical area | Geographical area | Geographical area |
| 1 | Cultivated area | 210,000 | 205,000 | 209,000 |
| 2 | Current Fallow | 49,000 | 49,000 | 49,000 |
| 3 | Net area sown | 161,000 | 156,000 | 160,000 |
| 4 | Cultivated Waste | 29,000 | 29,000 | 29,000 |
| 5 | Not available for cultivated | 53,000 | 58,000 | 54,000 |
| *Source: Development Statistics of Sindh 2018* | | | | |

### *7.1.3 Crop Production*

During 2014-15 the production of Rice was 28,646 M. Tons after that no rice production is reported, Production of Wheat was to 383,485 M. Tons, Sugarcane 1,339,028 M Tons and cotton 216,847 Bales. Whereas, during 2016-17 the production of Rice was banned, Production of Wheat was 429,567 M. Tons, Sugarcane 1,339,028 Bales and cotton 216,847 Bales. To address the property issue / raising of income level waste land available be granted to land less people for utilization.

**Table 7-2: Comparison of Crop Production**

| Crops Production Year 2014-2015 | | | | Crops Production Year 2015-2016 | | Crops Production Year 2016-2017 | |
|---|---|---|---|---|---|---|---|
| **S. No.** | **Crops** | **Area (Hectare)** | **Production (M. tons)** | **Area (Hectare)** | **Production (M. tons)** | **Area (Hectare)** | **Production (M. tons)** |
| 1 | **Rice** | 9,185 | 28,646 | Banned | Banned | Banned | Banned |
| 2 | **Wheat** | 104,292 | 383,485 | 105,899 | 390,697 | 107,402 | 429,567 |
| 3 | **Sugar Cane** | 21,541 | 1,139,121 | 21,064 | 1,228,410 | 20,208 | 1,339,028 |
| 4 | **Cotton** | 33,407 | 188,839 | 35,348 | 206,800 | 37,600 | 216,847 |
| 5 | **Maize** | 250 | 254 | 264 | 259 | 275 | 272 |

### *7.1.4 Irrigation*

- **Irrigation Network**

The district Naushahro Feroze has a well-established canal irrigation system. Rohri canal passes through the center of this district and irrigates the central and eastern parts of the district. Indus River passes alongside the western border of the district.

Majority of the Dehs in this district are irrigated through canals. Out of the 221 rural Dehs, 201 (91%) are irrigated with the help of canals. 166 (75%) are irrigated with tube-wells and 52 (24%) are irrigated through river.

In the year 2012-13, 147,169 hectares was irrigated out of 151,089 hectares, whereas in 2013-2014, 146,042 hectares was irrigated out of 156,341 hectares.

### *7.1.5 Issues*

- Need Strong network of distribution of agro based products as there is shortage of agro based products.
- High price of Inputs (Fertilizers Material, Pesticides and Quality seed)
- Lack of agriculture credit facilities.
- Shortage of technical and home based industry.
- Low demand of home grown food products.
- Less revenue generation by local government.

- Less efficient local markets.
- High land prices.
- Shortage of food godowns and warehouses.
- Insufficiency of covered storage.

### *7.1.6 SWOT Analysis*

| ECONOMY | | | |
|---|---|---|---|
| **AGRICULTURE** | | | |
| **Strength** | **Weakness** | **Opportunity** | **Threats** |
| 1. Agriculture based economy<br>2. Suitable climate for production of various food items including the Kharif crops of maize, rice, sugarcane, cotton and the Rabi crop of wheat<br>3. Strong network of distribution of agro based products<br>4. In addition to these, fruit orchards are abundant in this district | 1. Shortage of technical and home based industry<br>2. Low demand of home grown food products<br>3. Less revenue generation by local government | 1. Job opportunity for rural population<br>2. Healthy population<br>3. Strong transport system<br>4. Outside investors show interest in agriculture sector | 1. Shortage of educated and skilled professionals<br>2. Less efficient local markets<br>3. Shortage of agro based products<br>4. High land prices |

| IRRIGATION | | | |
|---|---|---|---|
| 1. Availability of irrigation system | 1. Negligence regarding timely de-siltation | 1. Support agricultural activities<br>2. Opportunities for enhancement of agriculture through tube well irrigation | 1. Flooding / over flow of water<br>2. Water contamination |

### *7.1.7 Strategic Development Plan*

#### i. Long Term Plan

- Job opportunity should be made available for rural population by promotion and facilitation of agriculture.
- Strong transport system should be provided
- Incentives should be taken so that Outside investors show interest in agriculture sector.
- Enhancing crop productivity through adoption of new technologies
- Increase the supply and quality of agricultural crops
- Provision of warehouses for storage of agricultural products.

#### ii. Short Term Plan

- Modernize and revitalize agriculture.
- Increase the supply and quality of Agricultural Crops
- Sufficient market infrastructure to ensure optimal value addition
- Agricultural technology development, dissemination and adoption.
- Use of modern techniques for cultivation by choosing healthy seeds and fertilizers for increasing yield per acre.
- Agricultural practices can be changed in accordance with weather condition for maximum production.
- Measures should be taken to ensure maximum yield of both Rabi and Kharif crops.
- Enhancement of the storage capacity.
- Provision of warehouses, food gowdowns for storage of agricultural products.

#### iii. <u>Recommendation for improvement of Crops</u>

- District Naushahro Feroze is rich agricultural regions of Sindh province producing Cash Crops like Wheat, Cotton, and Sugarcane. Besides Cash Crops, Naushahro Feroze also produces Rapeseed& Mustard and Sesame etc.

- The above analysis translates that about 52% of arable land used for cultivation of wheat Crop only, might be the reason that soil and climate of the region suits to Wheat crop, therefore grower and government may focus to reclaim more waste land to convert the same into arable land and priority may be given to Wheat crop.

## 7.2 Livestock

### *7.2.1 Existing Situation*

Livestock is one of the major sub-sector of Agriculture and back bone of economy. In District Naushahro Feroze , the livestock population mainly comprises of cattle, buffaloes, sheep and goats for meeting out milk and meat requirements, while camels, horses, mules and asses for traction and transportation. Livestock is reared mostly in small herds as an essential part of small farming systems and also by landless population of rural areas indirectly associated with crop farming for substantiating their livelihood. Over the time, however, the number of medium / large sized herds is also increasing particularly to meet out the milk / meat requirements of urban areas.

Good breed of buffalos and cows are found in the district. Sheep, goats, camels, horses, asses and mules are some of the other main livestock of the district. It is observed that the trend of keeping large animals like Cattle, Buffalo is inclining while trend shown steep decline in respect of sheep, Camel and horses. The trend among the small animal with respect to Goats (Male) in livestock sector is also inclined as millions of this category sold in the urban markets at the eve of Eid-e-Qurban and prove lucrative commercial business. The last census of livestock was performed in 2006. Considering the 1996 census would help in finding trend to project the livestock population for the year 2017.

**Table 7-3: Number of Livestock**

| Livestock | Population 2006 | Population projected 2017 |
|---|---|---|
| **Cattle** | 334,758 | 366,134 |
| **Buffalo** | 530,530 | 735,261 |
| **Sheep** | 51,564 | 22,581 |
| **Goat** | 820,422 | 1,333,575 |
| **Camel** | 3,000 | 1,181 |
| **Horse** | 1,000 | 1,000 |
| **Asses/Mules** | 35,593 | 50,275 |

*Source: Development Statistics Sindh 2018*

### *7.2.2 Issues:*

- Mainly subsistence farming
- Almost for every farmer, livestock farming is a secondary activity and treated as secondary source of income
- Reduced areas for natural grazing and feed production in the face of increasing urbanization and food security requirements
- Climate change and environment degradation
- Large scale breading has not developed
- Lack of facilities to industrialize livestock based products.
- Livestock in the district suffers in particular from shortage of high quality feed.

### 7.2.3 SWOT Analysis

| LIVESTOCK & FISHERIES | | | |
|---|---|---|---|
| **STRENGTH** | **WEAKNESSES** | **OPPORTUNITY** | **THREATS** |
| 1. Local skills and vet services available<br>2. Good breed of buffalos and cows are found in the district<br>3. Mechanism for milk collection available<br>4. Favorable environment is available for livestock growth (Pasture) and poultry farming in surroundings of city<br>5. Availability of fish farms<br>6. Local skills and vet services available<br>7. Good breed of buffalos and cows are found in the district<br>8. Favorable environment is available for livestock growth (Pasture) and poultry farming in surroundings of city<br>9. Availability of fish farms | 1. Large scale breading has not developed<br>2. Lack of facilities to industrialize livestock based products<br>3. Livestock in the district suffers in particular from shortage of high quality feed<br>4. Large scale breading has not developed<br>5. Lack of facilities to industrialize livestock based products<br>6. Livestock in the district suffers in particular from shortage of high quality feed | 1. Cooperative dairy farming and in-land fisheries has sufficient scope<br>2. Large pasture land and labour force available for livestock growth<br>3. Livestock based products can enhance economic activities if produced through appropriate industries<br>4. Cooperative dairy | 1. Theft and security issues<br>2. Losses due to Disasters (floods and epidemics)<br>3. Theft and security issues<br>4. Losses due to Disasters (floods and epidemics) |

### *7.2.4 Need Assessment*

- The services for veterinary in district Naushahro Feroze are deficient because District Naushahro Feroze is richly populated area having animal's population 2,701,415 of large and small animals. This district is well known with different type of breeds of cattle, Goats and sheep's. For this population of Animals, the services are not sufficient and not serving the all population of animals

- There are 10 veterinary Hospitals and 42 veterinary centres.

### *7.2.5 Strategic Development*

- 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.
- Provision of Veterinary Services.
- 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 139 private fish production farms working for fish farming in Naushahro Feroze District. 3433 fishermen are engaged with fishing business. The number of registered boats in district Naushahro Feroze is 510 and the production of fish in district Naushahro Feroze is approximately 1,020 M. Tons.

**Table 7-4: Fisheries-Water bodies, Fish farms & Production (M. Tons)**

| S. No. | Items | Numbers |
|---|---|---|
| 1 | Private Fish Farms (No.) | 139 |
| 2 | Fish ponds (No.) | 294 |
| 3 | Land used for Fish Farm (in Acre) | 2,110 |
| 4 | Fish Production (M. Tons) | 1,020 |
| 5 | Fishermen (Full Time+ Part-time) | 3,433 |
| 6 | Boats (No.s)<br>• Sail 105<br>• Row 410 | |

***Source:*** *Directorate of Fisheries Sindh Inland, Hyderabad & Directorate of Inland Fisheries Sindh, Hyderabad*

### *7.3.2 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.

### *7.3.3 Strategic Development Plan*

- Lease of fishing rights, conservation, management and promotion of fisheries
- Training through open training schools
- Enhance Local publicity and awareness
- Facilitate 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
- To acquire land for fish production in District
- Cooperative dairy farming and in-land fisheries has sufficient scope

### *7.3.4 Economic Development*

Following suggestions are given to strengthen the sector:

- Providing health/medication facilities by increasing Veterinary *hospitals.*
- It is considered that livestock are viable enterprises for increasing incomes particularly for the poor, by offering them job opportunity as well as enhancing their dietary levels; therefore government may consider this sector for financial assistance.
- Despite suitable location for fishing business, the fish production in the district is 0.82% of the entire Sindh fish production which is quiet un-satisfactory as whereas 7.41% of Sindh fishermen population are engaged with fishing business in the district. There is lot of potential to improve this sector for which radical steps are required to be taken.
- The concern department may plan to develop hatcheries in the district for sustainable development of inland fisheries.
- The use of illegal fishing net and poison for killing fish is a common practice to catch fish to save the cost of labor. This practice should be considered prohibited and be treated an offence for which necessary legislation be promulgated;
- Control and remove the encroachments on water bodies;
- Demarcation of wetlands;
- Special development package for fishing community;
- Lakes` development;
- Fisheries and revenue departments should map lakes;
- Ban the conversion of lakes into agricultural land;

## 7.4 Industries

### *7.4.1 Existing Situation*

Naushahro Feroze is primarily an agro-based district as 82% population of the district lives in rural area and influenced by agriculture sector. However, fishing and livestock is secondary business of the dwellers of the district therefore, there is neither any Industrial zone nor scattered industries in the district except few flour mills. Wheat, cotton & sugarcane are the main crop produce by the district respectively, therefore following Cotton ginning & oil mills, Sugar Mills and flour mills exist in the district.

- Muhammadi Cotton Industry & oil mill
- Ali Cotton Factory
- Al Karim Factory
- Star Cotton Factory
- Shah Cotton factory And Rice mill
- Jatoi Flour Mill, Jatoi Rd, Goth Rasool Abad, Naushahro Feroze, Sindh
- Noorani Flour Mill, Al Sadiq Colony, Moro, Naushahro Feroze, Sindh
- Hina Flour Mill, Dadu - Moro Rd, Naushahro Feroze, Sindh
- Juman Junejo Floor Mill, Junejo St, Thorha, Naushahro Feroze, Sindh
- Syed Flour Mills, Kandiaro-Tharo Shah Rd, Old Nakka, Kandiaro, Sindh

### *7.4.2 SWOT Analysis*

| INDUSTRIAL | | | |
|---|---|---|---|
| **Strength** | **Weakness** | **Opportunity** | **Threats** |
| 1. Agro based industries<br>2. Industries include sugar mil<br>3. More people are employed in industrial sector | 1. Less job opportunities for other sectors<br>2. Limited industrial profile<br>3. Sugar Industry crisis | 1. More international trade<br>2. Based on the success story of present industries, more industries can be installed in future<br>3. If products produced by these industries are in good quality then this will enhance the industrial profile of the district at regional level as well as at national level | 1. Isolated economy<br>2. Uneducated social group<br>3. More emphasis of crop producers on sugar cane production<br>4. Air pollution<br>5. Water contamination to river Indus resources |

### *7.4.3 Strategic Development*

**i. Long Term Plan**

- Provision of infrastructure for establishment of new industries.
- Enhancing Crop Productivity through adoption of new technologies.
- Support industrial development.
- Modernize and revitalize the service sector.
- Development of Industrial Estates / Special Economic Zone in District

**ii. Short Term Plan**

- Sufficient market infrastructure to ensure optimal value addition
- Provision of vocational training and employable skills to the unemployed youth of the district
- Paradigm shift from industrial agriculture to diversified agro ecological Systems
- Establishment of new industrial estates/Zone
- Measures for promoting more international trade.
- Increase employment opportunities.
- Based on the success story of present industries, more industries can be installed in future.
- If products produced by these industries are in good quality then this will enhance the industrial profile of the district at regional level as well as at national level.

### *7.4.4 Economic Development*

Besides 429,567 M.T wheat per annum, a significant quantity of cotton, sugarcane, rice and Sesame etc. are also produced by the district. The district is also active in fisheries and livestock sector, therefore it is suggested that:

- A separate industrial estate should be established under Sindh Small Business Corporation, GOS.
- Incentives to attact private investors should be given by the Board of Investment GoS for establishment of new industrial units and for enhancing the production capacity of present industry.
- Beside, improving present capacity of industries, new Flour mills, Rice husking mill, Sugar mill and Oil mills may be established in the district.

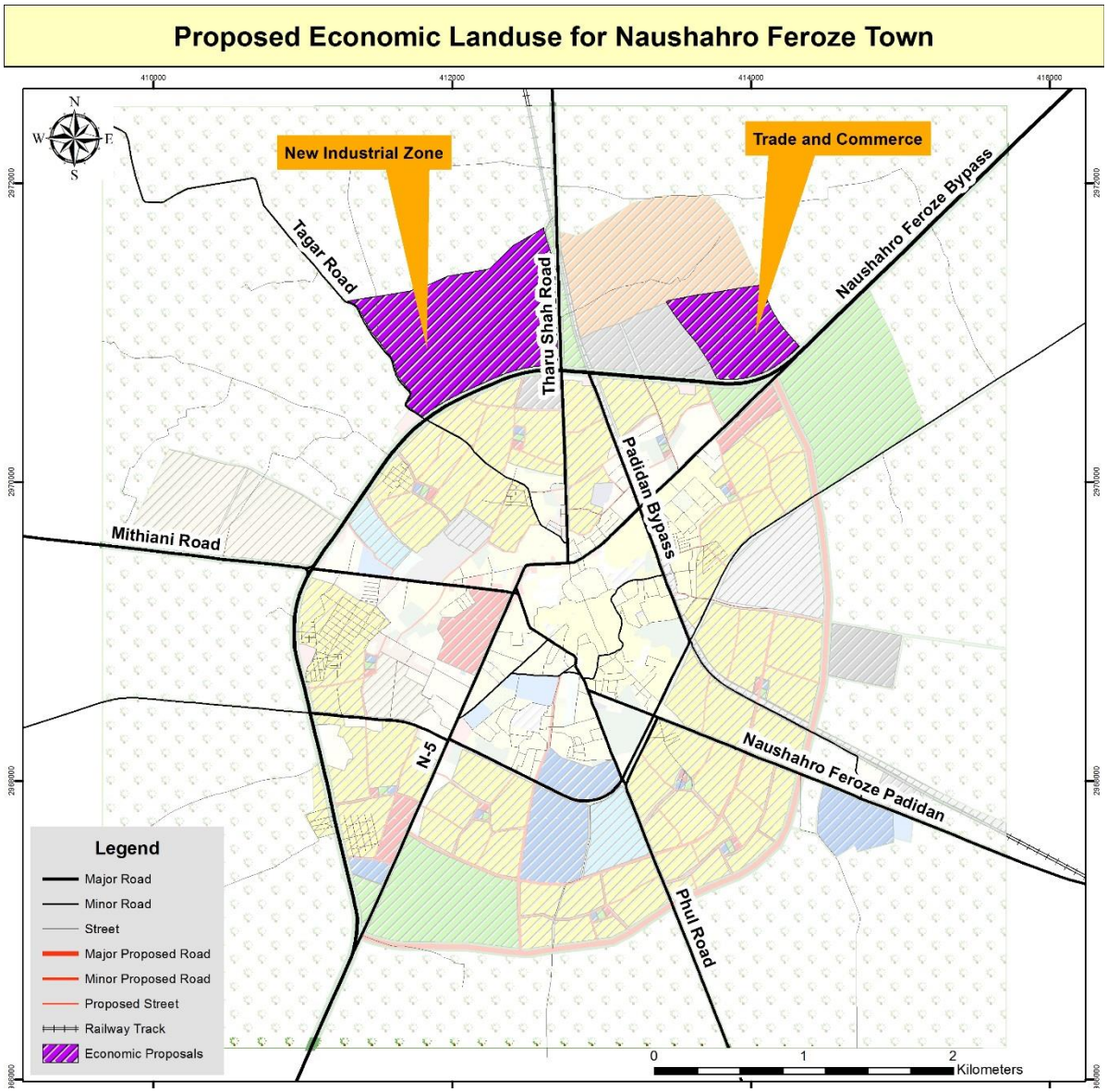



**Figure 7:1 : Industrial Proposal of Naushahro Feroze Town**

## 7.5 Trade and Commerce

### *7.5.1 Existing Situation*

- Availability of financial institutions.
- The district as a whole is well-known due to its characteristic of agriculture engine which serves all over Sindh by using market of Naushahro Feroze city, the regional trading Hub.
- Large number of local skilled artisans available.
- Strong local retail.
- Progressive entrepreneurship available.
- Strong financial services.

### *7.5.2 Issues:*

- Demise of local agriculture market.
- Un-planned local business activities.
- The failure of PPP trouble for locals and government.
- Lack of infrastructure
- Dependent on regional market products due to lack of local production
- Unplanned growth of business sector along inner city streets
- Giving birth to encroachments

### *7.5.3 SWOT Analysis*

| TRADE AND COMMERCE | | | |
|---|---|---|---|
| **Strength** | **Weakness** | **Opportunity** | **Threats** |
| 1. Availability of financial institutions.<br><br>2.Large number of local skilled artisans available<br><br>3.Strong local retail | 1. Demise of local agriculture market<br>2. Un-planned local business activities | 1. More opportunities for public private partnership<br>2. Support to local economy<br>3. Home grown handicrafts can be promoted through proper exposure to export market<br>4. Large number of business interest groups | 1. Security issues (which lead a large number of agriculturists and business persons to migrating from the city)<br>2. Inflation<br>3. Low subsidies provided by local and provincial government |

### *7.5.4 Priority Projects*

**i. Establishment of Fruit and Vegetable Market at Naushahro Feroze**

- **Project Scope & Justification**

  At present there is no designated fruit & vegetable market present in Naushero Feroze DHQ Town. Ordinary retail shops for vegetables and fruits are located on the main roads, which causes traffic congestion & garbage issues in the town.
  Establishment of planned Fruit and Vegetable Market at Naushahro Feroze with allied facilities shall attract entrepreneur to expand their investment and will also improve the urban environment.
  **Size:** In development Master Plan approximately 84 acres of land is proposed for Trade & Commerce Zone located along the national highway. In that zone 8.4 acres land comprising general shopping area and offices is reserved for fruit and vegetable market on priority basis. Whereas remaining area of trade & commerce is reserved for Whole sale Market, Slaughter House & Ware Houses for future need.

- **Project Benefits**

  It will give ease to the local population to earn their living through it and will also improve the taxation, employment and the traffic congestion which is the major issue of Naushahro Feroze Town due to availability of market in the main core city area.

- **Implementing Authority -** Naushahro Feroze Town Committee/ Private Investors.
- **Estimated Cost: Rs.366.00 Million approx. (Short Term).**

| Project Name | Sector | Short Term | Proposed Area (acre) & Lengths (m) | Preliminary Cost (million/- PKR) | Justification |
|---|---|---|---|---|---|
| Establishment of Fruit And Vegetable Market At Naushahro Feroze | Economic Development (Trade & Commerce) | Short Term | 8.4 acres | 366.00 | 8.4 acre = 365,904 sft , at the rate of 1,000/- PKR per sft construction cost with all infrastructure cost |

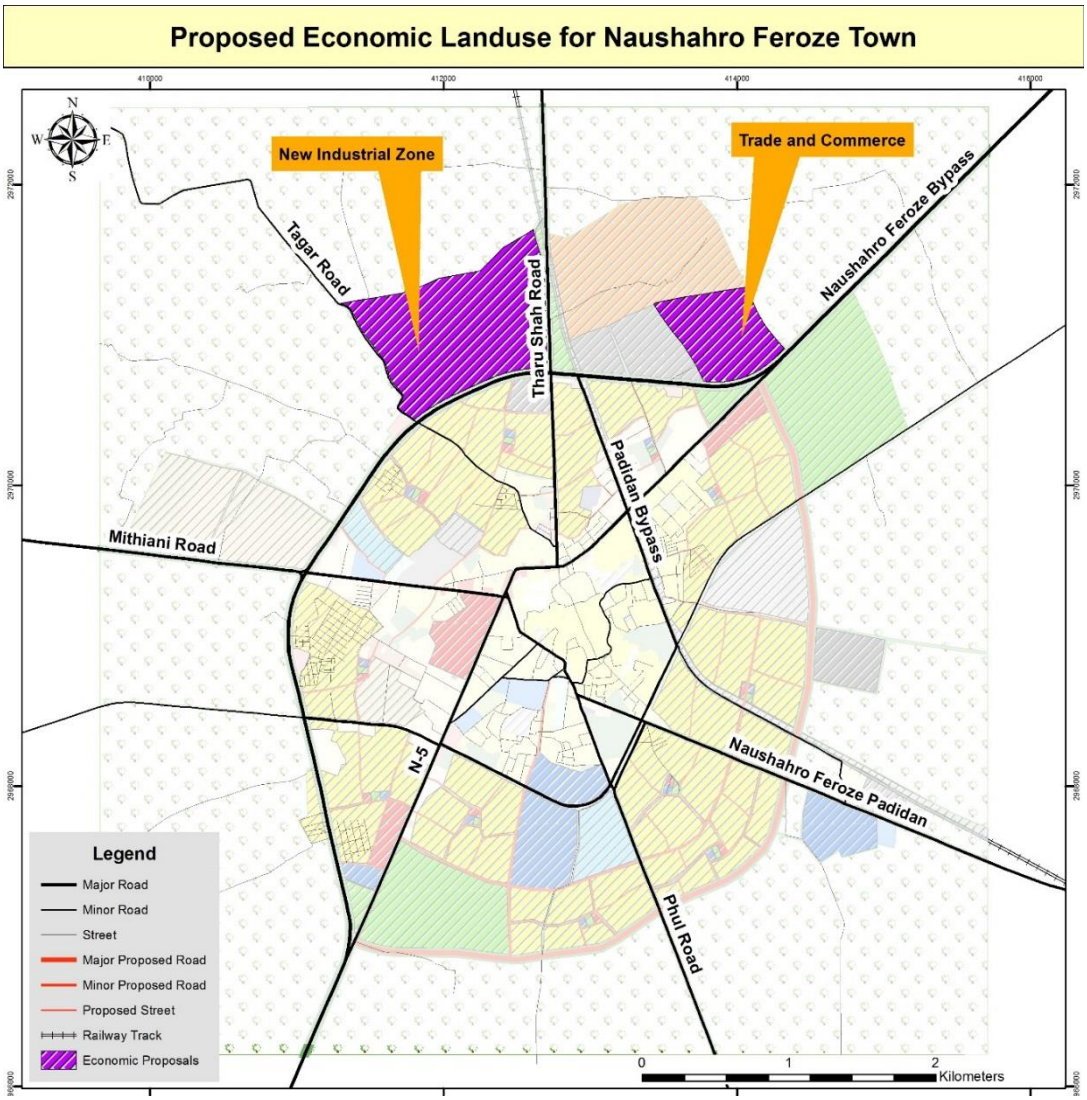



**Figure 7:2 : Commercial Areas (Coe Urban Area Naushahro Feroze**

### *7.5.5 Immediate Action Plan for Core Urban Area*

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

The proposed projects for core urban area of Naushero Feroze consists on; Removal of encroachments from town center and bazaars, created by the shopkeepers and hawkers; Rehabilitation of Main Commercial (CBD) Area, Rehabilitation & Beautification of main Bazar area i.e. Shahi Bazaar and Old National Highway N-5 road etc.

- **Trade and Commerce (Modernization of Commercial Activity in the Core Urban Area)**

  Naushero Feroze has major commercial hub like; Shahi Bazar & Main Old N-5 passing from core urban area. CBD includes traders, wholesale markets, and traditional embroidery shops, Auto Shops, restaurants, schools, clinics and general stores etc. Shahi bazar is located in old commercial area of DHQ town & in poor condition.
  - Up gradation of Shahi bazar area.
  - Provision of pedestrian facility in the Bazaar area.
  - Banned heavy vehicles during peak hours.
  - Removal of encroachments (road side bus & wagon stands etc.)

| S. No. | Area / Locality / Address | Area (Acre) | Cost in PKR million. | | | |
|---|---|---|---|---|---|---|
| | | | Street / Road / Parking | Utility infrastructure | Public Facilities | Security |
| 1 | Rehabilitation of Commercial Area | **50** | 12.55 | 1.51 | 18.82 | 12.55 |
| • Up gradation of old bazar area (Shahi Bazar)<br>• Provision of pedestrian facility in the Bazaar area<br>• Banned heavy vehicles during peak hours<br>Removal of encroachments | | | | | | |
| **Total PKR Rs. Million** | | | **45.41** | | | |

**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 Govt.
3. Commercial areas accessibility for daily users and marketers is well define with ease.

## 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.

**iii) Mainstreaming the Poverty & Policy & Program**

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

- Industries & Commerce Department
- Local Govt. Department
- Works & Services Department
- Transport Department
- Planning & Development Department

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

### vi. Access to Micro-Finance

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

# 8. BASIC UTILITIES

## 8.1 Water Supply

### *8.1.1 Existing Situation*

The main source of water is hand-pumps and tube wells; the water quality is reasonable. Between 95 - 100% of households use hand-pumps as a source of water.

The majority of the households (96-98%) do not apply any method for water treatment. Only about 2% of respondents treat water by boiling.

The majority of respondents (63%) said there was no need for a powered water supply. No water supply treatment works were requested during survey (existing supplies from hand-pumps are considered to be satisfactory, at least for the mid-term). However, continued groundwater extraction may cause a decrease in water quality to unacceptable levels in the long-term, and it would be prudent to install a water supply system based on a surface water source (Rohri Canal).

Hand pump is the most popular sources of water, accounting for 95% in urban area. The Population of Naushahro Feroze as per 2017 census population of district is 1,473,161 and MC is 38181 within an area of 2,945 sq.km

### *8.1.2 Water quality Assessment*

**Surface Water Quality**
No surface water is being used in Naushahro Feroze.

**Ground water Quality**
The sample was taken from Tube well water. The testing failed due to presence of cadmium, lead, Mercury and Barium.

The Micro biological analysis confirms presence of total coliform and E-coli.

**Contaminant Transport Characteristics.** The presence of microorganisms in groundwater is heavily dependent upon geologic conditions such as flow pathways and mechanisms, sunlight, temperature, pH, and soil properties. The type, size, and activity of the microbial community are also important factors that influence the transport of microorganisms. So there is need to conduct the geological test of soil.



