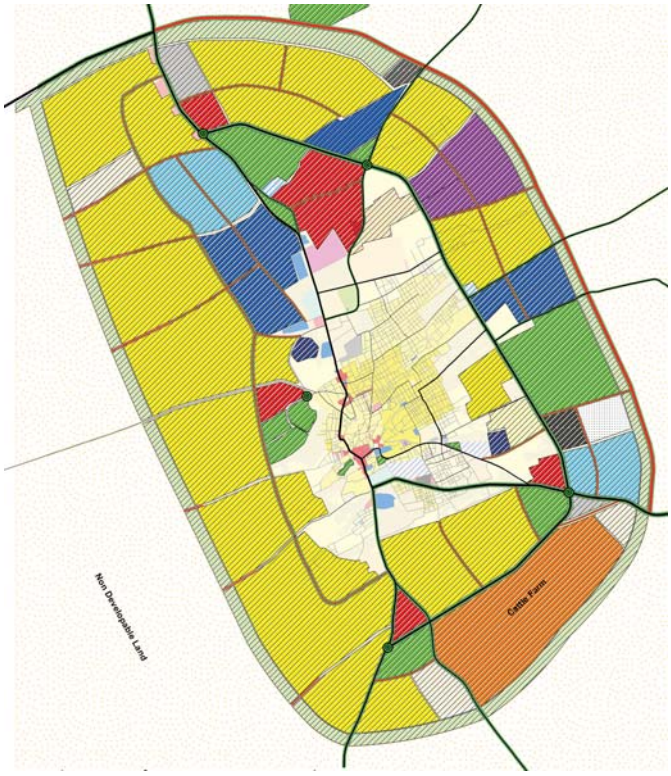
Directorate of Urban Policy Strategic Planning,
P & D Department, Government of Sindh

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)





MITHI

February, 2021

EA Consulting Pvt Ltd
(Formerly Engineering Associates)
Engineering, Architecture & Project Management
Head Office: AL-9, 25th Lane, Khayaban-e-Hilal,
Phase VII, D.H.A., Karachi-75500.,
Tel: UAN: 111-111-585, Fax: (021) 3584-1829

In Association with

MMP
MMP Pakistan (Pvt) Ltd.

TRANSMITTAL LETTER

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

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

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

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

ACKNOWLWDGEMENT

The completion of this assignment would not have been possible without the guidance and support of Directorate of Urban Policy & Strategic Planning, Planning & Development Department, Government of Sindh led by Mr. Faisal Ahmed Uqaili (Director General) and team members Mr. Zulfiqar Kumbhar (Deputy Director Housing/P&DC), Ms. Naila Haq (Deputy Director Environment), Ms. Uzaima Nasir Hilaly (Deputy Director Municipal Finance & Governance), Mr. Nabesh Akhtar (Deputy Director Municipal Services), Mr. Dayal Das Rathore (Assistant Director GIS) and Mr. Gulab Ahmed Tanvari (Assistant Director Planning).

The consultant is also thankful to Ex- Director Generals' UP&SP, Mr. Khair Muhammad Kalwar, Mr. Khalid Mehmood Shaikh, Mr. Muhammad Ali Khoso & Mr. Rafique Ahmed Qureshi and Mr. Mumtaz Halepoto Ex- Director Urban Policy & Planning, UP&SP.

EA Consulting Pvt Ltd acknowledges fair & transparent conduct of Financial Contract Management for this assignment carried out by this Directorate of UP&SP under the management and administration of respective Director Generals and Ms. Uzaima Nasir Hilaly Director Admin, Finance & Management.

Moreover, the consultant also appreciates the support of all the District &, line Departments officers/ officials for extending their valuable input and coordination during the preparation of this assignment.

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

STRATEGIC DEVELOPMENT PLAN REPORT – MITHI

TABLE OF CONTENTS

1. SINDH – AN OVERVIEW 3
- 1.1 Development Context 3
- 1.2 General Issues 4
- 1.3 Objectives 4
- 1.4 The Strategic Plan Outputs 5
- 1.5 Vision Formulation Workshop 5
- 1.6 Workshop Invitees and Participation 5
- 1.7 Mithi's Vision Statement 6

2. AN OVERVIEW OF MITHI AND ITS ENVIRONMENTS 7
- 2.1 History 7
- 2.2 Topography and Geology 8
- 2.3 Geographical Location and Area 8
- 2.4 Demography 8
  - *2.4.1 Population Growth and Projections 8*
- 2.5 Urban Morphology 11
- 2.6 Zonal Plan of Mithi 13
- 2.7 Land Use and Spatial Analysis 14

3. VISION FOR STRATEGIC DEVELOPMENT PLAN OF MITHI 17
- 3.1. Summation of Vision Formulation 17
- 3.2. Mithi's Vision Statement 18

4. PROPOSED MASTER PLAN OF MITHI TOWN 20
- 4.1 Spatial Pattern 20
- 4.2 Basic Urban Form 21
- 4.3 Proposed Master Plan 21
  - *4.3.1 Salient Features of Planning 23*
  - *4.3.2 New Bypass – Connecting Existing with Outer Developments 24*
  - *4.3.3 Radial Roads – Regional Connectivity 24*
- 4.4 Proposed Land Use Zoning 24
  - *4.4.1 Residential Zone 28*
  - *4.4.2 Commercial Zone 30*
  - *4.4.3 Economic Zone 31*
  - *4.4.4 Livestock Zone 32*
  - *4.4.5 Industrial Zone 33*
  - *4.4.6 Health and Welfare Zone 34*
  - *4.4.7 Educational Zone 35*
  - *4.4.8 Religious Zone 37*
  - *4.4.9 Public Administration Zone 37*
  - *4.4.10 Recreational Zone 38*

4.4.11 Graveyards Zone 39
4.4.12 Transportation Zone 40
4.4.13 Utilities and Services Zone 42
4.4.14 Urban Forestation Zone 43
4.4.15 Agricultural Zone 44
4.4.16 Water Bodies 44
4.4.17 Vacant Zone 45

5. HOUSING 47

5.1 EXISTING SITUATION 47
5.1.1 KATCHI ABADIS IN MITHI TOWN 48
5.2 ISSUES 48
5.3 SOWT ANALYSIS 49
5.4 NEED ASSESSMENT 49
5.5 POLICY GUIDELINES 49
5.5.1 Policy Measures for Land 49
5.5.2 Policy Measures for Housing Finance 50
5.5.3 Policy Measures for Katchi Abadis, Squatter Settlements & Slums 50
5.5.4 Policy Measures for Low Income Housing 50
5.6 STRATEGIC DEVELOPMENT PLAN 51
5.7 PRIORITY PROJECTS 52

6. SOCIAL INFRASTRUCTURE 55

6.1 EDUCATION 55
6.1.1 Existing Situation 55
6.1.2 SWOT Analysis 56
6.1.3 Need Assessment 56
6.1.4 Major issues in Mithi TC: 56
6.1.5 Future Need Assessment: 57
6.1.6 Policy Guidelines 57
6.1.7 Strategic Development Plan 57
6.1.8 Priority Projects 59
6.1.9 Immediate Action Plan for Core Urban Area 61
6.2 HEALTH 63
6.2.1 Existing Situation 63
6.2.2 Issues 63
6.2.3 SWOT Analysis 65
6.2.4 Need Assessment 65
6.2.5 Policy Guidelines 66
6.2.6 Strategic Development Plan 67
6.2.7 Priority Projects 68
6.2.8 Immediate Action Plan for Core Urban Area 70
6.3 RECREATIONAL 72
6.3.1 Existing Situation 72
6.3.2 Recreational Spaces in Mithi 72
6.3.3 Heritage and Tourism 73
6.3.4 Issues 75
6.3.5 SWOT Analysis 75
6.3.6 Need Assessment 75
6.3.7 Policy Guidelines 76

6.3.8 Strategic Development Plan 76
6.3.9 Priority Projects 76

7. BASIC UTILITIES 79

7.1 WATER SUPPLY 79
7.1.1 Existing Situation 79
7.1.2 Issues 80
7.1.3 SWOT Analysis 81
7.1.4 Need Assessment 81
7.1.5 Sindh Drinking Water Policy 2017 82
7.1.6 Strategic Development Plan 83
7.1.7 Priority projects 84
7.1.8 Immediate Action Plan for Core Urban Area 86
7.2 SEWERAGE AND DRAINAGE 88
7.2.1 Existing Situation 88
7.2.2 Issues 89
7.2.3 SWOT Analysis 90
7.2.4 Need Assessment 91
7.2.5 Sindh Sanitation Policy 2017 91
7.2.6 Strategic Development Plan 92
7.2.7 Priority Projects 94
7.2.8 Immediate Action Plan for Core Urban Area 96
7.3 SOLID WASTE MANAGEMENT 98
7.3.1 Existing Situation 98
7.3.2 SWOT Analysis 98
7.3.3 Need Assessment 99
7.3.4 Strategic Development Plan 99
7.3.5 Priority Project 100
7.3.6 Immediate Action Plan for Core Urban Area 103
7.4 FIREFIGHTING 105
7.4.1 Existing Situation 105
7.4.2 Need assessment 105
7.4.3 Strategies 105

8. INFRASTRUCTURE 106

8.1 TRANSPORT AND COMMUNICATION 106
8.1.1 Existing Situation 106
8.1.2 Issues and Problems 106
8.1.3 SWOT Analysis 107
8.1.4 Policy Guidelines 107
8.1.5 Sindh Empowerment of 'Persons with Disabilities' Act, 2018 108
8.1.6 Strategic Development Plan 109
8.1.7 Priority Projects: 110
8.1.8 Immediate Action Plan: 112
8.2 COMMUNICATION 117
8.2.1 Telephone, Mobile, Internet 117
8.3 ENERGY 117
8.3.1 Electricity Power 117
8.3.2 Issues and Problems: 118
8.3.3 Strategic Development Plan 118

8.3.4 Long Term Development Plan 118
8.3.5 Immediate action plan 119
8.4 GAS SUPPLY 121
8.4.1 Existing Situation 121
8.4.2 Issues and Problems: 121
8.4.3 Strategic Development Plan 121

9. ECONOMIC DEVELOPMENT PLAN 122

9.1 OCCUPATIONS 123
9.2 AGRICULTURE 124
9.2.1 Existing Situation 124
9.2.2 SWOT Analysis 124
9.2.3 Issues 125
9.2.4 Need Assessment 125
9.2.5 Strategic Development Plan 125
9.3 LIVESTOCK 126
9.3.1 Existing Situation 126
9.3.2 Veterinary Service 127
9.3.3 Issues of Livestock 127
9.3.4 SWOT Analysis 128
9.3.5 Need Assessment 128
9.3.6 Veterinary Services 129
9.3.7 Strategic Development Plan 129
9.4 MINING131
9.5 INDUSTRIES 131
9.5.1 Existing Situation 131
9.5.2 SWOT Analysis 133
9.5.3 Strategic Development Plan 133
9.5.4 Priority Projects 134
9.6 TRADE AND COMMERCE 136
9.6.1 Existing Situation 136
9.6.2 SWOT Analysis 136
9.6.3 Strategic Development Plan 136
9.6.4 Priority Projects 138
9.6.5 Immediate Action Plan for Core Urban Area 141
9.7 ECONOMIC DEVELOPMENT PLAN FOR HEADQUARTER TOWN WITH POVERTY REDUCTION STRATEGY (PRS) 143

10. ENVIRONMENT 145

10.1 EXISTING SITUATION 145
10.2 ISSUES 146
10.3 SWOT ANALYSIS 147
10.4 POLICY GUIDELINES 148
10.5 STRATEGIC DEVELOPMENT PLAN 148
10.6 PRIORITY PROJECTS 149

11. DISASTER RISK MANAGEMENT 150

11.1 EXISTING SITUATION 150
11.2 ISSUES AND PROBLEMS 151
11.3 SWOT ANALYSIS 152
11.4 POLICY GUIDELINES 153

11.5 Strategic Development Plan 153
11.6 Priority Projects 154

12. CLIMATE CHANGE EMERGENCY CONTINGENCY PLAN 156

12.1 Pakistan Meteorological Department 157
12.2 Health Department 158
12.3 Education Department 159
12.4 Agriculture Department 159
12.5 Livestock And Fisheries Department 160
12.6 Planning and Development Department 160
12.7 Revenue Department 161
12.8 Police Department 161
12.9 Civil Defense 162
12.10 Civil Society And Private Sector Response 162
12.11 Scouts 163
12.12 Standard Operating Procedures (SOPs) 163
12.13 Implementation and Monitoring 165
12.14 Responsibility of Plan Implementation 168
12.15 Monitoring and Evaluation 168

13. URBAN LAND MANAGEMENT 171

13.1 Introduction 171
13.2 Goals 171
13.3 Objectives 171
13.4 Urban Land Management in Mithi 172
13.5 Land Management and Reconstitution 172

14. IMPLEMENTATION STRATEGY 175

14.1 City Survey 175
14.2 Process of Implementation 175
14.3 Implementation Agency 175
14.4 Legal Frameworks 176
14.5 Institutional Enhancement 177
14.6 Implementation Schedule 178

LIST OF FIGURES

FIGURE 1-1: LAND USE MAP OF MITHI XIX
FIGURE 2-1: TEHSIL MAP OF THARPARKAR 7
FIGURE 2-2: FUTURE PROJECTIONS FOR MITHI 10
FIGURE 2-3: HISTORICAL MAP OF MITHI TOWN 12
FIGURE 2-4: ZONING PLAN OF MITHI TOWN 14
FIGURE 2-5: LAND USE MAP OF MITHI 15
FIGURE 5-1: FUTURE HOUSING SCHEMES PROPOSALS MITHI TOWN 54
FIGURE 6-1: FUTURE EDUCATIONAL PROPOSALS MITHI TOWN 60
FIGURE 6-2: EDUCATIONAL FACILITIES (CORE URBAN AREA OF MITHI) 62
FIGURE 6-3: PRESENT HEALTH FACILITIES IN MITHI DHQ TOWN 64
FIGURE 6-4: FUTURE HEALTH PROPOSALS MITHI TOWN 69
FIGURE 6-5: HEALTH FACILITIES (CORE URBAN AREA OF MITHI) 71
FIGURE 6-8: MONUMENT AT GHADI BHITT 72
FIGURE 6-8: PARK IN MITHI TOWN 72
FIGURE 6-8: THAR SPORTS COMPLEX 72
FIGURE 6-9: PROPOSED RECREATIONAL LANDUSE FOR MITHI TOWN 78
FIGURE 7-1: PILFERAGE FROM NARA CANAL 79
FIGURE 7-2: EXISTING WATER SUPPLY MAP 80
FIGURE 7-3: PROPOSED WATER SUPPLY LANDUSE 85
FIGURE 7-4 : REHABILITATION OF EXISTING WATER SUPPLY NETWORK (CORE URBAN AREA OF MITHI) 87
FIGURE 7-5: REHABILITATION OF EXISTING DRAINAGE NETWORK (CORE URBAN AREA OF MITHI) 97
FIGURE 7-6: PROPOSED LANDFILL SITE FOR MITHI TOWN 102
FIGURE 7-7: GARBAGE COLLECTION POINTS (CORE URBAN AREA OF MITHI) 104
FIGURE 8-1 : FUTURE TRANSPORTATION MAP OF MITHI TOWN 111
FIGURE 8-2: MODEL OF MONUMENTS FOR CORE AREA 115
FIGURE 8-3: MODEL OF FOOTPATH 115
FIGURE 8-4: MODEL OF FOOT PATH & STREET 115
FIGURE 8-5: PROPOSAL FOR REHABILITATION OF ROADS, NEW PARKING SPACES AND BUS TERMINAL FOR 116
FIGURE 8-6: PROPOSED GRID EXTENSION FOR FUTURE 120
FIGURE 9-1: PROPOSED LIVESTOCK LANDUSE FOR MITHI TOWN 130
FIGURE 9-2 FUTURE INDUSTRIAL PROPOSAL MITHI TOWN 135
FIGURE 9-3: PROPOSED COMMERCIAL LANDUSE FOR MITHI TOWN 137
FIGURE 9-4: PROPOSED TRADE AND COMMERCE ZONE 140
FIGURE 9-5 : PROPOSAL FOR REHABILITATION OF COMMERCIAL AREA OF CORE URBAN AREA 142
FIGURE 12-1: FOUR PHASES OF A RESILIENCE INITIATIVE, AND THE TIMING OF BASELINE AND POST-SHOCK 165

LIST OF TABLES

TABLE 2-1: POPULATION CENSUS: THARPARKAR DISTRICT 9
TABLE 2-2: FUTURE POPULATION PROJECTIONS 10
TABLE 2-3: FUTURE POPULATION PROJECTIONS 10
TABLE 2-4: SPATIAL ANALYSIS OF LAND USE CLASSIFICATION 16
TABLE 5-1: HOUSING STATISTICS 47
TABLE 6-1: PRESENT EDUCATION INSTITUTIONS AND ENROLMENT RECORD 55
TABLE 6-2: SECONDARY SCHOOLS IN MITHI 55
TABLE 6-3: FUTURE REQUIREMENT OF CLASSROOMS IN MITHI 57
TABLE 6-4 : HEALTH FACILITIES 63
TABLE 6-5 PRESENT ANALYSIS OF POPULATION TO BED RATIO AND DOCTOR RATIO AT TC LEVEL 66
TABLE 6-6 FUTURE ANALYSIS OF POPULATION TO BED RATIO AND DOCTOR RATIO AT TC LEVEL 66
TABLE 6-7 : SPORTS AND RECREATIONAL 75
TABLE 7-1: PRESENT AND FUTURE WATER DEMAND 81
TABLE 8-2: EXISTING SEWERAGE AND DRAINAGE INFRASTRUCTURE 88
TABLE 8-3: PRESENT AND FUTURE WASTE WATER GENERATION 91
TABLE 8-1: MITHI- CORE TOWN AREA REPAIR & REHABILITATION OF ROADS 113
TABLE 9-1: OCCUPATIONAL DATA OF MITHI TC 123
TABLE 9-2: MONTHLY INCOME IN MITHI TC 123
TABLE 9-3: LAND UTILIZATION (HECTARES) 2013-14 124
TABLE 9-4: POPULATION OF LIVESTOCK 126
TABLE 9-5: VETERINARY SERVICE 127
TABLE 9-6: POPULATION OF LIVESTOCK 128
TABLE 9-7: VETERINARY SERVICE 129
TABLE 9-8 LIST OF COAL ENERGY PROJECTS 131
TABLE 9-9: PROJECTION OF TEVTA INSTITUTIONS 132
TABLE 9-10: REHABILITATION OF MAIN COMMERCIAL AREA – ACTIVITY WISE COST IN MILLIONS 141
TABLE 12-1: AUTHORITIES RESPONSIBLE FOR IMPLEMENTATION 168

LIST OF ANNEXURES

Annexure – A : Sustainable Development Goals Acceleration Plans

Annexure – B: Atlas

LIST OF ACRONYMS AND ABBREVIATIONS

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

District Tharparkar is area wise the largest district of Sindh Province. According to 1998 census, population of District Tharparkar was 914,291 with 55% male population and 45% female population. District Tharparkar covers an area of 19,638 sq.km with an average house hold size of 5.6. Recently district was divided in to 6 tehsils with 48 UCs. It has only 743 kilometers of good quality roads. A Highway connects Tharparkar with other major cities of the province. The Tharparkar District is mostly desert and consist of barren tracts of sand dunes covered with thorny bushes.

Tharparkar has its district headquarters at Mithi city. The topography of Mithi contains only modest variations in elevation. The 2017 census reveals that population of Mithi town has reached at about 47,073 souls with a growth rate of 4.70%. Projected population of Mithi city works out to be 173,739 souls by 2037. The total built up area of Mithi town in 2001 was 4.6 sq.km which increased to 11.4 sq.km in 2017. The built-up area of Mithi town comprises of around 1,332 acres of land but the spread of urban area as estimated by the consultants is about 3,650 acres. The land use analysis indicates that almost 66% of total urban boundary area is in residential use. There is main CBD, which is called Shaahi Bazaar in the center of town connected to Naukot – Mithi Road. Mithi is now experiencing a large increase in development due to exploration of coal reserves. The world's 5th largest reserves of coal as 175 billion tons.

B. VISION 2037

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

A vision formulating workshop was carries out with the main stakeholders on September 08 2018. Collection of opinions expressed produces the following vision:

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

C. DEMOGRAPHY

According to 1998 census, population of Mithi city was 19,697 souls. The 2017 census reveals that population has reached at 47,073 souls with a growth rate of 4.70%. Mithi city is going through a massive transformation due to exploration of coal reserves. Many International and local companies are investing not only in the headquarter town but also in the entire district. Health care and education facilities are improving and are directly impacting the mortality rate of the town. Tharparkar on the whole is lowest on HDI Index and has one of the highest infant mortality rate. Projected population of Mithi city works out to be 173,739 souls by 2037.

D. CITY SURVEY

City survey is very important to manage land records for city. City survey will help to resolve present hassle in property transactions besides impeding planning & development. It will also help to resolve several issues i.e. verification of ownership & land grabbing issues respectively. Therefore it is suggested to conduct city survey & deal as separate project for Tharparkar.

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

1. HOUSING

Housing in terms of affordable home with basic infrastructure and facilities is the basic human need. According to 2017 census population results, Mithi TC had household size of 6.5 persons and a total housing stock of 10,003. The major issues of the housing sector are lack of skills to manage urban growth, lack of comprehensive planning, sub-standard housing and basic services, land scarcity of developed urban land, neglected households below poverty line, unchecked growth of squatter settlements, shortage of finance, high land prices for the low income groups and katchi abadis.

According to data provided by Sindh Katchi Abadis Authority (SKAA), there are six Katchi Abadis in Mithi DHQ Town. It is estimated that 16% population of Mithi Town resides in katchi abadis. All of these katchi abadis are still not notified.

By 2037 the number of households have been estimated around 25,096 on fixed household size of 6.5 persons out of which additional housing requirement will be 15,093. The strategies need to be focused on development plans catering the current and future housing needs, relocation of Katchi Abadis, incremental housing schemes, provision of incentives, support research and development programmes, formation of land bank, increased number of small size plots, regulatory framework to facilitate housing development, low-income housing funds and modification of land disposal system.

The short term plan focuses on the increased number of small size plots and discourages speculation in land prices. The long term plan involves the forward planning for incremental population, initiation of low cost housing schemes, formulation of green building by-laws and promotion of the concept of mixed development.

The priority projects includes the construction of housing scheme for low income group.
The immediate action is to be taken for providing basic facilities to each home, regularization of land tenure, urban face lifting program, provision of modern street lights, developing green medians and demolition of dangerous buildings.

2. SOCIAL AMENITIES

2.1 Education

30,599 children (primary, middle, and high school) are enrolled in schools with 950 classrooms. The schools are short of 70 classrooms on the basis of 30 students per classroom. The issues include low enrolment with gender disparity, shortage of teachers in colleges, lack of basic facilities, and poor and dilapidated condition of schools and colleges.
The future need is 621 classrooms (including colleges) by the end of plan period in 2037. The education authorities should plan to gradually increase the classrooms in existing schools in high density areas and new schools in low density areas. The spatial distribution of schools and other educational institutions should be that our schools, especially girls' schools are within easy walking distance.

Some of the strategies are to enhance teaching capabilities, provision of scholarships, impart basic education to all children, improve quality of learning outcomes and enhance the equity of resource allocation.

The short term plan focus on the improvement of infrastructure of the school buildings and invest in human capital to improve quality of education. The long term includes sustainable construction of educational institutions, participation of private sector, emphasis on vocational training and inclusion of more disciplines at the Degree College

The priority projects should focus on addition of classrooms, improving quality of education, training for teachers and establishment of vocational training centers.

The immediate action plan includes rehabilitation and up gradation of schools and colleges.

2.2 Health

There is one civil hospital having 74 bed, three THQs Hospitals having 90 beds and 96 private Hospitals having 129 beds to serve the district population. The other health facilities are two RHCs having 20 beds, 10 TB Clinics, 40 BHUs having bed strength 93 and 307 dispensaries having total number of 409 beds. The issues include lack of facilities, training, diagnostic and equipment, difficulty in transferring patients from rural to urban area, vacant posts of doctors and shortage of nutrition. The NRM (National Reference Manual) recommends 2 bed per thousand as the medium term target. On this basis 20 beds will be required to be provided gradually. According to WHO standards doctor to population ratio is 1:1000 so taking that as a reference point currently the short fall of doctors comes out to be 47.

On the basis of NRM recommendation approximately 162 beds will be required to be provided gradually until 2037. According to WHO standards the future requirement of doctors comes out to be 67. Some of the strategies include improved access to and quality of healthcare facilities, availability of skilled workforce, expansion of immunization coverage, improvement of equipment and health hygiene practice, availability of medicines and health administration be made accountable to public.

The short term plan focuses on the extension of Civil Hospital, provision of Mobile Health Unit, up gradation of hospitals, health awareness programmes, and provision of facilities in hospitals,

rehabilitation and improvement in existing hospitals. The long term plan includes enhancement of Mobile Health Unit, tertiary level specialized hospital, provision of a quick response ambulance service with all health units, accommodation facilities for doctors, participation of private sector and organizing research and development programmes for doctors and paramedics staff.

The priority projects should focus on the construction and rehabilitation of health institutes, extension of Civil Hospital, and provision of Mobile Health Unit, provision of a quick response ambulance service with all health units and research and development programmes for doctors and paramedics staff.

The immediate action plan involves rehabilitation of civil hospital, installation of incinerators, provision of incentives for doctors and nurses and free nutritional programmes for newborns and lactation mothers.

2.3 Recreational

At present three recreational places in Mithi TC are Thar Sports Complex, Ghadi Bhitt Monument and park in town centre. Nagarparkar, a town in Tharparkar district, was a pilgrimage site for Hindus and Jains. The other places include Karoonghar Hills, Well of Marvi and Bhodesar Mosque. The issues include in-active tourist development program, lack of attention towards heritage preservation, encroachments on cultural places, shortage of parks and playgrounds and lack of interest of relevant stakeholders.

The strategies are restoration of open spaces, preservation of cultural heritage and planning of government bodies regarding additional recreational places.

The short term plan includes urban forestation and rehabilitation of existing parks and sports facilties. The long term plan focuses on the establishment of sports complex, promotion of tourism to new spots with allied facilities & access road facility, protection of historical places and cultural heritage, and youth development programmes.

The priority projects should focus on the rehabilitation of parks and preservation of open spaces like Gadhi Bhitt, provision of missing facilities, construction of auditoriums and up gradation of art councils.

The immediate action plan involves the provision of open spaces and parks and conservation of historical places and cultural heritage.

3. ECONOMIC DEVELOPMENT

3.1 Minerals

Tharparkar is rich in minerals like china clay, granite, coal and salt. Coal deposits are of approximately 175 billion M Tons and could be used to generate electricity. Granite rock is found in Nagarparkar region famous as Karoonjhar Mountain. It is estimated that 3.6 million tons granite is available. Salt mines are also available in this district. However, mineral exploration is a low key affair that needs consolidated programme for the economic exploitation of all minerals. As predicted by the Coal Energy Board if projects in other blocks are also completed total electricity production can reach to 6040 MW by end of 2020.

3.2 Agriculture

Some areas of Nagarparkar taluka are fertile and irrigated by tube well water producing crops such as wheat, onion, cotton and other vegetables. The total geographical area of Tharparkar is 2,017,000 hectares out of this cultivated area is up to 352,000 hectare. The problems include short supply of irrigation water, high price of inputs, shortage of food godowns and warehouses, lack of agriculture credit facilities and research centers, water logging and salinity, irrigation and drainage problem.

Some of the strategies are modernize agriculture, improve food production, establishment of agriculture technology and policy formulation for cross-cutting issues.

The short term plan includes the provision of agriculture credit facilities, regular supply of irrigation water to improve crop yield, installation of tube wells, rehabilitation of canals and drains, measures to reduce water logging and salinity and construction of farm to market roads. The long term plan focuses on enhancing crop productivity, increase quality of agricultural crops and provision of warehouses.

3.3 Livestock and Fisheries

Livestock is the backbone of Thar's economy. Main by-products include milk, hides and meat. District has 2,218,000 Goats, 1,185,000 Sheep and 752,000 Cattles. The livestock is served by 08 veterinary hospitals and 151 centers. The annual fish production is about six metric tons. Some of the livestock products are milk, meat, beef, mutton, poultry and eggs. The issues of livestock include landlessness, subsistence farming, limited facilities, secondary source of income, reduced area for natural grazing and climate change. There is a need to develop broad-based fisheries policy to modernize the fisheries sector.

The strategies involve improving production performance of livestock, establishment of model livestock, cattle and dairy farms, and veterinary services, extension of services, lease of fishing rights, training through schools, and issuance of licenses, local awareness, and enforcement of fisheries enactment, aquaculture development and collection of statistical fisheries data.

3.4 Industries

Heavy coal and granite deposits are identified providing a base for large scale industrial development in future.

The strategies for industrial development include setting up of Industrial Estate, training for local workers, incentives for private investors, micro-financing, heritage saving and provision of vocational training.

The short term plan includes the establishment of vocational training and enhance cottage industry. The long term plan focuses on the provision of infrastructure and missing facilities, physical revival of existing coal mines, enhancing crop productivity, extension of Sindh Industrial Estate, support industrial development and modernize the service sector.

The priority projects should focus on increasing storage capacities, and revitalization, construction and extension of Industrial Estate.

3.5 Trade and Commerce

It is foreseen that the coal extracted will not only be used in Tharparkar power plants but will be transported to other parts of the country as well as exported. Proper standard roads along railway network would be needed as per demand rises.

The short term plan includes the development of fruit and vegetable market, specialized wholesale market, building for service industry and provision of cold storage and warehouses. The priority projects include construction of fruit and vegetable market and provision of parking for existing commercial areas. An important step towards economic development will be encouragement for establishment of financial services in Mithi.

4. BASIC UTILITIES

4.1 Water supply

There are two water supply sources in Mithi including canal water through pipeline from Naukot is used for drinking purposes and tube wells water being brackish used for bathing and washing purposes. About 2.0 million+ acres of land are irrigated by Nara Canal. 6,926 cum/day of fresh water is pumped every 10 days from Naukot. For present population of 47,073 persons in 2017, the water requirement of the town are approximately 1.4 mgd. The issues in water supply are water shortage, dysfunctional water supply schemes, ageing infrastructure, poor water quality, non-functional SSF plants, high dependency on groundwater and absence of water balancing.

The water requirement for 2037 is projected as 3.8 mgd. The strategies include access to safe water, priority given to un-served areas, efficient design of water supply scheme and rehabilitation of existing schemes.

The short term plan includes the provision of sweet water to entire population of Mithi. The long term plan focus on the design of water supplies in a way that no contamination of water is there.

The priority projects are improvement of water intake work with filtration, rehabilitation of existing water supply system, installation of new water supply system, and installation of tube wells and construction of overhead water tanks.

The immediate action plan involves provision of RO plants.

4.2 Sewerage and Drainage

Sewerage water flows at 70% of the water supply therefore presently against the water demand of 1.41 mgd the sewerage water flows is about 1.0 mgd. By 2037 2.7 mgd sewage will be generated against the estimated water supply of 3.8 mgd.

The major issues are absence of drainage and sewerage plans, limited budget for sewerage funds, maintenance of sewerage facilities, absence of operation and maintenance, insufficient sewerage facilities, informal settlements and poor condition of sewerage system.

Some of the strategies include need based interventions, priority to un-served areas, development of sanitation plan and sewage treatment before discharging.

The short term plan includes the improving standards of public health and raise living standards of community. The long term plan focuses on a sanitation plan, acquirement of land and

provision of proper sewage treatment plants leading up to recycling of treated affluent for landscaping etc.

The priority projects should focus on the rehabilitation and construction of sewerage, drains and treatment plant. Construction of waste water treatment plant and use of treated water in agriculture are part of immediate action plan.

4.3 Solid Waste Management

The collection and disposing of solid waste is the responsibility of the municipal authorities. There are three disposal points including Siran Colony, Near Civil Hospital Mithi and Near Grid Station Mithi. There are two dumping sites i.e. Chelhar Road and Diplo Bypass Road. Mithi is generating total solid waste on daily basis (0.57kg/day) per household.

As per calculation taking population to be 117,952 in 2037 the landfill area came out to be 5.90 acre. The strategies include making the Mithi MC responsible for the collection and disposing of the solid waste, effective and efficient collection system and segregation practice for bio-medical waste collection system.

The short term plan focuses on managing solid waste as a resource, promoting sustainable, environmentally sound and cost effective practices through an integrated system of waste reduction, reuse, recycling, innovative technology, customer service and education. The long term plan includes on-site reuse and recycling, private sector involvement in SWM, public awareness, implementation of waste minimization and concept of 4Rs to be introduced for better environment.

The priority projects includes the setting up of central composting plant and landfill site.

The immediate action plan includes recycling and segregation of solid waste, door to door collection system, sweeping street and encourage secondary collection system.

5. INFRASTRUCTURE

5.1 Energy

There is no power generation facility in Mithi (TC) vicinity. The Power Supply to District Tharparkar is through (HESCO) WAPDA via 66 KV Mithi grid station feeding district by 11 KV feeders. The project of Thar Coal Power Plant is expected to improve this region and this will meet the energy supply to district. According to a survey carried by the consultants 97% of households use gas as fuel. The issues include less public awareness regard fuel conservation and scarcity of alternate fuel sources.
The strategies include potential of coal as energy source, usage of solar and wind energy sources, construction of grid station, promote energy efficient appliances and user of alternate energy sources.

The short term plan focus on the provision of Sui Gas supply to entire DHQ Town. The long term plan involves development of low cost energy production system, adopting new technologies, addition of sub-stations, encouragement of energy efficient building construction and provision of alternate ways to overcome electricity crisis.

5.2 Gas Supply

Out of 293 houses surveyed by the Consultants 97% had the piped gas available to them. 3% of the houses having no gas availability are using coal, wood, gas cylinder and kerosene oil. The strategies need to be focused on feasibility study for alternate resources available, measures to cater load shedding and measures to appropriately price the energy sources.

5.3 Transportation

District has only 743 kilometers of good quality roads. The district headquarters Mithi is linked with its taluka headquarters of Diplo, Nagarparkar, and Chachro through metaled roads. Mithi has two nearest airports at Mirpurkhas, Hyderabad and Islamkot. There is no railway station in Mithi, however nearest railway station is Mirpurkhas Railway Junction. The issues are poor road conditions, illegal bus terminals, traffic congestion, absence of traffic signals, and shortage of public transport, non-regularized Qinqui system, drainage and parking issues.

The strategies include creating Traffic Engineering Bureaus (TEBs), issuance of license for public transport system, improve road designs, prevent encroachments, and reduce traffic growth, implementation of Axle Load Management, dualization of main arteries, rehabilitation of farm to market roads, and creation of sustainable infrastructure, in line with the Sindh Empowerment of Persons with Disabilitis Act 2018, that could accommodate persons with disabilities and all forms of vehicles including busses and bicycles for equity in service delivery to all the population

The short term plan includes the rehabilitation and beautification of existing infrastructure. The long term plan involves provision of new bypass road proposed North-East side of Mithi Town & rehabilitation of existing roads.

The priority projects should focus on the rehabilitation of roads and installation of traffic signals and solar street lighting on main roads.

The immediate action should be taken on the rehabilitation and dualization of existing roads, placement of monuments and landmarks, encourage pedestrian movement and provision of foot paths and street furniture.

5.4 Communication

The present survey revealed that in Mithi only 10% households have PTCL land line out. The numbers of households using mobile cell phones are more than 8,985 households provided by different service providers.

As per survey 51 households are using internet out of 297. Swift transportation facilities and a well-maintained communication network are the basic requirements for an efficient agricultural sector. The district government needs to improve farm to market roads. There is need of investment in communication infrastructure in rural areas.

6. Environment and Disaster

6.1 Environment

Tharparkar is categorized into 4 geomorphic expressions: Hills, Piedmont plains, Mud flats and Sand dunes. According to the Seismic zoning map of Pakistan (2015), District Tharparkar can be divided into 4 zones. DHQ Mithi lies in Zone 2B which corresponds to 0.16 to 0.24g PGA. Only 47% of the population has access to drinking water. It is observed during the survey conducted that the water is not fit for human consumption and is contaminated with Cadmium.

Also the water is bacteriologically contaminated with total coliforms and E-Coli. The issues are that Mithi is a high hazard zone, faces drought, has no food security, faces water logging and salinity, water contamination, low quality of surface water, seismic risk, and the sewage is disposed in drainage canals that have aged.
The strategies include protecting environmental values, conserving biodiversity, fostering public private partnership, formulating food security plan, working on environmental sustainability, setting up National Environment Council, needing permits to discharge waste, preservation of ecological cycles and creation of awareness.
The short term plan includes the reduction of carbon emissions and zero deforestation. The long term plan focus on the improvement of drainage, achieving sustainable development and creation of an integrated multi-hazard damage loss data-base. The priority projects focus on beautification and urban environmental up gradation with respect to tree plantation and green spaces, fostering livestock and crop production, enhancing rangeland production, afforestation.

6.2 Disaster Risk Management

Mithi is a highly disaster prone area. In 2011 rains, the extent of damage was severe as assessments showed that all the 2,284 villages of 44 union councils were affected. In 2001, the district along with the bordering district of Badin was hit by an earthquake. Due to this earthquake, 12 people lost their lives and 115 persons were injured. The district has also seen cases of severe drought .The magnifying issues include low level of risk awareness, insufficient DRR capacity, minimum involvement of private sector, food shortages, dire circumstances affecting health indicators, damaging infrastructure and endangered livestock.

Some of the objectives to work on include development of coordination mechanism with PMD for ascertaining flood discharge, regulation of water discharge into canals, development of monitoring mechanism, provision of medical facilities, coordination with DDMA, requirement of medical health cover and emergency declaration by D.H.O at all medical points.

In short term plan focus should be on the declaration of the “disaster affected” areas, assessments of disaster risk, vigilance of canals, and insurance of smooth flow of water.
The long term plan involves arrangements that allow the system to switch into emergency mode, DSM and PPHI (President's Primary Healthcare Initiative) being responsible for providing medical cover to the IDPs, and introduction of National Risk Assessment that would identify highly vulnerable districts involvement along with local level actors and clarify mutual roles and responsibilities.

The priority projects need to ensure smooth flow of water, prompt dewatering of stagnant water, ensurance of uninterrupted supply of electricity from HESCO, arrangement and provision of adequate stock of medicines, formation of medical teams, fumigation of the affected areas, ensure that the ambulances are in working order, that school buildings could be used as relief camps, and that sanitation and cleanliness has to be maintained everywhere.

F. STRATEGIC DEVELOPMENT PLAN

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.

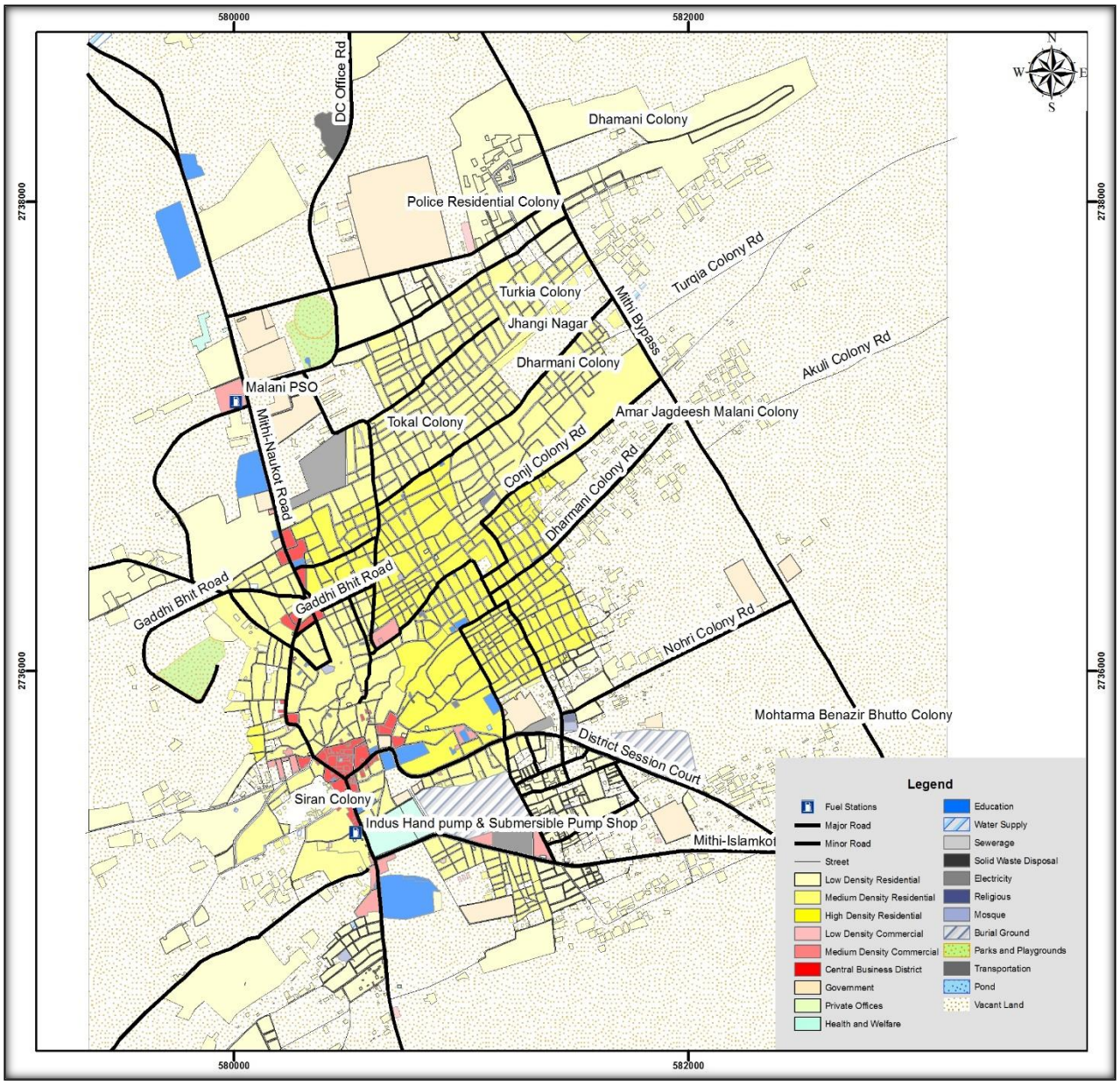
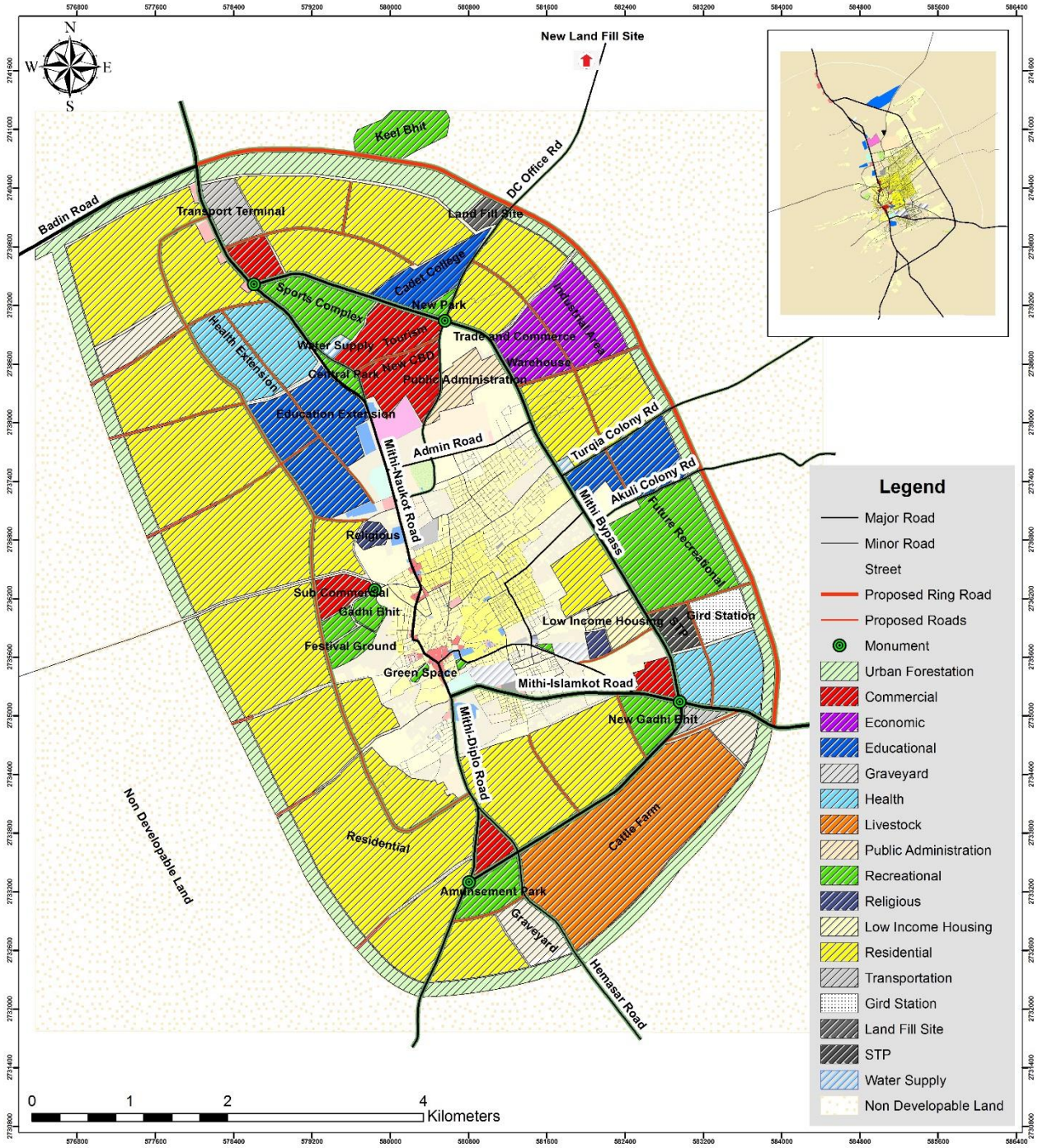


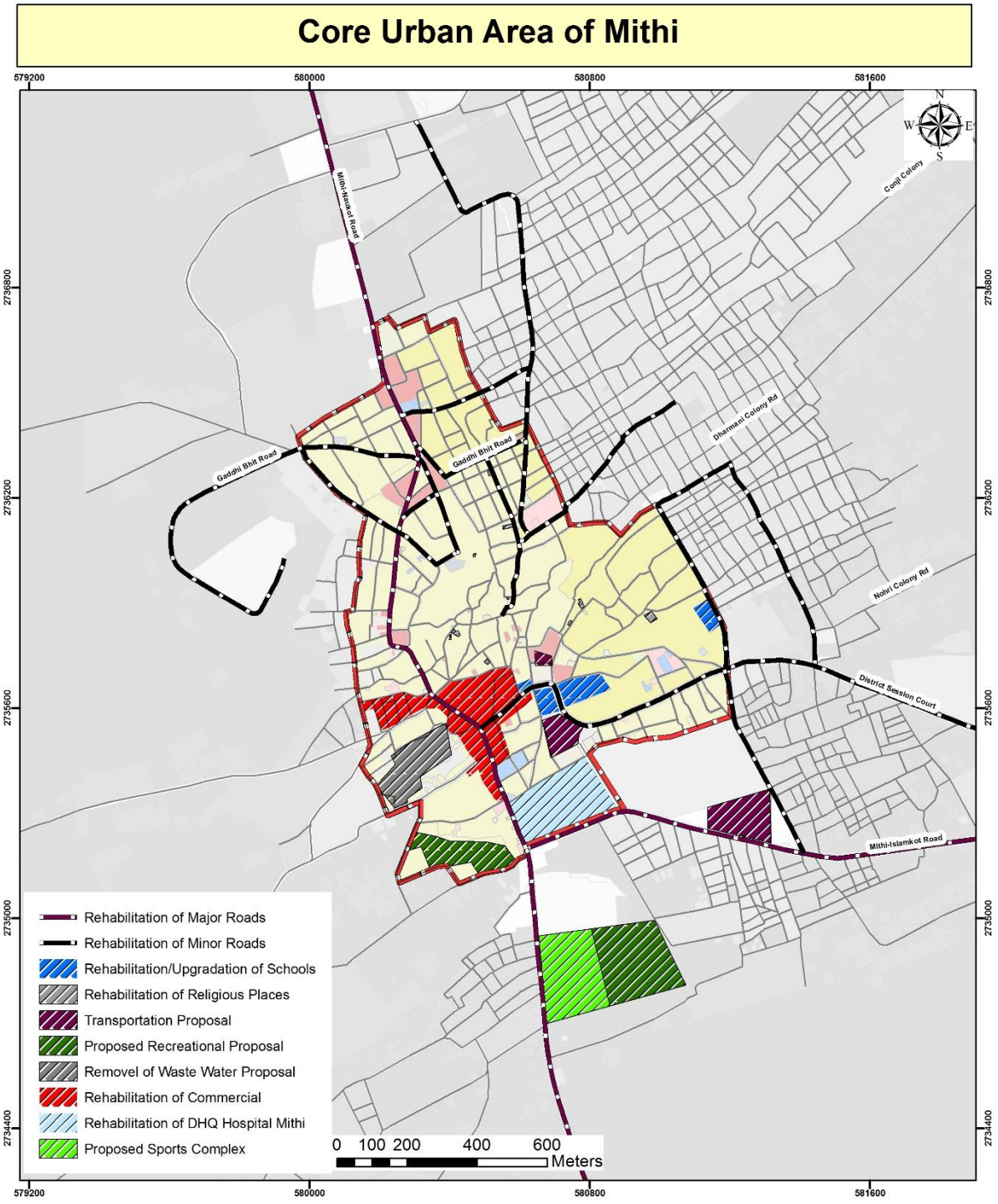
Figure 1-1: Land use Map of Mithi

G. MASTER PLAN PROPOSALS

Proposed Master Plan for Mithi Town



H. IMMEDIATE ACTION PLAN FOR CORE URBAN AREA



I. SDGS ACCELERATION PLAN:

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

STRATEGIC DEVELOPMENT PLAN REPORT – MITHI

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 e.g. District Headquarters towns (DHQ), 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 to initiate and ensure planned growth of secondary cities through the Preparation of Master Development Plans of (DHQ) Towns in September 2008.

1.1 Development Context

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 frontline 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.[1]

[1] Retrieved from http://www.sbi.gos.pk/sindh-economy.php

1.2 General Issues

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

- Non-existence of Sustainable planning policy, apparatus, regulatory framework and its implementation;
- Absence of current housing policy based on sustainable and smart growth mechanism;
- Lack of coordination between institutions responsible for development of a town or absence of Institutional Framework.
- Previous Master / Development / Structure Plans of erstwhile 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 (DHQ) 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 on a sustainable basis till year 2037.
- To provide for modern sanitation, solid waste management and disposal.
- To improve road connectivity and provide for safe and efficient public transport.
- To plan for effective traffic management, smooth transit and provide for parking facilities, in multi-storey car parks, where feasible.
- 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 in the meaning of sustainable and smart concept.
- To propose alternate energy sources as country is facing acute energy shortage especially in summer season.

1.4 The Strategic Plan Outputs

The proposed Development Master Plans of selected DHQ 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

1.5 Vision Formulation Workshop

For Vision Formulation, a Consultative workshop was held in Mirpurkhas (Divisional Headquarter) at Darbar Hall, DC office Mirpurkhas, on September 08, 2018 in coordination with Directorate of Urban Policy & Strategic Planning (DUP&SP) Planning & Development Department, Government of Sindh.

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

1.6 Workshop Invitees and Participation

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

1.7 Mithi's Vision Statement

The visioning process stems from the Stakeholders' Vision of the town which have been translated into tangible and concrete targets. The gist of discussions in the Workshop brought out the following vision:

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 followed by remaining town and Peri-urban areas.

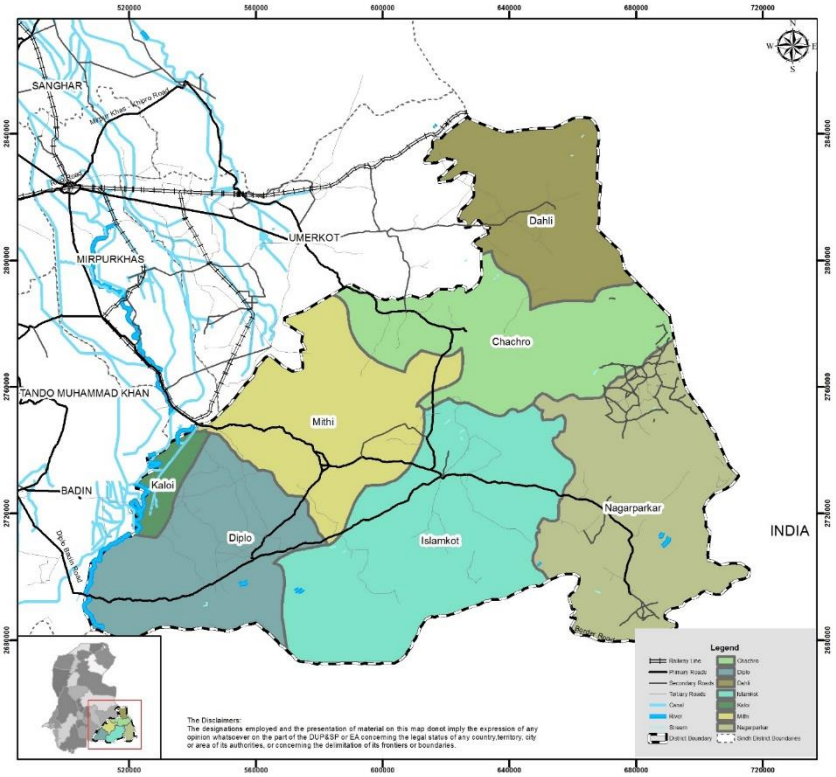
Existing utilities including water supply, sewerage & drainage as well as facilities are in bad state of repairs due to shortage of funds. The government should make sufficient fund allocations for the repairs and rehabilitation of existing facilities.

