

MASTER PLAN FAISALABAD 2021-2041



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پشمانی  OSMANI



FAISALABAD DEVELOPMENT AUTHORITY
GOVERNMENT OF PUNJAB



Master Plan Faisalabad (2021-2041)

INCLUDING STRATEGIC PLAN FOR FIVE YEARS

TABLE OF CONTENTS

| | <u>Page No.</u> |
|--|-----------------|
| TABLE OF CONTENTS | i |
| LIST OF TABLES | ix |
| LIST OF FIGURES | xiv |
| ABBREVIATIONS | xxi |
| CONVERSION TABLE | xxiii |
| VISION STATEMENT | xxiv |
| 1. master plan..... | 1-1 |
| 1.1 PROJECT BACKGROUND..... | 1-1 |
| 1.2 STUDY AREA | 1-2 |
| 1.3 OBJECTIVES OF THE STUDY | 1-2 |
| 1.4 SCOPE OF WORK | 1-3 |
| 1.5 PROJECT DELIVERABLES | 1-3 |
| 1.6 STATUS OF DELIVERABLES | 1-4 |
| 1.7 SUBMISSION OF DRAFT MASTER PLAN | 1-4 |
| 1.8 SELECTION OF OPTION 2 OF DRAFT MASTER PLAN | 1-6 |
| 1.9 KEY FEATURES OF OPTION 6 OF DRAFT MASTER PLAN | 1-14 |
| 1.9.1 Industrial Development..... | 1-14 |
| 1.9.2 Residential Development | 1-15 |
| 1.9.3 Special Zones..... | 1-16 |
| 1.9.4 Public Facilities and Amenities..... | 1-16 |
| 1.9.5 Transportation | 1-17 |
| 1.9.6 Water, Sanitation and Safety..... | 1-22 |
| 2. city profile..... | 2-23 |
| 2.1 BACKGROUND..... | 2-23 |
| 2.2 GEOGRAPHY | 2-24 |
| 2.2.1 Boundary..... | 2-24 |
| 2.2.2 Administrative Setup..... | 2-25 |
| 2.3 POPULATION OF FAISALABAD CITY | 2-27 |
| 2.3.1 Population Censuses | 2-27 |
| 2.3.2 Reasons for Population Growth | 2-28 |
| 2.4 FAISALABAD IN THE REGIONAL CONTEXT | 2-30 |
| 2.4.1 Districts and Subdivisions in the surrounding of Faisalabad District | 2-30 |
| 2.5 PHYSICAL CHARACTERISTICS | 2-38 |
| 2.5.1 Topography..... | 2-38 |
| 2.5.2 Geology..... | 2-39 |
| 2.5.3 Seismicity | 2-39 |
| 2.5.4 Climate..... | 2-40 |
| 2.5.5 Solar Radiation..... | 2-40 |
| 2.5.6 Temperature | 2-41 |
| 2.5.7 Ambient Air Temperature Profile | 2-42 |
| 2.5.8 Precipitation..... | 2-43 |
| 2.5.9 Wind..... | 2-44 |
| 2.5.10 Humidity | 2-44 |
| 2.5.11 Water Demand and Water Availability | 2-45 |

| | | |
|-----------|--|-------------|
| 2.5.12 | Groundwater and Water Quality..... | 2-45 |
| 3. | agriculture | 3-47 |
| 3.1 | CHARACTERISTICS OF AGRICULTURE ACTIVITIES IN FAISALABAD | 3-47 |
| 3.2 | IRRIGATION | 3-48 |
| 3.3 | CROPPING PATTERNS AND PRODUCTION | 3-49 |
| 3.4 | LIVESTOCK KEEPING | 3-52 |
| 3.5 | STRATEGY FOR AGRICULTURE DEVELOPMENT | 3-53 |
| 3.5.1 | Increasing Agriculture Productivity..... | 3-53 |
| 3.5.2 | Promoting Commercial Agriculture | 3-53 |
| 3.5.3 | Promoting Agriculture Research and Extension Services..... | 3-53 |
| 3.5.4 | Efficient and Effective Sector Resource Management Systems | 3-53 |
| 3.6 | AGRICULTURE INFRASTRUCTURE DEVELOPMENT | 3-54 |
| 3.6.1 | Support to the Rehabilitation and Upgrading of Feeder Roads | 3-54 |
| 3.6.2 | Rehabilitation of Existing Storage and Processing Facilities | 3-54 |
| 3.7 | URBAN AGRICULTURE | 3-54 |
| 3.8 | GUIDING PRINCIPLES | 3-55 |
| 3.8.1 | Develop or Adapt Advanced Technologies and Agricultural Practices..... | 3-56 |
| 3.8.2 | Management of Water for Agriculture and Animal Production | 3-56 |
| 4. | socio-economic characteristic | 4-57 |
| 4.1 | BACKGROUND..... | 4-57 |
| 4.2 | DEMOGRAPHICS AND POPULATION..... | 4-57 |
| 4.2.1 | Population Growth..... | 4-57 |
| 4.2.2 | Age-Sex Ratio | 4-59 |
| 4.2.3 | Dependency Ratio | 4-60 |
| 4.2.4 | Population Projection..... | 4-60 |
| 4.2.5 | Population Density..... | 4-62 |
| 4.3 | ETHNIC COMPOSITION | 4-64 |
| 4.4 | RELIGIOUS COMPOSITION | 4-64 |
| 4.5 | CULTURAL DIVERSITY | 4-64 |
| 4.5.1 | Cultural Importance | 4-64 |
| 4.6 | TOURIST ATTRACTIONS | 4-65 |
| 4.7 | EMPLOYMENT | 4-65 |
| 4.8 | HOUSEHOLD INCOME | 4-66 |
| 4.9 | ECONOMIC DISPOSITION | 4-67 |
| 4.9.1 | Revenue | 4-67 |
| 5. | landuse and land development | 5-69 |
| 5.1 | HISTORY AND EVOLUTION OF CITY EXPANSION | 5-69 |
| 5.2 | CITY PLANNING PATTERN AND SPATIAL CHARACTERISTICS | 5-72 |
| 5.3 | LAND USE ANALYSIS AND TEMPORAL VARIATION | 5-77 |
| 5.4 | LAND USE COMPATIBILITY ANALYSIS | 5-81 |
| 5.4.1 | Central Commercial Zone..... | 5-81 |
| 5.4.2 | Administrative and Educational Buildings Zone | 5-83 |
| 5.4.3 | Mixed Land-Uses Zone | 5-85 |
| 5.4.4 | Planned Colonies Zone | 5-85 |
| 5.5 | INDUSTRIAL CLUSTERS..... | 5-85 |
| 5.6 | PROPOSED SATELLITE TOWNS | 5-86 |
| 5.6.1 | Chak Jhumra Town..... | 5-86 |
| 5.6.2 | Khurrianwala Town..... | 5-89 |
| 5.7 | PROPOSED HOUSING SCHEMES ON A PRIORITY BASIS | 5-91 |
| 5.8 | FINAL ZONING MAP AT FDA LEVEL | 5-91 |
| 6. | traffic and transportation | 6-94 |

| | | |
|---------|--|-------|
| 6.1 | GENERAL | 6-94 |
| 6.1.1 | History of Transport Network Development | 6-94 |
| 6.1.2 | Analyses of Traffic Issues | 6-95 |
| 6.2 | ROAD NETWORK OF FAISALABAD | 6-96 |
| 6.3 | ROAD TRAFFIC..... | 6-99 |
| 6.3.1 | Number of Registered Vehicles | 6-99 |
| 6.3.2 | Motorization | 6-99 |
| 6.3.3 | Traffic Count on Cordon Points | 6-99 |
| 6.3.4 | Traffic Analysis and Forecasting of Major Roads..... | 6-102 |
| 6.3.5 | Traffic on Major Intersections..... | 6-102 |
| 6.4 | PARKING SURVEYS AND ANALYSIS | 6-104 |
| 6.5 | PUBLIC TRANSPORT SYSTEM IN FAISALABAD | 6-104 |
| 6.6 | STRATEGIC DEVELOPMENTS IN PUBLIC TRANSPORT SYSTEM | 6-106 |
| 6.6.1 | Faisalabad Bus Rapid Transit (Brt) System | 6-107 |
| 6.6.2 | Integration of Public Transport System with Mass Transit Network | 6-110 |
| 6.6.3 | Integration of Mass Transit System with Faisalabad Bypass..... | 6-110 |
| 6.7 | TRAFFIC MANAGEMENT | 6-111 |
| 6.7.1 | Traffic Laws Issues | 6-111 |
| 6.7.2 | Management of Public Spaces..... | 6-111 |
| 6.7.3 | Road Safety Issues | 6-112 |
| 6.7.4 | Traffic Control | 6-112 |
| 6.7.5 | Driver Awareness | 6-112 |
| 6.7.6 | Public Management Issues | 6-112 |
| 6.7.7 | Commercial Activities..... | 6-116 |
| 6.8 | SHORT TERM DEVELOPMENT PROJECTS (STDP) – 2021 TO 2025..... | 6-117 |
| 6.8.1 | Roads Rehabilitation and Reconstruction | 6-118 |
| 6.8.2 | Proposed New Road Network | 6-118 |
| 6.8.3 | Improvement of Major Intersections | 6-121 |
| 6.8.4 | Pedestrian Movement..... | 6-127 |
| 6.8.5 | Parking and Parking Plazas..... | 6-127 |
| 6.8.6 | Pedestrianization of Eight Bazaar Areas..... | 6-129 |
| 6.8.7 | Streetscaping/ Landscaping..... | 6-129 |
| 6.8.8 | Flyovers / Underpasses: | 6-131 |
| 6.9 | MID TERM DEVELOPMENT PROJECTS (MTDP) – 2025 TO 2030 | 6-132 |
| 6.9.1 | Faisalabad Bypass..... | 6-132 |
| 6.9.2 | Ring Road..... | 6-133 |
| 6.9.3 | Proposed Road Linking M3IC Industrial City with Faisalabad Bypass | 6-136 |
| 6.9.4 | Khurrianwala Arterial Road Network..... | 6-137 |
| 6.9.5 | Khurrianwala Bypass | 6-137 |
| 6.9.6 | Khurrianwala Bus Terminal..... | 6-137 |
| 6.9.7 | Linkages to Lahore-Karachi Motorway (M-3) I.E., Satayana Road and Samundri Road..... | 6-138 |
| 6.9.8 | Improvement of Existing Link Roads Between Risalewala Road and Jhang Road | 6-139 |
| 6.10 | LONG TERM DEVELOPMENT PROJECTS (LTDP) – 2030 TO 2041 | 6-141 |
| 6.10.1 | Construction of Expressway Between Motorway M-3 and M-4..... | 6-141 |
| 6.10.2 | Railways Shuttle Service from Sangla Hill To Abbaspur | 6-143 |
| 6.10.3 | General Bus Stand | 6-143 |
| 6.10.4 | Truck Terminals, Auto Workshops and Auto Spare Parts Markets..... | 6-144 |
| 6.10.5 | Dry Port..... | 6-145 |
| 6.10.6 | Shifting of Oil Depots..... | 6-145 |
| 6.10.7 | Mass Transit System (Bus Rapid Transit)..... | 6-146 |
| 6.10.8 | Feasibility Study for Integrated Bus Operations (IBO) | 6-146 |
| 6.10.9 | Feasibility Study for Circular Connectivity of Thirteen (13) Radial Roads | 6-147 |
| 6.10.10 | Prioritized Plan – 2021 to 2041 | 6-148 |