**Figure 8:2: Hand pump**

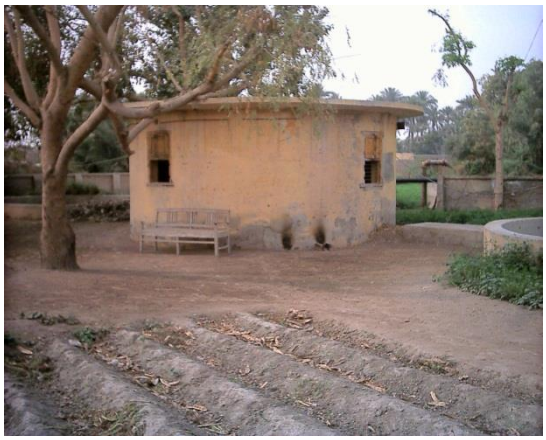


**Figure 8:2: Tube well**

### *8.1.3 Issues*

- People are concerned about possible lowering of water table, and would like a piped system if it was properly designed, installed and managed (with water meters).
- Piped water supply system (from canal source), to replace hand pumps and tube wells which are vulnerable to possible water table lowering.
- Main disadvantage would be need for water treatment, and cost and management implications.
- Nil recovery – water charges discontinued.
- No treatment of raw water. Inadequate waste water treatment facilities
- High dependency on ground water which is depleting
- Inadequate water supply coverage, poor quality and intermittent supply;
- No water treatment plant or chlorinators on tube wells are provided

### *8.1.4 SWOT Analysis*

| WATER SUPPLY & DISTRIBUTION | | | |
|---|---|---|---|
| **Strength** | **Weakness** | **Opportunity** | **Threats** |
| 1. Intake sources available<br>2. Most of the town is having hand pumps and less than half of town almost 44% is covered by pipe supply | 1. Absence of systematic water supply system and treatment plant<br>2. Poor administrative setup for water supply management and distribution | 1. Adequate water resources available for water supply system development<br>2. PPP in service delivery | 1. Negative externalities on human and plant health<br>2. Depletion of water quality due to " "draw down" |

### *8.1.5 Need Assessment*

Estimated water demand for the period till 2037 is shown below:
Population, Current Water Supply & Demand Projected up to Year 2037

| Description | Years | | | | |
|---|---|---|---|---|---|
| | 2017 | 2022 | 2027 | 2032 | 2037 |
| **Population** | 38,181 | 48,689 | 62,008 | 79,175 | 100,965 |
| **Per Capita daily demand @30 gped)** | 1.15 mgd | 1.46 mgd | 1.86 mgd | 2.38 mgd | 3.03 mgd |

*Source: Consultant Estimation*

It is expected that the town of Naushahro Feroze will have a population of about 100,965 persons by 2037 and the daily demand of the town will be about (3.03 mgd) for a whole-day supply.

### *8.1.6 Sindh Drinking Water Policy 2017[32]*

**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.

[32] Sindh Water and Sanitation Policy 2017

- 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.

### *8.1.7 Strategic Development Plan*

#### i. Long Term Plan

- The design and layout of water supply pipes, storage tanks etc. should ensure that there is no contamination by overflowing sewerage systems, for example by maintaining a minimum distance between the two systems.
- Introduction of PPP in service delivery.

#### ii. Short Term Plan

- Surface water should be considered for drinking water supply as ground water is contaminated
- Construction of water supply scheme for whole town
- Prefeasibility for Water treatment plant

### *8.1.8 Priority Projects*

**i. Construction of Water Supply Scheme, including 2.0 MGD rapid filter plant and distribution network at DHQ town.**

- **Project Scope & Justification**

The purpose of the proposed project is the provision of surface water from Rohri Canal source) to the people of Naushahro Feroze town. The town is depended on ground water for drinking water which has now turned unfit for consumption on variety of grounds.

At present no centralized water supply scheme exists for the town, reason being availability in abundance of marginally fresh ground water through hand pumps and tube wells. The majority of the households do not apply any method for water treatment. The intake points in Naushahro Feroze are the hand pump and tube wells.

According to the census 2017, the population of Naushahro Feroze TC is 38,181 and the projected population is about 100,965 in 2037 with water demand of 3.03 MGD. Therefore it is proposed to develop a new centralized water supply scheme for DHQ town on priority basis covering an area of 1,074 acres of existing town approximately. And provide continuous 24 hours supply to consumers for 07 days a week. On the priority basis, a new water supply scheme having capacity of 2.0 million gallons per day is proposed to cater present population of DHQ town Naushero Feroze.

Improvements in water intake works cover below components;

- Construction of intake structure adjacent to Rohri Canal which will comprise of screens, pipe, valve chamber
- Construction of Wet well and pump room
- Installation of Pumps based on solar power
- Construction of Reservoir
- Laying of approx. 07 km pipeline from Intake structure (near 500 KV Switching Station, Bhirya) to Reservoir including air, butterfly and washout valves.

This scheme based on all new distributions network and 04 nos. overhead tanks. The establishment of 2.0 MGD rapid gravity filter plant and settling tanks spread on 20 acres computed to be provided. The total rough cost of this mega scheme is Rs 1,871.00 Million.

- **Project Benefit**

After implementation of this project & burden on ground water will be decreased. And also water intake will be improved.

- **Implementing Authority**

Government of Sindh, Naushahro Feroze TC, Public Health Engineering Department Naushahro Feroze

- **Estimate Cost: Rs.1871.00 million approx.**
  (Moreover, a feasibility study required for the cost assumption of project).

| S. No. | Project Name | Estimated Cost In Millions | Short Term | Justification |
|---|---|---|---|---|
| **Water Supply** | | | | |
| **1** | Construction of Water Supply Scheme, including 2.0 MGD rapid filter plant and distribution network at DHQ town.<br>- Construction of Raw water settled tanks (Rohri Canal)<br>- Providing, laying, jointing and testing of water supply main lines and distribution network.<br>- Land Acquisition for raw water settling tanks, filter plant, raw water pumping station and settled water pumping station.<br>- 20 acres , cost of per acre is 5 millions<br>- Construction of 4 Nos. of OH tanks with capacity of 0.50 MGD each.<br>- Installation of supervisory control and data acquisition (SCADA) for WS & WW facilities | 1871.00 | Short Term | The purpose of the proposed project is the provision of surface water to the people of Naushahro Feroze. The town is depended on ground water for drinking water which has now turned unfit for consumption on variety of grounds. The population of Naushahro Feroze TC is 38,181 and the projected population is about 100,965 in 2037 with water demand of 3.03 MGD. |

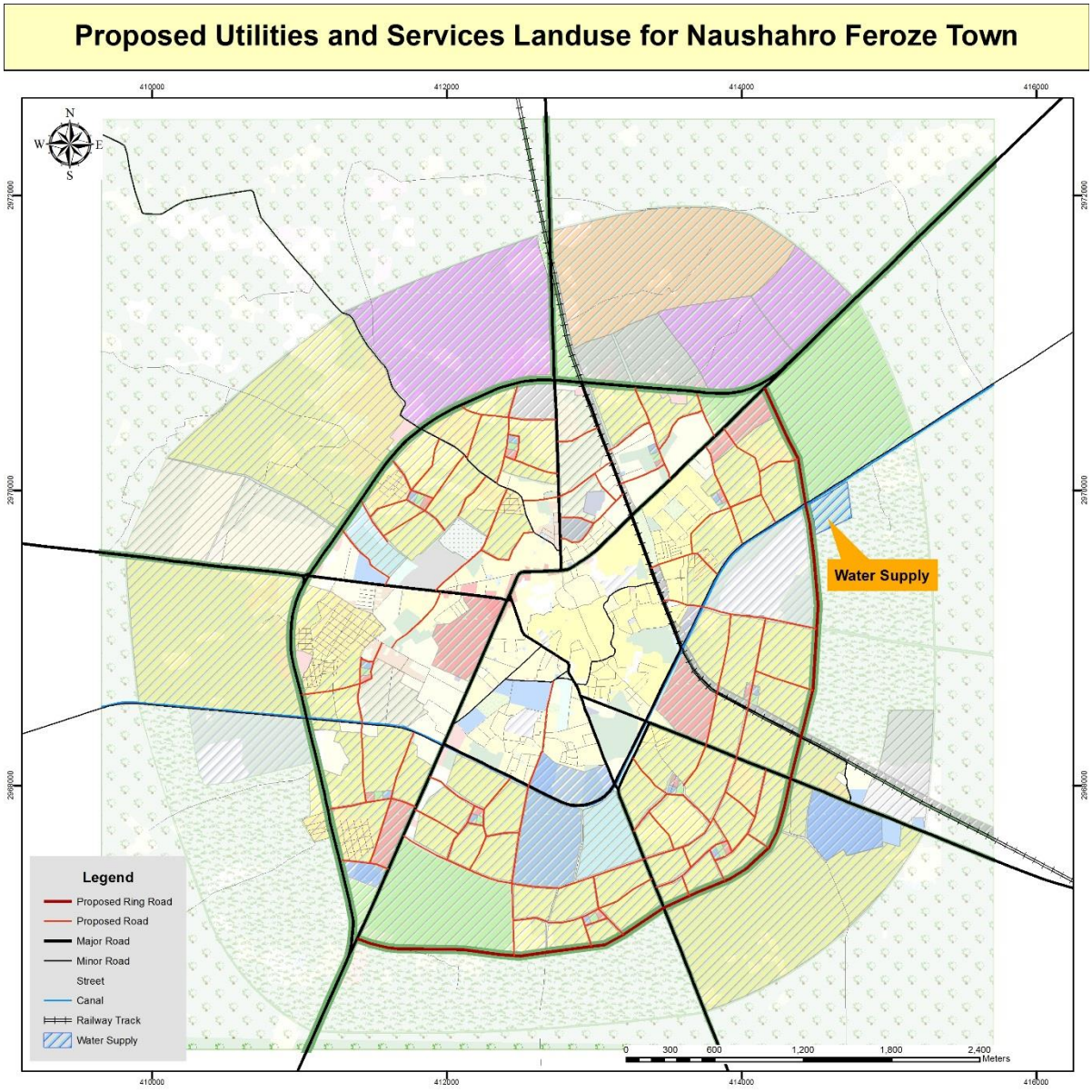



**Figure 8:3: Proposed Water Supply Landuse**

### *8.1.9 Immediate Action Plan For Core Urban Area*

- At present no centralized water supply scheme exists for the town, reason being availability in abundance of marginally fresh ground water through hand pumps and tube wells. The main source of water is under ground water via hand-pumps and tube wells; the water quality is reasonable. Between 95 - 100% of households use hand-pumps as a source of water.
- The present water demand is 1.15 Mgd. On the basis of NRM (National Reference Manual), the daily water consumption to be over 30 gallons per capita per day or 136 liters / capita / day. On this basis, the present water demand is likely to be about 8.4 million gallons per day.

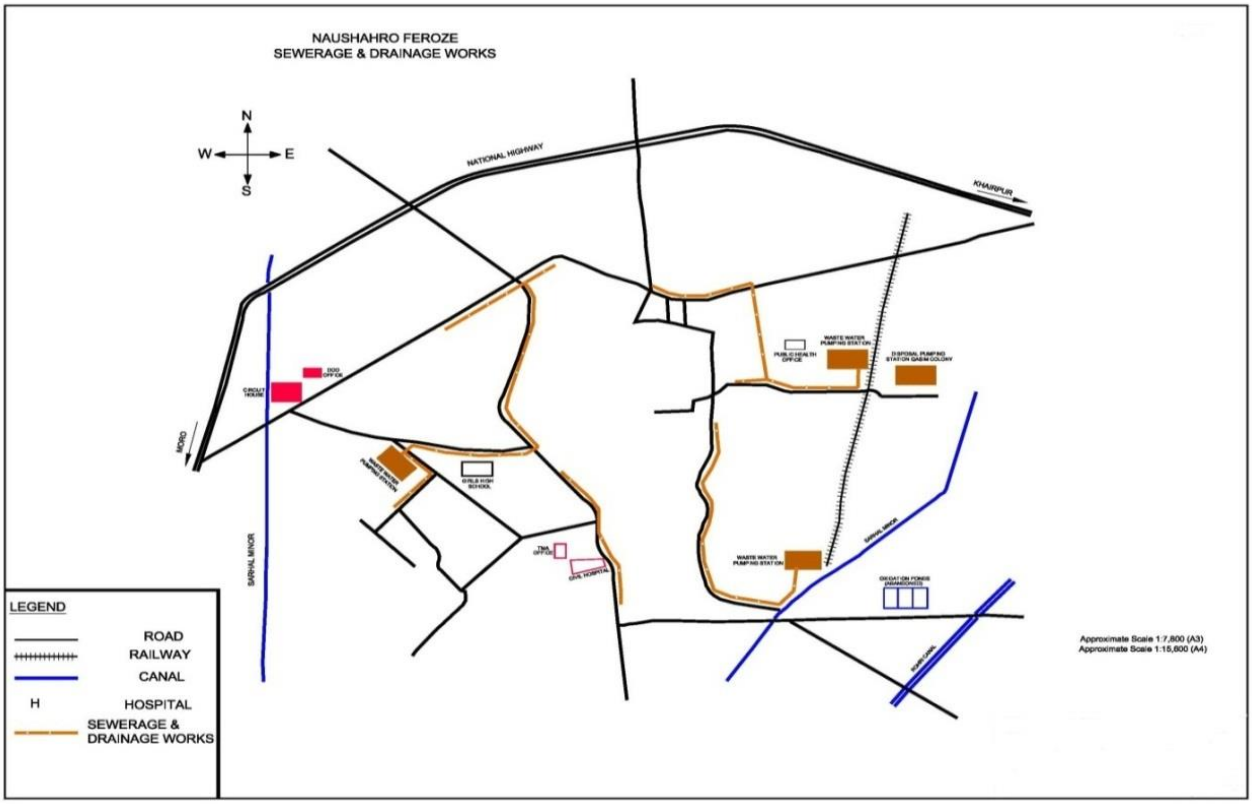
- It is expected that the town of Naushahro Feroze will have a population of about 100,965 persons by 2037 and the daily demand of the town will be about (3.03 Mgd) for a whole-day supply.

- Therefore, for the short term plan, it is proposed to conduct alternate water supply study to meet the long-range water needs.

## 8.2 Sewerage and Drainage

### *8.2.1 Existing Situation*

The drainage and sewerage system in Naushahro Feroze consists of surface drains, and reinforced cement concrete (RCC) pipe sewers in part of the town. The sewerage system lacks proper operation and maintenance due to funding constraints, and shortage of technical staff and proper equipment and vehicles.




The sewage/wastewater generated is collected through drains and sewers in screening chambers and collection wells at four disposal pumping stations, and is pumped through rising mains for ultimate disposal into irrigation channel/canal without treatment. There are two existing treatment works (oxidation ponds): (1) near Sarhal Minor (0.75 acres), connected to the adjacent disposal pumping station, for discharge into the Sarhal Minor canal through a rising main; and (2) near Bahria Foundation College, constructed on 4 acres of land, which should receive sewage/wastewater from three of the pumping stations through rising mains, but is not in use—hence the sewage/wastewater is discharged directly into Sarhal Minor.

Details on the infrastructure are summarized below:

- Conveyance is by gravity flow in surface drain and pipe sewers to 3 pumping stations for final disposal to irrigation canal (Rohri Canal).
- System is undersized.
- No treatment; there are oxidation ponds, but non-functional.
- Poor condition of sewerage drainage is main municipal services problem, and cause of waterborne diseases.
- Rehabilitation and extension of system.
- Underground sewerage system, but needs to be properly installed.
  Treatment plant (oxidation ponds) to be made functional and converted to stabilization ponds.

**Land Sites Identified**

Land sites for wastewater treatment identified by the Municipality during the previous survey to assess resettlement requirements are listed below;

Estimated land requirements for 2020 are as follows:

- Water works: 15.4 acres
- Wastewater treatment: 3.2 acres

### *8.2.2 SWOT Analysis*

| Strength | Weakness | Opportunity | Threats |
|---|---|---|---|
| **SEWAGE COLLECTION & DISPOSAL** | | | |
| 1. Availability of sewerage network system<br>2. Sufficient land for disposal sites is available | 1. Poor maintenance condition; garbage enters into sewers, which requires desisting<br>2. Drain water is disposed of untreated into canals and drains.<br>3. Open sewers<br>4. Outdated and disconnected network<br>5. No treatment before disposal<br>6. No policy for re-cycling, and reduction in generation of sewerage<br>7. Mixing of solid waste disposal into Sewerage | 1. An appropriate sewerage system plan should be implemented<br>2. Improvement of general hygiene/ public health by cleaning sewerage system<br>3. Canals should be saved from toxic disposals<br>4. Development of well-designed trunk sewerage network with less number of disposal station<br>5. Planning for well-connected gravity based open drainage system covering ponds<br>6. Job opportunities for skilled staff for proper maintenance | 1. Storm water flooding/ over flow of sewers<br>2. Environmental degradation<br>3. Funding & policies<br>4. Removal of encroachment<br>5. Land grabbers |

| Strength | Weakness | Opportunity | Threats |
|---|---|---|---|
| | 8. Rain/Flood water still standing in town centre areas | 7. Revenue can be generated through charging services for cleaning<br>8. PPP in service delivery | |
| **DRAINAGE & FLOOD CONTROL** | | | |
| 1. Most of the town is served by combined drain and sewer system | 1. Improper channelization of drains<br>2. Over flow of storm water drains<br>3. Lack of interest among stakeholders involvement in disaster relief activities<br>4. Poor administrative control for operating existing drainage system of the town<br>5. Depression areas causing permanent ponding<br>6. Reliance on sewer for flood/storm water | 1. The city's old drainage system needs revival through cleaning<br>2. Flood protection embankments should be enhanced up to greater extent to provide maximum protection to surrounding village<br>3. Development of surface drainage network with easy disposal to river/canal<br>4. Complete removal or treatment of land where temporary ponds have been formed in main town area | 1. Canal's water have been contaminated by open drains discharge<br>2. Medium level flood disaster threat to local communities living near to main course of River Indus<br>3. Open and overflowing drains have impact upon human health and give birth to epidemic diseases |

### *8.2.3* ***Issues:***

- Open drain on street.
- Improper channelization of drains and over flow of storm water drains
- Depression areas causing permanent pounding.
- Reliance on sewer for flood/storm water drainage
- Improper operation and maintenance of sewerage facilities.
- The many informal settlements are located in poorly drained low lying land can be subject to flooding, resulting in ponds of stagnant water in their midst and providing breading grounds for mosquitoes and water borne diseases. There is no standby pumping equipment at disposal stations.
- The drainage system and structures are in poor condition with open smelly drains and sewers.

- There is no sewage treatment and untreated sewage 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 sewage is being discharged into water bodies.

### *8.2.4 **Need Assessment***

Estimated wastewater generation for the period to 2037 is shown below

| Town | Description | 2017 | 2022 | 2027 | 2032 | 2037 |
|---|---|---|---|---|---|---|
| **Naushahro Feroze** | Water Demand | 1.15 mgd | 1.46 mgd | 1.86 mgd | 2.38 mgd | **3.03 mgd** |
| | **Sewerage Flows @70 % water supply mgd** | **0.80 mgd** | **1.02 mgd** | **1.30 mgd** | **1.66 mgd** | **2.12 mgd** |

### *8.2.5 **Sind Sanitation Policy 2017*** [33]

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

[33] Sindh Water and Sanitation policy 2017

will be given key emphasis during the planning, execution and monitoring of sanitation programmes.

- The policy seeks to prioritize the areas that pose the greatest risk to human health namely hygiene awareness and excreta disposal, and then address the environmental health risks that are posed by poor drainage and solid waste disposal.
- Increase access to high quality nutrition-sensitive services, including access to water, sanitation facilities, and hygiene.
- The policy shall promote the community led approaches to strengthen the demand for safely managed improved sanitary conditions that emerges from local communities. The multi-stakeholder partnerships and collaborations comprising of citizens, governments, civil society, non-governmental organizations (NGOs), donors, academia, media, etc. be encouraged to maximize the synergies in designing and implementation of interventions.
- Affordable (in terms of designs as well as availability of water) and cost effective technical solutions with necessary modifications and adaptations in technical standards to be consistent with cultural sensitivities of specific communities will be identified and marketed.
- The component sharing model as envisaged in the National Sanitation Policy will be Institutionalized gradually in which the community is responsible to construct lane and neighborhood level sewers (internal development) on self-help basis and the government focuses on trunks, disposal and treatment unit (external development).
- The role of women shall be an integral component of behavioral change communication strategies and project planning, implementing and monitoring through capacity development and social mobilization of relevant stakeholders.

### *8.2.6 Strategic Development Plan*

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

**1) Long Term Plan**

- Flood protection embankments should be enhanced up to greater extent to provide maximum protection to surrounding villages.
- Canals should be saved from toxic disposals.
- Development of well-designed trunk sewerage network with less number of disposal station.
- Planning for well-connected gravity based open drainage system covering pounds
- Sewers System Rehabilitation
- Gravity flow systems should be used for sewerage schemes so as to avoid pumping and O&M costs.
- Acquire Land & Provide Stabilization ponds for full treatment to produce acceptable quality of effluent for re use.
- Complete removal or treatment of land where temporary pounds have been formed in main town area.

**2) Short Term Plan:**

- To raise living standards of community by providing improved drainage and Sewerage services.
- Priority for sanitation will be accorded to un-served, under-served areas, and disadvantaged areas.
- 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
- Wherever existing sewerage systems discharge untreated sewage 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.
- An appropriate sewerage system plan should be implemented.
- Improvement of general hygiene/ public health by cleaning sewerage system
- PPP in service delivery
- Reclamation of land (that accommodates water of flood/rain) for public land uses
- Job opportunities for skilled staff for proper maintenance
- Revenue can be generated through charging services for cleaning.

### *8.2.7 Priority Projects*

**i. Repair & Rehabilitation of existing Sewerage and drainage network (89% of DHQ Town approx. 955.86 acres)**

➢ **Project Scope & Justification**

In Naushahro Feroze 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. Drains are in poor condition almost in all the town and need to be repaied. About 65% of respondents from the town are dissatisfied with the current sewerage system, 81% of households in katchi Abadis and 82% in the town use roadside drains for the disposal of sewerage.

The drainage and sewerage system in Naushahro Feroze consists of surface drains, and reinforced cement concrete (RCC) 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. Below mentioned components will be considered for rehabilitation and improvement works.

Rehabilitation of storm water and sewerage works will include the following components.

- Repair of Walls, bed and Top slab of drains, manholes and chambers

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

➢ **Project Size**

According to the land use survey conducted by client, the total Landuse of DHQ town excluding agriculture, vacant land & water bodies is about 1,074 acres approximately. According to socio economic survey results 89% (955.86 Acres) of town area is served with drainage system. Whereas 65% of respondents from the town are 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 955.86 acres excluding core town area.

| **Project Size** | |
|---|---|
| Population of Naushahro Feroze TC | 38,181 |
| Landuse of DHQ town excluding agriculture, vacant land & water bodies | 1,074 |
| 89% Landuse of DHQ town excluding agriculture, vacant land & water bodies | 955.86 |

➢ **Project Benefit**

After the implementation of the project of surface drainage network with easy disposal to river/canals after the treatment, the risk of urban flooding will be mitigated.

➢ **Implementing Authority –** PHED Government of Sindh, Naushahro Feroze TC

➢ **Estimate Cost: Rs. 1,971.00 million approx.**

**ii. Provision of Sewerage and drainage network in unserved areas of the Naushahro Feroze TC (approx. 85 acres).**

➢ **Project Scope & Justification**

As per socio-eocnomic survey results, 11% of total area is unserved due to unavailability of drainage network.

| | |
|---|---|
| Population of Naushahro Feroze TC | 38,181 |
| Landuse of DHQ town excluding agriculture, vacant land & water bodies **(Acres)** | 1,074 |
| Unserved area of DHQ Town **(Acres)** | 85 |

➢ **Project Size**

Therefore it is proposed to construct new drainage scheme for unserved area of DHQ town on priority basis, covering an area of 85 acres. The remaining area of the Naushahro feroze TC needs to be provided a proper drainage and sewerage network in the town. This project

will help the inhabitants of the town for easy disposal of storm water drainage and sewage water in to main drainage system.

- **Project Benefit**
  After the implementation of the project, the area of the town which is missing the facility of the drainge network will be served.

- **Estimate Cost: Rs. 03.00 million per acre cost – Rs. 255.00 million approx.**

- **Implementing Authority –** PHED Government of Sindh, Naushahro Feroze TC

### iii. Construction of Sewage Treatment Plant (STP)

- **Project Scope & Justification**
  Currently, waste water treatment in Naushero Feroze Town is served by two sites located near Sarhal Minor & Bahria Foundation College.These two existing sites of oxidation ponds can be defined as; (1) near Sarhal Minor (0.75 acres), connected to the adjacent disposal pumping station, for discharge into the Sarhal Minor canal through a rising main; and (2) near Bahria Foundation College, constructed on 4 acres of land (not functional) which should receive sewerage/wastewater from three of the pumping stations through rising mains, but is not in use—hence the sewerage/wastewater is discharged directly into Sarhal Minor.

  Due to unavailabilty of sewage treatment plant, the preference is given to conventional / Natural treatment of waste water through oxidation ponds. Therefore it is proposed to construct Sewage Treatment Plant for DHQ town on priority basis & convert existing oxidation Ponds area into STP.

  Initially, construction of STP having capacity of 1.5 Million Gallon is proposed on priority basis on land of four acres of existing oxidation pond located near Bahria Foundation College. The STP involves the process of pre and secondary treatment of waste water. The following components includes the process;

  - Raw water screening
  - Grid removal
  - Oil and gas removal
  - Aeration Tank
  - Sludge Separation & Treatment
  - Disposal of Sludge

- **Project Benefit**
  After the implementation of the plan wastewater will be used for landscaping or maybe for other use.

- **Implementing Authority -** Government of Sindh, Naushahro Feroze TC.

- **Estimate Cost: Rs.350 million approx.**

| S. No. | Project Name | Area (acres) | Estimated Cost In Millions | Short Term | Justification |
|---|---|---|---|---|---|
| **Sewage & Drainage** | | | | | |
| **1** | Construction/ Rehabilitation of Sewerage and drainage network (exluding the core area) | 955.86 | 1,911.72 | **Short Term** | At the rate of 2.0 million per acre for overall Repair & Rehabilitation construction cost. |
| **2** | Provision of Sewerage and drainage network in missing areas (exluding the core area) | 85.00 | 255.00 | **Short Term** | At the rate of 3.0 million per acre for overall Repair & Rehabilitation construction cost. |
| **3** | Construction of Sewage Treatment Plant (1.5 Million Gallon) | 4.00 | 600.00 | **Short Term** | Area reserved 4.0 acres, having capacity of 1.5 Million Gallons tentative cost for overall construction. |

## Proposed Utilities and Services Landuse for Naushahro Feroze Town

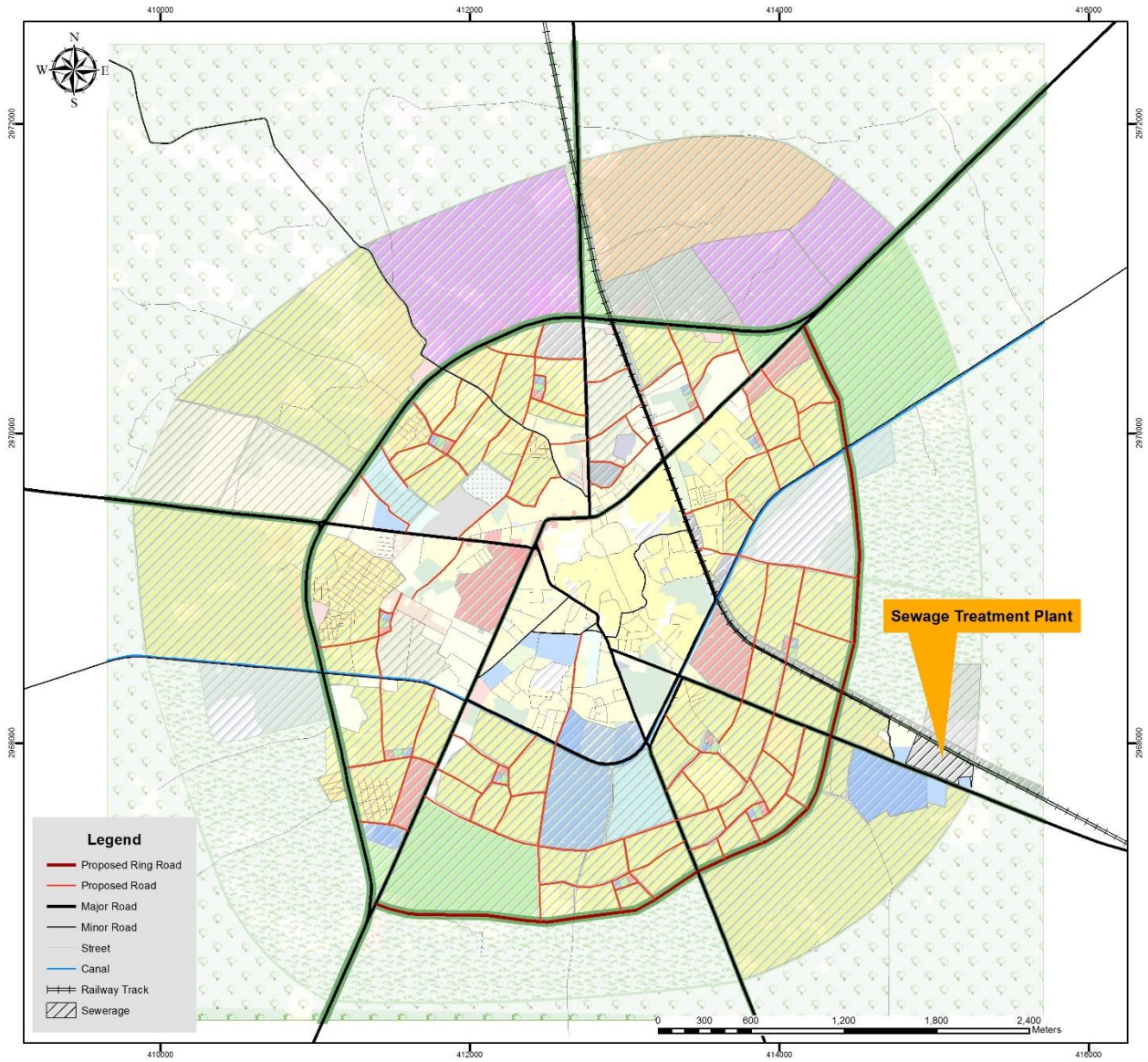



**Figure 8:4: Proposed Sewage Treatment Plant Lnaduse**

### *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.

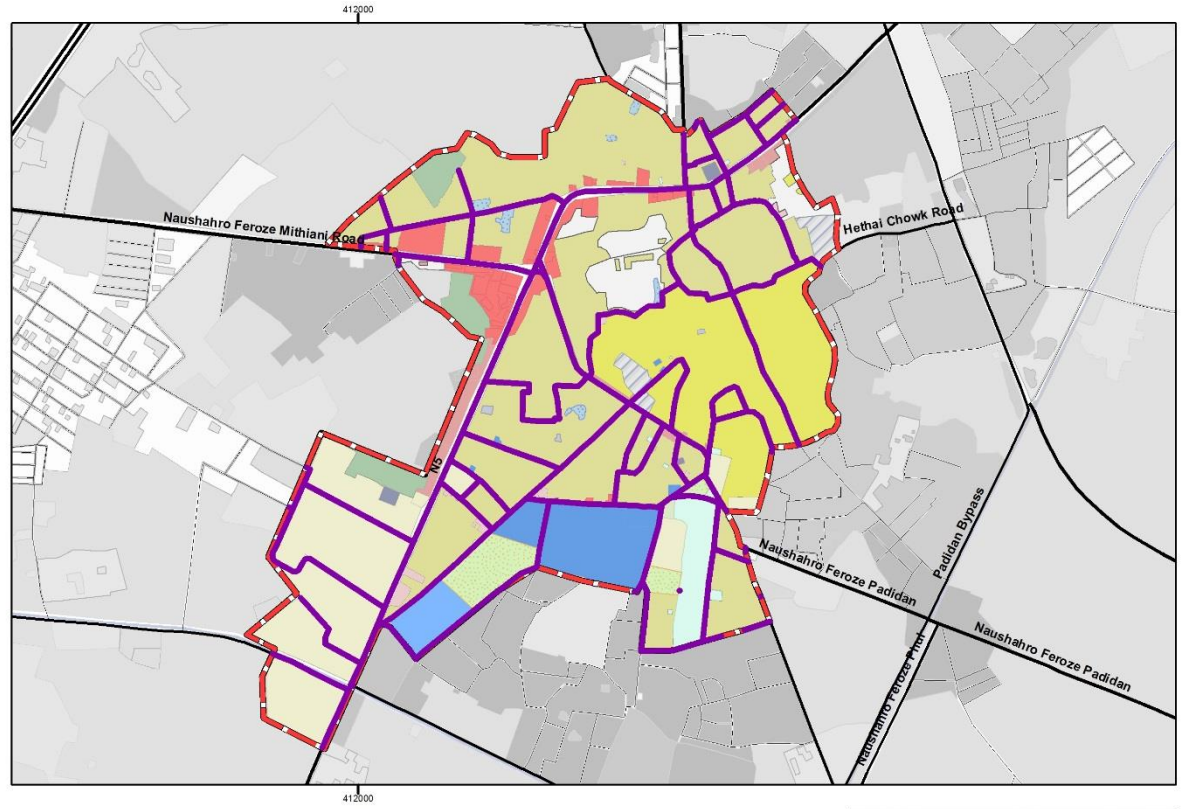
- Core urban area of Naushero Feroze is suffering due to unavailability of planned network of drainage schemes. Population of Core urban area is facing lot of problems due to stagnant sewerage water on Narrow Street. Below pictures shows the drainage issues of core urban area.