MITHI VISION 2037

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

2. AN OVERVIEW OF MITHI AND ITS ENVIRONMENTS

Tharparkar region is part of the great Thar Desert, which is spread over parts of India and Pakistan. Most of the Thar Desert lies in the Indian state of Rajhastan and is extended till Haryana and Gujarat.
District Tharparkar is one of the most underdeveloped districts of Pakistan as it has been ranked, in Human Development Index, as the lowest among all the districts.



District Tharparkar has its district headquarters at Mithi town. At present this district has seven talukas, named: Nagarparkar, Chachro, Mithi, Islamkot, Dahli, Kaloi and Diplo.

2.1 History

The origin of Thar Desert is controversial as many historians have given different account about its origin. Some of the historical references state that previously this region was fertile and it turned into a desert during 2000 to 1500 BC. At that time, a river used to flow in this region, which was a water source for the Indus Valley Civilization. Some historians believe that this is the same river called Sarasvati, one of the main rivers mentioned in Hindi text. The region has also been discussed in the Hindu Mythology, Ramayana, where it is called Lavanasagara that means Salt Ocean.

After the fall of the Indus Civilization, Sindh was ruled by different dynasties, including the Soomras (1024-1351), the Summas (1335-1520), the Arghuns (1520-1650), the Kalhoras (1657 - 783) and the Talpurs (1783-1843). However, these rulers focused on the central and western parts of Sindh and the areas along the eastern boundaries, comprising of Tharparkar, were neglected. When Britain invaded the subcontinent, General Charles Napier, a commander in the British Army, defeated the Talpur dynasty and conquered Sindh in 1843.

General Charles Napier was appointed as the first Governor General of Sindh. He made Tharparkar a part of Hyderabad. In 1860, this region was named as “Eastern Sindh Frontier” with its headquarters at UmerKot. In 1882, the British government divided the province into different administrative units and assigned to Zamindars (landlords) to collect taxes for the British government. Umerkot was given

the status of district under this promulgation. In 1906, the headquarters of this district was shifted from Umerkot to Mirpurkhas. In 1990, this district was split into two districts named "Thar" and Mirpurkhas, with headquarters of both districts at Mithi. In 1994, Umerkot was carved out of Thar and was given the status of a district. Now district Tharparkar consists of the areas of Thar Desert. [2]

2.2 Topography and Geology

The district is mostly desert and consist of barren tracts of sand dunes covered with thorny bushes / shrubs. Since the district is a desert, sweet water is scarce and is available only in some areas of Nagarparkar and Chachro while, in rest of the areas, people consume brackish water. The taluka of Nagarparkar is relatively fertile.

The district is 42 meters (138 feet) elevated from sea level. The ridges are irregular and roughly parallel, that they often enclosed sheltered valleys, above which they rise to a height of some forty six meters. These valleys are moist enough to admit cultivation and when not cultivated they yield luxuriant crops of rank grass. But the extraordinary salinity of the subsoil and consequent shortage of potable water, renders many tracts quite uninhabitable. In many of the valleys the subsoil water collects and forms large picturesque salt lakes, which rarely dry up.

2.3 Geographical Location and Area

District Tharparkar lies in 6903"35' to 7107"47' east longitudes and 2409'35" to 25043'6" north latitudes. District Tharparkar covered an area of 19,638 square kilometers with an average house hold size of 5.6. This district is bounded by India (Barmer and Jeesairmir Districts) on the East, Rann of Kuch on the South, district Umerkot on the north and district Badin and Mirpurkhas on the west. Tharparkar district has only 743 kilometers of good quality roads, which are inadequate for the area and its population.

2.4 Demography

2.4.1 Population Growth and Projections

According to 1998 census population of District Tharparkar was 914,291 with 55% male population and 45% female population. Tharparkar had an average annual growth rate of 3.13%. Sex ratio in district Tharparkar is 121 male per 100 females, which is far more than the ratio at the national level that is 106.District Tharparkar, like majority of the other districts in Sindh, is rural by its characteristics as most of the population resides in rural areas. According to the latest Population and Housing Census of 2017 Tharparkar has an overall population of 1,649,661 with an annual average growth rate of 3.15%. The population density has increased from 47 p/km^2 (1998) to 84 p/km^2 (2017).

Mithi town had an overall population of only about 19,697 souls in 1998, out of which 52.6% were male and 47.4% were female. The 2017 census reveals that population has reached at 47,073 souls with an average annual growth rate of 4.69% (1998-2017). In present census, the overall district male population is 53.5%, while female is 46.5%. Table below depicts the past growth and present population of Mithi town, taluka and district:

[2] Pakistan Emergency Situational Analysis

Table 2-1: Population Census: Tharparkar District [3]

Administrative Area	Past Census 1998			Present Census 2017		
	Population	AGR	HH Size	Population	AGR	HH Size
Mithi MC	19,697	2.81%	6.5	47,073	4.69%	4.7
Mithi Taluka	125,137	2.66%	5.6	219,701	3.01%	4.8
Tharparkar District	914,291	3.13%	5.6	1,649,661	3.15%	5.5

- **Future Population Growth Projections**

  Mithi city is going through a massive transformation due to exploration of coal reserves. Many international and local companies are investing not only in the headquarter town but also in the entire district. Health care and education facilities are improving and are directly impacting the mortality rate of the town. Tharparkar on the whole is lowest on HDI Index and has one of the highest infant mortality rate.

  Mithi is not likely to grow at the annual growth rates observed in the previous census. The population projections will largely depend on the rate of investment in the coal extraction, power production and funding in the downstream industries and services. The progress in mineral development will attract young professionals and workers for whom the jobs will be created in larger numbers. Therefore immigration to Mithi will be high from the surrounding towns as well as the Thari workers working overseas. What will be the growth rate then is a matter of speculations.

  Government has leased five blocks for mining and power generation, from which Block 1 is already generating power with full potential and they have 7,700 direct employees. If five blocks run successfully as per schedule, they all might need 38,500 manpower for the long run. Assuming 30% employees will settle down with families in urban areas, and out of which one fourth of migrated people will settled in Mithi Town. It is further supposed that an equal amount of indirect employment will also be generated in the town.
  Thus, the growth rate up to 2027 has been determined as 8% AGR, after taking care of migration / employment due to new power plants / mining. Therefore, the resident would increase by 101,586 including indirect employees and the existing residents of Mithi in 2027.
  After 10 years, growth rate will may decrease annually to natural growth rate, if the investment by SECMC and other lease holders continue at a steady rate over next twenty

[3] *Source: District Census 1988 and 2017*

years and beyond. It is assumed that in 2032 growth rate will be an average of 4.69% and 8%, while by 2037 the projected population of Mithi city will be 173,739 souls @ 4.69% AGR.

However, the Consultant suggest that the population projection should be reviewed every five years to estimate the growth rate. Table below shows the future population projection of Mithi at five year intervals:

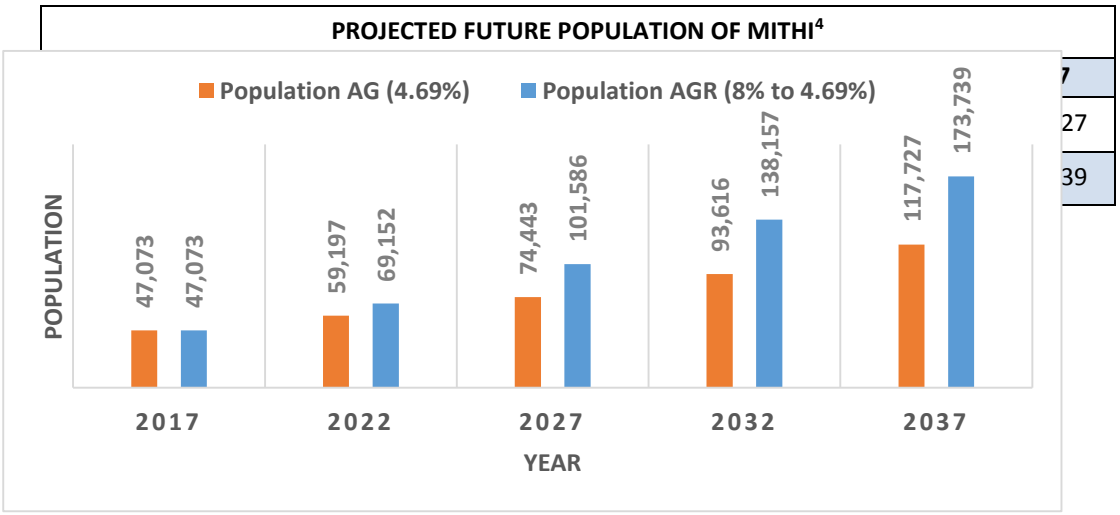


Figure 2-2: Future Projections for Mithi

It is assumed that in addition to natural growth of population at AGR of 2017, the Thar Coal exploration and investment will bring the massive increase in population in two major cities of Tharparkar District i.e. Mithi (56,012) and Islamkot (179,654). Thus, in Mithi Taluka, Mithi MC excess population has been added, while in Tharparkar District the additional increase in population of both Mithi MC and Islamkot TC have been added; as shown in the table:

Table 2-2: Future Population Projections[5]

Table 2-3: Future Population Projections		
Administrative Area	**Projection @ 2017 AGR**	**Projection w.r.t. Thar Coal**
Mithi MC	117,727	173,739
Mithi Taluka	396,436	452,448

[4] Source: District Census 2017 and Consultant's Estimates

[5] Source: District Census 2017 and Consultant's Estimates

Tharparkar District	3,067,463	3,303,129

2.5 Urban Morphology

Mithi is the one of the remote headquarter town of the District Tharparkar in Sindh. Owing to large reserves of coals and establishment of mining blocks the morphology of the district is changing. Mithi town itself is not as big as compare to other district headquarter towns in Sindh. However, it is an old town, which is gradually increasing. Mostly in the north-east and south-west directions but not in a planned way. The total built up area in 2001 was 4.6 square kilometers which was increased to 11.4 square kilometers in 2017 as per Google satellite imageries. In the town new buildings are cropping up between small dwellings and houses made out of wood, mud and stone.

There are the ruins of two forts belonging to the periods at the beginning of last century, when the Talpurs were bringing Thar and Parkar under their dominion. The principal one to the south of the village is the site of a Sarai. It used to contain nine guns. The other is to the west of the village on a slight elevation. There is main CBD, which is called Shaahi Bazaar in the center of town connected to Naukot – Mithi Road. It comprises all major commercial activities.

Mithi is now experiencing a large increase in development due to exploration of coal reserves. A large number of people from all over the Tharparkar have now moved to the city resulting in a high development rate. It is now considered the heart of Tharparkar region with a high level of economic and social activity. There is huge opportunity for Mithi town as one of the world's largest coal reserve is in Tharparkar District. Buried under this land lies an estimated 175 billion tons of coal, the world's 5th largest reserves of coal. The project will improve this region. Mining in Thar's 9,600 kilometre coal fields is gaining momentum. Almost 3,000 technicians and engineers are expected to arrive on site to help locals in running the heavy machinery and developing open-pit mining. Through this mining project, many roads, preliminary infrastructure and residential complexes for labor will be constructed.

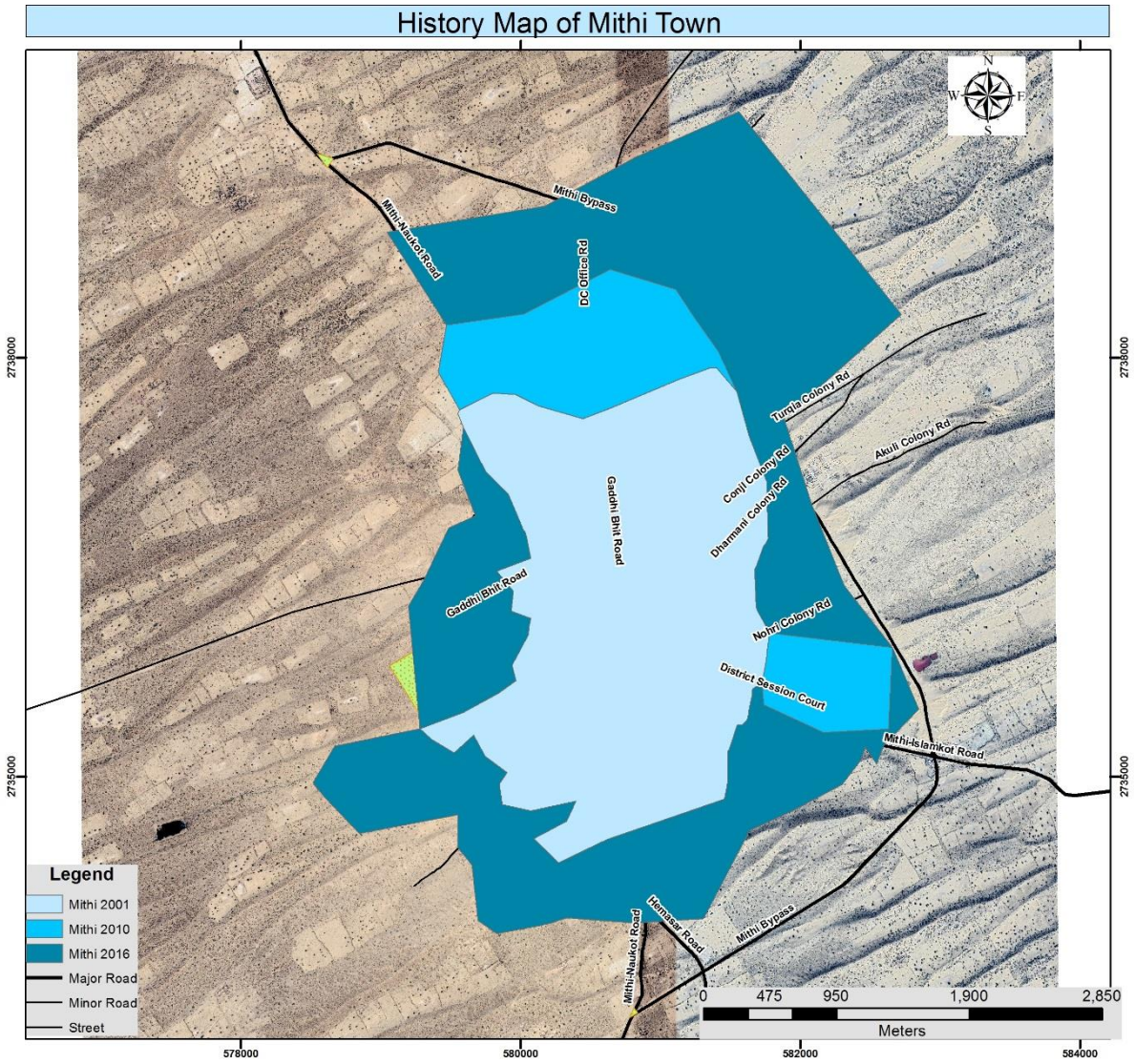


Figure 2-3: Historical Map of Mithi Town

2.6 Zonal Plan of Mithi

Mithi is the capital of Tharparkar District in the Sindh province of Pakistan. Mithi became the capital of Tharparkar District in 1990, when the district was separated from Mirpurkhas to form a new District. Mithi is one of the very few towns in Pakistan where Muslims do not form a majority. More than 80% of the population in the town belongs to the Hindu community. Both Hindus and Muslims reportedly live peacefully accounting for the lowest crime rate in the town.

Initially the town developed in the south of the area with growing roots to all direction along Islamkot and Mithi Bypass. At present there are twelve number of housing small colonies in Mithi town. Over-all housing in Mirpurkhas town is shared family system following the multiple base system, where one house contains different families. The building density of the town is low with mostly single story buildings. The town areas served by major roads including; Naukot Mithi Road, Gaddhi Bhit Road, Islamkot Road, Tokal colony Road, Jail Chowk Road.

- **Zone 1: Residential Area**
  Zone 1 is having mainly residential land uses along with religious activities, commercial, recreational, health and educational areas.

- **Zone 2: Administrative Area**
  Zone 2 mainly comprises of DC Office, Police Office, Radio Station, and Mithi Cricket Stadium. It also have two main housing colonies Police residential colony and Tokal colony along with Jhangi Nagar and Dharmani colony.

- **Zone 3: Peripheral Area**
  Zone 3 flows along with the DC office road also having Misri Shah Dargah, Malani Floor mill towards the café Tharparkar. It also has Artisan Colony having workshops for Thari Handicrafts and quarters for workers.

- **Zone 4: Old Commercial Area**
  Zone 4 is the old area of Mithi town with Siran colony, Old bus Stand, Shahi Bazaar, Civil Hospital Mithi, NBP Bank and Silk Bank. On the south of the Mithi town the zone 4 ends at the container city hotel Islamkot.

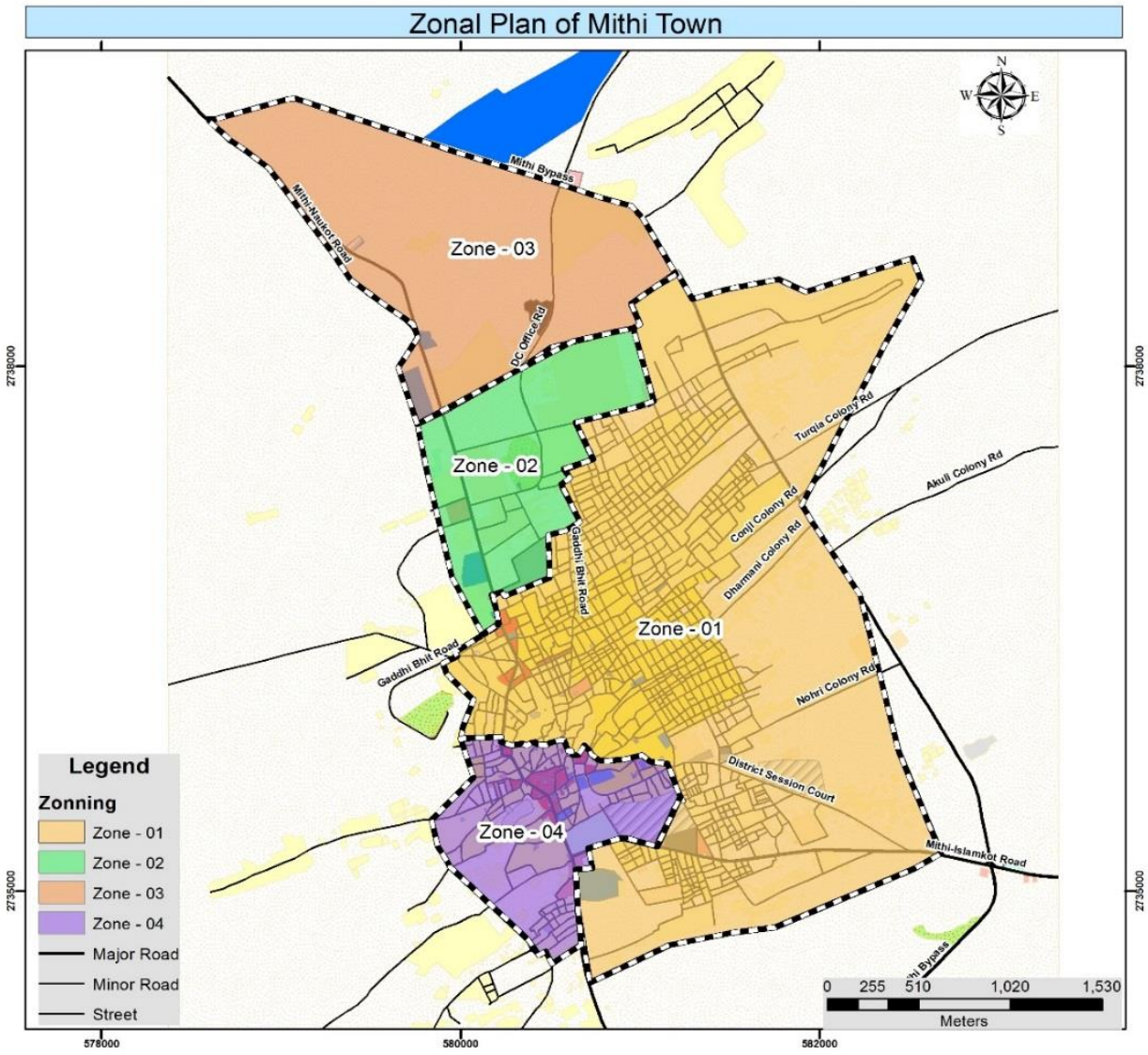


Figure 2-4: Zoning Plan of Mithi Town

2.7 Land Use and Spatial Analysis

The built-up area of Mithi town comprises of around 1331.5 acres of land as compare to consultants suggested urban boundary which is 3650.4 acres. The land use analysis indicates that almost 66% of total urban boundary area is in use of residential purpose only. 63.5% of the total area is vacant.

Majority of the core urban area of Mithi consists of medium density residential area which amounts to 41% of the total core urban area followed by high density residential area covering 21.5% and central business district covering 7.0% of the total core urban area.

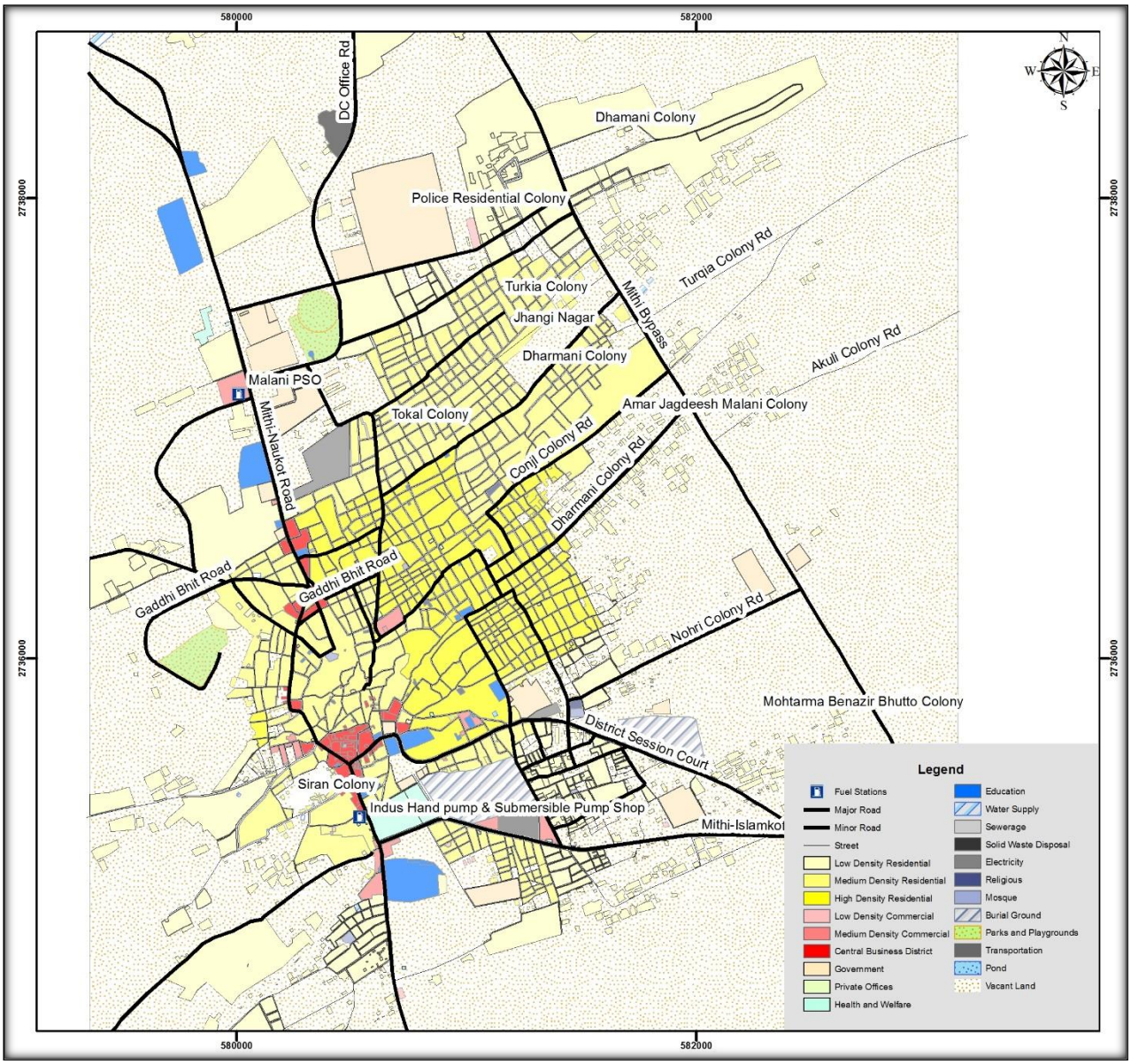


Figure 2-5: Land use Map of Mithi

Table 2-4: Spatial Analysis of Land use Classification [6]

MITHI (URBAN BOUNDARY)				
CATEGORIES	**LANDUSE CLASSIFICATION**			**AREA (acres)**
URBAN	**Residential**	**Residential**	Low Density Residential	621.2
			Medium Density Residential	329.0
			High Density Residential	175.5
			New Housing Schemes	0
	Sub Total			**1125.7**
	Commercial	**Commercial**	Low Density Commercial	4.7
			Medium Density Commercial	13.7
			High Density Commercial	18.9
	Sub Total			**37.3**
	Recreational	**Parks and Playground**	Parks and Playgrounds	28
	Sub Total			**28.0**
	Amenities	**Institutional**	Education	120.3
			Public Administration	98.8
			Health And Welfare	16.4
			Private Institutions	0.5
			Religious	3.7
		Utilities and Municipal Service	Electricity	11.3
			Sewerage	7.1
			Communication	0
			Water Supply	1.9
		Burial Ground	Burial Ground	36.7
	Sub Total			**296.7**
	Industrial	**Manufacturing**	Small-Scale Manufacturing/ Light Industry	0.0
			Large-Scale Manufacturing/ Heavy Industry	0.0
	Sub Total			**0.0**
	Transportation	**Transportation**	Transportation	296.3
	Sub Total			**296.3**
	Total			**1784.0**
NON-URBAN	**Agriculture And Forestry**		Agricultural	0
	Sub Total			**0.0**
	Water Bodies		Canal and Water Bodies	0
	Sub Total			**0.0**
	Vacant Area		Vacant Area	3767.6
	Total			**3767.6**
TOTAL				**5551.6**

[6] Source: Spatial Analysis done by Consultants

3. VISION FOR STRATEGIC DEVELOPMENT PLAN OF MITHI

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 **Mithi** DHQ town in the future, define its role as a leading regional centre in the Sindh province and the socio-economic uplift of the population.

For Vision Formulation, a Consultative workshop was held Nawanshahr (Divisional Headquarter) at Royal Taj Hotel on November 28, 2018 in coordination with Directorate of Urban Policy & Strategic Planning (DUP&SP) Planning & Development Department Government of Sindh.

The summations and conclusions are described hereunder:

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

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

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

4) Peace, safety, security and proper governance are envisioned by the participants as the ultimate goal for the twenty year Mithi 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. Mithi'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.

MITHI 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 livable cities in the world."

PROPOSED MASTER PLAN OF MITHI TOWN

4. PROPOSED MASTER PLAN OF MITHI TOWN

4.1 Spatial Pattern

Mithi is the District Headquarter (DHQ) Town of Tharparkar District, which is one of the most underdeveloped districts of Pakistan as it has been ranked, in Human Development Index, as the lowest among all the districts.

Tharparkar District is mostly desert and consist of barren tracts of sand dunes covered with thorny bushes and shrubs. As the district is a desert, sweet water is scarce and is available only in some areas of Nagarparkar and Chachro. The district is 42 meters (138 feet) elevated from sea level. The ridges are irregular and roughly parallel, that they often enclosed sheltered valleys, above which they rise to a height of some 46 meters. These valleys are moist enough to admit cultivation and when not cultivated they yield luxuriant crops of overgrown grass. Due to the extraordinary salinity of the subsoil and consequent shortage of potable water, renders many tracts quite uninhabitable. In many of the valleys the subsoil water collects and forms large picturesque salt lakes, which rarely dry up.

Mithi is one of the very few towns in Pakistan, where Muslims are not in the majority. Both Hindus and Muslims reportedly live peacefully, accounting for the lowest crime rate in the town. This town is located in the heart of Thar Desert, at a distance of 150 kilometers southeast of Mirpur Khas and 320 kilometers from Karachi. It is linked with its taluka headquarters of Diplo, Nagarparkar, Islamkot and Chachro through metaled roads.

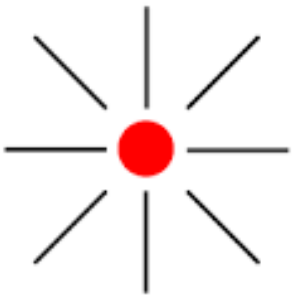
Mithi town itself is not as big as compare to other district headquarter towns in Sindh. However, it is an old and remote town, which is gradually increasing in unplanned way. Initially the town developed in the south with growing roots in all directions, mostly in the northeast and southwest due to presence of Islamkot Road and Mithi Bypass. There is main CBD, which is called Shahi Bazaar in the center of town connected to Naukot Road, comprises of all major commercial activities. In the town new buildings are cropping up between small dwellings and houses made out of wood, mud and stone. The building density of the town is low with mostly single story buildings. The town areas served by major roads including; Naukot Road, Diplo Road, Islamkot Road and Mithi Bypass.

Thar coalfield is approximately located towards east of Mithi, in southern Sindh Province. Mithi is potentially growing town owing to large reserves of coals and establishment of mining blocks, the morphology of the district is changing. And Mithi is the only DHQ Town lying near Thar Coal Fields, which are under exploration, thus its importance is of strategic nature. Therefore, it is necessary to carry out all-encompassing city planning of Mithi Town with futuristic approach, so that the emerging needs for its expansion can be met.

Mithi is now experiencing a large increase in development due to exploration of coal reserves. A large number of people from all over the Tharparkar have now moved to the city resulting in a high development rate. It is now considered the heart of Tharparkar region with a high level of economic and social activity. There is huge opportunity for Mithi town as one of the world's largest coal reserve is in Tharparkar District. Through this mining project, many roads, preliminary infrastructure and residential complexes for labor will be constructed.

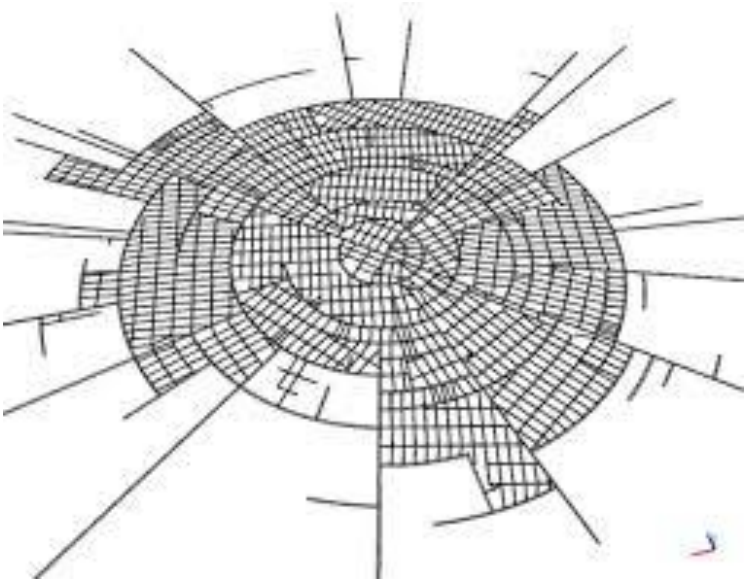
4.2 Basic Urban Form

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



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

The existing core town would naturally be the physical nucleus of the future town, and the future development will radiate from it in all directions in form of different sectors.



At present three major roads i.e. Naukot, Islamkot and Diplo Roads, all converging on the town center and Mithi Bypass connecting all these roads. Since the development is crossing the Mithi Bypass, thus New Bypass is proposed in continuation to Badin Road and ending at Diplo Road, it will keeps the development compact.

Since this town is not large enough in terms of its spatial spread then its projected future population, thus the alignment of D-shaped New Bypass with radial roads is made. This D-curve is basically formed by connecting existing radial roads arounds the spatial pattern and straight line on western side due to high ridges, to limit the development.

4.3 Proposed Master Plan

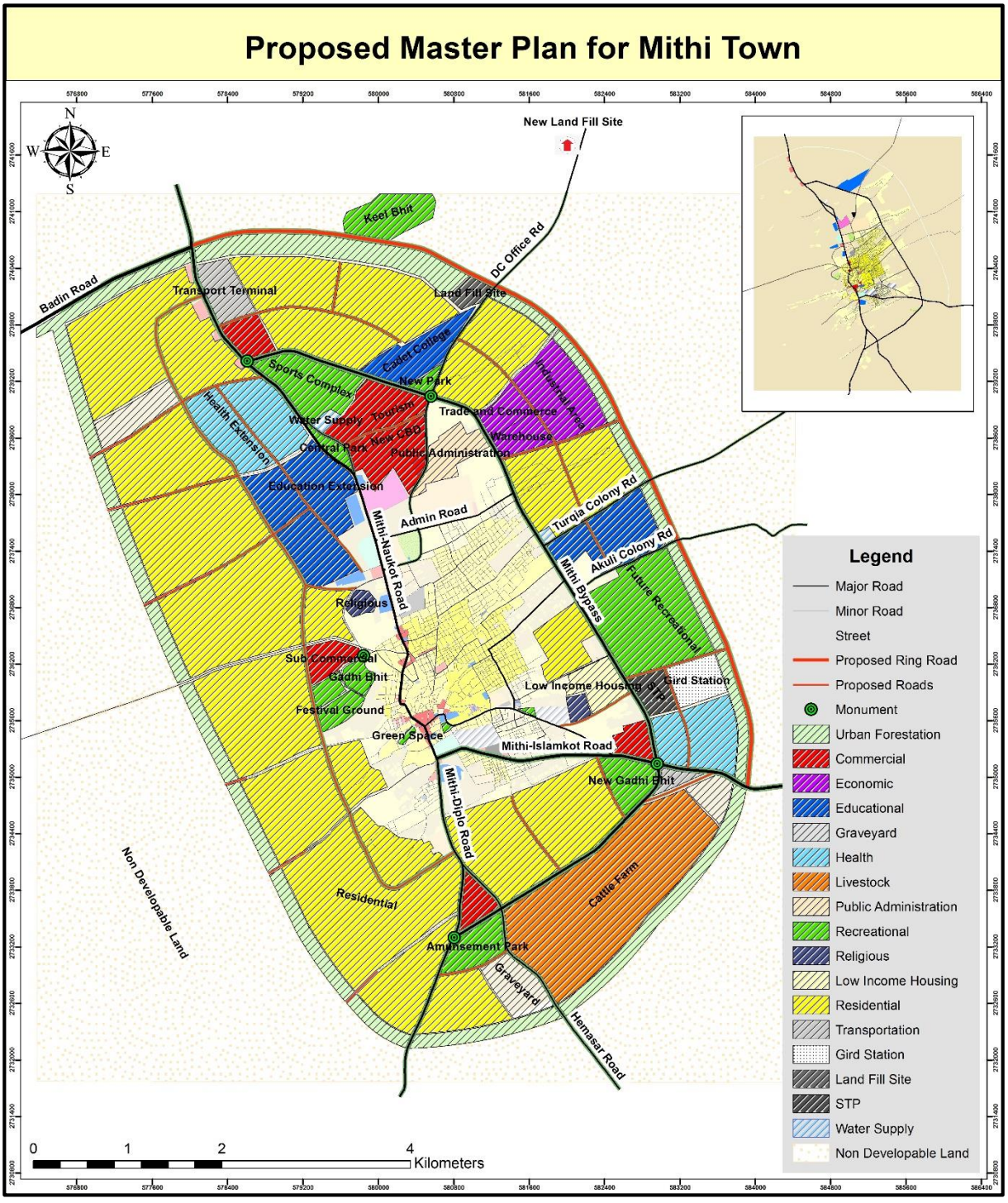
The Proposed Master Plan for Mithi has been prepared with the consideration of three phases as follows:

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 Mithi Master Plan is 10,400 acres approx. for a population of 173,700 by 2037. In this way, Mithi Town in next twenty years is expected to have

population density of 17 persons per acre and overall twelve housing units per acre with an average household size of 4.7.

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



The overall structure of the plan is placing New CBD within D-shape New Bypass in corresponding to existing Mithi Bypass and other prime activities around the existing town. The New Bypass is around the existing spatial spread with centrally placed activities and is running all around the further development and periphery. Furthermore, three sub centers are placed in north, east and south directions. The intersection of radial roads and bypasses will also create main junctions and forming different sectors.

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

In addition it is also recommended to conduct city survey, in order to know the situation of land profile in terms of topography and soil condition; and land availability with respect to ownership, jurisdictions, new development and encroachments. City survey is very important to manage land records for city and help to resolve present hassle in property transactions, verification of ownership, land grabbing issues; besides impeding planning and development. Therefore it is suggested to conduct city survey and deal as separate project for Tharparkar. In this way, the survey will provide the land record data, which will be helpful for future development proposals to be implemented in a sustainable manner.

4.3.1 Salient Features of Planning

- As the town is in D-shape, there is a main CBD (Central Business Districts) with tourism occurs in slightly northern side of the town in between Mithi Bypass and Naukot Road.
- In addition, four sub commercial areas are also identified to reduce the burden over the main CBD at intersections of Mithi Bypass with Naukot, Islamkot and Diplo Roads and near Gadhi Bhit.
- Considering good connectivity at present with Mithi Bypass and in future with New Bypass; Trade and Commerce, Warehouses and Industrial Area are placed in northeast of the town.
- Two transport hubs are designated; one is along Naukot Road in northwest direction and other along Islamkot Road in southeast side.
- There are three areas for graveyards have been reserved in north, south and east of the proposed town. However, these are accessible from Hemasar Road in south, Islamkot Road in east, while for north new road will provide access.
- The cattle area is also proposed in the southeastern direction in between Mithi Bypass and New Bypass. It will limit the town development and also benefit the population of nearby villages and other settlements.
- Along Naukot Road, Health and Welfare and Educational Areas are proposed. Further additional areas of health and education are placed in between Mithi Bypass and New Bypass.
- Next to CBD; Sports Complex and Central Park are proposed. In addition Festival Grounds at Gadhi Bhit, New Gadhi Bhit, Keel Bhit and Amusement Park are also suggested. Further a large recreational area is placed along Mithi Bypass.
- The extension of public administration area, opposite to New CBD is proposed along DC Office Road, to serve and manage this beautiful city of Mithi.

- Along peripheries of proposed town, specially along New Bypass, it is suggested to preserve area for agricultural production of Bajra, the main crop of the district. This will be also helpful in restricting housing development and promoting the agricultural fields from the onslaught of the housing projects by private sectors.

4.3.2 New Bypass – Connecting Existing with Outer Developments

The proposed New Bypass is more of D-shape, as most of the development is crossing the existing Mithi Bypass. The New Bypass is placed parallel to the existing bypass, considering the extent of development in east direction. In order to limit the trends of town expansion towards east side, urban forestation is placed at a far distance to avoid pressure of new development.

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 New Bypass. As the areas on both sides of the New Bypass will attract many developers. The land two hundred feet on both sides of the New Bypass 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 three proposed radial roads with increased ROW, which will serve as future regional connections. These roads includes; Naukot Road, Islamkot Road and Diplo Road. In addition, DC Office Road, Gadhi Bhit Road, District Session Court Road and Police Road are serving as important arteries. However it is very important to control upfront development along the major roads. Likewise New Bypass, on both sides of major roads planting of local trees is also highly recommended.

4.4 Proposed Land Use Zoning

The proposed land use zoning is broadly based on NRM Standards[7]. 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 Mithi as DHQ Town, secondary zoning i.e. Level-2, is also categorized accordingly, again in consideration to the NRM Standards[8]. The proposed land use zoning is shown in the table:

[7] 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
[8] 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	Areas (acres approx.)	Land Uses (%)
1	Residential	40-45%	Residential	5,077	48.7%
2	Commercial	2-3%	Commercial	370	3.5%
3	Industrial	2-10%	Economic	809	7.8%
			Livestock		
			Industrial		
4	Institutional	3-5%	Health and Welfare	1,140	10.9%
			Educational		
			Religious		
			Public Administration		
5	Community Open Spaces	4-6%	Recreational	683	6.6%
6	Graveyards	2-3%	Graveyards	207	2.0%
7	Arterial Circulation & Terminals	15-20%	Transportation	1,043	10.0%
			Utilities and Services		
8	Protected Reserved	15-25%	Urban Forestation	1,099	10.5%
			Agriculture		
			Water Bodies		
			Vacant / Reserved		
	Total Area of Proposed Master Plan of Mithi Town			10,428	100%

The total area requirement for full fledge metropolis will be around 10,400 acres. As shown in the table of proposed land use classification, the percentage of residential and commercial zones are slightly higher, in comparison to the NRM standards. Since the town has a trend of low density development, thus it is expected that most of the residential and commercial development will required more space in comparison to other towns. Subsequently, the proposed institutional area is also of higher value, as it 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 MITHI TOWN						
	Level - 1 Functional Zoning	Level - 2 Functional Zoning	Areas (acres approx.)		Land Uses (%)	Areas (acres approx.)	Land Uses (%)
1	Residential	Existing Residential	1,126	5,077	48.7%	5,077	48.7%
		Proposed Residential	3,951				
2	Commercial	Existing Commercial	37	370	3.5%	370	3.5%
		New Central Business District	102				
		Tourism	92				
		Commerial at Gadi Bhit	39				
		Commerial at Naukot Road	40				
		Commerial at Islamkot Road	29				
		Commerial at Diplo Road	32				
3	Economic	Trade and Commerce	40	82	0.8%	809	7.8%
		Warehouses	42				
4	Livestock	Cattle Farms	558	558	5.3%		
5	Industrial	Existing Artisian Colony	30	169	1.6%		
		Small Industrial Area	139				
6	Health and Welfare	Existing Health and Welfare	17	345	3.3%	1,140	10.9%
		Health and Welfare Area	196				
		Reserved for Health and Welfare	132				
7	Educational	Existing Educational	120	600	5.8%		
		Cadet College	87				
		Educational Area	231				
		Reserved for Education	163				
8	Religious	Existing Religious	4	34	0.3%		
		Religious 1	14				
		Religious 2	16				
9	Public Administration	Existing Public Administration	99	161	1.5%		
		Future Extension of Public Administration	62				

10	Recreational	Existing Parks and Playground	28	683	6.6%	683	6.6%
		Sports and Cultural Complex	111				
		Festival Grounds	47				
		Central Park	14				
		New Park	10				
		Amusement / Theme Park	57				
		New Gadhi Bhit	54				
		Keel Bhit	85				
		Future Recreational	276				
11	Graveyards	Existing Graveyards	37	207	2.0%	207	2.0%
		Graveyard 1	71				
		Graveyard 2	63				
		Graveyard 3	36				
12	Transportation	Existing Transportation	296	893	8.6%	1,043	10.0%
		Transport Terminal at Naukot Road	61				
		Transport Terminals at Islamkot Road	15				
		Road Network	520				
13	Utilities and Services	Existing Utilities and Services	20	150	1.4%		
		Water Supply	13				
		Sewerage	38				
		Land Fill	22				
		Electricity	58				
14	Urban Forestation	Urban Forestation	310	310	3.0%	1,099	10.5%
15	Agriculture	Agricultural Belt	789	789	7.6%		
16	Water Bodies	Canals and Ponds		-	0.0%		
17	Vacant	Vacant Area		-	0.0%		
		Total Area for Future Development of Mithi	10,428	10,428	100%	10,428	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 5,000 acres of residential land use is proposed, which will create eight housing units per acre on average. Thus in overall town more than 40,000 housing units are expected to be in town by 2037.

There are existing vacant land parcels in overall town, specially in 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) land of 50 acres approx. along Mithi Bypass is proposed for low to medium density development. While for other income groups, mixed density (low, medium and high) residential areas are proposed. Moving ahead, for the long term phase, areas are also being reserved for residential development as per future requirement, which will also include apartment buildings.

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

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

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

New Residential Scheme [9]		
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

[9] 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 - Neighborhood level facilities like small commercial, parks, playgrounds, schools, religious, parking	- Utilities and services - Road accessibility - Pedestrian friendly streetscape - Mixed-used structures	- Apartments - Large health and educational - Large commercial activities

Houses - Applicable SBCA Bylaws[10]					
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**

  Although in Mithi Town, the trend of vertical development is very rare. However, as new migrants are expected from other urban areas as well, thus there is a need to fulfill the modern residential requirement like apartments. On the other hand, apartments are more effective in accommodating large number of households in less acres of land due to increased density in comparison to houses. It is not necessary to build a concrete jungle, however with better design and new ideas different type of walkable as well as high rise could be made. The main focus should be to provide open and green areas as breathing spaces in between apartment buildings as per the standards.

  The following guidelines are for apartment zone development:

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

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

Apartments - Applicable SBCA Bylaws[11]					
Types	**Densities[12] 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)**
  Considering the shape and growth of the town, the New CBD has been located in the area of central attraction accessible from Naukot Road and Mithi Bypass. The main land uses of the CBD will be regional corporate headquarters, financial centers, media houses, IT / software, specialized production service and retail shopping outlets with dedicated parking and large open spaces. This will integrate a great deal of financial, business, culture, service institutions and lots of supporting facilities; such as business office buildings, large shopping malls, hotels and apartments, etc. These will be developed with perfect and convenient traffic, communications and other infrastructures, favorable economic development, environment friendly places; which are convenient for commercial activities.

- **Tourism**
  Mithi and its environ have many sites of historical significance including some temples revered by the majority Hindu population; Karoonjhar Hills, Well of Marvi (Umar Marvi lok dastan), Bhodesar Mosque, Gadhi Bhit, Naukot Fort, Jain Temple of Gori and Kasbo. Considering the potential of tourism, the area has been reserved for tourism purpose next to New CBD, accessible from Naukot Road and Mithi Bypass as well. These areas will include convention center, expo center, hotels, shopping malls, exhibition ground, etc.

- **Sub Commercial Centers**
  In continuation to the main CBD, it is recommended to place sub commercial areas at other major intersection to share the burden of commercial activities. Thus, four sub commercial centers are proposed at the intersections of Naukot, Islamkot and Diplo Roads with Mithi Bypass and fourth one is proposed near Gadhi Bhit to accommodate recreational related commercial facilities. Further small commercials within the residential areas will be formed for retail commercial activities of everyday goods required to fulfill the daily need of the residents.

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

The following guidelines are for commercial zone development:

Permitted Uses	Allied Permissible Uses
- Corporate head office buildings, towers - Huge markets, malls, outlets - Large public squares and parks - Dedicated parking lots / spaces	- Pedestrian friendly streetscape - Mixed-used buildings - Medium to High Rise Apartments - Fueling stations
Applicable SBCA Bylaws[13][14]	**Prohibited Uses**
- Plot Sizes: 1,000 sq.yds. (min) - FP: 40% - 65% - FAR: 1:2.75 – 1:5.5 - Floors: G+6 & G+8 (max)	- Residential housing schemes - Large health and educational institution

4.4.3 Economic Zone

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

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

- **Trade and Commerce**
  In northeast side of the town along Mithi Bypass, trade and commerce area is positioned. This will provide in and out trading activities of the region specially to other areas of the district. It will includes grains, fruit and vegetable markets, wholesale markets, slaughter house, storage areas etc.

- **Warehouses**
  The warehouses area is proposed next to trade and commerce, accessible from Mithi Bypass. For all of these trading activities large to small scale warehouses will be required, comprises of general, bulk, liquid, dry and cold storage as well. These should be well equipped with all the required technology of good storage and management like CCTV surveillance, in and out data entry.

  This area will also technical services like mechanical workshops and spare parts (auto mobile repairing), building construction materials, home depots, furniture market, housewares, food and beverages, computer hardware etc. However with the passage of time, technological advancement and changing needs; new requirement will come up to cater to the job market through new economic opportunities and activities.

The following guidelines are for economic zone development:

Permitted Uses	Allied Permissible Uses
- Warehouses and Workshops	- Mixed-used buildings

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

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

- Godowns and Cold Storage - Trade and Commerce Areas - Showrooms or Display Centers	- Residences for workers - Fueling stations
Applicable SBCA Bylaws[15]	**Prohibited Uses**
- Plot Sizes: ○ Small size: upto 0.5 acres ○ Medium size: 0.5 to 5 acres ○ Large size: 5 acres or above - FP: 60% - 70% - FAR: 1:2.5 - 1:1.5 - Floors: G+1 & G+2 (max)	- Private Residential housing schemes - Large health and educational institution

4.4.4 Livestock Zone

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

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

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

- **Dairy Production[16]**
  Dairy area will be facilitated with mandi / cattle market, artificial insemination center, slaughter house, milk collection unit, chiller storage unit, fodder storage and purchase, bio gas plant etc.

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

[15] Industrial Areas, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.6, page no 145.
[16] Dairy Plots, Zoning Regulations / Area Standards, as per Sindh Building & Town Planning Regulations, Chapter 25.8, page no 149.

The following guidelines are for livestock zone development:

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

4.4.5 Industrial Zone

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

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

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

- **Existing Industrial Area**
  An Artisan Colony at Naukot Road is existing at 30 acres of land, with 100 workshops and quarters, it is recommended to be filled first. These will mainly include; cottage industries of handicrafts, souvenirs etc.

New Industrial Estate [17]		
S. No.	**Land Use**	**SBCA Standards**
1	**Industrial**	70% max
2	**Commercial**	1% max
3	**Parks / Playground**	3% min
4	**Public Uses**	6% min
5	**Roads**	20% min
6	**Residential**	8% min
No roads shall be less than 40 feet in small industries. No roads shall be less than 50 feet in medium and large industries. Industrial plot of 5 acres or more, residential area for labor and staff is allowed at rear.		

- **New Industrial Area**
  The New Industrial Area is proposed along New Bypass and also accessible Mithi Bypass. This is more appropriate to develop small to medium scale industries. It is not suggested to develop whole area at once, instead as per the need. Preferably starting from the road accessible side and keeping further area reserved for future use when firstly developed area utilized. The small scale industries may include ice factories, packaging of fruits and vegetables, feeder crops, etc. While

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

medium scale industries will include flour mills, rice husking mill, sugar mills and cotton ginning factories.

The following guidelines are for industrial zone development:

Permitted Uses	Allied Permissible Uses
- Small, Medium and Large Scale Industries - Processing Units - Manufacturing Activities - Warehouses or Godowns - Workshops	- Showrooms - Mixed-used buildings - Residences for workers - Fueling stations
Applicable SBCA Bylaws[18]	**Prohibited Uses**
- Plot Sizes: o Small size: upto 0.5 acres o Medium size: 0.5 to 5 acres o Large size: 5 acres or above - FP: 60% - 70% - FAR: 1:2.5 - 1:1.5 - Floors: G+1 & G+2 (max)	- Private Residential housing schemes - Large health and educational institution

4.4.6 Health and Welfare Zone

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

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

- **Health and Welfare Area**
  The health area is marked in regard to one of the major connectivity of Naukot Road to serve other areas as well. In this area it is suggested to have extension of DHQ Hospital with 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.

- **Reserved for Health and Welfare**
  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. This health area reserved is placed at intersection of Mithi Bypass and Islamkot Road, in order to make it accessible for other towns as well and to attract private investment in health and welfare sector. It will comprises of the specialized units like oncology, urology, infertility centers, organ transplantation, and specialized treatment centers, research and development centers.

The following guidelines are for health and welfare zone development:

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

Permitted Uses	Allied Permissible Uses
- Large Hospitals - Specialized treatment centers - Medical College - Dental College - Pharmaceutical College - Nursing College - Laboratories and Diagnostic Centers - Blood Banks - Health Research Institutes	- Staff Residences (medical and paramedic) - Separate Hostels for Boys and Girls - Auditoriums, seminar halls, workshop spaces - Community facilities (parks, playgrounds, schools, clinic, neighborhood commercial) - Support facilities (gym, health club, bus stops, taxi stand, banks, fueling stations)
Applicable SBCA Bylaws[19]	**Prohibited Uses**
- Plot Sizes: 1.0 acre or above - FP: 50% - FAR: 1:1.5 - Floors: G+2 (max)	- Private residential housing schemes - Large commercial activities

4.4.7 Educational Zone

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

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

- **Educational Area**
  The educational area along Naukot Road is mainly proposed for the public sector general university, which is lacking in the town. The idea is to first introduce common educational fields like languages, humanities, applied sciences, arts, commerce, social sciences etc., which could be modified further. Afterwards broad-spectrum of new ranges of education will be added according to the demand of the society, in form of wings, departments and blocks.