| | | |
|------------|---|---------------|
| 6.11 | STRATEGIC DEVELOPMENTS IN TRAFFIC & PUBLIC MANAGEMENT | 6-148 |
| 6.11.1 | Short Term Developments in Traffic Management | 6-148 |
| 6.11.2 | Mid Term Developments in Traffic Management..... | 6-149 |
| 6.11.3 | Long Term Developments in Traffic Management..... | 6-149 |
| 6.11.4 | Developments in Public Management System | 6-149 |
| 7. | housing..... | 7-150 |
| 7.1 | INTRODUCTION..... | 7-150 |
| 7.2 | HOUSING SUPPLY | 7-153 |
| 7.3 | SQUATTER SETTLEMENTS | 7-153 |
| 7.3.1 | Factory Area Katchi Abadi Redevelopment Plan..... | 7-154 |
| 7.3.2 | Proposal for Katchi Abadies | 7-154 |
| 7.4 | CONTRIBUTION OF PRIVATE HOUSING IN SUPPLY OF HOUSING..... | 7-156 |
| 7.5 | ILLEGAL AND UNAUTHORIZED HOUSING SCHEMES | 7-157 |
| 7.6 | HOUSING AGENCIES..... | 7-159 |
| 7.6.1 | Punjab Housing and Town Planning Agency (PHATA) | 7-159 |
| 7.6.2 | Faisalabad Development Authority (FDA)..... | 7-160 |
| 7.7 | PLANNING IMPLICATIONS ON HOUSING | 7-161 |
| 7.8 | PROPOSED HOUSING SCHEME ON A PRIORITY BASIS..... | 7-161 |
| 7.9 | SHORT, MID AND LONG-TERM DEVELOPMENT PROJECTS-2021 TO 2025..... | 7-162 |
| 7.9.1 | Residential Areas/Zones..... | 7-162 |
| 7.9.2 | Low Income Housing..... | 7-163 |
| 7.9.3 | Naya Pakistan Housing Scheme..... | 7-163 |
| 8. | employment, industry & commerce | 8-165 |
| 8.1 | INTRODUCTION..... | 8-165 |
| 8.2 | INDUSTRIES' CURRENT FUNCTIONS..... | 8-166 |
| 8.3 | CHARACTERISTICS OF INDUSTRIAL ACTIVITIES | 8-168 |
| 8.4 | ROLE OF INDUSTRIAL SECTOR..... | 8-169 |
| 8.5 | COMMERCE AND TRADE | 8-170 |
| 8.5.1 | Trade and Supporting Agencies | 8-170 |
| 9. | education and health community facilities..... | 9-177 |
| 9.1 | EDUCATION SYSTEM IN PAKISTAN..... | 9-177 |
| 9.2 | NATIONAL EDUCATIONAL POLICIES..... | 9-177 |
| 9.2.1 | The National Education Policy (2009) | 9-178 |
| 9.2.2 | Education Sector Reforms (2001-06) | 9-178 |
| 9.2.3 | National Plan of Action for EFA (2001-15)..... | 9-178 |
| 9.3 | PROVINCIAL EDUCATIONAL SECTOR PLANS..... | 9-179 |
| 9.3.1 | Progress towards Education for All Goals..... | 9-180 |
| 9.4 | DISTRICT EDUCATION PLAN..... | 9-181 |
| 9.4.1 | Profile of District Faisalabad..... | 9-182 |
| 9.5 | CURRENT EDUCATION STATISTICS OF FAISALABAD | 9-186 |
| 9.5.1 | Education Statistics Based on 2017 Census | 9-193 |
| 9.6 | HEALTH POLICY | 9-194 |
| 9.7 | STRUCTURE PLAN OF FAISALABAD- 1986 – 2000 | 9-195 |
| 9.7.1 | Policies and Proposals of the Structure Plan 1986 - 2000..... | 9-195 |
| 9.8 | CURRENT HEALTH FACILITIES | 9-197 |
| 9.8.1 | Health Care Services | 9-197 |
| 9.8.2 | Health Care Delivery System | 9-198 |
| 10. | parks & open spaces..... | 10-202 |
| 10.1 | INTRODUCTION..... | 10-202 |
| 10.2 | CURRENT STATUS OF PARKS/OPEN SPACES | 10-203 |
| 10.2.1 | Iqbal Town | 10-203 |

| | | |
|------------|---|---------------|
| 10.2.2 | Madina Town..... | 10-205 |
| 10.2.3 | Lyallpur Town | 10-207 |
| 10.2.4 | Jinnah Town..... | 10-208 |
| 10.3 | ACCESS TO PARKS | 10-209 |
| 10.3.1 | Key Findings:..... | 10-209 |
| 10.4 | TYPOLOGY OF PARKS & OPEN SPACES | 10-213 |
| 10.5 | BEST PRACTISES AND TRENDS..... | 10-213 |
| 10.5.1 | Trends and Challenges..... | 10-214 |
| 10.6 | PROPOSAL AND RECOMMENDATIONS | 10-215 |
| 10.7 | POLICY DIRECTIONS..... | 10-215 |
| 11. | integrated solid waste management plan | 11-217 |
| 11.1 | CURRENT SITUATION | 11-217 |
| 11.2 | COLLECTION SYSTEM OF DAILY GARBAGE | 11-217 |
| 11.3 | DISPOSAL PRACTICES BY HOUSEHOLDS | 11-219 |
| 11.4 | FAISALABAD WASTE MANAGEMENT COMPANY (FWMC) | 11-219 |
| 11.5 | FIELD WORK DISTRIBUTION | 11-220 |
| 11.6 | STATUS OF OPERATIONAL VEHICLES AND EQUIPMENTS..... | 11-221 |
| 11.7 | ISSUES IN WASTE COLLECTION AND TANSFER | 11-221 |
| 11.8 | ANALYSIS..... | 11-222 |
| 11.9 | PLAN AND PROPOSALS | 11-223 |
| 11.9.1 | IMPLEMENTATION PLAN..... | 11-224 |
| 11.9.1 | Development of Solid Waste Management Zones | 11-224 |
| 11.10 | WASTE AVOIDANCE AND MINIMIZATION..... | 11-227 |
| 11.11 | SOLID WASTE PRELIMINARY TREATMENT | 11-227 |
| 11.12 | SEGREGATION OF SOLID WASTE AT SOURCE | 11-227 |
| 11.13 | COLLECTION OF SOLID WASTE..... | 11-228 |
| 11.13.1 | Industries and Hospitals | 11-228 |
| 11.13.2 | Collection Vehicles..... | 11-229 |
| 11.14 | SANITATION OF GARBAGE AT SOURCE..... | 11-230 |
| 11.15 | TRANSFER STATION | 11-230 |
| 11.16 | MATERIAL RECOVERY FACILITY (MRF) | 11-230 |
| 11.17 | INCINERATION..... | 11-233 |
| 11.18 | DISPOSAL AND TREATMENT..... | 11-233 |
| 11.19 | SALIENT FEATURES OF PROPOSED LANDFILL SITE..... | 11-234 |
| 12. | public utilities..... | 12-235 |
| 12.1 | INTRODUCTION..... | 12-235 |
| 12.2 | CURRENT ISSUES IN WATER SERVICES | 12-236 |
| 12.3 | CONDITIONS FOR PLANNING..... | 12-239 |
| 12.3.1 | Planning Background..... | 12-239 |
| 12.3.2 | Considerations in Planning | 12-239 |
| 12.3.3 | Future Development Plans | 12-239 |
| 12.4 | OBJECTIVES AND GOALS..... | 12-240 |
| 12.5 | WATER SUPPLY PLANS | 12-242 |
| 12.6 | PRIORITY PROJECT | 12-243 |
| 12.7 | SEWERAGE AND DRAINAGE PLANS | 12-244 |
| 12.8 | DRAINAGE PLAN | 12-246 |
| 13. | heritage and tourism plan..... | 13-250 |
| 13.1 | INTRODUCTION..... | 13-250 |
| 13.2 | HISTORY | 13-250 |
| 13.2.1 | Early Settlements..... | 13-250 |
| 13.2.2 | Colonial Rule..... | 13-250 |
| 13.3 | INDEPENDENCE | 13-252 |