| **Present Waste Water Generation (MGD)** | |
|---|---|
| **Present Water Need (MGD)** | **Current Waste Water Generation (MGD)** |
| 1.15 | 0.80 |
| Source: Consultant's estimation 2017 | |

| **S. No.** | **Name** | **Area in Acre** | **per acre cost (PKR) million** | **Cost (PKR)** |
|---|---|---|---|---|
| **Total Core Urban Area : 218.83 Acre** | | | | |
| 1 | Sewerage System | 218.83 | 1.0 million/ acre | 218.83 |
| 2 | Storm Water Drain System | | | |
| | | | **Total Cost (PKR). Million** | **218.83** |
| **Note:**<br>* Rehab of Sewerage system includes all urban core area network system with all related machinery and equipment.<br>* Rehab of Storm water drain system includes all the core town area storm drain system through all steeps slopes and peak areas with all linking equipment and machinery. | | | | |



**Figure 8:5: Existing Drainage Situation in Core Area**



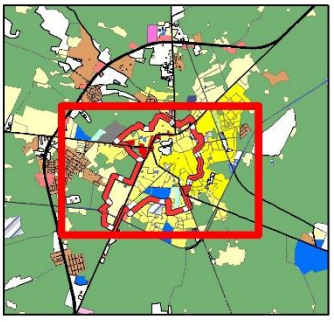

**Legend**

- Rehabilitation of Existing Network
- Core Urban Area
- Major Road
- Minor Road
- Street

**Proposals For**
**(Core Urban Area of Naushahro Feroze)**

N W E S

0 150 300 600 Meters



## 8.3 Solid Waste Management

### *8.3.1 Existing Situation*

After the passing of Sindh Solid Waste Management Board Act in 2014, Sindh Solid Waste Management Board (SSWMB) has been established which has the responsibility to collect and dispose all kinds of solid waste being generated in Sindh. At present SSWMB has directed the municipal committees for identification of land for Garbage Transfer Stations and Landfills so that garbage collection and transfer & transport operations could be handed over to SSWMB for effective management of solid waste. Meanwhile feasibility studies of medical hazardous waste of Hyderabad, Mirpurkhas and Shaheed Benazirabad are in progress. Once the municipal committees would be able to allocate proper and adequate land for waste disposal on long term basis then SSWMB will come into action for effective SWM at primary and secondary level in these District Headquarter Towns. As indicated, TC/MC is officially responsible for the entire solid waste management of the district under the directives of SSWMB. The waste collection system is primary to secondary type having street collection and then transfer & transport to disposal site. The street collection points are not permanent structures rather empty corners or vacant places.

Every locality has got throw away sites in the form of depressions, empty areas, cuttings areas etc. These types of non-designated points if come in the collection route are often served by the municipality staff or usually avoided due to shortage of time and resources constraints. Besides, there are more or less five established and active secondary collection points. These are permanent / semi defined structures developed as empty corners or vacant places.

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 PEPA Review of IEE & EIA Regulations 2000.

### *8.3.2 Issues*

- Throw used sanitary napkins uncovered in streets. Accordingly vacant plots in any locality offer opportunity for the nearby residents is used as throw away site. Drains get clogged by throw away articles, rain water get stagnant in depressions.
- No protective soil cover neither on top or bottom is provided and burning of waste is further increasing the quantum of environmental pollution and health hazards.
- Poor maintenance condition; garbage enters into sewers, which requires desisting.
- No treatment before disposal
- No policy for re-cycling, and reduction in generation of Solid Waste
- Mixing of solid waste disposal into Sewerage.

### *8.3.3 SWOT Analysis*

| Strength | Weakness | Opportunity | Threats |
|---|---|---|---|
| **SOLID WASTE MANAGEMENT** | | | |
| 1. Availability of Town Committee<br>2. System in place with improving efficiency, there is a slightly improvement in garbage collection<br>3. Recycling by scavengers | 1. Poor financial and operational management system<br>2. There is no system to identify toxic wastes produced by various activities<br>3. Communities' particularly low income groups are not aware with disposal procedures<br>4. Unavailability of land fill site | 1. Appropriate measures can be adopted for collection and re-cycling of SWM<br>2. SWM recycling will help to generate revenue<br>3. More landfill sites should be identified for future disposals<br>4. Establishing of a primary collection system would add more revenue resources.<br>5. Opportunity for recycling and reuse of solid waste, such as RDF, bio-gas etc<br>6. PPP in service delivery | 1. Improper sanitation<br>2. Poor public health<br>3. Outdated drainage system<br>4. Threats to plants and animal life<br>5. Loss of trust building with people in future |

### *8.3.4 Need Assessment*

- **Waste Generation**

Considering waste generation rate of 0.5 kg per capita per day, as per NRM Standards, the present (2017) waste generation would be approx. 19 tons per day. It is assumed that the presently allocated dumpling / landfill sites would be enough to cater present need

With the assumption that waste generation rate for future could increase from 0.5 to .075 kg per capita per day. Thus, it is estimated that 51 tons of solid waste will be generated by 2037 and a landfill site of approx. nine to thirteen acres would be required.

However, it is recommended to undertake the field study for the determination of waste generation and characterization for Naushahro Feroze in order to plan and design the solid waste management system. Based on National Refrence Manual (NRM): on population of 10, 000, one acre of landfill area is required. So for the projected population in 2037 of **1,00,965**, landfill area of approx. 10.09 acre is required.

### *8.3.5 Policy Guidelines*[34]

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

Principle

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

### *8.3.6 Strategic Development*

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**

- **Community and Private Sector Involvement in SWM:** The active involvement of local communities and the private sector is essential for an effective waste management

[34] Solid Waste Management Policy for Sindh.
Sindh Water and Sanitation Policy 2017

system. It would be beneficial to start involving local communities and the private sector in waste management, which has been a slow process. This process needs to be accelerated in a well planned manner.

- **Public Awareness and Education:** It can be brought about in many different ways through the electronic and printed media and street talks, through community organizations such as schools, institutions, and households, using a public-address system, distributing leaflets, for public awareness.
- **Encourage On-site Reuse and Recycling:** This method will reduce material consumption and the quantity of hazardous waste generated. As a result, material cost and waste treatment cost will be reduced.
- **Implement Waste minimization:** It is done through pilot and demonstration projects. These pilot and demonstration projects can be used to raise awareness of basic waste-minimization measures.

**ii. Short Term Plan**

- The collection and disposing of solid waste is the responsibility of the MC.
- The collection system needs to be made more effective and efficient.
- Town Municipal Committees has already initiated some work on biomedical-waste management. It should immediately start segregation practice for biomedical waste collection system.
- Techno-economic feasibility and detail study of characterization of waste is proposed on basis of the policy guidelines.
- Develop integrated solid waste management system keeping in mind the method, procedure and design at front end, middle end and back end, based on best possible public health practices and environmental protection laws/rules.
- Industrial waste disposal should be treated seperately and safely.

## Proposed Utilities and Services Landuse for Naushahro Feroze Town

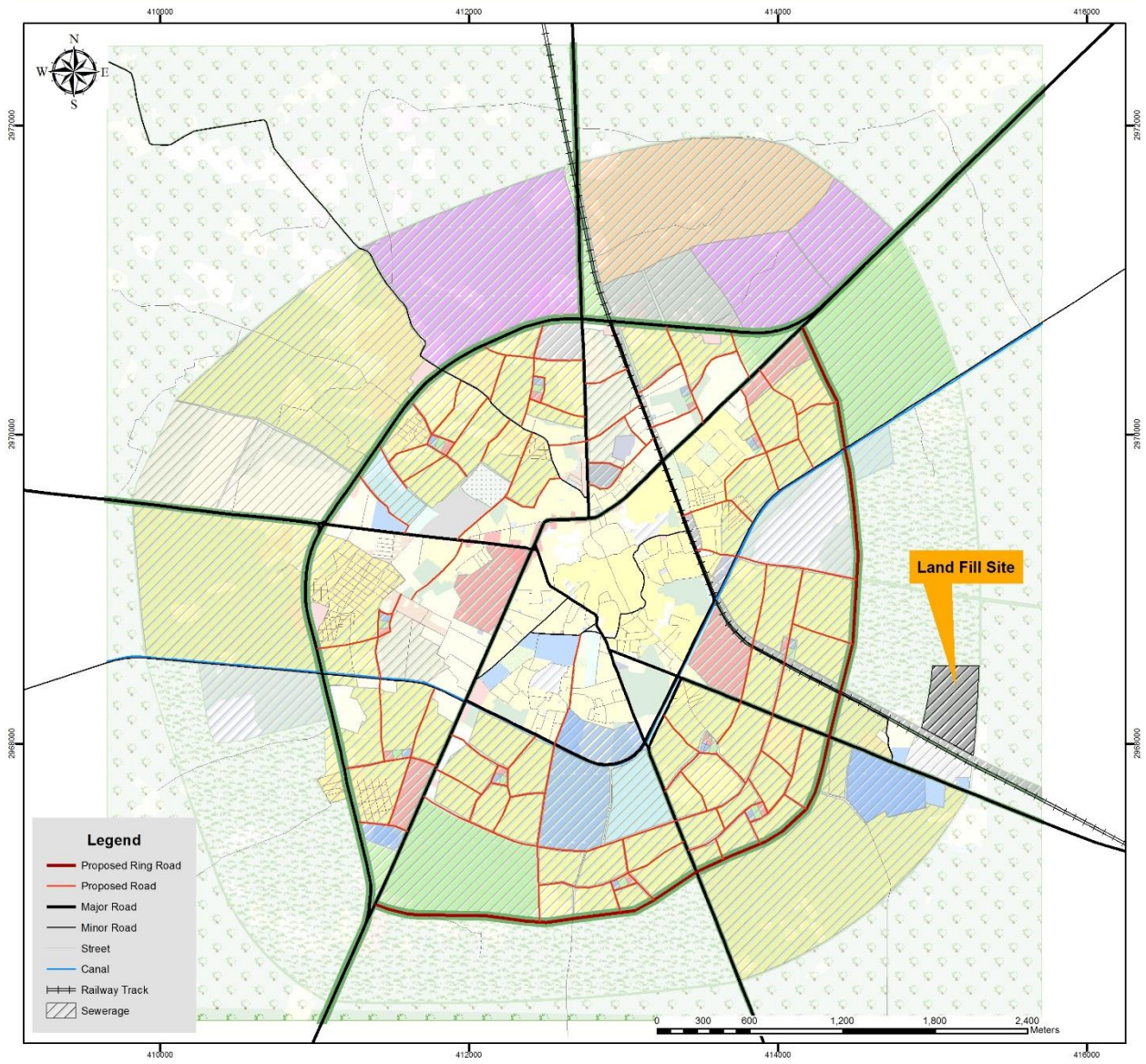



*Figure 8:6 : Municipal Services Proposals of Naushahro Feroze Town*

### *8.3.7 Priority Project*

**Feasibility Study for Solid Waste Management Mechanism**

- **Project Justification**

  The collection of the solid waste is the responsibility of Naushahro Feroze TC. TC 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 TMA's waste-management 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.

- **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, Naushahro Feroze TC

  **Estimate Cost: 100 million approx.**

**Feasibility Study for Construction Landfill Site in Naushahro Feroze**

- **Project Justification**

  At the present Naushahro Feroze TC don't have any suitable land for refuse the waste. Which is the main cause that refuse is dispose-off at the open sites in different collections. Landfill is an ultimate safe disposal option for Municipal Solid Waste disposal and is imminently required. Since TMA does not have a proper landfill, it urgently needs to find and develop proper site. The location and selection of landfill site is yet another a technical issue requiring comprehensive study need to be undertaken as multitude of aspects are considered.

- **Project Benefit**

  After implementation of the project the most significant benefit will be the environmental upgradation and health benefit.

- **Implementing Authority**

  Government of Sindh, Naushahro Feroze TC

**Estimate Cost**: 100 million approx.

| S. No. | Project Name | Estimated Cost In Millions | ADP | Non ADP | Status | |
|---|---|---|---|---|---|---|
| | | | | | Short Term | Long Term |
| **Solid Waste** | | | | | | |
| 1. | Feasibility study for construction of Central Composting Plant. | 100.00 | - | Non ADP | **Short Term** | - |
| 2. | Procurement for land acquisation process for Landfill Site. | 100.00 | - | | **Short Term** | - |

### *8.3.8 Immediate Action Plan For Core Urban Area*

- **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 or usually avoided due to shortage of time and resources constraints.



Specific information regarding, generation of Solidwaste specific to core urban area is not available. That's why below map is showing tentative disposable points for collection of solidwaste.

| S.No | Name | Container Nos. | Cost / Container | Cost (PKR) |
|---|---|---|---|---|
| **Total Core Urban Area : 218.83 acre** | | | | |
| 1 | Placing of Garbage Container at different sites/locations in core town area | 22 | 520,000.00 | **11,440,000.00** |
| | | | **Total Cost (PKR). Million** | **11.44** |

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

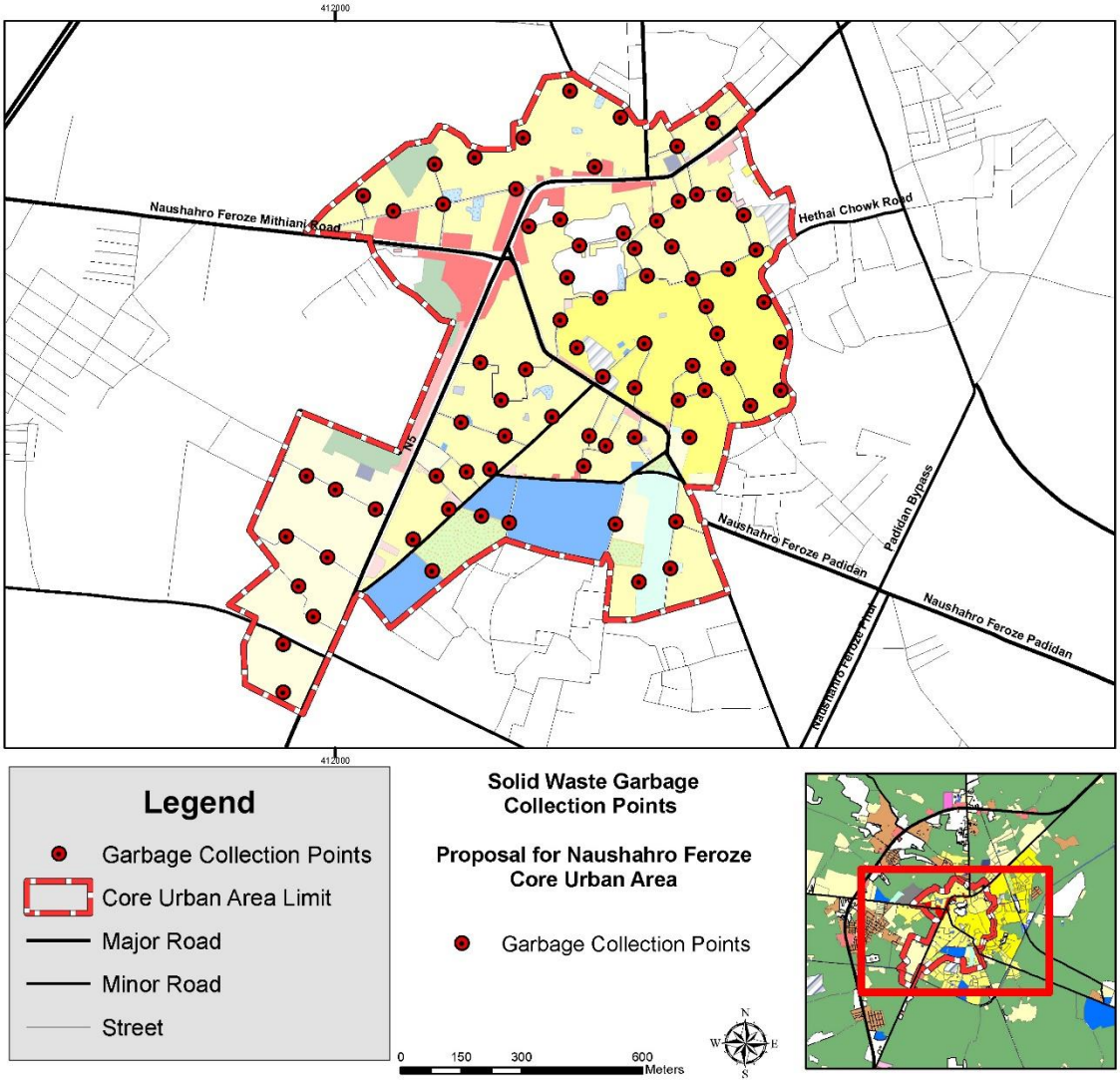



**Figure 8-7: Location of Solid Waste Collection Points**

## 8.4 Firefighting

### 8.4.1 Existing Situation

Currently there is one fire brigade station situated in Naushahro Feroze with 04[35] firefighting staff and one functional firefighting vehicles. The Town committee Naushahro Feroze 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 Naushahro Feroze is 38,181, which will be 100,965 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 is vehicle available with Town committee. So one more vehicle is needed for Naushahro Feroze 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.

[35] TC office Naushahro Feroze

# 9. INFRASTRUCTURE

## 9.1 Transportation

### *9.1.1 Existing Situation*

#### I. Airport

Naushahro Feroze has the central position to use any of surrounding airports like: Nawabshah Airport, Sehwan airport, Hyderabad domestic airport. The air travel from its destination Naushahro Feroze is located about 110 kilometers southwest of Nawabshah. Nawabshah Airport is settled on the ancient (RAF) Royal Air Force WWII base, which is presently being used for commercial flights by Pakistan International Airlines (PIA), Air Blue, Shaheen Air and other regional airline services. It is also a substitute to Karachi International Airport.

#### II. Railway Station

The city is also linked with the main national network of Pakistan Railways through Karachi-Lahore-Rawalpindi railway line via Karachi-Lahore lane. Naushahro Feroze itself don't have direct access of railways but its neighbouring talukas and cities are well connected with railways i.e. Bandhi Railway Station, Padidan Station, Bhiria Road Station, Bhiria Road Station, Tharu Shah Junction, Lakha Road station. This line is the part of first railway line (Karachi-Kotri) for public traffic between Karachi and Lahore. Currently this railway track is considered as busiest track for long route trains running on tracks to facilitate the public.

#### III. Bus and Truck Stand

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

### *9.1.2 Issues and Problems*

- Unplanned street network
- Absence of public transport
- Poor traffic management.
- Lack of opportunities for integrated transport provisions
- Lack of coordination between different transport operating agencies.
- Haphazard on street parking reduces road capacity
- Poor administration and management control

### *9.1.3 SWOT Analysis*

| STRENGTH | WEAKNESSES | OPPORTUNITY | THREATS |
|---|---|---|---|
| **LAND USE PATTERN AND TRANSPORTATION** | | | |
| 1. Mixed land uses (residential, commercial, industrial, administration)<br>2. Good national / regional connectivity through railway , air and road networks<br>3. Strong network of inter and intra city. | 1. Unplanned street network<br>2. Absence of public transport<br>3. Ribbon type commercial development in residential neighborhoods<br>4. Poor traffic management.<br>Lack of opportunities for integrated transport provisions<br>5. Lack of coordination | 1. Promotes compact development.<br>2. Activity centers (support local business)<br>3. Opportunities in the form of wide roads available for mass transit system development<br>4. Wider road space can be used to facilitate multiple transport activities by implementing road space design standards | 1. Mixed land uses (residential, commercial, industrial, administration)<br>2. Good national / regional connectivity through railway , air and road networks<br>3. Strong network of inter and intra city.<br>4. |

### *9.1.4 Policy Guidelines*

- Promote compact development.
- Provision of Activity centers (support local business)
- Promote Opportunities in the form of wide roads available for mass transit system development
- Provision of Wider road space can be used to facilitate multiple transport activities by implementing road space design standards
- Adequate space should be available for street furniture installation
- Proper management can promote public transport services.
- After removal of encroachments adequate space available for traffic signs, lane markings and foot paths
- If properly administrated and space utilized, could promote smooth flow of traffic on nearby corridors.
- A new transport terminal for goods transport will facilitate timely supply of industrial goods.

### 9.1.5 *Sindh* Empowerment of 'Persons with Disabilities' Act, 2018 [36]

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

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

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

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

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

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

[36] 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)

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. Long Term Plan**

- 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.

**ii. 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.
- Declaring private vehicle free zones, especially in peak hours, in CBD areas to reduce noise and air pollutions.
- Reduce traffic growth and congestion by achieving a mode shift.
- Enhance institutional efficiency to improve service delivery.
- Dualization of main arteries.
- Construction of Bus Terminal
- Construction of Truck Terminal along the bypass near proposed commerce and trade Centre.
- Construction of overhead bridge on Mithiani -NasharoFeroze bypass intersection to avoid accidents and facilitate smooth Traffic flow.
- Discourage the direct link roads the bypass.

## Proposed Transportation Landuse for Naushahro Feroze Town

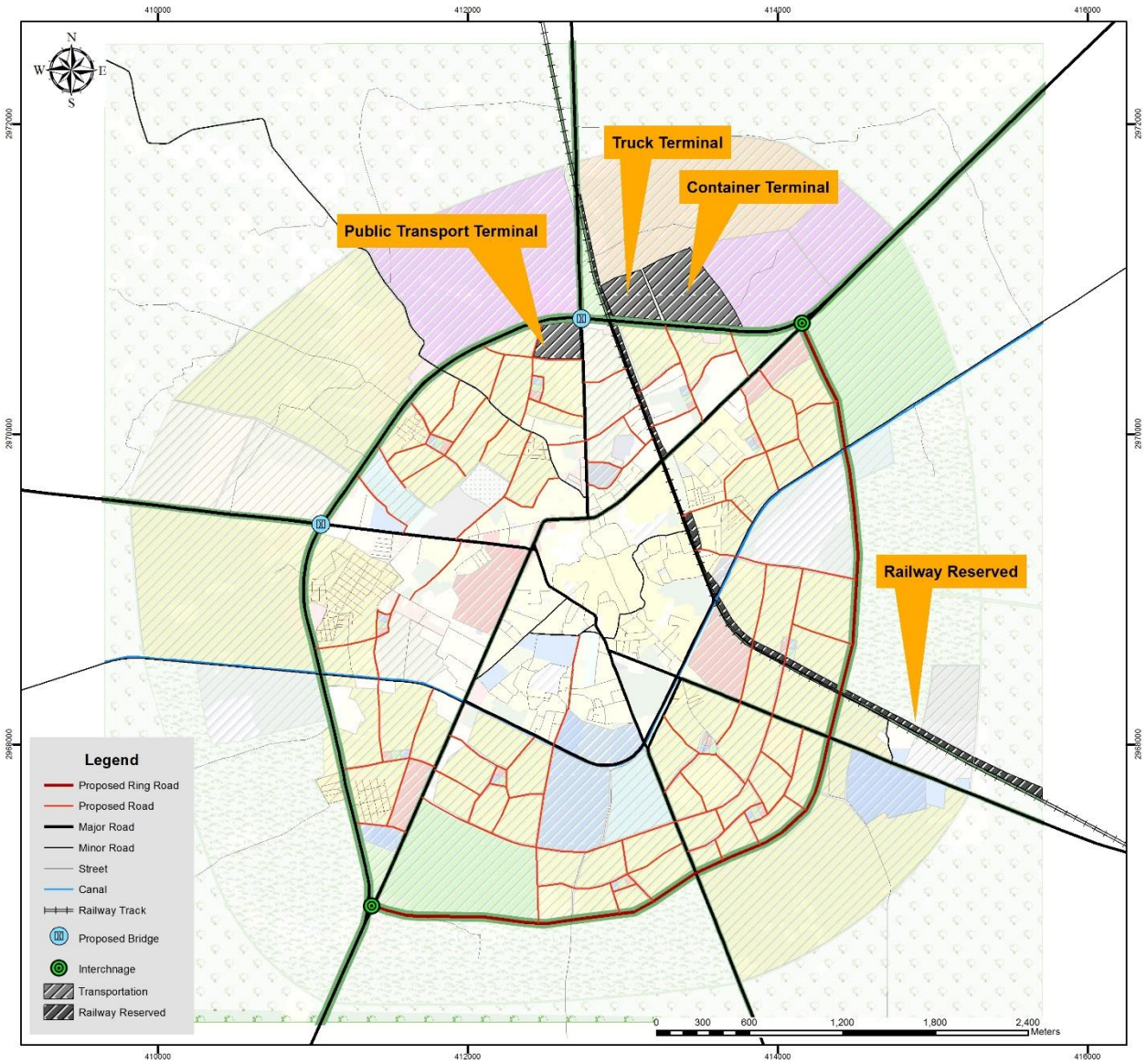



**Figure 9:1: Transportation Proposal of Naushahro Feroze Town**

### *9.1.7 Priority Projects:*

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

- **Project Scope & Justification**
  The communication linkages of Naushahro Feroze with other parts of regions are imperative for overall economic progress of the region and boosting services industry itself in Hyderabad to Sukkur and its surroundings. To reinforce the backward and forward linkages between agricultural production, industry, and services to strengthen the local and regional economy. Naushahro Feroze is facing traffic and transportation problems like most of other towns of Sindh. Conditions of roads in Naushahro Feroze are not very good. Drainage issues on road side are evident due to which roads are worsening day by day.

- **Project Benefit**
  By implementation of the project agricultural, industry sector could be enhanced.

- **Implementing Authority** - Government of Sindh, Naushahro Feroze TC, Works and Services Department

- **Estimate Cost: Rs.181.00 million approx.**

**ii. Construction of Bus Terminal & Land Acquisition for New Bus Terminal**

- **Project Justification**
  There is no any designated Bus terminal within Naushahro Feroze town. Inter-city buses are very limited and do not operate with regulations or proper stands. Illegal bus stands of public transport are evident in Naushahro Feroze. Unregistered Qingqi and Rickshaws are more than buses. Some bus stands are observed on the periphery of District Naushahro Feroze, which connect Naushahro Feroze to other Districts.

- **Project Benefit**
  This project helps to reduce the traffic congestion in the town and beneficial for the people of Naushahro Feroze.