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

  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 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; poly technical college for boys and girls, women development center (working women hostels, day care centers), certified computer and IT training centers,

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

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.

- **Reserved for Educational**

  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 Mithi Bypass. The purpose behind is to involve regional level youth in the education and research, in order to enhance the educational attainment level.

- **Cadet College**

  The Cadet College is present in northeast direction along DC Office Road. It comprises of large land parcel and sufficient area is vacant for its future development. Although it is a cadet college, however it could cater the demand for future educational needs of brave youth.

The following guidelines are for educational zone development:

Permitted Uses	Allied Permissible Uses
- Large scale educational areas - General Education Universities - Scientific Research Institutes - Engineering colleges / universities - Business and management schools - Finance and accountancy Institutes - IT and media Institutes - City level libraries, book banks, data and information centers	- Staff Residences (teaching and non-teaching) - Separate Hostels for Boys and Girls - Auditoriums, seminar halls, workshop spaces - Community facilities (parks, playgrounds, clinics, schools, neighborhood commercial) - Support facilities (gym, health club, bus stops, taxi stand, banks, fueling stations)
Applicable SBCA Bylaws[20]	**Prohibited Uses**
- Plot Sizes: 1.0 acre or above - FP: 50% - FAR: 1:1.5 - Floors: G+2 (max)	- Private residential housing schemes - Large commercial activities

[20] Ibid

4.4.8 Religious Zone

In the proposed master plan two religious sites are allocated in the Mithi Town. One is accessible from Naukot Road and other is accessible from District Session Court 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.

The following guidelines are for religious zone development:

Permitted Uses	Allied Permissible Uses
- Religious buildings like mosques, imam barghahs, mandir, churches, etc. - Religious teaching areas - Religious preaching grounds - Orphanage	- Residences for religious leaders - Accommodation for religious scholars, students - Small parks, playgrounds, clinics, commercial - Support facilities (bus stops, taxi stand, banks, fueling stations)
Applicable SBCA Bylaws[21]	**Prohibited Uses**
- Plot Sizes: 1.0 acre or above - FP: 50% - FAR: 1:1.5 - Floors: G+2 (max)	- Private residential housing schemes - Large commercial activities

4.4.9 Public Administration Zone

The exiting offices of Public Administration are mostly along DC Office, Police Road and Naukot Roads. Considering future requirements, the new public administration area is also marked in between DC Office Road and Mithi Bypass, opposite to New CBD.

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

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

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

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

- **Existing Police Headquarter**

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

The existing police headquarter has sufficient space available for its extension. It is recommended to utilize vacant area within their premises for the purpose of additional needs. This 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, - Development Authority - Town Committee Complex - Line Departments - Local Government Offices - Town Planning Department - Judiciary Complex - Circuit House	- Employees Residences (for all grades) - Auditoriums, seminar halls, workshop spaces - Community facilities (parks, playgrounds, clinics, schools, neighborhood commercial) - Support facilities (gym, health club, bus stops, taxi stand, banks, fueling stations)
Applicable SBCA Bylaws[22]	**Prohibited Uses**
- Plot Sizes: 1.0 acre or above - FP: 50% - FAR: 1:1.5 - Floors: G+2 (max)	- Private residential housing schemes - Large commercial activities

4.4.10 Recreational Zone

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

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

- **Central Park**
  Next to New CBD, a large central park is proposed in the heart of the town along Naukot Road. This will be a general public park, however its sub portions could be reserved for families (ladies and children). Thus it will also contain area for swings, sitting, walking, jogging with allied facilities of washrooms, tuck shops, parking etc.

- **Sports Complex**
  At the intersection of Mithi Bypass and Naukot Road, next to Tourism Area, a Sports Complex is proposed. It will include cricket, football, hockey and other ground, cultural center and gymnasium. These type of sports facilities will be as per standards to promote domestic sports.

- **Amusement Park**

[22] Ibid

The site for amusement park is proposed at the intersection of Diplo Road and Mithi Bypass. In this area large scale amusement facilities like thrilling rides in a safe and pleasant manner will be provided.

- **Festival Grounds**
  Opposite to Gadhi Bhit an area is located for the purpose of festival grounds. Considering local tradition and types of festivals, a large space is designated for such events. These grounds will be used for large population events like carnivals, eid festivals.

- **Gadhi Bhit, New Gadhi Bhit and Keel Bhit**
  There are two more locations identified from the local inhabitants as recreational spots, similar to existing Gadhi Bhit. One is famous as New Gadhi Bhit at intersection of Islamkot Road and Mithi Bypass; while other is known as Keel Bhit located in north outside of the town, accessible form New Bypass. It is recommended to develop these elevated recreational spots as monumental landmarks with refreshing winds, bursting natural sounds, equipped with telescopes for sightseeing, landscaped with local plants, facilitated with sitting, public toilets, parking and tuck shops.

- **Large Recreational Area**
  There is a large recreational area has been designated along New Bypass for future reserve. Since, Mithi is a regional center there is also need to locate botanical and zoological gardens. These gardens will serve not only a metropolis of future but urban and rural areas of Mithi region as well. Moreover theme parks like Art Park, Ice Park, floral garden, glow garden etc. could also be introduced as per the demand of the region.

  In addition sub recreational centers will also be developed; where multipurpose playgrounds and family parks will be placed for active and passive facilities. These will be ideally need to be in center of the residential areas, accessible for all.

  The following guidelines are for recreational zone development:

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

4.4.11 **Graveyards Zone**

At present there are number of graveyards in the town, which have sufficient space available for immediate need. However, for long term there are three graveyards proposed in east, south and north of the town. These sites are accessible from Islamkot Road, Hemasar Road, and new proposed minor road, respectively.

These graveyards can be further divided according to the requirement of practicing religions in the town. All of these sites are approachable from existing roads and will also remain in the peripheries of the town.

The following guidelines are for graveyard zone development:

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

4.4.12 **Transportation Zone**

In Mithi Town, the transportation is mainly based on road network of radial roads and bypasses with terminals and intersections. Road network is considered as a vehicle for economic development and social change. Efficient road network not only develops a quick and efficient transportation system but also opens up new areas previously remained closed. It brings about social integration among rural and urban sectors and greatly assists in providing access to basic amenities such as education, health facilities, etc. It brings rural areas in constant touch with urban segment of a society and creates better understanding necessary for social change and economic activities.

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

Proposed Road Network

The proposed road network is originate from the existing radial roads (Naukot, Islamkot and Diplo Roads) and Mithi Bypass. By adding New Bypass the existing roads becomes major connecting corridors and Mithi Bypass act as main spine for the Mithi 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:

S. No.	Major Roads	ROW (ft)	Forestation (ft)
i.	New Bypass	200	200
ii.	Mithi Bypass	200	200
iii.	Naukot Road	150	100
iv.	Islamkot Road	150	100
v.	Diplo Road	150	100
vi.	DC Office Road	100	50
vii.	Police Road	100	50
viii.	District Session Court Road	100	50
ix.	Gadhi Bhit Road	100	50
ROW – property to property distance Forestation on both side of ROW			

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

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

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

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. These roads includes; DC Office Road, Police Road, District Session Court Road and Gadhi Bhit Road.

- **Public Transport Terminals**
  Two transport terminals are placed along Naukot Road in north and Islamkot Road in east. In both Transport Terminals separate public transport terminals are proposed. These public transport terminals are placed in order to provide better and nearby multi intermodal transport connectivity. Since major regional communication of general public is expected via these major roads; as most of residential, educational and health related traffic will be generated and these will cover most of the town. These will be comprises of the parking for public buses, hiace, wagons, taxis; with allied facilities like ticking booths, sitting / waiting areas, washrooms, shops and required residence for the drivers and staff.

- **Truck Terminals**
  Likewise, in both transport terminals separate truck terminals are also proposed. Since from these point all industrial and economic activities are connected, these found more appropriate locations for heavy traffic and goods transport. These proposed terminals will help in transporting goods from / into the town, which will benefit and boost the economic activities of the town.

  Since Mithi is a regional trading center and it would also require containers facility. It is recommended to mainly comprise of the container yards and related functional spaces. In addition required residence for the drivers and other staff with small offices, rest areas, washrooms, shops etc.

- **Air and Railway Connectivity**
  Regarding air connectivity, it is recommended to use Mai Bakhtawar Airport at distances of 40 kilometers in northeast of Mithi Town. In addition, Mithi has two nearest airports at Mirpur Khas Sindhri Airport and Hyderabad Airport. There is no railway station in Mithi, however nearest railway station is Mirpur Khas Railway Junction. Thus, it is suggested that residents of Mithi Town should utilize this railway facilities.

The following guidelines are for transport zone development:

Permitted Uses	Allied Permissible Uses
- All types of parking areas - Designated ROW	- Drivers and staff accommodation

- Green belts - Footpaths - Traffic management devices	- Support offices, rest areas, washrooms, shops etc. - Street furniture like lights, trash bins, benches etc.
Applicable SBCA Bylaws[23]	**Prohibited Uses**
- No direct access to major roads will be allowed except through service road - No structure or part of a structure may project beyond building line	- Any kind of encroachment

4.4.13 Utilities and Services Zone

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

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

- **Water Supply**
  The main water supply sources is Nara Canal, from which via Naukot branch water is supplied to Sehri Minor. In continuation of existing water supply network, an area along Mithi Bypass is suggested for water supply works. This additional area has been reserved to extend the water reservoirs as per the town's water demand and related water supply infrastructure. This increase will also cater to water supply filtration plant and other advance purification mechanism.

- **Sewage Treatment Plant**
  The area is designated for STP and its related uses, in east direction accessible from New Bypass. The site is low in elevation level with respect to nearby main drain, which will helpful to relay mainly on gravity flow. From very first it is not necessary to setup a fully mechanized STP, but it is suggested to start with oxidation ponds then proceed toward advance management of waste water.

- **Landfill Site**
  A landfill site is proposed at outskirts of town area, in northeast side considering wind direction. This landfill site is directly accessible from DC Office 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 Mithi Town is existing along Naukot Road. Its extension for immediate need is possible to extend in same premises. The extended facility will benefit the residents as per the need of the present consumption of the town. However the new area for grid station setup with upcoming future load and requirement, is suggested along New Bypass in east direction.

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

The following guidelines are for utilities and services zone development:

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

4.4.14 **Urban Forestation Zone**

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

In order to protect New Bypass from uncontrolled development, urban forestation of two hundred feet at both sides of the road should be planted. It is advised to restrict development in this area and implement the rules and regulations to keep the town green. In addition to New Bypass urban forestation of 50 to 100 feet on both side of the major roads are also proposed depending upon their ROW, to avoid direct / upfront development along roads. All major roads crossings will have initially green roundabouts with enough space for grade separated junctions in the future.

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

The following guidelines are for urban forestation zone development:

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

4.4.15 **Agricultural Zone**

In order to limit the town development agricultural reserved areas are proposed along New Bypass. In this manner not only town spatial growth will be confined but also essence of agriculture activities will remain close to the town. It will also create a healthy environment and less burden will be on spread of infrastructure network. The existing villages or settlements in the periphery of the town will also be benefited and not removed from their place of livelihood. The recommended main crop for production is Bajra, while cotton, wheat and sugarcane are also among locally grown items.

The following guidelines are for agriculture zone development:

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

4.4.16 **Water Bodies**

In Mithi, the main water source is Nara Canal, from its Naukot branch water is supplied to Sehri Minor. Although in close surrounding of Mithi Town, there is no such water courses are found. However, it is suggested to protect nearby water courses like Sehri Minor, further Nara Canal beautification is highly recommended. It includes:

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

The following guidelines are for Water Bodies zone development:

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

4.4.17 **Vacant Zone**

The objective of providing vacant area is to cater the emergency need at time of any disaster. With this respect areas outside the town limit will 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 Mithi Town but being on the peripheral area, would not disturb the town activities in general and it is directly accessible from the New Bypass.
However, the control on vacant land is extremely important, leap-frog development create pressure to utilize for other uses. Thus, there is a need to make sure that no development would take place in these types of reserved areas.

The following guidelines are for vacant zone development:

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

SECTOR WISE PROPOSED STRATEGIES

5. HOUSING

5.1 Existing Situation

As per 2017 census population results, Mithi TC had household size of 6.5 persons and a total housing stock of 10,003.

According to a sample socio-economic survey conducted Most of the housing stack were categorized as pacca houses which include Pacca (Brick construction) and RCC houses According to the primary survey conducted in Mithi town. The status of ownership of houses is like 96% family owned, 1% rent free and 4% on rent. The category of rental indicates housing gap. The rent range up to Rs.5000 is 60% and rent of between Rs.5001 to Rs.10, 000 is 40%.

The settlements in the rural areas of the desert are very simple and to some extent similar with the huts found in Africa. The Tharis typical beehive like huts with pointed thatched roofs defines the skyline in Thar, called chawra. These are built on mud plastered platforms and the conical roofs are covered with scrub and grasses. A narrow opening is left for entrance on a side. These huts remain cool in the desert blazing heating. In urban areas particularly at Mithi new buildings are cropping up between small dwellings and houses made out of wood, mud and stone.

General housing condition of the surveyed houses was not satisfactory. Sample survey of the town reveals that approx. 29% of the houses were constructed in between 6 to 10 years. 67% of the houses were below 120 sq. yards with an average of 5 to 6 members in each household.

With this average number of family members, 43% 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 that only 59% of the houses have drained (flush system) in their houses while 41% of the houses have un-drained toilets which requires manual cleaning.

74% of the houses have piped supply (House Connection) while 11% of the houses use ground water by manual hand pumps. Conditions of drains are also alarming, 78% of the drains are open and only 4% of the households have covered drains.

Table 5-1: Housing Statistics

ADMINISTRATION UNIT	Past Census 1998				Current Census 2017			
	Population	AGR	No. of HH	HH Size	Population	AGR	No. of HH	HH Size
Mithi MC	19,697	2.81%	3,030	6.5	47,073	4.69%	10,003	4.7
Mithi Taluka	125,137	2.66%	22,346	5.6	219,071	3.01%	45,214	4.8
Tharparker District	914,291	3.13%	163,266	5.6	1,649,661	3.15%	301,625	5.5

Major reasons for housing backlog are lack of resources, inadequate planning, and wrong land development policies that favor 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 abadi's and encroachment of state and private land.

5.1.1 Katchi Abadis in Mithi Town[24]

According to data provided by Sindh Katchi Abadis Authority (SKAA), there are six Katchi Abadis in Mithi DHQ Town. These are spread over 49.3 acres covering 1,229 housing units with 7,400 population approx. Thus, it is estimated that 16% population of Mithi Town resides in katchi abadis. All of these katchi abadis are still not notified. The list of Katchi Abadis present in Mithi Town is as follows:

List of Katchi Abadis in Mithi Town				
S.No.	**Name of Katchi Abadi**	**Total Area (acres)**	**No. of Housing Units**	**Estimated Population**
1.	Bajir East	5.33	133	800
2.	Bajir West	6.64	166	1,000
3.	Darzi	13.33	330	2,000
4.	Harijan	10.00	250	1,500
5.	Khokhar & Bheel Para	6.00	150	900
6.	Kolhi Para	8.00	200	1,200
	Total	**49.30**	**1,229**	**7,400**

5.2 Issues

The following are the major issues in the housing sector:

- District Tharparkar lacks required skills to effectively manage the urban growth, provide basic utility services and maintain the infrastructure, especially in low income areas.
- Lack of comprehensive planning at local level of Mithi Town without effective co-ordination among various Government departments, development agencies and other bodies has impeded housing development.
- Housing and other basic civic services are generally sub-standard in Mithi. The problem could be multiplied with increase of population in urban areas by providing reputable and profitable earning sources.
- Land is becoming scarce within old quarter of cities, but there is enough space on the outskirts.
- The households below poverty line have remained neglected, in all housing policies.
- Housing and associated infrastructure is in dilapidated condition requiring improvement / replacement
- Unchecked growth of squatter settlements: Katchi Abadis encroachment on state and vacant land is a direct outcome of the housing shortage.
- Shortage of finance continues to be the major constraint in housing production, maintenance and growth.
- There is high land prices in Mithi which is not affordable by low income group.
- Most of the population of Mithi is living in slums areas and dilapidated houses in the core urban area of Mithi.
- The housing density is quite high in the core urban area of Mithi, causing congestion and issues of poor light and ventilation.

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

5.3 SOWT analysis

Projected Housing Need 2037 (Mithi TC)		
Housing	**Population**	**No. of HH**
Total need (2037)	117,952	25,096
Present	47,073	10,003
Additional	(Future Pop-Present Pop) 70,879	(Future HH-Present HH) 15,093

HOUSING			
STRENGTH	**WEAKNESS**	**OPPORTUNITY**	**THREAT**
1. More than half of the urban area population own pacca houses. 2. The trend of new housing schemes construction by private development is increasing. 3. Sufficient land available for new growth and up-gradation/development.	1. Due to high levels of poverty, houses in Tharparkar are not built to effectively face weather. 2. The informal housing sector lacks provision of utility services like gas supply, clean water and drainage facilities.	1. Demand for new planned housing schemes. 2. Demand for low income housing. 3. Demand for public housing projects. 4. Opportunity for local micro financing for housing. 5. Installation of basic utility services through new projects	1. Homelessness. 2. Development of informal housing in empty/vacant spaces available within town. 3. Increase to urban sprawl. 4. Inflation 5. Relocation of higher income groups to other towns.

5.4 Need Assessment

On basis of projected Population for year 2037 the number of households have been estimated around 25,096 out of which additional Housing Requirement will be 15,093.

5.5 Policy Guidelines

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

5.5.1 Policy Measures for Land[25]

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

[25] National Housing Policy 2001

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, shall be made a mandatory requirement at all levels of governance.
- Land Registration and Tenure System
  The informal and customary tenure systems shall be rationalized into a formal and registered social contract.

5.5.2 Policy Measures for Housing Finance[26]

- Financial Institutions shall be encouraged to give mortgage loans for housing purposes at market rates as well as they should be encouraged to float long term bonds at market rates to raise housing finance.
- Part of the sale proceeds of valuable public land shall be set aside to subsidize low income housing and housing for the poor and needy.
- Subsidized loaning facilities shall be extended for rural housing construction and improvements through micro-financing system and institutions like Khushhali Bank, Zakat funds, etc.
- Property tax tariff shall be rationalized for self-occupancy and shall be adequately lower than rented property.

5.5.3 Policy Measures for Katchi Abadis, Squatter Settlements & Slums[27]

- The process of regularization and up-gradation of the pre-1985 Katchi Abadis shall continue as per current policy. However, Katchi Abadis, which are hazardous by virtue of being close to railways tracks or located under high tension power lines, or are on or close to the riverbeds, or on lands needed for operational /security purposes, need to be relocated at appropriate places by LOAs.
- Formation of new Katchi Abadis shall not be allowed and shall be discouraged by exercising strict development controls in all urban areas.
- Resettlement plans shall be prepared by the concerned Land Owning Agencies (LOAs) in consultation with affected communities for shifting of Katchi Abadis dwellers who fall within hazardous or security/operational zones. These plans shall primarily be on a self-financing basis. The internal infrastructure and services shall be provided on incremental basis depending on the needs and priorities of the residents to make them affordable and cost effective. Trunk infrastructure and services shall be provided by public sector organizations and the cost shall be met from Government exchequer.
- 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.

5.5.4 Policy Measures for Low Income Housing

[26] Ibid
[27] Ibid

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

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:

- City and District Government shall ensure that the master/structural/outline development plans cater for the current and future housing needs for low income groups on incremental basis.
- The katchi abadis resettlement, relocation, up gradation, redevelopment plans shall be an integral part of master plans/structural plans and outline development plan.
- Incremental housing schemes on the lines of Orangi, Qasba, Khuda Ki Basti etc. should be initiated based on lessons of experience.
- Provision of incentives through tax rationalization, reduction in property tax and registration, simplification of procedure and enforcement of effective foreclosure laws.
- Development of indigenous and cost-effective approaches particularly for low income group and mass production.
- Support research and development programs for economic building material and modern construction technologies.
- Land bank to be formed to facilitate availability of suitable, affordable, safe and secure land parcels within the town for the development of housing schemes.
- Concepts of small towns should be worked out to minimize the housing requirement in secondary cities.
- Legal and regulatory framework to be followed in order to facilitate the housing development for all income group.
- Low-income Housing Funds would be established to provide sufficient and affordable credit for housing to meet the needs of shelter less poor. Example is Grameen Bank of Bangladesh which is a microfinance organization and community development bank founded in Bangladesh. It makes small loans to the impoverished without requiring collateral
- Land disposal system shall be modified to bring uniformity, transparency and market orientation. All discretionary quotas or powers shall be withdrawn forthwith, while plots for all categories shall be disposed of through open auction except for plots earmarked for low

income groups and amenity plots such as for universities, hospitals, schools, recreation parks, etc.

I. Long Term Plan

- Forward planning for incremental population;
- Initiation of low cost housing schemes and provision of cross subsidy to the poor through auction of commercial plots;
- Effective punitive and preventive laws
- 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.
- To minimize relocation and resettlement, the concept of mixed development, as internationally practiced, shall be promoted and encouraged by Provincial Government and development agencies, with incentive packages, to ensure effective integrator low income groups and dwellers of katchi abadies and slums in the community and city structures.

II. Short Term Plan

- Increase in proportion of small size plots could be made for low income groups in all new housing schemes.
- Discourage speculation in land prices through better land management practices like Non Utilization Fee etc.
- One stop facilitation center should be established to facilitate public, especially for unprivileged and poor households.

5.7 Priority Projects

I. Development of Housing Site with allied services for Low Income People and Land Acquisition

- **Project Justification**

Due to high levels of poverty, houses in Tharparkar are not built too effectively to face weather. There is a diurnal variation of temperature. Thus, housing must be looked into, to prevent illnesses caused by extreme weather. The solution is to reconstruct the existing houses and to construct the new ones for a significant number of households which have low income. These households are unable to acquire their own houses so resolve their housing problem resulting rising the number of slums areas and encroachment.

Description	Results
Present Population	47,073

05% population of Mithi living in rental houses with no houses ownership	2,354
Households Required @ 4.7	500

The living condition in such areas is poor, they face so many problems and mostly don't have utility services. To resolve the problems occurred due to this situation, the public sector in Mithi should launch as part of the urban strategy. According to socio-economic survey results, the status of ownership of houses is like 95% family owned, 1% rent free and 4% on rent. There for on priority basis, the provision of developed site for residential purpose is proposed at accommodate at least 500 families in short term plan. Long term plan 2037, provision for additional 36,966 household will be required for the upcoming generation for next twenty years.

The purpose of this project is to:

- Provide affordable shelters to the poor people
- This process 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 Benefits**

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

- **Implementing Authority**

Government of Sindh, Mithi Town Committee, SBCA etc.

Estimated Cost: 500.00 Million Approx.

Project Name	short Term	Proposed Area (acre) & Lengths (m)	Preliminary Cost (million/- PKR)	Justification
Land Development for low income housing scheme	Short Term	50 acre	500.00	This will provide more than 500 developed plots for low income group with all amenities and services. For the development of proposed site 10 million per acre development cost is assumed for all internal allied facilities and infrastructure.

Proposed Residential Landuse for Mithi Town

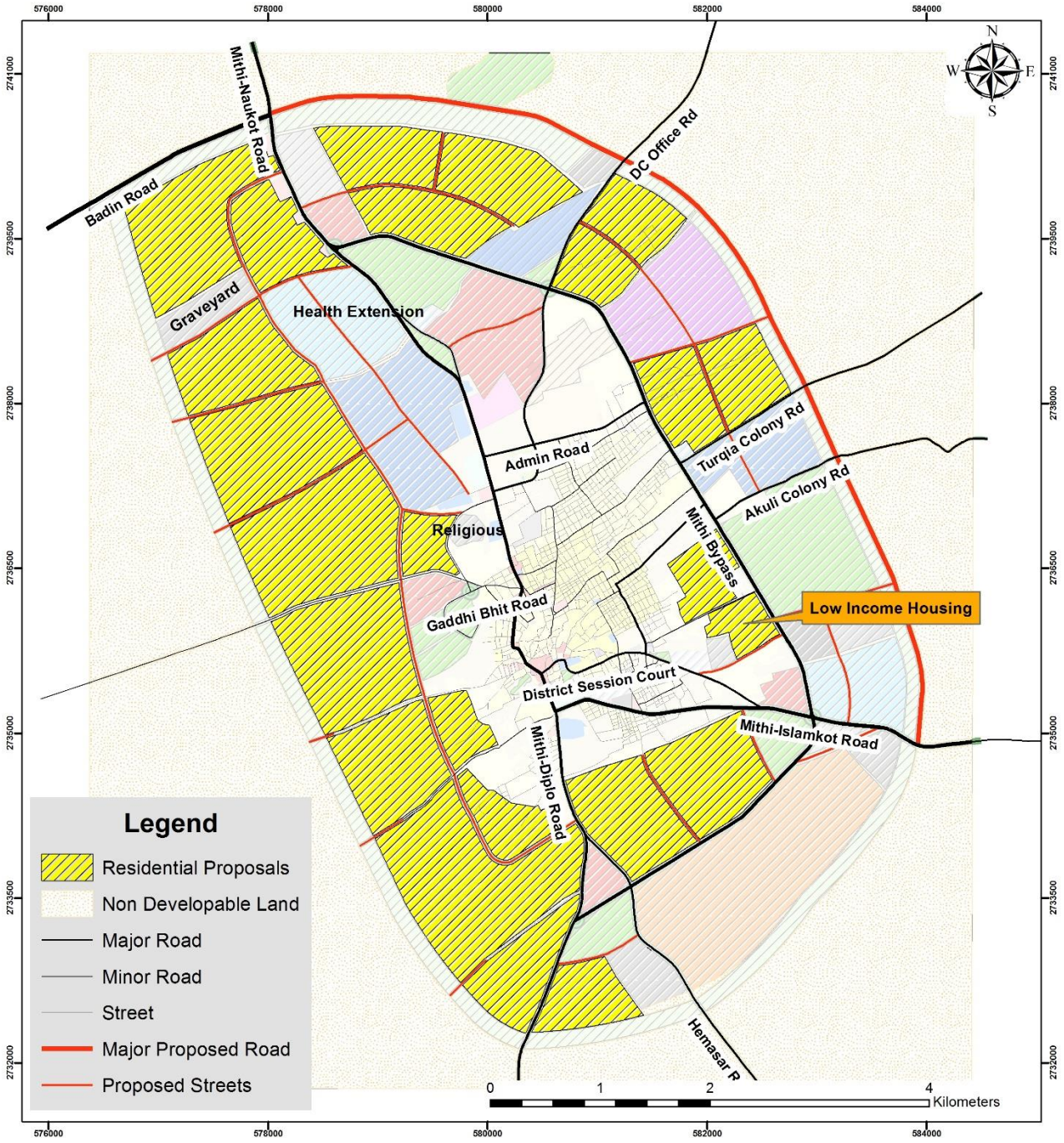


Figure 5-1: Future Housing Schemes Proposals Mithi Town

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. 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 Mithi Taluka .

Table 6-1: Present Education Institutions and Enrolment Record

Primary and Middle Schools							
S. No	**Type**	**Numbers**	**Class rooms**	**Enrolments**	**Teachers**	**Students per class room**	**Teacher Student Ratio**
1	Govt. Primary Schools	474	751	22466	922	30	1:24
2	Middle School	9	64	2649	101	41	1:26
Total / Average		**483**	**815**	**25115**	**1023**	**31**	**1:34**

Source: District Education Department Tharparkar

Table 6-2: Secondary Schools in Mithi

S. No.	Type	Numbers	Classrooms	Enrolments	Teachers	Students per class room	Teacher Student Ratio
1	Secondary School	11	135	5484	238	41	1:23

Source: District Education Department Tharparkar

Colleges in Mithi							
S. No	**Type**	**Numbers**	**Classrooms**	**Enrolments**	**Teachers**	**Students per class room**	**Teacher Student Ratio**
College		**4**	**30**	**3373**	**52**	**112**	**1:65**

Source: District Education Department Tharparkar

Technical Institutions

The present number of technical institutions in district Tharparkar are 4 (male: 3, female: 1). 1 male polytechnic institution with total enrolment of 428 and teaching staff of 8 teachers. 1 male commercial institution with 19 male enrolment and 3 male teachers and 2 Vocational institutions (male: 1, female 1) with the total enrolment of 114 (male: 80, female: 34) and having teaching staff of 3 (male: 2, female: 1).[28]

6.1.2 SWOT Analysis

Education			
STRENGTH	**WEAKNESS**	**OPPORTUNITY**	**THREAT**
1. Urban literacy rate is higher than rural. 2. High demand rate for private schooling education system. 3. 65 % of urban population literate as per sample survey. 4. School Buildings are also used as shelter and evacuation centers in emergency.	1. Illiteracy in rural areas at district level. 2. Education provision in Tharparkar, is the lowest in Sindh. 3. Female education in the rural areas is much lower than male education.	1. More people will move to urban areas for education. 2. More educational institutes are required. 3. More PPP for education sector. 4. In schools, children must be taught common preventive measures for living a healthy life.	1. The children of peasants and farmers will not get education. 2. Relocation of educated class to other major towns of province.

6.1.3 Need Assessment

Present Need of Classrooms in Mithi		
S. No	**Description**	**Results**
In Schools of Mithi (Primary, Middle and Secondary)		
1	Total present enrolments	30,599
2	Classrooms available at present	950
3	Students per classroom at present	32
4	Classrooms required for present need @ 30 students per classroom	1,020
5	Present shortage of classrooms	70
In College of Mithi		
1	Total present enrolments	3,373
2	Classrooms available at present	30
3	Students per classroom at present	112
4	Classrooms required for present need @ 30 students per classroom	112.4
5	Present shortage of classrooms	-

6.1.4 Major issues in Mithi TC:

- Shortage of class rooms as per current enrolment (primary, middle and secondary schools). At present 950 classrooms are available, in the existing schools and colleges,

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

whereas shortage of classrooms amount to 70 on the basis of 30 students per classroom. But in colleges currently there is no shortage of classrooms)

- There is no issue regarding Low enrolment level or gender disparity
- There is no Shortage of teachers at primary, middle and secondary schools level ,but this shortage occurs at college level ,thus 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.

6.1.5 Future Need Assessment:

In future the target is to achieve 100% enrolment with 1:1 male female ratio in next twenty years. Therefore the need will be of additional classrooms for schools and colleges, which will be required to accommodate upcoming generation in 2037 as shown in the table below. This need will be fulfilled either by addition of classrooms in the existing buildings or new buildings will be constructed in the future.

Table 6-3: Future Requirement of Classrooms in Mithi

S. No.	Description	Results
In Schools of Mithi		
1	Expected total enrolment by 2037 @ 100% enrolment	38,362
2	Total classrooms requirement in 2037	1,279
3	Additional classrooms requirement in 2037	259
In High schools and Colleges of Mithi		
1	Expected total enrolment by 2037 @ 100% enrolment	14,462
2	Total classrooms requirement in 2037	362

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

6.1.6 Policy Guidelines[29]

- Development of Teachers and professional substitutes;
- Encourage young women and girls through opportunities and facilities for participation in sports; develop women development centers.
- Introduce farmer field trainings in rural schools to ensure that the next generation of farmers is already tuned to market intelligence and opportunities.
- Introduce wider farm mechanization.
- 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

6.1.7 Strategic Development Plan

[29] Sindh Vision 2030

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, secondary and college levels and providing extra curriculum opportunities to address the needs of youth in rural and remote areas. This will increased the literacy ratio, living standard, employment opportunities of the future population.

Based on the above objectives some strategies are discussed below:

- Enhance Cadet College capability to cater the wider catchment area.
- Enhance the capability of Primary and Secondary School Teachers.
- Provision of Scholarships to the students to attract more towards Admission in Schools and to increase the enrolment level.
- Impart Basic Education (free), Vocational & applied education centers within rural, peri-urban and industrial areas; educate all mothers especially in rural context
- Improving the quality of learning outcomes through strengthening the teaching/learning process, improving the quality of teachers through merit-based selection and recruitment; improved accountability, and establishing a competency-based constructivist system of educational professional development.
- Enhancing the equity of resource allocation and improving the fiscal sustainability and effectiveness of educational expenditure, thereby fostering transparency and accountability in the use of public resources.

I. Long Term Plan

- Sustainable construction new of schools and colleges with all facilities to cater additional future enrolment.
- Establishment of new units particularly at HQ Town and Tehsil towns
- Participation of private sector directly or through public-private partnership.
- Emphasis on vocational training for both sexes.
- Degree College (Sadiq Fakir) should be updated to include more disciplines.

II. Short Term Plan

- Improve infrastructure of the school buildings.
- Invest in human capital to improve the quality of education.

6.1.8 Priority Projects

Construction/Rehabilitation of Schools and Allied Infrastructure

- **Project Justification**

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

S. No.	School Name	Level	Area (Acres)
1	Govt. Girls High School North Colony Mithi	Secondary	0.54
2	Sadique Faqeer Post Graduate College Mithi	Collage	9.50
3	Amar Jagdish Malani Govt. High School North Colony	Secondary	0.03
4	Govt. Boys Middle School Dharmani Colony Mithi	Middle	0.07
5	Govt. (Boys) Primary School Suthe	Primary	0.12
6	Library	Library	0.14
7	Govt. Degree College	Collage	0.43
8	Government Polytechnic Institute Mithi	Institute	9.19
9	Public School Mithi	Secondary	1.97
10	Govt. Girls Degree College	Collage	5.29
Total			**27.28**
***Excluded IAP Projects**			

- **Project Benefit**

  This relate to the basic right of the people and comes under the compulsory social services, By the increasing in the litracy ratio the living standad of the population will improve with in the DHQ town.

- **Implementing Authority**
  Department of the Education – Provincial Government.

Estimate Cost: 642 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)	27.28	642.00	Short Term	27.28 acres = 188,317 sft, at the rate of 1,800/- PKR per sft construction cost with all infrastructure cost.

*considered 30% as Built up Area

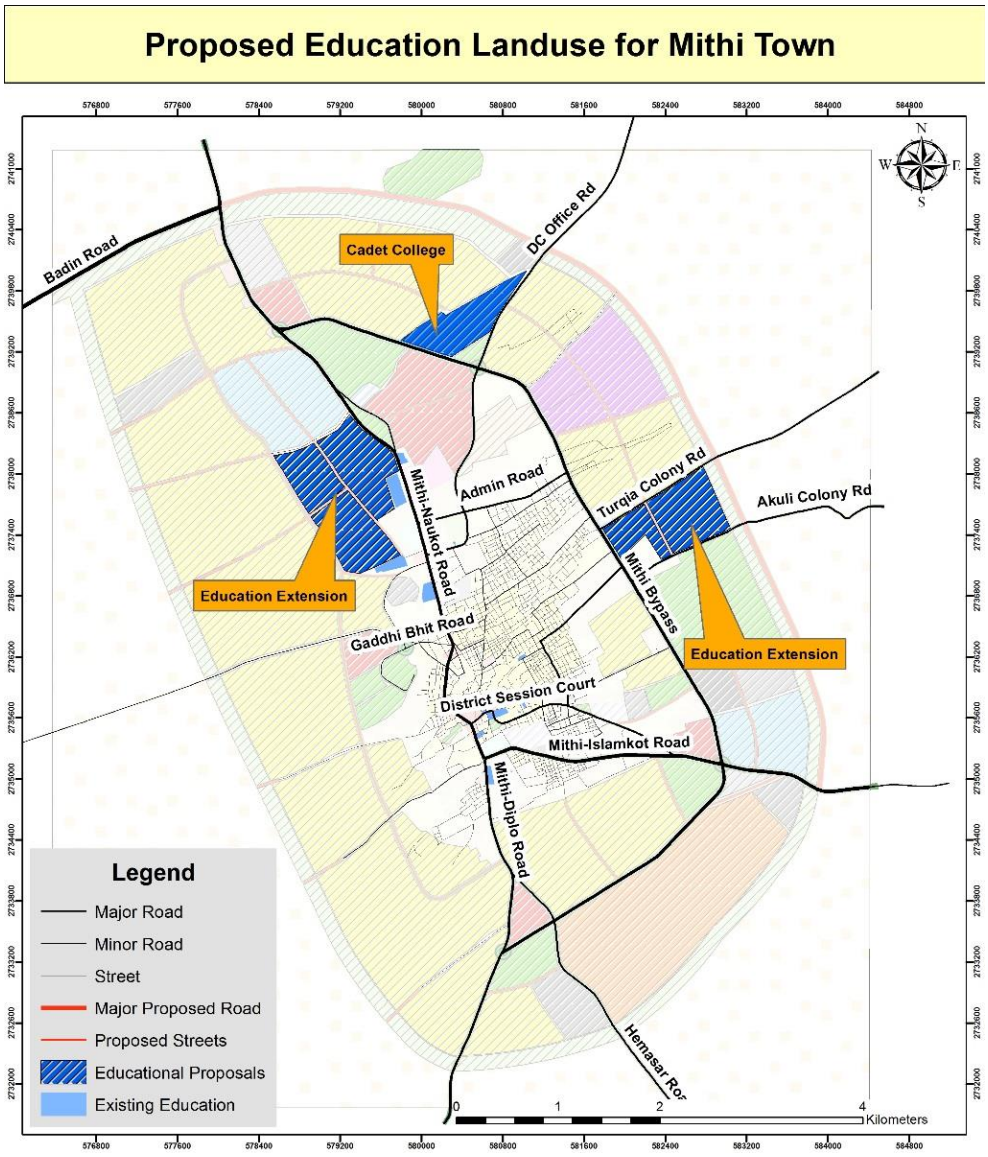


Figure 6-1: Future Educational Proposals Mithi Town

6.1.9 Immediate Action Plan for Core Urban Area

i. Rehabilitation and Up gradation of Schools

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

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

MITHI - CORE TOWN AREA			REHABILITATION OF EDUCATION FACILITIES							
S	Education Facility Name	Area (acre)	Rehabilitation Required Area wise or job wise cost (PKR)							
			Street / Road / Parking	Utility Facilities					School Building Repair/ Renovation	Security
				Electricity	Water Supply	Sewerage	Gas	PTCL		
1	Municipal Committee School Mithi	**0.93**	0.93	1.07	1.40	1.40	0.93	0.23	0.47	0.23
2	Govt: High School Mithi	**0.51**	0.51	0.59	0.77	0.77	0.51	0.13	0.26	0.13
3	Govt. Primary School Mithi	**0.32**	0.32	0.37	0.48	0.48	0.32	0.08	0.16	0.08
4	Government High School Mithi	**2.05**	2.05	2.36	3.08	3.08	2.05	0.51	1.03	0.51
5	Bilawal Zardari Public Library Mithi	**0.18**	0.18	0.21	0.27	0.27	0.18	0.05	0.09	0.05
Total		4.0	4.0	4.59	5.99	5.99	3.99	1.00	2.00	1.00
Total PKR Rs. Million			**28.53**							

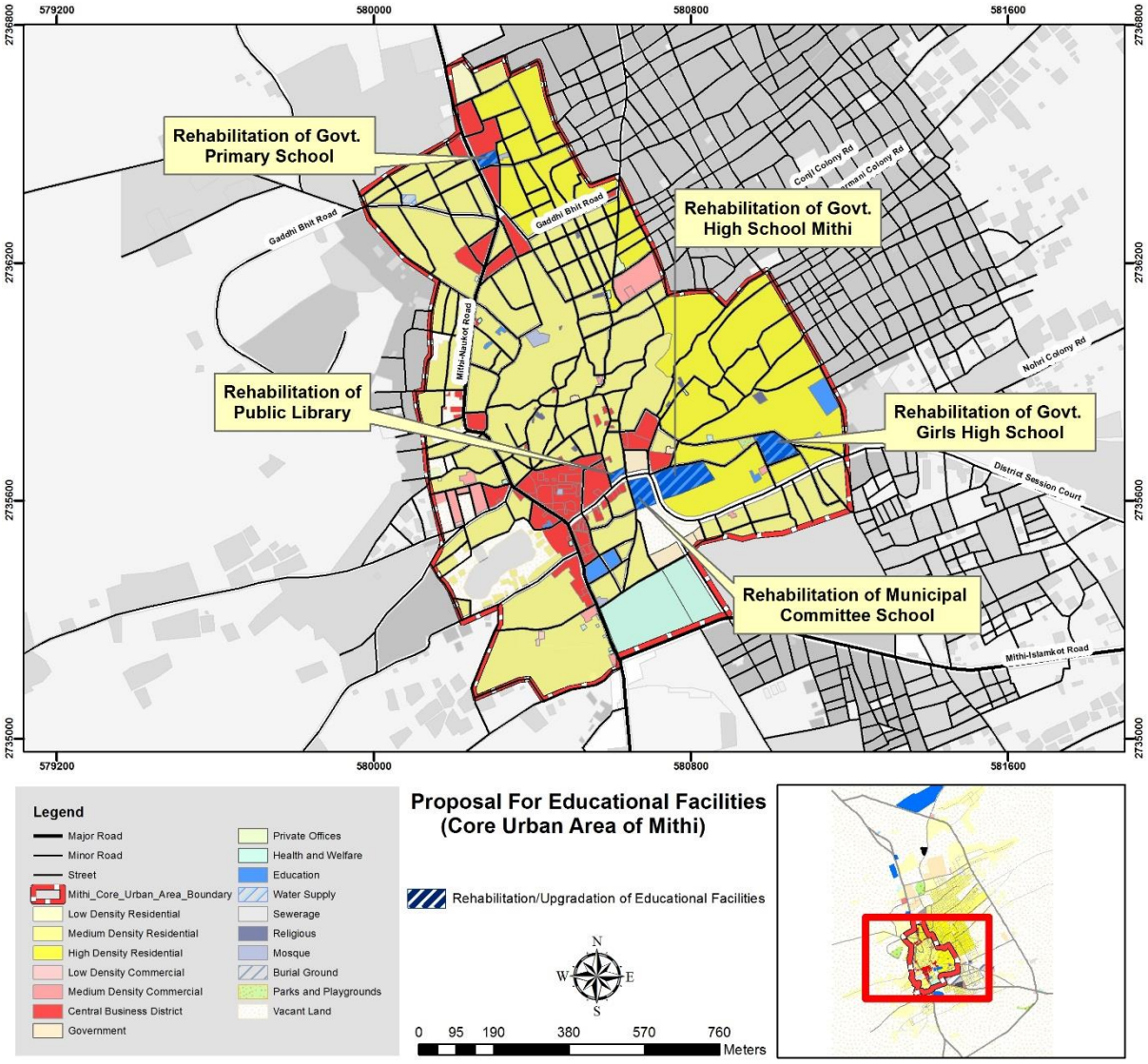


Figure 6-2: Educational Facilities (Core Urban Area of Mithi)

6.2 Health

6.2.1 Existing Situation

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

Currently, tertiary level health facilities of Taluka hospital THQ and BHUs are serving the regional population of Sindh at Tharparkar district. There is one civil hospital having 74 bed, 3 Taluka HQ Hospitals at District having 90 beds and 96 private Hospitals having 129 beds to serve the district. The other health facilities spread over entire district are 2 RHC having 20 beds, 10 TB Clinics, 40 BHUs having bed strength 93 and 307 dispensaries.

Table 6-4 : Health facilities Government and Private Departmental with Bed Capacity

Type	No.	Beds
Civil	1	74
Taluka	3	90
BHUs	40	93
RHCs	2	20
Private	96	129
Dispensaries	307	3
Total	**449**	**409**
Source: Health Profile of Sindh, 2017		

6.2.2 Issues

The following are the major issues in the health sector

- Lack of Health facilities such as wards, labs and OT facilities
- Lack of diagnostic and other Health equipment
- Deficiency of transferring serious cases from rural areas to hospitals
- Large number of Vacant posts of doctors and medical staffs in health institutes of the district.
- Lack of training and housing facilities for LHW and paramedical staff
- Shortage of Nutrition
- Accessibility to health care facilities in remote rural areas is difficult.

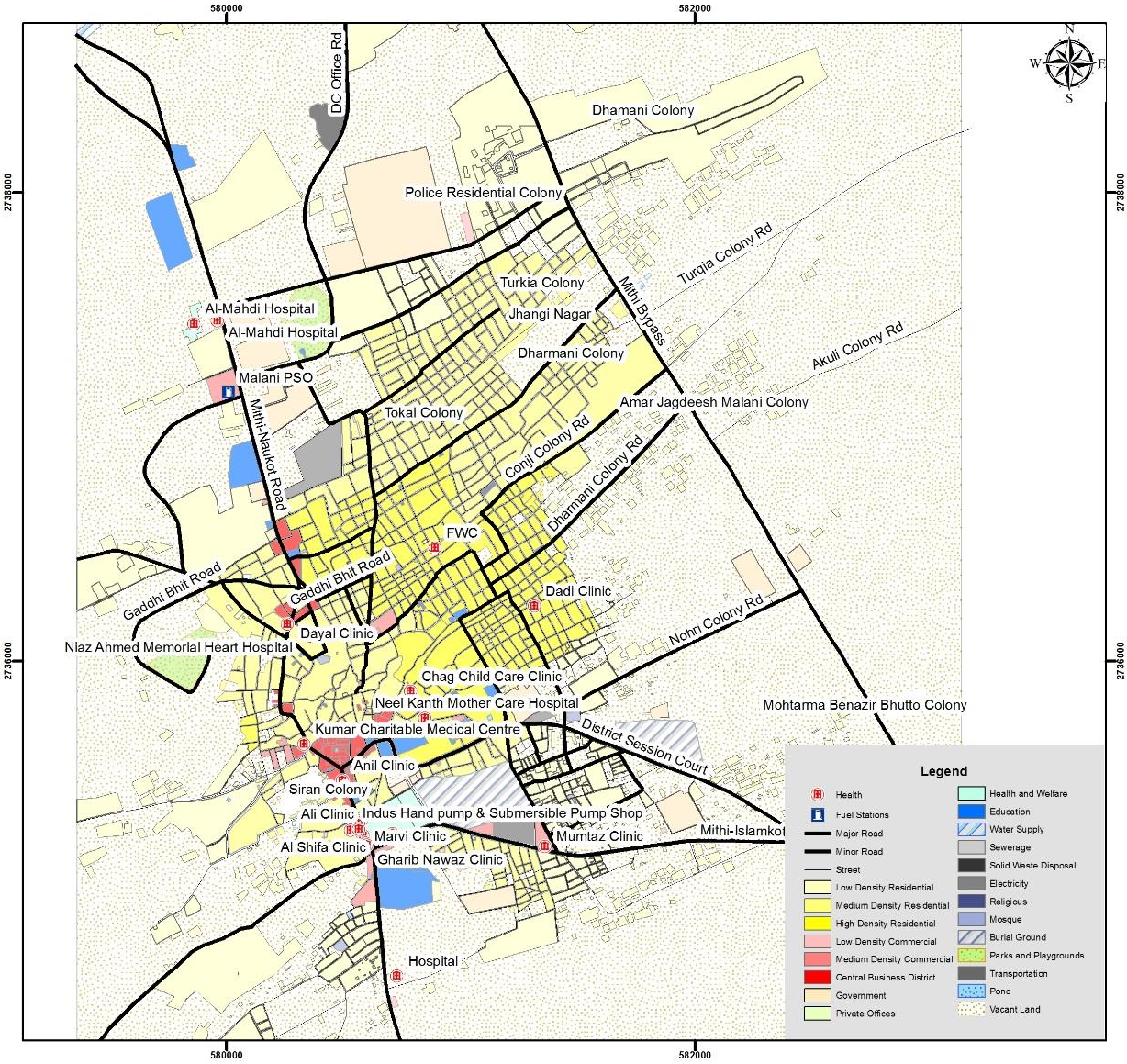


Figure 6-3: Present Health Facilities in Mithi DHQ Town

6.2.3 SWOT Analysis

Health			
STRENGTH	**WEAKNESS**	**OPPORTUNITY**	**THREAT**
1. Availability of DHQ Hospital in Town.	1. Lack of communication between facilities 2. There are only 409 beds available to cater district population of Tharparkar. 3. Shortage of staff residences and facilities in the district. 4. The travel-time to the nearest health facility is two to four hours; it cost from Rs. 1,000 to Rs 4,000. 4. There is only one civil hospital in Mithi.	1. More investment is required through PPP in health sector. 2. More job opportunities for doctors and other paramedical staff. 3. Availability of NGOs. 4. It must be made compulsory for all fresh medical graduates to work in Tharparkar for one to three months, with the task to educate, counsel and explain preventive measures. 5. To be able to avoid deaths, there need to be civil hospitals in all seven Taluka headquarters.	1. Less emergency response to health incidents. 2. Death rate may increase. 3. Difficult to control eradication of epidemics diseases. 4. Increase in infant mortality rate.

6.2.4 Need Assessment

I. Present Need Assessment at District Level (Population, Bed Ratio, Doctors Ratio) 2017

Present Population	Available Beds	Present Need	Required Beds	Available Doctors	Present Need	Required Doctors
1,649,661	409	3,299	2,890	318	1,649	1,132

Future Need Assessment at District Level (Population, Bed Ratio, Doctors Ratio) 2037

Future Population	Available Beds	Future Need	Required Beds	Available Doctors	Future Need	Required Doctors
3,070,415	409	6,141	5,674	318	3,070	2,554

II. Present Assessment at TC Level (Population, Bed Ratio, Doctors Ratio) 2017

- Currently there is one DHQ hospital at TC level in Mithi town. There are 74 beds in it. The NRM (National Reference Manual) recommends 2 bed per thousand as the medium term target. On this basis approximately 20 beds will be required to be provided gradually at TC level in Mithi.
- Currently there are 517 sanctioned posts of doctors in Mithi out of which 332 are vacant and 185 are filled. Therefore the shortage of doctors is quite serious.

- According to NRM (National Reference Manual) there should be 1 doctor per BHU and 3 doctors per RHC. According to WHO (World Health Organization) standards doctor to population ratio is 1:1000 so taking that as a reference point currently there are 138 doctors required for the present population at TC level in Mithi. The present short fall of doctors comes out to be 47 at TC level in Mithi.

Table 6-5 Present Analysis of population to bed ratio and Doctor Ratio at TC Level						
Present Population	**Available Beds**	**Present Need**	**Required Beds**	**Available Doctors**	**Present Need**	**Required Doctors**
47,073	74	94	20	185	47	138

III. Future Need Assessment at TC level (Population, Bed Ratio, Doctor Ratio) 2037

The consultant considered it appropriate to consider the catchment population of the town 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 162 beds will be required to be provided gradually until 2037. According to WHO (World Health Organization) standards doctor to population ratio is 1:1000 so taking that as a reference point the future requirement of doctors comes out to be 67 doctors for the future population of Mithi at TC.

Table 6-6 Future Analysis of population to bed ratio and Doctor Ratio at TC Level

Future Population	Available no beds	Future Need	Required no of beds	Available Doctors	Future Need	Required no of Doctors
117,952	74	236	162	185	118	67

6.2.5 **Policy Guidelines[30]**

- Enhance basic health care by making it more accessible & affordable, efficient, effective and timely. This will be achieved by diversifying outlets through the involvement and support of other organizations that provide health or health related services. An important inclusion in this direction will be the extension and enhancement of basic

[30] Sindh Vision 2030

healthcare education in schools, colleges, universities and other technology/vocational training institutions.

- 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
- Protect people against pollutions of all forms and types, and infectious diseases by promoting public health and by upgrading curative care facilities.
- Enhance and improve existing emergency care facilities and trauma centers, including ambulatory services and paramedic forces.

6.2.6 Strategic Development Plan

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:

- Improve access to healthcare facilities as due to long journeys to hospitals many patient die on the way.
- We can further improve the access through an "Edhi' type ambulance network financed by local charity, in connection with local government bodies and healthcare facilities
- Improve the quality of healthcare services,
- 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.
- Improve health hygiene practices though awareness raising workshops, seminars, and mother and teacher meetings etc. about sanitation, hygiene and communicative diseases.
- Provide and deliver a basic package of quality essential Health Care services
- Generate reliable health information to manage and evaluate health services
- Adopt appropriate health technology to deliver quality services
- Reform the health administration to make it accountable to the public

I. Long Term Plan

- Tertiary Level Specialized Hospitals to cater District
- Enhancement of Mobile Health Unit for far-flung areas of District
- Availability of ambulance network may be created especially for rural areas
- Accommodation facilities for Doctors and Paramedic Staff
- Construction of additional BHUs, RHCs and TCHCs
- Establishment of new units particularly at HQ Town and Tehsil towns as the shift from rural to urban areas is expected to grow exponentially.
- Participation of private sector directly or through public-private partnership
- Research and development programme for doctors and paramedics staff

II. Short Term Plan

- Extension of Civil Hospital for more specialized wards /sections
- Provision of Mobile Health Unit for the peripheral area of Mithi Town (under supervision of Civil Hospital)

- Up gradation of BHUs, RHCs and TCHCs.
- Health awareness programme for the deprived population
- Provision of diagnostic facilities, ambulance, pharmacy in all hospitals
- Rehabilitation and improvement in the existing BHUs and hospitals.

6.2.7 Priority Projects

I. Construction/Rehabilitation of Health Institutes

- **Project Justification**
  Health is the fundamental need of the people. Currently DHQ hospital of Mithi is facing lot of problems due to unavailability of Laboratorial facilities, shortage of electricity, surgical instruments, and lack of machineries are the major issues. At present in DHQ of Mithi, more than 70% posts are vacant which includes the Doctors and pera-medical staff and there is need of 2,890 additional number of beds at the district level, which may be reached at the 3,307 number of beds by the year 2037.