| | | |
|------------|--|---------------|
| 13.4 | HERITAGE VALUES..... | 13-253 |
| 13.5 | OUR HERITAGE | 13-253 |
| 13.6 | DECLARED HERITAGE BUILDINGS AND TOWNS..... | 13-253 |
| 13.7 | BENEFITS OF TOURISM | 13-273 |
| 13.8 | CULTURAL AND HERITAGE TOURISM | 13-273 |
| 13.9 | CONDITIONS NECESSARY FOR SUCCESSFUL TOURISM..... | 13-274 |
| 13.10 | IDENTIFY STAKEHOLDERS..... | 13-275 |
| 13.11 | URBAN REGENERATION | 13-277 |
| 13.12 | VISION | 13-280 |
| 13.13 | STRATEGIES..... | 13-280 |
| 14. | economic development plan | 14-283 |
| 14.1 | CURRENT SITUATION | 14-283 |
| 14.1.1 | Population | 14-283 |
| 14.1.2 | Household Size..... | 14-284 |
| 14.1.3 | Population Distribution..... | 14-284 |
| 14.2 | INFRASTRUCTURE | 14-285 |
| 14.2.1 | Public Utility Services..... | 14-285 |
| 14.2.2 | Water Supply | 14-286 |
| 14.3 | ECONOMIC ENGINES OF THE CITY..... | 14-287 |
| 14.3.1 | Agriculture | 14-287 |
| 14.3.2 | Industries | 14-288 |
| 14.3.3 | Services..... | 14-290 |
| 14.3.4 | Labour Force Participation by Occupation, Education and Gender in Faisalabad..... | 14-292 |
| 14.4 | GROWTH POTENTIAL | 14-293 |
| 14.5 | GOVERNANCE..... | 14-294 |
| 14.5.1 | Provincial and Local Finances | 14-295 |
| 14.5.2 | Levels of Local Finances and Tax Collection..... | 14-295 |
| 14.5.3 | Existing Problems with Taxation, User Charge Structure and Related Improvement | 14-296 |
| 14.5.4 | Annual Development Programme (ADP) | 14-296 |
| 14.6 | ANALYSIS..... | 14-297 |
| 14.6.1 | Strengths, Weaknesses, Opportunities and Threats for Urban Development | 14-297 |
| 14.6.2 | China Pakistan Economic Corridor..... | 14-299 |
| 14.6.3 | Faisalabad's Outlook | 14-300 |
| 14.7 | URBAN DEVELOPMENT STRATEGY | 14-303 |
| 14.8 | IMPLEMENTATION PLAN..... | 14-305 |
| 14.9 | MONITORING AND EVALUATION | 14-309 |
| 14.10 | PRIORITIZED PLAN AND PREFERRED MODES OF FINANCING THE PROPOSAL.. | 14-309 |
| 15. | recommendations of earlier master plans and their implementation | 15-311 |
| 15.1 | EVALUATION OF PREVIOUS MASTER PLANS..... | 15-311 |
| 15.2 | MASTER PLAN FOR GREATER LYALLPUR (1971-1985) | 15-311 |
| 15.3 | STRUCTURE PLAN OF FAISALABAD (1985 - 2000)..... | 15-313 |
| 15.4 | FAISALABAD MASTER PLAN (1995 - 2006)..... | 15-315 |
| 15.5 | FAISALABAD `PERI URBAN STRUCTURE PLAN 2015-2035..... | 15-319 |
| 16. | urban governance..... | 16-325 |
| 16.1 | KEY STAKEHOLDERS IN URBAN DEVELOPMENT AND ENVIRONMENTAL MANAGEMENT | 16-325 |
| 16.2 | MUNICIPAL CORPORATION FAISALABAD | 16-326 |
| 16.3 | HOUSING, URBAN DEVELOPMENT AND PUBLIC HEALTH ENGINEERING DEPARTMENT (HUD&PHED)..... | 16-327 |
| 16.4 | FAISALABAD DEVELOPMENT AUTHORITY (FDA) | 16-328 |
| 16.4.1 | Functions of FDA..... | 16-328 |

| | | |
|---|--|---------------|
| 16.4.2 | Issues of FDA..... | 16-331 |
| 16.5 | TRAFFIC ENGINEERING AND TRANSPORT PLANNING AGENCY (TEPA), FAISALABAD | 16-334 |
| 16.5.1 | Functions of TEPA | 16-334 |
| 16.6 | WATER AND SANITATION AGENCY (WASA) FAISALABAD | 16-334 |
| 16.6.1 | Organization Structure | 16-335 |
| 16.6.2 | Personnel Management | 16-335 |
| 16.6.3 | Human Resource Development | 16-337 |
| 16.7 | FAISALABAD WASTE MANAGEMENT COMPANY (FWMC) | 16-338 |
| 17. | disaster management..... | 17-340 |
| 17.1 | RISK OF NATURAL HAZARDS..... | 17-340 |
| 17.1.1 | Seismicity..... | 17-341 |
| 17.1.2 | Flood Risk..... | 17-342 |
| 17.1.3 | Drought Risk | 17-342 |
| 17.2 | EARTHQUAKE RISK REDUCTION..... | 17-345 |
| 17.3 | RECOMMENDATIONS:..... | 17-356 |
| 17.4 | POLICY MEASURES..... | 17-357 |
| 17.5 | EMERGENCY SERVICES (RESCUE 1122) | 17-358 |
| 17.6 | POLICE STATIONS AND POLICE POSTS IN FAISALABAD | 17-360 |
| 17.7 | CRIMES IN FAISALABAD DISTRICT..... | 17-362 |
| 18. | implementation of the master plan | 18-364 |
| 18.1 | DEVELOPMENT CONTROL | 18-364 |
| 18.2 | ENFORCEMENT PROCEDURE | 18-365 |
| 18.3 | BUILDING CONTROL DIRECTORATE..... | 18-365 |
| 18.4 | MASTER PLAN DIRECTORATE..... | 18-366 |
| APPENDICES..... | | 1 |
| Appendix A.1: Final Land Use Plan of Faisalabad | | 2 |
| Appendix B.1: Major Intersections in Faisalabad | | 3 |
| Appendix B.2: Prioritized Plan 2021-2041 | | 4 |
| Appendix C.1: Details of Katchi Abadis Fall Under the Jurisdiction of FDA Faisalabad | | 7 |
| Appendix C.2: Faisalabad Development Authority (Sanctioned Schemes)..... | | 10 |
| Appendix D.1: BHUs, RHCs &THQs Details in Faisalabad | | 13 |
| Appendix D.2: List of Government Dispensaries City Faisalabad and Mailing Address | | 17 |
| Appendix D.3: List of Private & Government Hospitals in District Faisalabad | | 18 |
| Appendix D.4: List of Basic Health Units District Faisalabad | | 19 |
| Appendix E.1: List of Restaurants, Mosques, Shrines, Churches, Gurudwares, Hindu Temples, Hotels, Transport Facilities | | 23 |
| Appendix F.1: Detailed List of Priority Projects | | 27 |

SUPPLEMENTARY SECTORAL REPORTS / PLANS OF THE MASTER PLAN (2021-2041)

- Economic Development Plan
- Traffic & Transportation Plan
- Water Supply, Sewerage & Drainage Plan
- Solid Waste Management Plan
- Energy Conservation Action Plan
- Built Heritage & Tourism Plan
- Parks & Open Space Plan
- Urban Design Guidelines

LIST OF TABLES

| | |
|---|-------------|
| Table 1-1: Landuse Statistics of Options 1, 2 and 3 | 1-13 |
| Table 1-2: Landuse Statistics of Option 4,5 and 6 | 1-13 |
| Table 1-3: Detail Land Use Analysis with Location w.r.t. Mouza | 1-18 |
| Table 2-1: Districts of Faisalabad Division..... | 2-25 |
| Table 2-2: Administrative Division of District Faisalabad | 2-26 |
| Table 2-3: Total Population of Faisalabad District – 2017 | 2-27 |
| Table 2-4: Total Population According to Censuses | 2-27 |
| Table 2-5: Population 1901 – 2017 | 2-27 |
| Table 2-6: Population and Distance Analysis of Subdivisions and Districts near Faisalabad | 2-38 |
| Table 2-7: Climate Summary of Faisalabad..... | 2-40 |
| Table 2-8: Annual Rainfall in Faisalabad (2009-2018) | 2-43 |
| Table 2-9: Tehsils where Surface Water is Urgently Required (Saline Ground Water Areas) | 2-46 |
| Table 3-1: Land Utilization Statistics (2013-14) | 3-47 |
| Table 3-2: Land Utilization Statistics (2013-14) (square km)..... | 3-48 |
| Table 3-3: Sales of Fertilizers (2010-2015) (Thousand Nutrient Tons)..... | 3-48 |
| Table 3-4: Area Sown and Mode of Irrigation (2010-2015)..... | 3-49 |
| Table 3-5: Sugarcane and Wheat Cropped Area and Production of Faisalabad District (2012-2018) | 3-50 |
| Table 3-6: Cotton, Rice & Fodders Cropped Area and Production of Faisalabad District (2012-2018) | 3-51 |
| Table 3-7: Number of Cattle and Buffaloes in Faisalabad District (2000-2010)..... | 3-52 |
| Table 3-8: Number of Sheep and Goats in Faisalabad District (2000-2010)..... | 3-52 |
| Table 3-9: Number of Work Animals by Type in Faisalabad District | 3-53 |
| Table 4-1: Population Growth in Faisalabad 1941-61 and Comparison with other Cities | 4-57 |
| Table 4-2: Past Population Increase Faisalabad (Source: District Census Reports) | 4-58 |
| Table 4-3: Percentage of Male Population at Various Age Levels | 4-59 |
| Table 4-4: Population by Age and Sex of Tehsil Faisalabad - 1998..... | 4-59 |
| Table 4-5: Male Population, 1961 and 1998 | 4-60 |
| Table 4-6: Population Growth Scenario..... | 4-61 |
| Table 4-7: Residential Densities in Various Sectors..... | 4-62 |
| Table 4-8: Workers Occupational Statistics | 4-66 |

| | |
|---|--------------|
| Table 4-9: Percentage of Household Income Classes in Study Area | 4-66 |
| Table 4-10: Overview of Household Income Disposition | 4-66 |
| Table 4-11: Faisalabad Industrial Statistics | 4-67 |
| Table 5-1: Launching Year and Area of the Planned Govt. Housing Schemes..... | 5-71 |
| Table 5-2: Land use Analysis 1985 | 5-77 |
| Table 5-3: Faisalabad City Area | 5-77 |
| Table 5-4: Land use Analysis 2019 | 5-78 |
| Table 5-5: Chak Jhumra Land use | 5-88 |
| Table 5-6: Land use Analysis of Proposed Khurianwala Industrial Estate | 5-90 |
| Table 5-7: Proposed Housing Scheme on Priority basis for Faisalabad District..... | 5-91 |
| Table 5-8: Land use Area Distribution by Different Sectors | 5-92 |
| Table 5-9: Proposed Land use Areas – Option 6 | 5-92 |
| Table 6-1: Number of Registered Vehicles in Faisalabad..... | 6-99 |
| Table 6-2: LOS of Major Roads | 6-102 |
| Table 6-3: Existing and Proposed Scenarios of Major Intersections | 6-103 |
| Table 6-4: Existing Average Parking Time at Major Areas of Faisalabad | 6-104 |
| Table 6-5: Faisalabad Bus Rapid Transit (BRT) Parameters..... | 6-107 |
| Table 6-6: Summary of Integrated Feeder Routes (Red Line)..... | 6-108 |
| Table 6-7: Summary of Integrated Feeder Routes (Orange Line)..... | 6-108 |
| Table 6-8: Integration of BRT Lines with Faisalabad Bypass | 6-110 |
| Table 6-9: Accidents & Fatalities Data..... | 6-112 |
| Table 6-10: Proposed New Road Network..... | 6-119 |
| Table 6-11: Number of Proposed Roads, Right-of-Way, Length and Phasing for Development | 6-119 |
| Table 6-12: Approximate Budget Amount for STDP | 6-132 |
| Table 6-13: Features of Faisalabad Ring Road (FRR) Option-2 | 6-134 |
| Table 6-14: Features of Faisalabad Ring Road (FRR) (Option-1 & 2) | 6-134 |
| Table 6-15: Khurianwala Roads with Existing and Proposed Right-of-Ways..... | 6-137 |
| Table 6-16: Approximate Budget Amount for MTDP | 6-140 |
| Table 6-17: The parameters of the corridors of Faisalabad BRT System | 6-146 |
| Table 6-18: Approximate Budget Amount for LTDP | 6-148 |
| Table 7-1: Details of Housing Schemes/Resettlement Schemes (Source: FSD) | 7-153 |
| Table 7-2: Sanctioned Housing Schemes in Faisalabad | 7-156 |
| Table 7-3: Proposed Housing Scheme on Priority Basis for Faisalabad District | 7-161 |
| Table 7-4: Naya Pakistan Housing Programme in Faisalabad | 7-164 |
| Table 8-1: Detail of Commercial Facilities (1985)..... | 8-175 |
| Table 9-1: Formal Education Institution in Pakistan..... | 9-177 |