- **Implementing Authority -** Government of Sindh, Works and Services Department

**Estimate Cost: Rs.150.00 million approx.**

| S. No. | Project Name | Estimated Cost In Millions | Non ADP | Long Term |
|---|---|---|---|---|
| **Roads and Communication Network** | | | | |
| **1** | Repair & Rehabilitation of Major & Minor Urban Roads (Excluding Core Urban Area) (Approx. 29.10 Kms @ rate of 4500 per running meter) 131 Million.<br><br>**Lump sum Amount 100.00 Million for below facilities**<br>• Pedestrian pathways<br>• Designated Parking Spaces<br>• Provision of Footpaths and Street Furniture (signals, sign & new solar Street Lighting On main roads) | 231.00 | Non ADP | **Long Term** |
| **2** | | | Non ADP | **Short Term** |
| **3** | Construction of Bus Terminal & Land Acquisition for New Bus Terminal | 150.00 | Non ADP | **Short Term** |
| **4** | 10 acres, 5 million per acre for land | | | |

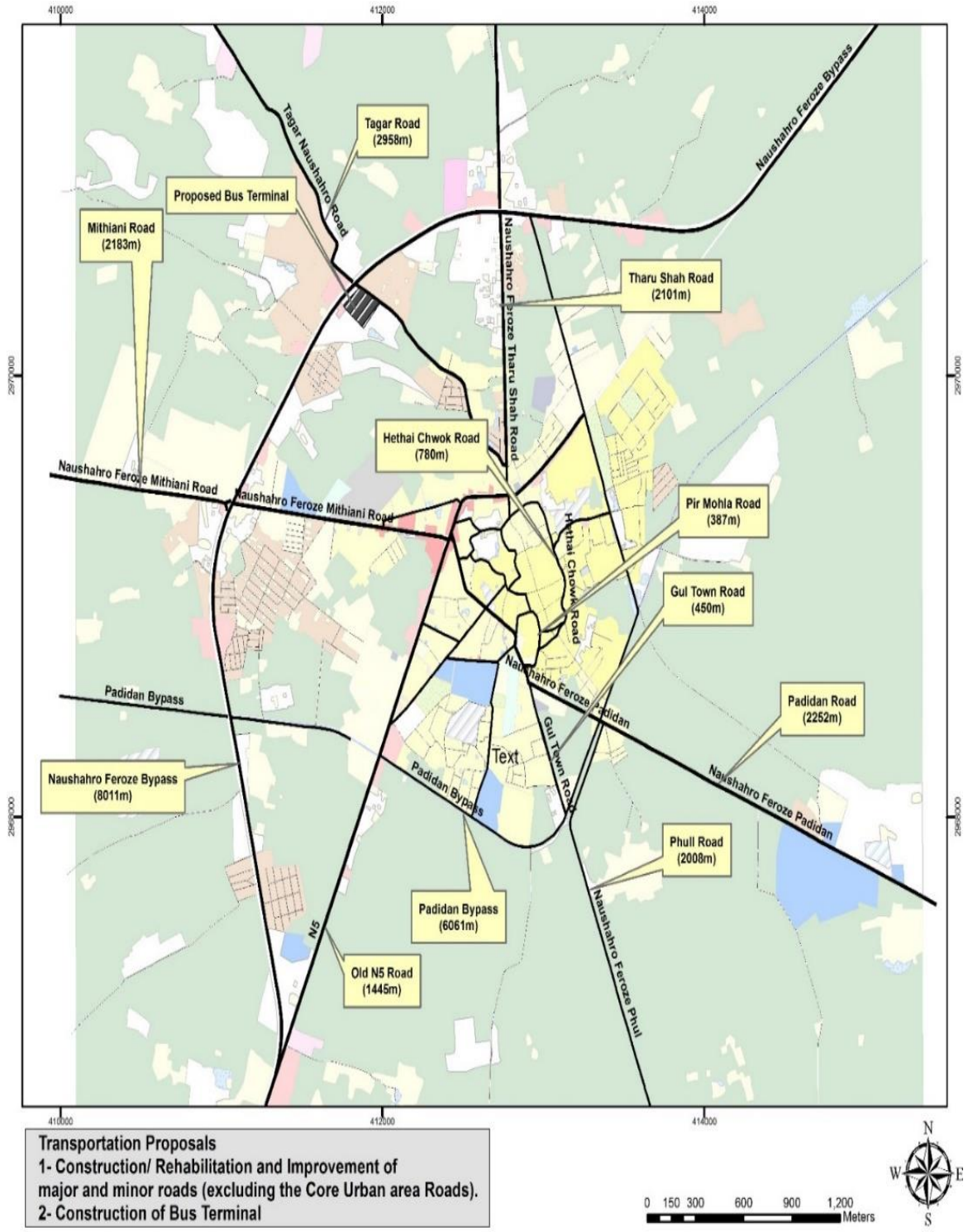



**Figure 26: Transportation Proposals of Naushahro Feroze**

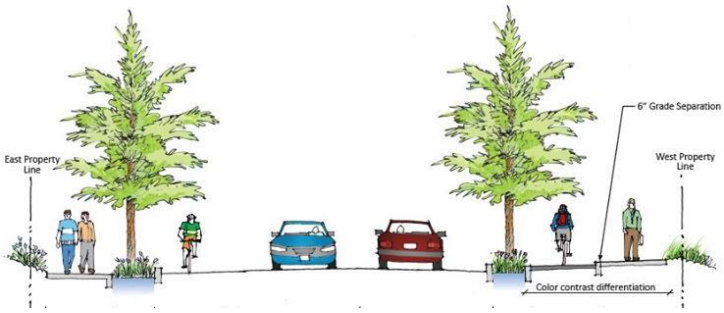
### *9.1.8 Immediate Action Plan:*

**i. Dualization & Rehabilitation of Existing Roads**



Repair & Rehabilitation of major roads i.e. Noushahro Feroze-Mithiani Road, Noushahro Feroze Padidan Road & old National highway N-5 road passing from core town area. And minor roads includes; College Road, Shahi Bazar Road, Shaikh Mohalla Road, Market Road & College Roads etc.

The improvement in road pavements with green medians, road markings, signals, pedestrian crossings, will be developed.




The main parameter for rehabilitation of existing roads is to draw a property line, which require very practical approach in such a way that no massive encroachment, 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 Naushahro Feroze 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.

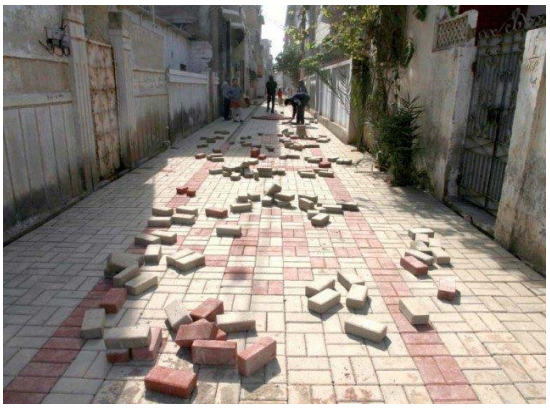


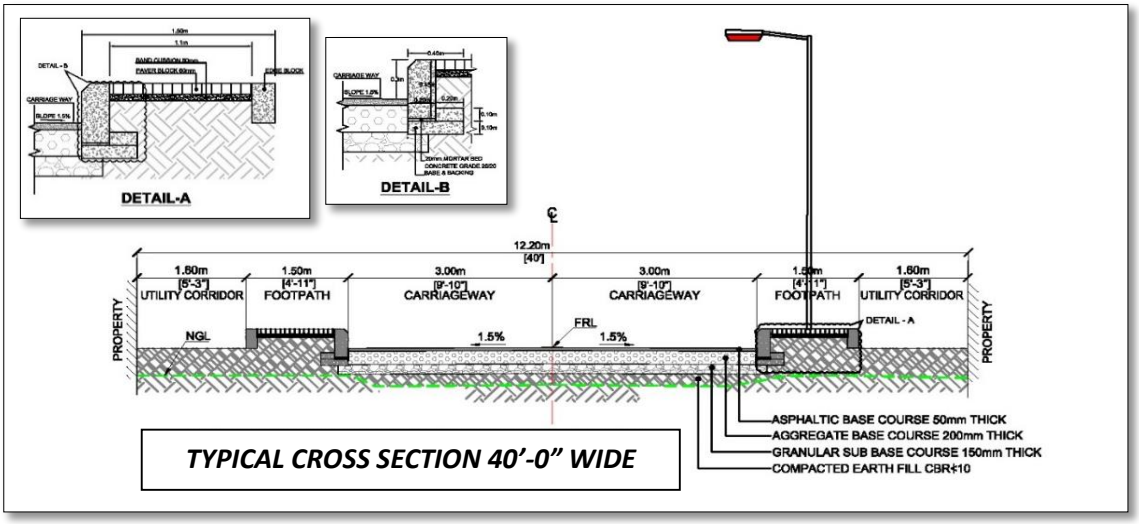
***Figure 9-4: Concrete Pavers for Streets***



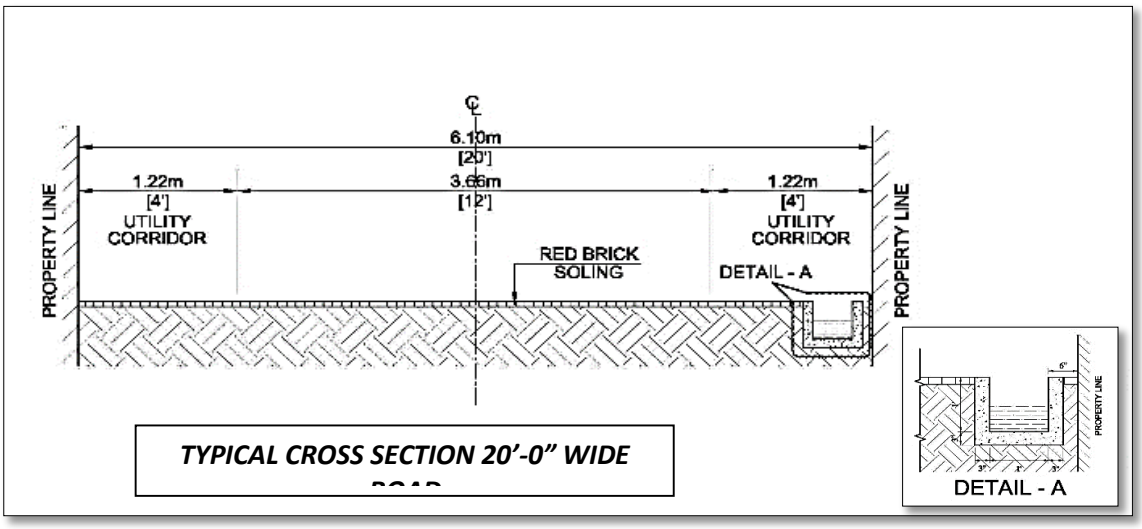
***Figure 9-4: Model of Monuments***

| Table 9-1: Immediate Action Plans – Transportation Core Town Area | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Naushero Feroze - Core Town Area | | | | | | Rehabilitation of Roads | | |
| S.No. | Area / Locality / Address Major Roads | Length (km) | Length (m) | Width (feet) | Width (m) | Area (sq.m) | Per sq.m cost PKR) | Total Cost (PKR) |
| 1 | Noushahro Feroze-Mithiani Road | 0.37 | 372.39 | 40.00 | 12.20 | 4,541.36 | 4,500 | 20.44 |
| 2 | Noushahro Feroze Padidan Road | 0.79 | 794.38 | 40.00 | 12.20 | 9,687.52 | 4,500 | 43.59 |
| 3 | N - 5 ( Connecting Road ) | 2.04 | 2038.97 | 40.00 | 12.20 | 24,865.44 | 4,500 | 111.89 |
| | | | | | | | **Total PKR Rs. Million (A).** | **175.92** |
| **Minor Roads** | | | | | | | | |
| 1 | College Road | 0.75 | 753.68 | 20 | 6.10 | 4,595.60 | 2,500 | 11.49 |
| 2 | ST - 03 | 0.24 | 238.53 | 20 | 6.10 | 1,454.45 | 2,500 | 3.64 |
| 3 | Shaikh Mohalla Road | 0.37 | 372.16 | 20 | 6.10 | 2,269.27 | 2,500 | 5.67 |
| 4 | Ice Factory Road | 0.16 | 160.05 | 20 | 6.10 | 975.90 | 2,500 | 2.44 |
| 5 | ST - 01 | 0.52 | 520.05 | 20 | 6.10 | 3,171.05 | 2,500 | 7.93 |
| 6 | ST - 07 | 0.19 | 187.63 | 20 | 6.10 | 1,144.10 | 2,500 | 2.86 |
| 7 | Market Road | 0.27 | 271.25 | 20 | 6.10 | 1,653.97 | 2,500 | 4.13 |
| 8 | ST - 02 | 0.32 | 316.90 | 20 | 6.10 | 1,932.31 | 2,500 | 4.83 |
| 9 | ST - 06 | 0.25 | 247.34 | 20 | 6.10 | 1,508.18 | 2,500 | 3.77 |
| 10 | Hethai Chowk Road | 0.50 | 496.47 | 20 | 6.10 | 3,027.28 | 2,500 | 7.57 |
| 11 | PTCL Exchange Gali | 0.25 | 251.21 | 20 | 6.10 | 1,531.77 | 2,500 | 3.83 |
| 12 | Shahi Bazar Road | 0.11 | 105.86 | 20 | 6.10 | 645.47 | 2,500 | 1.61 |
| 13 | Din Muhammad Babar Road | 0.80 | 802.98 | 20 | 6.10 | 4,896.25 | 2,500 | 12.24 |
| 14 | Naushahro Feroze - Tharu Shah Road | 0.13 | 127.43 | 20 | 6.10 | 777.03 | 2,500 | 1.94 |
| 15 | ST - 04 | 0.31 | 309.58 | 20 | 6.10 | 1,887.69 | 2,500 | 4.72 |
| | | | | | | | **Total PKR Rs. Million (B).** | **78.68** |
| **Streets** | | | | | | | | |
| 1 | Widening and Pavement of Streets | 3.19 | 3194.57 | 20 | 6.10 | 19,479.08 | 2,500 | 48.70 |
| | | | | | | | **Total PKR Rs. Million (C).** | **48.70** |
| | | | | | | | **Total PKR Rs. Million (A+B).** | **303.30** |

**Typical cross section is given as below;**




*TYPICAL CROSS SECTION 40'-0" WIDE*




*TYPICAL CROSS SECTION 20'-0" WIDE*

**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 Naushahro Feroze which will represent the history and grandeur of the town.

**Pedestrian Movement and Street Furniture**

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

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.



*Figure 9-6: Model of Footpath*



*Figure 9-6: Model of Walkway*

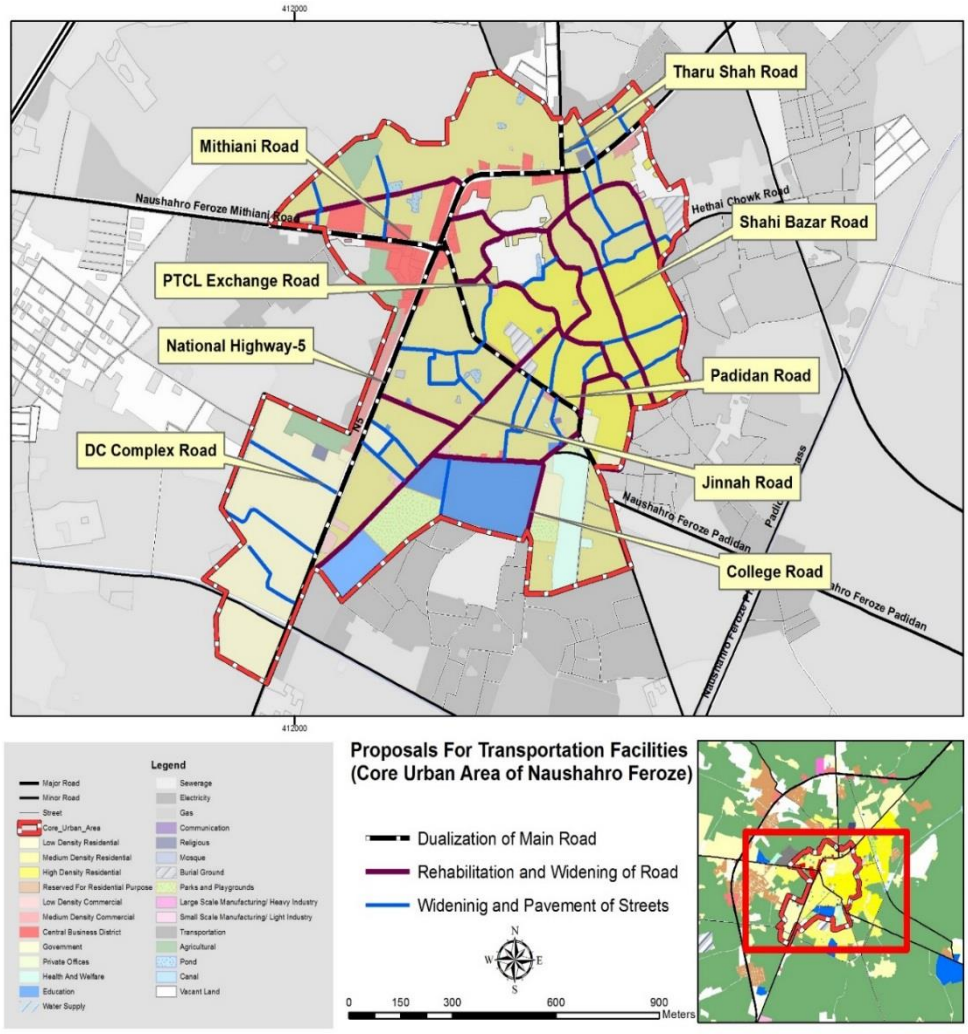



***Figure 9-7: Repair & Rehabilitation & Improvement in Transport Facilities for Core Urban Area***

## 9.2 Energy

### *9.2.1 Existing Situation*

There is no power generation facility in Naushahro Feroze (TC) vicinity. The power supply is through SEPCO-WAPDA transmission system. Results of socio-economic survey reveals that 100% of the households surveyed have SEPCO power supply. This is good indication that there is no household without SEPCO electricity in their houses, even then the installation of solar power system is growing day by day to meet the time of load shedding as well as save substantial bills of power from SEPCO.

The Power Supply to District Naushahro Feroze is from Sukkur Electric Supply Company (SEPCO) WAPDA through 132KV grid station, feeding taluka by three 11 KV feeders to supply power to households, commercial and industrial sector.

The distribution network needs to be improved by replacing the conventional Aluminum conductor by Aerial bundled cables (ABC) to avoid theft of electricity.

The survey also brings the fact that about 67% households have no alternative power source and 33% have solar power as second source of electricity. The remaining 67% households use other sources such as UPS, kerosene oil/gas in case of load shedding.

The distribution system will be needed to be extended to the new areas absorbing future urban growth. The power demand is not only for houses & business, but also for street lighting, industry and irrigation. The main industrial units are sugar mills, flour mills, workshops, exploration concession and small industries. The electricity consumers in the TC are categorized as domestic, commercial, industrial, agriculture and other services. The major portion of electricity generated is being consumed by domestic sectors, followed by industries.

The result of socio-economic survey indicated average power consumption per household in the area is about 220 KWH, which takes the total load of 1.382 MW.

In the city of Naushahro Feroze, electric supply problem like most nationwide urban areas is serious power shortage being faced by the people causing economic activities heavy losses due to load shedding, low voltage and frequent tripping.

### *9.2.2 SWOT Analysis*

| POWER SUPPLY & DISTRIBUTION | | | |
|---|---|---|---|
| **STRENGTH** | **WEAKNESS** | **OPPORTUNITY** | **THREATS** |
| 1. Electricity supply network for urban area<br>2. Almost whole urban area gets coverage of electricity<br>3. The industrial sector demands supply of electricity<br>4. There are good local potential for electricity generation | 1. Poor maintenance of electricity supply infrastructure<br>2. Power shortage due to non-payments of bills<br>3. Line losses and power theft<br>4. Outdated network in old town areas<br>5. Existing capacity of electricity supply is short to meet the growing demand of utility<br>6. No alternate source of electricity is available in the district | 1. By increasing the capacity of grid station will minimize electricity shortage & maximize production<br>2. Opportunities available for alternative energy production through solar energy and wind power<br>3. Renewal of outdated network to meet existing and future demand | 1. Load shedding<br>2. Threat to agriculture, industrial production and overall economy<br>3. Crime rate<br>4. Political will and policies at work<br>5. Licensing and legal issues.<br>6. Investment protection, law & order<br>7. Electricity theft |

### *9.2.3 Issues and Problems:*

- Shortage of electricity & power supply.
- Poor maintenance of electricity supply infrastructure.
- Power shortage due to non-payments of bills.
- Line losses and power theft.
- Outdated network in old town areas.
- Existing capacity of electricity supply is short to meet the growing demand of utility.
- No alternate source of electricity is available in the district.

### *9.2.4 Strategic Development*

**i. Long Term Plan**

- The effective development of low cost energy production systems can be used
- Success in achieving fuel efficiency, adopting new technologies and altering existing fuel-use
- Addition of sub stations as per requirement
- Encourage energy efficient building construction

**ii. Short Term Plan**

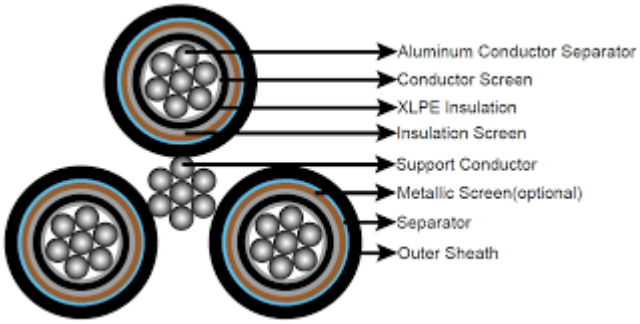
- SEPCO has to improve its capacity of electricity generation, transmission and distribution system.

- Demand for gas and water supply will increase for which SSGC and concerned agencies will have to expand the capacity and facilities.
- By increasing the capacity of grid station will minimize electricity shortage & maximize production
- Opportunities available for alternative energy production through solar energy and wind power.
- Renewal of outdated network to meet existing and future demand.

### *9.2.5 Immediate Action Plan*

➢ **Arial Bundle Cable wires**

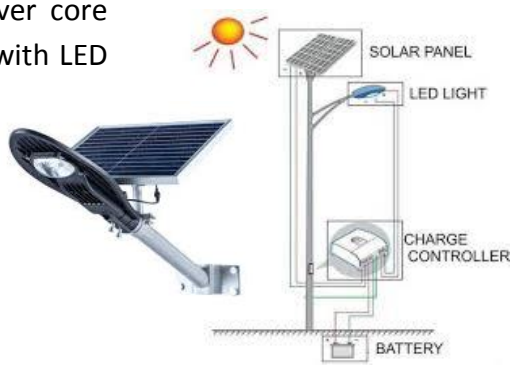
In present circumstances it is suggested that Arial Bundle Cable wires should be used to avoid short circuits and thefts issues. This will also increase the aesthetics and beauty of the core urban area.




➢ **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.




| Proposed Wall Mounted Street Lights | | | | |
|---|---|---|---|---|
| **S. No.** | **Name** | **length (m)** | **length (feet)** | **Cost (PKR)** |
| 1 | Proposed Total Length of Street (km) for wall mounted streets lights. | 15.00 | 49,213 | 12,303,150.00 |
| | | | **Total Cost (PKR). Million** | **12.30** |

- 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 2,460 Nos. of wall mounted streets should be placed in core town area.

## 9.3 Gas Supply

### *9.3.1 Presence of Gas*

A maximum of 181 houses residents had responded to the questions asked on availability of Gas. As given in the Table below, 97 houses had the gas available to them, while the gas was not available to 6 houses. Therefore about 97% households have the gas supply by SSGC and 3% were using alternate source of fuel for their daily household needs.

| Availability of Natural Gas | No. of Respondents | Percentage |
|---|---|---|
| **Available** | 183 | 97% |
| **Not-available** | 6 | 3% |
| **Total** | **189** | 100% |
| Source: Consultant's Survey, July 2017 | | |

## 9.4 Communication

### *9.4.1 Telephone, Mobile, Internet*

The present-day situation of Naushahro Feroze falls in the developing urban area; the preliminary survey of household's show that only 4% households have PTCL landline out of 188 who responded. The present survey also revealed that in Naushahro Feroze most population is using cell mobile phone.

| S. No. | Availability of PTCL/ Telephone/ Landline connection | No. Respondents | Percentage |
|---|---|---|---|
| **1** | No | 180 | 96% |
| **2** | Yes | 8 | 4% |
| | **Total** | **188** | 100% |

*Source: Consultant's Survey, 2017*

### *9.4.2 Internet / Wi-Fi*

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. Many households use mobile phone facility and use internet which is provided by service providers at modest rates.

| Internet Users | Households Responded | Percentage |
|---|---|---|
| **No** | 155 | 82% |
| **Yes** | 34 | 18% |
| **Grand Total** | **189** | **100%** |
| Source: Consultant's Survey, 2017 | | |

### *9.4.3 **Issues:***

- Lack of information sharing regarding agricultural activities, public health, veterinary, disaster forecasting etc.
- Most of the areas lack the coverage of PTCL.
- The internet usage is limited to educated families.
- 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.

### *9.4.4 **SWOT Analysis***

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

### *9.4.5 **Proposals***

- Media can play important role in economic development and prosperity.
- Promotes immediate disaster forecasting through disaster emergency response center.

***Importance of Communication Infrastructure in Agriculture Sector:***

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

# 10. ENVIRONMENT

## 10.1 Ecological Baseline

Naushahro Feroze district is the part of the Indus Valley which has benefited more than any other part of Sindh from the development of irrigation under Rohri canal.

### *10.1.1 **Fauna***

- **Wildlife**

  Similar to the situation in the entire Naushahro Feroze District, in Naushahro Feroze city specifically, wild animals may now be almost non-existent. Hyenas (Hyaena hyaena), Jackals (Canis aureus), Fox (Vulpes bengalensis) and wolf (Canis lupus pallipes) are now hardly ever seen.

- **Birds**

  Agricultural land, lakes and ponds and forests around Naushahro Feroze city are site for birds. Among birds, titur, grey partridges (Francolinus Pondicerianus) and black partridges (Francolinus francolinus asiae) are very common in the forest. Most of the common kinds of Wild duck and water fowl can be seen during the cold season. Geese, penetrating in the fields of green wheat and kunj, are also regular winter visitor.

- **Livestock**

  Locals maintain stocks of cattles and domestic animals as a second source of livelihood after agriculture. Livestock and ruminants include: goats (Capra hircus), and sheep (Ovisaries), camels, Buffalo, Donkey (Equusasinus) etc.

- **Indus River Riparian Zone**

  Riparian zones are the areas bordering rivers and other bodies of surface water. They include the floodplain as well as the riparian buffers adjacent to the floodplain. Riparian zones provide many environmental and recreational benefits to streams, groundwater and downstream land areas.

  Most common birds are as babblers (Turdoides striata), crows, doves, egret (Ardea alba), Indian robins (Saxicoloides fulicatus), kites (Milvus migrans), Larks (Alaudidae), mynas, rose-ringed parakeets (Psittacula krameri), sparrow (Passeridae), owl (Strigiformes), cormorants (Phalacrocoracidae), red wattled lapwing (Vanellus indicus) and bulbul (Pycnonotidae). The Sindh pied woodpecker (Dendrocopos assimilis) is endemic to this area.

Migratory birds include eagles, egrets, hoopoes, larks, mallards, nightjars, pipitsd, quails, shrikes, swallows, teals, vultures, warblers and wheat ears.
Some species of snakes such as the Indian sand boa (Eryx johnii), saw scaled viper (Echis), Sindh Awl headed snake (Lytorhynchus paradoxus), and oxus cobra (Naja oxiana) are commonly found in the area. Some types of lizards are also common.

### *10.1.2 **Flora***

Among the floral species, numerous kinds of grasses and other plants of low growth is considerable and there are about half a dozen species of trees of spontaneous growth found in Naushahro Feroz. The most common are trees are Pipal and sohanjro tree. Babul (Acacia nilotica), (Tamarindus indica) Imli and Ber (Zizyphus jujube) trees are also common in cultivated parts of the city. Kandi (Prosopis cineraria), a small tree is also found in the city. Kikar is common along the canals. Shrubs found throughout the region are Bougainvillea, cassia and Chota Gulmohar. (Azadrachta indica) Nim, (Albiziz lebbek) Sirehn, (Eucalyptus) Camaldulensis, (Dalbergia sissu) Shisham.

## 10.2 Ecologically Sensitive Areas

There are no ecologically sensitive areas in district Naushahro Feroze.

### *10.2.1 **Forest resource***

Forests help in protection of soil, improve environment by controlling pollution and cause rainfall. Total forest area of the Sindh Province is 1,037,571.36 hectares (2006-07) out of which district Naushahro Feroze shares an area of 10,273.84 hectares. The increased protection of forests could lead to a decrease in the severity of floods

### *10.2.2 **Riverine Forests***

Sindh Forest Department controls over an area of 241,198 hectares in the riverine tract of the province which are designated as riverine forests and locally known as Kacho forests. These forests are dependent on flood water of river Indus and located along both the banks of the River Indus in Thatta, Hyderabad, Dadu, Larkana, Naushahro Feroze, Nawabshah, Khairpur, Sukkur, Shikarpur, Ghotki and Kandhkot Districts.[37]

- The topography within 3 kilometers of Naushahro Feroze is essentially flat, with a maximum elevation change of 16 meters and an average elevation above sea level of 44 meters. Within 16 kilometers is essentially flat (33 meters). Within 80 kilometers contains only modest variations in elevation (708 meters).

[37] Mughal, Sadiq, STATE OF FORESTS IN SINDH AS WELL AS THE ECONOMIC BENEFITS FLOWING OUT OF IT, pg 157-158, June 2010

- The area within 3 kilometers of Naushahro Feroze is covered by cropland (100%), within 16 kilometers by cropland (99%), and within 80 kilometers by cropland (57%) and bare soil (34%).
- The Seismic zoning map of Pakistan (2015) places Naushahro Feroze in Zone 2A which corresponds to which corresponds to peak ground acceleration (PGA(g)) of 0.08 to 0.16 and a possibility of minor to moderate seismic hazards i.e. probability of earthquakes of intensity (MM Scale) 6 to 7.5.
- Accordingly, a seismic risk factor of 0.1 needs to be incorporated in the design for constructions and installations, for operational basis earthquakes (OBE) pertaining to damage due to moderate level earthquakes.
- The district has a well-established canal irrigation system. Rohri canal passes through the center of this district and irrigates the central and eastern parts of the district. Indus River passes alongside the western border of the district. Majority of the Dehs in this district are irrigated through canals. Out of the 221 rural Dehs, 201 (91%) are irrigated with the help of canals. 166 (75%) are irrigated with tube-wells and 52 (24%) are irrigated through river.
- A substantial amount of irrigation water seeps underground from the canals, watercourses, and fields. This seeping water having no natural means of escape goes on accumulating underground and the water table continues to rise until it reaches the ground surface. This creates water logged conditions. At the same time water from the shallow water starts to move up through evaporation and evapotranspiration. With the movement of water, salts also come up and deposit 99 at the root zone, and render the soil unproductive causing Salinization of the plant root zone.
- The sewage drainage system of Naushahro Feroze city is quite weak and ruptured. Due to which the waste water gets in contact with the surface water thus rendering it unfit for human consumption. This is the main cause of commonly spread diseases such as Malaria, fever and stomach related ailments.
- Generally, the left bank is underlain with saline groundwater unsuitable for agriculture and domestic and potable use. The fresh groundwater is mostly restricted to the narrow corridor along the Indus River, and occasional lenses and perched water. In the freshwater zone, freshwater is mostly pumped by the private tub wells to supplement the canal supplies. In the saline groundwater zones the public sector tube wells drain out groundwater to dispose that into canals or in to the drainage network.
- All the Urban localities in district Naushahro Feroze are covered with water supply through a piped water system. Besides non-mechanized source of water supply like hand pumps/wells etc. are also used by the people.