- **Project Benefit**
  The project will direct provide the benefit to the poor people of the Tharparkar District. The health condition of the district improved.

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

Estimate Cost: **250 million approx.**

S. No.	Project Name	Estimated Cost In Millions	Non ADP	Short Term	Justification
Health					
1	Extension of Civil Hospital for more specialized wards/sections	250.00	Non ADP	Short Term	Provision of CT Scan and MRI Sections with Machinery. Provision/installation of Incinerator.

Proposed Health Landuse for Mithi Town

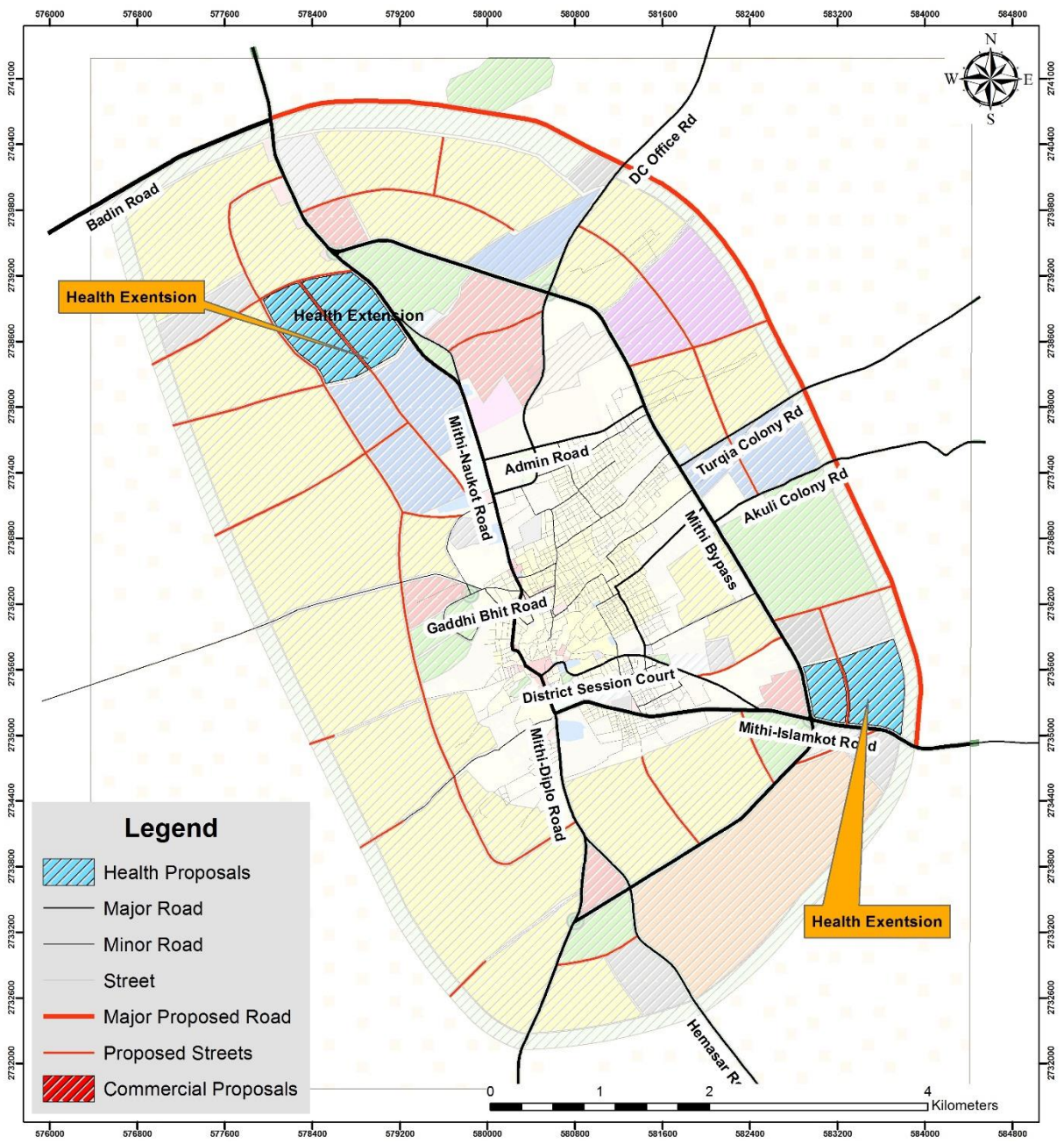


Figure 6-4: Future Health Proposals Mithi Town

6.2.8 Immediate Action Plan for Core Urban Area

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

DHQ/Civil Hospital Mithi is suffering due to lack of basic facilities like unavailability of incinerator, waiting area for patients, subsidized drugs, Basic Laboratorial facilities, shortage of doctors' & para medic staff. DHQ/Civil hospital Mithi providing basic health facilities to almost entire Shaheed Benazirabad division.

- Repair & Rehabilitation of DHQ/Civil Hospital & Installation of Incinerators Rehabilitation of Civil Hospital
- Installation of Incinerators for medical waste
- Provide a set of incentives for doctors and nurses to fill vacancies
- Reduce Antenatal Health by extending heath awareness among all administrative levels
- Enhance free nutritional programme for newborns and lactation mothers.

S. No	Area / Locality / Address	Area (acre)	Repair & Rehabilitation - Activity Wise Cost in Millions			
			Street, Road & Parking	Provision of all four Utilities	Public Facilities	Security
1	Rehabilitation of Civil Hospital	10.14	10.14	6.56	12.68	2.54
Total		**10.14**	**10.14**	**6.56**	**12.68**	**2.54**
Total PKR Rs. Million			**31.91**			

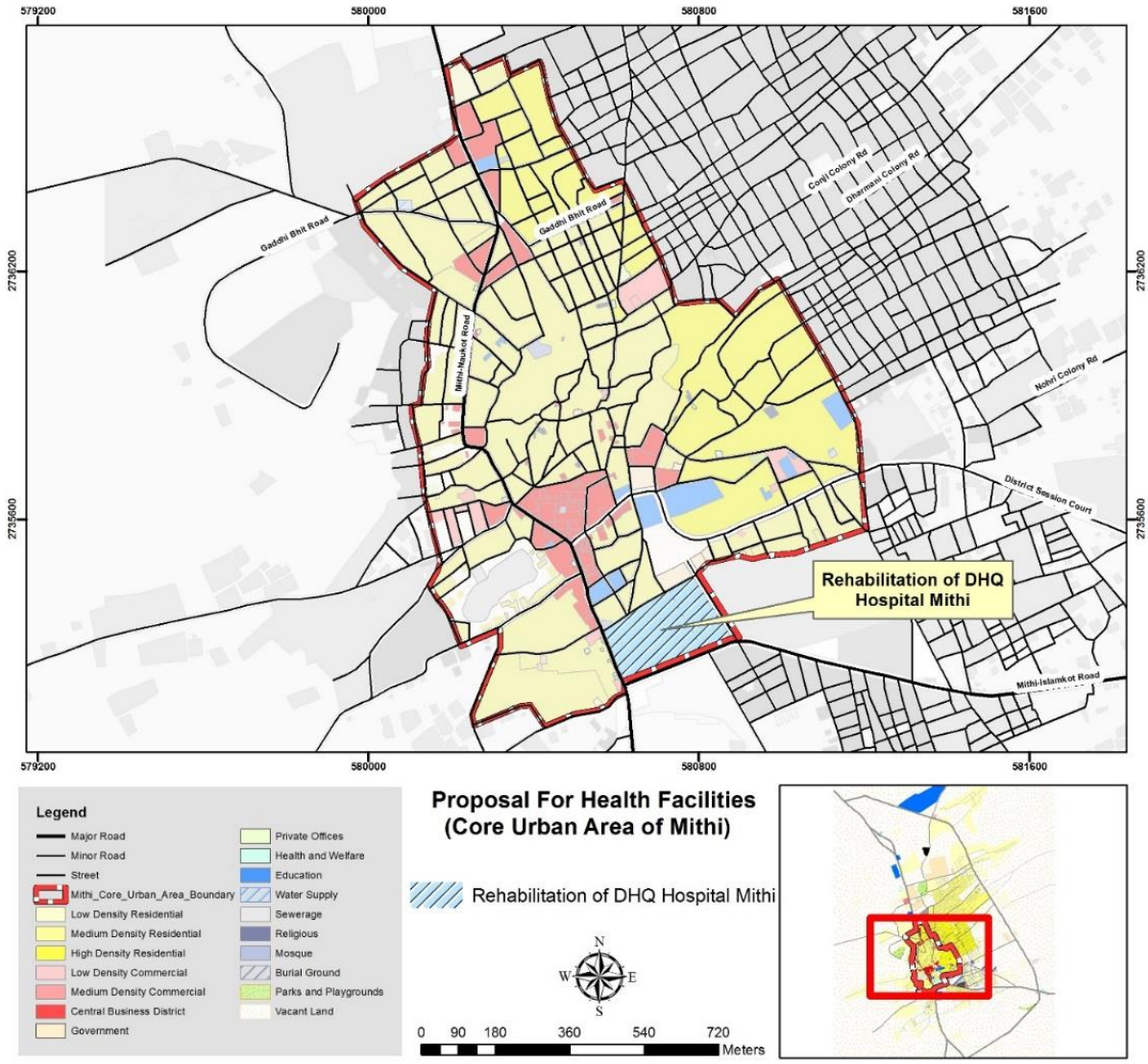


Figure 6-5: Health Facilities (Core Urban Area of Mithi)

6.3 Recreational

6.3.1 Existing Situation

Almost all Sindh cities are deficit in recreational facilities including city gardens, parks, playgrounds, gymnasium, amusement parks, libraries/reading rooms, etc. The jurisdiction of these facilities cut across several provincial departments and civic agencies. The private sector is reluctant to create sports management infrastructure whereas public sector is deficient for funds even if initiative is there. The coal mining, energy, oil and gas companies working in area should take a lead through CSR. Tourism activities are very limited due to the lack of tourist attractions. However, an increase in investment in urban facilities and employment generation will create demand for tourist accommodation in short to long term.

Tharparkar has a long and rich heritage, which dates back to ancient times. It is believed that this area served as a water source for the Indus Valley Civilization's centre of Mohenjo-Daro during the time when the Ghaggar flowed through the land which the desert currently occupies.

6.3.2 Recreational Spaces in Mithi

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

Mithi is cultural hub, rich in cultural heritage Mithi is famous for many things. There are three constructed / designated recreational places in the vicinity of Mithi TC in which one is Thar Sports Complex, Ghadi Bhitt and park in town centre, adjacent to Mithi MC Office.

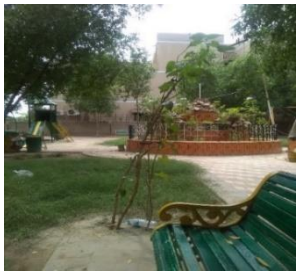


Figure 6-8: Park in Mithi Town



Figure 6-8: Thar Sports Complex



Figure 6-8: Monument at Ghadi Bhitt

6.3.3 Heritage and Tourism[31]

Nagarparkar, is a town in at the foot of the Karoonjhar Mountains in Tharparkar District that is famous as home of the Nagarparkar Temples - a pilgrimage site for Hindus and Jains, located at a distance of 129 km from Mithi. The historic and famous places in District Tharparkar are as follows:

- Karoonjhar Hills
- Gori Temple
- Jain Temple
- Naukot Fort
- Bhodesar Mosque
- Well of Marvi

i. Karoonjhar Hills



Karoonjhar Mountains are situated in the city of Tharparkar. This is hill in the district near the place Nagarparkar on the northern edge of the Runn of Kutch. It contains granite rocks and Chinese clay. The Karoonjhar range is 19 km in length and attains a height of 305 m. Karoonjhar Mouantains are rich in mineral deposits. The Karunjhar was famously known as Kinro. The Mountain Range has several places of historical importance, like Bhodeser talao, Alakh wao (hidden well), Anchlechure, Sardaro, Gao Mukhi.

ii. Gori Temple





Gori temple, situated situated at a distance of 14 miles north-west of Verawah, is about 125' by 50 feet and similar is style as in temples at Bodesar. The effects of fire and gun powder which was used by Col. Tyrwhitt at the time of Nagar outbreak are quite marked. Still, it is the best surviving temple here, built of local stone with pillars and details of marble from Rajputana. It consists of three parts viz. an outer stone Mandpa or pavilion with marble pillars and a corbelled dome, leading to an interior Mandapa of similar design but supplemented by small cells. The shrine itself which formerly had a 'Sikhara' of typical Kathiawar type is now adorned with rows of miniature 'Sikharas'. The temple according to an inscription was repaired in 1715 A.D.

[31] Retrieved from https://www.stdc.gos.pk/index.php/tours/all-locations/itemlist/category/187-tharparkar

iii. Jain Temple

The Jaina temple at Verawah is about 15 miles north of Nagar Parkar. The temple is made of stone and consists of an open group of pillars with carved capitals. From this temple was found a beautifully carved block of marble 6'-9" in length and 2'-7" in breadth which is now on display in the National Museum of Pakistan, Karachi. Jain Temple is a potential goldmine for tourism, as it would attract visitors and pilgrims from all over the world; especially India.

iv. Naukot Fort



Naukot fort is situated about 1½ mile from the Naukot town, which lies on edge of the desert in District Thar. The fort is said to have been constructed by Mir Karam Ali Khan Talpur in 1814 A.D. it is roughly square in plan measuring 640x600 feet. The fortification wall of the fort which gives a tapered look has been built of baked bricks laid in mud mortar. On south east corner, there exists an arched gateway flanked by semi-circular bastions hiding the main entrance. The fort was used by Talpur Mirs as a strong hold cum-residence. Inside the fort, there are some structural in collapsed shape. Most probably these buildings were used as residences and a few of them for imprisoning the prisoners.

v. Bhodesar Mosque



This mosque with white pillars in Bhodesar is a small marble and limestone structure near the pond embankment is built in 1436 AD. It was built by Mehmood Shah Bin Zaffar Shah, ruler of Gujrat. The mosque is located 5 Kms from town Nagarparkar.

vi. Well of Marvi [32]



The site of well of Marvi is about 30 kilometers away from Nangar town in north and 10 kilometers from Verawah village. Umar Marvi is a Sindhi folk love story, known as Umar Marvi lok dastan and it is also mentioned in Shah-jo-Risalo. This site depicts the historical background of story of identification of patriotism, self-determination and modesty. The well still exists near village Bhalva in Tharparkar.

[32] Retrieved from https://heritage.eftsindh.com/districts/tharparkar/marvi-well.php

6.3.4 Issues

Presently, District Tharparkar as well as Mithi are facing the following problems, which are required to resolve in order to fulfill recreational need of the people:

- Shortage of public park, playgrounds and recreational facilities
- Available recreational facilities are in dilapidated condition
- Lack of interest for heritage preservation and provision of recreational facilities
- Encroachments on recreational and cultural spaces
- Unavailability of basic facilities to facilitate tourism
- In-active tourist development program
- Tourism marketing and promotion is weak so need an overhaul

These areas can be developed to attract the tourist and the income from tourism promotes local economy. The major requiremnet would be the tourist accomodation and other facilities to attract tourists and make them comfortable.

Further there is a need for the organization of sports events at community and provincial level to keep the youth busy with healthy activities. The area is very rich in cultural heritage including folk and sufi music, which needs to be explored and promoted for tourism. These tourist attractions are easily saleable to tourists including religious tourist at home and abroad. A tourism organization, in public or private sector needs to be established to organized package tours and market them in the domestic and international markets. Essential communication, transport and accommodation need will need to be created to market tourism resources.

6.3.5 SWOT Analysis

Table 6-7 : Sports and Recreational

STRENGTH	WEAKNESS	OPPORTUNITY	THREAT
1. Local environment of town supports green urbanism in monsoon season.	1. Shortage of water facility to maintain green spaces, green belts and trees plantation 2. Shortage of sports infrastructure.	1. Good health of local communities. 2. Air pollution reduction. 3. Healthy environment 4. Protection of natural habitat.	1. Give birth to passive recreation. 2. Obesity.

6.3.6 Need Assessment

- In-active tourist development program
- Less heritage preservation.
- Tourism marketing and promotion is weak so need an overhaul.
- Unavailability of basic facilities to facilitate tourism
- Encroachments of cultural spaces.
- Shortage of Public Park, playgrounds and recreational facilities.
- Available Recreational facilities are scarce and in dilapidated condition.

- Lack of interest of local government for provision of recreational health facilities to the people of Mithi TC.

6.3.7 Policy Guidelines[33]

- 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
- Mithi needs infrastructure and programmes for sports activities, sport confections, gymnasium and family parks, and children play area and gardens.

6.3.8 Strategic Development Plan

The aim of this strategic Development Plan is to provide Recreational Infrastructure of International Standards at District, Protect and conserve the cultural heritage, promote language, art and culture of District and dissemination of information through media. Some of the Strategies are mentioned below;

- 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
- The Local bodies and Municipal authorities have to plan for additional requirement of infrastructure, roads/bridges, bus/truck terminal, street lighting, parks, mosques markets, commercial centre etc. within regulatory framework of building and environmental regulations

I. Long Term Plan

- Establishment of Sports Complex
- Protection of historical places and cultural heritage
- Youth development programme for sports and recreation
- Promote tourism through provision of support facilities
- New proposed graveyard on the western part of the town.
- Establishment of new open spaces as well as establishment of indoor and outdoor game facilities.

II. Short Term Plan

- Urban Forestation
- Rehabilitation of existing parks and sports facilities
- Establishment of synthetic grounds, playing turf (for hockey, football) and indoor gym facility.

6.3.9 Priority Projects

[33] NOPRA 2005

I. Construction/Rehabilitation of Recreational Facilities

- **Project Justification**

  The availability of parks in any city is essential for the safe and healthy environment. There are three recreational places in the vicinity of Mithi TC, which includes the Thar Sports Complex, Ghadi Bhitt and park in town Centre 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	**New Bhit**	Park	11.51
2	**Thar Sports Complex**	Play Ground	5.95
3	**Gadhi Bhitt**	Park	10.4
Total			**27.86**
**Excluded IAP Projects*			

- **Project Benefit**
  It will provide better environment and contribute in the enhancement of the health of the citizen.

- **Implementing Authority**
  Mithi Town Committee

Estimate Cost: 655 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)	27.86	655.00	Non ADP	**Short Term**	27.28 acres = 188,317 sft, at the rate of 1800/- PKR per sft construction cost with all infrastructure cost.

**considered 30 % as Built up Area*

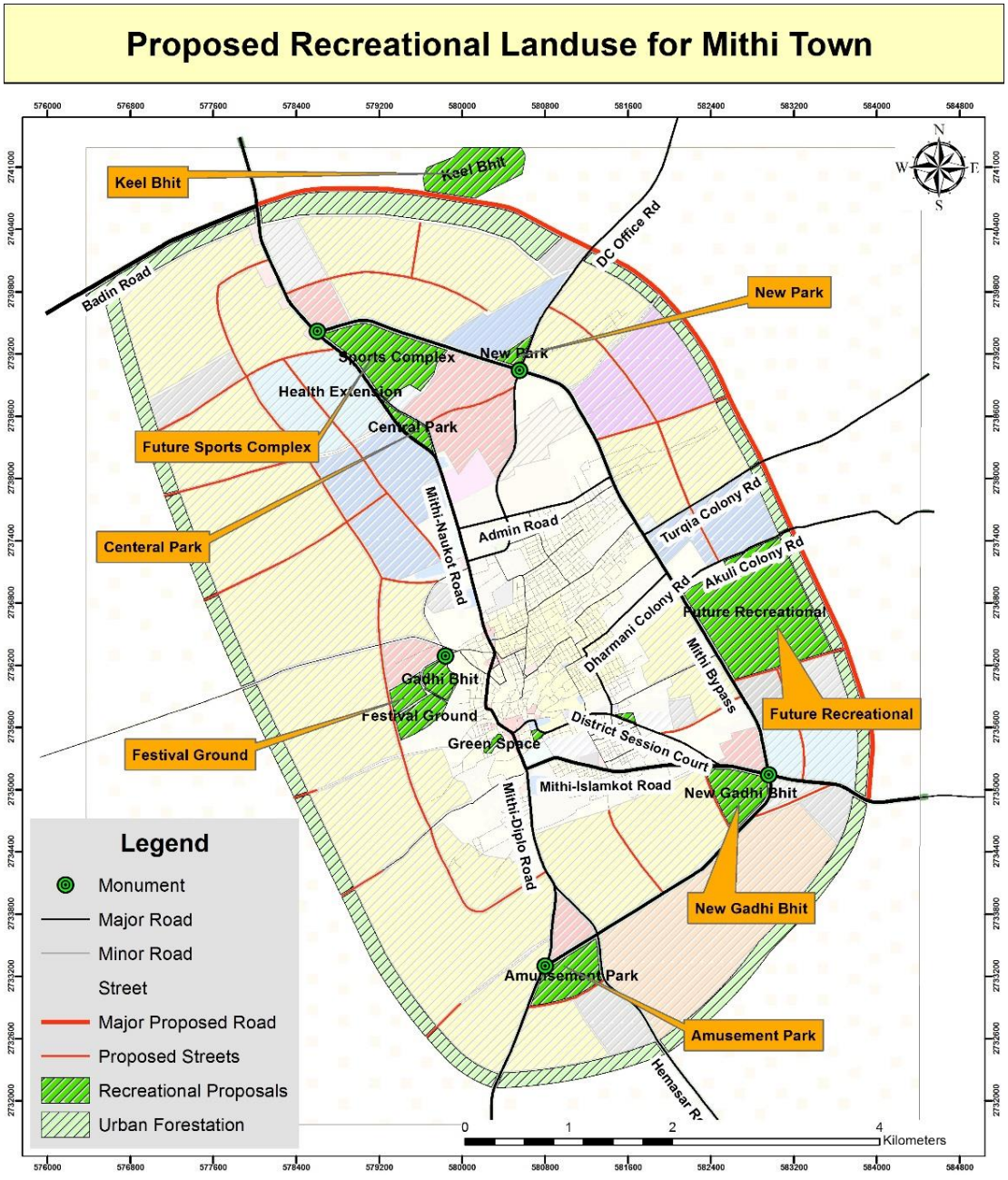


Figure 6-9: Proposed Recreational Landuse for Mithi Town

7. BASIC UTILITIES

7.1 Water Supply

7.1.1 Existing Situation

There are two water supply sources in Mithi:

i. Canal water through pipeline from Naukot is used for drinking purpose.
ii. Tube wells water, which is brackish, is used for bathing and washing purposes.



Figure 7-1: Pilferage from Nara canal

The original water supply scheme for Mithi was based on tube wells developed during the period 1986-1990, and tapping brackish groundwater; however, the tube wells source is only used for non-drinking purpose. Mithi is located in the Thar Desert where the only source of in-situ water is brackish and saline groundwater, and depends for their fresh water supply on a 46.23 km pipeline from Naukot where water is dawn from an irrigation canal.

Water from Naukot branch is supplied to Sehri Minor. Water from Sehri Minor is distributed to Mithi and Islamkot through 12" dia meter pipe and chlorinated before supply. The quantity of ten million gallon fresh water is pumped every tenth day from Naukot for both Islamkot and Mithi, five million gallon for Mithi, three million gallon for Islamkot and remaining two million gallon for surrounding villages, located along main supply line.

The sample survey reveals that the about 74% of the houses have piped supply (House Connection) and 13% using community connection piped water supply outside the houses; while 11% of the houses use ground water by manual hand pumps inside the houses. In Mithi, water pressure is good during supply hours due to pressurized main situation. The majority of respondents are dissatisfied with the water supply. The main cause of dissatisfaction is poor water quality, and to some extent frequent breakdowns. None of the households surveyed apply any method for water treatment within katchi and pacci abadi; boiling of water is almost never carried out.

A reverse osmosis plant has also been installed in Mithi, with a capacity of 2.0 mgd (4Nos RO – units of 0.5 mgd each). Nut due to unavaibility of funds its efficiency has been reduced to 0.2 MGD. No meters are installed to measure quantity of water purified. And no monitoring of quality of water produced although a non-functional lab also exists at Mithi. The main drawback to reverse osmosis plants is the high cost of operation (electricity /energy/requirements).

Consultant has conducted real-time water supply quality assessment (which is used for drinking purposes) on 05 December, 2017 and collected a grab sample from Intermediate Pumping Station located in Mithi City. As per the analysis of supplied water quality for drinking purposes, it is observed that the water is not fit for human consumption and is contaminated with Cadmium. Also the water is bacteriologically contaminated with total coliforms and E-Coli.

The consultant has conducted real-time ground water quality assessment on 05 December, 2017 and collected a grab sample from a dug well located in Siran Colony, Mithi. As per the analysis of groundwater quality, it is observed that the groundwater is not fit for human consumption as the color is objectionable, it is saline and is contaminated with heavy metals like Cadmium, Lead and Barium. Also the water is highly bacteriologically contaminated. 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.

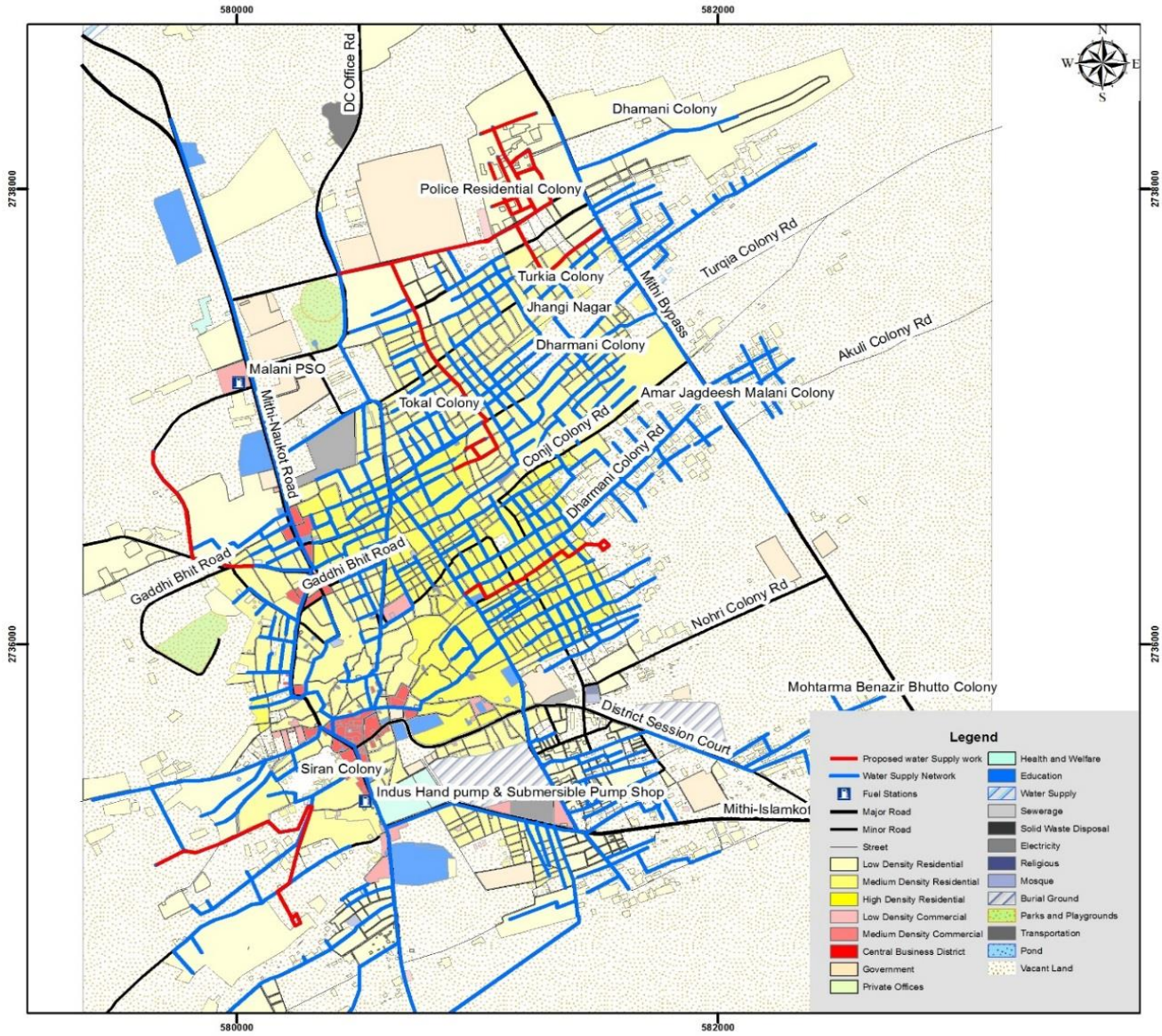


Figure 7-2: Existing Water Supply Map

7.1.2 Issues

- Many problems have been identified and the following key challenges in drinking water supply: Dysfunctional water supply schemes
- Ageing infrastructure
- Poor water quality from polluted and contaminated sources
- Two SSF plants are non-functional due to missing O&M.
- High dependency on ground water which is depleting and contaminated
- Water Balancing is not possible without metering.

7.1.3 SWOT Analysis

Water Supply & Distribution			
STRENGTH	**WEAKNESS**	**OPPORTUNITY**	**THREAT**
1. Most of the town is having the facility of piped supply 2. Well water is the source of water 3. Functional water supply overhead tank.	1. Absence of systematic water supply system and treatment plant. 2. Poor administrative setup for water supply management and distribution.	1. Extension of existing irrigation system will boost agricultural productivity. 2. PPP in service delivery. 3. There are streams in the district which are activated in rainy season which can be stored in reservoirs then that water can be utilized for a long period of time.	1. Negative externalities on human and plant health 2. Depletion of water quality due to " "draw down"

7.1.4 Need Assessment

At present five million gallon of water is supplied from Naukot through Sehri Minor on every 10th day. It means Mithi Town is receiving 0.5 million gallon per day on average, for the population of 47,073. This shows 10.6 gallons of water is available per capita in 2017. Applying the standard of 30 gallons per capita per day, 1.4 million gallon per day will be the present demand. Thus shows a clear gap in quantity of water supply i.e. 0.9 million gallon per day.

For future estimated population of 173,739 in 2037, the water demand will rise to about 5.2 mgd, @ 30 gallons per capita per day. Thus by 2037 to cater the need of future population, 3.8 million gallon per day will be the additional water requirement.

Table 7-1: Present and Future Water Demand

Year	Population	Water Demand
2017	47,073	1.4 mgd
2037	173,739	5.2 mgd

Source: Consultant Estimation

7.1.5 Sindh Drinking Water Policy 2017[34]

Principles:

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

Objectives:

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

[34] Sindh Water and Sanitation Policy 2017

7.1.6 Strategic Development Plan

A variety of policy instruments and strategies will be used to achieve the objectives of the Strategic Development plan,

- Municipality will adopt a demand led approach in providing access to safe water and sanitation to ensure that scarce resources are properly utilized and ownership and sustainability of schemes is ensured over the long-term.
- Priority for water supply and sanitation will be accorded to un-served, under-served areas, and disadvantaged areas.
- Frame a broad policy framework at the provincial level which encourages and supports city district to design and implement policy which is in-keeping with the existing capacities and strengths of institutions.
- The design and layout of water supply pipes, storage tanks etc. should ensure that there is no contamination by overflowing sewerage systems, for example by maintaining a minimum distance between the two systems.
- Wherever possible, preference should be given to rehabilitate existing schemes (functioning or not) over the construction of new schemes, unless there are special reasons to justify otherwise.
- All Schemes are non-functional, water no DNIS and sewers are shallow not achieving self-cleansing velocity.

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

II. Short Term Plan

- Provision of sweet water for drinking purpose to entire Mithi Town.
- Rehabilitation existing water supply network of Whole Town
- The design and layout of water supply pipes, storage tanks etc. should ensure that there is no contamination by overflowing sewerage systems, for example by maintaining a minimum distance between the two systems.
- Wherever possible, preference should be given to rehabilitate existing schemes (functioning or not) over the construction of new schemes, unless there are special reasons to justify otherwise.
- Construction of water treatment plant for Town
- Additional under ground tanks are required to meet the present water demand.

7.1.7 Priority projects

I. Improvement of Water Intake Works with filtration

- **Project Justification**

  Water from Naukot branch is supplied to Sehri Minor. Water from Sehri Minor is distributed to Mithi and Islamkot through 12" dia meter pipe and chlorinated before supply. The quantity of ten million gallon fresh water is pumped every tenth day from Naukot for both Islamkot and Mithi, five million gallon for Mithi, three million gallon for Islamkot and remaining two million gallon for surrounding villages, located along main supply line.

  It means Mithi Town is receiving 0.5 million gallon per day on average and @ 10.6 gallons per capita. In actual practice due to shortage of storage capacity, even this amount of water wasted, instead to supply limited amount on daily basis. Although as per standard of 30 gallons per capita per day, 1.4 million gallon per day will be the present demand. Thus, considering the storage capacity for 15days to supply 1.4 million gallon per day, there is a need to increase the storage capacity at Naukot by 20 million gallons.

  Since, there is no available alternate water source for Mithi Town, thus it is also recommended to increase the supply from Naukot and conduct the feasibility study for identification of new water sources in the long term plan. Further, as Naukot is surface water, hence to improve its quality there is need of water filtration plant with storage capacity of 5 MG, which would be installed at Mithi.

- **Project Benefit**

  Mithi people are using harmful drinking water. After implementation of this project, the source of water intake will be safe.

- **Implementing Authority**

  Government of Sindh, Mithi TC, Public Health Engineering Department Tharparkar

<u>Estimate Cost</u>: 800 million approx. (Morever, a feasibility study required for the cost assumption of project).

II. Rehabilitation of Existing Water Supply Network and Under Ground Reservoirs

- **Project Justification**

  There is a huge difference between supply of canal water and storage capaity of exisiting infrastructure, that's why town is not having uninterrupted supply of sweet water. At present there are four under ground reservoirs having capacity of 0.05 MGD each. The rehabilitation of all functional and non-functional existing under ground reservoirs of Mithi are required.

- **Project Benefit**

  After the implementation of the project Mithi TC is able to store more water.

- **Implementing Authority**

  Government of Sindh, Mithi TC, PHED Tharparkar

- **Estimate Cost**: **400 million approx**.

Proposed Priority Projects				
S.No	**Project Name**	**Estimated Cost In Millions**	**Non ADP**	**Short Term**
Water Supply				
1	Improvement of water intake work with filtration	800.00	Non ADP	Phase Wise
2	Rehabilitation of existing Water Supply Network and reservoirs in Mithi Town	400.00	Non ADP	Phase Wise

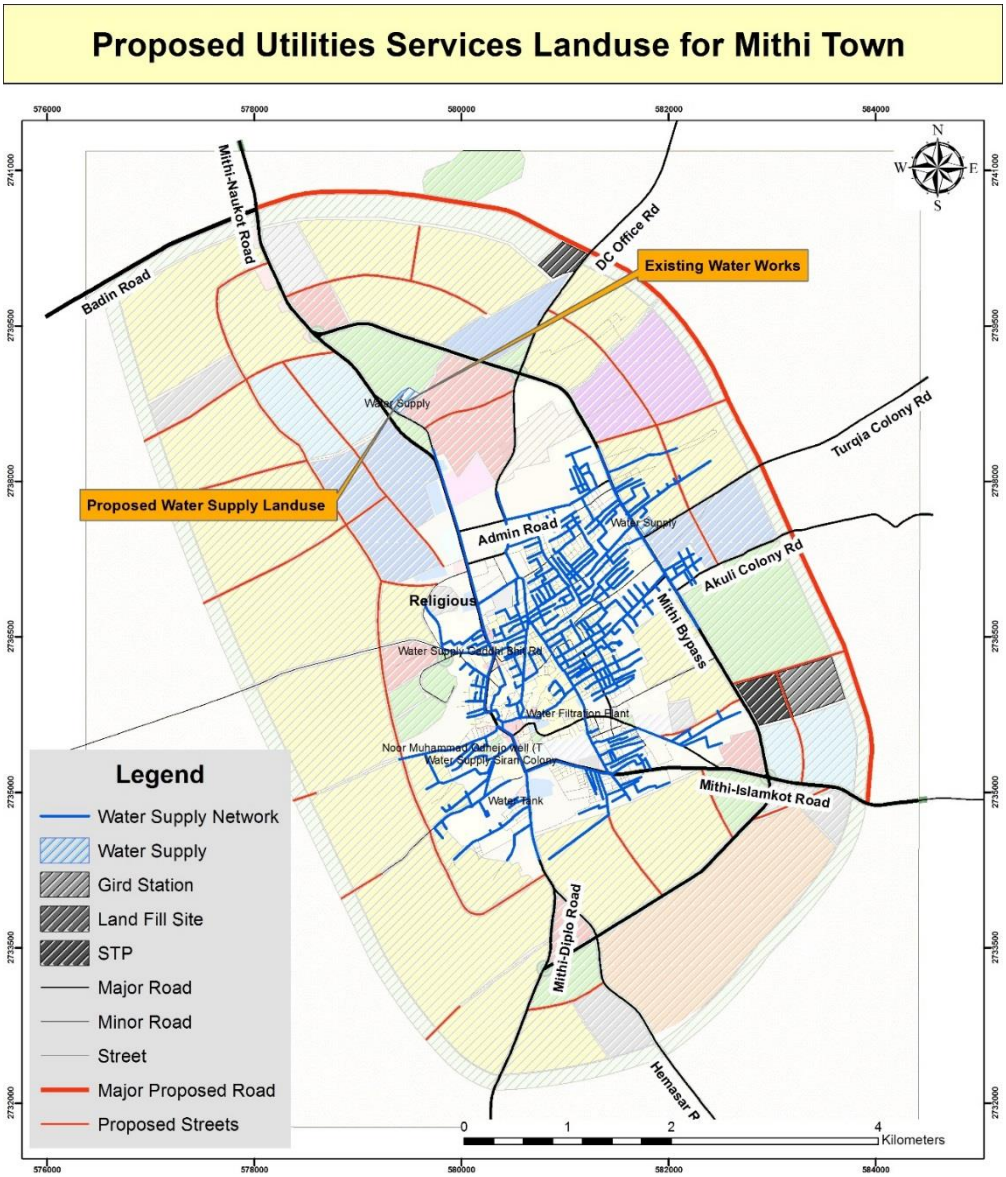


Figure 7-3: Proposed Water Supply Landuse

7.1.8 Immediate Action Plan for Core Urban Area

For future estimated population of 173,739 in 2037, the water demand will rise to about 5.2 mgd, @ 30 gallons per capita per day. Thus by 2037 to cater the need of future population, 3.80 million gallon per day will be the additional water requirement.

Existing condition of water supply network in core urban area is not in satisfactory condition. Old infrastructure of water supply is causing seepage issues on various locations of core urban area of Mithi. Mixing of sewage into drinking water causes lot of health issues i.e. dysentery, cholera, and typhoid fever.

Rehabilitation of Existing Water Supply Network of Core Urban Area Mithi				
S. No.	**Name**	**Area (acre)**	**Per acre cost (PKR) million**	**Cost (PKR)**
Total Core Urban Area : 270.97 Acre				
1	**Water Supply System:** (Water supply system renovation includes supply pipe networks, pumping machinery and equipment's for more efficient and effective supply of water).	**270.97**	**1.63 million Per acre**	**441.82**
			Total Cost (PKR). Million	**441.82**

Note:

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

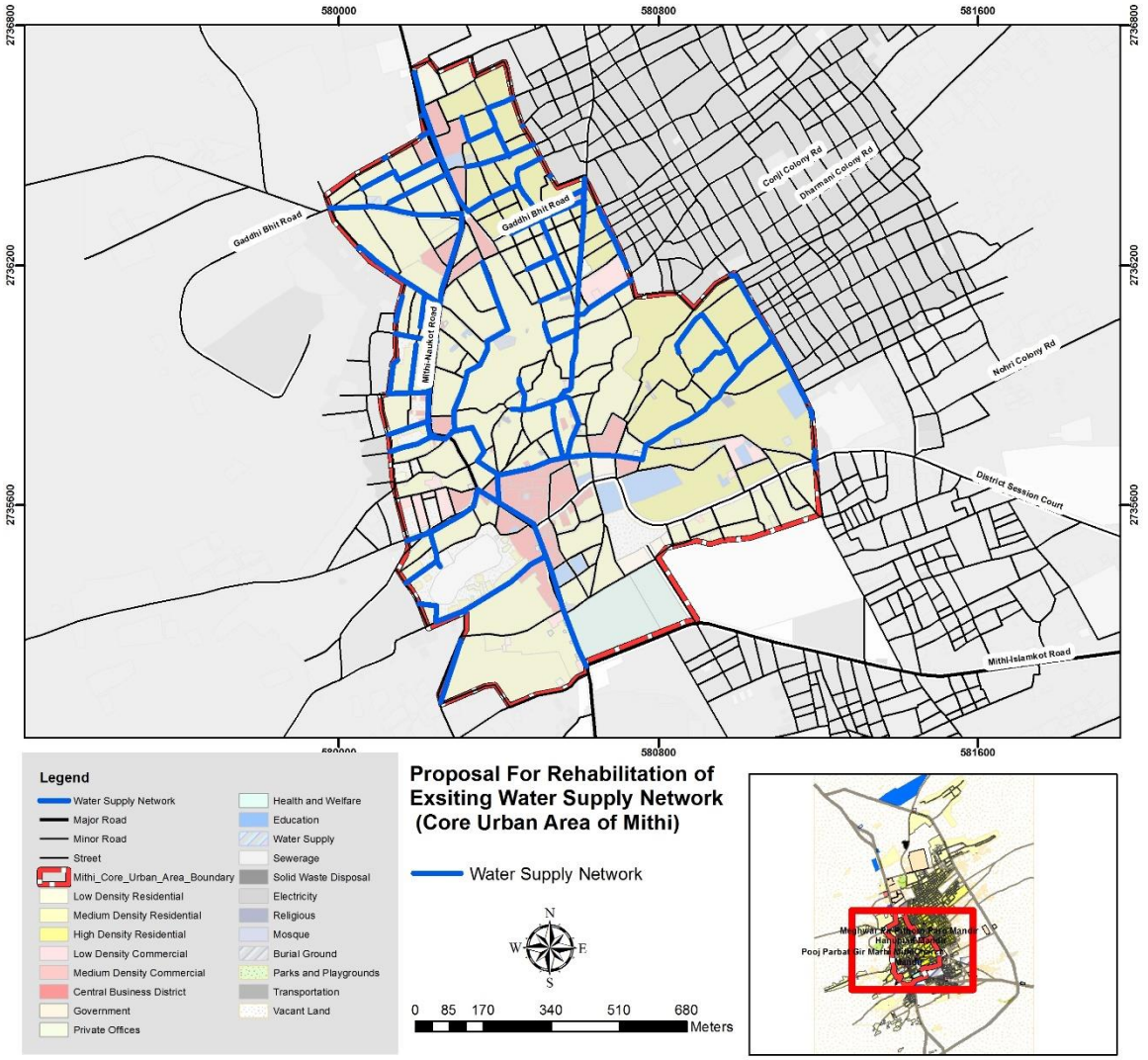


Figure 7-4 : Rehabilitation of Existing Water Supply Network (Core Urban Area of Mithi)

7.2 Sewerage and Drainage

7.2.1 Existing Situation

The urban drainage scheme in Mithi was constructed in 1994-1995. Presently wastewater is collected at disposal stations and pumped to open spaces (sand dunes) which are now surrounded by new settlement. Details on the infrastructure are shown as under:

Table 8-2: Existing Sewerage and Drainage Infrastructure

No.	Item	Qty.	Location	Details
1.	**Surface drains**		Mithi	Type A – 18,288 m (600,000 rft) Type B – 3,658 m (12,000 rft) Type C – 2,438 m (8,000 rft)
2.	**Collection pumping stations**	4 no.	Siran Colony, Western edge of Mithi	1 no. screening chamber 1 no. collecting tank, 20ft dia. 2 no. pump sets 10" dia. Rising main – Open surface drain, including brick pavement
			Near civil hospital, center of Mithi	1 no. screening chamber 1 no. collecting tank, 15ft dia. 2 no. pump sets 8" dia rising main – Open surface drain, including brick pavement
			Khokhar Mohalla, northern Mithi	1 no. screening chamber 1 no. collecting tank, 12ft dia. 2 no. pump sets 8" dia rising main – Open surface drain, including brick pavement
			Near grid station, northern edge of Mithi	1 no. screening chamber 1 no. collecting tank, 25ft dia. 2 no. pump sets 8" dia rising main – Open surface drain, including brick pavement 1 no. screening chamber 1 no. collecting tank, 1ft dia. 2 no. pump sets 8" dia rising main – Open surface drain, including brick pavement
3.	**Rising main totals Effluent discharge**		Mithi	300 m3/d (66,000 g/d)
4.	**Treatment plant / oxidation ponds**	1 no.	Mithi – eastern edge of town	Disposal pond

The secondary survey reveals that Town Committee is the concerned department responsible for operation and maintenance of sewerage and drainage system of Mithi. PHED has been designing, planning and executing water supply and drainage schemes in urban and rural areas; excluding Karachi and Hyderabad cities. Scope and Functions: over the years, O&M function of rural based schemes kept on shifting from one agency to another and finally SLGO 2001 stipulated O&M of all schemes to respective MCS. Presently urban based schemes are operated and maintained by Mithi MC. The following detail has been provided by the PHED:

- Sanitary wastewater generation @70% of water supply
- ASTM Pipes used for laying 8" to 24" sewers.
- Disposal pumping stations = 9 Nos.
- Existing Drains Type A = 72,257 ft.
- Existing SWD Type B = 45,351 ft.
- Rainfall is occasional due to which no separate drains exists for storm water.
- Improvement and Extension schemes completed = Rs 202.780 million.

Present Vehicles, Machineries and Equipment	Quantity
Motor Pumps (20, 30, 50 & 60 HP)	07
Diesel Generators (50 & 80 HP)	03
De-watering Pumps (16 & 24 HP)	08
Tractor with Water Bowser	01

The percentage of served and unserved area is 66% and 36% area respectively. In addition the MC has the vehicles, machinery and equipment for sewerage and drainage, as shown:

7.2.2 Issues

The major issues identified for Sewerage and drainage are similar for all districts / towns

- Absence of comprehensive sewerage and drainage plans for cities and towns. No department keeps L-Sections and X-Sections details which causes problem in extending the system.
- Limited budget allocation for sewerage facilities – since the tariff collected in water supply and sewerage sector is very limited, the budget allocated for sewerage sector is limited, too. With the limited budget, it is almost impossible to operate and maintain existing sewerage facilities so as they function as planned and to extend or newly construct sewerage facilities to meet the future requirements.
- Improper operation and maintenance of sewerage facilities – mainly due to the limited budget and personnel allocated for operation and maintenance of sewerage facilities, existing facilities are not operated properly. Improper maintenance might lead to earlier ageing of facilities and non-compliance with the effluent quality standard.
- Insufficient sewerage facilities – existing sewerage facilities for sewage collection and its treatment are far from sufficient in quantity to serve the rapidly increasing population.
- Absence of operation and maintenance manuals (SOPs) – manuals for operation and maintenance of sewerage facilities are not available. It is very difficult to operate and maintain sewerage facilities in a proper way without O&M manuals or some dealing methodology is properly written.
- 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. There are 5 disposal stations having only one generator sets for use during power cuts this causes backup of effluent and overflow on streets.

- 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.

7.2.3 SWOT Analysis

Sewerage and Drainage			
STRENGTH	**WEAKNESS**	**OPPORTUNITY**	**THREAT**
1. The existing sewerage system facilitates the urban area of the city. 2. Sufficient land for disposal sites is available.	1. Poor maintenance condition; garbage enters into sewers, which requires de-silting. 2. Combine system (open channel and sewer) serving most of the town area. 3. Untreated sewage collects in ponds/swamps. 4. Outdated and disconnected network. 5. No treatment before disposal 6. No policy for re-cycling, and reduction in generation of sewerage 7. Mixing of solid waste disposal into Sewerage.	1. An appropriate sewerage system plan could be implemented. 2. Development of well-designed trunk sewerage network with less number of disposal station. 3. Job opportunities for skilled staff for proper maintenance 4. Revenue can be generated by charging services for cleaning. 5. PPP in service delivery 6. Reclamation of land (that accommodates water of flood/rain) for public land uses.	1. Storm water flooding/ over flow of sewers 2. Environmental degradation 3. Funding & policies. 4. Removal of encroachment 5. Land grabbers 6. Outdated drainage system

7.2.4 Need Assessment

The consultant calculated the waste water quantity based on the assumption that 70% of supplied water will convert to waste water. At present water supply of 0.5 million gallon per day is supplied to Mithi Town, shows that waste water of 0.35 million gallon per day is generating. And if the water supply to present population will be as per the standard of 30 gallons per capita per day, the waste water generation will increase to 0.98 million gallon per day for present population.

In 2037, it is estimated that with the water supply of 5.2 million gallon per day, waste water quantity will be 3.64 million gallon per day or additionally 2.66 million gallon per day will be generated.

Table 8-3: Present and Future Waste Water Generation

Year	Population	Water Demand	Waste Water Generation
2017	47,073	1.4 mgd	0.98 mgd
2037	173,739	5.2 mgd	3.64 mgd
Source: Consultant Estimation			

7.2.5 Sindh Sanitation Policy 2017[35]

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 fecal 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

[35] Sindh Water and Sanitation policy 2017

resource areas with equitable distribution of resources. Recognition of inequities and rights based programming will be given key emphasis during the planning, execution and monitoring of sanitation programmes.

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

7.2.6 **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:

- Special focus on need based interventions in sanitation sector
- Priority for sanitation will be accorded to un-served, under-served areas, and disadvantaged areas.
- An overall sanitation plan will be developed for all urban settlements by city District governments and the TMAs in coordination with all other agencies involved in sanitation.
- The plan will focus mainly on the details of the trunk sewers, treatment and disposals and re-use options. All other sanitation related agencies (cantonments boards, railways, etc.) will develop their plans in accordance with the overall plan

- 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.

i. Long Term Plan:

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

ii. Short Term Plan:

- To raise living standards of community by providing improved drainage and Sewerage services.
- Special focus on need based interventions in sanitation sector
- Priority for sanitation will be accorded to un-served, under-served areas, and disadvantaged areas.
- Wherever existing sewerage systems discharge untreated 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.
- Gravity flow systems will be used for sewerage schemes so as to avoid pumping and O&M costs.
- Removal of Existing Waste water collection pond from core urban area to secure health of the urban population of Mithi from hazardous impacts of waste pond.
- Construction waste water treatment plant (treated water for agriculture)
- Interconnections of Open Nallis with Underground Sewers: The primary collection (laterals) is old nallis / open drain system that were connected to newly installed trunk sewers at drop manholes. Often, these sewers get blocked due to street garbage and dirt that causes manholes to overflows. Pumps at the lift station also experience blockage as well

7.2.7 Priority Projects

Sewerage and Drainage Proposals for Priority Base Development

I. Rehabilitation of Sewerage and Drain Network

- **Project Justification**
  Sewerage and Drainage in Mithi is one of the main problem. From administration to common citizens every one considers, the waste water and storm water drainage a matter of highest priority. The lack of drainage not only causes extreme inconvenience to residents after every rain, but the standing water in low lying areas of town causes damage to the infrastructure, which is already in poor condition. Open road side drains carry raw sewage which is collected in ponds and watercourses located outside the inner core area of Mithi. These drains are in poor condition and usually overflow in the rainy season. This system causes bed odor, ill health and spread of contagious diseases for the residents, so there is need for rehabilitation of existing network and construction of unserved area of town.

  Rehabilitation of storm water and sewerage works will include the following components.
  i. Repair of Walls, bed and Top slab of drains, manholes and chambers
  ii. Reconstruction of drains, chambers and manholes where found completely damage
  iii. Cleaning of pipes, chambers, drains and inlet gratings
  iv. Laying of news pipes after replacement of old damage pipes

- **Project Benefit**
  After the implementation of the project of surface drainage network with easy disposed.

- **Implementing Authority**
  Government of Sindh, Mithi TC

Estimate Cost: 200 million approx.

II. Feasibility Study for Sewage Treatment Plant

- **Project Justification**
  At the present, wastewater of Mithi town directly disposed without any treatment, Wastewater is not treated, since treatment plants are non-existent due to the shortage of technical staff and funding. Final disposal of effluent is mostly to irrigation canals, which in many cases are the main water supply source for towns downstream this pollution of water supply sources leads to widespread waterborne diseases.