| | |
|---|---------------|
| Table 9-2: Overall School Statistics of Punjab Province..... | 9-181 |
| Table 9-3: Education Statistics for District Faisalabad | 9-182 |
| Table 9-4: PMIU Monthly Indicators (June 2021) | 9-183 |
| Table 9-5: Status of Literacy in Faisalabad District..... | 9-183 |
| Table 9-6: Details of Facilities and Shortages in 1986..... | 9-184 |
| Table 9-7: Proposed Space Standards in Structure Plan 1986-2000 | 9-185 |
| Table 9-8: Future Projections made in Structure Plan of Faisalabad 1986-2000 | 9-185 |
| Table 9-9: The Number of Educational Facilities Projected in Structure Plan 1986-2000 | 9-185 |
| Table 9-10: The Space Requirement Projected in Structure Plan 1986-2000..... | 9-186 |
| Table 9-11: Situation of Education Facilities for the Year 2017 | 9-193 |
| Table 9-12: The Total Available Facilities during 1986..... | 9-195 |
| Table 9-13: Position of Private Practitioners during 1986..... | 9-195 |
| Table 9-14: Projected Requirements up to the Year 2000 | 9-196 |
| Table 9-15: Area Requirements for the Projected Health Facilities..... | 9-196 |
| Table 9-16: Number of Dispensaries Required | 9-196 |
| Table 9-17: Number of Health Facilities of Punjab Province and Faisalabad | 9-198 |
| Table 9-18: Situation of Health Care Facilities | 9-199 |
| Table 9-19: Status of Health Facilities in the District..... | 9-200 |
| Table 10-1: Proposed Open Spaces | 10-215 |
| Table 11-1: Disposal of Daily Garbage by households..... | 11-219 |
| Table 11-2: Faisalabad's Detailed Inherited and Current Gear (Source: FWMC Action Plan)..... | 11-221 |
| Table 11-3: Summary of the constraints and challenges | 11-221 |
| Table 11-4: Physical Composition of MWC, Faisalabad, 2014 | 11-222 |
| Table 11-5: Identify the Beneficiaries of Solid Waste Management and Implementation | 11-222 |
| Table 11-6: Grouping of Land use Classes into a Solid Waste Category | 11-224 |
| Table 11-7: Criteria for the development of Solid Waste Management Zones in Faisalabad City..... | 11-225 |
| Table 11-8: Sub-Ranked UCs Lies in Zone H | 11-226 |
| Table 11-9: Criteria for the Development of Sub-Zones of Zone H..... | 11-226 |
| Table 12-1: Outline of WASA-F Water Supply Works in 2015 | 12-236 |
| Table 12-2: Outline of WASA-F Sewerage/Drainage Works | 12-237 |
| Table 12-3: Outline of WASA-F's Financial Condition | 12-237 |
| Table 12-4: Targetting the Water Supply Service in the WASA-F Service Area..... | 12-241 |
| Table 12-5: Target Sewerage Service Population in the Study Area | 12-242 |

| | |
|---|---------------|
| Table 12-6: Design Criteria for Water Treatment | 12-243 |
| Table 12-7: Sewerage Service Areas and Service Populations in the Study Area (2038) | |
| | 12-244 |
| Table 12-8: Design Average Flows (2038) | 12-245 |
| Table 12-9: Outline of the Sewerage Plan | 12-245 |
| Table 13-1: Positive and Negative effects of Tourism | 13-273 |
| Table 13-2: Main Considerations For the Inclusion and Management Issues of Key Stakeholders | 13-276 |
| Table 13-3: Faisalabad Heritage Tourism Master Plan Strategies | 13-281 |
| Table 14-1: Historical Population Statistics | 14-284 |
| Table 14-2: Population and Housing Characteristics of the year 2017 | 14-284 |
| Table 14-3: Situation of Public Utility Service in the Year 2017 (As Percentage of Total Housing Unit) | 14-285 |
| Table 14-4: Ranking by Industry and Employment Concentration in Faisalabad.. | 14-289 |
| Table 14-5: Number of Textile Units by Classification | 14-289 |
| Table 14-6: Sectoral Share in Employment- Faisalabad..... | 14-290 |
| Table 14-7: Distribution of Occupation by Gender in FDA Area..... | 14-293 |
| Table 14-8: Tax Collection by FBR from Faisalabad Division (Amount in million Rs) 14-296 | |
| Table 14-9: Allocations under development Plan to Faisalabad (Amount in million Rs.) | 14-297 |
| Table 14-10: Proposals of Social and Economic Characteristics & Infrastructure for 2021-2041..... | 14-300 |
| Table 14-11: Expected Demand for Housing..... | 14-300 |
| Table 14-12: Annual Demand for Public Utility Services for 2021-2041 | 14-301 |
| Table 14-13: Expected Demand for Education Infrastructure..... | 14-301 |
| Table 14-14: Expected Demand for Healthcare Infrastructure..... | 14-302 |
| Table 14-15: Expected Economic Output (GDP)..... | 14-303 |
| Table 14-16: Revenue Generation from FDA Area..... | 14-303 |
| Table 14-17: List of Economic Development Project..... | 14-309 |
| Table 15-1: Improvement of City Roads | 15-317 |
| Table 15-2: Roads were Recommended to be constructed | 15-317 |
| Table 15-3: Status of Overhead Passses..... | 15-317 |
| Table 15-4: Status of Pedistrian and Underpasses..... | 15-317 |
| Table 15-5: Status of Traffic Junctions..... | 15-318 |
| Table 15-6: Status of Environmental Activities..... | 15-318 |
| Table 15-7: Status of Social Sector..... | 15-318 |

| | |
|--|---------------|
| Table 16-1: Administrative Divisions/ Units of Faisalabad District | 16-325 |
| Table 16-2: Post in Urban Wing of FDA | 16-330 |
| Table 16-3: Development/Non-Development Budget..... | 16-331 |
| Table 16-4: Summary for Applications Received on Khidmat Markaz | 16-331 |
| Table 16-5: Number of training Course Attendants | 16-337 |
| Table 17-1: Trend of Roof Material over Different Periods in District Faisalabad . | 17-347 |
| Table 17-2: Staff and Vehicles available in the Rescue Stations in Faisalabad City and its Surroundings | 17-358 |
| Table 17-3: No. of Police Stations and Police Chowkies in Faisalabad District 2009-2018..... | 17-361 |
| Table 17-4: Position of Crime in Faisalabad District | 17-362 |
| Table 18-1: Human Resource Requirements for Building Control Directorate, FDA .. | 18-365 |
| Table 18-2: The Logistics Requirement of Building Control Directorate, FDA | 18-366 |

LIST OF FIGURES

| | Page No. |
|--|-----------------|
| Figure 1-1: Faisalabad Peri-Urban Structure Plan with MC Boundary and FDA Metropolitan Boundary | 1-2 |
| Figure 1-2: Draft Land Use Zoning Map Option-1 | 1-7 |
| Figure 1-3: Draft Land Use Zoning Map Option-2 | 1-8 |
| Figure 1-4: Draft Land Use Zoning Map Option-3 | 1-9 |
| Figure 1-5: Draft Land Use Zoning Map Option-4 | 1-10 |
| Figure 1-6: Draft Land Use Zoning Map Option-5 | 1-11 |
| Figure 1-7: Proposed Landuse Zoning Map Option-6 | 1-12 |
| Figure 2-1: Satellite View of Faisalabad (2021) and British Flag (Union Jack), with the Eight Bazaars | 2-23 |
| Figure 2-2: Majestic Clock Tower | 2-24 |
| Figure 2-3: Aerial View of Majestic Clock Tower and Surrounding Eight Bazaars | 2-24 |
| Figure 2-4: Boundary of Faisalabad District | 2-25 |
| Figure 2-5: Locations of Faisalabad Towns | 2-26 |
| Figure 2-6: Historical Spatial Growth of Faisalabad (1984-2017) | 2-29 |
| Figure 2-7: Distance between Linkages | 2-31 |
| Figure 2-8: Faisalabad Regional Connectivity | 2-32 |
| Figure 2-9: Seismic Map of Pakistan | 2-39 |
| Figure 2-10: Annual Hourly Solar Radiation | 2-41 |
| Figure 2-11: Average Annual Temperature in Faisalabad | 2-42 |
| Figure 2-12: 31 Years Comparison of Temperature January (Ambient Air Temperature) | 2-42 |
| Figure 2-13: 29 Years Comparison of Temperature in December (Ambient Air Temperature) | 2-43 |
| Figure 2-14: Average Monthly Precipitation in Faisalabad | 2-44 |
| Figure 2-15: Average Humidity for the Years 2009-2017 | 2-45 |
| Figure 2-16: Agricultural, Industrial, Domestic and Livestock Water Demand | 2-45 |
| Figure 2-17: Water Quality status of Rachna Doab, 2006 | 2-46 |
| Figure 3-1: Area Sown and Production under Wheat & Sugarcane (2012-2018) | 3-50 |
| Figure 3-2: Area sown and production, Cotton & Rice (2011 to 2017) | 3-51 |
| Figure 3-3: Area sown (Kharif & Rabi) and Production of Fodder crops (2011 to 2017) | 3-51 |
| Figure 3-4: Livestock Data of Faisalabad District (2006)¹⁶ | 3-52 |