## 10.3 SWOT analysis

| Strength | Weakness | Opportunity | Threats |
|---|---|---|---|
| **ENVIRONMENT** | | | |
| **URBAN AREA & AREAS SUITABLE FOR URBAN DEVELOPMENT** | | | |
| 1. Land available for future development within town urban boundary<br>2. The land use analysis indicates that almost 32.4% of total urban boundary area is in use of residential purpose only where as 48.9% of the area is covered by agriculture fields | 1. Loss of agricultural land through land development for housing purpose<br>2. Water logging<br>3. Unplanned growth inside town.<br>4. Lack of utility services | 1. Mixed land uses may create activity centers.<br>2. High density will overcome housing shortages | 1. Land grabbing<br>2. Slums<br>3. Unplanned growth<br>4. Threat to agricultural land<br>5. Private sector may increase the cost of services |
| **LAND** | | | |
| 1. The land structure of this district comprises of plain fertile lands suitable for agriculture<br>2. Due to a well-organized canal system and proximity of Indus River, the whole district has irrigation facility resulting in the grasslands and irrigated crop lands<br>3. Rural rich fertile agriculture land that produces quality crops | 1. Unplanned land uses<br>2. Incomplete development of agricultural land parcels (scattered agricultural growth)<br>3. Poor administration by agencies monitoring urban growth of the city | 1. If treated through appropriate urban design principals & standards, can be transmitted into mixed land uses and strong activity centres<br>2. May increase productivity if cultivated at full strength | 1. Land shortage for new development<br>2. Slum formation<br>3. Contamination of land in un-irrigated areas |
| **CLIMATE** | | | |
| 1. Suitable for producing crops.<br>2. During summers, the mean maximum temperature is 44 $^0$C and minimum temperature is 25 $^0$C and during winters, the | 1. Rainfall shortages affect the efficiency of canal system<br>2. Hot winds blow from May to August from south to north which disturb the | 1. Agricultural practices can be changed in accordance with weather condition for maximum production | 1. Droughts<br>2. Heavy rains affects agricultural production |

| Strength | Weakness | Opportunity | Threats |
|---|---|---|---|
| mean maximum temperature is 24 0C and minimum is 5 $^0$C<br>3. Average precipitation is maximum in the months of July and August, reaching at 42mm | inhabitant's life very badly | | |
| **AIR** | | | |
| 1. Air quality in the rich agricultural belt is good for human health, and also keeps ecological balance in atmosphere<br>2. Most of the area is air pollution free | 1. Inner city air is polluted by high volume of traffic | 1. Development planned with respect to air circulation can provide relief to inner city's polluted environment<br>2. In future the town can be planned as Green City | 1. Air pollution<br>2. Respiratory diseases |

## 10.4 Issues and Problems;

- Water logging and salinity
- Water Contamination
- Low quality of surface water that is not fit for drinking
- Seismic Risk
- Aging of surface drainage canal system

## 10.5 Policy Guidelines[38]

- 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

## 10.6 Strategic Development

### i. Long Term Plan

- Achieving sustainable development, while overcoming environmental challenges such as land degradation, watersheds and marine fisheries, deforestation, waste management and pollution control, and climate change
- Multi-pronged approach to fisheries management should be adopted that takes account of economic, environmental, and social performance
- Fostering public-private partnerships
- Develop and implement policies that integrate the objectives of conservation and development to reduce pressure and protect environmental values and conserve biodiversity
- Restoration and maintenance to preserve ecological cycles, functions and services of environment
- Strengthening forestry education and research institutions to cope with the emerging challenges of deforestation and climate change

### ii. Short Term Plan

- Ensuring environmental sustainability
- The requirement for Environment Impact Assessments to be binding on all parties including government
- Increase the productivity of rangelands
- Provide recreational facilities for public by improving forest parks
- Rehabilitate degraded ecosystems and create environmental awareness
- Alleviate poverty through creation of forest based income generating opportunities
- Rehabilitation of Irrigated plantation
- Enhance Rangeland production and planting fodder trees for farmer community
- Improvement and Rehabilitation of Forests Parks
- Afforestation of Blank Reaches along Important Highways

# 11. DISASTER RISK MANAGEMENT

### *11.1.1 Floods*

#### i. Floods / Rains

District Naushahro Feroze was moderately hit by floods in 2010; whereas it was again severely hit in 2011 by rains/floods. After 2010 floods, the district falls under the category of medium risk districts, as declared by the PDMA Sindh. In 2011 rains/floods, the extent of damage was not moderate at all as assessments showed that 431 villages/settlements of 51 union councils in all the 5 talukas were affected.

A population of 671,499 persons was affected and there were 26 casualties and 50 injuries. In total, 31,455 houses were damaged. Geographically (all talukas and its UCs) 92% of the whole district was inundated and 44 percent of the sown area was affected due to these rains/floods. Given table summarizes the losses and damages of 2011 Floods/rains.

Along with the demographic loss, due to floods 2010/2011, 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.

#### ii. Seismicity:

The Seismic zoning map of Pakistan (2015) places Naushahro Feroze in Zone 2A and 2B which corresponds to possibility of minor to moderate seismic hazards i.e. probability of earthquakes of intensity (MM Scale) 6 to 7.5.

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.

#### iii. Droughts:

In routine, within a normal year, between 15 to 20 percent of poor families migrate towards areas of province Sindh which have barrages such as Badin, Sanghar, Mirpurkhas, Hyderabad, Tando Allahyar and Tando Mohammad Khan to work as the seasonal labor and other livelihood opportunities. Due to droughts, approximately 25 to 35 percent population of region migrated to work in friendly environments.[39]

For example, in 2014 it has been observed that approximately 40 to 50 percent families were forecasteto migrate towards barrage areas. Most of these people prefer to settle and work at low wages, leaving them with little opportunity for bargaining power, and where their identity is counted as susceptible as

[39] https://www.dawn.com/news/1132994, published on sept 19, 2014.

exploited by their employers.

In case of arrival of drought if the government is already informed about the situation government should take concrete measures to provide permanent solutions to save water and boost water resources through which the situation can be tackled.

### *11.1.2 Impacts of Floods*

#### i. Food Security

Since district Naushahro Feroze is agro-based, majority of the households are engaged in agriculture farming and livestock rearing activities and still others in non-agriculture activities/casual labor. Many individuals of this flood affected district have lost their homes (31,455 houses were damaged), their crops (44% crop area damaged) and heads of livestock (353 livestock died). Due to the lack of an 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 labor. Through the destruction of roads, transport and market infrastructure, the floods had a significant negative impact on the 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 of food in the district[40]. 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 Naushahro Feroze 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 damage to heath care infrastructure but also affect health indicators of the affected population. District Naushahro Feroze was hit by the floods of 2010 and was also affected in 2011 rains, which deteriorated the district's health situation. In 2010 Floods, OCHA reported that 7 dispensaries were partially damaged and were not functioning due to lack of repairs. Respiratory infections were widely reported in winter. Diseases like diarrhea, skin diseases, suspected malaria and measles were widely reported.[41] Since 2010 floods and 2011 rains, the district's health situation remained serious and required continuous monitoring and assistance from health cluster partners.

#### iii. Education

Due to the floods/rains of 2010, 120 school facilities were damaged, out of which 30 were fully destroyed and 53 were partially damaged. 37 schools were occupied by the IDPs. Also, heavy rains affected the school going children. Due to the damages to the schools, houses and roads; education of 9,600 students was affected (Girls: 4,128, Boys: 5,472). Teachers numbering 360 were also affected.

[40] 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

[41] OCHA- PAKISTAN FLOODS 2010 – NAUSHAHRO FEROZE DISTRICT PROFILE (Jan 2011)

Due to the floods/rains of 2011, 64 school facilities were damaged, out of which 55 were partially damaged. 9 schools were occupied by the IDPs. Due to the damages to schools, houses and roads, education of 5,120 students was affected (Girls: 2,202, Boys: 2,918). Teachers numbering 171 were also affected.[42]

**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 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 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.
- According to Pakistan Health Cluster, there was a need to strengthen malaria control program including the provision of bed nets and RDTs in all affected districts. Serious gap existed in nutrition, water and sanitation, Maternal Neonatal & Child Health (MNCH) and Lady Health Worker (LHW) coverage, immunization and health facilities' restoration. Gaps in MNCH and LHWs coverage were not only in officially registered camps for displaced population but also for the rest of the population. Local authorities request assistance in further fumigation of affected areas as well as in distribution of mosquito nets.[43]

[42] Damage Need Assessment, Sindh-EMIS Reform c Unit, Department of Education and Literacy, Government of Sindh.
[43] Pakistan Health Cluster- Situation report#3-Pakistan/Floods in Sindh (22-0-11 untill 24-09—11)

## 11.3 Policy Guidelines[44]

- Arrange and conduct need assessments of damages / losses.
- Ensure application of proper mechanism for evacuation and relocation of affected community to safer places.
- Establish Relief Camps with necessary arrangements.
- Initiate relief and rescue activities in their respective areas with the help of all stakeholders which also include provision of shelter, food, medicines etc. to the affected communities as well as to IDPs who are settled in makeshift Relief camps
- Arrange coordination meetings with health units.
- Mobilize entire health network functioning in the district for situation analysis and need assessments.
- Arrange mobile teams / Mobile Medicine Units for pre-medication of affected communities in all near and remote areas.
- Delegate responsibilities for regular inspection and maintenance of irrigation channels and drains.
- Coordinate and communicate with DDMA.
- Identify and strengthen the vulnerable points in the banks of all canals and drains running through the district.

## 11.4 Strategic Development

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

### I. Long Term Plan

- The DSM, PPHI shall also be responsible for providing medical cover to the IDPs in the catchment area of BHUs assigned to them particularly, and will perform their due role in supplementing the overall medical cover provided by the District Health Department.
- National risk assessment would identify highly vulnerable districts and be complemented by higher resolution work at local level to diagnose the underlying causes of risk, explore concrete risk reduction options and inform development planning and prioritization exercises and/ or disaster preparedness planning.
- DRR needs to address and involve local level actors in high-risk communities to be effective and produce sustainable results.

[44] National Disaster Risk Reduction Policy 2013

- There is need to clarify mutual roles and responsibilities (horizontal and vertical) and coordination arrangements in an updated, multi-hazard national response plan

### II. Short Term Plan

- Develop coordination mechanism with PMD for ascertaining flood discharge.
- Develop mechanism for regulation of water discharge into canals, distributaries and drains before onset of monsoon season.
- Develop monitoring mechanism for inspection of embankments, weak parts of drains, IPs (inspection parts) and NIPs (Non-Inspection Parts) of all irrigation channels.
- Provide necessary medical facilities at relief camps.
- Close coordination and communication with DDMA.
- Depending on the calamity, the D.H.O will declare emergency at all medical points/health facilities. Detail of medical/paramedical staff at all points requiring medical health cover during any disaster
- Vigilance of canals / drains round the clock.
- Closure of canals at the heads as soon as possible in case of any breach or heavy downpour, etc.
- Ensure smooth flow of water, plugging up of breaches, if any, in the shortest possible time.
- Prompt dewatering of stagnant water from affected and low lying areas of the district.
- The Executive Engineers, HESCO Division shall ensure uninterrupted supply of electricity particularly to municipal services such as pumping stations for draining out rain water from the low lying and slum areas. Shall make arrangements for immediate removal/repair of fallen live wires to avoid any untoward incident of electrocution
- Arrange and provide adequate stock of medicines and medical supplies including Anti-Snake Venoms (ASVs) and Anti-Rabbi Venoms (ARVs), blood plasma, Saline Water, and other medical fluids for victims.
- Arrange medical teams for providing medical cover to the IDPs settled in any relief camp.
- Fumigate the affected areas and areas at risks of spread of any of epidemic disease.
- Ensure that all ambulances are in working order and road worthy conditions.
- Ensure vacant possession of all schools buildings at the time of emergency for setting up relief camps.
- Ensure sanitation and cleanliness as well as clean drinking water facilities wherever possible at all school buildings declared as relief camps through by binding down their concerned Headmasters.

# 12. CLIMATE CHANGE EMERGENCY CONTINGENCY PLAN

- **District Level Plan**

Naushero Feroze 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.

- **Early Warning**

**Pakistan Meteorological Department**

- Pakistan Meteorological Department (PMD) has a broad mandate of supporting agro-based economic activities, air and maritime traffic safety, disaster mitigation efforts and disseminating weather forecast to numerous end users. PMD will ensure the following during monsoon season:
- Inform public on the weather forecast and issue warning in case of potential threat like Rainfall.
- Collect rain data on a regular basis, consolidate and share it with all concerned.
- Disseminate flood information to the NDMA/PDMA on a daily basis during flood season.
- Share weather forecasts and early warning information with NDMA, F/G/S PDMAs, and the media on a regular basis in the monsoon period.
- Coordinate with FFC, WAPDA, PCIW, FFD, and SUPARCO in the Monsoon period to generate flood warning where wanted.

**I. Flood Forecasting Division (FFD)**

- FFD is an affiliated organization of PMD. It disseminates flood early warning and river flow updates to relevant National, Provincial and District Governments and National Response Agencies, especially in the context of Monsoon Season.

**II. Pakistan Space and Upper Atmosphere Research Commission (SUPARCO)**

- SUPARCO deploys its satellite imagery capacities for disaster impact mitigation and for early warning of disaster occurrence and trends monitoring. SUPARCO will play the following role during monsoon season:
- Provide remote sensing and satellite maps before and during disasters in order to show their impact.
- Provide remote sensing and satellite maps for hazard risk zones to enable relevant agencies to take measures for minimizing damage to population and property.
- Assist post-disaster damage assessment.

**III. District Disaster Management Authority (DDMA) Response**

- DDMAs shall activate District Emergency Operation Centers (DEOCs)
- In the event of a disaster, organize emergency response through the District Emergency Operation Center (DEOC)
- Setup early warning mechanisms and dissemination of proper information to public, prepare district level response, plans and guidelines, establish stockpiles of relief and rescue material; provide information to PDMA on different aspects of Disaster Management.
- Inform/update PDMA regarding the overall situation.
- Organize evacuation on priority basis.
- Conduct initial and subsequent assessment of disaster affected areas and determine the extent of loss and damage.

- Collect information on damage status and promptly plan for the resources requirement for relief operation and share it with the PDMA.
- Provide food, drinking water, medical supplies and NFIs to the affected population
- Preferably, set up tent cities / relief camps on open land and provide relief to the affectees in camps.
- Coordinate with PDMAs to deploy resources for emergency response.
- Mobilize community volunteer groups and civil defense for emergency operations.
- Forward timely situation reports (SITREP) on daily basis to PDMA for its timely dissemination to concerned quarters.
- Ensure registration of all relocated population in the camps and overall affected population on gender-segregated basis.
- Prioritize vulnerable segments of society in their relief operations.
- Facilitate early return of relocated population and help in restoring their livelihoods.

## 12.1 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 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 institutions
- Rehabilitation of affected educational institutions
- Continuing education of children at camps and helping them to recover from shock by providing toys etc.

## 12.3 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.

## 12.4 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

## 12.5 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

## 12.6 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.

**I. During Disaster**

- Establish relief distribution centers/camps and accept relief donation/relief support
- Timely release of funds to DDMA.

**II. 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.

## 12.7 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.

## 12.8 Civil Defense

**I. Pre-Disaster**

- Information sharing regarding technical and personnel expertise with DDMA.
- Conduct training for volunteers in first aid & other activities
- Effectively train & mobilize volunteers and initiate mass awareness regarding necessary first aid rescue activities

**II. During Disaster**

- Deployment of volunteers at the disposal of DDMA for Rescue, Evacuation and initiated basic first aid.
- Communicate to DEOC any additional resources required for performing rescue and evacuation activities
- Taking precautionary measures to stop fire incidents in camps and perform firefighting in emergency.
- Management of relief camps where required

**III. Post-Disaster**

- Identify gaps and make plan to overcome weaknesses
- Assisting District Administration and other Line Departments in Rehabilitation works

## 12.9 Civil Society and Private Sector Response[45]

The response of civil society organizations and the private sector to floods should be rapid and extensive. Local NGOs, will work extensively with the Government to provide emergency relief support provisions which include ration packs, water purification kits and tablets, shelter items (including tents, blankets and mosquito nets), sanitation kits and hygiene supplies, doctors and medical supplies, mobile and basic health care units especially for women and children. A particular focus will be placed on healthcare services to avoid the spread of water- borne infections and other disease and to provide basic health care services. Media on their part will cover the event extensively and play a significant role in raising awareness and mobilizing local and international resources for the disaster. Individuals and organizations from the private sector, both from Pakistan and the global community will contribute significantly to the flood relief effort alongside the government and donor community.

## 12.10 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.

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

## 12.11 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 Revenue and all other line departments during the emergency. These control rooms shall function round the clock.
- The Executive Engineer Irrigation will establish round the clock control room in his/her office for making liaison with all concerned & activate contingency plan of the department. They shall identify the vulnerable points of the irrigation canals and intimate DDMA. Executive Engineer will be in touch with DDMA and the Meteorological Department and inform the concerned agencies about any development emergency. He / She will make special arrangements for watching and patrolling of vulnerable points.
- Immediate arrangements for necessary machinery, sand bags and other material to be used for strengthening of embankments of canals and plugging breach shall be ensured and availability of communication network must be made at all vulnerable points.
- The Executive Engineer Irrigation shall ensure regular, timely and proper de-silting of all canals, distributaries, drains, sub-drains and submit a certificate to his/her higher authorities with an information copy to DDMA.
- The Deputy Commissioner shall ensure activation of Central District Control Room and already established control rooms at each Revenue Offices round the clock, under the supervision of Assistant Commissioner concerned. They shall also ensure preparedness at proposed relief camps and ensure immediate evacuation of people residing in low-lying areas to safer place / relief camps, if required. He / She shall also make immediate arrangements for the availability of sufficient quantity of relief material like food, blankets, tents, plastic sheets etc.
- The Deputy Commissioner shall constitute Supervisory Committee for relief works at district level.
- The Deputy Commissioner must further ensure that special attention is given to disabled people, women and children and extra ordinary measures are taken for such purpose.
- The Deputy Commissioner shall nominate the Assistant Commissioner as focal person to coordinate with the Taluka and Town level local council for drainage of accumulated rainwater.
- The Assistant Commissioner shall be focal person in Taluka for the entire operations of rescue and relief. He / She must ensure the respective arrangements for tractor trolleys and labor in coordination with Civil Defence, Boy Scouts Association and Police Department if needed and mobilize the village staff in the pre-and-post emergency work. He / She shall also ensure proper distribution of relief material among the actual needy persons.

- The Executive Engineer Irrigation Department shall ensure availability of bulldozers, excavators and earthmoving machines in sufficient quantity and in proper working condition in case of emergency.
- The Director Agriculture shall arrange for protection of standing crops from damages and diseases that may be caused from the stagnant rainwater in the fields. He / She shall manage required machinery from mechanical wing and must have the inventory of such machinery and equipment.
- The Deputy District Officer Livestock and his/her staff shall ensure safety of livestock from flood diseases and losses and Veterinary Officer shall ensure regular and timely vaccination of cattle in the district. They shall make all necessary arrangements for fodder for the livestock to be shifted from marooned areas.
- The Deputy Controller, Civil Defense should ensure the enrolment of volunteers as early as possible in order to avoid any chaotic situation during emergency. He / She will continuously remain updated of weather forecast reports and with meteorological departments and will arrange for warnings in emergency through sirens, loudspeakers and media at Taluka and town level. He / She shall ensure presence of the volunteers and scouts for rain relief and rescue activities in case of any emergency.
- The Deputy Director Food shall ensure availability of sufficient stock of wheat and other grains and shall coordinate with Deputy Commissioner for supply of food grains from local food grain dealers in case of need. He / She will also ensure that no stocks of government wheat, placed at depots, are damaged due to water accumulation, fire or rioting.
- The Divisional Engineer Telephone should ensure full function ability of telephones all over the district and provide assistance to all departments on demand at the time of need.
- Continuous supply of gas and proper safety of gas lines in the district must be ensured. Immediate repair work should be performed in case of any damage to the gas lines.
- The Deputy Commissioner shall ensure mobilization of the NGO's and business community in the rescue and relief activities in case of emergency and shall depute volunteers on different emergency tasks.
- The Regional Director Information shall keep close liaison with all control rooms of the district to provide correct and exact information to media regarding emergency. He / She shall also arrange briefings about the latest situation in case of emergency.
- The Red Crescent Society and other welfare associations and NGO's of the district shall provide food packets and other required material to the affected persons in relief camps in case of emergency.
- Proper arrangement for lifting of trees fallen due to heavy rain and gusty winds from the main roads shall be made by the Executive Engineer Provincial Highways department.
- The in charge Utility Store Corporation shall ensure the availability of sufficient stock of edible items in case of need.
- The Revenue Department shall also conduct the survey of any loss of life, houses, cattle, standing crops and other infrastructure after the disaster. In the event of the highest degree of emergency, Pakistan Army may be requested to help the district administration in rescue and relief operations.

## 12.12 Implementation and Monitoring

### Indicators

#### I. Quantitative Indicators

OECD (2002) defines an indicator as a ''quantitative or qualitative factor or variable that provides a simple and reliable means to measure achievement, to reflect the changes connected to an intervention, or to help assess the performance of a development actor.'' Quantitative indicators are numerical representations of complex phenomenon. Quantitative indicators can be useful in determining the level of achievement at all stages of a resilience project and can even be used to measure the strength of resilience characteristics, though this is better attained by using qualitative indicators[46].

#### II. 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.''

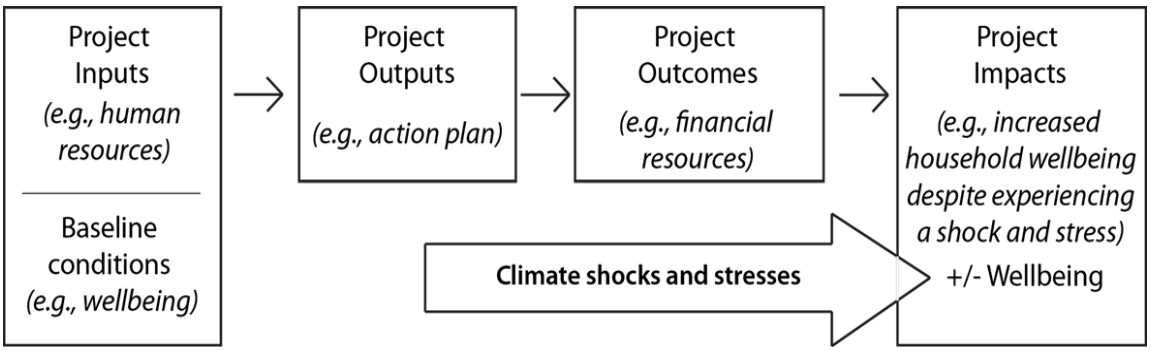



***Figure 12:1 : Four phases of a resilience initiative, and the timing of baseline and post-shock measurements of wellbeing (Brown, et al., 2018)***

These qualitative values can be used to create baselines and/or to indicate that a particular resilience impact/outcome has been achieved. The challenge with a qualitative indicator that uses a scale from 1-5 is that the scale should be created based on criteria that is fair and well informed.

[46] 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

**III. 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).

**IV. 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.

**V. Identified Indicators**[47]

Collection of Data to Perform Vulnerability Assessments to Floods

- Number of exposure and socio-economic datasets on current exposure to floods at district level.
- Geographic coverage of all datasets (% of all exposed areas).
- Number of reports detailing data collection and summarizing information.
- Number of policy and technical documents based on datasets and modeling scenarios.

Building Technical Capacity to Generate Vulnerability Assessments to Floods

- Number of technical staff trained to acquire competence in computer modelling techniques and able to perform Vulnerability Analysis (VA).

[47] 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.

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).

Investment in Projects that Directly Support Adaptation and Improve Adaptive Capacity

- Percentage increase in the number of seed varieties developed, documented and made available in the market.
- Documentation of seed varieties and their characteristics.
- Documentation of procedures and partnerships created to transfer seeds either directly to farmers or to market traders.
- Percentage increase in number of seed varieties available in rural markets.

- Number of climate resistant seed varieties available in the market and percentage increase in use of climate resilient seed varieties.
- Percentage crop yield improvement in years of climate extremes.
- Percentage greater performance in average crop yields.
- Percentage decrease in proportion of rural and urban populations malnourished.
- Number of energy facilities built or retrofitted to withstand greater range of climate shocks.
- Percentage of total capacity built or retrofitted by type of facility and by "threat" level identified in vulnerability analysis.
- Percentage decrease in monetary damages to energy facilities due to climate extremes (adjusted for degree, or extent, of climate shock).
- Percentage decrease in customers losing access to energy due to climate shock-induced power failures.

## 12.13 Responsibility of Plan Implementation

**Table 12-1: Authorities Responsible for Implementation**

| S# | Department | Designation |
|---|---|---|
| 1 | Administration | District Commissioner |
| | | Assistant District Commissioner-I |
| | | Assistant District Commissioner-II |
| 2 | Irrigation | District Irrigation Officer |
| 3 | Agriculture | District Agriculture Officer |
| 4 | Health | District Health Officer |
| 5 | Education | District Education Officer |
| 6 | Social Welfare | District Officer |
| 7 | Livestock | District Officer |

## 12.14 Monitoring and Evaluation[48]

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

[48] 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

**a) Measuring against Baselines**

Baseline comparisons can be used to monitor and evaluate the effectiveness of climate resilience initiatives. During this process, an initial measurement is taken (e.g., number of civic organization per 10,000 people). This measurement is then taken at different stages of the project to measure the effectiveness of strategies used to improve that particular indicator. This approach could be applied to resilience characteristics (e.g. flexibility). In order to do this, a more qualitative assessment (subjective scoring from 1 to 5) could be employed to create a baseline value.

**b) Measuring against Definitions**

Relatively straightforward definitions exist for climate adaptation, but in the context of resilience – with its emphasis on system level interaction and inherent qualities – this approach can prove to be much more difficult. How you define resilience is a key determinant in how the monitoring and evaluation approach will be adopted. For example, if resilience is defined as a decrease in post-disaster recovery time, specific indicators will be evaluated which would not be useful when concerned with the resilience characteristics with cities.

**c) Measuring against Project Objectives**

As mentioned above, the objectives of a resilience program differ depending on the way resilience is defined and also at which phase of the project the assessment is being made. Alexander et al. (2016) define process as the ‘‘inputs, throughput and outputs of the decision-making process,’’ outcomes as ‘‘the implementation of the outputs from the decision-making process’’ and impact as ‘‘the resulting effect of the decision-making process and outcome’’. Similarly, Spearman and McGray (2011) use the following sequence: inputs, initiatives, outputs, outcomes, and impacts. Monitoring and evaluation can take place at each of these temporal locations (i.e., process, outcome, impact). Many people also advocate that monitoring and evaluation be carried out throughout the duration of the project rather than just at the beginning and the end of the project.

**d) Key Principles of Monitoring, Evaluation and Reporting System[49]**

**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.

**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.

**Stakeholder Engagement**

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

Empowering stakeholders and ensuring their active contribution to the monitoring and reporting process is a key feature of the monitoring and evaluation system. The monitoring and reporting system is rooted in the desire to maintain a programmatic approach in the implementation of the investment plans through projects and programs. It aims to engage the stakeholder groups, including government institutions at national, sub-national and local levels, as well as civil society, local communities and the private sector, in discussing progress with the implementation of the monitoring plan. The monitoring and reporting process will also be used to share lessons learned and discuss the challenges encountered with a view to identify feasible solutions.

**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.

# 13. 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 Naushahro Feroze DHQ town up to 2037, under the present governance framework of Government of Sindh.

## 13.1 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.

## 13.2 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 Naushahro Feroze 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 Naushahro Feroze. The concerned agency must ensure that the overall process must go after following themes of implementation process.

a) ***The overreaching theme of the implementation of Strategic Development Plan*** **Naushahro Feroze *is:***

- Consultation with stakeholders during implementation at all levels.
- Decentralize decision making to the greatest extent possible.
- Promote transparency and accountability of decision making and implementation enforcement.

- Rationalize impacts where necessary;
- Ensure compensation to affected communities
- Enhance the quality of infrastructure provisions, promote utility services opportunities, and focus facilitating poor segments of society.

*b)* ***The principals that implementation process will follow:***

- The overall implementation process to be carried out in coordination with Town Planning and Urban Development Standards (Frameworks) in which redevelopment will be phased to prioritization;
- The implementation process will be based on updated planning codes and regulations;
- Special consideration will be paid to implement planning standards relating to disaster (Drought) preparedness in all development proposals/projects;
- Facilitate communities, government machinery, and other organizations of community to participate in overall implementation process;
- Educate stakeholders for technical assistance;
- Be comprehensive, coherent, and coordinate to avoid errors through continuous monitoring and evaluation
- Arrange supple of financial resources

## 13.3 Legal Frameworks

Local governance agencies dealing with any development proposal must ensure that all development related activities and their approval consent should be carried out in accordance with urban planning statutory frameworks of government of Pakistan operational at all government level levels. This includes all legal frameworks substantiated through the relevant articles of constitution of Pakistan and the primary act (LAA 1984) governing land acquisition and compensation.

a) ***National Level Policy Frameworks***

The constitution of the Islamic Republic of Pakistan passed on the 10th April 1973 and as modified thereafter, is the supreme law of Pakistan Government. This constitution provides legal cover to all laws and acts, particularly those embedded in chapter-3 pertaining with land acquisition, development and compensation.

*b)* ***State level Statutory Frameworks pertaining to planning and development Control***

On 14th Feb 2011, the government of Sindh notified the extension of the jurisdiction of Karachi Building Control Authority to the whole of Sindh. The five Regions of Sindh Building Control Authority notified by the Government of Sindh are: **Karachi, Hyderabad, Mirpurkhas, Sukkur & Larkana,** having the Head Quarter **Karachi. Thus, any development activity within juridical**

**boundary of these districts must be carried out in accordance with the primary planning instrument ' *Sindh Town Planning and Building Control Regulation'*.**

*c)* ***Local Planning Instruments***

There is variety of regulations dealing with municipal services offences and penalties (Fines) in case of violation have been constituted in Schedule-VI (Section 139) 'Offences under the Act' Part-1 of Local Government Act-2013 (Third Amendment 2016) of Sindh Government.

*In this regulation, various well defined public activity management and control regulations dealing with Public Health Safety, Land use Planning, Development Control, Encroachments, preparedness of safety measures from Natural & manmade disaster, quality of Drinking water, Solid Waste & Waste Water generating though multiple activities, Preservation of Heritage Sites, Open Space management and associated penalties, in case of violation, have been defined in detail.*

*d)* ***Other relevant planning and design standard instruments***

There are varieties of other documents that support assessment of development proposals prior to implementation. e.g. 'National Reference Manual' - Ministry of Housing and works, Environment and Public Affair Division, etc.