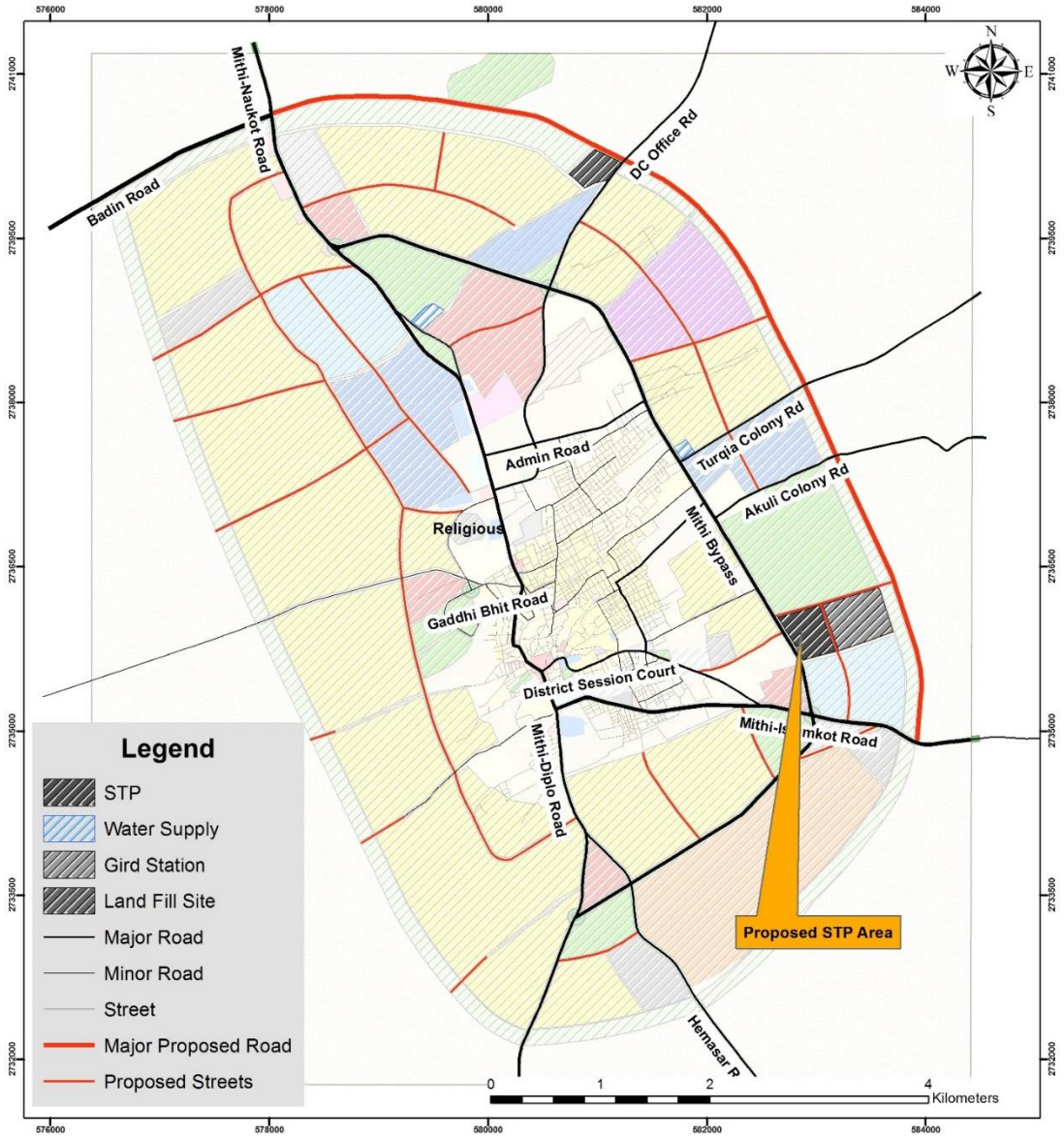
- **Project Benefit**
  After the feasibility study, the wastewater treatment plan will be developed and treated water will be useful for different purposes.

- **Implementing Authority**
  Government of Sindh, Mithi TC, PHED Tharparkar

Estimate Cost: **300 million approx**.

S.No	Project Name	Estimated Cost In Millions	Non ADP	Short Term
Sewage & Drainage				
1.	Construction/rehabilitation of primary and secondary drains	200.00	Non ADP	**Short Term**
2.	Feasibility Study for Sewage Treatment Plant	300.00	Non ADP	**Short Term**

Proposed Utilities Services Landuse for Mithi Town



7.2.8 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.

Present Waste Water Generation (MGD)	
Present Water Need (MGD)	**Current Waste Water Generation (MGD)**
1.41	0.98
Source: Consultant's estimation 2017	

Drainage channels in core urban areas should be in the form of underground drainage pipes, however at least covered drains should be used to maximized road and street space. In core urban area gully traps should be developed in all four sides of the chowks or road junctions and they may be connected to underground sewerage system or covered drain system, but it is recommended to divert the surface run off directly for landscaping. Also, removal of existing Waste water collection pond from core urban area to secure health of the urban population of Mithi from hazardous impacts of waste pond.

Core urban area of Mithi suffering due to unavailability of planned network of drainage schemes. Population of Core urban area is facing lot of problems due to stagnant sewerage water on narrow streets. Below pictures shows the drainage issues of core urban area.









S.No	Name	Area in Acre	per acre cost (PKR) million	Cost (PKR)
Total Core Urban Area : 270.97 acre				
1	Sewerage System	270.97	3.25 million/ acre	**881.46**
2	Storm Water Drain System			
			Total Cost (PKR). Million	**881.46**

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

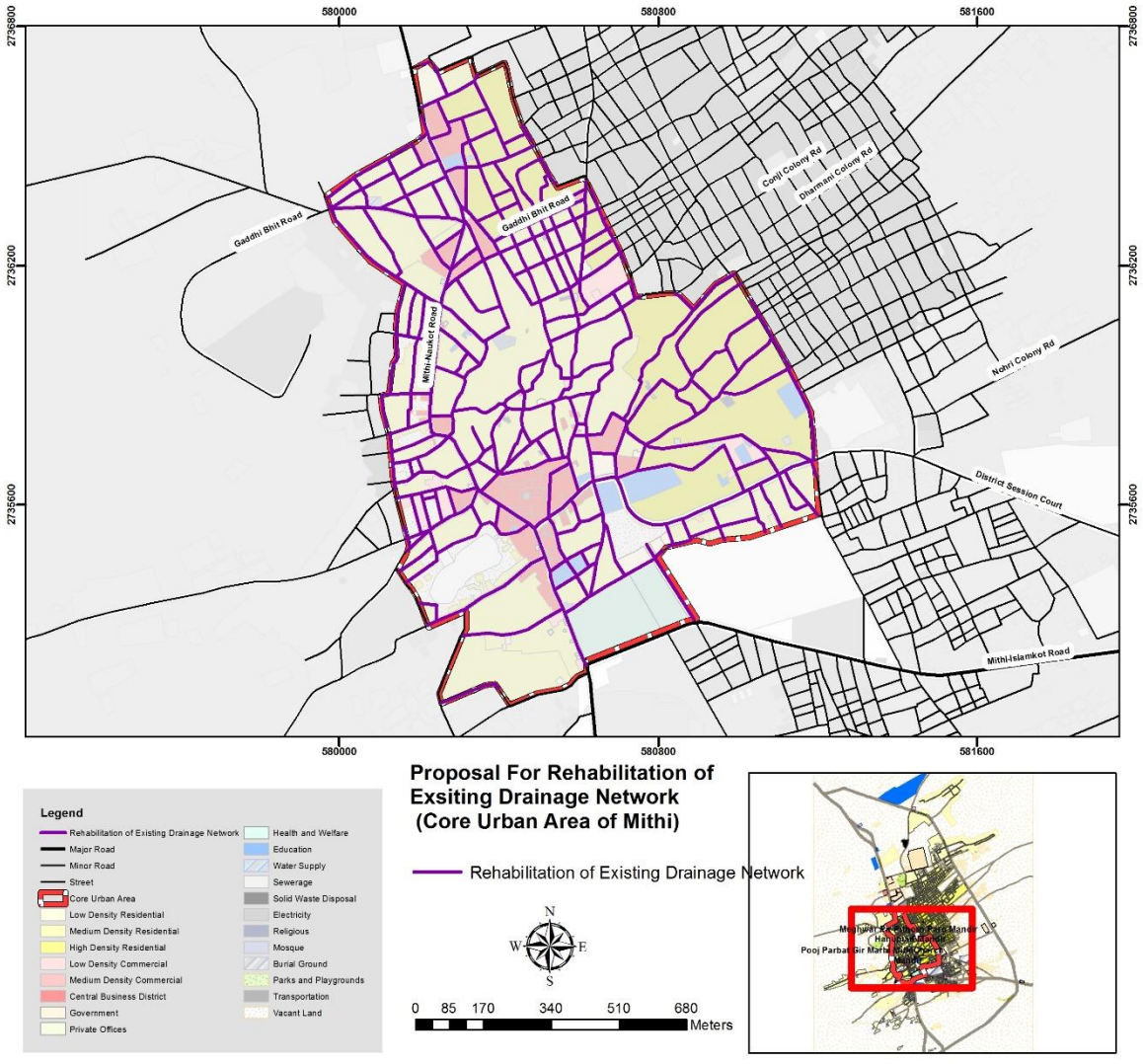


Figure 7-5: Rehabilitation of Existing Drainage Network (Core Urban Area of Mithi)

7.3 Solid Waste Management

7.3.1 Existing Situation

Likewise such other major towns of Sindh, Mithi have no proper solid waste management system. It is responsibility of the municipal authorities to collect and dispose of solid waste but they have yet to perform their jobs effectively because of lack of required machinery, capacity, expertise and mismanagement etc.

The allocations / releases of budget and spending's of funds on basic public services including solid waste management are not invested properly for the concerned operational & management purposes, or may be poor solid waste management condition in the concerned district existed due to the weak check and balance at MC level. The collection mechanism that exists in Mithi is primary collection system. Collection and transfer/ transport of garbage to outside limits of town is by means of hand trolleys and tractor trolleys which are inadequate in numbers for handling of MSW by the sanitary / waste collection staff. There are 3 disposal points:

1. Siran Colony
2. Near Civil Hospital Mithi
3. Near Grid Station Mithi

There are two dumping sites:

1. Chelhar Road
2. Diplo Bypass Road

Mithi is generating total solid waste on daily basis (0.57kg/day) per household in comparison to the others talukas of the district. Among the type of dominant solid waste generated are household waste and green waste.

7.3.2 SWOT Analysis

Solid waste Management			
STRENGTH	**WEAKNESS**	**OPPORTUNITY**	**THREAT**
1. Availability of Town committee. 2. System in place with improving efficiency, there is a slightly improvement in garbage collection and allocation of landfill site to dispose of toxic waste 3. Recycling by scavengers 4. Availability of land fill site	1. Poor financial and operational management system. 2. Communities' particularly low income groups are not aware of disposal procedures.	1. Appropriate measures could be adopted for collection and re-cycling of SWM. 2. SWM recycling will help to generate revenue. 3. Establishment of a primary collection system would add more revenue resources. 4. Opportunity for recycling and reuse of solid waste, such as RDF, bio-gas etc. 5. Proper transport system could be established for collection	1. Improper sanitation 2. Threats to plants and animal life 3. Loss of trust building with people in future. 4. Air pollution if the solid waste is burned.

		mechanism of solid waste. 1. PPP in service delivery	

7.3.3 Need Assessment

It is recommended to undertake the field study for the determination of waste generation and characterization for Mithi in order to plan and design the solid waste management system. Considering waste generation rate for design purpose as 0.75kg per capita per day with the current (2017) population of the municipal committee of Mithi is 47,073, the total municipal solid waste load is approx. 11,768 kg or 12.97 tons per day. As per calculation taking population to be 117,952 in 2037 the landfill area came out to be 5.90 acre.

7.3.4 Strategic Development Plan

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

- The collection and disposing of solid waste is the responsibility of the Mithi TC. The mechanism for solid waste management is not available in Mithi so therefore a detailed feasibility is proposed to develop an efficient solid waste management in Mithi town.
- The collection system needs to be made more effective and efficient.
- TC has already initiated some work on biomedical-waste management. It should immediately start segregation practice for biomedical waste collection system.

I. Long Term Plan

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

To manage solid waste as a resource, promoting sustainable, environmentally sound and cost effective practices through an integrated system of waste reduction, reuse, recycling, innovative technology, customer service and education.

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

7.3.5 **Priority Project**

Policy Guidelines[36]

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

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

- 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.

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

- **Project Justification**

Present Vehicles, Machineries and Equipment	Quantity
Hand Trolleys	30
Tractor Trolleys	02
Refuse Van	01
Tractor Loader	01
Suzuki Pickup	01
Refuse Rickshaw	06

The collection of the solid waste is the responsibility of Mithi 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 MC'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. There is a practice in Mithi that at community level garbage generated from household is placed outside the house that is collected by the sweepers in the morning through door-to-door collection. The sweepers collects all the waste with the help of 30 hand trolleys, to transfer waste to 12 waste containers, which are community bins placed in various locations in the town. In addition, it is observed that there are six undesignated waste storage sites (kachra kundis) present in Mithi that are unnamed.

- **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, Mithi TC

Estimate Cost: 150 million approx.

S.No.	Project Name	Estimated Cost In Millions	Non ADP	Short 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.	50.00	Non ADP	Short Term

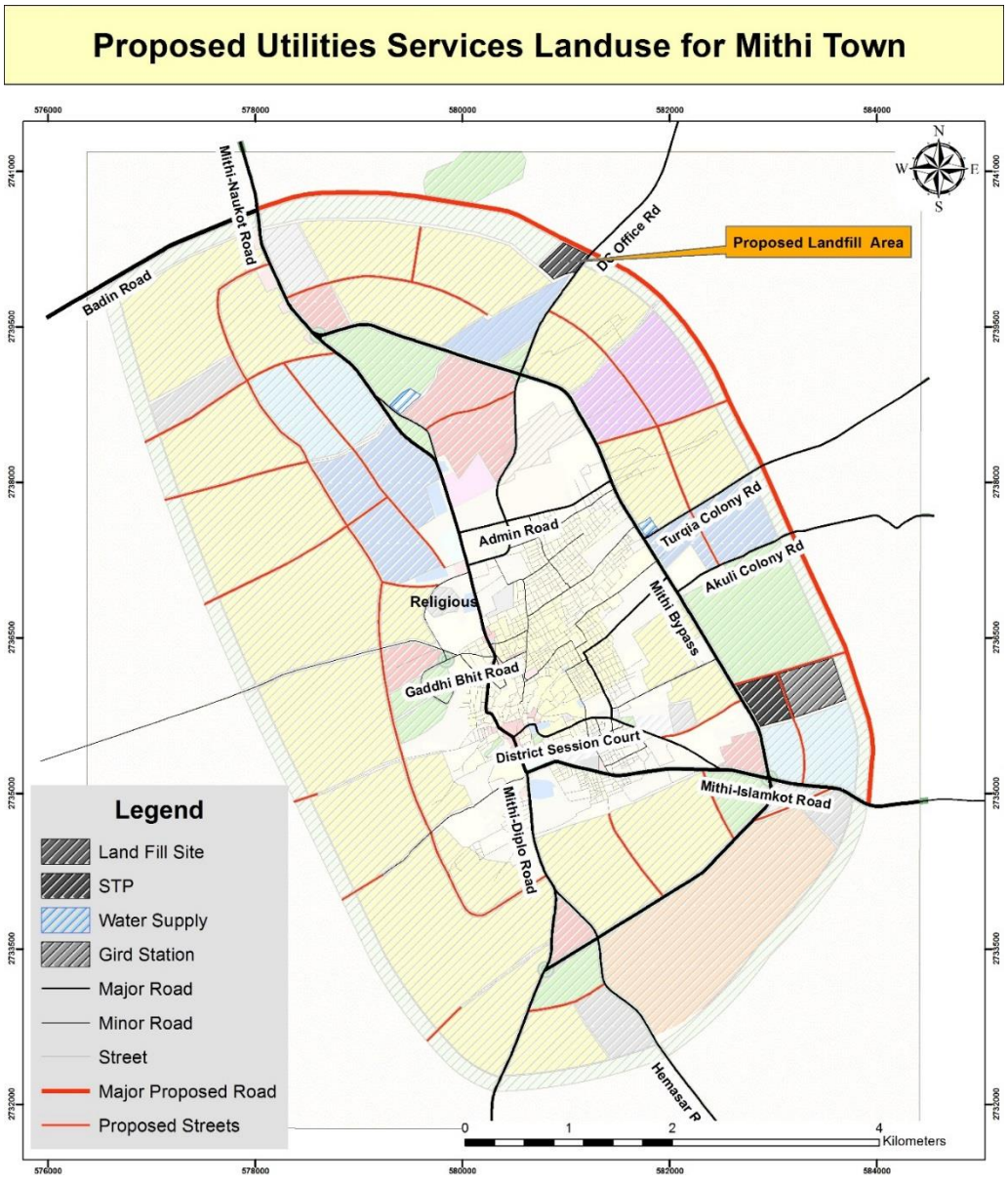


Figure 7-6: Proposed Landfill site for Mithi Town

7.3.6 Immediate Action Plan for Core Urban Area

Heaps of solid waste is evident in the core urban area. It is proposed that primary level collection i.e. door to door collection system should be launched immediately by Municipal Committee. Waste generated by the market of the core urban area should be picked on daily basis. Shopkeepers can pay a small amount on monthly basis to the sweepers say 250rs/month and domestic consumers availing this facility can pay a small amount on monthly basis say 100rs/month.

Street sweeping should be done on daily basis and this should be ensured by TC Mithi. Secondary Level Collection (Collection from Preliminary dumping area at ward level to the main Landfill/ dumping site) should also be encouraged.

However, it is highly proposed to introduce recycling of reusable items and segregation of solid waste into paper, plastic and glass from household level. These could be achieved from awareness campaingn and installation of segregated bins at mohallah level.

The waste generation rate estimated from the studies conducted earlier suggests to be around 0.4 – 0.45 kg per capita per day[37]. However, it is recommended to undertake the field study for the determination of waste generation and characterization for Mithi in order to plan and design the solid waste management system. Considering waste generation rate for design purpose as 0.45 kg per capita per day with the current (2017) population of the Mithi TC as 47,073 the total solid waste load arising in the town is approx. 21.18 metric tons per day. Future waste generation will be as 78.18 Matric tons per day. Estimated Waste Generation analysis table is given below;

Estimated Solid Waste generation for the period 2037			
Present Population (Census 2017)	**Current SW generation (M. Tons) @ 0.45kg/pcpd**	**Projected Population 2037**	**SW generation (M. Tons) up to 2037 @ 0.45kg/pcpd**
47,073	21.18	173,739	78.18

- **Suitable locations for Disposal Points for core urban area**

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

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

[37] Consultants Estimates

S. No.	Name	Containers Nos.	Cost / Containers	Cost (PKR)
Total Core Urban Area : 270.97 acre				
1	Placing of Garbage Container at different sites / locations in core town area	80	520,000.00	41,600,000.00
			Total Cost (PKR). Million	**41.60**

Note:
Solid Waste Management System includes – handcarts and donkey pull-carts for primary collection; then open trucks, tractor/trolley systems etc.

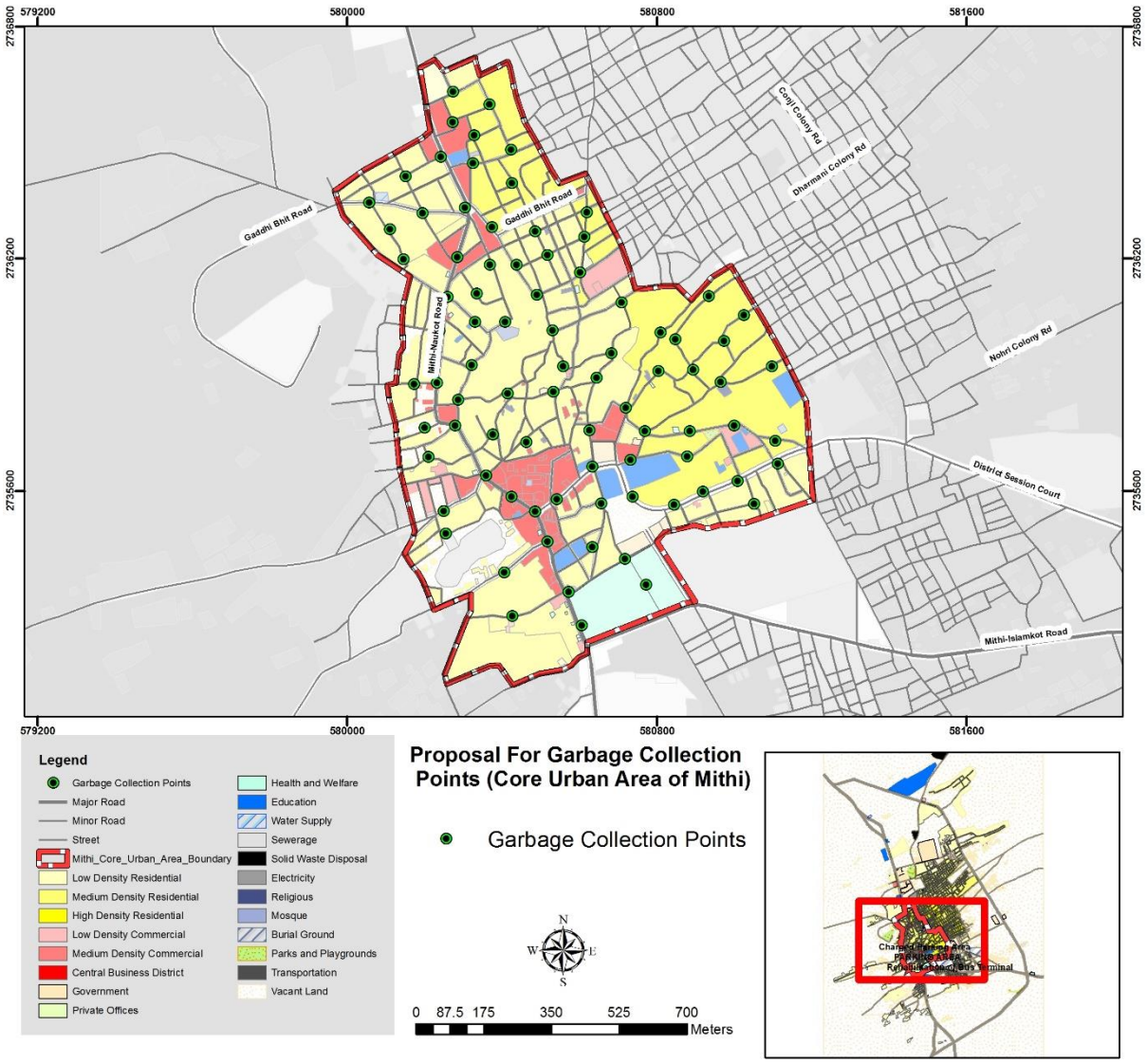


Figure 7-7: Garbage Collection Points (Core Urban Area of Mithi)

7.4 Firefighting

7.4.1 **Existing Situation**

Currently there is one fire brigade station situated in Mithi with 13[38] firefighting staff and 2 functional firefighting vehicles. The Municipal committee Mithi has no separate budget for firefighting and no vehicle maintenance facility in the station.

7.4.2 Need **assessment**

As the current total population of Mithi is 47,073, which will be 117,727 in 2037. As per National reference manual the one fire station is recommended for 0.1 million population and one fire engine is required for 50,000 population. Currently there are 2 vehicles available with municipal committee. So one more vehicle is needed for Mithi Town.

7.4.3 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.

[38] MC office Mithi

8. INFRASTRUCTURE

8.1 Transport and Communication

8.1.1 Existing Situation

District has only 743 kilometres of roads, which are inadequate for the area and its population. A Highway connects Tharparkar with other major cities of the province. The district headquarters Mithi is linked with its taluka headquarters of Diplo, Nagarparkar, Chachro through metaled roads. Other important road links in Tharparkar district are given as under[39]:

- Road from Karachi to Mithi via Thatta / Badin, 300 km
- Road from Karachi to Mithi via Hyderabad / Mirpurkhas, 400 km
- Road from Karachi to Mithi via Mirpurkhas / Umerkot, 425 km
- Road from Mithi to Nagarparkar, 150 km
- Road from Mithi to Badin 100 km
- Road from Mithi to Naukot 50 km
- Road from Mithi to Umerkot 85 km

Mithi has two nearest airports at Mirpurkhas (Sindhri Airport) and Hyderabad Airport. There is no railway station in Mithi. However nearest railway station is Mirpurkhas Railway Junction. There are no major Bus and Truck stands within Mithi. However there are number of Illegal Bus stands for Public Transport.

8.1.2 Issues and Problems

- Tertiary and Secondary Roads are in very poor condition
- No formal Bus Terminal
- Traffic Congestion at intersections
- Unavailability of Traffic signals and street furniture
- Bad condition and shortage of Public Transport
- Lack of Road Safety
- Non-regularized Qinqui system
- Drainage and parking issues

[39] District profile report 2014

8.1.3 SWOT Analysis

Land Use Pattern & Transportation			
STRENGTH	**WEAKNESS**	**OPPORTUNITY**	**THREAT**
1. Mixed land uses (residential, commercial, industrial, administration) 2. Good national / regional connectivity through road networks	1. Unplanned street network 2. Absence of public transport 3. Ribbon type commercial development in residential neighborhoods. 4. Poor traffic management. 5. Lack of coordination between different transport operating agencies. 6. No parking space 7. Less provision of street furniture 8. Non-aesthetic streetscape 9. Haphazard on street parking reduces road capacity 10. Encroachments	1. Promotes compact development. 2. Activity centres (support local business) 3. Opportunities in the form of wide roads available for mass transit system development 4. Wider road space can be used to facilitate multiple transport activities by implementing road space design standards 5. Proper management can promote public transport services. 6. If properly administrated and space utilized, could promote smooth flow of traffic on nearby corridors. 7. A new transport terminal for goods transport will facilitate timely supply of industrial goods.	1. Security issues 2. Economic losses due to transporters strikes 3. Inconvenience due to traffic congestion

8.1.4 Policy Guidelines

- Decrease in private vehicles, especially during peak hours and in CBD areas.[40]
- Decrease in traffic delay.[20]
- Decrease/stability in air and noise pollution.[20]
- Involvement of private sector in transportation infrastructure and services projects.[20]
- Establishment of Mass Transit System.[41]
- Efficient operations and effective regulation of transport services.21
- Infrastructure development and up-gradation.21
- Integration of public transport services and networks.21
- Modernize goods transport and freight facilities.[21]

[40] Sustainable Urban Transport Policy-Sindh 2016
[41] ADP 2017-18 Transport Punjab

8.1.5 Sindh Empowerment of 'Persons with Disabilities' Act, 2018 [42]

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.

[42] 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.

8.1.6 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.

- Create Traffic Engineering Bureaus (TEBs) at divisional level to perform functions as specified in Karachi Division (Traffic Engineering) Act 1985.
- Develop and implement modern route permit renewal and issuance system for public transport services.
- 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.
- Satisfy mobility needs via integration of existing and planned routes, services and Infrastructure.
- Enhance institutional efficiency to improve service delivery.
- Implementation of Axle Load Management.
- Dualization of main arteries.
- Improvement of existing roads geometry.
- Undertaking improvements in road design and specifications.
- Rehabilitation of Farm to Market road network

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.
- Proposal for new bypass road from north-east side of Mithi town

II. Short Term Plan

- Rehabilitation and beautification of existing infrastructure with provision of foot paths, street furniture and road lining.

8.1.7 Priority Projects:

i. Construction/Rehabilitation Roads

- **Project Justification**
  The communication linkages of Mithi with other parts of regions are imperative for overall economic progress of the region. To reinforce the backward and forward linkages between agricultural production, industry, and services to strengthen the local and regional economy. A Highway connects Tharparkar with other major cities of the province. The district headquarters Mithi is linked with its taluka headquarters of Diplo, Nagarparkar, and Chachro through metaled roads. Drainage issues on road side are evident due to which roads are worsening day by day. Absence of street furniture is another issue due to which traffic incidents takes place.

- **Project Benefit**
  By implementation of the project tourism sector could be enhanced.

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

Estimate Cost: **500 million approx** (Depending upon length of roads).

S. No.	Project Name	Estimated Cost In Millions	Non ADP	Short Term
Roads and Communication Network				
1	Beautification & Rehabilitation of Major Urban Roads.	200.00	Non ADP	Short Term
2	Installation of traffic signals & new solar Street Lighting On main roads	100.00	Non ADP	Short Term
3	• Rehabilitation of Existing Roads and Streets • Pedestrian Friendly Streets • Monuments at intersections/junctions • Designated Parking Spaces • Provision of Footpaths and street furniture	200	Non ADP	Short Term

Proposed Transportation Landuse for Mithi Town

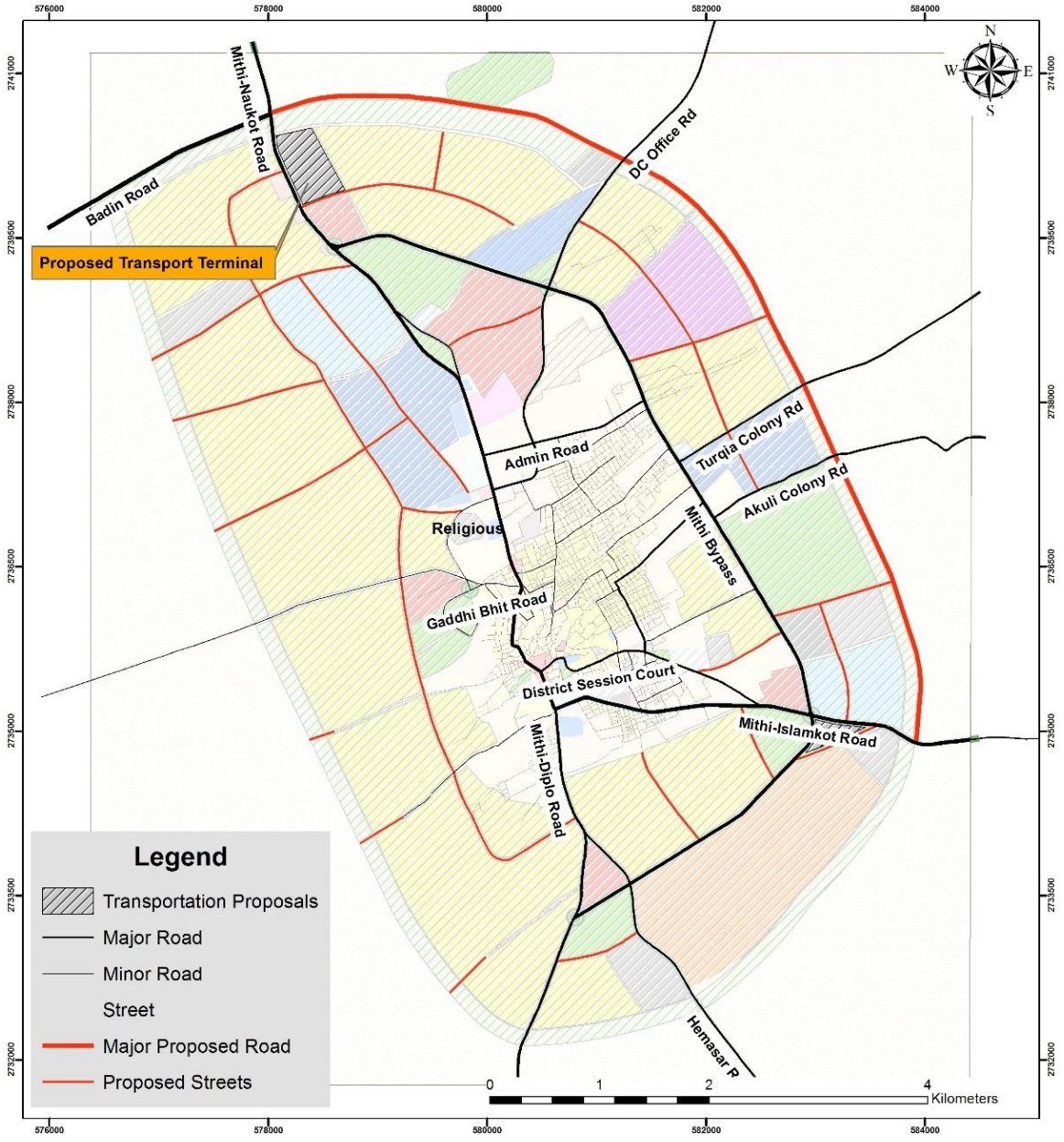
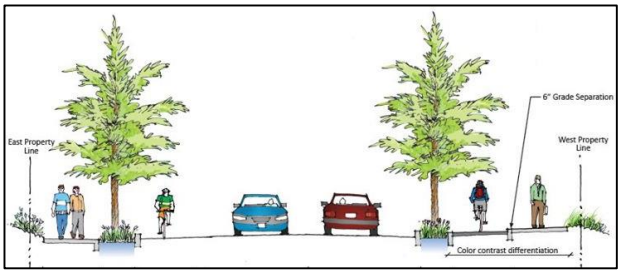


Figure 8-1 : Future Transportation Map of Mithi Town

8.1.8 Immediate Action Plan:

i. Dualization & Rehabilitation of Existing Roads of Core Urban Area

Repair & Rehabilitation of core urban area roads i.e. Main Mithi-Naukot Road, Ghadi bhit Road, and District Session Court road etc.



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

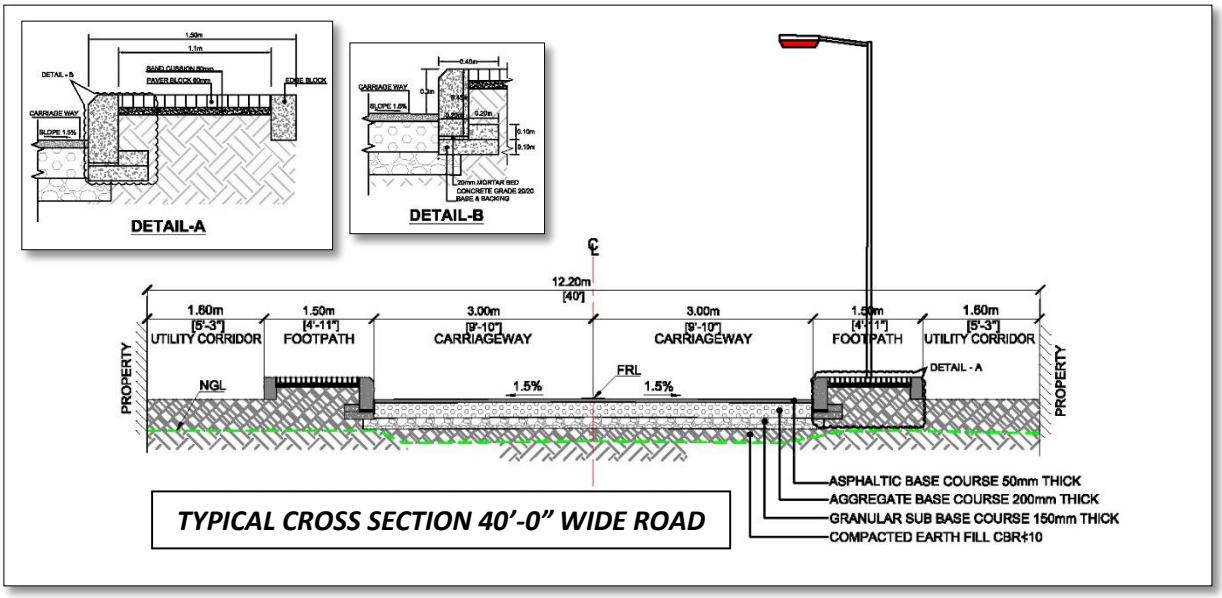
The main parameter for rehabilitation of existing roads is to draw a property line, which require very practical approach in such a way that no massive destruction will happen. In this regard community participation will be highly needed to take them on board and to make awareness that this realignment 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 Mithi requires that the right of way of roads should be restored by removing all encroachments along the CBD roads. List of proposed projects in immediate action Plan for betterment of the existing roads located in Core Urban Area are given below;

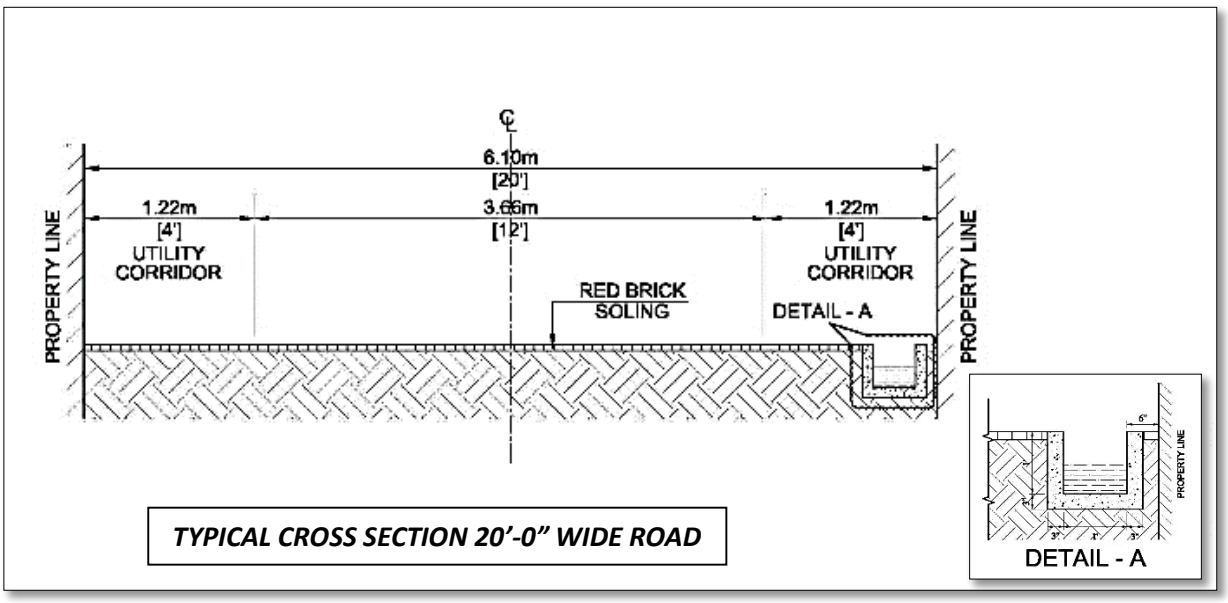
- Immediate action plan for core urban area in Mithi requires that the right of way of roads should be restored by removing all encroachments along the CBD roads.
- The road pavements will be improved and tree lined medians will be developed on all main roads having a right of way of more than 80 feet.
- Two parking spaces are proposed in core urban area of Mithi. One parking facility is proposed near to Municipal Administration office Mithi & other one proposed near national bank of Pakistan. This will reduce traffic congestion in core urban area of Mithi.
- Alternatively, parking meters should be installed for Curb-side parking in the city centre/core area at a very high rate of hourly parking charges.

Table 8-1: Mithi- Core Town Area Repair & Rehabilitation of Roads								
S. No.	**Area / Locality / Address Major Roads**	**Length (km)**	**Length (m)**	**Width (feet)**	**Width (m)**	**Area (sq.m)**	**Per sq.m cost (PKR)**	**Total Cost (PKR)**
1	DCO Secretariat Road	0.85	849.09	40.00	12.20	10,354.76	4,500	46.60
2	Shaheed Bhutto Road	0.80	800.40	40.00	12.20	9,760.98	4,500	43.92
3	Sarhari Road	1.53	1525.17	40.00	12.20	18,599.63	4,500	83.70
							Total PKR Rs. Million (A).	**174.22**
Minor Roads								
1	Church Street	0.42	424.59	40.00	12.20	5,180.00	3,880	20.10
2	Community Center Road	0.24	239.04	40.00	12.20	2,915.12	3,880	11.31
3	GBPS Road	0.18	183.47	40.00	12.20	2,237.44	3,880	8.68
4	GPS Road	0.15	148.76	40.00	12.20	1,814.15	3,880	7.04
5	Hanuman Mandir Road	0.49	491.52	40.00	12.20	5,994.15	3,880	23.26
6	High School Street	0.64	640.62	40.00	12.20	7,812.44	3,880	30.31
7	Hospital Street	0.69	692.29	40.00	12.20	8,442.56	3,880	32.76
8	Imam Bargah Road	0.58	584.06	40.00	12.20	7,122.68	3,880	27.64
9	TC School Road	0.71	709.93	40.00	12.20	8,657.68	3,880	33.59
10	Municipal Office Street	0.14	138.96	40.00	12.20	1,694.63	3,880	6.58
11	Sharmarli Dar Mandir Street	0.49	492.43	40.00	12.20	6,005.24	3,880	23.30
12	Sukkar Foundation Street	0.45	445.33	40.00	12.20	5,430.85	3,880	21.07
							Total PKR Rs. Million (B).	**245.63**
Streets								
1	Connecting Streets	19.54	19,542	20	6.10	119,160.30	1,030	**122.70**
							Total PKR Rs. Million (A+B+C).	**542.60**

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



TYPICAL CROSS SECTION 40'-0" WIDE ROAD



TYPICAL CROSS SECTION 20'-0" WIDE ROAD

- **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 Mithi which will represent the history and grandeur of the town.



Figure 8-2: Model of Monuments for core Area

- **Pedestrian Movement**

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



Figure 8-3: Model of Footpath

- **Provision of Footpaths and Street Furniture**

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



Figure 8-4: Model of Foot Path & Street Furniture for Core Area

ii. Immediate action plans for Core Urban Area

Immediate action plans for Core Urban Area in Mithi requires that the right of way of roads should be restored by removing all encroachments along the main Shahi Bazar Road & Mithi-Naukot Road

- Removal of existing bus stops.
- Alternatively, parking meters should be installed for Curb-side parking in the city centre/core area at a very high rate of hourly parking charges.

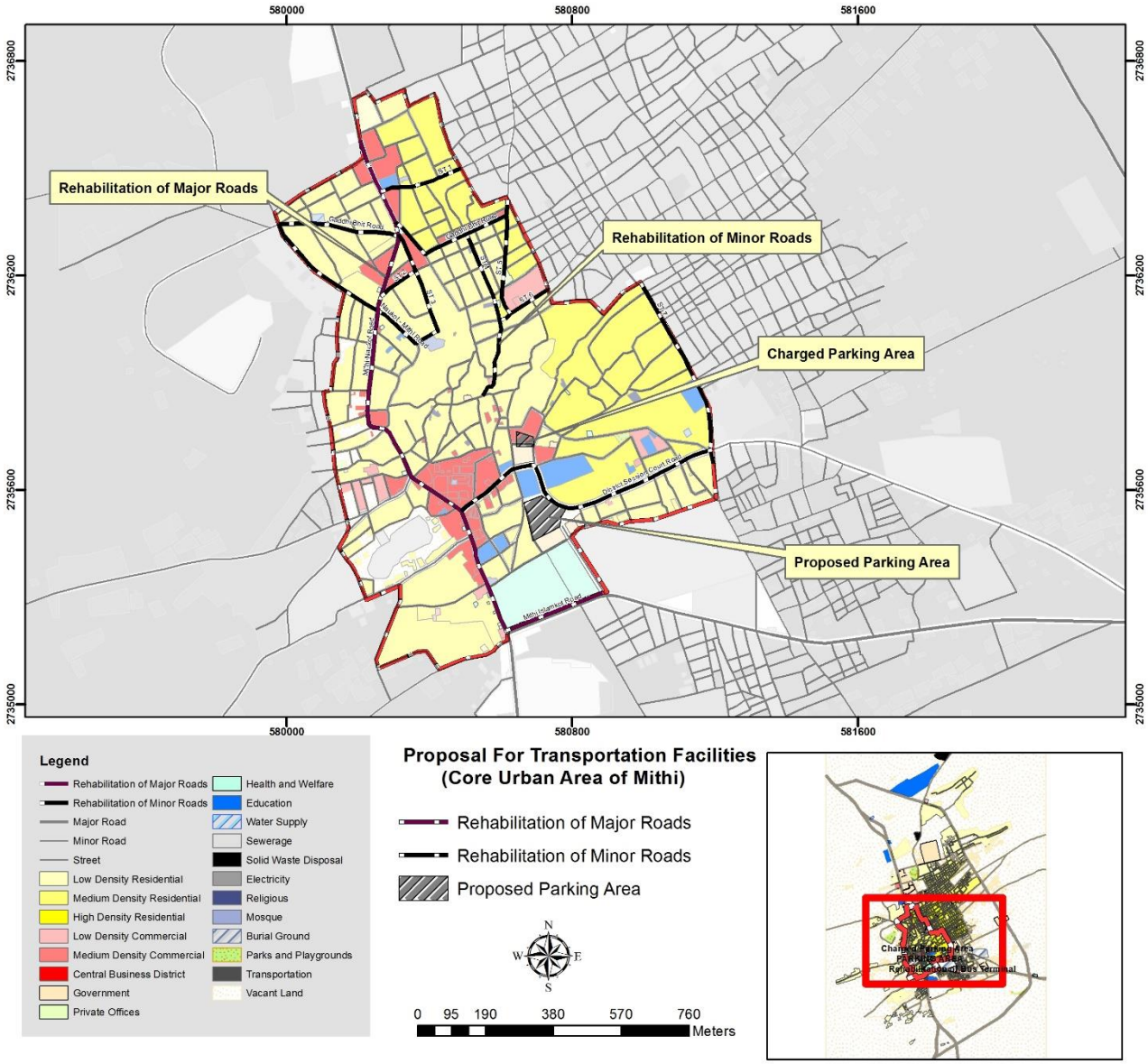


Figure 8-5: Proposal for Rehabilitation of Roads, New Parking Spaces and Bus Terminal for Core Urban Area

8.2 Communication

8.2.1 Telephone, Mobile, Internet

The present survey revealed that in Mithi only 28 households have PTCL land line out of 275 households surveyed, which means that total about 1018 households in Mithi have PTCL land line telephone facility and remaining are using cell mobile phone. The numbers of households using mobile cell phones are more than 8,985 households provided by different service providers.

As per survey 51 households are using internet out of 297. Therefore 1,717 households are using internet and 8286 have no internet availability. The mobile network has very affordable tariff due to tough market competition, the 3G/4G broadband services had another phenomenal year of rapid growth with subscribers increasing day by day.

Importance of Communication Infrastructure in Agriculture Sector:

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

8.3 Energy

8.3.1 Electricity Power

Mithi has now seen a large increase in development and is considered one of the most developed towns in Pakistan. A large number of people from all over the district Tharparkar have now moved to the city resulting in a high development rate. It is now considered the heart of Tharparkar District with a high level of economic and social activity.

There is no power generation facility in Mithi (TC) vicinity. The power station is under construction in Tharparkar which will be utilizing local coal from the same area. The survey conducted by consultants also brings the fact that about 80% households in Mithi have no alternative power source, some 18.5% houses have solar energy and only 1% household has wind power out of 292 respondents.

Electric power distribution network exist in the city, but Mithi is going through a national energy crisis and power supply has become erratic. The Power Supply to District Tharparkar is through Hyderabad Electric Supply Company (HESCO) WAPDA via 66 KV Mithi grid station feeding district by 11 KV feeders. The ratio of electric stealing is comparatively less in the urban area. The average consumption of electricity in this area is also low.

Thar Coal Mining Authority has been made for the country's mega-project open pit coal mining, which comprises 12 blocks on over 9,600 square km of Tharparkar District. Buried under this land lies an estimated 175 billion tons of coal, the world's 5th largest reserves of coal. The project is expected to improve this region and this will meet the energy supply to district.

The population of Mithi TC during the census of 1998 was 19,697 and through recent census 2017 the population has increased to 47,073 with the average population growth rate of 4.69%, with this population we accomplish that each house had 4.7 persons.

The outcome of the socio-economic survey indicated average power consumption per household in the area about 200 KWH, which revenues the total domestic load of 2.779 MW.

Thar Coal

In the generation of Sindh's electricity the share of coal is negligible as compared to expensively imported oil and indigenous natural gas instead of the fact that coal has highest potential. Considering this situation an alternative scenario for the Sindh's electricity has been generated which is dominated by the coal from coal deposits in Thar Desert. This scenario focus to direct electricity sector towards least cost coal generation technology and emphasis shifting thermal mix towards coal.

8.3.2 Issues and Problems:

Advocacy efforts have not been made to promote efficient fuel use; consequently, there is little public awareness about fuel conservation measures. Alternative fuel sources are scarce and expensive. Liquid Petroleum Gas (LPG) and kerosene are available but costly, putting them out of the reach of the rural poor. Maintenance of power plants: Poor management plays a big role in electricity crises. Pakistan has installed capacity which is more than its demand, but at same time only 60 % of this installed capacity is used because of some power plants are off-grid and some of them are not operating efficiently due to the lake of maintenance.

8.3.3 Strategic Development Plan

- Tremendous potential of coal as energy resource
- Reliable Resources scenario has described enough potential of renewable resources that are solar and wind. That Coal scenario is another option to move towards our own resource instead of importing the coal at high rates. This can be the best solution available for the policy makers to overcome electricity crisis.
- Promote energy efficient appliances and devices
- Feasibility study for alternate energy sources (Solar, biogas etc.)

8.3.4 Long Term Development Plan

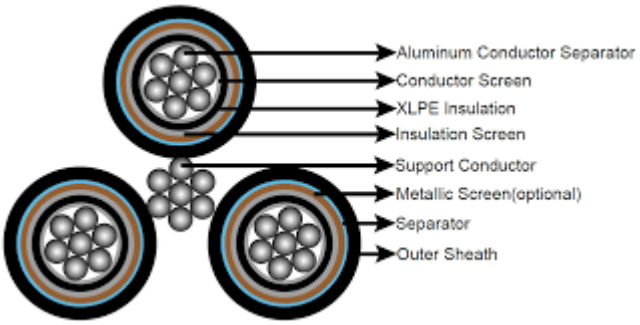
- The effective development of low cost energy production systems can be used to offset water scarcity by either deep drilling for freshwater or direct desalinization of brackish water.
- Success in achieving fuel efficiency, adopting new technologies and altering existing fuel-use habits depends largely on women who are the primary users of fuel wood. They must be made aware of the long-term ramifications of adopting these innovations
- Addition of sub stations as per requirement
- Encourage energy efficient building construction
- The alternative scenarios give an alternate path to overcome the ongoing electricity crisis in the province, by reducing the high import bill of imported resources and diverting towards indigenous resources.

8.3.5 Immediate action plan

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

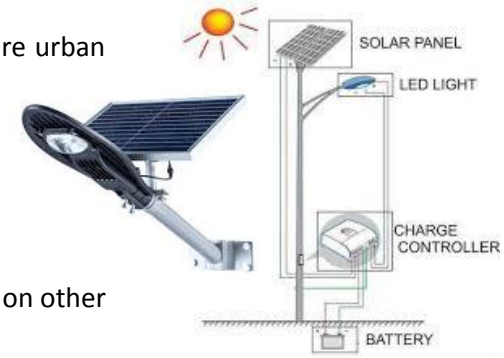
i. Arial Bundle Cable wires

Although in long run Mithi will have provision of electricity all over the town. However, 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.



ii. 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.



Proposed wall mounted street lights				
S. No.	**Name**	**Length (km)**	**Length (m)**	**Cost (PKR)**
1	Proposed Total Length of Street (km) for wall mounted streets lights.	**40.km**	**40,000**	**2 2,890,379.67**
			Total Cost (PKR). Million	**22.89**

Note:

- ✓ Wall mounted street lights should be placed on distance of 20 feet apart.
- ✓ Each wall mounted street light cost (Rs.5000/-).
- ✓ As per total length of streets for this proposal 4,580 No.s of street lights/wall mounted streets should be placed in core town area.
- ✓ Operation and maintenance is the 1st priority to ensure after installation of all equipment's and machinery and kept under strict control of TC office for proper usage of facilities.

Proposed Utilities and Services Landuse for Mithi Town

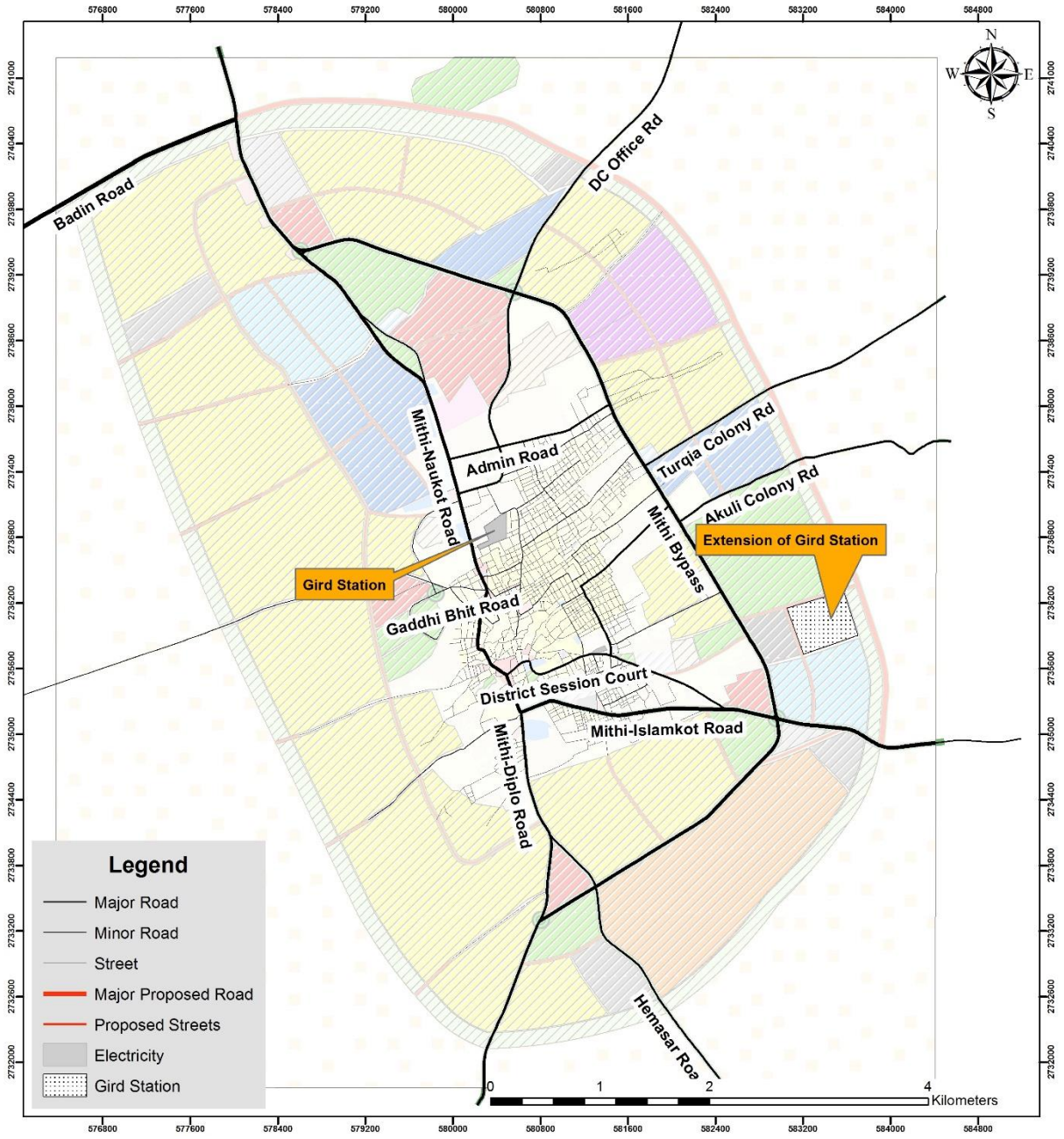


Figure 8-6: Proposed Grid Extension for Future

8.4 Gas Supply

8.4.1 Existing Situation

There is no natural gas available in Mithi Town. Residents of Town have alternatives like wood, cylinder and electric stove. There is dire need of Gas supply in Mithi as well as in whole Tharparkar District.

i. Presence of Gas

During socio economic survey of Mithi DHQ town, out of total about 97% households don't have the facility of gas supply by SSGC and while only 3% were using portable cylinders of LPG Gas, instead of wood as fuel.