| | |
|--|-------|
| Figure 4-1: Population Growth Trend | 4-58 |
| Figure 4-2: Population Projection Scenarios | 4-61 |
| Figure 4-3: Population Density | 4-63 |
| Figure 5-1: Eight Bazars of Faisalabad | 5-70 |
| Figure 5-2: Commissioner Office | 5-70 |
| Figure 5-3: Historical Spatial Growth of Faisalabad City 1894-2017 (a) | 5-73 |
| Figure 5-4: Historical Spatial Growth of Faisalabad City 1894-2017 (b) | 5-74 |
| Figure 5-5: Historical Spatial Growth of Faisalabad City 1894-2017 (c) | 5-75 |
| Figure 5-6: Major Housing Schemes Launched by Public Sector Since 1953 | 5-76 |
| Figure 5-7: Land Use Map FDA Area 2019 | 5-79 |
| Figure 5-8: Land Use Map Faisalabad MC Area 2018 | 5-80 |
| Figure 5-9: Commercial Zone | 5-82 |
| Figure 5-10: Public Building and Education Building | 5-84 |
| Figure 5-11: Industrial Clusters | 5-86 |
| Figure 5-12: Chak Jhumra Land Use Zoning | 5-88 |
| Figure 5-13: Proposed Land-Use for Khurrianwala Satellite Town | 5-89 |
| Figure 6-1: Location Map of Faisalabad and Road Network | 6-94 |
| Figure 6-2: Historical Spatial Growth of Faisalabad City 1894-2017 | 6-95 |
| Figure 6-3: Road Network of Faisalabad | 6-98 |
| Figure 6-4: Traffic Count on Cordon Points of Faisalabad | 6-101 |
| Figure 6-5: Traffic on Major Intersections of Faisalabad Analysis of Critical Intersections | 6-103 |
| Figure 6-6: Original Public Transport Routes in Faisalabad | 6-105 |
| Figure 6-7: Functional Public Transport Routes in Faisalabad | 6-106 |
| Figure 6-8: Proposed Red & Orange Bus Rapid Transits (BRTs) in Faisalabad | 6-107 |
| Figure 6-9: Feeder Routes Network of BRT Red Line | 6-109 |
| Figure 6-10: Feeder Routes Network of BRT Orange Line | 6-109 |
| Figure 6-11: Long Term Mass Transit Plan with stations on Faisalabad Bypass | 6-111 |
| Figure 6-12: Proposed Location of Pedestrian Bridges / Underpasses | 6-115 |
| Figure 6-13: Commercial Land use of Faisalabad City | 6-117 |
| Figure 6-14: Cross-section of 80' R.O.W | 6-120 |
| Figure 6-15: Cross-section of 100' R.O.W | 6-120 |
| Figure 6-16: Cross-section of 120' R.O.W | 6-121 |
| Figure 6-17: Cross-section of 150' R.O.W | 6-121 |
| Figure 6-18: Proposed New Road Network with ROWs | 6-123 |
| Figure 6-19: Proposed New Road Network with Phases | 6-124 |
| Figure 6-20: Major Intersections, Faisalabad City | 6-125 |

| | |
|--|--------------|
| Figure 6-21: Major Intersections in Faisalabad City | 6-126 |
| Figure 6-22: Proposed Sites for Parking Plazas | 6-127 |
| Figure 6-23: Proposed Additional Sites for Parking Plazas within Eight Bazar | 6-128 |
| Figure 6-24: Parking Plaza Site 4 & 5..... | 6-128 |
| Figure 6-25: Pedestrianization of Eight Bazaar Area..... | 6-129 |
| Figure 6-26: Street Furniture | 6-131 |
| Figure 6-27: Proposed Cross Section for 120' ROW Faisalabad Bypass..... | 6-133 |
| Figure 6-28: Faisalabad Ring Road (Option-1) with Cordon Points..... | 6-135 |
| Figure 6-29: Faisalabad Ring Road (Option-2) with cordon points | 6-135 |
| Figure 6-30: Faisalabad Ring Road (Option-1, 2) with Cordon Point..... | 6-136 |
| Figure 6-31: Link to M3 Industrial Estate (FIEDMC) with Faisalabad Bypass | 6-136 |
| Figure 6-32: Khurrianwala Arterial Network - Proposed Bypass – Proposed Bus Stand | 6-138 |
| Figure 6-33: Proposed Interchange on M3 at Satayana Road..... | 6-139 |
| Figure 6-34: Improvement of Proposed Links and Associated Junctions of Science City..... | 6-140 |
| Figure 6-36: Proposed Expressway Connecting Motorways M3 and M4 | 6-141 |
| Figure 6-37: Proposed Expressway Routes North & South Side..... | 6-142 |
| Figure 6-38: Proposed Expressway Routes South Side..... | 6-142 |
| Figure 6-39: Proposed Railway Shuttle Service from Sangla Hill to Abbaspur Railway Station | 6-143 |
| Figure 6-40: Existing and Proposed Bus Terminals | 6-144 |
| Figure 6-41: Existing and Proposed Truck Stands | 6-145 |
| Figure 6-42: Existing and Proposed Bulk Depots for Dry Port, PSO, Caltex, Burma Shell and PARCO | 6-146 |
| Figure 7-1: Existing Residential and Built-up Area of Faisalabad City | 7-152 |
| Figure 7-2: Existing Situation of Katchi Abadies, Area wise in Faisalabad City..... | 7-156 |
| Figure 7-3: Total Number of Sanctioned Housing Schemes | 7-157 |
| Figure 7-4: Chakwise Illegal Housing (Source: FDA) | 7-158 |
| Figure 7-5: PHATA Developed Schemes in Faisalabad..... | 7-160 |
| Figure 7-6: Proposed Housing Scheme on Priority Basis for Faisalabad District... | 7-162 |
| Figure 8-1: Organogram of the Department of Industries, Commerce and Investment | 8-166 |
| Figure 8-2: Scattered Industries in Faisalabad Tehsil | 8-168 |
| Figure 8-3: Faisalabad Industrial Ownership (Percentage)..... | 8-168 |
| Figure 8-4: Faisalabad Industrial Area (Acres) ³⁶ | 8-169 |
| Figure 8-5: Top Export to Different Countries in 2016 (Millions \$) | 8-171 |

| | |
|---|---------------|
| Figure 8-6: Value Addition City (VAC) Master Plan..... | 8-173 |
| Figure 8-7: M3 Industrial City (M3 IC) Master Plan..... | 8-174 |
| Figure 8-9: Markets and Bazars, Faisalabad City | 8-176 |
| Figure 9-1: The Ratio between School Going and Out of School Children..... | 9-186 |
| Figure 9-2: Enrollment in Public Schools of District Faisalabad | 9-187 |
| Figure 9-3: Gross Enrollment Rate (GER) of Faisalabad District..... | 9-188 |
| Figure 9-4: Percentage of Distribution of Schools in Faisalabad District⁵⁰ | 9-188 |
| Figure 9-5: Class Distribution Across Levels in Faisalabad District..... | 9-189 |
| Figure 9-6: Number of Teachers in Faisalabad District (Public)..... | 9-189 |
| Figure 9-7: Learning Outcomes of Grade III & V in Faisalabad District..... | 9-190 |
| Figure 9-8: Budget Allocation 2014-15 of Faisalabad District..... | 9-191 |
| Figure 10-1: Park & Open spaces in City Tehsil | 10-202 |
| Figure 10-2: Parks & Open Spaces in City Tehsil in PHA Controlled Area | 10-204 |
| Figure 10-3: Distribution of Green Areas Controlled by PHA in Iqbal Town..... | 10-204 |
| Figure 10-4: Area of Different Parks in Iqbal Town..... | 10-205 |
| Figure 10-5: Distribution of Green areas Controlled by PHA in Madina Town | 10-206 |
| Figure 10-6: Areas of Different Parks in Madina Town..... | 10-206 |
| Figure 10-7: Distribution of Green Areas Controlled by PHA in Lyallpur Town | 10-207 |
| Figure 10-8: Areas of Different Parks in Lyallpur Town | 10-207 |
| Figure 10-9: Distribution of Green areas controlled by PHA in Jinnah Town..... | 10-208 |
| Figure 10-10: Areas of Different Parks in Jinnah Town..... | 10-209 |
| Figure 10-11: Existing Land Use and 300-meter Open Spaces Radius | 10-210 |
| Figure 10-12: Served Area under 300-meter Radius..... | 10-211 |
| Figure 10-13: Unserved Area have no Parks and Open Space | 10-212 |
| Figure 10-14: Proposed Parks and Open Space Plan..... | 10-216 |
| Figure 11-1: The Existing Capacity of Solid Waste Generation per Union Council..... | 11-217 |
| Figure 11-2: Existing Status of Waste Management in Faisalabad City..... | 11-218 |
| Figure 11-3: Existing Hierarchy of Faisalabad Waste Management Company | 11-220 |
| Figure 11-4: Map of Field operations of FWMC³ | 11-220 |
| Figure 11-5: Map of UCs in Faisalabad City | 11-224 |
| Figure 11-6: Spatial Distribution of Union Councils Grouped into Solid Waste Management Zones..... | 11-227 |
| Figure 11-7: Waste bins for Municipal Waste Segregation at source..... | 11-228 |
| Figure 11-8: Overall Waste Collection Bins Locations in Faisalabad Solid Waste Management Plan | 11-229 |
| Figure 11-9: The Proposed Swap HCS System (Source: McCrea nor (2008))..... | 11-229 |

| | |
|--|---------------|
| Figure 11-10: Tipping Floor Technology | 11-231 |
| Figure 11-11: Surge Pit Technology | 11-231 |
| Figure 11-12: Direct Dump into Transfer Vehicle Technology | 11-232 |
| Figure 11-13: Design of Incinerator | 11-233 |
| Figure 11-14: Location of Lakhuana Landfill Site | 11-234 |
| Figure 12-1: Locations of Pilot Areas | 12-235 |
| Figure 12-2: Project Schdule | 12-236 |
| Figure 12-3: Location Map of Existing Water Supply Facilities | 12-238 |
| Figure 12-4: Existing Sewerage and Drainage Facilities (Source: JICA Mission Team) | 12-238 |
| Figure 12-5: Future Development Areas (Source: JICA Mission Team) | 12-240 |
| Figure 12-6: Idea for Shifting to a Virtuous Cycle through WASA-F's Business Operations | 12-240 |
| Figure 12-7: Proposed Water Supply Zones (Source: JICA Mission Team) | 12-242 |
| Figure 12-8: JK WW to be Renewed, New OHRs, Pipelines and Phased Development Area | 12-243 |
| Figure 12-9: Layout of Renewal Jhal Khanuana WTP | 12-244 |
| Figure 12-10: General Plan for the Sewerage System | 12-246 |
| Figure 12-11: Proposed Drainage System Using the Existing Sewer System and New Drain System | 12-247 |
| Figure 12-12: Locations of the Stormwater Pumping Stations To be Converted from Disposal Pumping Stations | 12-247 |
| Figure 12-13: Proposed Drain System for the Areas Near The Drainage Channels | 12-248 |
| Figure 12-14: Target Areas of the Proposed Street Drain System | 12-249 |
| Figure 13-1: Punjab before Partition, 1909 | 13-251 |
| Figure 13-2: Pakistan & India Map after Seperation | 13-252 |
| Figure 13-3: Lyallpur House in DC House | 13-255 |
| Figure 13-4: Clock Tower, Faisalabad | 13-255 |
| Figure 13-5: Qaisari Gate | 13-256 |
| Figure 13-6: Gumti | 13-256 |
| Figure 13-7: Coronation (Allama Iqbal) Library | 13-257 |
| Figure 13-8: Sir James Lyall Monument in Jinnah Park | 13-257 |
| Figure 13-9: Mandar Opposite Jhang Bazar (Sita Ram Mandar) | 13-258 |
| Figure 13-10: Gurdawar (Pakistan Model High School) Katchery Bazaar | 13-258 |
| Figure 13-11: Masjid Katchery Bazaar | 13-259 |
| Figure 13-12: Catholic Church Opposite Gumti | 13-259 |