*c)* 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 Naushahro Feroze may develop their own regulatory frameworks/ building codec's to regularize the status of development with consent of local/provincial government authorities, if necessary.

## 13.4 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 monitory audits, preparer evaluation and impact reports and will report to the head of respective governance agency.

Development authorities will be responsible for implementing new approved town planning and building codes with the assistance of office of head of respective governance agency. The office of district coordinator will be responsible for the overall coordination and monitoring and will provide support for development/redevelopment activity from federal to district level.

The district Urban Management Unit would also facilitate the office of district coordinator/ deputy commission for all development/ implementation related (a) needs identification (b) revision of annual plans (c) coordination (d) financial management and (e) monitoring of all development activities assigned to developers or government departments.

## 14. IMPLEMENTATION SCHEDULE

| ***Strategy:*** | **Programs/ Policies** |
|---|---|
| **Balanced Urban Growth** | **1. <u>Land Use Zoning</u>**<br>The city extended in two directions constantly i.e. north-east and north-west along National Highway N-5.The administrative complex and offices i.e. DC office, Session Court offices etc. are situated along National Highway N-5. Town has irregular shape and non-linear / unplanned street patterns.<br><br>**2. <u>Development Control</u>**<br>Unchecked growth of squatter settlements: Katchi Abadis encroachment on state and vacant land is a direct outcome of the housing shortage.<br>Legal documentation procedures for property transactions is very tough and costly.<br>Real estate investors and builders is another reason for boosting land prices.<br><br>**3. <u>Transportation</u>**<br>Strong network of inter and intra city Transport.<br>**<u>Roads</u>**<br>Need Dualization & Rehabilitation of Existing Roads. |
| **Responsibilities to Plan:**<br>Detailed Urban Design Strategy<br>Development Assessment<br>Impact of property Assessment<br>Environmental Impact Study (EIA,IEE) | **Implementation Responsibilities:**<br><br>Public Sector/ Private developers |
| **Concerned Agencies:**<br>P & D Department Government of Sindh/ District Government/ Line Departments of local Government /Private Developers | **Time of Implementation:**<br><br>Short Term (1 year to 5 Years)<br>Long Term (5 years to 20 Years) |

| ***Strategy:*** | **Programs/ Policies** |
|---|---|
| **Future Transport Sector Development & Improvement** | **<u>(A)Traffic Management Program</u>**<br><br>• Parking restrictions / Charged parking system |

| | |
|---|---|
| | • Control traffic movement specially cargo Qingqis and Pick-ups<br>• Manage unidirectional traffic flow.<br>• Enforcement of traffic rules<br>• Improved road infrastructure and street furniture<br>• Implementation of traffic bylaws<br><br>**(C ) Congestion Reduction in Core Urban /CBD Area**<br><br>• Designated stands for qingqi / rickshaws<br>• Specified spaces for charged parking system<br>• Alternate route for loading and unloading vehicles<br>• Unidirectional traffic flow pattern<br>• Removal of encroachments from major distributors<br>• Development of infrastructure for pedestrian movement in old precinct. |
| **Responsibilities to Plan**<br>• Enforcement of encroachment and road space improvement byelaws<br>• Traffic corridors detailed study<br>• Encroachment Removal & Relocation Study<br>• On Street & Off Street Parking Feasibility Study<br>• Beautification plan | **Implementation Responsibilities**<br><br>International Development and Fund Supporting Agencies/Public Sector/ Private developers |
| **Concerned Agencies**<br>Provincial Works & Services Department Government of Sindh./ District Highways Department/ Local Municipal Government/District Government/ Private Developers Line Departments of local Government. | **Time of Implementation**<br><br>Short Term (1 year to 5 Years)<br>Long Term (5 years to 20 Years) |
| ***Strategy:***<br><br>**Water Supply System Improvement** | **Programs/ Policies**<br><br>• In the long term, piped water supply system for 100% population by 2037<br><br>• Installation of localize network in the planned housing schemes first and gradually cover the whole population in five year plans.<br><br>• 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).<br>• Construction / Rehabilitation Of Water Supply Network<br>• Improvement of Water Intake Works |
| **Responsibilities to Plan**<br><br>• Need Assessment/Demand & Supply Study<br>• Separate Master Plan for water supply and infrastructure development plan | **Implementation Responsibilities**<br>Public Sector/ Private developers |
| **Concerned Agencies**<br><br>Provincial / Local Government/ Public Health Engineering Department | **Time of Implementation**<br><br>Short Term (1 year to 5 Years)<br>Long Term (above 5 years ) |

| | |
|---|---|
| ***Strategy:***<br><br>**Drainage & Sewerage System Improvement** | **Programs/ Policies**<br><br>• Improvement and reconstruction of existing Combined system of sewerage and drainage (Phase-wise approach of replacing open drains with covered sewers of PE pipes).<br><br>• Provision of wastewater treatment plant. |
| **Responsibilities to Plan**<br><br>• Need Assessment/Demand & Supply Study<br>• New Master Plan for Drainage & Sewerage services improvement. | **Implementation Responsibilities**<br><br>Public sector / Private developers |
| **Concerned Agencies**<br><br>Provincial / Local Government/ Public Health Engineering Department Municipality (MC) | **Time of Implementation**<br><br>Short Term (1 year to 5 Years) |

| | |
|---|---|
| ***Strategy:***<br><br>**Solid Waste Disposal System Improvement** | **Programs/ Policies**<br><br>• Immediate designation of walled Landfill *Site* with special attention for hospital waste disposal.<br><br>• Collection and disposal of solid waste through specialized waste management companies. |
| **Responsibilities to Plan**<br><br>• Disposal Generation Assessment Study<br>• New Master Plan for Solid Waste Disposal System improvement. | **Implementation Responsibilities**<br><br>Public / Private Sector |
| **Concerned Agencies**<br><br>Provincial / Local Government/ Public Health Engineering Department Municipality (MC)/ Sindh Solid Waste Management Company SSWMB | **Time of Implementation**<br><br>Short Term (1 year to 5 Years) |
| ***Strategy:***<br><br>**Improving Efficiency of Municipal Committee's (MC)**<br><br>• Municipal Committee | **Programs/ Policies**<br><br>• Acquire the required additional sanitary workers as per requirement.<br><br>• Make Municipal Committee self sufficient<br><br>• Strengthening Municipal Committee's Financial Capacity<br><br>• In long term introduce 4R Solid Waste Management System (reduce-reuse-recycle-reject) |
| **Responsibilities to Plan**<br><br>• Municipal Committee's Progress Assessment Study | **Implementation Responsibilities**<br><br>Public / Private Sector |
| **Concerned Agencies**<br>Provincial / Local Government/ Public Health Engineering Department Municipal Committee (MC) | **Time of Implementation**<br>Short Term (1 year to 5 Years) |

| ***Strategy:***<br><br>**Improving Fire Fighting Capacity** | **Programs/ Policies**<br><br>• Establishment of fire-stations to accommodate required number of fire vehicles.<br><br>• Establish sub-stations at different locations to ensure short response time for the whole city.<br><br>• Increase service efficiency through number of vehicles, dedicated staff and financial mechanism.<br><br>• To ensure readiness of all vehicles with ample stocks of POL and spares. |
|---|---|
| **Responsibilities to Plan**<br><br>Assessment on Municipality's firefighting potential | **Implementation Responsibilities**<br><br>Public Sector |
| **Concerned Agencies**<br><br>Naushero Feroze Municipal Committee. | **Time of Implementation**<br><br>Short Term (1 year to 5 Years) |

| ***Strategy:***<br><br>**Energy (Gas, Electric Power, Energy Generation through Alternate Resources)** | **Programs/ Policies**<br><br>• Development of alternative energy resources such as wind, solar and bio-gas etc.<br>• To Improve existing infrastructure of WAPDA<br>• Solar street lights project<br>• Energy generation through solar panel system for residential and commercial purpose.<br>• Installation of Gas Network for entire DHQ Town. |
|---|---|
| **Responsibilities to Plan**<br><br>• Demand and Assessment of various energy resources.<br>• Feasibility study for solar Park<br>• Rehabilitation of solarized street lights. | **Implementation Responsibilities**<br><br>Public/ Public Private Partnerships |

| **Concerned Agencies** | **Time of Implementation** |
|---|---|
| • SSGC-Sui Southern Gas Company<br>• WAPDA<br>• Developers | Short Term (1 year to 5 Years) |

| ***Strategy:*** | **Programs/ Policies** |
|---|---|
| **Health Sector**<br><br>**Improve access to healthcare facilities & minimize the long journeys to access basic medical facilities** | • Check and balance to accomplished existing health care projects.<br>• Addition of 4255 beds to achieve the target of 2 beds per 1000 district population<br>• Hiring of 2052 doctors and paramedical staff to cater future population.<br>• Installation of incinerators. |
| **Responsibilities to Plan**<br><br>• Health reforms | **Implementation Responsibilities**<br><br>Public Sector and Welfare Agencies |
| **Concerned Agencies**<br><br>State Government/District Health Department.<br>Provincial and District Health Department | **Time of Implementation**<br><br>Short Term (1 year to 5 Years)<br>Long Term (above 5 year) |

| ***Strategy:*** | **Programs/ Policies** |
|---|---|
| **Education Sector Strategy** | • Short term plan provision of 492 classrooms at school and college level.<br>• Repairing of school existing buildings with furniture<br>• Training of teaching staff<br>• 6813 additional classrooms (school and colleges) by 2037 |
| **Responsibilities to Plan**<br><br>• Education Infrastructure Improvement Mater Plan | **Implementation Responsibilities**<br><br>Public Sector |

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

| ***Strategy:*** | **Programs/ Policies** |
|---|---|
| **Improving Recreation Sector** | • Repairing of existing recreational facilities and completion of under construction work.<br>• Introduce financial mechanism i.e. facility use charges, to generate revenue to make them self-sustaining.<br>• Special arrangement for security, parking and alternate route during religious and cultural activities in the city.<br>• Provision of missing facilities in existing Gymkhana<br>• Rehabilitation and construction of family parks and playground<br>• Feasibility Study For Conservation/ Rehabilitation Of Heritage Site<br>• Facilitate annual festivals that are being celebrated in this district. |
| **Responsibilities to Plan**<br>• Provisions of New Recreation sites | **Implementation Responsibilities**<br>Public Sector |
| **Concerned Agencies**<br>Provincial Government / Culture, Tourism & Antiquities Department/ Government of Sindh/ District / Local Government / TMA | **Time of Implementation**<br>Short Term (1 year to 2 Years)<br>Long Term (More than 5 years) |

| ***Strategy:*** | **Programs/ Policies** |
|---|---|
| **Disaster Risk Management** | • Engage all stakeholders of entire district in overall disaster rehabilitation process.<br>• 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.<br>• Aligned job responsibilities of key stakeholders with job descriptions mentioned in principal guidelines proposed in *Pakistan National Disaster Risk Management Act 2010*, *National Disaster Risk Management Guidelines* and *Disaster Risk Management Plan, Sindh.*<br>• Ensure establishment of straight relationships, trust, teamwork, consultative decision-making and shared responsibilities among stakeholders.<br>• Develop disaster risk assessment system through statistical information, risk maps, emerging hazards information and their affects.<br>• Adopt measures of sustainability of local communities by utilizing local resources available to avoid post disaster cataclysms (dearth, theft, spread of epidemic diseases, etc).<br>• Promote economic sustainability after disasters. |
| **Responsibilities to Plan**<br><br>• Identification of Disaster Prone Areas and Early warning and shelter homes<br>• Development of Community Training and Drill Organization Manual and SOP.<br>• Development Local stakeholders Roles and Responsibility SOP. | **Implementation Responsibilities**<br><br>Public Sector and National /International Welfare agencies |
| **Concerned Agencies**<br><br>NDMA/PDMA/ P & D department Gos/ SUPARCO/ Provincial Irrigation Department Gos/ Line departments of local government/District Disaster Management Authority. | **Time of Implementation**<br><br>Short Term (1 year to 5 Years) |

| **Strategy**<br><br>**Economic Development** | **Programs/ Policies**<br>• Rehabilitation of Infrastructure in existing Small Industrial Estate (roads, street lights, parking for loading/unloading goods vehicles, etc.)<br>• Increase strategic storage through construction of cold storage / Godowns for agro products to cater drought situation.<br>• Provide good incentives near peripheries for shifting / re-location of whole sale markets from the inner city to reduce congestion.<br>• Encourage Local Private Investors by giving them subsidies.<br>• Consider changing trends of crop production through periodically revise Economic Policy Framework (feasible studies for economic potentials)<br>• Ensure measures for security / risk recovery plan for economic zone.<br>• Market and logistics should also be added to enhance trade and commerce.<br>• Livestock and dairy sector needs to encourage and facilitated.<br>• Centralize wholesale markets to create connectivity with regional markets.<br>• Drought measures |
|---|---|
| **Responsibilities to Plan**<br>Feasible studies for economic potentials | **Implementation Responsibilities**<br><br>Public /private developers |
| **Concerned Agencies**<br>Provincial Government/District Government/Local Government / Naushero Feroze Chamber of Commerce and Industries | **Time of Implementation**<br><br>Short Term (1 year to 5 Years)<br>Long Term (5 years to 20 Years) |

# Annexure – A

## Sustainable Development Goals Acceleration Plan

# Sustainable Development Goals (SDGs) Acceleration Plan
# Naushahro Feroze DHQ Town

## Sustainable Development Goals:

The Agenda 2030 comprises of Sustainable Development Goals (SDGs) which are a call for action by all countries – poor, rich and middle-income – to promote prosperity while protecting the planet. They recognize that ending poverty must go hand-in-hand with strategies that build economic growth and address a range of social needs including education, health, social protection, housing and job opportunities, while tackling climate change and environmental protection.

The 17 goals of SDGs provide a direction for targeting human prosperity and have a global scope – applying on both developed and developing countries. SDGs have come into action since the beginning of 2016 and will continue as the leading global development agenda until 2030. The SDGs targets are defined as aspirational, with each government setting its own national/subnational targets while considering its circumstances and priorities. In consultation with stakeholders, governments are also to decide how to incorporate SDGs in its planning processes, policies and strategies, and to recognize the link between sustainable development and other relevant ongoing processes in the economic, social and environmental fields[1].

Pakistan signed the international agreement on the 2030 agenda in September 2015 during the United Nations General Assembly (UNGA) Session for sustainable development, committing to achieve the 17 SDGs between 2016 and 2030. In February 2016, under a unanimous resolution, the National Assembly of Pakistan endorsed SDGs as Pakistan's national development agenda. The country has thereafter made rapid progress in adopting and formally launching the 17 SDGs.

## SDGs in Sindh:

In line with the National Initiative on SDGs, Government of Sindh (GoS) has also made focused efforts to support the mainstreaming, localization, and implementation of the 2030 Agenda through a support project for SDGs implementation in Sindh, jointly-funded by the GoS and United Nations Development Programme (UNDP), with the aim to address socio-economic challenges in the province and steer it in a progressive direction towards achievement of the SDGs. Under the project, the SDGs Support Unit Sindh has been established in Planning & Development Department, Government of Sindh with effect from May 2017. The Unit

[1]United Nations Development Group, Reference Guide to UN Country Teams -Mainstreaming the 2030 Agenda for Sustainable Development, March 2017 Update

contributes towards accelerating progress on SDGs in the province by working through following four approaches:

| Policies and Plans | Data Reporting | Financing | Innovation |
|---|---|---|---|
| **Mainstreaming SDGs in local development plans and strategies clearly delineating the resource requirements.** | **Strengthening coordination, reporting and monitoring mechanisms for SDGs** | **Financing flows increasingly aligned with 2030 Agenda** | **Supporting integrated and innovative approaches to accelerate progress on SDGs on priority areas.** |

GoS has also taken the crucial step towards mainstreaming and localizing SDGs in the province by approving prioritization of SDGs in the immediate, medium and long-term for the province. The prioritization has been done by considering severity of development issues and challenges, resource availability, and Sindh's economic and social endowments, value for money, and magnitude of impacts, in line with Sindh 2025 vision and other policies and strategies.

## Sindh's SDGs Priorities

| Ranking of Priorities | Goal # | Sustainable Development Goals (SDGs) | Immediate Priorities | Intermediate Priorities (Up-to 2025) | Long-term Priorities (Up-to 2030) |
|---|---|---|---|---|---|
| 1 | Goal 4: | **Quality Education** | | | |
| 2 | Goal 3: | **Good Health and Well Being** | | | |
| 3 | Goal 6: | **Clean water and Sanitation** | | | |
| 4 | Goal 7: | **Affordable and Clean Energy** | | | |
| 5 | Goal 2: | **No Hunger** | | | |
| 6 | Goal 8: | **Decent work and Economic Growth** | | | |
| 7 | Goal 9: | **Industry, Innovation and Infrastructure** | | | |
| 8 | Goal 16: | **Peace and Justice** | | | |
| 9 | Goal 11: | **Sustainable cities and communities** | | | |
| 10 | Goal 1: | **No Poverty** | | | |
| 11 | Goal 12: | **Sustainable Consumption and Production** | | | |
| 12 | Goal 10: | **Reduce Inequalities** | | | |
| 13 | Goal 5: | **Gender Equality** | | | |
| 14 | Goal 17: | **Partnership development** | | | |
| 15 | Goal 13: | **Climate Change** | | | |
| 16 | Goal 14: | **Life Below Water** | | | |
| 17 | Goal 15: | **Life on Land** | | | |

The above table indicates that the SDG Goal # 4, 3, 6,7,2 and 8 are on the Immediate priority, whereas Goal # 1,9,16,11,12 and 10 are on Intermediate priority i.e. upto year 2025. The remaining goals which are Goal # 5, 17, 13, 14, and 15 will be on the Long term priority i.e upto year (2030).

## Urban Development Planning and the SDGs:

Today's common urban development challenges like affordable housing, provision of basic services, municipal functions, controlling crime, poverty, disease and the exhaustion of natural resources do not respect regional borders or limits between the built and the non-built domains. Therefore, the scope of urbanization should always include the livable environment while also considering the regional dimension. In this connection, the rigorous consultation and analysis being done by GoS to prepare Development Master Plan of 14 DHQ Towns of Sindh, it is being realized with even more significance that sustainable development cannot be achieved without significantly transforming the way we plan, build and manage our urban spaces. The rapid growth of cities resulting in rising population and increasing migration that has led to a boom in urban areas and slums, is becoming a more significant challenge for urban areas.

Under the contract of the preparation of development Master Plan of 14 DHQ towns, SDG Acceleration plan was not part of the approved TORs but keeping in view the Sindh government's initiatives to mainstream SDGs targets in provincial planning (taking Islamkot as a model SDG Taluka) the Directorate and Consultant after due consultative process felt the need to include brief SDG Acceleration Plan as part of Development Master Plans. Accordingly in consultation with SDG unit Sindh, SDG 11 was selected for SDG Acceleration Plan for 14 DHQ towns since is pertinent to urban planning and development.

SDG 11 – *Sustainable Cities and Communities* sets the basis for urban-planning techniques and policies for the future. For a tangible acceleration towards achievement of SDG 11, simultaneous interventions will need to be executed directly through urban-planning interventions. While this involves investments in public transport, housing, creating green public spaces and improved urban planning and management in participatory and inclusive ways, an in-depth review of SDG 11 targets reveals a much stronger interlinkage with other SDGs such as poverty, health, education, clean energy, provision of basic services (social services as well as urban municipal services), etc. thereby generating a holistic societal impact, which is of prime importance in the context of Agenda 2030.

Using the key mechanism for periodic updating of the Development Master Plan after every five years, the SDGs Acceleration Plan also proposes embedding SDGs agenda targets against projects and schemes designed at local level and assesses the available and potential financing flows in context of future opportunities. Therefore, the targets and indicators of

SDG 11 – Sustainable Cities & Communities is being reviewed against the Master Plan, along with identification of supportive plans, policies and interventions.

The SDGs Acceleration Plan table below explicitly underlays the outline for how the Master plan of the town addresses the targets and indicators under SDG 11 – Sustainable Cities & Communities. The plan also takes note of the local social and economic data to identify services provision gaps at the local level, as well as key challenges at district level.

# SDG Acceleration Action Plan - Naushero Feroze 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]1.2% of the urban town population lives in katcha houses | - Increase in proportion of small size plots (Plot size will be depend on land value) could be made for low income groups in all new housing schemes.<br>- Affordable housing program for low income group in different phases up to 2037, through one window operation (including technical guidance, easy loan provisions, legal procedures) | Sindh Katchi Abadis, Squatter Settlements & Slums Policy<br>- 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.<br>- Formation of new katchi abadis shall not be allowed and shall be discouraged by exercising strict development controls in all urban areas.<br>- Formation of Resettlement Plans<br>- Resettlement plans shall be prepared by the concerned Land Owning Agencies (LOAs) in consultation with |

[2] Data provided by Sindh Kacthi Abadis Authority, December 2019. Katchi abadi is defined as by Katchi abadi authority

| SN | SDG Target | Indicators | Baseline Survey | Supportive Strategies given in SDP | Policies |
|---|---|---|---|---|---|
| | | | | | affected communities for shifting of katchi abadis dwellers who fall within hazardous or security/operational zones. These plans shall primarily be on a self-financing basis.<br>- 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 | 73% people have access to public transport.[3] | - Improve road design to make safer roads.<br>- Prevent encroachments on footpaths through litigation.<br>- Environmental Impact Assessment (EIA) should be mandatory for all transportation projects.<br>- Declaring private vehicle free zones, especially in peak hours, in CBD areas to reduce noise and air pollutions. | Sindh empowerment of Persons with Disabilities' Act, 2018[4]<br>i. Universal access to destination:<br>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<br>ii. Equal Right of use:<br>People's right to use that portion of a street designed for travel is not diminished by less weight, less size, or less average speed associated with their travel mode. Demand actuated tra-c signals must detect and serve a |

[3] Socio Economic Survey 2017
[4] https://depd.sindh.gov.pk/sindh-empowerment-of-persons-with-disabilities-act-2018

| SN | SDG Target | Indicators | Baseline Survey | Supportive Strategies given in SDP | Policies |
|---|---|---|---|---|---|
| | vulnerable situations, women, children, persons with disabilities and older persons | | | - Reduce traffic growth and congestion by achieving a mode shift.<br>- Enhance institutional efficiency to improve service delivery.<br>- Dualization of main arteries<br>- Improve road design to make safer roads.<br>- Prevent encroachments on footpaths through litigation.<br>It is suggested that necessary provision of the above recommendation may be mandated in the laws and regulations of SBEA and other agencies which drafting the buildings and highway regulation | diversity of users including bicycle operators in the roadway and pedestrians using crosswalks.<br>iii. Accessible surfaces:<br>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.<br>iv. Crossable Roadways:<br>Crossing distances at non-signalized access locations must not exceed the distance that can be covered at walking speed before tra-c may arrive from beyond sight distance, or during reasonable gaps in roadway tra-c. Refuges provided to reduce crossing distances should be large enough to store assistive devices such as wheelchairs and strollers. Tra-c signal timing should provide adequate clearance intervals for safe crossing by pedestrians and slow vehicles. |

| SN | SDG Target | Indicators | Baseline Survey | Supportive Strategies given in SDP | Policies |
|---|---|---|---|---|---|
| | 11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries | 11.3.1 Ratio of land consumption rate to population growth rate<br><br>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.<br><br>Vision formulation exercise through multiple consultative workshops were conducted to establish a shared and common vision for the development of Naushahro Feroze DHQ town in the future. | o The total extent of the area included in the overall proposed Naushahro Feroze Master Plan is 6,800 acres approx. for a population of 101,000 by 2037 | Sindh Colonization of Government Lands Act 1912 and Disposal of Government Lands Rules, 2005.[5]<br><br>National Housing Policy 2001[6] |
| | 11.4 Strengthen efforts to protect and safeguard | 11.4.1 Total expenditure (public and private) per | Baseline will be established at the start of | • 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 |
|---|---|---|---|---|---|
| | the world's cultural and natural heritage | capita spent on the 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) | implementation of Master Plan. | | (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---<br>(a) the maintenance and custody of the protected heritage and the duties of any person who may be employed to watch it;<br>(b) the restriction of the owner's right to destroy, remove, alter or deface the protected heritage;<br>(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;<br>(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;<br>(e) the payment of any expenses incurred by the owner or Government in connection with the preservation of the protected heritage; and<br>(f) any matter connected with the preservation of the protected heritage which is a subject of agreement between the owner and Government. |

| SN | SDG Target | Indicators | Baseline Survey | Supportive Strategies given in SDP | Policies |
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| | 11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations | 11.5.1 Number of deaths, missing persons and persons affected by disaster per 100,000 population | Sindh Data [8]<br>No of deaths<br>(1988-2013) = 241<br>No of People effected (1988-2013) =24,096,173<br>Deaths per 100,000 population = 0.2491<br>Affected people per 100,000 population = 241 | • The DSM, PPHI shall also be responsible for providing medical cover to the IDPs in the catchment area of BHUs assigned to them particularly, and will perform their due role in supplementing the overall medical cover provided by the District Health Department.<br>• 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.<br>• Arrange medical teams for providing medical cover to the IDPs settled in any relief camp.<br>• Fumigate the affected areas and areas at risks of spread of any of epidemic disease. | National Disaster Risk Reduction Policy 2013[9] |

[8] PDMA (2017)
[9] http://www.pdma.gos.pk/new/resources/Sindhidrr-policy.pdf

| SN | SDG Target | Indicators | Baseline Survey | Supportive Strategies given in SDP | Policies |
|---|---|---|---|---|---|
| | | | | • Ensure that all ambulances are in working order and road worthy conditions.<br>• Ensure vacant possession of all schools buildings at the time of emergency for setting up relief camps.<br>• 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.<br>• 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 Naushahro Feroze DHQ town is 19 tons per day. | - The collection and disposing of solid waste is the responsibility of the TC.<br>- The collection system needs to be made more effective and efficient.<br>- Town Municipal Committees has already initiated some work on | THE SINDH SOLID WASTE MANAGEMENT BOARD ACT, 2014 [11] |

[10] Town Committee Naushahro feroze
[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 | Regular collection by municipal is about 50-60% | biomedical-waste management. It should immediately start segregation practice for biomedical waste collection system.<br>- Techno-economic feasibility and detail study of characterization of waste is proposed on basis of the policy guidelines.<br>- 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.<br>- Industrial waste disposal should be treated seperately and safely | |
| | 11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for | 11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age and | Only 1% (20.0 acres ) out of total 1,074.4 acres park area is available in Naushahro Feroze Town (1,074.4 | • Existing open spaces in core urban area should be restored and maintained. New open spaces should be identified and created.<br>• Development and preservation of cultural heritage | Adopt-a-park policy 2019 (PPP unit, Finance dept. GoS) is still in progress |

| SN | SDG Target | Indicators | Baseline Survey | Supportive Strategies given in SDP | Policies |
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| | women and children, older persons and persons with disabilities | persons with disabilities | acres) / 4.34 Sq KM[12] | • Cater the problem of Shortage of water facility to maintain green spaces, green belts and trees plantation.<br>• Availability of sports infrastructure.<br>• Provision of infrastructure to accommodate visitors into cultural events | |
| | 11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning | 11.a.1 Proportion of population living in cities that implement urban and regional development plans integrating population projections and resource needs, by size of city | Through inclusive and participatory development of SDP and collaborative implementation, the target for development plan integration is achieved | • Build a local / district / regional transportation system.<br>• Rehabilitation of existing roads should be scratched from its compaction level and reconstruct as per specification of design perimeters.<br>• Construction of overhead bridge on Mithiani -NasharoFeroze bypass intersection to avoid accidents and facilitate smooth Traffic flow.<br>• Discourage direct link roads with bypass<br>• The Consultant suggest that the Master Planning should be reviewed | • Preparation of Development master plans of DHQ towns by Govt of Sindh<br>• Poverty Reduction Strategy for Sindh approved by cabinet 2018<br><br>The key conceptual underpinnings of this strategy are:[13]<br>• The policy is focused on creation/facilitation of rural hubs:<br>• Using principles of agglomeration to support and drive growth<br>• Focusing on those interventions that will have a catalytic effect<br>• Consolidation of services, for improved service deliver and better impact. |

[12] Based on Landuse Calculations
[13] Poverty Reduction Strategy for Sindh

| SN | SDG Target | Indicators | Baseline Survey | Supportive Strategies given in SDP | Policies |
|---|---|---|---|---|---|
| | | | | every five years to estimate the land use and area requirement according to the growth rate and economic investment | The combined effect aims to provide improved facilities, services and opportunities for households in the surrounding cluster of villages served by the hub |
| | 11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and | 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<br><br>11.b.2 Number of countries with national and local disaster risk | Provincial policies and strategies in placed | National risk assessment would identify highly vulnerable districts and be complemented by higher resolution work at local level to diagnose the underlying causes of risk, explore concrete risk reduction options and inform development planning and prioritization exercises and/ or disaster preparedness planning.<br>• Arrange medical teams for providing medical cover to the IDPs settled in any relief camp.<br>• Fumigate the affected areas and areas at risks of spread of any of epidemic disease.<br>• Ensure that all ambulances are in working order and road worthy conditions. | National Disaster Risk Reduction Policy 2013[14] |