Availability of Natural Gas	Percentage
Available	3 %
Not-available	97%
Grand Total	**100%**

8.4.2 Issues and Problems:

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

8.4.3 Strategic Development Plan

- Feasibility study for alternate resources available
- Measure to appropriately priced the energy resources

9. ECONOMIC DEVELOPMENT PLAN

It is largest district of Sindh province by land area. It is headquartered at Mithi. It has the lowest Human Development Index of all the districts in Sindh. Thar has a fertile desert and the livelihood of Thari people depends on rainfall agriculture and livestock. This district is very rich in mineral resources like china clay, granite, coal and salt. Tharparkar coal field is spread over 9000 sq.km near Islamkot to Mithi with coal deposits of 175 billion M Tons. It is one of the largest lignite (coal) deposits in the world which constitutes above 90% of the coal deposits of country.

Granite rock foundations found in Nagarparkar region of Tharparkar which is generally famous as Karoonjhar Mountain. It is estimated that 3.6 million tons granite is available at 35 pockets spreads over 125 sq.km. It is beautiful and costly stone of brownish color. But due to lack of communication facilities it is taken in limited quantity. Also salt mines are available in this district.

i. Policy Guidelines for Overall Economic Development Plan

- Creating a better quality of life for the citizens of the district by encouraging private sector to invest in the district.
- Increase farmer's income.
- 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 Plan

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

9.1 Occupations

The main occupations of the people of District Tharparkar are trade, labour / skilled labour, prominent educationists, professionals like engineers, doctors, technical experts especially in the field of oil exploration, lawyers, planners, housing experts are playing their prime role in the development / economical activities of the district. The occupational involvement in industry is also overwhelming. A considerable segment of society adopts government / private service as their occupation.

The occupation of most of the local residents is agriculture, cattle farming and mining. However, due to special development of Thar infrastructure, access to mining fields, and establishment of Thar Coal Power Plant, demand of professionals and other technical experts is increasing. Continuous training for skilled workers is required to fulfill human resources needs. Mining engineers qualified from Engineering and Technical Universities are employed at Thar Coal Power Plants. Continuous training to skilled workers is required to fulfill human resources needs.

Occupational data and monthly income pattern of Mithi TC according to Survey conducted by the Consultant are summarized as under:

Table 9-1: Occupational Data of Mithi TC

S. No.	Occupational data	Percentage
1	Professionals (Engineers, Doctors, Bankers)	11%
2	Government Servant	27%
3	Teacher	19%
4	Labour	31%
5	Private Employee	12%
Total		100%
Source: Consultants Survey, July 2017		

Table 9-2: Monthly Income in Mithi TC

S. No.	Monthly Income	Percentage
1	> 10000	6%
2	10001 to 20000	25%
3	20001 to 30000	33%
4	30001 to 40000	19%
5	< 40001	17%
Total		**100%**
Source: Consultants Survey, July 2017		

The type of employment comprises 11% of professionals, 19% of teachers, 27% of government servants, 12% of private and self-employed, and 31% of labour. The trend of employment and earnings will slightly change due to future economic development plan creating new job opportunities. The number of employees in the category of professionals and labour will increase due to construction activities.

9.2 Agriculture

9.2.1 Existing Situation

District Tharparkar, due to its desert-like lands, gives a dismal performance in agriculture. Some areas of Nagarparkar taluka are fertile as these are fed with tube well water and various crops such as wheat, onion, cotton and other vegetables are grown in this area. Except for the two mouzas of Mithi and seven mouzas of Diplo, which are irrigated by runn-shakh, rest of the 157 mouzas are in the arid zone where cultivation depends on rains. Drought is a common phenomenon which occurs very often when there are no rains.

The total geographical area of district Tharparkar is 2,017,000 hectares out of this cultivated area is up to 352,000 hectare. Out of cultivable land dividing 2013-2014, actually cultivated to 135,000 hectares leaving 217,000 hectares as fallow. Waste land available to 71000 hectares, whereas 1,526000 hectares are not available for utilization.

Table 9-3: Land Utilization (Hectares) 2013-14

S. No.	Type of Cultivated area	Geographical area
1	Cultivated area	352,000
2	Current Fallow	217,000
3	Net area sown	135,000
4	Cultivated Waste	71,000
5	Not available for cultivated	1,526,000

Source: Development Statistics of Sindh 2015

During 2013-2014 the Production of Wheat was 5,831M.Tons, Sugarcane 51,863 Bales and cotton 6,762Bales. To address the property issue / raising of income level waste land available be granted to land less people for utilization.

9.2.2 SWOT Analysis

AGRICULTURE			
STRENGTH	**WEAKNESS**	**OPPORTUNITY**	**THREAT**
1. Some areas of Nagarparkar taluka are fertile as these are fed with tube well water and various crops such as wheat, onion, and other vegetables are grown in this area. 2. Onion production in Nagarparkar is in huge quantity 3. Fertile desert	1. Except for the two mouzas of Mithi and seven mouzas of Diplo, which are irrigated, rest of the 157 mouzas are in the arid zone where cultivation depends on rains. 2. Low demand of home grown food products. 3. Less revenue generation by local government.	1. Job opportunity for rural population. 2. Healthy population 3. Revenue generation through cultivated area of the district	1. Shortage of educated and skilled professionals. 2. Less efficient local markets. 3. Shortage of agro based products. 4. Shortage of water

9.2.3 Issues

- Non-supply / short supply of irrigated water which could be one of cause due to low economic conditions of people of Mithi.
- High price of Inputs (Fertilizers Material, Pesticides and Quality seed)
- Lack of agriculture credit facilities.
- Lack of Agriculture research centers.
- Measure to reduce Water logging and salinity.
- Tube well installation facilities and Shortage of irrigation water.
- Irrigation and Drainage problem
- Shortage of food godowns and warehouses.
- Insufficiency of covered storage.

9.2.4 Need Assessment

- The crop prices are unstable in Mithi and the industrialists never miss an opportunity to deny farmers their due share. This need firm hold on agricultural practices
- High price of Inputs (Fertilizers Material, Pesticides and Quality seed) need to be regulated
- Mithi need Farm to market road.
- Agriculture credit facilities should be offered.
- Agriculture research centers should be constructed.
- Water logging and salinity is a problem.
- Tube well installation facilities and Shortage of irrigation water.
- Irrigation and Drainage problem
- Shortage of food godowns and warehouses.
- Insufficiency of covered storage.

9.2.5 Strategic Development Plan

- Modernize and revitalize agriculture.
- Improved food production to reduce hunger including emergencies and disasters that require agricultural support.
- Agricultural technology development, dissemination and adoption.
- Cross-cutting issues-policy formulation and review, agricultural statistics.
- Use of modern techniques for cultivation by choosing healthy seeds and fertilizers for increasing yield per acre.

I. Long Term Plan

- 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

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

- Agriculture credit facilities
- Regular supply of irrigation water

- Availability of fertilizer, pesticides and quality seed that results in Improvement in crop yield/acre that in turn increase the crop production for internal consumption & exports
- Installation of tube wells
- Rehabilitation of canals and Re-Sectioning/Relining of major &minor canals and drainage system which results in Improvement of water supply to agricultural land that in turn increase in crop production for internal consumption & exports
- Measures to reduce water logging and salinity
- Construction of farm to market roads
- Enhancement of the storage capacity.
- Provision of warehouses, food gowdowns for storage of agricultural products.
- Construction of covered gowdown.

9.3 Livestock

9.3.1 Existing Situation

Livestock is one of the major sub-sector of agriculture and the backbone of Thar's economy. Its main by-products including hides and skins have substantial potential as semi-finished products. Substantial growth in Livestock products such as milk, meat, beef, mutton, poultry, and eggs has been noticed for many years for the people of district Tharparkar. This district is producing animal-based food (meat & meat products) in surplus to its requirements. There is a negligible production of fisheries in the region.

Number of Livestock

There is good number and large variety of livestock in the district. In the animal population of district, highest number belongs to goats having 2,218,000 heads followed by sheep 1,185,000 heads and cattle 752,000. The statement showing the number of livestock in the District Tharparkar and Mithi are as under:

Table 9-4: Population of Livestock

Livestock	Population at District 1996	Population at District 2006	Population at District projected (As on 2017)	Population at Mithi HQ 2017
Cattle	485,000	752,000	1,218,264	143,741
Buffalo	40,000	46,000	53,645	6,943
Sheep	899,000	1,185,000	1,605,731	286,669
Goat	1,971,000	2,218,000	2,525,596	429,594
Camel	103,000	135,000	181,794	27,413
Horse	8,000	8,000	8,000	1,035
Asses/ Mules	151,000	249,000	300,000	48,746
Source: Development Statistics of Sindh, 2018 and Livestock Department Mithi, 2017				

The above table shows that sustainable growth of livestock particularly sheep and goats are maintained in the region. These are sold in other districts to add earnings of farmers. Howeve as per the Development Statistics, the number of livestock slaughtered in 2006 are 3,437 buffalos, 8,137 sheeps and 12,742 goats in the District Tharparker.

9.3.2 Veterinary Service[43]

District Tharparkar is richly populated area in terms of animal population of both large and small animals. These livestock are served by eight veterinary hospitals and 151 veterinary centres, in the District Tharparkar. In addition there are two slaughter houses present in the District Tharparkar. These veterinary hospitals are present in the towns of Mithi, Islamkot, Chachro, Diplo, Kaloi, Dahli, Nagarparkar and Naukot. These veterinary services for district Tharparkar are deficient due to the rich population of animals spreading over a very large area. However, these veterinary services in District Tharparkar are also not serving well to all animal population due to lack of facilities.

Table 9-5: Veterinary Service

S.No	Items	Numbers
1	Veterinary Hospital	8
2	Veterinary Centers	151
3	Animal Treated	
3a	Vaccinated	2,153,047
3b	Treated	493,539
3c	Castrated	1,418

Source: *Development Statistics Sindh, 2018*

Out of 151 veterinary centres, 23 centres are in Mithi Taluka with eight veterinary doctors, 23 paramedics, an inspectors and a technician. There is sufficient quantity of medicine and vaccines are also available in Mithi. The buffaloes, sheep and goats are used for hide, milk and meat; while mules and assess are serving as labours for transport. Although no formal dairy farms in Mithi Town, however on small scale (domestic level) the dairy products like milk, yogurt and ghee are produced.

9.3.3 Issues of Livestock

- Landlessness and small holding prevents the farmer to raise livestock on commercial basis giving rise to 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 due to increase in urbanization and food security requirements
- Limited knowledge and facilities due to lack of extension service
- Climate change and environment degradation

[43] Source: Veterinary Department Mithi, and Development Statistics of Sindh 2018

9.3.4 SWOT Analysis

Livestock			
STRENGTH	**WEAKNESS**	**OPPORTUNITY**	**THREAT**
1. The district is rich in livestock sector. 2. The livelihood of Thari's depends on livestock. 3. Favorable environment is available for livestock growth (Pasture) and poultry farming in surroundings of city.	1. Large scale breading has not developed 2. Lack of facilities to industrialize livestock based products. 3. Since Tharparkar is a desert like area so there aren't any fish production ponds available in the district. 4. Many diseases spread from animals to humans as a result of people living close to animals.	1. Cooperative dairy farming has sufficient scope 2. Large pasture land and labour force available for livestock growth 3. Livestock based products can enhance economic activities if produced through appropriate industries.	1. Theft and security issues 2. Losses due to Disasters (drought and epidemics).

9.3.5 Need Assessment

In the Animal population of district, highest number belongs to Goats having 2,218,000 heads followed by Sheep 1,185,000 heads and cattle 752,000. The livestock is served by 8 veterinary hospitals and 151 centres.

Table 9-6: Population of Livestock

Livestock	Population 1996	Population 2006	Population projected (As on 2017)
Cattle	485,000	752,000	1,218,264
Buffalo	40,000	46,000	53,645
Sheep	899,000	1,185,000	1,605,731
Goat	1,971,000	2,218,000	2,525,596
Camel	103,000	135,000	181,794
Horse	8,000	8,000	8,000
Asses	151,000	249,000	400,000

The above table shows that sustainable growth of livestock particularly sheeps and goats is maintained in the region. These are sold in other districts to add earnings of farmers.

9.3.6 Veterinary Services

The veterinary services for district Tharparkar are deficient due to rich population of animals spreading over a very large area.

Table 9-7: Veterinary Service

Sr. No.	Items	Numbers
1	Veterinary Hospital	8
2	Veterinary Centers	151
3	Animal Treated	
3a	Vaccinated	1,056,304
3b	Treated	141,243

9.3.7 Strategic Development Plan

- Improving the production performance of livestock in District through manipulation of different minerals and feed supplements.
- Enhancement of Livestock Production and Productivity through strategic deworming and vaccination.
- Establishment of model livestock farms linked with improved supply chain and value addition.
- Establishing new cattle & dairy farms that lead to increase in number of cattles and quantity of milk.
- Establishment of Veterinary Services.
- Livestock & Access to Market Project.
- 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.

Proposed Livestock Landuse for Mithi Town

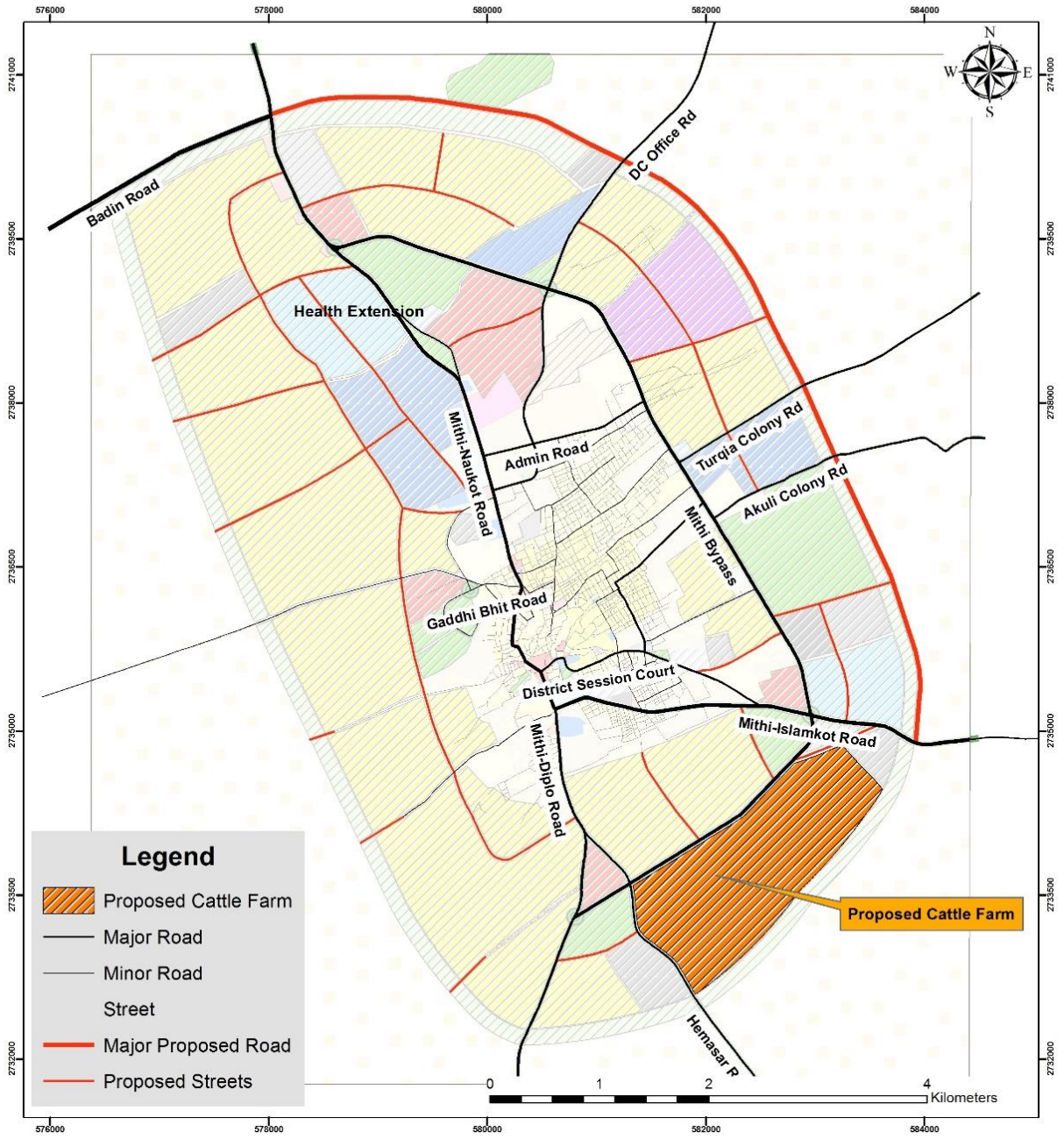


Figure 9-1: Proposed livestock Landuse for Mithi Town

9.4 Mining

In mining sector Tharparkar District is rich in coal and granite stones which has provided a solid base for its economic development. Thar coal deposits of 175 billion M Tons are potential source for mining. Granite rock foundations found in Nagarparkar region of Tharparkar which is generally famous as Karoonjhar Mountain. It is estimated that 3.6 M Tons granite is available at 35 pockets spreads over 125 sq. kms. It is beautiful and costly stone of brownish colour. Due to lack of communication facilities that is resulting in limited quarrying capacity. Specific measures are needed for developing and exploring coal mines and increase productivity of granites/marble for commercial use and export.

9.5 Industries

9.5.1 Existing Situation

Presently there is no heavy industry except Thar coal power plant in process of establishment although district is rich from mineral resources. Heavy Coal and Granite deposits are identified providing a base for industries in future. Coal tar refinery, soda ash caster industry and glass industry. Similarly processing and polishing of granite and marbles. Therefore, there is great scope for certain manufacturing industries like ceramic, bone crushing, marble, gowar-gum, storage and warehouses, crush pant, bricks/blocks.

Coal Mining and Energy Projects

Thar Coal Deposits of 175 billion M Tons are potential source for mining and can be used for electricity generation up to approx. 0.1 Million MW. Currently the work in Block-II is in full swing and phase-1 of SECMC will be completed and start producing 660 MW electricity. As predicted by the Coal Energy Board if projects in other blocks are also completed total electricity production can reach to 6040 MW by end of 2020, as shown below:

Table 9-8 List of Coal Energy Projects

Block	Investment Firm	Total Coal Potential (Billion Tons)	Power Projects Initiated / Planned MW	Expected COD
Block-I	SSRL (China-Pak)	3.657	2X660	Not yet implemented
Block-II	SECMC	1.584	Phase-I: 2X330 Phase-II: 2X330 Phase-III: 4X660	2018 2019 2021
Block-III	Asia Power UK	2.007	2X660	2019-20
Block-IV	Harbin Electric China	2.572	2X660	2019-20
Block-V	UCG Project	1.394	2X50 Phase-I: 8-10 MW	
Block-VI	Oracle Oilfields	1.423	2X330	2019-20
Total		**12.637**	**6040 MW**	
Source: Thar Coal Presentation, Thar Coal and Energy Board, Government of Sindh.				

It has been estimated in the study of Thardeep Rural Development Programme (TRDP) that the mining and power generation potential of 6000 MW in the surveyed four Thar coal blocks e.g. Sinhar Vikia Varvai (Block - I), Singharo Bhitro (Block - II), Saleh-Jo-Tar (Block - III), and Sonalbah (Block - IV), the total manpower requirement may be estimated at 58,580 persons in the long run; with a break up of 23,680 in mining and 34,900 in power generation projects.

Since the open cost mining is recommended to be done with modern capital intensive equipment, and larger power generation units (at least 300 MW each) may be found feasible for the proposed economical mine flans, the manpower requirement may approximate 50,000 persons in the long run. In the first phase up to the year 2010, the employment generation from Thar coalfield development and installation of power plants is not likely to exceed 10,000 persons; more than one - half of whom may well be the semi-skilled labour and unskilled support staff.

Artisan Colony in Mithi Town44

Under Sindh Small Industries Corporation (SSIC) Government of Sindh has established Artisan Colony in Mithi Town. This Artisan Colony is established in 2011-12 at 30 acres of land, along Naukot-Mithi Road. It consist of 100 workshops for Thari Handicrafts with plot sizes of 400 and 600 square feet. In addition there are 100 quarters for the workers' residential purpose.

Technical & Vocational Institutes

New Technical & Vocation institutions will be needed in the future with improved facilities to cater to the demand for skilled workers in the future industries.

Table 9-9: Projection of TEVTA Institutions

Population	2017	2022	2027	2032	2037
	1,649,661	1,926,375	2,249,505	2,626,837	3,067,463
Future Requirement					
Technical Institutions	4	4	5	5	6
Vocational Institutions	2	2	3	3	3
Polytechnic Institutions	1	1	1	1	2
Commercial Institutions	1	1	1	1	2
Source: College Education Statistics, 2018					

[44] Information provided by the Industries and Commerce Department, Government of Sindh.

9.5.2 SWOT Analysis

Industrial			
STRENGTH	**WEAKNESS**	**OPPORTUNITY**	**THREAT**
1. District is rich in mineral resources like china clay, granite, coal and salt. 2. Tharparkar coal fields are spread over 9,000 sq. km, famously known as Thar Coal. These are the largest coal deposits of the country and constitute 80% of coal deposits of Pakistan.	1. Limited industrial profile 2. Less job employment in industrial sector	2. More international trade. 3. Job employment. 4. If coal fields will be utilized properly as an industrial base then district Tharparkar can be the most richest district in coming years and can also play a major role in being the financial hub of Pakistan like Karachi.	1. Isolated economy. 2. Uneducated social group. 3. Air pollution 4. Water contamination.

9.5.3 Strategic Development Plan

- Economic activities in the Tharparkar will increase due to Thar Coal mining operation, hence it is suggested that an Industrial Estate for large manufacturing industries may be setup.
- Training should be provided to local workers in mining techniques and women working force to establish cottage industry.
- Incentives to private investors for establishment of workshops, cold storage, grantite/stone processing etc. will be provided by Sindh Investment Board and Sindh Small Industries Corporation have vital role to play.
- Sufficient market infrastructure to ensure optimal value addition
- Development of Industrial Estates / Apparel Park / Special Economic Zone in District
- Customized lending and micro financing to small industries
- Heritage saving through empowerment of artisans for development of handicrafts
- Provision of vocational training and employable skills to the unemployed youth of the district
- Establishment of new industrial estates/Zone

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

I. Long Term Plan

- Provision of infrastructure for establishment of new industries.
- Enhancement of colonization in SIEs through provision of missing facilities
- Physical revival of existing coal mines and their expansion
- Enhancing Crop Productivity through adoption of new technologies.
- Extension of Sindh Industrial Estate and warehouses in Mithi

- Support industrial development
- Modernize and revitalize the service sector

II. Short Term Plan

- Establishment of vocational training for youth to cater the demand for skilled workers in the future industries.
- Enhance cottage industry to boost lost economy

9.5.4 Priority Projects

- Revitalization of industrial estate and infrastructure
- Completion of small industrial estate
- Construction / increase storage capacities of cold storage / warehouses for agro products.
- Construction / Extension of Industrial Estates to meet the additional demand.

III. Revitalization of Artisan Colony

- **Project Scope & Justification**

Under Sindh Small Industries Corporation (SSIC) Government of Sindh has established Artisan Colony in Mithi Town. This Artisan Colony is established in 2011-12 at 30 acres of land, along Naukot-Mithi Road. It consist of 100 workshops for Thari Handicrafts with plot sizes of 400 and 600 square feet. In addition there are 100 quarters for the workers' residential purpose.

Various types of industries are presently working for small scale in Mithi are;

- Food
- Beverages
- Handicrafts
- Light Engineering

While revitalizing the Industrial Estate of Mithi, the industrial zone must be bifurcated through green belts as buffer zone to limit the adverse impacts of industrial pollution on adjoining residential areas and need to develop bases are being adhere here at regional industrial need with respect to the provision of all scale services serving the Mithi and connecting region for industrial development. Revitalization of Industrial Estate covers repair and rehabilitation of existing basic infrastructure and facilities i.e. Road, Sewerage Lines, Oxidation Pond, Raw Water Channel, Gas, Grid Station for Electricity and Telephone.

- **Project Benefits:**
  Increase industrial activity with significant employment generation and overall assistances to the city's economy.
- **Implementing Authority** – BoR, Sindh Small Industrial Development Board and Sindh Small Industries Corporation (SSIC) Government of Sindh
- **Estimated Cost**: **300** Million Approx.

Project Name	Sector	Short Term	Proposed Area (acre) & Lengths (m)	Preliminary Cost (million/- PKR)	Justification
Revitalization of Artisan Colony	Industrial	Short Term	30 acres	300	Per acre cost @ 10 million / per acre

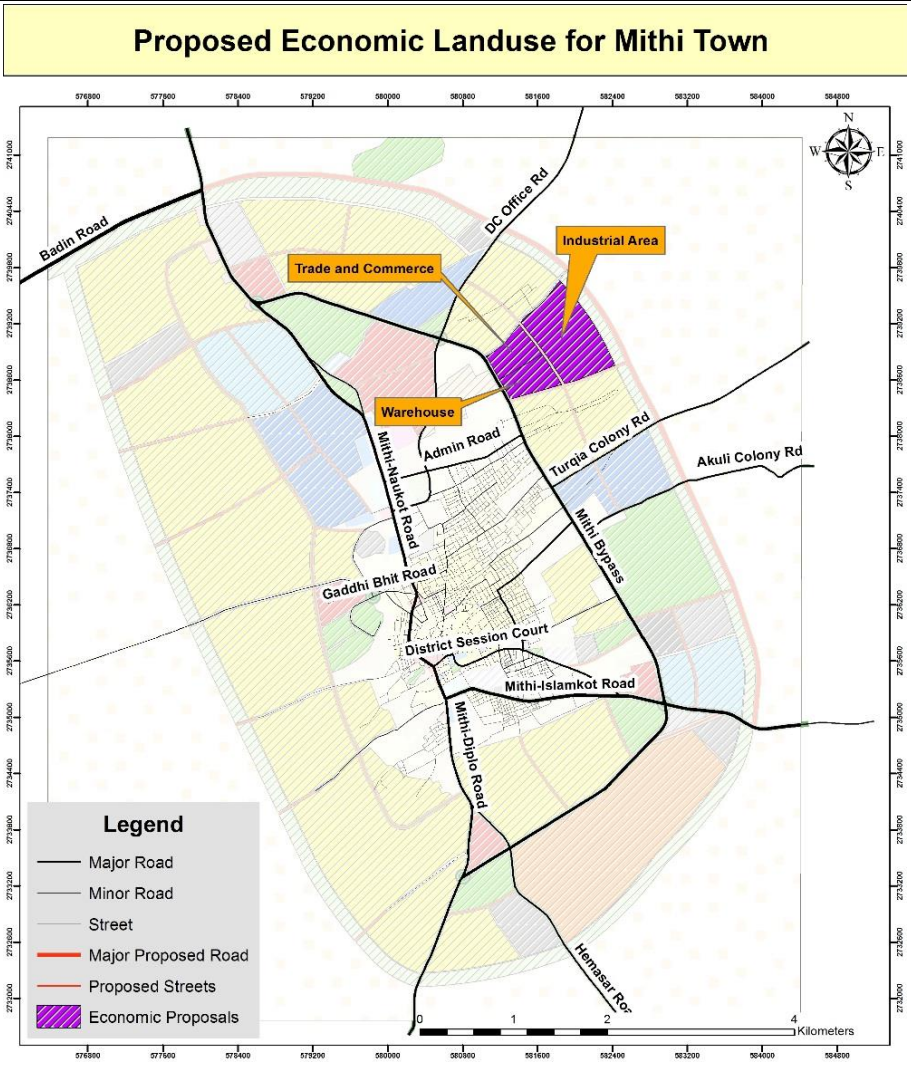


Figure 9-2 Future Industrial Proposal Mithi Town

9.6 Trade and Commerce

9.6.1 Existing Situation

It is envisaged that the coal extracted will not only be used in power plants installed in Tharparkar but also be transported to other parts of country as well as export purpose e.g. the Lucky Power Plant planned at Port Qasim will be based on Coal extracted from Thar Coal Field. Besides this, proper and timely transportation of imports i.e. plants and equipment for power plant and construction material i.e. Cement and Steel from other areas / districts would be required.

Proper standard roads along railway network would be needed / constructed as per demand arises. This has been already considered in investment plan.

The above activities will improve trading, economic and allied businesses which will ultimately create employment and improve living standard of local and regional residents.

9.6.2 SWOT Analysis

Trade & Commerce			
STRENGTH	**WEAKNESS**	**OPPORTUNITY**	**THREAT**
1. Large number of local skilled artisans available.	1. Un-planned local business activities.	1. More opportunities for public private partnership. 2. Support to local economy. 3. Home grown handicrafts can be promoted through proper exposure to export market. 5. Large number of business interest groups.	1. Security measures required. 2. Inflation.

9.6.3 Strategic Development Plan

- Expedite development of Fruit and vegetable market
- Specialized Wholesales market
- Building for service industry
- Provision of Cold spaces and warehouses
- All automobile workshops and service stations should be relocated outside the core urban area.

Proposed Commercial Landuse for Mithi Town

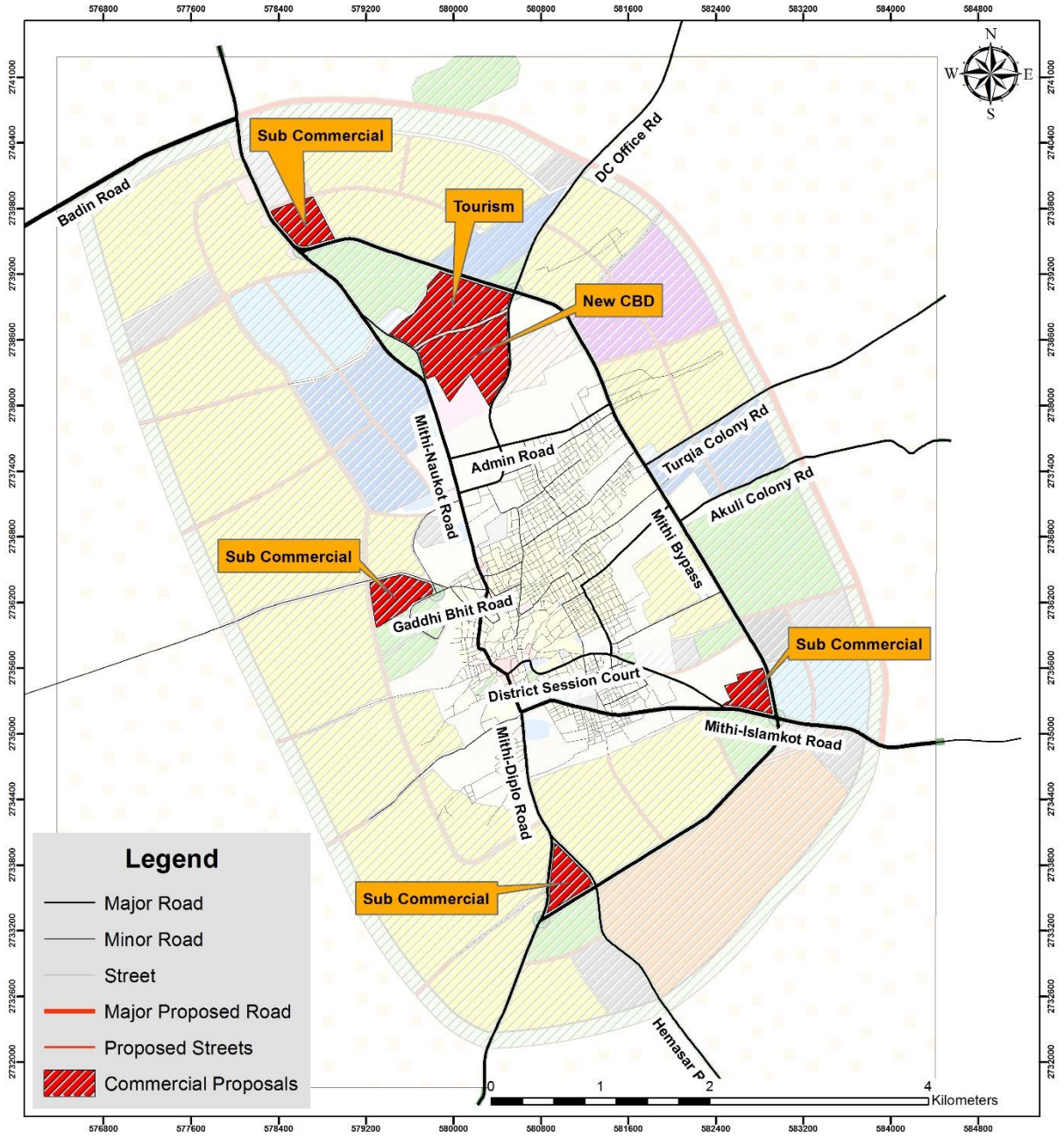


Figure 9-3: Proposed commercial Landuse for Mithi Town

9.6.4 Priority Projects

At the present there is no any market for Fruit and vegetable, the shops of vegetables and fruits are located on the main roads, due to this the traffic congestion accurse.. Therefore it's proposed that a new market for both vegetable and fruit may be construct within the premises of town committee. This market shall provide an easy access and the commercial area of Mithi shall not face congestions another related problems. Provision of parking for existing commercial areas.

i. Establishment of Fruit and Vegetable Market at Mithi

- **Project Justification**

  At present there is no or any market available for Fruit and vegetable, the shops of vegetables and fruits are located on the main roads, due to this the traffic congestion accurse. The prime issue regarding the wholesale market is relocation in expanding towns like wise in Mithi. Traditionally, they tend to be close to the CBD where they cause traffic congestion, sewage disposal problems and smell nuisances. As towns expand, the relocation of wholesale markets to the fringes becomes imperative. In order for this major operation to be successful, it is necessary to provide good level of access and infrastructure in the reception area. Close linkages with bus and truck stands must be ensured. Market involves the amalgamation of heavy food processing truck loading and unloading area with fruits and vegetable stalls along with shops for whole sale and trade processing along with the public services for the ease of market users at the facility provision of single facility use with all services. Need to plan and develop on basis of services will include on provision of project implementation and on users requirement.

  Establishment of planned Fruit and Vegetable Market at Mithi with allied facilities shall attract entrepreneur to expand their investment and will also improve the urban environment. In the Proposed Master Plan approximately 82 acres of land along Mithi Bypass is proposed for Economic Zone including 40 acres for Trade & Commerce and 42 acres for Warehouses.

  Out of total trade and commerce area, Consultant has suggested 13 acres of land for development of trade and commerce activities on priority bases. This will be comprises of fruit and vegetable market, whole sale market, slaughter house and godowns. This planned market shall provide an easy access and the existing commercial area shall not face traffic congestion and other related problems. It will also include general shopping area and offices will be reserved for fruit and vegetable market on priority basis. The remaining area of trade & commerce is reserved for future need to expand facilitates and to add new market requirements. Whereas, warehouse area will be developed in future for specialized type of warehouse storage facilities as per upcoming demand of market.

- **Project Benefits**

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

- **Implementing Authority**
  Mithi Town Committee and Private Investors.

Estimated Cost: 736 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, Whole sale Market, Slaughter House & Construction of Ware Houses	***Economic Development*** (Trade & Commerce)	Short Term	13 acres	736.00	13 acre = 566,280 sft @ the rate of 2,000/- PKR per sft construction cost with all infrastructure cost (considered 65% built-up area)

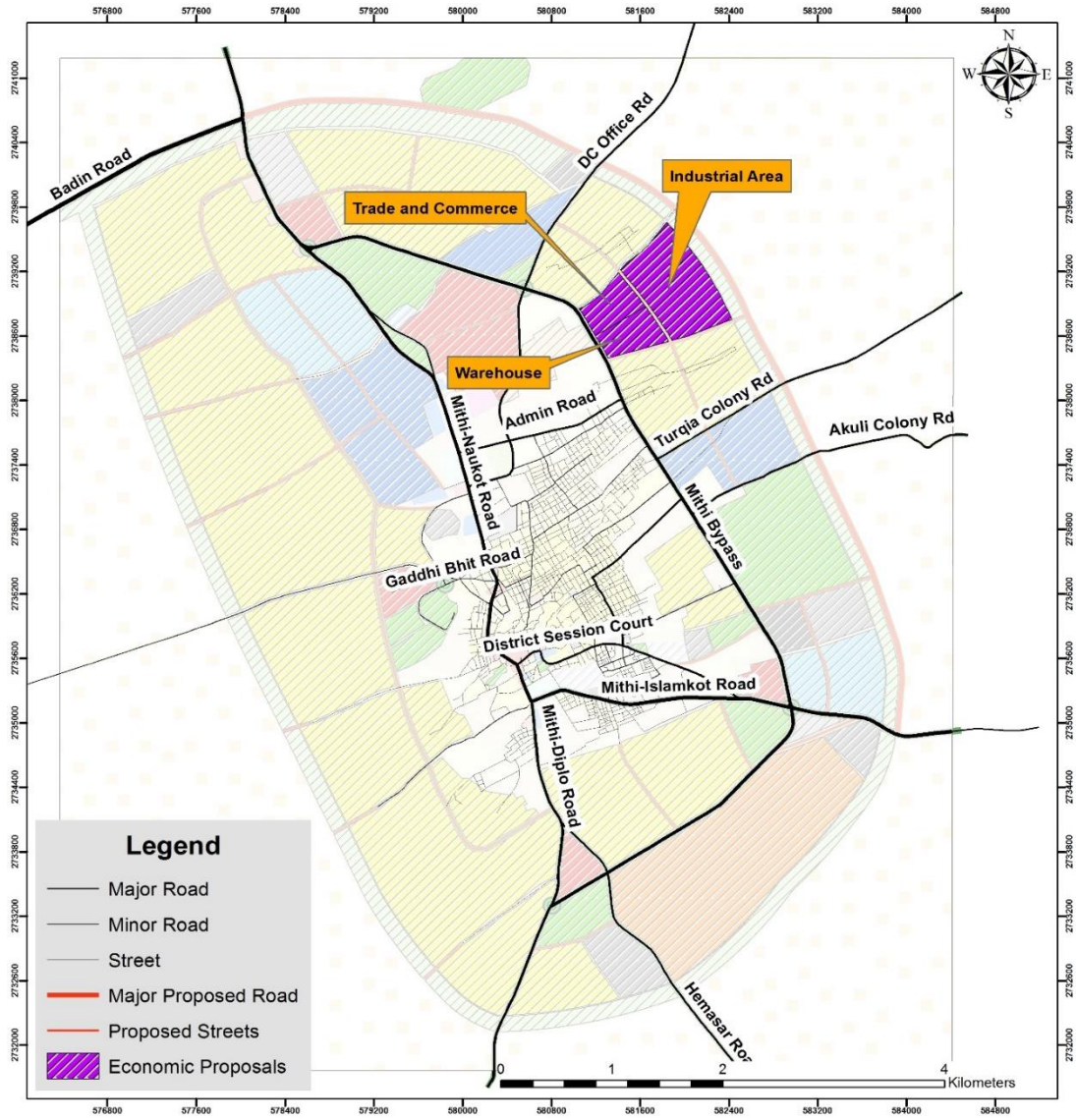


Figure 9-4: Proposed trade and Commerce Zone

9.6.5 Immediate Action Plan for Core Urban Area

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

The proposed projects for core urban area of Mithi 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 Shahi Bazar area; Provision of pedestrian facility in Bazar area; Up gradation & Rehabilitation of internal Bazaar roads.

i. Modernization of Commercial Activity in the Core Urban Area

Mithi has commercial hub in main CBD especially along the Islamkot road that includes government offices buildings banks, traders, wholesale markets, shops, Autos Shops, schools & colleges, clinics and general stores etc. currently old CBD is not functional and more than 90% shops shifted to main Mithi-Islamkot road.

Municipality old shop markets are present in old commercial rea of Mithi. Discontinued commercial markets may be converted into open spaces. This would also provide parking facility and security to the people coming for shopping as well as shop keepers. This would also provide shopping, eating, entertainment especially for children's.

Table 9-10: Rehabilitation of Main Commercial Area – Activity wise cost in Millions

S. No.	Area/Locality/Address	Area (acre)	Street/Road/ Parking	Utility Infrastructure	Public Facilities	Security
1	**Rehabilitation of Main Commercial (CBD) Area** • Rehabilitation & Beautification of main Bazar area. • Provision of pedestrian facility in Bazar area. • Up gradation & Rehabilitation of internal Bazaar roads.	15.13	15.13	17.48	9.57	3.78
Total PKR Rs. Million			**45.96**			

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.

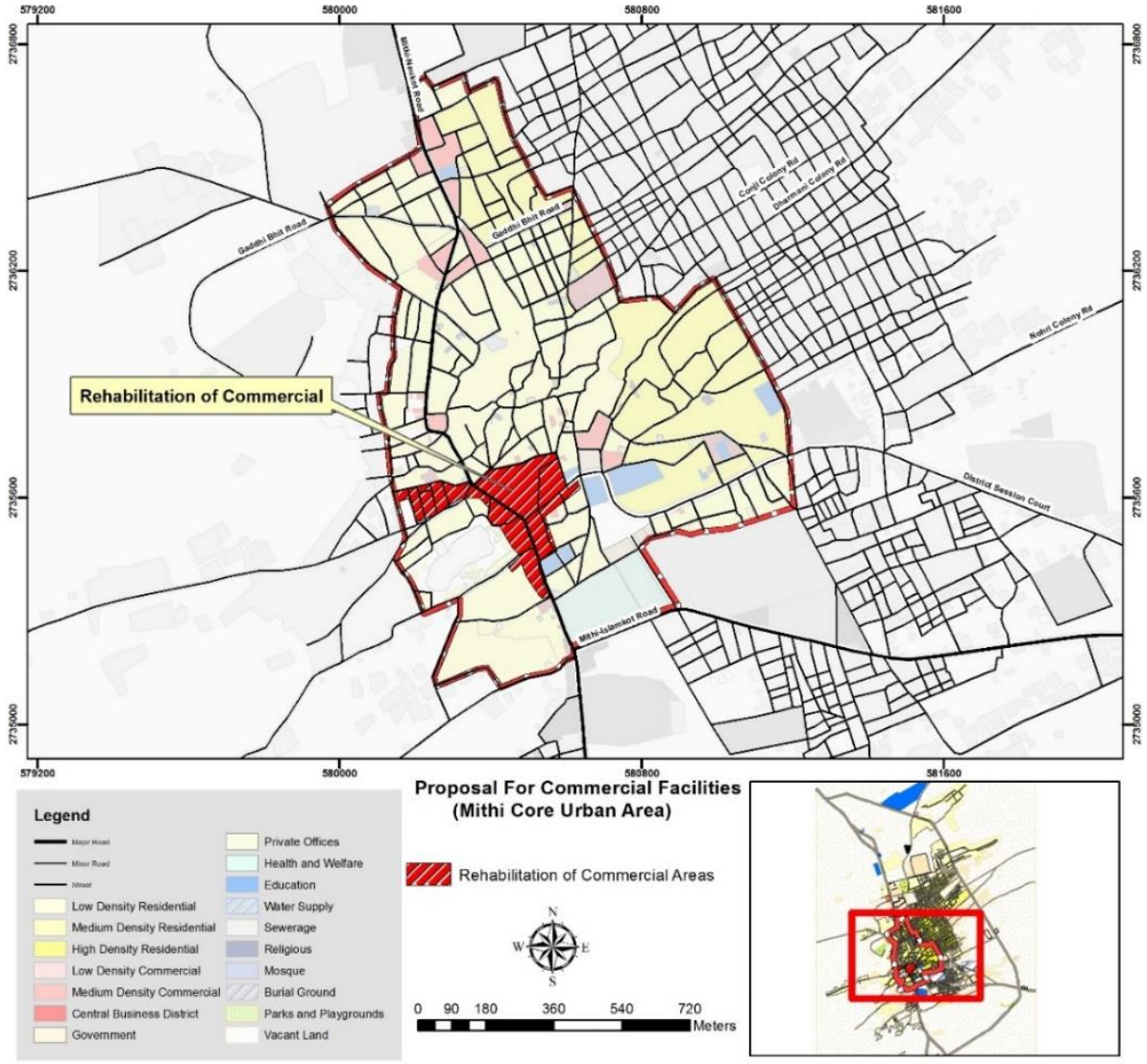


Figure 9-5 : Proposal for Rehabilitation of Commercial Area of Core urban Area

9.7 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).

i. 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.

ii. 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

iii. 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 utilizing urban economic clusters as a means to facilitate cooperatives in enterprise development.

<u>Urban Income Enhancement Program and Economic Cluster</u>

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 Centers, 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 center 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

It 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 center and other community facilities, such as RSP center
- Drinking water plants.

Honorable Chief Minister, Sindh approved five districts namely Badin, Thatta, Tharparkar, Sujawal and Larkana for establishment of Rural Growth Centers (RGCs) as a pilot district.

iv. 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 the Municipal Town Committee and Katchi Abadi regulators.

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

v. 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

10. ENVIRONMENT

10.1 Existing Situation

District Tharparkar lies in 69^0 3" 35' to 71^0 7" 47' east longitudes and 24^0 9' 35" to 25^0 43' 6" north latitudes. District Tharparkar is bounded by district Umerkot on the north, district Badin and Mirpurkhas on the west, India on the East and Rann of Kuch on the South. The district is mostly deserted and consists of barren tracts of sand dunes covered with thorny shrubs. The district is divided into 7 Talukas Mithi, Diplo, Islamkot, Chachro, Dahli, Nagarparkar and Kaloi. Mithi is the district head quarter city of the district.

Tharparkar is categorized into four geomorphic expressions:

- Hills: max. 350m gray granite in Nagarparkar;
- Piedmont plains: 50-60m above sea level;
- Mud flats: 6-12m above sea level; and
- Sand dunes: Longitudinal, up to 150m high.

The topography within 3 km of Mithi contains only modest variations in elevation, with a maximum elevation change of 65 meters and an average elevation above sea level of 55 meters. Within 16 km also contains only modest variations in elevation (110 meters). Within 80 km contains only modest variations in elevation (201 meters).
The area within 3 km of Mithi is covered by bare soil (100%), within 16 km by bare soil (100%), and within 80 km by bare soil (80%) and cropland (17%).
According to the Seismic zoning map of Pakistan (2015), District Tharparkar can be divided into 4 zones. Northern region of Tharparkar lies in Zone 2A, middle region lies in zone 2B, lower region lies in zone 3 and Southern most region lies in zone 4. DHQ Mithi lies in Zone 2B which corresponds to 0.16 to 0.24g PGA.
Since the whole district is desert like, there is no regular irrigation system. The total cultivated area of the district is 759,000 hectares out of which only 1.6% (12,144 hectares) is irrigated through canal in Diplo Taluka. However, the monsoon rains play important role in the irrigation of lands. In case of receiving heavy rainfall in monsoon, the desert gets sparse vegetation. Some of the areas in Nagarparkar and Mithi, where tube well irrigation is common, have green fields. But the overall irrigation structure is poor with no canals or rivers.

- **Ecological Baseline**

  Tharparkar is a plain of gently undulating sand hills sloping upward gradually to the northeast. Elevation generally is below 500 feet. To the south, the desert blends into a vast salt marsh, the Rann of Kutch. Vegetation is generally sparse, consisting of xerophitic and halophytic shrubs and grasses. Acacia, Prosopis, Zizyphus and Calotropis are the characteristic species of the desert region. The herpetofauna is made up of wide-ranging desert forms. The unique feature of the herpetofauna is the presence of several species characteristics of north central or peninsular India. Here these species are present at the western or northern limit of their distribution. The important species of this region are the tortoises. Testudaelegans is present; among snakes, Elaphehelenae; among lizards Chemaeleozeylanicus, Sitanaponticeriana and Agama minor.[45]

- **Hazards and Vulnerability of Tharparkar**

[45]First National Report on the Implementation of the Convention on Biological Diversity, Pakistan, Convention on Biological Diversity

Hazards Matrix of Tharparkar[46]

Hazard	Frequency	Area Affected / union council	Severity / Force	Year
Drought	Frequent	Whole district	High	1987-88,1991-92,1999-2000,2002-03,2005,2013-14
Flash floods	Monsoon	Whole district	Medium	1993,2003-04,2006
Desert storms	Frequent	Whole district	Low	Every year
Earthquakes	Rare	Whole district	Low	1982,2001,2005,2009
Epidemics	Seasonal	Whole district	Low	Every year
Fire	Rare	Whole district	Low	Every year
Locust attack	Seasonal	Whole district	Low	1979,1993-94

Due to the desert and rain-fed lands, the production of food and cash crops is negligible in this district. Wheat and rice are harvested in 10% and 1.2% of the mouzas respectively whereas production of cash crops like cotton and sugarcane is negligible. Hence, pulses are the only crops produced in this area. Within the pulses, guarseed is the major crop t. Vegetables are also grown in parts of this district. But the overall crop based food production is extremely deficit in Tharparkar district.

Food availability not only depends on the obtainability of wheat but also depends on other cereals like maize etc. As far as cereal food is concerned, this district is extremely deficit in production for its food requirements. In addition to cereals, animal based food (meat, milk, milk products) availability is also important for total food availability, which is surplus in the district. Drought due to little monsoon rain, lack of measures to ensure the food security, lack of fodder and disease among the livestock resulted in loss of large number of animals.

In Tharparkar District and the surrounding areas of Sindh Province, a third consecutive year of cereal production shortfalls due to drought, coupled with losses of small animals, has aggravated food insecurity and caused acute malnutrition.. These factors combine to create a situation of shortage of food and malnutrition among the population specially the children. Combining both the crop based and animal based food production, district Tharparkar is extremely deficit in food production[47]. Trade and economic activities of this district ensure the availability of food through imports from neighboring districts.

10.2 Issues

- High Hazard zone
- Drought resulting in livestock loss and crops deficiency
- No Food Security
- Water logging and salinity
- Water Contamination
- Low quality of surface water that is not fit for drinking
- Seismic Risk
- The sewage from all the urban in Tharparkar district are disposed of in the nearest drainage canals
- Aging of surface drainage canal system

[46] Pakistan Emergency Situational Analysis: District Tharparkar
[47] Food Insecurity in Pakistan (2009), Sustainable Development Policy Institute (SDPI), Islamabad

10.3 SWOT Analysis

STRENGTH	WEAKNESS	OPPORTUNITY	THREAT
ENVIRONMENT			
Land			
1. Tharparkar desert is not barren and dry, its flora and fauna flourish during the monsoon season, transforming its sand dunes to rolling green hills. 2. Fertile desert.	1. Unplanned land uses 2. Limited availability of govt. land for future spatial growth 3. Incomplete development of agricultural land parcels (scattered agricultural growth)	1. If treated through appropriate urban design principals & standards, can be transmitted into mixed land uses and strong activity centers. 2. May increase productivity cultivated at full strength.	1. Slum formation
Fresh Water Bodies			
. The rainfall in the district can better be understood by the frequency and intensity of it. The rainfall season spans over June to September which is monsoon season and its intensity varies from 50-300 mm.	1. Since the district is desert like so there is no water body available in the district. 2. Sweet water is scarce throughout the district except at few places like Nagarparkar and Chachro. 3. Saline water results in various diseases like T.B etc. 4. Water bodies created by rain and flood water at open lots is an invitation to malaria and dengue.	1. Reservoir can be proposed.	1. Contaminated water is a serious threat for human health. 2. Standing water gives birth to diseases. 3. Threat to agricultural land 4. Affect agricultural production 5. Water logging
Climate			
1. The district has a tropical desert climate. In the summers, it is extremely hot during the day, but nights are remarkably cooler. 2. Suitable for producing crops.	1. Rainfall shortages affect the efficiency of agriculture sector.	1. Agricultural practices can be changed in accordance with weather condition for maximum production.	1. Droughts 2. Heavy rains 3. Climate change affects agricultural production
Air			

STRENGTH	WEAKNESS	OPPORTUNITY	THREAT
1. Air quality is rich and fresh, air blows all around the city. 2. Air quality in the rich agricultural belt is good for human health, and also keeps ecological balance in atmosphere. 3. Most of the area is air pollution free.	1. Over all air is dry in the district.	1. Development planned with respect to air circulation can provide relief to inner city's polluted environment.	1. Air pollution due to presence of sand particles in the air. 2. Sand storm may arrive due to the presence of desert and sand dunes all around the city.
Urban Area & Areas Suitable for Urban Development			
1. Land available for future development within town urban boundary.	1. Unplanned growth inside town. 2. Lack of utility services	1. Mixed land uses may create activity centers. 2. High density will overcome housing shortages	1. Land grabbing 2. Slums 3. Unplanned growth 4. Private sector may increase the cost of services.