| | |
|--|--------|
| Figure 13-13: ST. Peter Church Opposite Chenab Club | 13-260 |
| Figure 13-14: Dar-ul-Uloom Abdullahpur | 13-260 |
| Figure 13-15: Tomb of Noor Shah Wali | 13-261 |
| Figure 13-16: Killa Gift Building | 13-261 |
| Figure 13-17: Muslim High School, Faisalabad | 13-262 |
| Figure 13-18: Railway Station Faisalabad | 13-262 |
| Figure 13-19: District Courts Building | 13-263 |
| Figure 13-20: Sandal bar Police Station | 13-263 |
| Figure 13-21: Gora Graveyard | 13-264 |
| Figure 13-22: Zila Council | 13-264 |
| Figure 13-23: Bhagat Singh Residence and School | 13-265 |
| Figure 13-24: Gangapur Clock Tower and Horse Train | 13-266 |
| Figure 13-25: Mirza Sahiban Mausoleum | 13-267 |
| Figure 13-26: Rai Ahmad Khan Kharal House in Jhamara | 13-267 |
| Figure 13-27: Khushpur Village | 13-268 |
| Figure 13-28: Faisalabad Heritage Sites (District Level) | 13-270 |
| Figure 13-29: Faisalabad Heritage Sites (FDA Limit) | 13-271 |
| Figure 13-30: Faisalabad Heritage Buildings (Near City Center) | 13-272 |
| Figure 13-31: Encroachment near Clock Tower in Faisalabad | 13-278 |
| Figure 13-32: Building Facade of Building in Between Katcheri Bazar and Rail Bazar | 13-278 |
| Figure 13-33: Vertical Mixed-Use Development | 13-279 |
| Figure 13-34: Horizontal Mixed-Use Development | 13-279 |
| Figure 14-1: Commercial Areas in Faisalabad | 14-292 |
| Figure 14-2: Proposed Institutional Framework for Faisalabad Master Plan | 14-306 |
| Figure 15-1: Existing Land Use Plan 1968 | 15-312 |
| Figure 15-2: Master Plan 1968 | 15-313 |
| Figure 15-3: Existing Land Use Plan 1986 | 15-315 |
| Figure 15-4: Master Plan 1986 | 15-315 |
| Figure 15-5: Proposed Land use Zoning Plan (2015-2035) | 15-323 |
| Figure 15-6: Proposed Roads (2015-2035) | 15-324 |
| Figure 16-1: Locations of Faisalabad Tehsils | 16-325 |
| Figure 16-2: Organization of the Water and Sewerage sector in the Punjab District .. | 16-328 |
| Figure 16-3: Organogram of FDA | 16-330 |
| Figure 16-4: Number of Staff for each BPS | 16-336 |
| Figure 16-5: Frequency Distribution of WASA-F Staff | 16-337 |

| | |
|---|---------------|
| Figure 17-1: Major Hazards in Pakistan (a) Drought, (b) Cyclone, (c) Earthquake, (d) Flood: Results from the Hazard Assessment by District | 17-340 |
| Figure 17-2: Seismic Map of Pakistan | 17-341 |
| Figure 17-3: Patterns of Total Risk from Natural Hazards for Pakistan By District..... | 17-342 |
| Figure 17-4: Drought in Faisalabad during 1981 to 1990..... | 17-344 |
| Figure 17-5: Drought in Faisalabad during 1991 to 2000..... | 17-344 |
| Figure 17-6: Drought in Faisalabad during 2001 to 2010..... | 17-345 |
| Figure 17-7: Damaged Corner of Building due to Earthquake..... | 17-350 |
| Figure 17-8: Concrete Pillars Provided at Wall Corners..... | 17-350 |
| Figure 17-9: Concrete Bands in Case of Gable Roof..... | 17-351 |
| Figure 17-10: Concrete Pillars Provided at Wall Corners..... | 17-351 |
| Figure 17-11: Sand Filled Wheelbarrow..... | 17-352 |
| Figure 17-12: Five Kg Oil Tin to Measures Water for Mortar and Concrete | 17-352 |
| Figure 17-13: Concrete Bands Provided at Specified Levels..... | 17-353 |
| Figure 17-14: Details of Concrete Bands..... | 17-353 |
| Figure 17-15: Connection of Concrete Band and Pillar | 17-354 |
| Figure 17-16: Connection of Concrete Bands and Pillar | 17-354 |
| Figure 17-17: RCC Frame Provided around the Openings..... | 17-355 |
| Figure 17-18: Reinforcement Detail of RCC Frame..... | 17-355 |
| Figure 17-19: Emergency Transportation Network..... | 17-356 |
| Figure 17-20: Organization Structure of the DEO | 17-359 |
| Figure 17-21: Rescue Stations in Faisalabad..... | 17-360 |
| Figure 17-22: Police Stations in Faisalabad City | 17-362 |

ABBREVIATIONS

| | |
|------------|---|
| ADP | Annual Development Program |
| AFCS | Automated Fare Collection System |
| AIIC | Allama Iqbal Industrial city |
| BRT | Bus Rapid Transit |
| CBD | Central Business District |
| CDG | City District Government |
| CMI | Census of Manufacturing Industries |
| CMP | Chief Metropolitan Planner |
| CPEC | China Pakistan Economic corridor |
| DC | Deputy Commissioner |
| DHA | District Health Authority |
| DPDC | District Planning and Design committee |
| EPA | Environmental Protection Agency |
| FBR | Federal Board of Revenue |
| FBR | Federal Board of Revenue |
| FCCI | Faisalabad Chamber of Commerce and Industry |
| FDA | Faisalabad Development Authority |
| FESCO | Faisalabad Electric Supply Company |
| FGCC | Faisalabad Garment City Company |
| FIEDMC | Faisalabad Industrial Estate Development and Management Company |
| FMP | Faisalabad Master Plan |
| FPUSP | Faisalabad Peri Urban Structure Plan |
| FRR | Faisalabad Ring Road |
| FUTS | Faisalabad Urban Transport System |
| FWMC | Faisalabad Waste Management Company |
| G.T | Grand Trunk |
| GDP | Gross Domestic Product |
| GIS | Geographic Information System |
| GOP | Government of Punjab |
| GTS | General Transport Stand |
| H&PP | Housing & Physical Planning |
| HUD & PHED | Housing, Urban Development & Public Health Engineering Department |
| IPEMC | Inter-Provincial Education Ministries Conference |
| ISALs | Internal Saving and Lending Schemes |
| ISWM | Integrated Solid Waste Management |
| LDA | Lahore Development Authority |
| MC | Municipal Corporation |
| MC | Municipal Committee |
| MICS | Multiple Indicator Cluster Surveys |
| NCC | National Curriculum Council |
| NEP | National Education Policy |
| NHA | National Highway Authority |
| NOC | No Objection Certificate |
| NTL | Night Time Light |
| O&M | Operation and Maintenance |
| OCL | Osmani & Company Private Ltd. |
| PBIT | Punjab Board of Investment and Trade |
| PFC | Provincial Finance Commission |
| PHA | Parks and Horticulture Authority |

| | |
|--------|--|
| PHATA | Punjab Housing and Town Planning Agency |
| PIEDMC | Punjab Industrial Estates Development and Management Company |
| PSIC | Punjab Small Industries Corporation |
| PSS | Punjab Spatial Strategy |
| ROW | Right of Way |
| SAMA | Service and Asset Management Agreement |
| SMEDA | Small and Medium Enterprise Development Authority |
| STP | Sewerage treatment Plant |
| TDS | Total dissolved solid |
| TEPA | Traffic Engineering and Planning Agency |
| TMA | Tehsil Municipal Administration |
| UC | Union Council |
| UET | University of Engineering and Technology |
| UN | United Nations |
| VAC | Value Addition City |
| WASA | Water and Sanitation Agency |
| WHO | World Health Organization |

CONVERSION TABLE

| | |
|--------------------------|------------------------|
| 1 meter | = 3.28 feet |
| 1 square kilometer | = 247.1 acres |
| 1 hectare | = 2.47 acres |
| 1 acre | = 43560 square feet |
| 1 kanal | = 20 marla |
| 1 million gallon per day | = 694.44 gallon/minute |

VISION STATEMENT

Faisalabad 2041, an internationally competitive 'Economic City' as a sustainable manufacturing industrial hub of Pakistan

1. MASTER PLAN

A Master Plan prepared for urban areas serves as an important instrument to guide the process of urban development. Over the years it has emerged as an important tool and best practice in urban planning world over. As such, the Government has now mandated it for the planning and development for all large and medium cities. Cities now have multiple stakeholders that have a visible role in development. The provincial and local governments, autonomous bodies, semi-government organizations, private developers and builders, investors, banking and financial institutions, interest groups, individual actors of influence etc. all having wide ranging interests, sometimes conflicting, that need to be addressed through an integrated approach.

Faisalabad with a population of nearly 3.0 million (Census 2017) is the third most populous city in Pakistan and the second-largest in the province of Punjab. It has rapidly grown into an industrial hub with its textile imports earning it the nickname of 'Manchester of Pakistan'. More recently, its jurisdictional limits and urban configuration have been affected as a consequence of many changes in its administrative structure and delineation of new boundaries. Alive to the demands of a modern city incorporating the principles of modern urban planning, Faisalabad Development Authority launched the Faisalabad Master Plan in 2017 with a comprehensive Terms of Reference focusing on a holistic and integrated development approach.

The Faisalabad Master Plan developed by Osmani Consultants Ltd. (OCL) covering the period 2021-2041 provides a policy framework that will serve as a guide in the preparation of five-year Development Plans and Annual Plans. It is presented in three parts; Part One describes the existing scenario and lays down the guidelines for development for a modern city. Part Two lays down the principles and directions for long-term growth and gives development proposals to make Faisalabad a world class competitive industrial growth city harnessing its traditional textile base combined with the potential of tapping into world's IT market. It lays down broad policies in terms of land utilisation, residential densities, qualitative and quantitative aspects of infrastructure development and creation of IT eco-systems. Part Three gives the development promotion regulations and the procedure to be adopted for development.

1.1 PROJECT BACKGROUND

The first Master Plan for Faisalabad was prepared in 1986 by FDA which focused primarily on preparation of land use plans. The Master Plan outlived its recommendations due to rapid urbanization of the City of Faisalabad and its surrounding towns which changed its economic & socio-economic characteristics and urban form. Moreover, since the Land use Plan was not incorporated in the revenue records, the implementation of the land use plan remains largely adhoc and expedient. Investors, developers, other stakeholders were not constrained by the Master Plan.