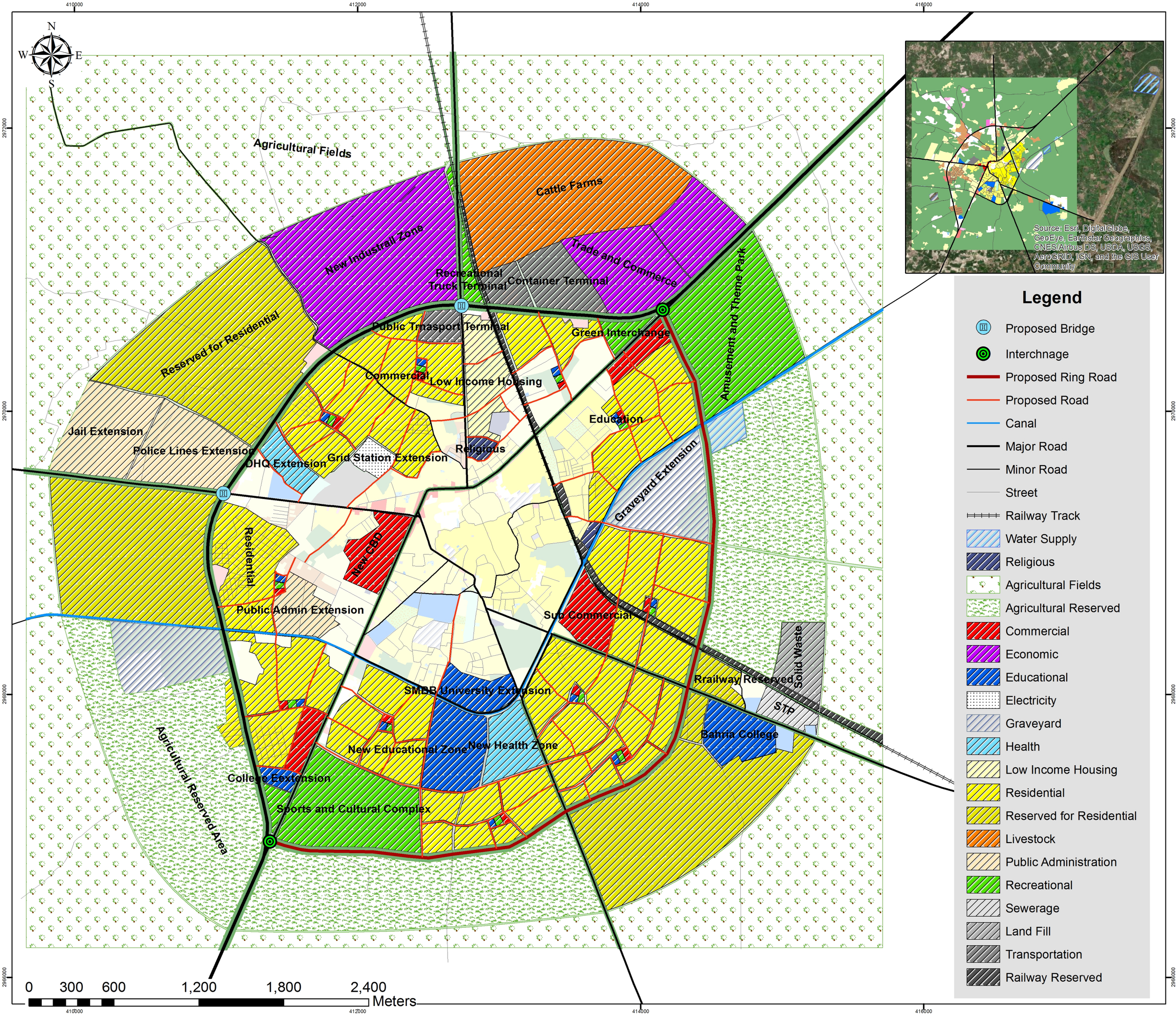
[14] http://www.pdma.gos.pk/new/resources/Sindhidrr-policy.pdf

| SN | SDG Target | Indicators | Baseline Survey | Supportive Strategies given in SDP | Policies |
|---|---|---|---|---|---|
| | develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels | reduction strategies | | • Ensure vacant possession of all schools buildings at the time of emergency for setting up relief camps. | |

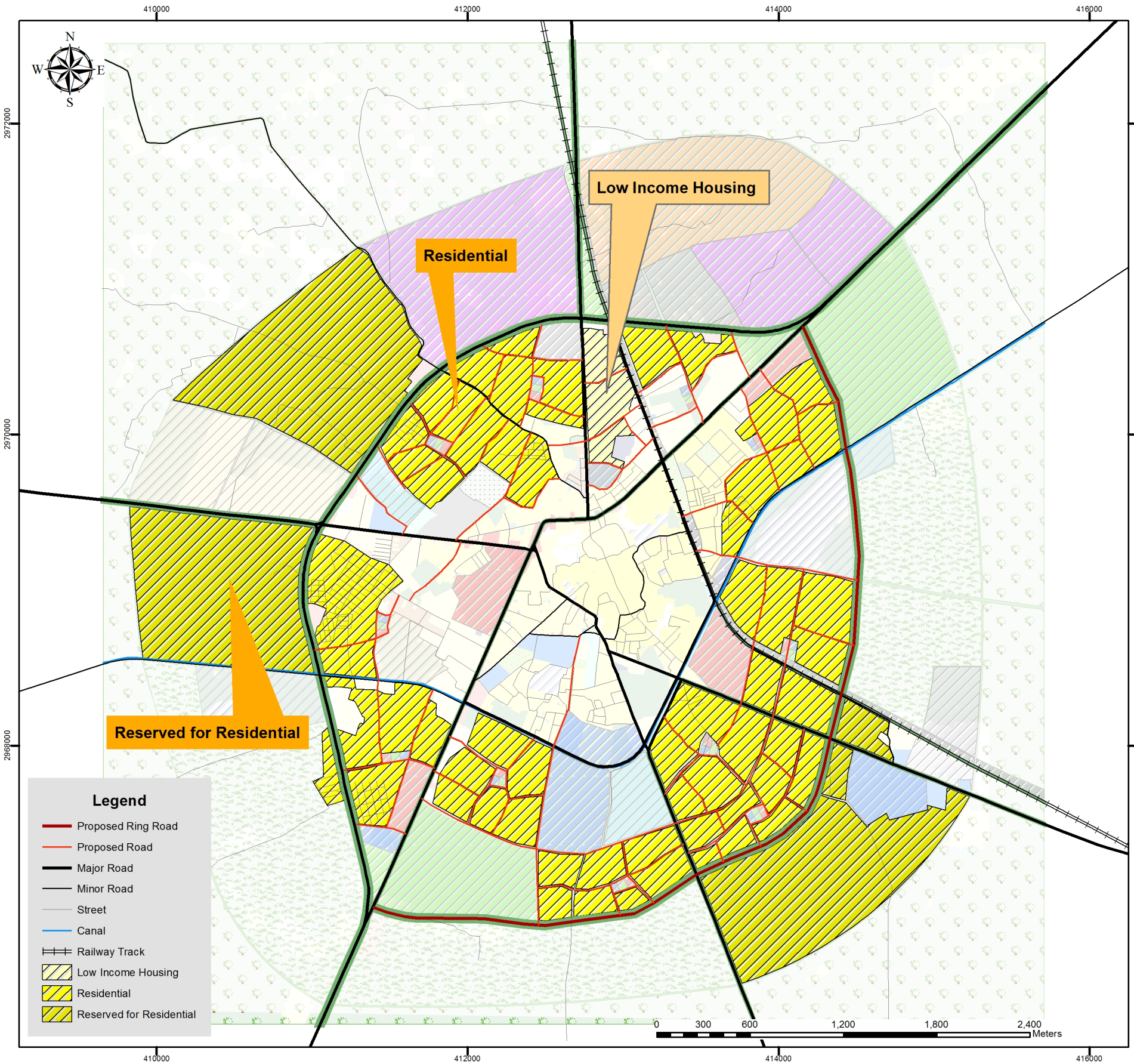
# Annexure – B

Atlas

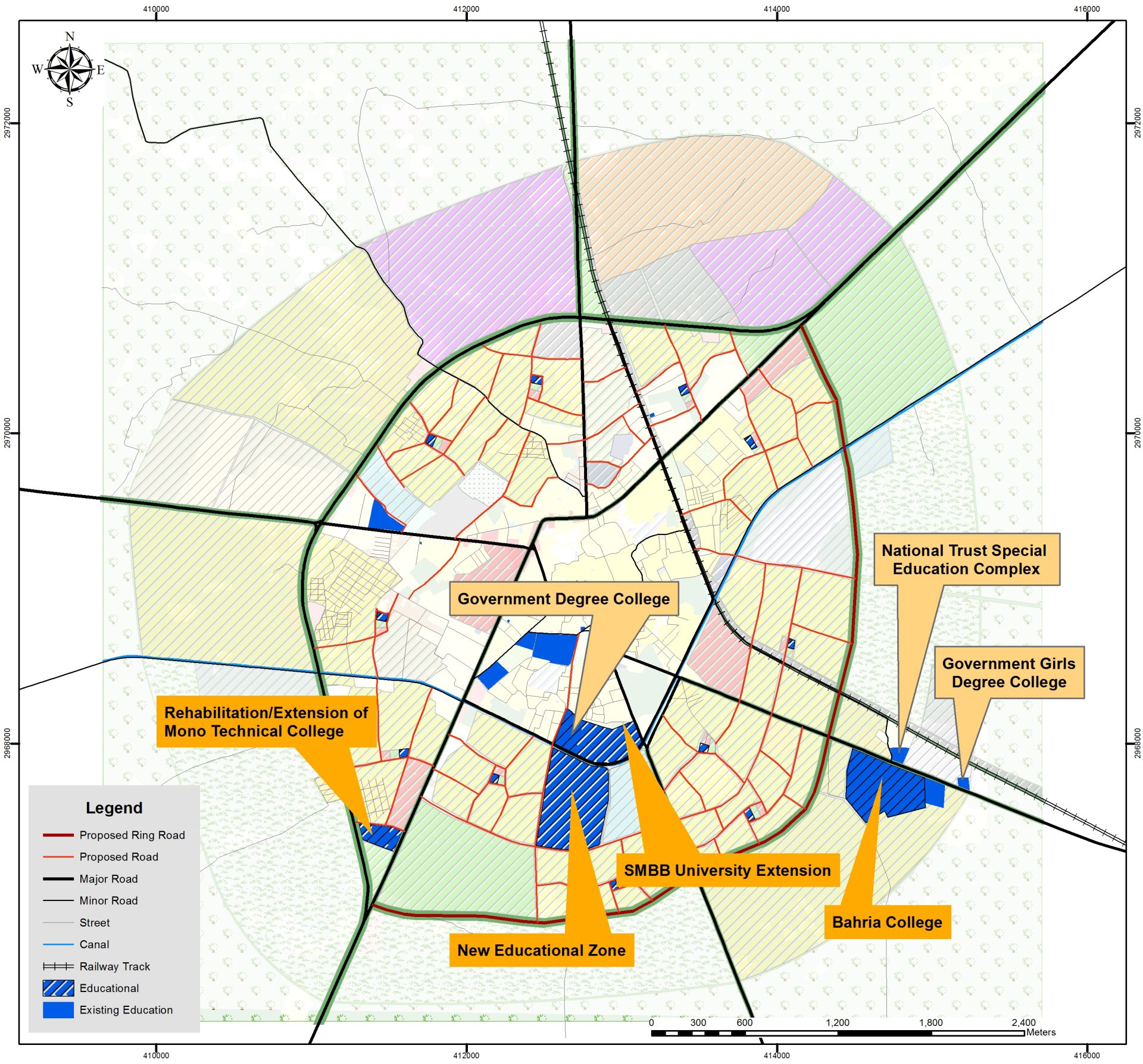
# Proposed Master Plan for Naushahro Feroze Town



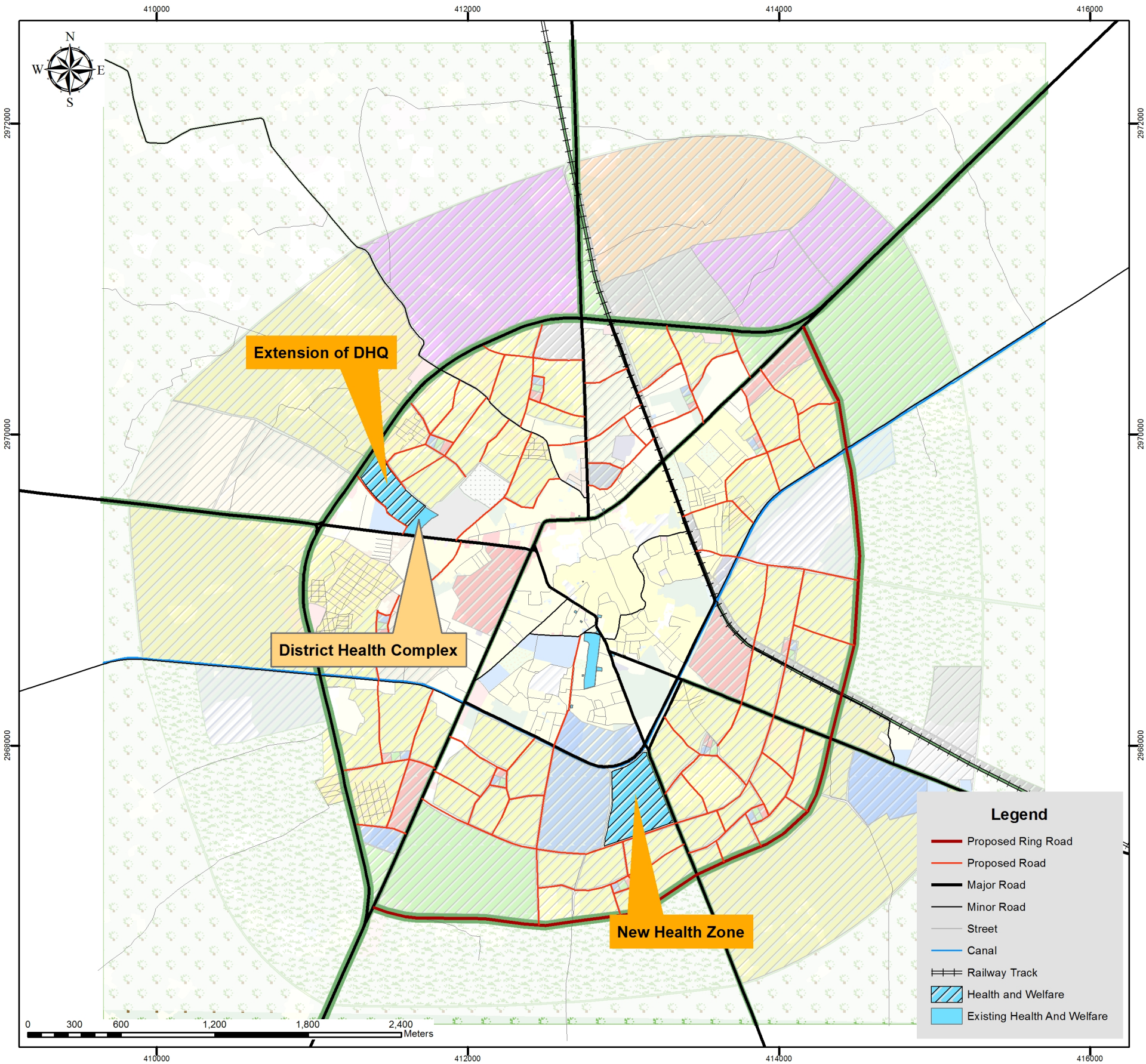
# Proposed Residential Landuse for Naushahro Feroze Town



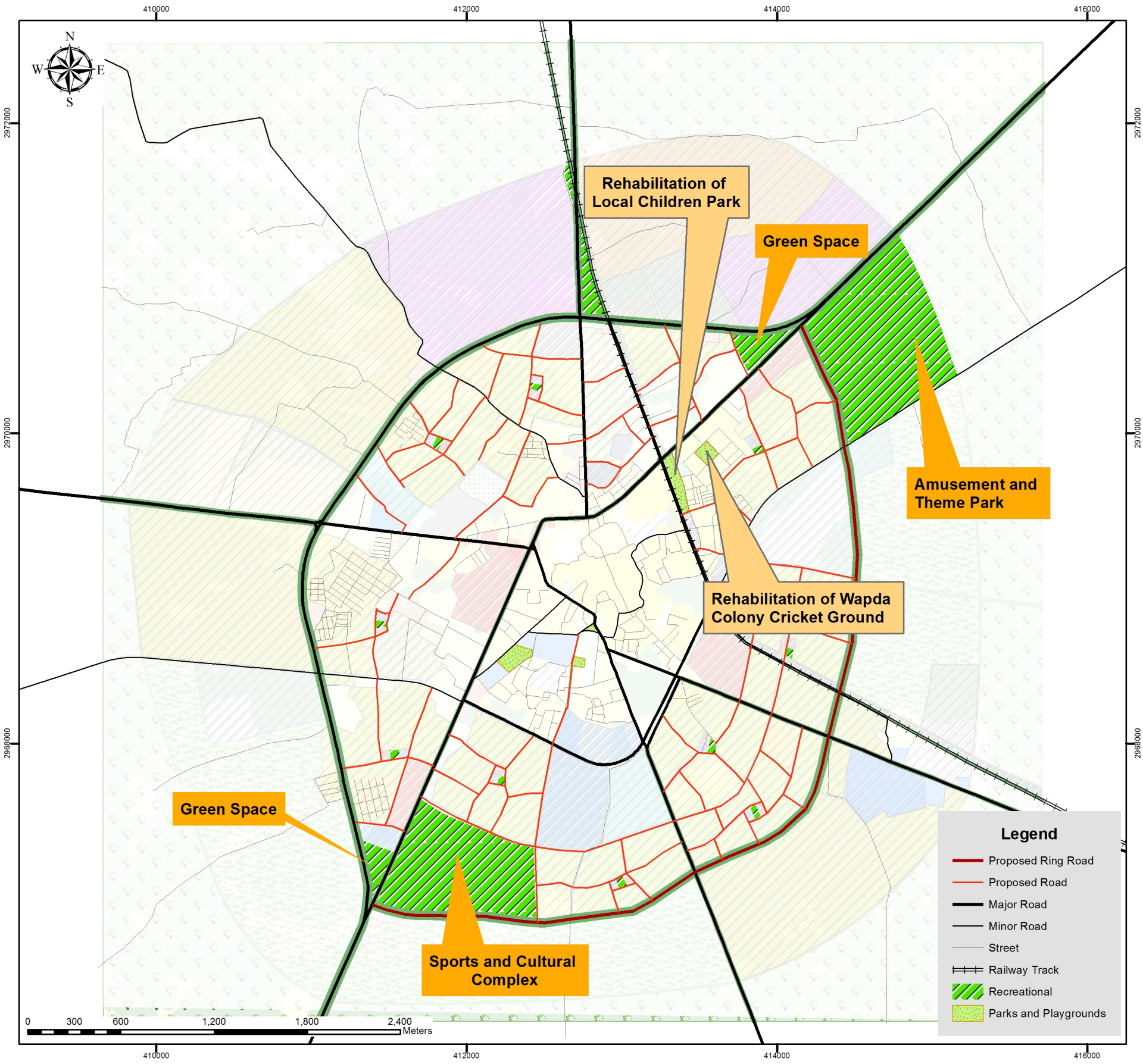
# Proposed Educational Landuse for Naushahro Feroze Town



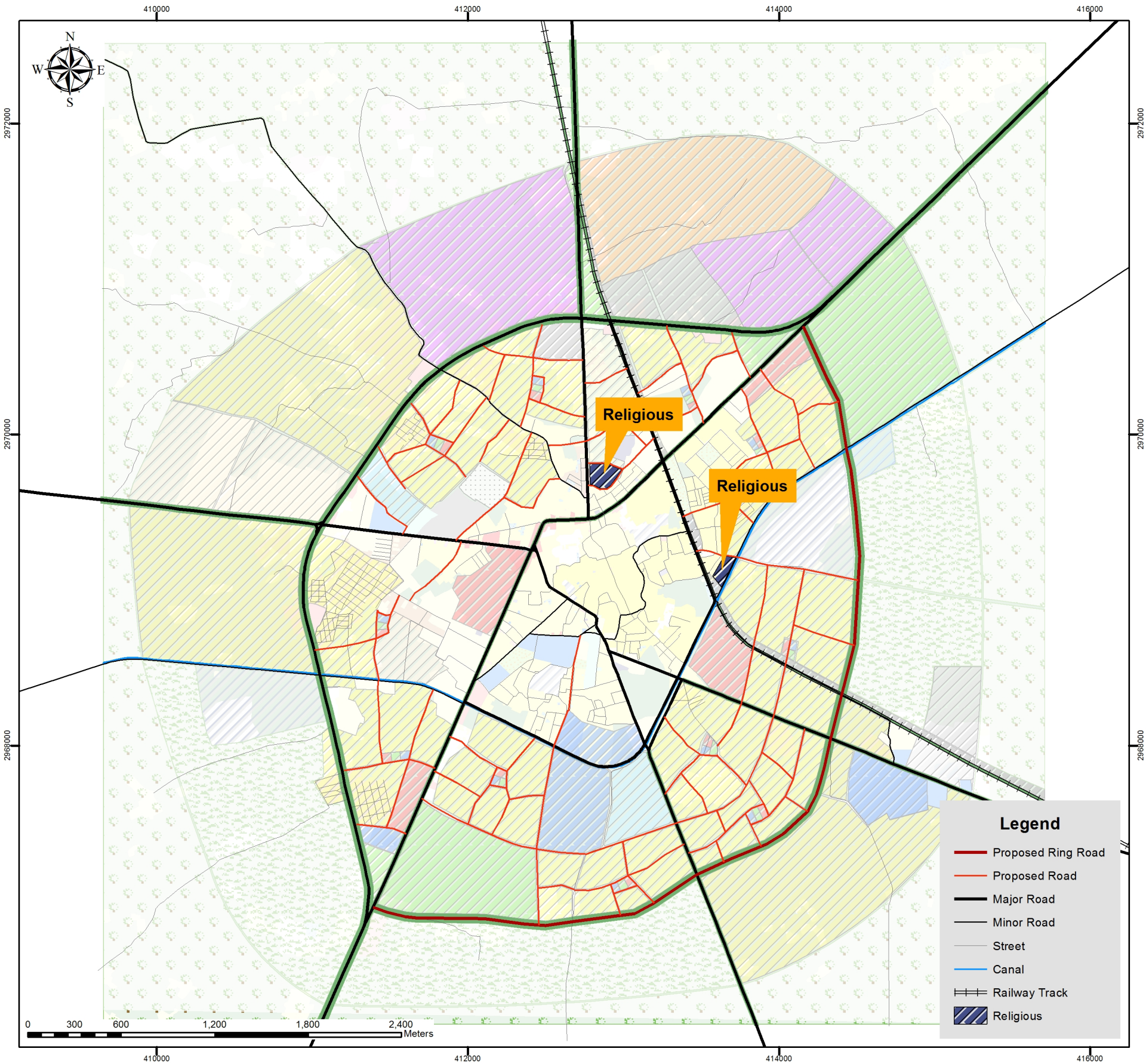
# Proposed Health and Welfare Landuse for Naushahro Feroze Town



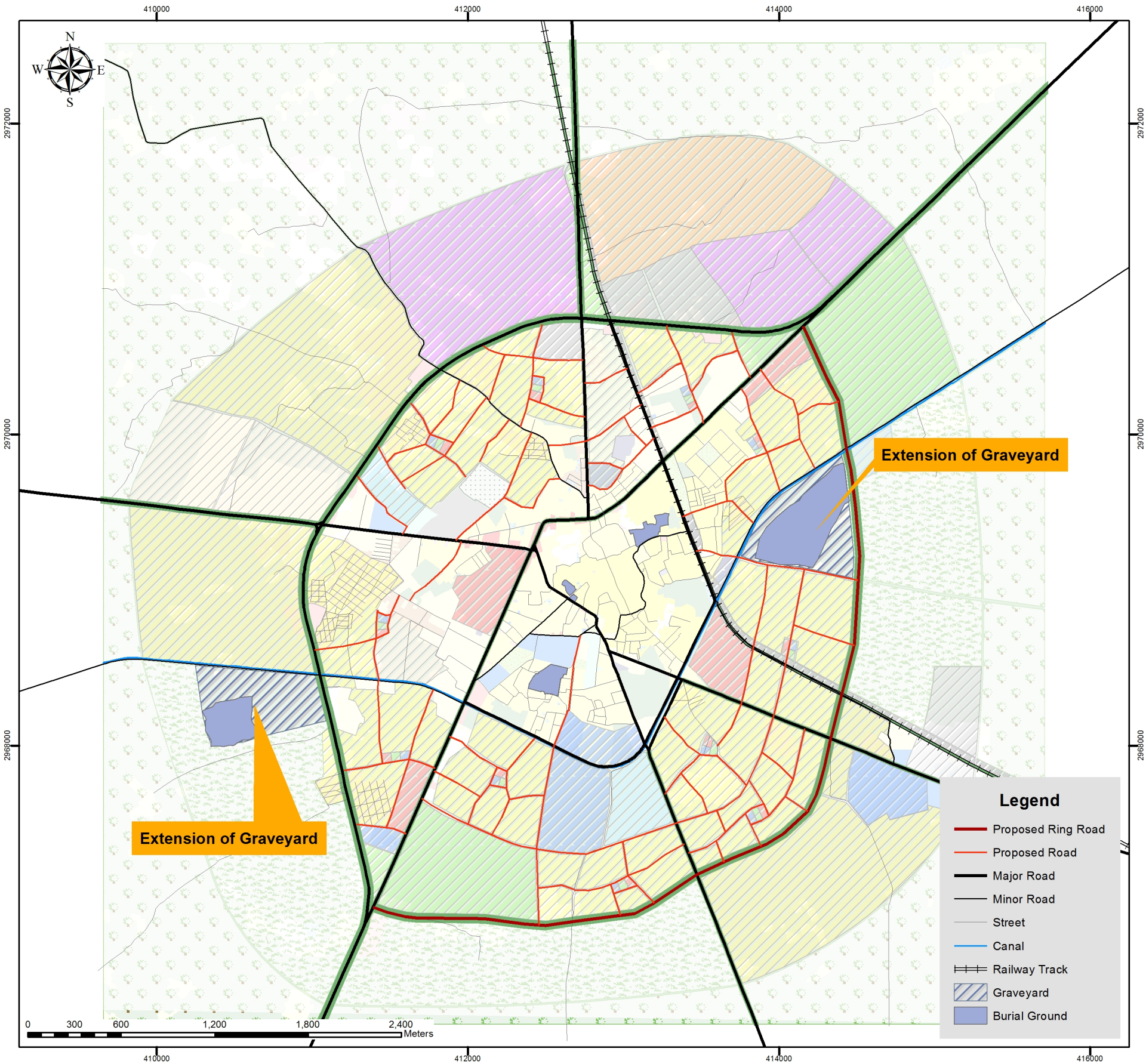
# Proposed Recreational Landuse for Naushahro Feroze Town



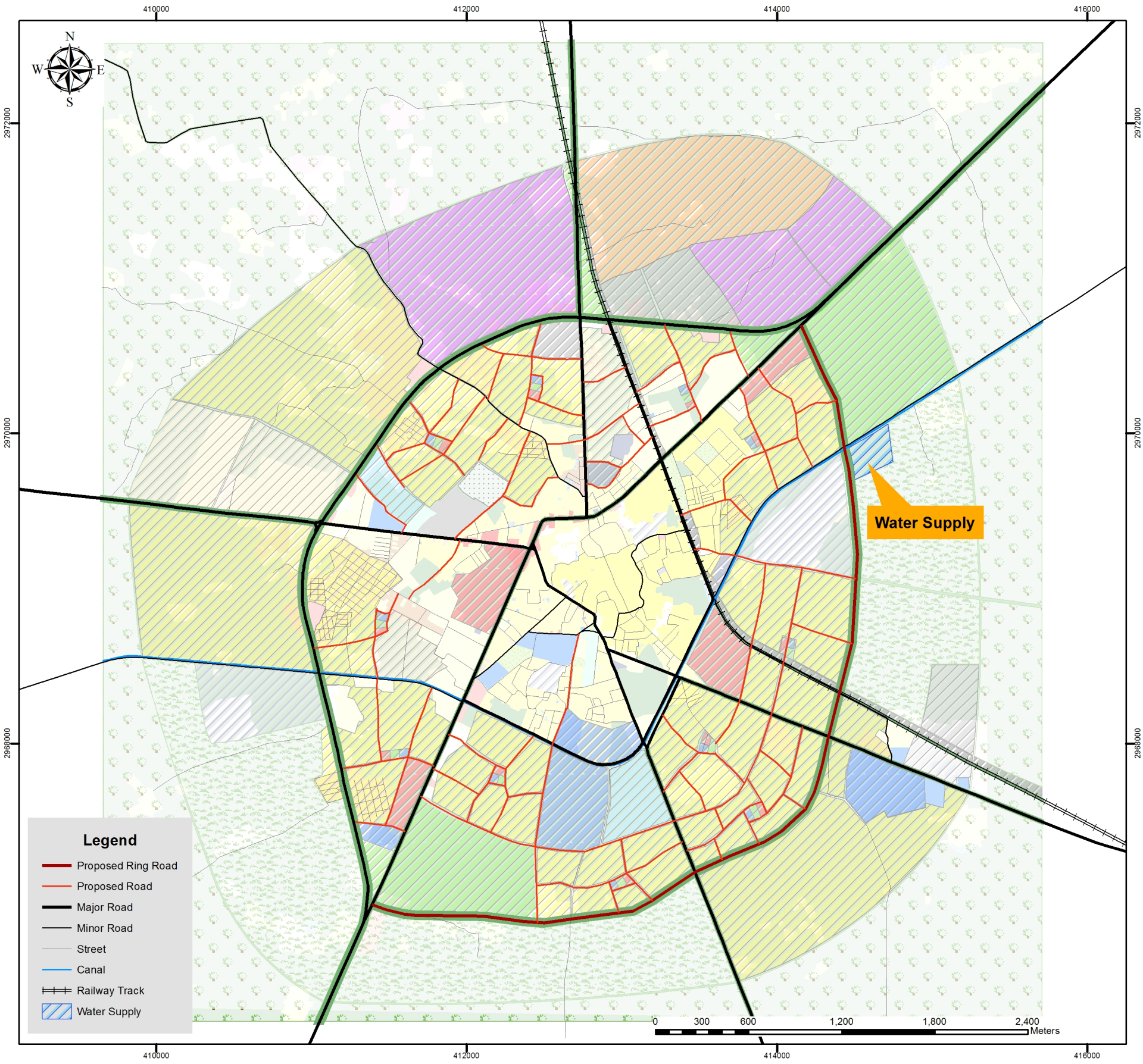
# Proposed Religious Landuse for Naushahro Feroze Town