10.4 Policy Guidelines[48]

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

10.5 Strategic Development Plan

- Develop and implement policies that integrate the objectives of conservation and development to reduce pressure and protect environmental values and conserve biodiversity
- Fostering public-private partnerships
- Formulate food security plan
- Ensuring environmental sustainability
- The setting up of a National Environment Council (NEC) to coordinate the Formulation of environment related policies and plans;
- Need of Permits to discharge waste and pollutants into the environment;
- The requirement for Environment Impact Assessments to be binding on all
- parties including government;
- Restoration and maintenance to preserve ecological cycles, functions and services of environment
- Rehabilitate degraded ecosystems and create environmental awareness

I. Long Term Plan

[48] National Forest Policy 2010

- Drainage can be improved on many sites and is the first thing to consider once a waterlogging problem has been identified. Options might vary from shallow surface drains (ie. Spoon- and 'W'-drains) to more intensive drainage using wide-spaced furrows, to the intensive drainage form of raised beds
- Achieving sustainable development, while overcoming environmental challenges such as land degradation, watersheds and marine fisheries, deforestation, waste management and pollution control, and climate change
- The creation of an integrated multi-hazard damage loss data-base is therefore a prerequisite for systematic vulnerability and risk monitoring.

II. Short Term Plan

- To reduce co2 emissions with plantation of trees, viable with local climate to achieve safe and healthy environment.
- zero deforestation

10.6 Priority Projects

Due to Coal Exploration in Thar Coal field area in the district Tharparkar, environmental issues are yet another critical issue which will arise in few years. Keeping an eye and fore seeing the magnitude of exploration, currently number of trees and vegetation is negligible in the area. The following is the proposal for better environment on priority basis.

Tree Plantation
Considering the dry and hot environment, it is suggested to enhance tree plantation with urban forest. Thus local trees like Neem (Azadirachta Indica) and Ber (Ziziphus Vulgaris) would be preferred to add beauty in the core urban area and better environment.

- **Project Benefit**
  Environmental up-gradation with respect to and for the living population for better lifestyle.

- **Implementing Authority**
  Government of Sindh, Mithi TC, Environmental Department.

Estimate Cost: 200 million approx.

S. No	Project Name	Estimated Cost In Millions	Non ADP	Short Term
Environmental Up-gradation				
1	Beautification and urban environmental up gradation with respect to the tree plantation and green spaces.	200.00	Non ADP	**Short Term**

11. DISASTER RISK MANAGEMENT

11.1 Existing Situation

Mithi is the main city and DHQ of Tharparkar District in Sindh, Pakistan. It lies east of the Indus River. The region is swampy, fertile, and suitable for growing rice. Some oil fields are located near the town. Mithi is the main town of Tharparkar District. Mithi is a highly disaster prone area and disasters of different types have occurred in the past. The most frequent and damaging disasters are the drought.

District Tharparkar was severely hit by rains/floods in 2011. The district falls under the category of very low risk district, as categorized by PDMA Sindh. But in 2011 rains/floods, the extent of damage was severe as assessments showed that all the 2,284 villages/settlements of 44 union councils were affected. River Indus, after receiving water from 5 of its tributary rivers, causes floods in the northern and southern parts of Sindh province.
These districts on the right and left banks of River Indus are prone to severe threat when River Indus is in high flood.

- ***Floods / Rains.***

  District Tharparkar was severely hit by rains/floods in 2011. The district falls under the category of very low risk district, as categorized by PDMA Sindh.[49] But in 2011 rains/floods, the extent of damage was severe as assessments showed that all the 2,284 villages/settlements of 44 union councils were affected. A population of 907,179 (67% of the total population) persons was affected and there were 28 casualties and 9 injuries. In total, 178,356 houses were damaged. Geographically (all talukas and their UCs) the whole district was inundated (since the major part of the district is desert area so the affected area was only 51,782 acres) and 89 percent of the sown area was affected due to these rains/floods.

- ***Earthquakes***

  District Tharparkar is one of the oldest districts of Sindh. In 2001, the district along with the bordering district of Badin was hit by an earthquake. Due to this earthquake, 12 people lost their lives and 115 persons were injured. Besides, 1,989 houses were destroyed and 43,643 houses were partially damaged. The public infrastructural loss was counted up to 1,406 buildings. The financial value of the overall loss was 2.4 billion rupees.[50] A decade after the earthquake, the district was again hit by heavy rains in 2011.

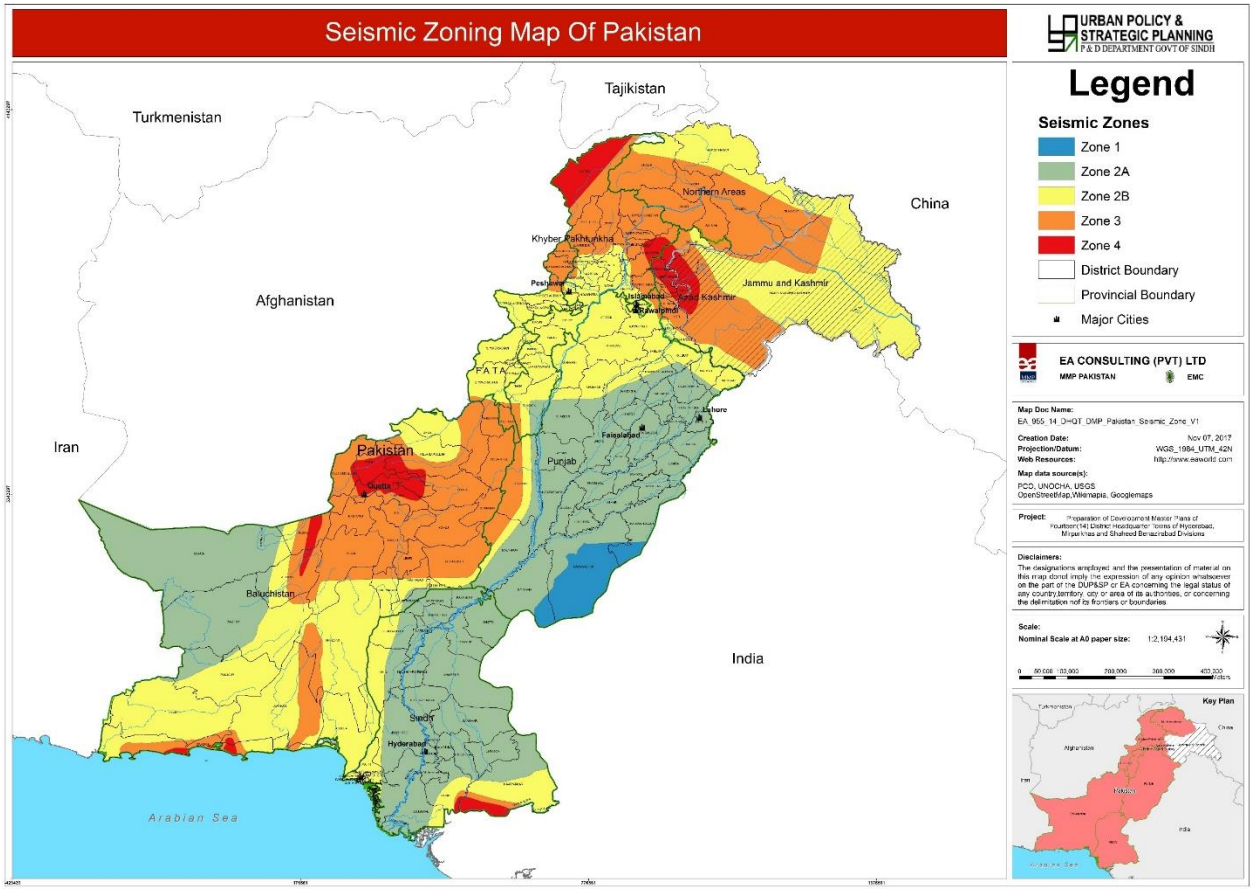
- ***Droughts***

  Tharparkar district faces a severe drought after every thirteen year as the last three decades have reported this pattern. The famine like drought occurred in 1987, 2000 and in 2013. Between these periods, several occurrences of drought have been reported too but these three droughts are considered to be the worse.
  The failure of monsoon rains, since Nov-2013, resulted in severe shortage of food, fodder and water.

[49] Flood 2010, Disaster Management Apparatus in Sindh, PDMA Sindh
[50] Sindh Rehabilitation Department. (2012). *Sindh Provincial Monsoon/Floods Contingency Plan.* Karachi: PDMA, Sindh

- ***Seismicity***

  According to the Seismic zoning map of Pakistan (2015), District Tharparkar can be divided into 4 zones. Northern region of Tharparkar lies in Zone 2A, middle region lies in zone 2B, lower region lies in zone 3 and Southern most region lies in zone 4. DHQ Mithi lies in Zone 2B which corresponds to 0.16 to 0.24g PGA.



11.2 Issues and Problems

i. Low levels of risk awareness and knowledge.
ii. Development not "risk conscious" and DRR not yet effectively integrated.
iii. Insufficient DRR capacity at all levels of society.
iv. The involvement of the private sector in DRR is as of yet negligible.

- **FOOD SECURITY**

  The destruction of food markets infrastructure, e.g. road, transport networks, go downs, shops market place had affected the business places, local markets (mandi). In result, the operational capacity of these markets (transporters, processors, wholesalers and retailers) had direct impacts on economy, prices and availability of food products ultimately resulting food shortage.

- **Health:**
  Severe floods can not only cause destruction to heath care infrastructure but also affect health indicators of the affected population.

- **Education:**
  DUE **TO** the floods/rains of 2011, 269 school facilities were damaged, out of which 57 were fully destroyed and 212 were partially damaged. Also, heavy rains affected the school going children. Due to the damages to the schools, houses and roads; education of 21,520 students was affected (Girls: 9,254, Boys: 12,266). Teachers numbering 717 were also affected.

- **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

- 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.

11.3 SWOT Analysis

STRENGTH	WEAKNESS	OPPORTUNITY	THREAT
1. Most of the town is served by combined drain and sewer system.	1. Open drain on street. 2. Improper channelization of drains 3. Over flow of storm water drains 4. Lack of interest among stakeholders involvement in disaster relief activities. 5. Poor administrative control for operating existing drainage system of the town. 6. Depression areas causing permanent ponding. Reliance on sewer for flood/storm water	1. The city's old drainage system needs revival through cleaning. 2. Flood protection embankments should be enhanced up to greater extent to provide maximum protection to surrounding villages 3. Development of surface drainage network with easy disposal to river/canals 4. Complete removal or treatment of land where temporary ponds have been formed in main town area.	1. Medium level flood disaster threat to local communities living near to main course of River Indus. 2. Open and overflowing drains have impact upon human health and give birth to epidemic diseases. 4.

11.4 Policy Guidelines[51]

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

11.5 Strategic Development Plan

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

- 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.

[51] National Disaster Risk Reduction Policy 2013

- 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.

I. Long Term Plan

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

II. Short term Plan

- There is a need to set criteria for the identification and declaration of “disaster affected” areas. Disaster declarations may temporarily restrict individual rights (such as property rights or mobility).
- DRM strategies and initiatives need to be based upon clear assessments of disaster risks i.e. a quantitative and qualitative understanding of the underlying causes and vulnerabilities, geographical distribution of vulnerability and hazards , the probability of hazard occurrence and predicted losses.
- Vigilance of canals / drains round the clock.
- Closure of canals at the heads as soon as possible in case of any breach or heavy downpour, etc.

11.6 Priority Projects

- 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**

  Tharparkar district is prone to canal flooding and floods caused by heavy rainfall.

- **Broad `Contours of the Plan**

  - Early warning of approaching weather system will be provided by Pakistan Meteorological Department (PMD) and communicated to the District Disaster Management Authority (DDMA). DDMA is expected to translate weather forecast and flood warnings into usable early warning for vulnerable communities and ensure its timely dissemination to all concerned.
  - In case, there is continuous rise in major canal water level the people residing near major canals will be evacuated to safer places.
  - Threatened population will be evacuated by DDMA.
  - DDMA would be responsible for provision of search and rescue, medical and emergency responses.
  - Camps will be established at pre-selected sites by DDMA.
  - DDMA would be responsible for effective and transparent relief distribution including relief provided by Provincial Disaster Management Authority (PDMA), National Disaster Management Authority (NDMA) and other Humanitarian Agencies.
  - All stakeholders would take necessary actions to facilitate early recovery and rehabilitation of affected population.
  - In case the district falls short of meeting the humanitarian needs, PDMA will assist by making available the required stocks. In case when disaster exceeds capacities of the provincial government, NDMA will be requested to make available the additional stocks from national reserves, prepositioned across the country.
  - When required, Armed Forces may be requested for assistance by PDMA Sindh at any stage, particularly for rescue, evacuation and emergency relief phases. Thus, the DDMA will have to submit the request to PDMA for assistance of armed forces in aid of civil administration.
  - Special requirements of Aviation / Naval support by any agency will be coordinated by PDMA.
  - Resources of Government Departments and Agencies such as, Pakistan Red Crescent Society and domestic philanthropy may be requisitioned, if the intensity of the situation so entails for an effective response.

12.1 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.

12.2 Health Department

I. Pre-Disaster

- Provide specific information required regarding precautions for epidemics
- Establish a health mobile team in district & town headquarter hospital
- Setup an Information Center to collect and share information amongst relevant stakeholders.
- Collaboration with relevant organizations/partner NGOs.
- Stocking of life saving drugs and vaccines.

II. During Disaster

- Providing emergency treatment to the affected
- Provision of First-aid & water testing kits, chloramines and anti-snake venom serum & other emergency support
- Deployment of mobile medical teams & health staff
- Collaboration with all relevant stakeholders

III. Post Disaster

- Establishment of medical camps, vaccination, ensuring safe food & water in camps
- Conduct impact assessment on health, intervene to stop outbreak of diseases
- Rehabilitation of health infrastructure

12.3 Education Department

I. Pre-Disaster

- Providing the necessary information, training to teachers & students regarding disasters with tips to save their families & themselves during disaster.
- In collaboration with Civil Defense and Boy Scouts / Girl Guides Association and gear up the volunteer's force.
- Educate students about Healthcare Precautions

II. During Disaster

- Mobilize the human resources for intervention during disaster
- Arrangement for evacuees to setup relief & temporary shelter camps
- Deployment of volunteers for camp management & emergency support

III. Post-Disaster

- Assessment of damages & needs of affected educational institutes
- Rehabilitation of affected educational institutes
- Continuing education of children at camps and helping them to recover from shock by providing toys etc.

12.4 Agriculture Department

I. Pre-Disaster

- Assessment of high risk prone areas and estimation of possible damage
- Create community Seed Bank at UC level
- Regular surveillance of Irrigation water supplies
- Close coordination with Meteorological Department & other stakeholders for weather information.
- Testing, functioning and pre-positioning the available machinery.

II. During Disaster

- Immediate mass awareness and update of situation
- Arrangements for relief & temporary shelter camps in canal rest houses
- Vigilance for protection of agriculture crops.
- Immediate activation of machinery and equipment.

III. Post-Disaster

- Assessment of damages & needs of affected crop area and submit to DDMA
- Assistance in repair & rehabilitation of Irrigation Systems.

- Timely compensation to affected farmers
- Mass awareness campaigns regarding epidemics & diseases to crops
- Inform the affected population regarding the land use and crop management on damaged/devastated areas.

12.5 Livestock And Fisheries Department

I. Pre-Disaster

- Estimation of possible damage
- Mass awareness regarding precautions
- Close coordination with agriculture, irrigation, meteorological department and other stakeholders.
- Vaccination of livestock.
- Stocking of fodder and vaccines.

II. During Disaster

- Update local communities of ongoing situation.
- Provide livestock vaccination
- Arrangements for relief and transportation of livestock.
- Provision of fodder for livestock in affected area.

III. Post-Disaster

- Assessment and submission of damages and need of affected livestock to DDMA
- Timely compensation to affected livestock owners
- Mass awareness campaign regarding epidemics & diseases to livestock

12.6 Planning and Development Department

I. Pre-Disaster

- Gathering statistical data regarding possible damages and recovery needs from all relevant departments
- Plan and identify potential resources
- Facilitation to other department in planning

II. Post-Disaster

- Gathering statistical data regarding actual damaged and recovery needs from all relevant departments
- Plan and Identify potential resources
- Facilitate other departments in planning and execution of rehabilitation in cost effective manner
- Coordinate with all line departments

12.7 Revenue Department

I. Pre-Disaster

- Assessment of high risk prone areas and estimation of possible damage and needs for recovery.
- Arrangement of financial resources.
- Identification of high grounds for establishment of tent cities.

II. During Disaster

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

III. Post-Disaster

- Assessment of damages to industrial/business, crops and livestock and settlement of applicable taxes accordingly.
- Support DDMA in conduct of authentic damage assessment and compensation need

12.8 Police Department

I. Pre-Disaster

- Information dissemination through "15 helpline service" to local residents
- Deploying and giving security cover to government agencies, which are working/preparing for the monsoon season in areas where law and order is not good.

II. During Disaster

- Providing easy access and security to rescue and relief teams.
- Maintain law and order and divert traffic on alternative safe routes as and when necessary.
- Maintaining law and order and provide security to relief stockpiles and camps

III. Post-Disaster

- Ensure security to workers of NGOs/INGOs
- Provide security in unsafe areas
- Facilitating institutions/NGOs/INGOs, which focus on rehabilitation activities.

12.9 Civil Defense

I. Pre-Disaster

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

II. During Disaster

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

III. Post-Disaster

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

12.10 Civil Society And Private Sector Response[52]

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.

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

12.11 Scouts

I. Pre-Disaster

- Nominate the scouts, which can be trained to handle flood emergencies
- Training will be imparted in the scouts regarding boat handling and first response to the affected during the emergency.

II. During Disaster

- Trained scouts will be deployed/placed at the disposal of Deputy Commissioner
- The scouts will perform the duties as per training and will report to respective Deputy Commissioner

III. Post-Disaster

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

12.12 Standard Operating Procedures (SOPs)

- The Deputy Commissioner shall keep close liaison with all departments like Local Government, Health, Agriculture, Civil Defense, Irrigation, Works & Services, Education & Literacy, Police & other Law Enforcement Agencies. Meetings in this regard are to be held on regular basis with concerned departments and minutes are to be shared with DDMA.
- If there is likelihood of heavy rains, flood emergency would be declared in the District and all government functionaries and NGO's would be kept on high alert.
- Control rooms would be established at District and Taluka level in the offices of the Deputy Commissioner, Assistant Commissioner, Qanoongo (Revenue) and all other line departments during the emergency. These control rooms shall function round the clock.
- The Executive Engineer Irrigation will establish round the clock control room in his/her office for making liaison with all concerned & activate contingency plan of the department. They shall identify the vulnerable points of the irrigation canals and intimate DDMA. Executive Engineer will be in touch with DDMA and the Meteorological Department and inform the concerned agencies about any development emergency. He/She will make special arrangements for watching and patrolling of vulnerable points.
- Immediate arrangements for necessary machinery, sand bags and other material to be used for strengthening of embankments of canals and plugging breach shall be ensured and availability of communication network must be made at all vulnerable points.
- The Executive Engineer Irrigation shall ensure regular, timely and proper de-silting of all canals, distributaries, drains, sub-drains and submit a certificate to his/her higher authorities with an information copy to DDMA.
- The Deputy Commissioner shall ensure activation of Central District Control Room and already established control rooms at each Qanoongo (Revenue) Offices round the clock, under the supervision of Assistant Commissioner concerned. They shall also ensure preparedness at proposed relief camps and ensure immediate evacuation of people residing in low-lying areas to safer place / relief camps, if required. He/She shall also make

immediate arrangements for the availability of sufficient quantity of relief material like food, blankets, tents, plastic sheets etc.

- The Deputy Commissioner shall constitute Supervisory Committee for relief works at district level.
- The Deputy Commissioner must further ensure that special attention is given to disabled people, women and children and extra ordinary measures are taken for such purpose.
- The Deputy Commissioner shall nominate the Assistant Commissioner as focal person to coordinate with the Taluka and Town level local council for drainage of accumulated rainwater.
- The Assistant Commissioner shall be focal person in Taluka for the entire operations of rescue and relief. He/She must ensure the respective arrangements for tractor trolleys and labor in coordination with Civil Defence, Boy Scouts Association and Police Department if needed and mobilize the village staff in the pre-and-post emergency work. He/She shall also ensure proper distribution of relief material among the actual needy persons.
- The Executive Engineer Irrigation Department shall ensure availability of bulldozers, excavators and earthmoving machines in sufficient quantity and in proper working condition in case of emergency.
- The Director Agriculture shall arrange for protection of standing crops from damages and diseases that may be caused from the stagnant rainwater in the fields. He/She shall manage required machinery from mechanical wing and must have the inventory of such machinery and equipment.
- The Deputy District Officer Livestock and his/her staff shall ensure safety of livestock from flood diseases and losses and Veterinary Officer shall ensure regular and timely vaccination of cattle in the district. They shall make all necessary arrangements for fodder for the livestock to be shifted from marooned areas.
- The Deputy Controller, Civil Defense should ensure the enrolment of volunteers as early as possible in order to avoid any chaotic situation during emergency. He/She will continuously remain updated of weather forecast reports and with meteorological departments and will arrange for warnings in emergency through sirens, loudspeakers and media at Taluka and town level. He/She shall ensure presence of the volunteers and scouts for rain relief and rescue activities in case of any emergency.
- The Deputy Director Food shall ensure availability of sufficient stock of wheat and other grains and shall coordinate with Deputy Commissioner for supply of food grains from local food grain dealers in case of need. He/She will also ensure that no stocks of government wheat, placed at depots, are damaged due to water accumulation, fire or rioting.
- The Divisional Engineer Telephone should ensure full function ability of telephones all over the district and provide assistance to all departments on demand at the time of need.
- Continuous supply of gas and proper safety of gas lines in the district must be ensured. Immediate repair work should be performed in case of any damage to the gas lines.
- The Deputy Commissioner shall ensure mobilization of the NGO's and business community in the rescue and relief activities in case of emergency and shall depute volunteers on different emergency tasks.

- The Regional Director Information shall keep close liaison with all control rooms of the district to provide correct and exact information to media regarding emergency. He/She shall also arrange briefings about the latest situation in case of emergency.
- The Red Crescent Society and other welfare associations and NGO's of the district shall provide food packets and other required material to the affected persons in relief camps in case of emergency.
- Proper arrangement for lifting of trees fallen due to heavy rain and gusty winds from the main roads shall be made by the Executive Engineer Provincial Highways department.
- The in charge Utility Store Corporation shall ensure the availability of sufficient stock of edible items in case of need.
- The Revenue Department shall also conduct the survey of any loss of life, houses, cattle, standing crops and other infrastructure after the disaster. In the event of the highest degree of emergency, Pakistan Army may be requested to help the district administration in rescue and relief operations.

12.13 Implementation and Monitoring

I. Indicators

Quantitative Indicators

OECD (2002) defines an indicator as a ''quantitative or qualitative factor or variable that provides a simple and reliable means to measure achievement, to reflect the changes connected to an intervention, or to help assess the performance of a development actor.'' Quantitative indicators are numerical representations of complex phenomenon. Quantitative indicators can be useful in determining the level of achievement at all stages of a resilience project and can even be used to measure the strength of resilience characteristics, though this is better attained by using qualitative indicators[53].

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.''

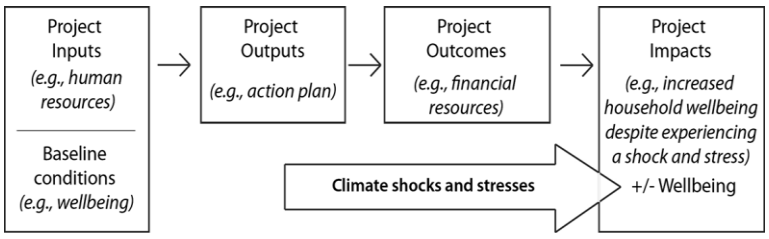


Figure 12-1: Four phases of a resilience initiative, and the timing of baseline and post-shock Measurements of wellbeing (Brown, et al., 2018)

[53] 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

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.

II. 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).

III. 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.

IV. Identified Indicators[54]

<u>Collection of Data to Perform Vulnerability Assessments to Floods</u>

- 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.

<u>Building Technical Capacity to Generate Vulnerability Assessments to Floods</u>

[54] 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

- Number of technical staff trained to acquire competence in computer modelling techniques and able to perform Vulnerability Analysis (VA).
- Average staff performance on end-of-training comprehension tests.
- Proportion of ministries using datasets to generate vulnerability analysis or proportion of sectors covered by analysis at district level.
- Number of policy and technical documents incorporating results from VA's.
- Proportion of government investment/program documents using results from VA's as a priority-setting or screening tool.

Institutional Framework and Mechanisms to Support Adaptation and Adaptive Capacity

- Number of laws and regulations created or amended to clarify land and carbon property rights.
- Existence of a dispute resolution mechanism.
- Number of materials (presentations, briefs, papers) developed for legal literacy programs.
- Number of people participating in legal literacy programs.
- Number of individuals and community groups participating in Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (REDD+) financed projects.
- Average number of days and money spent in REDD+ project preparation.
- Total value of REDD+ projects and value per participant.
- 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, 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.

12.14 Responsibility of Plan Implementation

Table 12-1: Authorities Responsible for Implementation

S.No	Department	Designation
1	**Administration**	District Commissioner
		Assistant District Commissioner-I
		Assistant District Commissioner-II
2	**Irrigation**	District Irrigation Officer
3	**Agriculture**	District Agriculture Officer
4	**Health**	District Health Officer
5	**Education**	District Education Officer
6	**Social Welfare**	District Officer
7	**Livestock**	District Officer

12.15 Monitoring and Evaluation55

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

[55] 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[56]

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.

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

Stakeholder Engagement

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

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. URBAN LAND MANAGEMENT

13.1 Introduction

Urban areas throughout the developing world are experiencing a problem in the supply of adequate and affordable serviced land to meet the housing needs of their rapidly expanding urban populations. As a result, low income groups who are mostly denied access to land due to shortfall in supply are forced to either seek for residential land through illegal means or to crowd into existing low income settlements, creating slum conditions. In Sindh, the shortfall in land supply arises not from the lack of virgin land but partly from the lack of resources, capacity to service the lands and land ownership by landlords and make them ripe for development and also partly from the use of ineffective and inappropriate land and land use policies and practices.

"Land management" is defined as an activity on the ground, using appropriate technologies in the respective land use systems. It is known by different names in different parts of the world; basically all are land management tools. In Pakistan land management is not being practiced till yet because of non-absence of policies / framework. Strong land owner opposition to forcible land acquisition, combined with extremely limited fiscal capacity has left the urban local bodies (ULBs) with very few options to develop well-planned and serviced urban land. Land pooling and reconstitution (LPR) is a tool that addresses both these issues by allowing the land owners to share the gain in the land value post provision of infrastructure and services. In lieu, the land owners pay betterment charges and contribute a part of their land to fund the infrastructure and services.

13.2 Goals

As most of towns in Sindh strive to become centers of global production, trade and development, they are increasingly concerned with improving their attractiveness for foreign direct investment and employment generation. For example, towns must have efficient spatial structures, adequate infrastructure and urban services, affordable housing and healthy environments. Effective urban land management is required to promote urban regeneration and development of new industrial and commercial districts, investments to upgrade and expand critical infrastructure systems, programs to enhance and protect the environment, and initiatives to upgrade social overhead capital (housing, education, healthcare).

13.3 Objectives

To implement these initiatives for Mithi, there is a need to develop urban land management strategies to provide land for industrial and commercial development, to facilitate the formation of public-private partnerships, and to finance the provision of infrastructure and social overhead capital investments. Unfortunately, in many cities around the world such strategies do not exist and foreign investment is either stifled or, if it does take place, causes significant adverse side effects.

Cities and towns are crucial to the economic well-being of Sindh. For this, it is imperative that its cities and towns are transformed and pressures of new growth are dealt with so that they are more livable, efficient, and environmentally sustainable. Only then will the rapid pace of economic growth that Sindh is undergoing be sustained and the targets of environmental sustainability achieved. To manage the transformation of Sindh's cities and towns and effectively manage new growth requires effective urban planning protocols, processes, and institutions underpinned by effective legislation. To effectively manage the new growth implies that the agricultural land at the periphery of the cities and towns or smaller settlements that are not yet "urban" is transformed to be made suitable for urban or non-agricultural uses. This essentially means that the irregular landholdings and plots will have to be given regular shapes; they must be ordered; each plot must be given access; infrastructure services such as water supply and drainage must be provided; land must be appropriated for providing roads, parks, social amenities, and low-income housing, development controls must be prescribed to result in a good quality-built form and levy development or betterment charges to offset the cost of developing the physical and social infrastructure. But most importantly, all of this must happen in a timely and such manner that it is acceptable to the "landowners" to avoid conflict in the growth management process.

13.4 Urban Land Management in Mithi

Due to absence of provincial policy / framework for utilizing Urban Land especially in District headquarter towns, planners / development authorities have not carefully assessed the land use and transportation impacts of foreign investment. Due to absence of development authority, haphazard and un-even development is being taking place in Mithi town, causing restricted development in terms of future perspective. As a result traffic congestion and infrastructure problems with the water supply and sewerage treatment are mounting.

Unfortunately, a lack of clarity over land rights, corruption and bureaucratic inertia are impeding redevelopment. To compound matters, land use plans in many transition economy towns have not been planner to reflect the new land use requirements necessary to support post-industrial development.

To effectively exploit the benefits of inward investment flows and to ensure that social and environmental goals are met, the public sector needs to take the lead in planning and formulating urban land management strategies to promote sustainable urban economic development.

13.5 Land Management and Reconstitution

Simply put, in LPR, a number of small holdings are pooled together, a part of land is taken from each plot for provision of infrastructure and public facilities and the rest returned to the original land owners. It is basically a land management tool and is used all over the world under different names with slight modifications in their working.

The strategies available for access to urban land could be through Guided land development for large areas; Land pooling and reconstitution; Land reconstitution / redevelopment; Acquisition for public purpose under the Land Acquisition Act, 1894; Joint Sector Model of land assembly and development; Transferable Development Rights (for built up areas); Saleable FAR and mixed use concept (for regeneration of inner city); Land Pooling and Redistribution Scheme.

A. Land Acquisition Act, 1984

In Pakistan, the Land Acquisition Act, 1894 gives the right for Government authorities to acquire parcels of land for the implementation of development projects. The origin of the practice of land acquisition by public entities in Subcontinent goes back to 1824, when the British Government of India instituted regulations to facilitate urban land public acquisition from private owners. In fact, the obligation for owners to give up their land had to find a legitimate justification. The initial reason advanced to acquiring the land against their will was the need for constructing public buildings in Bengal provinces. These regulations enabled the British government to take possession of the land for the construction of roads and canals. From 1850 on, the scope of these laws was extended to other provinces in order to facilitate the operation of further infrastructure projects such as railways.

The Land Acquisition Act was edited in 1894. It harmonized and consolidated previous regulations into one single act, applicable within the whole British India. After Pakistan's independence in 1947, the Pakistan Government started using this act as a tool to purchase land at a lower price than that on the regular market, as it was meant to be used in the public interest. Several amendments have been made on this act, but its procedures have not changed.

B. Land Readjustment / Pooling

Land readjustment / pooling Land re-adjustment is a process whereby a public authority assembles numerous small parcels of raw land without paying compensation to the owners. The authority then sub-divides such assembled lands for urban use returning most of the building sites to the original owners in proportion to the value of their land contribution and permitting them the right of alienating such sites. The authority retains a portion of the assembled lands, applying them partly to provide civic amenities such as roads, parks and gardens or schools, and the remainder land for public sale to recover the cost of development. Thus, land re-adjustment acts as tool to achieve unified control over large areas of land and as an instrument of financing public service installations in the process of planned urban growth.

C. Guided Urban Development

The concept of Guided Urban Development (GUD) emerged in response to ad hoc, uncontrolled urban development with no regard to infrastructure services. It also aims to secure a limited availability of urban land for economically weaker sections. GUD has been practicing in India and developing world. The objectives of the scheme are as follows:

- Ensure provision of serviced plots for low income families at affordable prices (approximately 75% of total plots to be reserved for EWS / LIG); and
- Provide incentives to the land owner / private developer to participate in the provision of low income shelter by guaranteeing fair return on investments (profit of 20-30%).

14. IMPLEMENTATION STRATEGY

This part of the report aims to provide an implementation framework for various development proposals recommended in 'Strategic Development Plan' to drive future growth of Mithi DHQ town up to 2037, under the present governance framework of Government of Sindh.

14.1 City Survey

City survey is very important to manage land records for city. City survey will help to resolve present hassle in property transactions besides impeding planning & development. It will also help to resolve several issues i.e. Verification of ownership & Land grabbing issues respectively. Therefore it is suggested to conduct city survey & deal as separate project for Tharparkar.

14.2 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 within among the sub plans.
- Address timeframes and budget availability
- Creating master schedule of activities with a progressive cost table so that the program can be appropriately expanded or contracted to meet implementation contingencies and budget fluctuations.
- Assign the various activities to be undertaken by qualified managers.
- Establish a timely monitoring and report system to keep the city officials and the public informed of progress and activities.

14.3 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 Mithi 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 Mithi. 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 Mithi is:***

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

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

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

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

14.4 Legal Frameworks

Related activities and their approval consent should be carried out in accordance with urban planning statutory frameworks of government of Pakistan operational at all government level levels. This includes all legal frameworks substantiated through the relevant articles of constitution of Pakistan and the primary act (LAA 1984) governing land acquisition and compensation.

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

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

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

On 14th Feb 2011, the government of Sindh notified the extension of the jurisdiction of Karachi Building Control Authority to the whole of Sindh. The five Regions of Sindh Building Control Authority notified by the Government of Sindh are: **Karachi, Hyderabad, Mirpurkhas, Sukkur & Larkana,** having the Head Quarter **Karachi. Thus, any development activity within juridical boundary of these districts must be carried out in accordance with the primary planning instrument ' *Sindh Town Planning and Building Control Regulation'*.**

c) ***Local Planning Instruments***

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

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

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

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

If regularization requirements of any of development proposal is beyond the capacity of regularity frameworks mentioned above, the concerned agency dealing with development/implementation process in Mithi may develop their own regulatory frameworks/ building codec's to regularize the status of development with consent of local/provincial government authorities, if necessary.

14.5 Institutional Enhancement

While implementing the Strategic Development Plan "SDP', the respective Provincial and District Government may seek technical assistance from all the line department i.e. DUP&SP, Local Development Authority, Municipal Corporation, secretariat of Commissioner and Deputy Commissioner.

The *'Project Implementation and Planning Unit*' will mainly consist of urban planners supported by other technical staff; architects, project managers, engineers, finance officers and any other technical staff expert in their relevant fields.

The *'Project Implementation and Planning 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.

14.6 Implementation Schedule

Strategy:	**Programs/ Policies**
Balanced Urban Growth	**1. <u>Land Use Zoning</u>** **2. <u>Decongestion specially in the Core Urban area</u>** Development of low density low income housing **3. <u>Development Control</u>** Amendment in Zoning Bye laws Restrict the provision of utility services for approved planned areas Peri-Urban Land use control Vertical growth options **4. <u>Air Port Road Regeneration</u>** Zoning master plan for Airport Road Regeneration **5. <u>Circular Road</u>** Completion of New Ring Road in eastern ward of the city
Responsibilities to Plan: Detailed Urban Design Strategy Development Assessment Impact of property Assessment Environmental Impact Study (EIA,IEE)	**Implementation Responsibilities:** Public Sector/ Private developers
Concerned Agencies: P & D Department Government of Sindh/ District Government/ Line Departments of local Government /Private Developers	**Time of Implementation:** Short Term (1 year to 5 Years) Long Term (5 Years to 20 Years)

Strategy:	**Programs/ Policies**
Future Transport Sector Development & Improvement	**<u>(A)Traffic Management Program</u>** • Parking restrictions / Charged parking system • Control traffic movement specially cargo Qingqis and Pick-ups • Manage unidirectional traffic flow. • Enforcement of traffic rules • Improved road infrastructure and street furniture • Implementation of traffic bylaws **<u>(C) Congestion Reduction in Core Urban /CBD Area</u>**

	• Designated stands for qingqi / rickshaws • Specified spaces for charged parking system • Alternate route for loading and unloading vehicles • Unidirectional traffic flow pattern • Removal of encroachments from major distributors • Development of infrastructure for pedestrian movement in old precinct.
Responsibilities to Plan • Enforcement of encroachment and road space improvement byelaws • Traffic corridors detailed study • Encroachment Removal & Relocation Study • On Street & Off Street Parking Feasibility Study • Beautification plan	**Implementation Responsibilities** International Development and Fund Supporting Agencies/Public Sector/ Private developers
Concerned Agencies Provincial Works & Services Department Government of Sindh./ District Highways Department/ Local Municipal Government/District Government/ Private Developers Line Departments of local Government.	**Time of Implementation** Short Term (1 year to 5 Years) Long Term (5 Years to 20 Years)
Strategy: **Water Supply System Improvement**	**Programs/ Policies** • In the long term, piped water supply system for 100% population by 2037 • Installation of localize network in the planned housing schemes first and gradually cover the whole population in five year plans. • Reuse of treated effluent • Implementation of Tariff System for utilities through Water Metering (first for water usage above marginal consumption then in long run for all users).

Responsibilities to Plan • Need Assessment/Demand & Supply Study • Separate Master Plan for water supply and infrastructure development plan	**Implementation Responsibilities** Public Sector/ Private developers
Concerned Agencies Provincial / Local Government/ Public Health Engineering Department	**Time of Implementation** Short Term (1 year to 5 Years) Long Term (5 Years to 20 Years)

Strategy: **Drainage & Sewerage System Improvement**	**Programs/ Policies** • Improvement and reconstruction of existing Combined system of sewerage and drainage (Phase-wise approach of replacing open drains with covered sewers of PE pipes). • Provision of wastewater treatment plant.
Responsibilities to Plan • Need Assessment/Demand & Supply Study • New Master Plan for Drainage & Sewerage services improvement.	**Implementation Responsibilities** Public sector / Private developers
Concerned Agencies Provincial / Local Government/ Public Health Engineering Department Municipality (MC)	**Time of Implementation** Short Term (1 year to 5 Years) Long Term (5 Years to 20 Years)

Strategy:	**Programs/ Policies**
Solid Waste Disposal System Improvement	• Immediate designation of walled Landfill *Site* with special attention for hospital waste disposal. • Collection and disposal of solid waste through specialized waste management companies.
Responsibilities to Plan • Disposal Generation Assessment Study • New Master Plan for Solid Waste Disposal System improvement.	**Implementation Responsibilities** Public / Private Sector
Concerned Agencies Provincial / Local Government/ Public Health Engineering Department Municipality (MC)/ Sindh Solid Waste Management Company SSWMB	**Time of Implementation** Short Term (1 year to 5 Years) Long Term (5 Years to 20 Years)

Strategy:	**Programs/ Policies**
Improving Efficiency of Municipal Committee's (MC) • Municipal Committee	• Acquire the required additional sanitary workers as per requirement. • Make Municipal Committee self sufficient • Strengthening Municipal Committee's Financial Capacity • In long term introduce 4R Solid Waste Management System (reduce-reuse-recycle-reject)
Responsibilities to Plan • Municipal Committee's Progress Assessment Study	**Implementation Responsibilities** Public / Private Sector
Concerned Agencies Provincial / Local Government/ Public Health Engineering Department Municipal Committee (MC)	**Time of Implementation** Short Term (1 year to 5 Years) Long Term (5 Years to 20 Years)
Strategy:	**Programs/ Policies**

Improving Fire Fighting Capacity	• Establishment of two sub-stations to accommodate 5 fire vehicles more. • Establish sub-stations at different locations to ensure short response time for the whole city. • Increase service efficiency through number of vehicles, dedicated staff and financial mechanism. • To ensure readiness of all vehicles with ample stocks of POL and spares.
Responsibilities to Plan Assessment on Municipality's firefighting potential	**Implementation Responsibilities** Public Sector
Concerned Agencies Mithi Municipal Committee.	**Time of Implementation** Short Term (1 year to 5 Years) Long Term (5 Years to 20 Years)

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

Concerned Agencies	**Time of Implementation**
• SSGC-Sui Southern Gas Company • WAPDA • Developers	Short Term (1 year to 5 Years) Long Term (5 Years to 20 Years)

Strategy:	**Programs/ Policies**
Health Sector **Improve access to healthcare facilities & minimize the long journeys to access basic medical facilities**	• Check and balance to accomplished existing health care projects. • Addition of 5,674 beds to achieve the target of 2 beds per 1000 district population • Hiring of 2,554 and paramedical staff to cater future population. • Installation of incinerators.
Responsibilities to Plan • Health reforms	**Implementation Responsibilities** Public Sector and Welfare Agencies
Concerned Agencies State Government/District Health Department. Provincial and District Health Department	**Time of Implementation** Short Term (1 year to 5 Years) Long Term (5 Years to 20 Years)

Strategy:	**Programs/ Policies**
Education Sector Strategy	• Short term plan provision of 152 classrooms at different levels • Repairing of school existing buildings with furniture • Training of teaching staff • 621 additional classrooms by 2037 • New schools and colleges for estimated population of 117,952.
Responsibilities to Plan • Education Infrastructure Improvement Mater Plan	**Implementation Responsibilities** Public Sector

Concerned Agencies Provincial Government/District Education Department.	**Time of Implementation** Short Term (1 year to 5 Years) Long Term (5 Years to 20 Years)

Strategy: **Improving Recreation Sector**	**Programs/ Policies** • Repairing of existing recreational facilities and completion of under construction work. • Introduce financial mechanism i.e. facility use charges, to generate revenue to make them self-sustaining. • Special arrangement for security, parking and alternate route during religious and cultural activities in the city. • Provision of touristic facilities for Gadi Bhit and Nangarpar Station. • Provision of Cinemas facilities for public. • Encourage Private Investment in recreational sector • Provide city scale Zoo and Amusement Water Park facilities for future, possibly adjacent to Gadi Bhit.
Responsibilities to Plan • Provisions of New Recreation sites	**Implementation Responsibilities** Public Sector
Concerned Agencies Provincial Government / Culture, Tourism & Antiquities Department/ Government of Sindh/ District / Local Government / TC	**Time of Implementation** Short Term (1 year to 5 Years) Long Term (5 Years to 20 Years)

Strategy:	**Programs/ Policies**
Disaster Risk Management	• Engage all stakeholders of entire district in overall disaster rehabilitation process. • Recognize the commitment of stakeholders and the need for collaboration across all levels of government, community, industry, commerce, and government owned corporations, private and volunteer organizations and local communities within all aspects of disaster management. • Aligned job responsibilities of key stakeholders with job descriptions mentioned in principal guidelines proposed in *Pakistan National Disaster Risk Management Act 2010*, *National Disaster Risk Management Guidelines* and *Disaster Risk Management Plan, Sindh.* • Ensure establishment of straight relationships, trust, teamwork, consultative decision-making and shared responsibilities among stakeholders. • Develop disaster risk assessment system through statistical information, risk maps, emerging hazards information and their affects. • Adopt measures of sustainability of local communities by utilizing local resources available to avoid post disaster cataclysms (dearth, theft, spread of epidemic diseases, etc.). • Promote economic sustainability after disasters.
Responsibilities to Plan • Identification of Disaster Prone Areas and Early warning and shelter homes • Development of Community Training and Drill Organization Manual and SOP. • Development Local stakeholders Roles and Responsibility SOP.	**Implementation Responsibilities** Public Sector and National /International Welfare agencies

Concerned Agencies	**Time of Implementation**
NDMA/PDMA/P&D department Gos/ SUPARCO/ Provincial Irrigation Department Gos/ Line departments of local government/District Disaster Management Authority.	Short Term (1 year to 5 Years) Long Term (5 Years to 20 Years)

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

Strategy: **Conducting City Survey**	**Programs/ Policies** • City survey is important to manage land records for city. • To resolve present hassle in property transactions besides impeding planning & development. • It will also help to resolve several issues i.e. Verification of ownership & Land grabbing issues respectively.
Responsibilities to Plan • Conducting city survey shall help to manage ownership land record of Mithi @ Tharparkar. • Landuse classification	**Implementation Responsibilities** Public sector / Private developers
Concerned Agencies Board of Revenue & Deputy Commissionaire office	**Time of Implementation** Short Term (1 year to 2 Years)

Annexure – A

Sustainable Development Goals Acceleration Plan

Sustainable Development Goals (SDGs) Acceleration Plan
Mithi 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 - Mithi 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]16% of the urban town population lives in katcha houses	- Increase in proportion of small size plots (Plot size will be depend on land value) could be made for low income groups in all new housing schemes. - Affordable housing program for low income group in different phases up to 2037, through one window operation (including technical guidance, easy loan provisions, legal procedures)	Sindh Katchi Abadis, Squatter Settlements & Slums Policy - The process of regularization and up-gradation of the pre-1985 katchi abadis shall continue as per current policy. However, katchi abadis, which are hazardous by virtue of being close to railways tracks or located under high tension power lines, or are on or close to the riverbeds, or on lands needed for operational /security purposes, need to be relocated at appropriate places by LOAs. - Formation of new katchi abadis shall not be allowed and shall be discouraged by exercising strict development controls in all urban areas. - Formation of Resettlement Plans - Resettlement plans shall be prepared by the concerned Land Owning Agencies (LOAs) in consultation with affected communities for shifting of katchi abadis

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

SN	SDG Target	Indicators	Baseline Survey	Supportive Strategies given in SDP	Policies
					dwellers who fall within hazardous or security/operational zones. These plans shall primarily be on a self-financing basis. - The internal infrastructure and services shall be provided on incremental basis depending on the needs and priorities of the residents to make them affordable and cost effective. Trunk infrastructure and services shall be provided by public sector organizations and the cost shall be met from Government exchequer
	11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable	11.2.1 Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities	76% people have access to public transport.[3]	- Improve road design to make safer roads. - Prevent encroachments on footpaths through litigation. - Environmental Impact Assessment (EIA) should be mandatory for all transportation projects. - Declaring private vehicle free zones, especially in peak hours, in CBD areas to reduce noise and air pollutions. - Reduce traffic growth and congestion by achieving a mode shift.	Sindh empowerment of Persons with Disabilities' Act, 2018[4] **i. Universal access to destination:** All destinations served by the public road system shall be accessible by pedestrians and by drivers of all vehicles (including bicycles), except that vehicle operation may be restricted for reasons of excessive weight, noise or size, or extraordinary potential for damage to property or person **ii. Equal Right of use:** People's right to use that portion of a street designed for travel is not diminished by less weight, less size, or less average speed associated with their travel mode. Demand actuated tra-c signals must detect and serve a diversity of users including bicycle operators in the roadway and pedestrians using crosswalks.

[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
	situations, women, children, persons with disabilities and older persons			- Enhance institutional efficiency to improve service delivery. - Dualization of main arteries - Improve road design to make safer roads. - Prevent encroachments on footpaths through litigation. It is suggested that necessary provision of the above recommendation may be mandated in the laws and regulations of SBEA and other agencies which drafting the buildings and highway regulation	**iii. Accessible surfaces:** To the extent practicable, travel surfaces should accommodate travel on foot with minimal trip hazards and via common assistive devices such as wheelchairs. Roadway surfaces should be as clear as possible of hazards for narrow tires such as bicycle wheels. **iv. Crossable Roadways:** Crossing distances at non-signalized access locations must not exceed the distance that can be covered at walking speed before tra-c may arrive from beyond sight distance, or during reasonable gaps in roadway tra-c. Refuges provided to reduce crossing distances should be large enough to store assistive devices such as wheelchairs and strollers. Tra-c signal timing should provide adequate clearance intervals for safe crossing by pedestrians and slow vehicles.

SN	SDG Target	Indicators	Baseline Survey	Supportive Strategies given in SDP	Policies
	11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries	11.3.1 Ratio of land consumption rate to population growth rate 11.3.2 Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically	Baseline will be established at the start of implementation of Master plan. Vision formulation exercise through multiple consultative workshops were conducted to establish a shared and common vision for the development of Mithi DHQ town in the future.	o The total extent of the area included in the overall proposed Mithi Master Plan is 10,400 acres approx. for a population of 173,700 by 2037	Sindh Colonization of Government Lands Act 1912 and Disposal of Government Lands Rules, 2005.[5] National Housing Policy 2001[6]
	11.4 Strengthen efforts to protect and safeguard the world's	11.4.1 Total expenditure (public and private) per capita spent on the	• Culture /heritage Sites in Mithi include • Gori Temple	• Protection of historical places and cultural heritage Development and preservation of cultural heritage	Heritage act for policies 2012[7]

[5] http://sindhlaws.gov.pk/setup/publications_SindhCode/PUB-16-000113.pdf
[6] http://mohw.gov.pk/mohw/userfiles1/file/National%20Housing%20Policy.pdf
[7] https://antiquities.sindhculture.gov.pk/index.php/about-us/acts/343-heritage-act-1994

SN	SDG Target	Indicators	Baseline Survey	Supportive Strategies given in SDP	Policies
	cultural and natural heritage	preservation, protection and conservation of all cultural and natural heritage, by type of heritage (cultural, natural, mixed and World Heritage Centre designation), level of government (national, regional and local/municipal), type of expenditure (operating expenditure/investment) and type of private funding (donations in kind, private non-profit sector and sponsorship)	• Jain Temple • Naukot Fort • Bhodesar Mosque • Well of Marvi		(2) An agreement under this section may provide for the following matters or 'for such of them as it may be found expedient to include in the agreement--- (a) the maintenance and custody of the protected heritage and the duties of any person who may be employed to watch it; (b) the restriction of the owner's right to destroy, remove, alter or deface the protected heritage; (c) the facilities of access to the public or to any portion of the public and to persons deputed by the Committee to inspect or maintain the protected heritage; (d) the notice to be given to Government in case the land on which the protected heritage is situated is offered for sale by the owner, and the right to reserve by Government to purchase such heritage, or any specified portion of such heritage, at its market value; (e) the payment of any expenses incurred by the owner or Government in connection with the preservation of the protected heritage; and (f) any matter connected with the preservation of the protected heritage which is a subject of agreement between the owner and Government.