A second Master Plan by the name of Peri Urban Structural Plan (PUSP) was prepared in 2014 by Urban Unit at behest of Local Government. The urban sprawl of Faisalabad expanded much beyond the limits of defunct metropolitan corporations, resulting in unregulated urban sprawl 1300 sq. km area.

The estimated population of Faisalabad city is around 3 million (Census 2017), further expected to double in next twenty-five years. This implies, if the current trend unplanned and unregulated growth has to continue, another Faisalabad city will be required to accommodate additional population of future, with poor quality of life and services delivery. Moreover, due to reliance on outdated estimates and secondary data, the requirements of future urban Faisalabad cannot be worked out.

In addition to spatial and physical expansion and lack of reliable data & on the existing profile of the city, the institutional set up of services delivery and Governance in Punjab and

Faisalabad has Undergone major changes during past few years, which requires carrying out of preparation of a new Master Plan. The previous master plans and studies kept narrow focus on Lind Use planning and lacked strategic vision and focus on economic development, environmental conditions, financial and implementation arrangements.

1.2 STUDY AREA

The study area is the boundary of notified Metropolitan area of the FDA i.e., 1300 square kilometers including around 200 sq.km built up area of the city Faisalabad which have or are likely to be urbanized in next twenty years. Additionally, the Peri Urban boundary beyond year 2035 was also notified by the outgoing Provincial Cabinet in 2018 encompassing the surrounding agricultural land of 451.92 sq.km. This notification was issued in March 2018 after the signing of Contract with this Consultant (OCL) in February 2017.

The Municipal Corporation boundary of Faisalabad city, the FDA metropolitan boundary, the Faisalabad Peri Urban Structural Plan (FPUSP) with their areas is shown on existing land-use map in **Figure 1.1**.

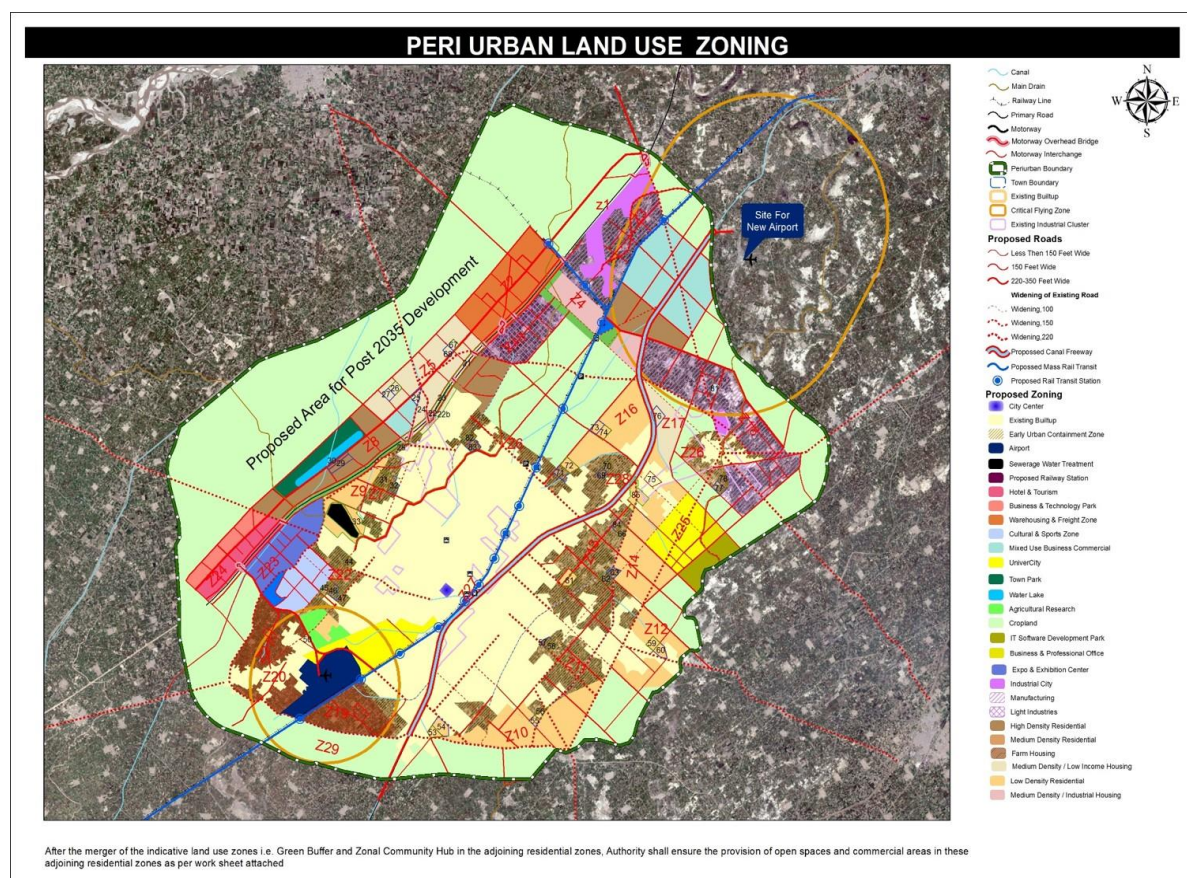


Figure 1-1: Faisalabad Peri-Urban Structure Plan with MC Boundary and FDA Metropolitan Boundary

1.3 OBJECTIVES OF THE STUDY

The basic objective of urban development of Faisalabad is to provide a framework for rapid socio-economic development of the city focusing on expansion of its existing industrial base into new innovative areas with state-of-the-art transportation, water, education, health and other infrastructure.

The specific objectives are:

1. Increased industrialization in diverse sectors leading to wealth creation
2. Efficient land use planning, growth and space management

3. Transport Oriented Development (TOD) through mass transit and multi modal transport system
4. Improved access to basic services & public amenities in health, education, hospitality, water, sanitation, recreation, entertainment and safety
5. Regeneration of inner core of the city through Mixed Use development
6. Creating of Special technology zones for Information technology and business development
7. Affordable energy development & conservation
8. Standardization and beautification of streetscape through formulated urban design guidelines
9. Conservation, preservation & restoration of historical sites & built heritage for promoting tourism
10. Enabling environment and framework for private sector participation
11. Social inclusion & poverty reduction
12. Disaster Risk Management for climate change, floods, droughts, earthquakes

1.4 SCOPE OF WORK

According to Terms of Reference (TOR), the Scope of this assignment is to prepare Master Plan for City District Govt. (CDG) Faisalabad including, formulation of vision, regional economic development plan, comprehensive and regional land use plan, strategic short-, medium- and long-term projects/actions, and implementation arrangements including institutional framework and financial plans and as well as provision of periodic revision of plan.

The detailed scope of work is attached in the contract document.

1.5 PROJECT DELIVERABLES

According to the Contract, the Consultant will provide the following deliverables within one year of the effective date of Contract Agreement which is Feb 2017:

- i) Inception Report
- ii) Report on Vision Statement, Goals and Objectives & Strategies
- iii) Profile of Faisalabad Region (including all data collected and analyses in soft format)
- iv) Assessment Report
- v) Consultation Report
- vi) Integrated Strategic Development Plan
- vii) Sectorial Plans including but not limited to:
 - Economic Development Plan
 - GIS based comprehensive Land Use Plan including Peri-Urban Structure Plan in line with the Economic Development Plan
 - Traffic & Transportation Plan including non-motorized transportation
 - Water Supply, Sewerage & Drainage Plan
 - Solid Waste Management Plan
 - Energy Conservation Action Plan
 - Built Heritage & Tourism Plan
 - Parks & Open Space Plan
 - Urban Design Guidelines
- viii) Implementation Plan
 - Institutional Framework
 - Legal & Regulatory Framework
 - Financing Options & Plan
- ix) Consultation Report
- x) Short Term Strategic Plan
- xi) Final Report on Integrated Strategic Development Plan 2036 for Faisalabad Region (this report).

1.6 STATUS OF DELIVERABLES

The Consultant commenced their activities in March 2017 with mobilization of their staff including its foreign associate, Dr. Pollalis, who conceptualized the Master Plan's Vision and presented it to Project authorities including a presentation to the Provincial cabinet.

As per the stipulated Terms of Reference, the FMP deliverables were divided into seven distinct stages and concurrent outputs. Stage 1 was the usual Inception Phase starting with the collection of data, review of existing data, work done in different projects, review of policies and institutional framework, assessment of prevailing standards, identification of data/information gaps and preparation of a survey programme for the collection of information are the integral ingredients covered in the report. The report has also highlighted the key environmental concerns including the adequate provision of habitable space for various categories of plots as well as recreational spaces for different existing and proposed locations.

The field survey stage was the mainstay of the entire analysis and subsequent planning work. The objective of the various surveys and fact-finding exercises was to acquire a first-hand insight into the actual state of affairs in the sectors vital for master planning endeavours. The surveys also helped in updating the demographic which was found to be outdated on several counts. Feedback from this interim stage initiative helped in the overall refining of survey questionnaires. A carefully structured sampling strategy was drawn to obtain balanced feedback during the socio-economic survey.

The planning team closely interacted with the public representatives, staff and officers of concerned departments and organizations to validate the institutional records update the information where ever required, obtain fresh input on the ongoing works and future initiatives. Office bearers and members of Faisalabad Chamber Of Commerce and industry, trade associations in many sub-sectors of local/regional economy, service providers of various kinds and market committees were some of the networks which were approached and benefited from during the field studies. A master plan has to be fully responsive to the problems faced by common people.

The Organisation of this report was done to present the information, data and findings in a concise form. As some of the work was spread to voluminous tasks requiring a greater length of time, the report also provided an account of the progress. This head included land use survey, mapping and socio-economic situation. The other heads covered in the list comprise need assessment, coordination with civic agencies towards the acquisition of data, link up with national planning perspectives and infrastructure targets, feedback on the right sizing of cities / urban areas, rural settlements, housing indicators, squatter settlements, directed responses from Faisalabad Development Authority and conceptual discourses on development scenarios. The need assessment Survey was focused on education, health, entertainment, social services/ assets, municipal services/ amenities, basic services and physical infrastructure.

The exercise was based on the feedback of Metropolitan Corporations. The information complimented each other in firming up the felt need profile of the various sectoral requirements around which the planning exercise was later organized. The exercise also acts as an authenticated baseline for the various agencies and departments empowered to prepare annual development plans and other schemes through the public sector development program. At a later stage, a study on the technical prioritization of projects and schemes can be undertaken to establish justification for any allocation in the respective sectors.