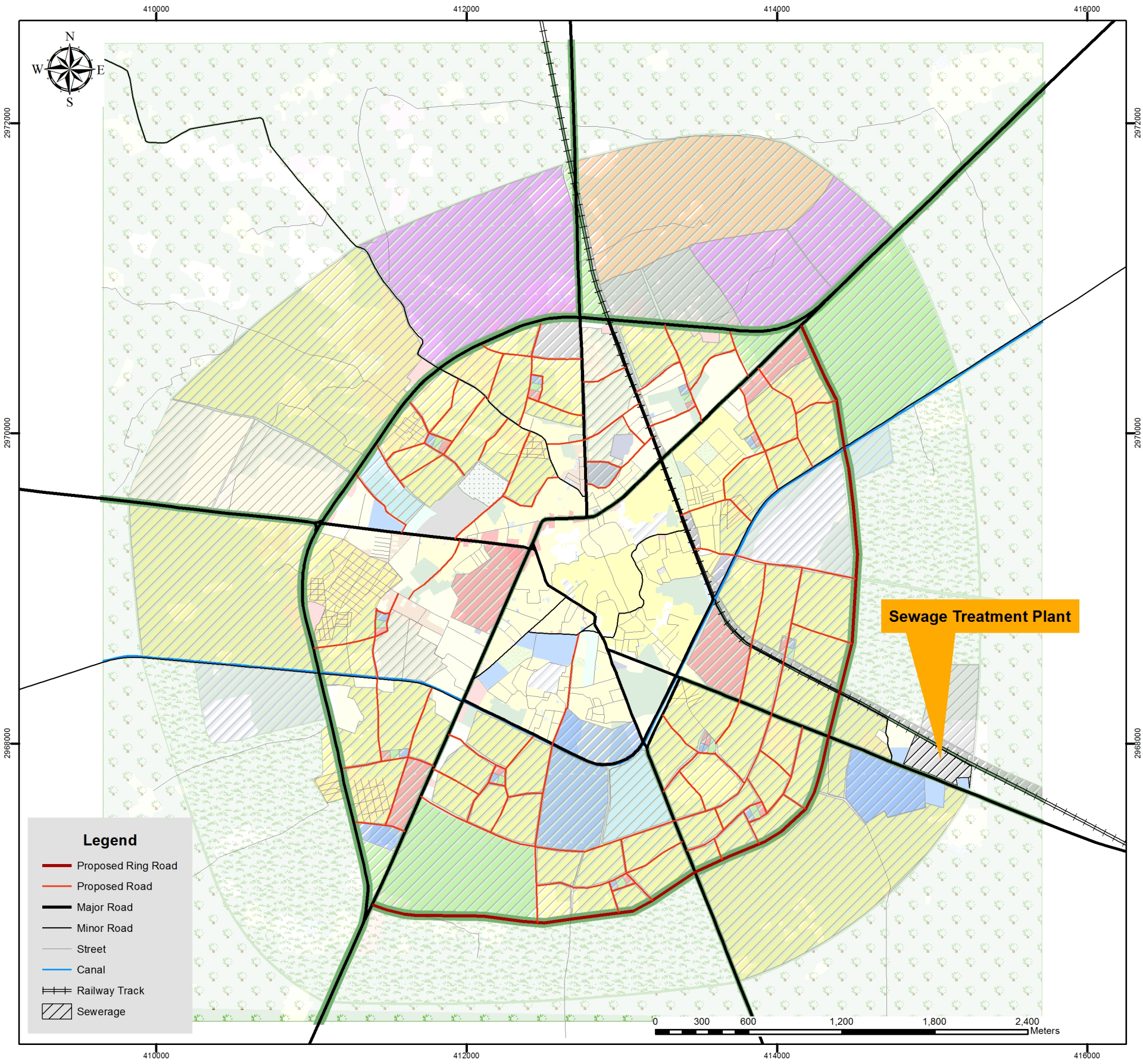
# Proposed Graveyard Landuse for Naushahro Feroze Town



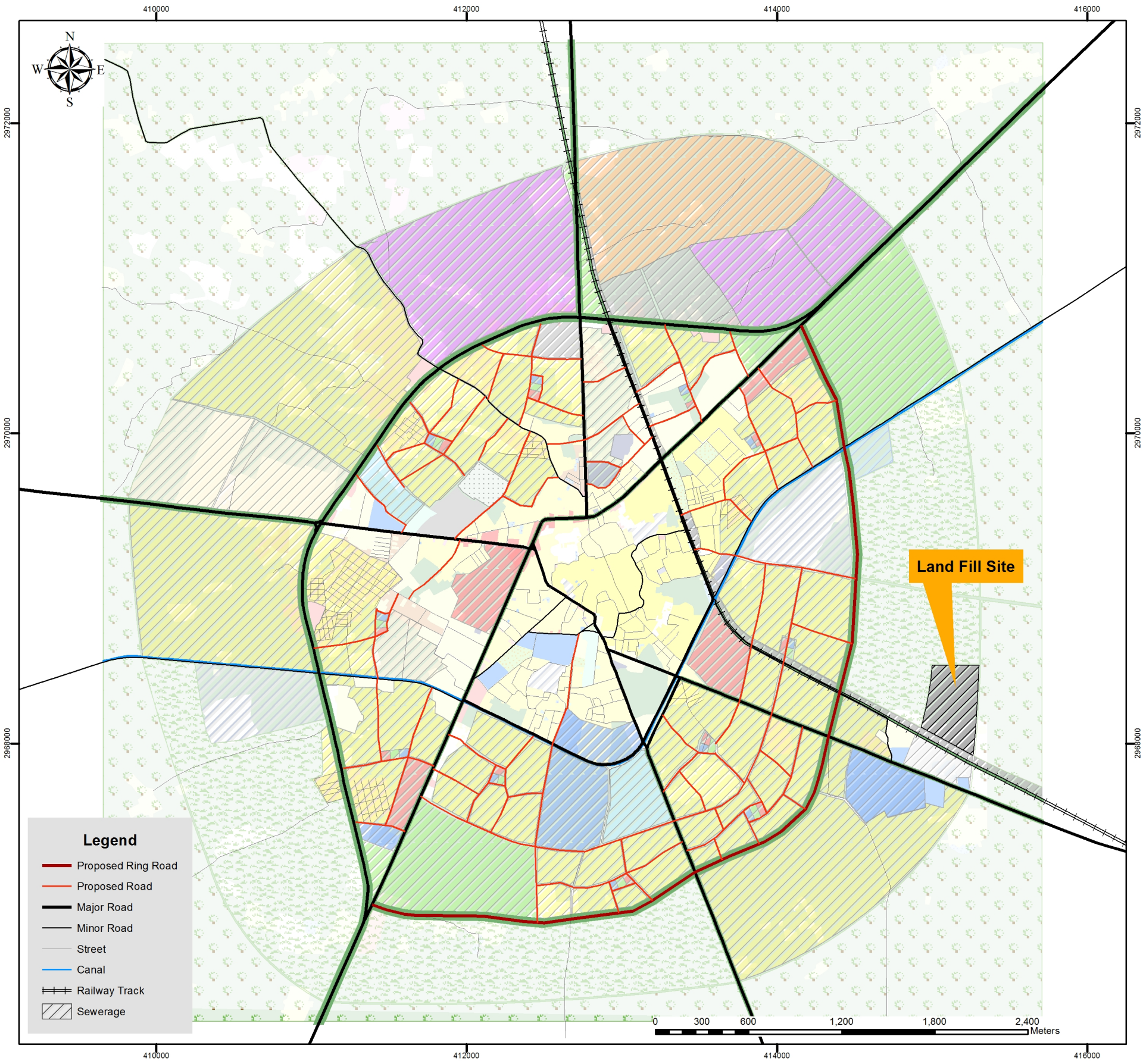
# Proposed Utilities and Services Landuse for Naushahro Feroze Town



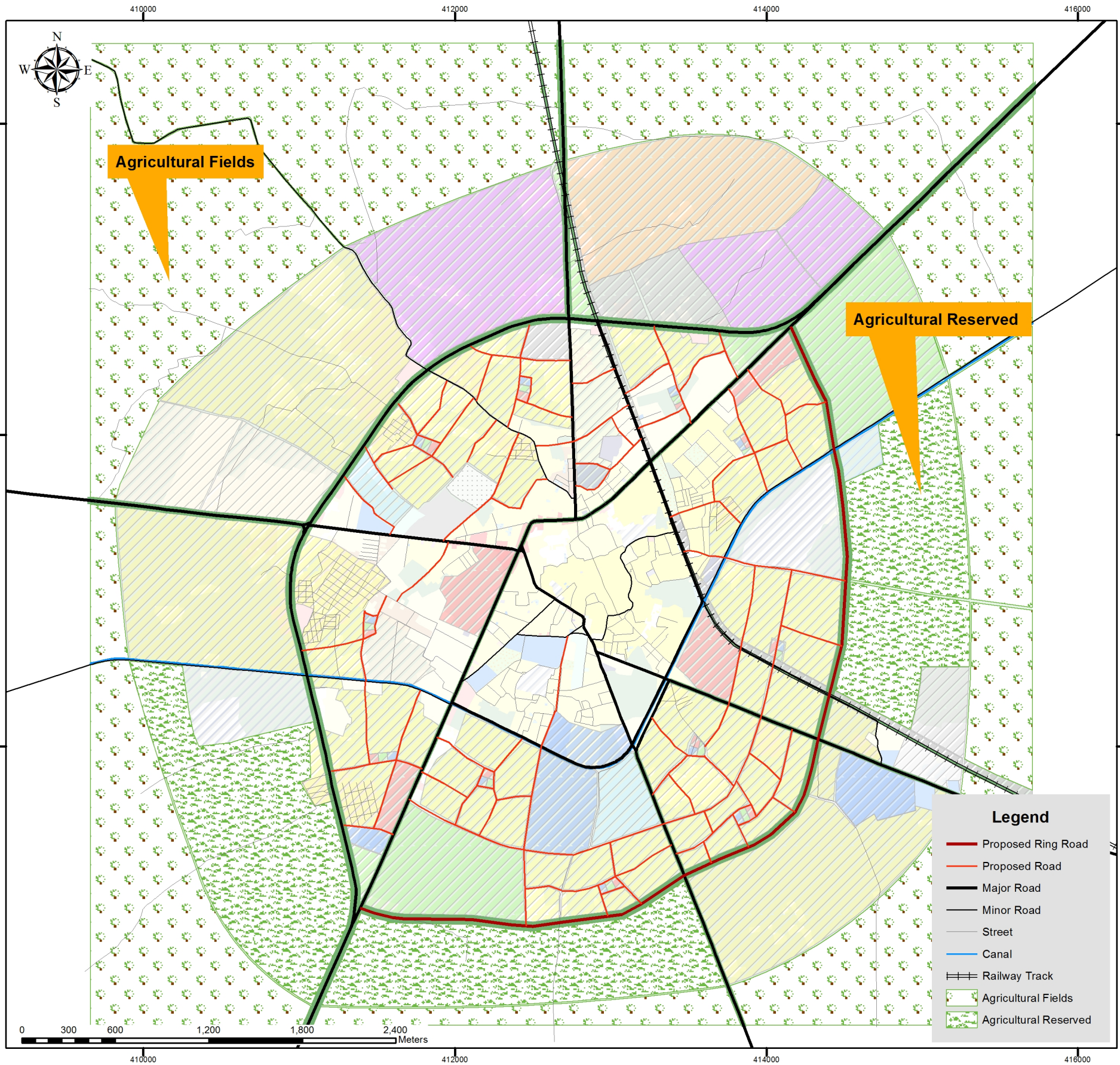
# Proposed Utilities and Services Landuse for Naushahro Feroze Town



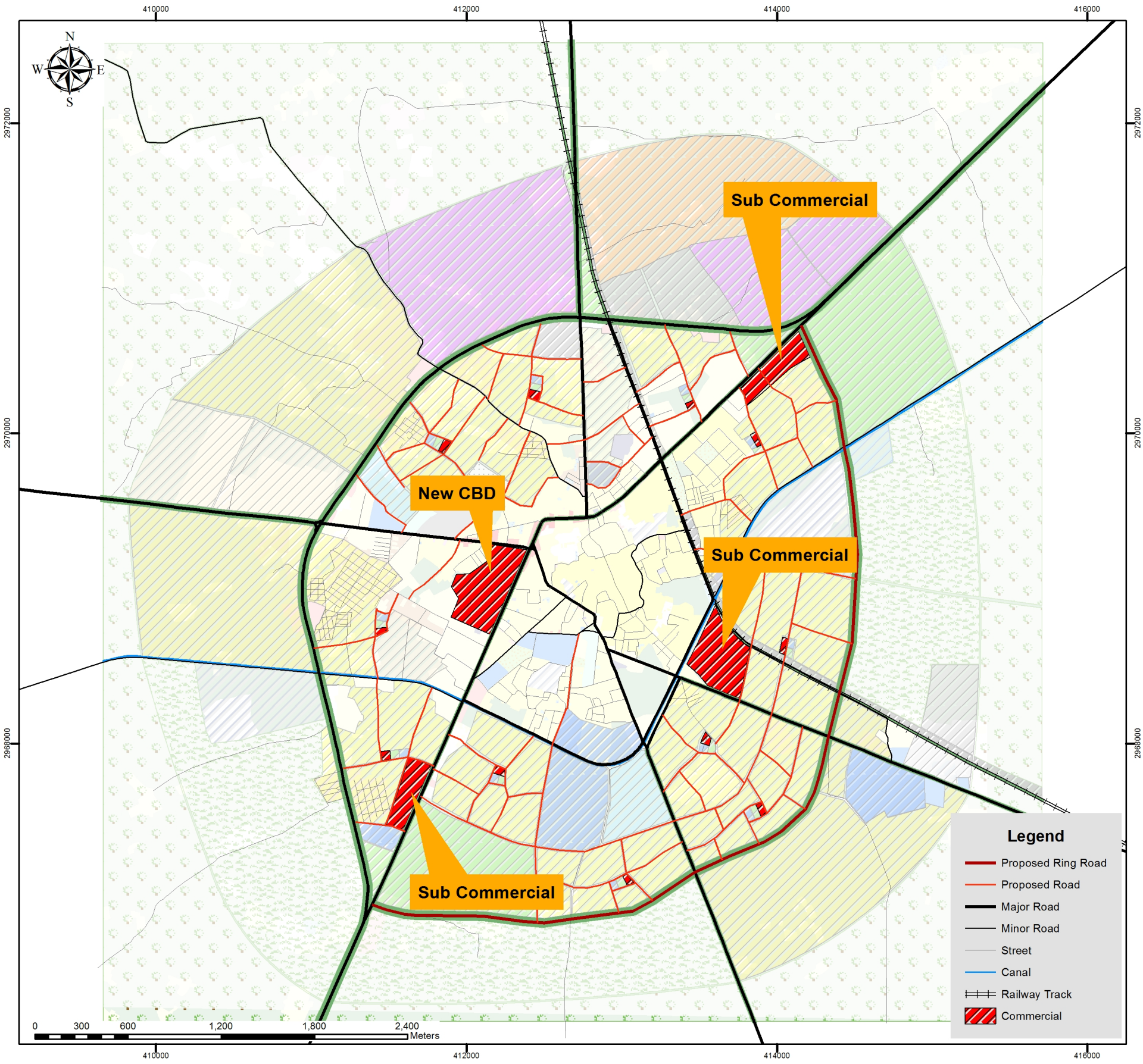
# Proposed Utilities and Services Landuse for Naushahro Feroze Town



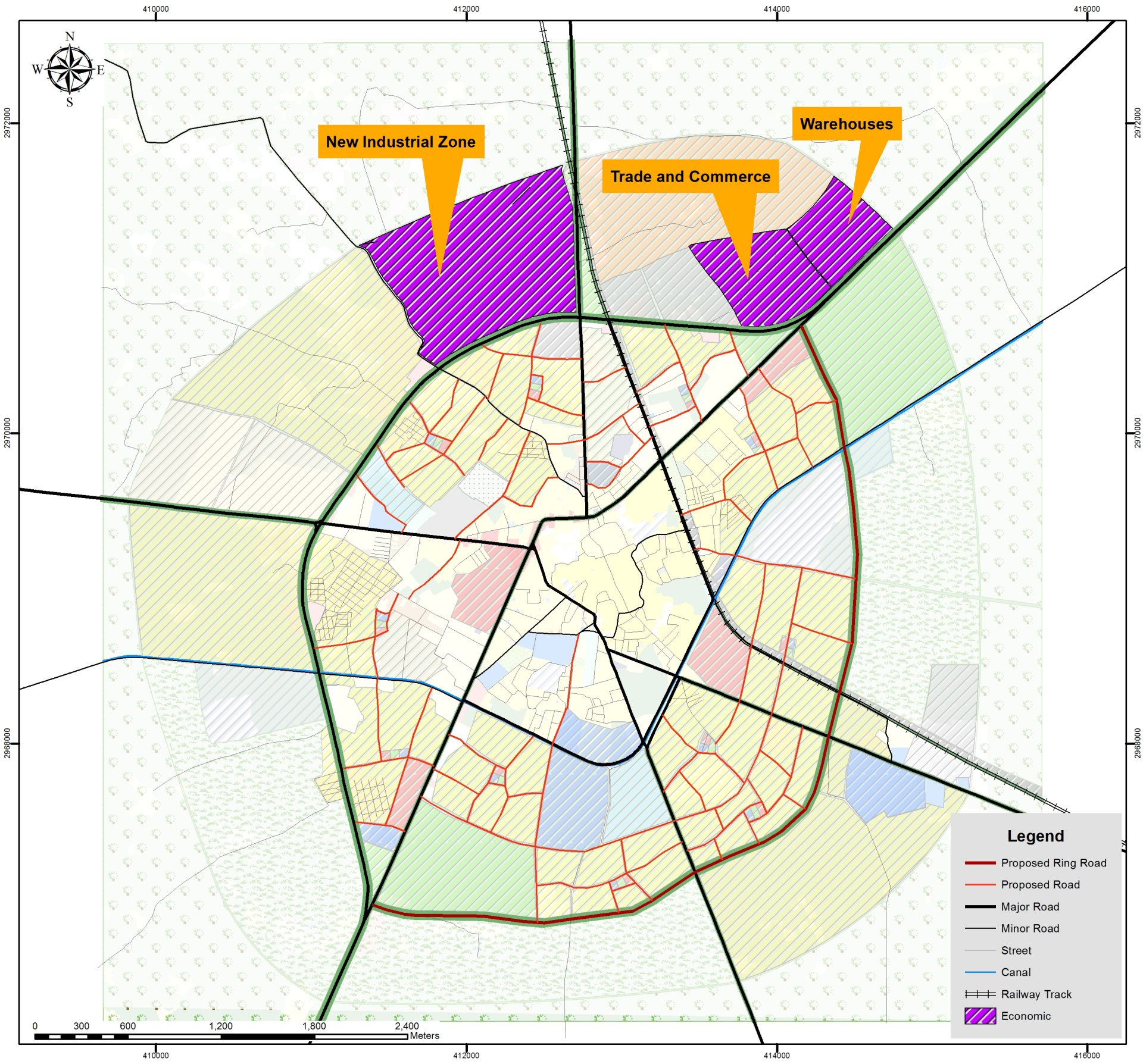
# Proposed Agriculture Landuse for Naushahro Feroze Town



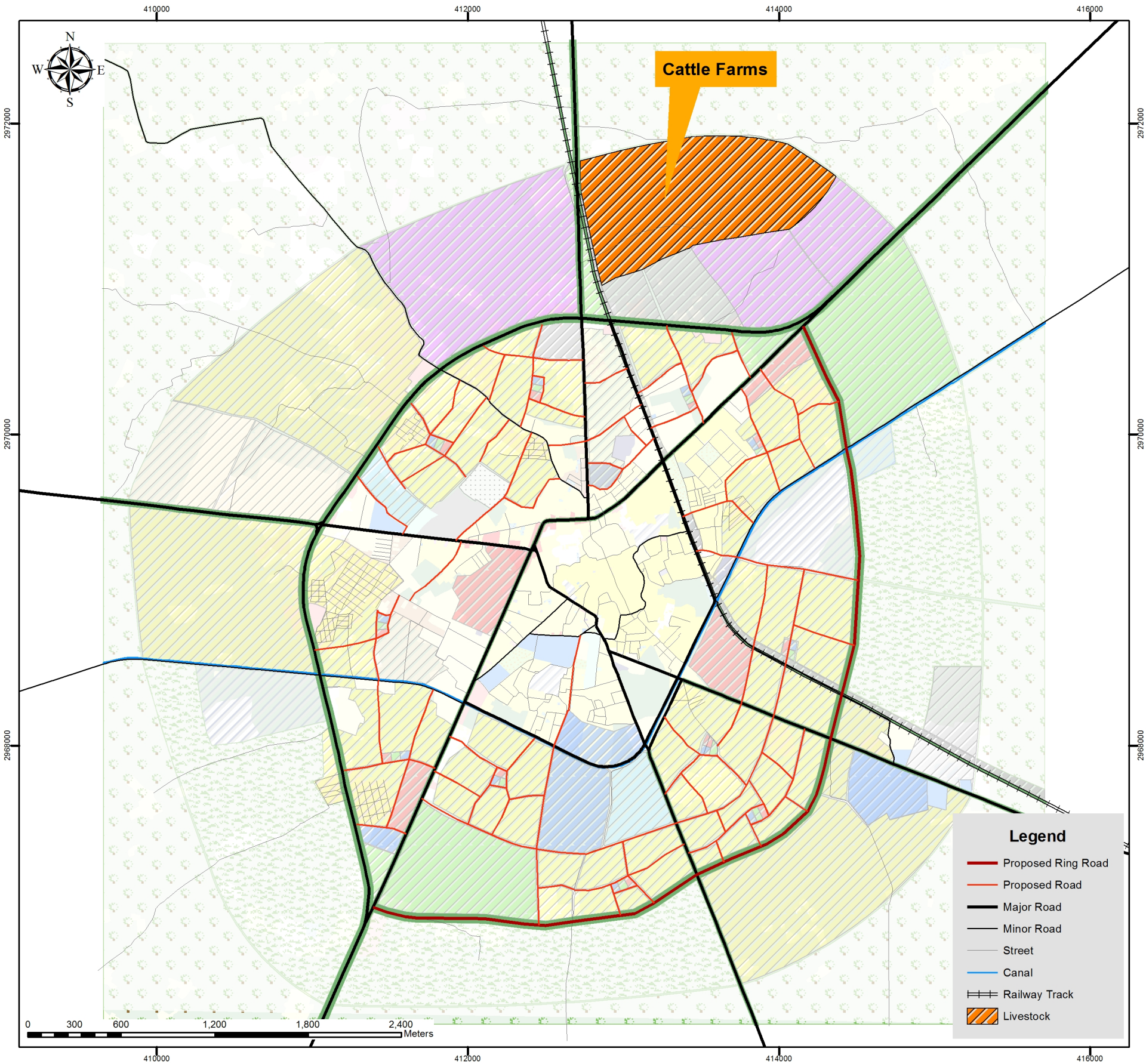
# Proposed Commercial Landuse for Naushahro Feroze Town



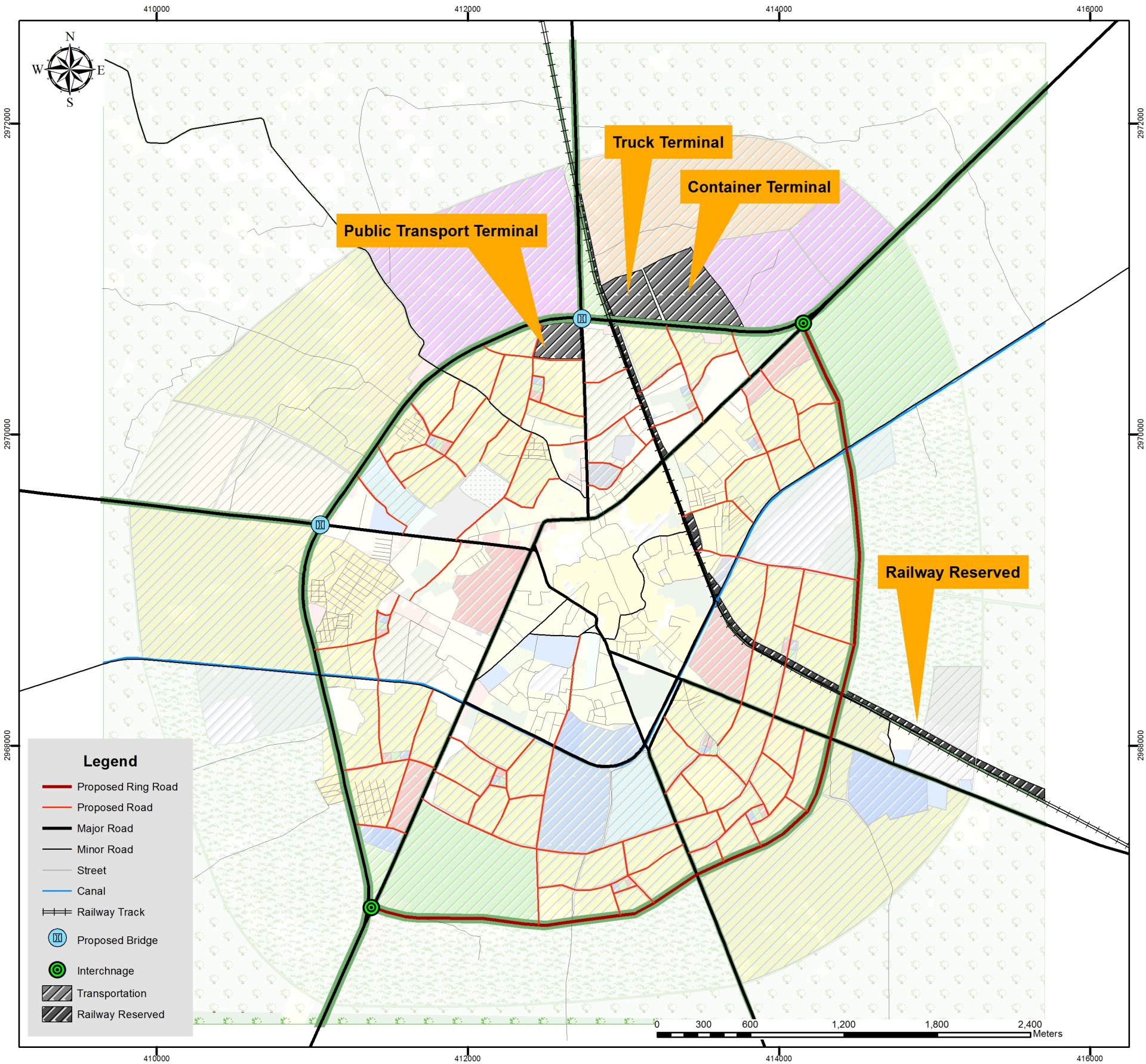
# Proposed Economic Landuse for Naushahro Feroze Town



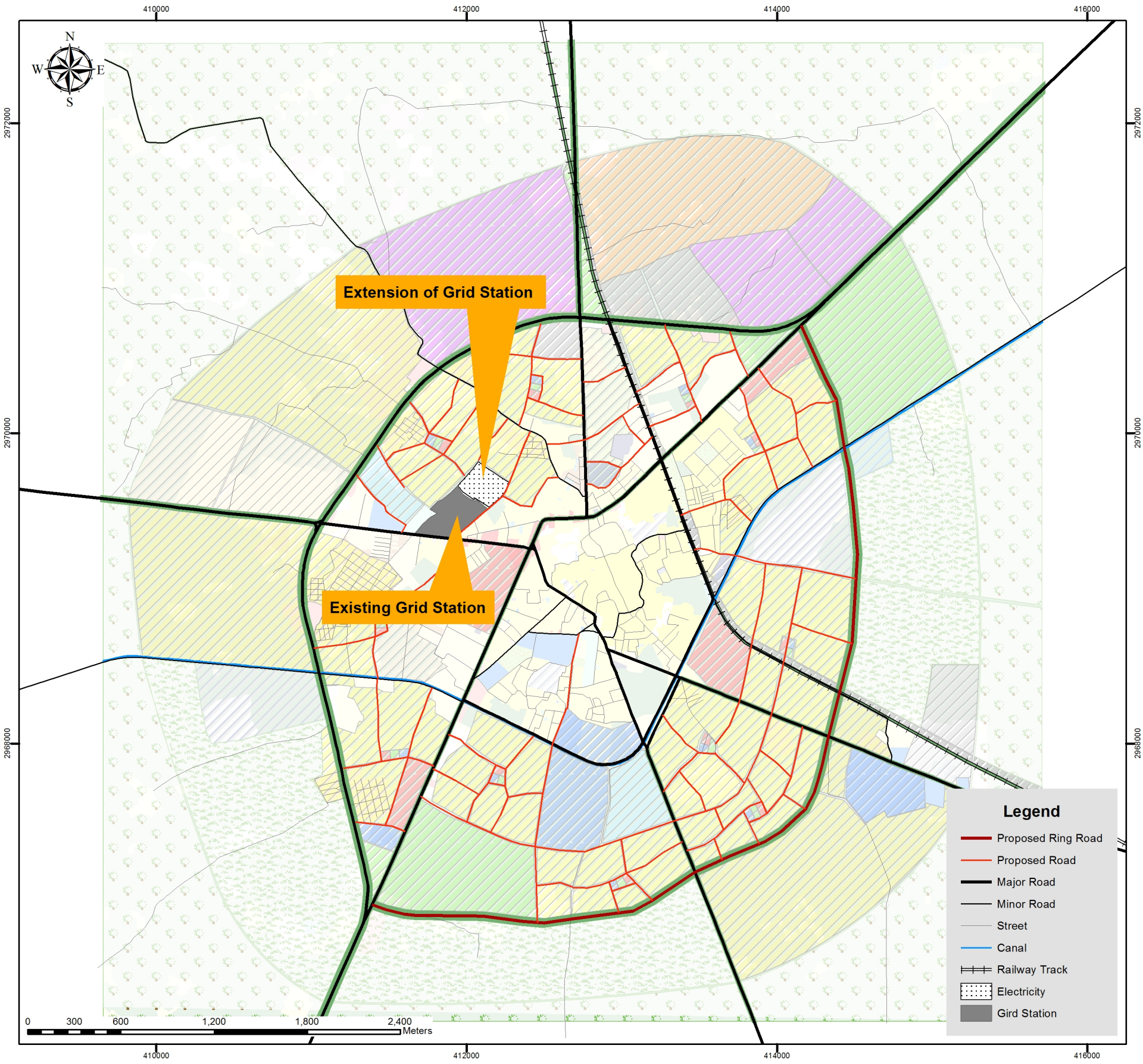
# Proposed Livestock Landuse for Naushahro Feroze Town



# Proposed Transportation Landuse for Naushahro Feroze Town



# Proposed Utilities and Service Landuse for Naushahro Feroze Town



# Proposed Public Administration Landuse for Naushahro Feroze Town