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

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

SN	SDG Target	Indicators	Baseline Survey	Supportive Strategies given in SDP	Policies
				• Ensure that all ambulances are in working order and road worthy conditions. • Ensure vacant possession of all schools buildings at the time of emergency for setting up relief camps. • Ensure sanitation and cleanliness as well as clean drinking water facilities wherever possible at all school buildings declared as relief camps through by binding down their concerned Headmasters. • The creation of an integrated multi-hazard damage loss data-base is therefore a prerequisite for systematic vulnerability and risk monitoring	
	11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by	11.6.1 Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid	[10]Present Total solid waste generation in Mithi DHQ town is 12 tons per day. Regular collection	- The collection and disposing of solid waste is the responsibility of the TC. - The collection system needs to be made more effective and efficient. - Town Municipal Committees has already initiated some work on	THE SINDH SOLID WASTE MANAGEMENT BOARD ACT, 2014 [11]

[10] Municipal Committee Mithi
[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
	paying special attention to air quality and municipal and other waste management	waste generated, by cities	by municipal is about 50-60%	biomedical-waste management. It should immediately start segregation practice for biomedical waste collection system. - Techno-economic feasibility and detail study of characterization of waste is proposed on basis of the policy guidelines. - Develop integrated solid waste management system keeping in mind the method, procedure and design at front end, middle end and back end, based on best possible public health practices and environmental protection laws/rules. - Industrial waste disposal should be treated seperately and safely	
	11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in	11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age and	Only 0.01% (28 acres) out of total 1784 (7.21 Sq KM[12])acres park area is available in Mithi	• Establishment of Sports Complex along with old SRTC bus stand • Existing open spaces in core urban area should be restored and maintained. New open spaces should be identified and created.	Adopt-a-park policy 2019 (PPP unit, Finance dept. GoS) is still in progress

[12] Based on Landuse Calculations

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

[13] Poverty Reduction Strategy for Sindh

SN	SDG Target	Indicators	Baseline Survey	Supportive Strategies given in SDP	Policies
				to the growth rate and economic investment	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 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. • 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.	National Disaster Risk Reduction Policy 2013[14]

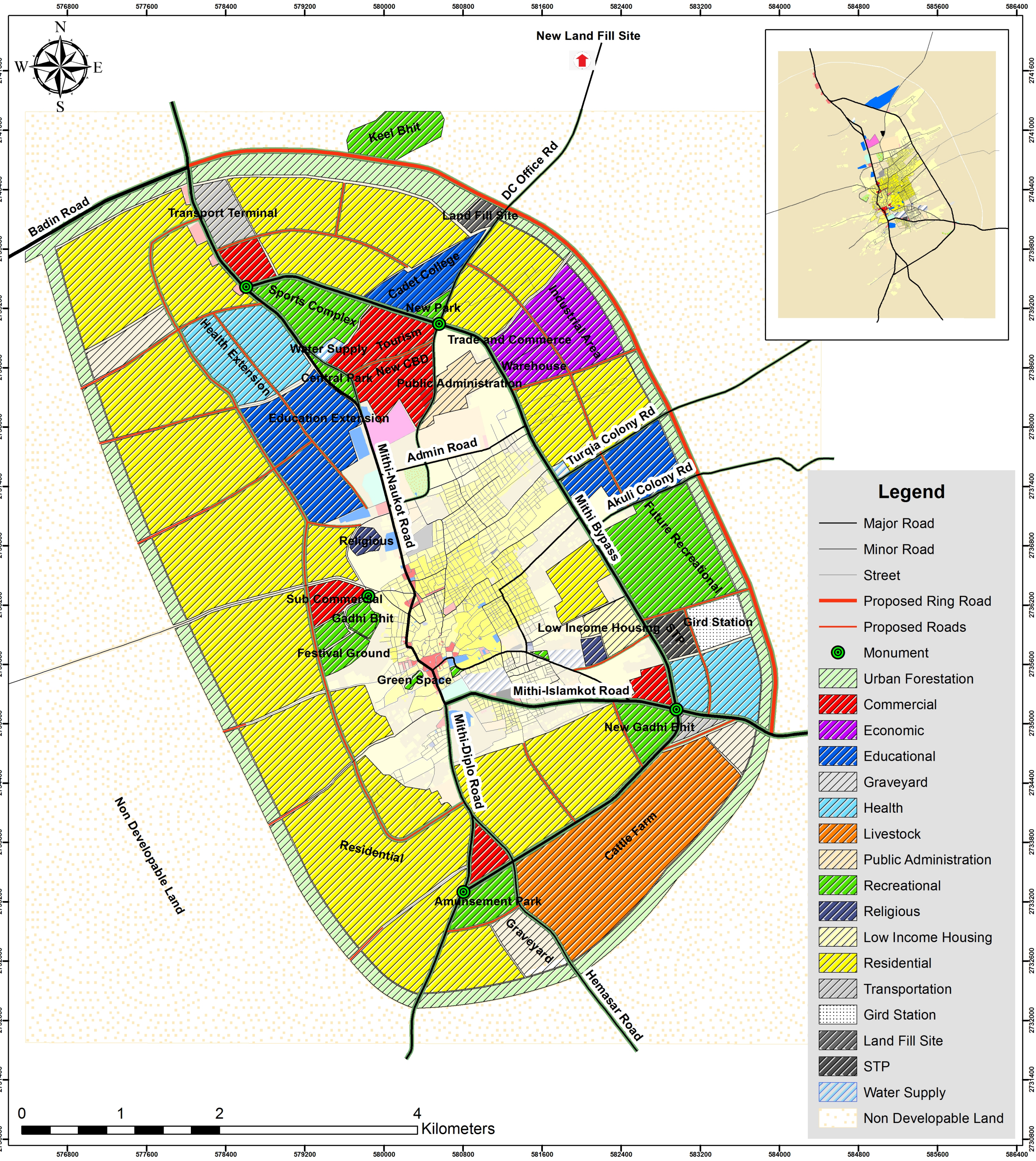
[14] http://www.pdma.gos.pk/new/resources/Sindhidrr-policy.pdf

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.	

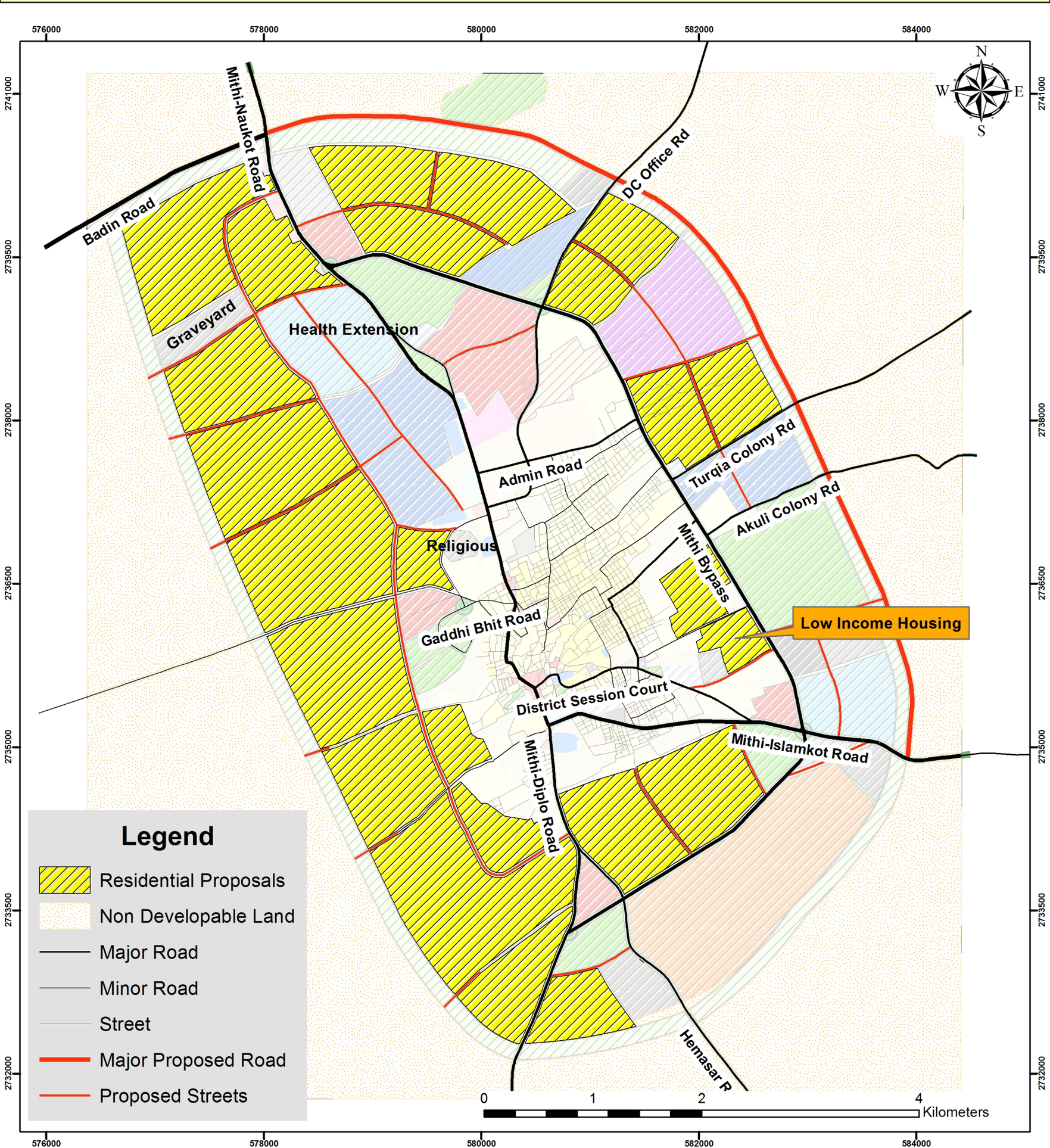
Annexure – B

Atlas

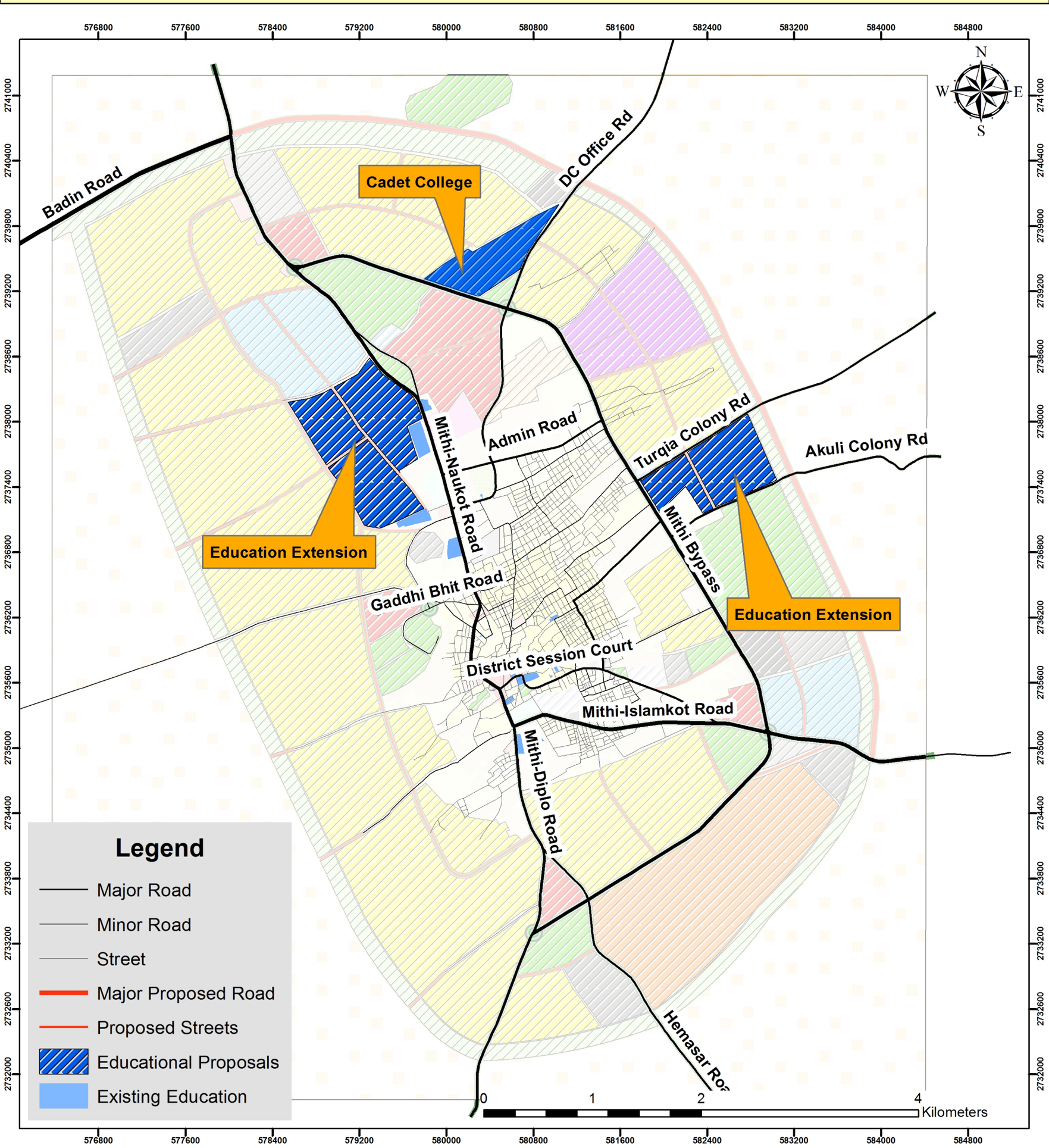
Proposed Master Plan for Mithi Town



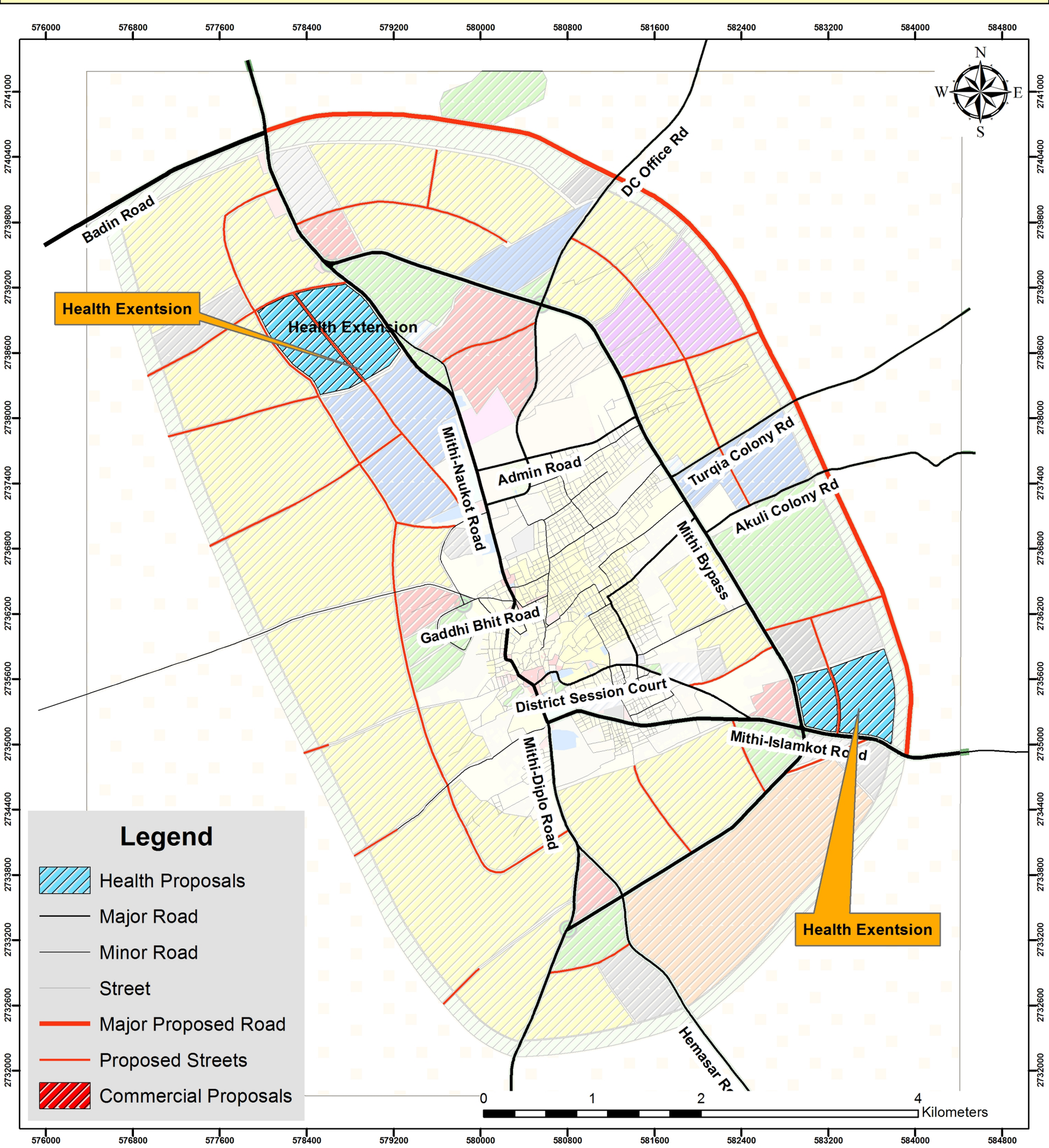
Proposed Residential Landuse for Mithi Town



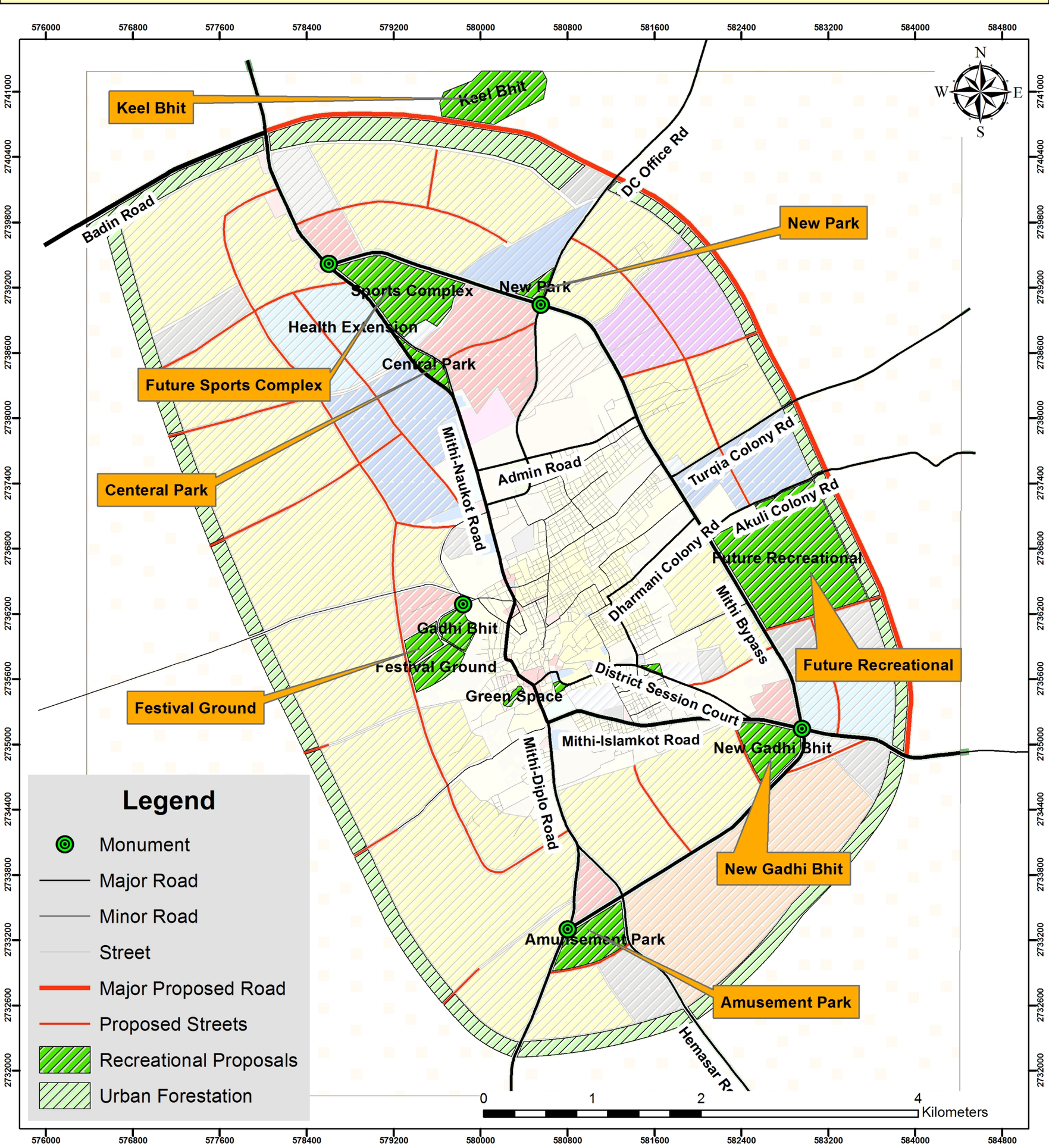
Proposed Education Landuse for Mithi Town



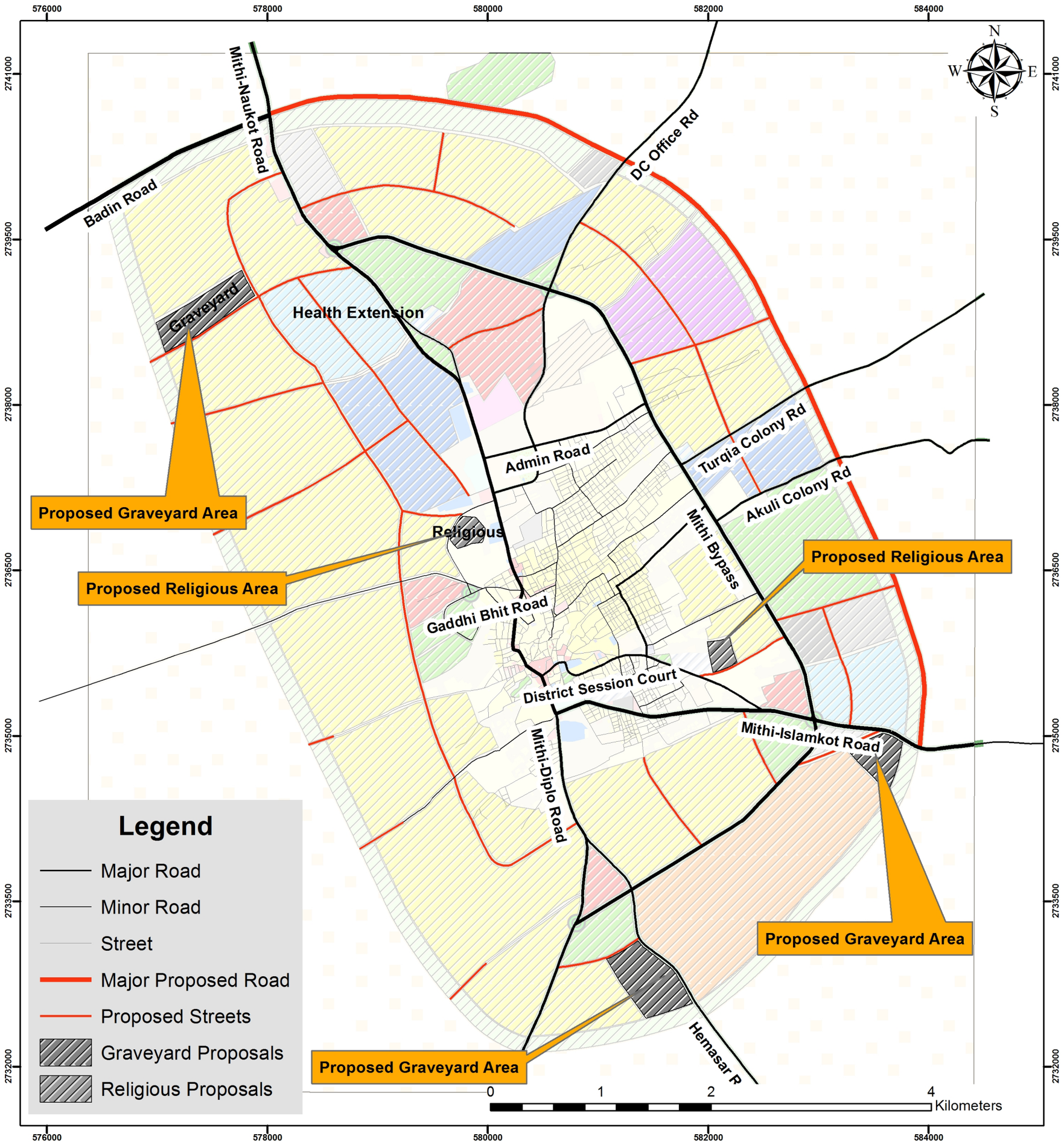
Proposed Health Landuse for Mithi Town



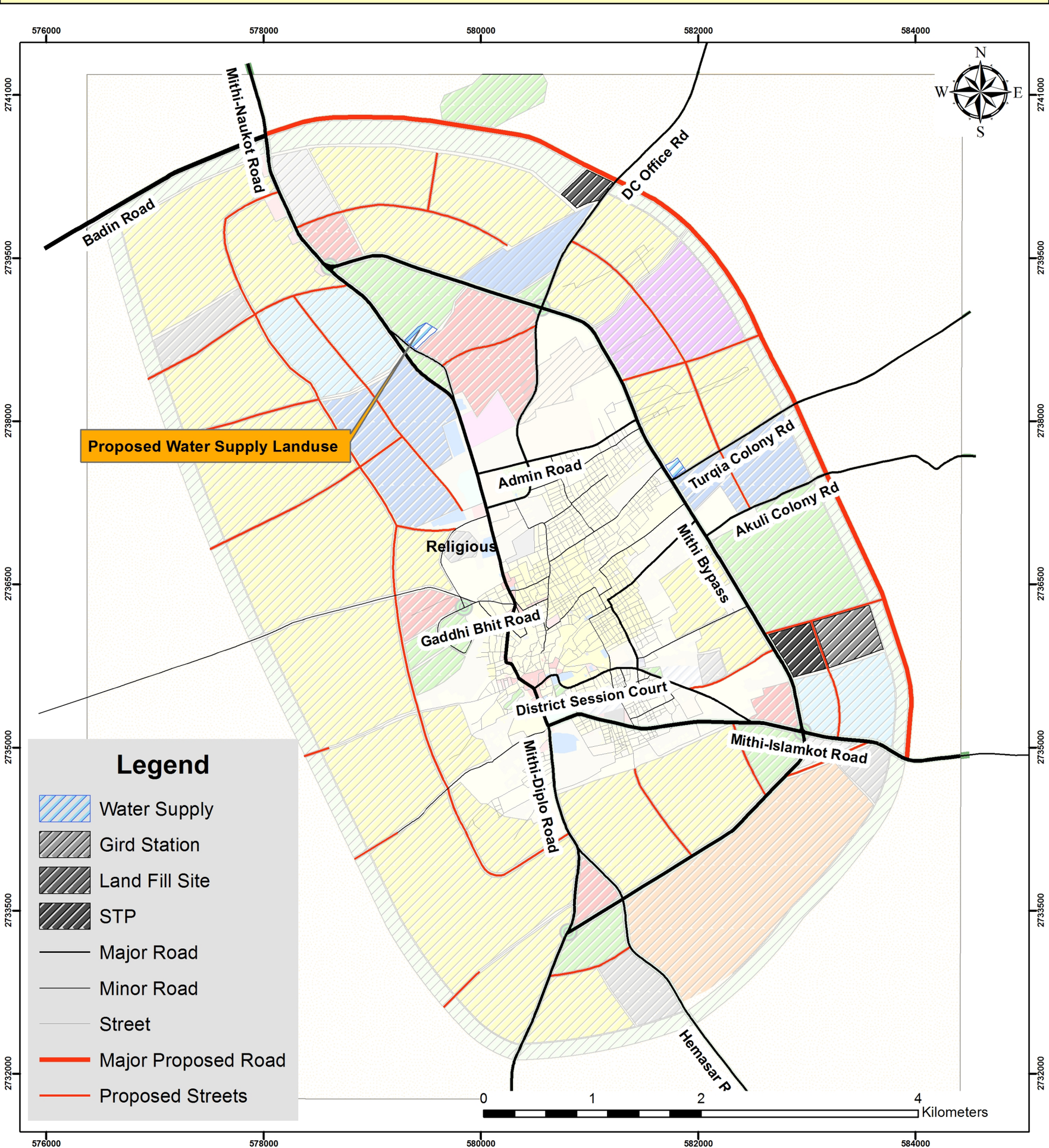
Proposed Recreational Landuse for Mithi Town



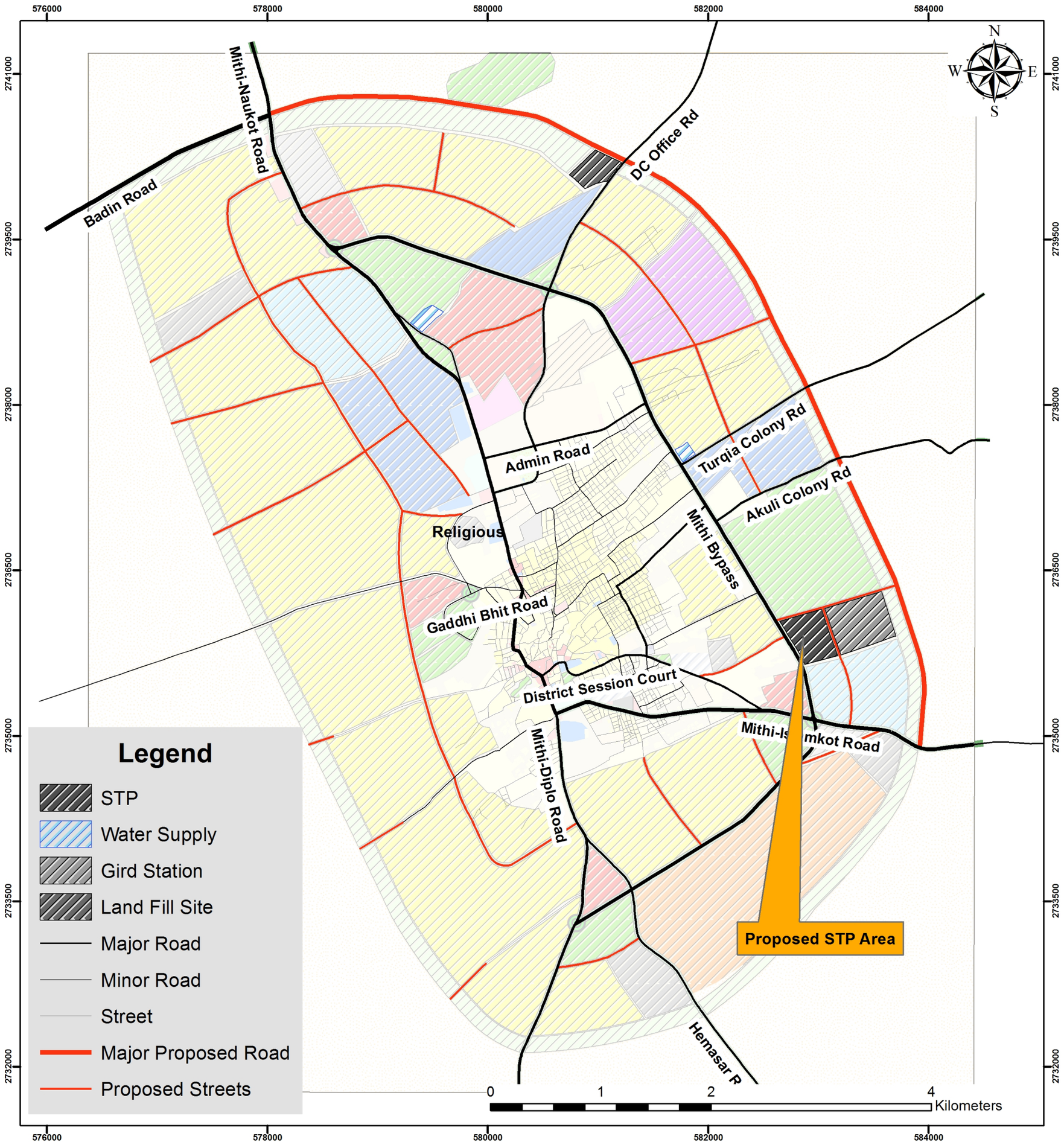
Proposed Religious & Graveyard Landuse for Mithi Town



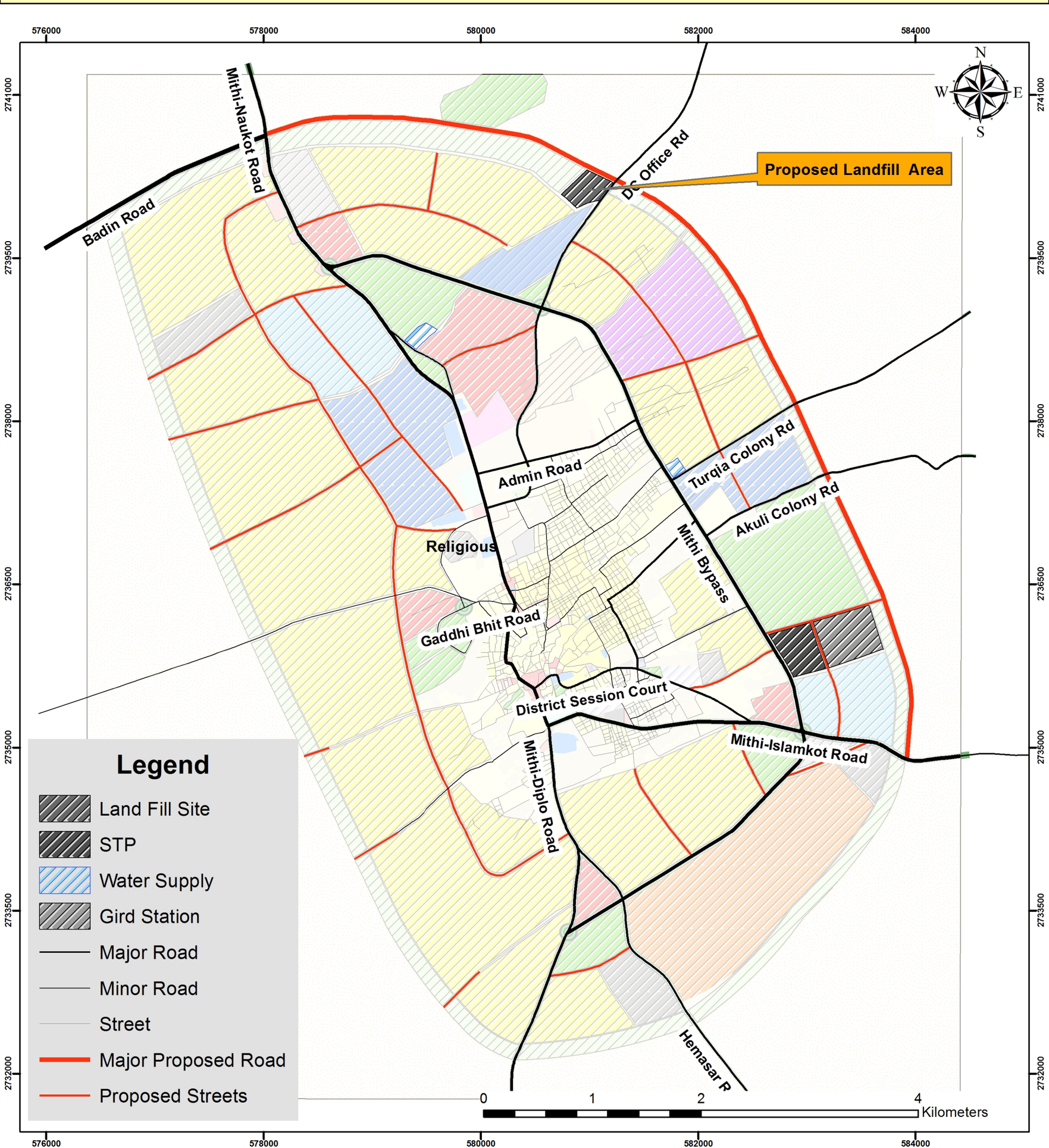
Proposed Utilities Services Landuse for Mithi Town



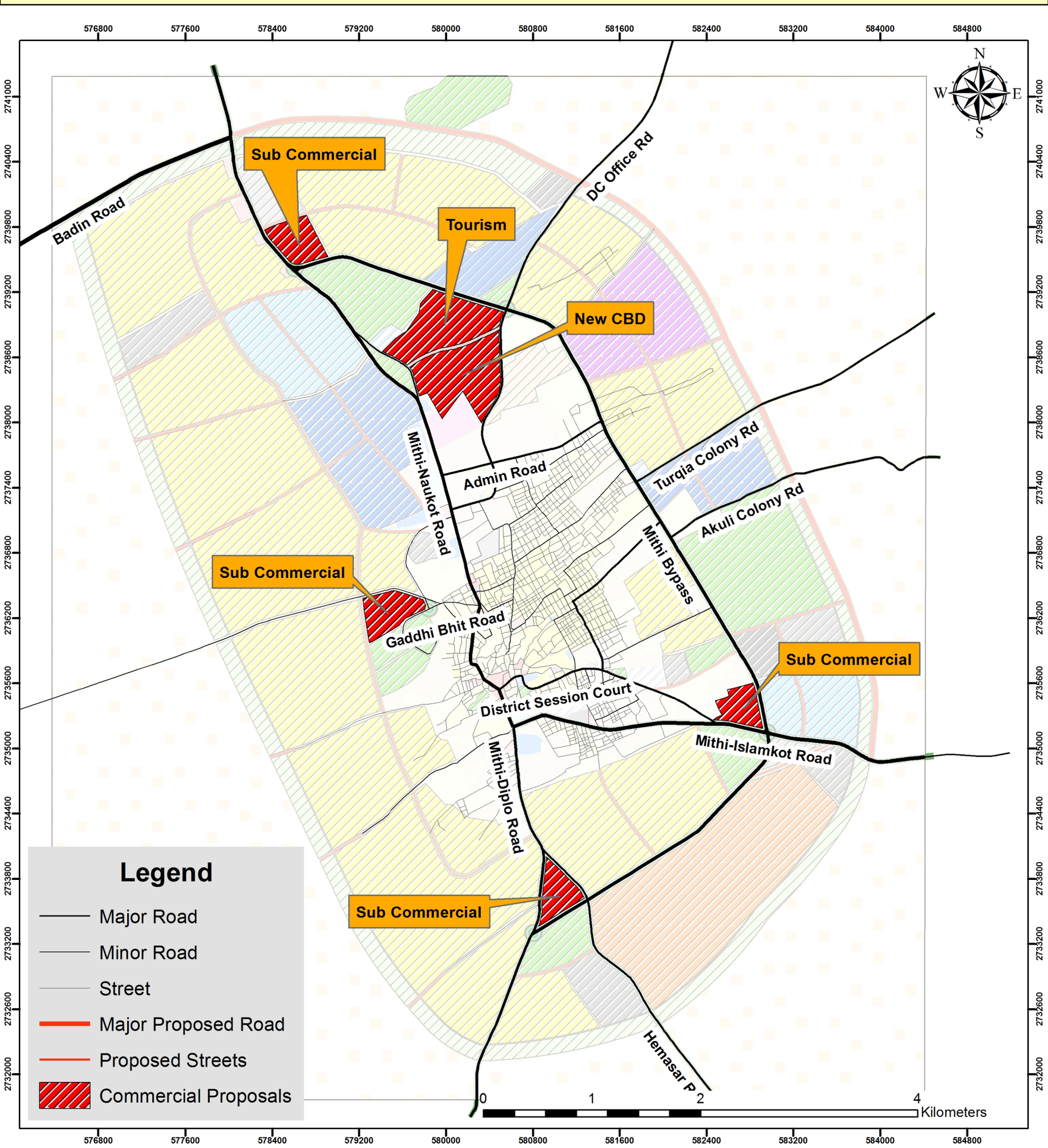
Proposed Utilities Services Landuse for Mithi Town



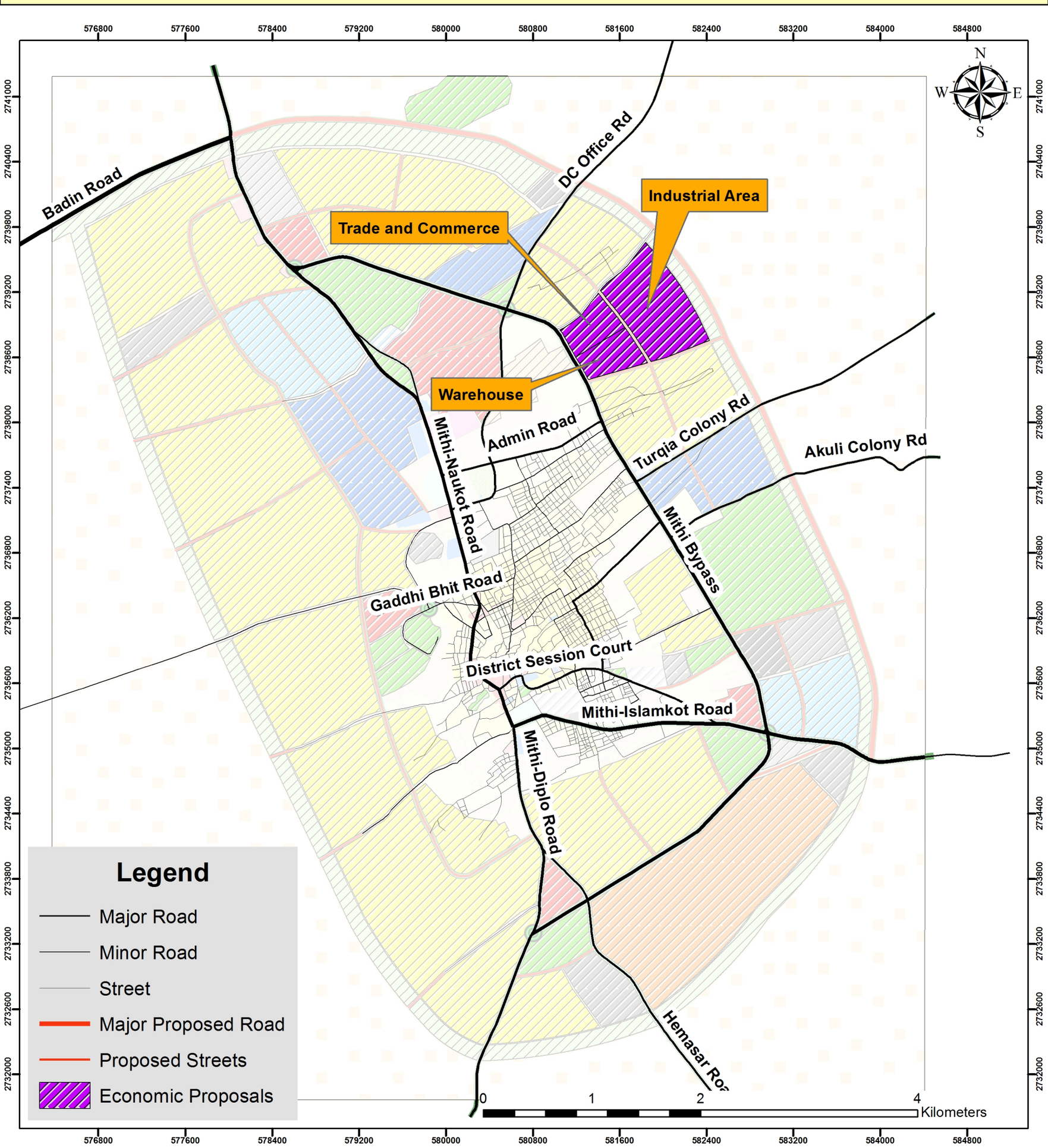
Proposed Utilities Services Landuse for Mithi Town



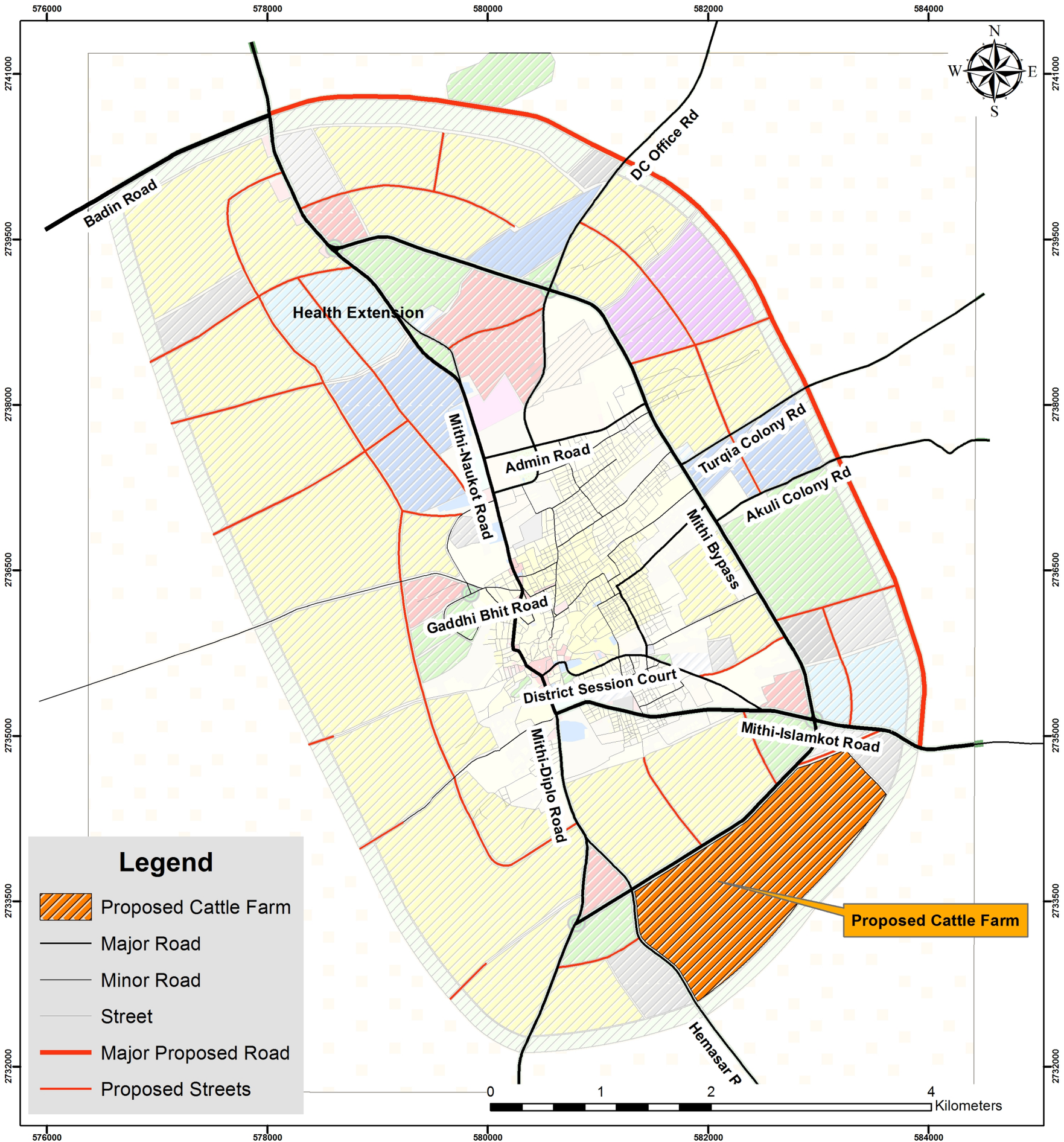
Proposed Commercial Landuse for Mithi Town



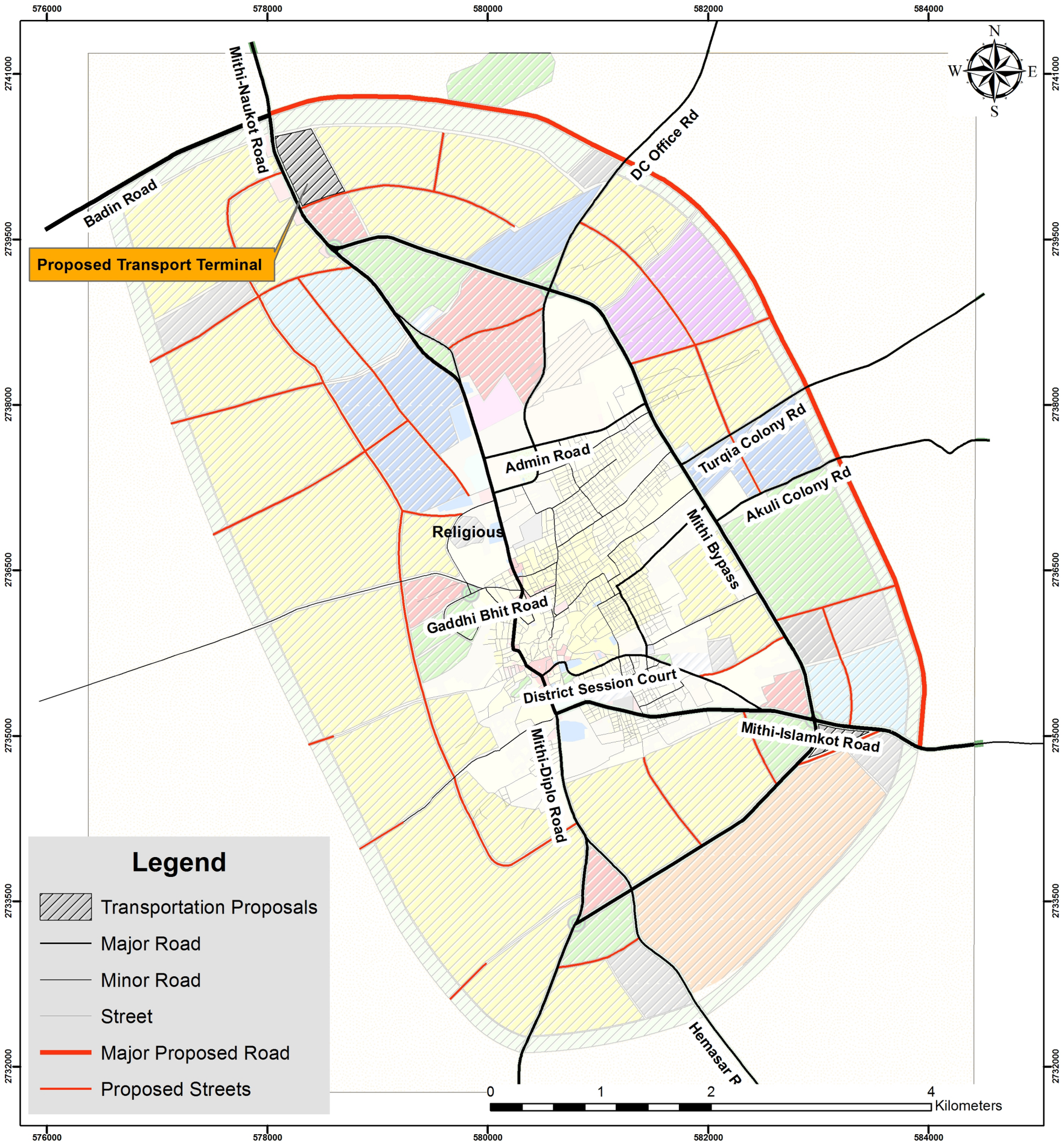
Proposed Economic Landuse for Mithi Town



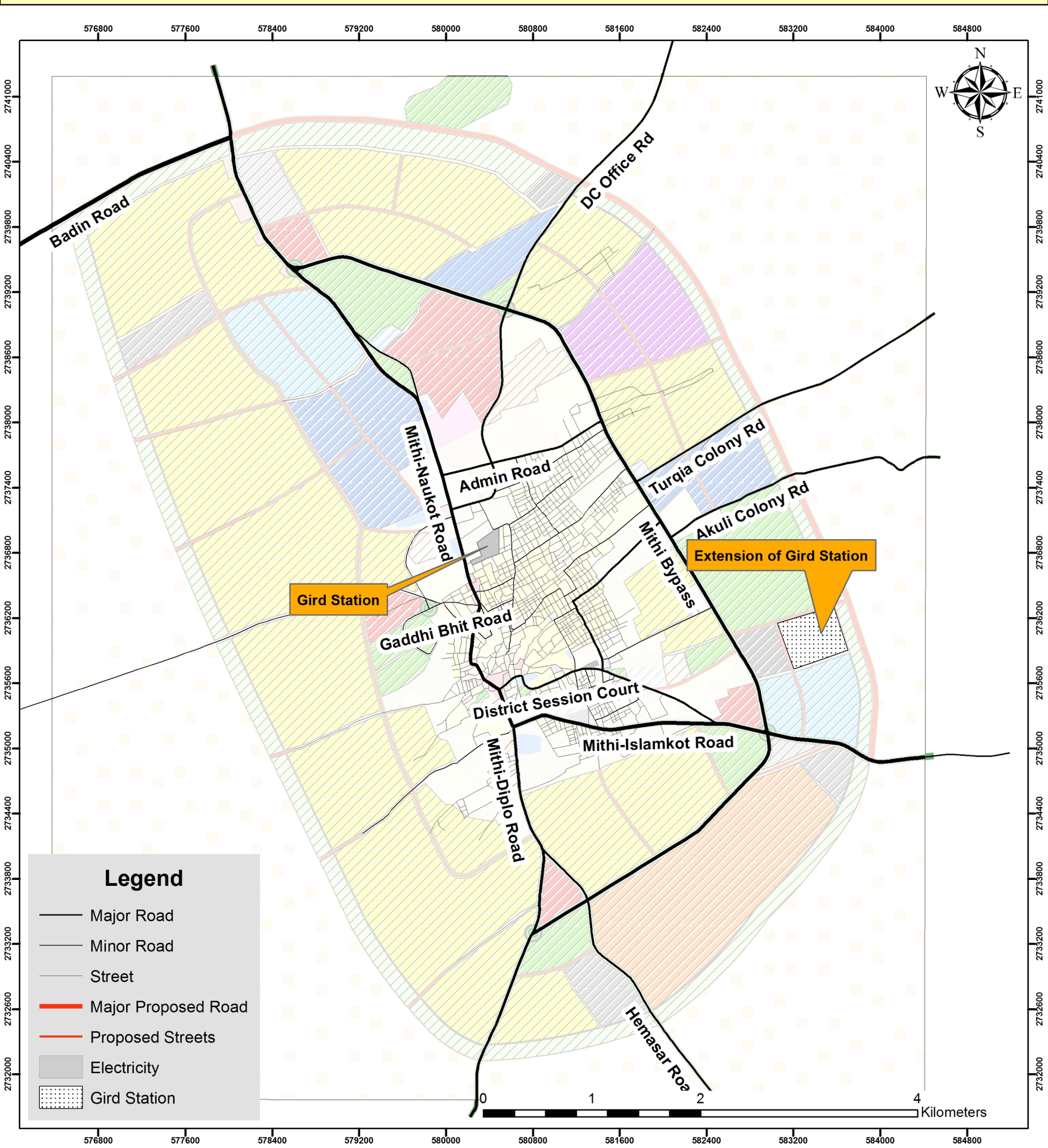
Proposed Livestock Landuse for Mithi Town



Proposed Transportation Landuse for Mithi Town



Proposed Utilities and Services Landuse for Mithi Town



Proposed Administration Landuse for Mithi Town