1.7 SUBMISSION OF DRAFT MASTER PLAN

The Consultant made various submissions periodically since the inception of the assignment nearly four years ago and lately, every effort has been made to finalize the project based on the Terms of Reference, standard planning principles, accumulated data and its processing, establishment of future requirements as per the available data & its projections, the best

practices in vogue, and finally the feedback of the client and of various stakeholders as identified and communicated by the client also.

Based on the requirements for various categories of Land-use, an Integrated Strategic Development Plan (1st draft Land-use Plan) of Faisalabad 2016-2036 was submitted to FDA in September 2019 for their perusal and comments. Subsequently, the first Draft Master Plan of Faisalabad was submitted in June 2020 to FDA which was forwarded by FDA to various stakeholders including the Urban Unit. Feedback was received only from the Urban Unit. In the meantime, consultative process continued with various stakeholders from November 2020 until August 2021.

The 2nd draft Land-use plan was thereafter developed which was shared by the Consultant with FDA in August 2021 for critical review & perusal. The same was commented upon by FDA in various meetings and was uploaded on the FDA website along with Notice for public hearing in local newspapers for having feedback of various stakeholders. This Draft Land-use Plan was prepared based on the updated working as well as incorporating all the development projects which were approved by FDA and DPDC as per the data provided by FDA.

Critical review of any draft land-use plan is one of the major parts of achieving the best results as the master planning is not only a dynamic exercise but has many aspects which require feedback of all relevant stakeholders. For this, we attended a number of meetings and presentations in the last few months to get the feedback of various stakeholders on the 2nd Draft of Land-use plan. The only issue that we faced during this exercise was that at times, the focus of many stakeholders was on the Draft Land-use Plan only, and at times, critical review and feedback went beyond the feedback / critical review aspect and entered the realm of criticism as if the draft plan is something having a finality, which we as experienced consultants have taken as misunderstanding on the part of certain stakeholders on the phase of the preparation of the Master Plan exercise and not understanding the draft nature of the Land-use plan.

After going through all the aspects of the various interactions, meetings, feedback and letters in this regard, as well as forwarding various letters of the important stakeholders from FDA point of view, OCL finalized the Land Use plan. As per deliverables against the Clause 6 (xi) of the Contract Agreement, three options of the Draft Land-use Plan of Faisalabad Master Plan (FMP) 2021-2041 along with Draft Master Plan Report of FMP 2021-2041 were submitted as follows:

Option-1:

The Option 1 of the Draft Land-use Plan of Faisalabad 2021-41 (Figure 1-2) is the one which was developed and prepared based on the requirements as established during the data processing and the projection, and keeping in view, inter alia, various consultative meetings, discussions, and debates with various stakeholders up to 16-08-2021 as well as incorporating all the development schemes approved by FDA and DPDC. The list of recent consultative meetings, discussions and debates with FDA and various stakeholders is presented in Annex "A". This Option 1 of the Draft Land-use Plan of Faisalabad 2021-2041 (2nd Draft of Land-use Plan of FMP 2021-2041) was handed over to FDA after the meeting on 16th August 2021 and was also uploaded by FDA on its web site for the information of general public and for inviting their views, input and suggestions which is an integral part of any Master Planning exercise.

Option 2:

A number of meetings were held with FDA and various stakeholders after the 2nd Draft Land-use Plan was made public. These meetings were held between August 17th, 2021 and October 12th, 2021 the list of which is attached as Annex "B". After receiving feedback from various stakeholders, especially from the FCCI and Real Estate Developers, the two stakeholders with whom FDA had arranged special meetings, FDA issued Minutes of the Meetings dated 6th September 2021 with direction to incorporate Faisalabad Peri Urban Structure Plan (FPUSP)

2015-2035 as foundation for Faisalabad Master Plan 2021-2041. The same was done except for the proposed development on 40 km stretch of M4 Motorway and the inclusion of Peri-Urban FPUSP 2035 boundary limits.

After discussions with relevant officers of FDA, Option 2 (Figure 1-3) was developed and the updated Draft Land-use Plan named as Option 2 and corresponding Draft Master Plan Report was submitted to FDA for close scrutiny, perusal and review.

Option 3:

As it became apparent during the stakeholders' consultations, there are various segments of stakeholders, especially the FCCI and Real Estate Developers who are of very strong view that the Land-use Plan of Faisalabad Master Plan shall be based on the FPUSP-2035 as it is approved by the Provincial Cabinet in 2018. This demand has been very vocally made by the said stakeholders in the presence of the FDA officials. As such, in order to cater for this demand of various stakeholders, we have developed Option 3 of the Draft Land-use Plan of Faisalabad 2021-41 (Annex-III) wherein all the aspects of Option 2 (the updated version based on the calculated / projected requirements and incorporating various demands of Real Estate Developers which can be accommodated based on the Master Plan working) have been dovetailed in the Land-use Plan of FPUSP-2035 and its boundaries. It may please be noted cautiously that all exercise of establishing the requirements based on the growth patterns of the last over hundred years, the projections for the next 20 years and other such planning requirements and parameters as per the ToR are already covered in Options 1 & 2. This Option 3 covers all the requirements as established as per study (for the year 2041) and in addition provides for many additional developments / areas which were present in FPUSP-2035. This Option, based on the areas identified for development, encourages Urban Sprawl and diminishing of agriculture area. However, as it is based on the already approved FPUSP-2035 land-use and the boundaries, the rationale of the same may be assessed at FDA's end based on the basis on which this Land-use Plan was prepared.

The above 3 options of the Draft Land-use Plan of FMP-2021-2041 as well as the Draft Master Plan Report were submitted to FDA on November 7, 2021 along-with GIS Maps (**Figures 1-2 to 1-4**) for perusal, scrutiny and review. As the Master Plan is not only a Technical Statement but is a legal tool also once approved, it not only requires the Technical Inputs but also the Policy decisions of the Government at various levels.

1.8 SELECTION OF OPTION 2 OF DRAFT MASTER PLAN

The three Options of the Draft Master Plan were presented to the Board of Governors (BOG) in their 114th meeting on 20.11.2021. After elaborate discussions, Option 2 was selected by show of hands with some suggestions. On the same day in the evening, same presentation was given to the Commissioner, Faisalabad Division.

The same was also submitted to the Honorable Supreme Court of Pakistan by FDA on 23.12.2021 during a hearing on a Petition. Subsequently, two more meetings were called by the Special Assistant to the Chief Minister SAPM), Punjab, Dr. Salman Shah where Option 2 was presented. The SAPM proposed some invaluable changes which were discussed with FDA, the Commissioner's Office and Option 4 was developed. Finally, in the meeting with Parliamentarians on 18.02.2022 some minor changes were proposed resulting in development of Option 5. The Option 2, 4 and 5 Plan are now attached as Annex II. Tabular statistics are presented in **Table 1.2**. The Landuse Plan for Options 4, 5 and 6 are attached as **Figure 1-5 Figure 1-6** and **Figure 1-7**.

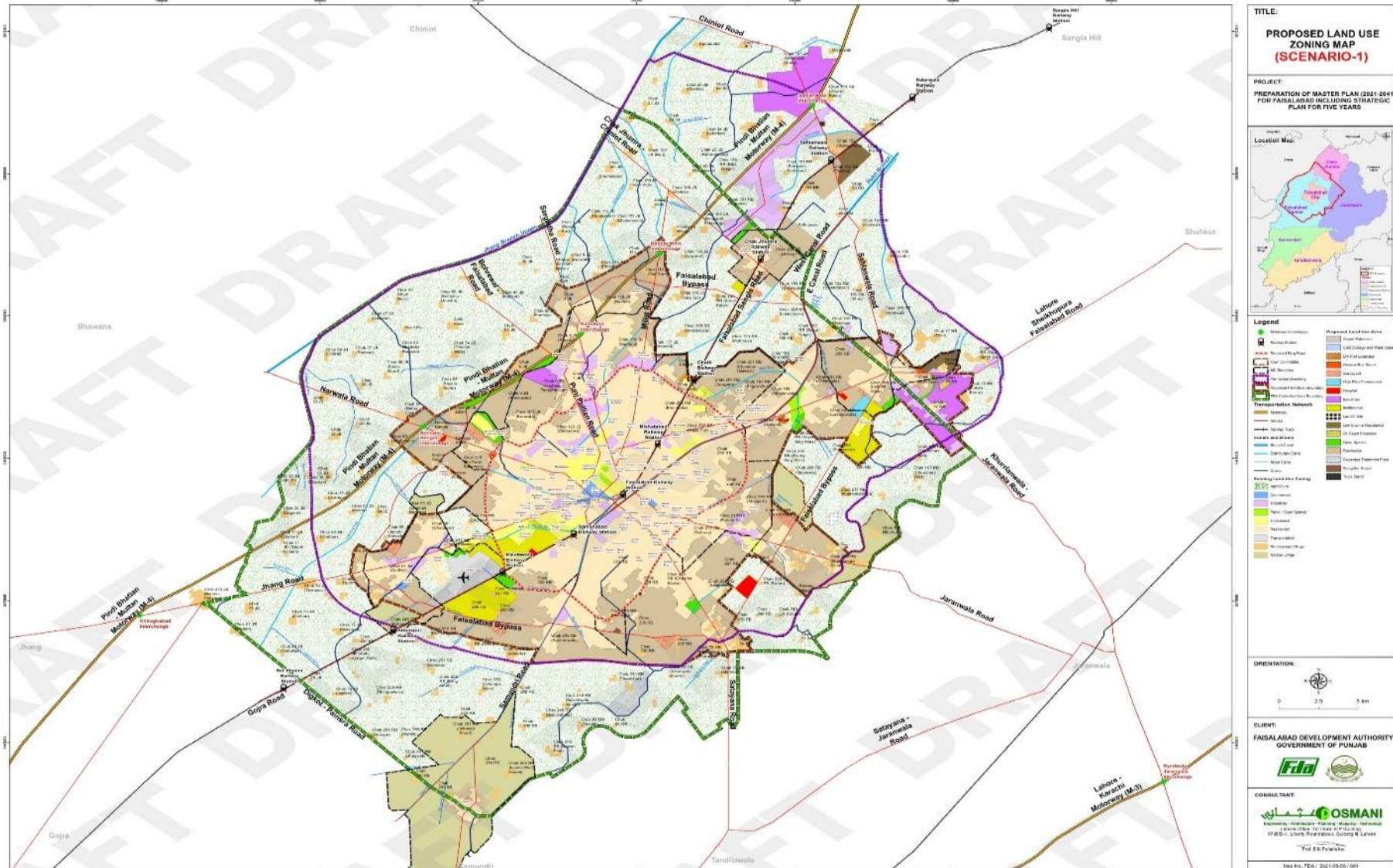


Figure 1-2: Draft Land Use Zoning Map Option-1





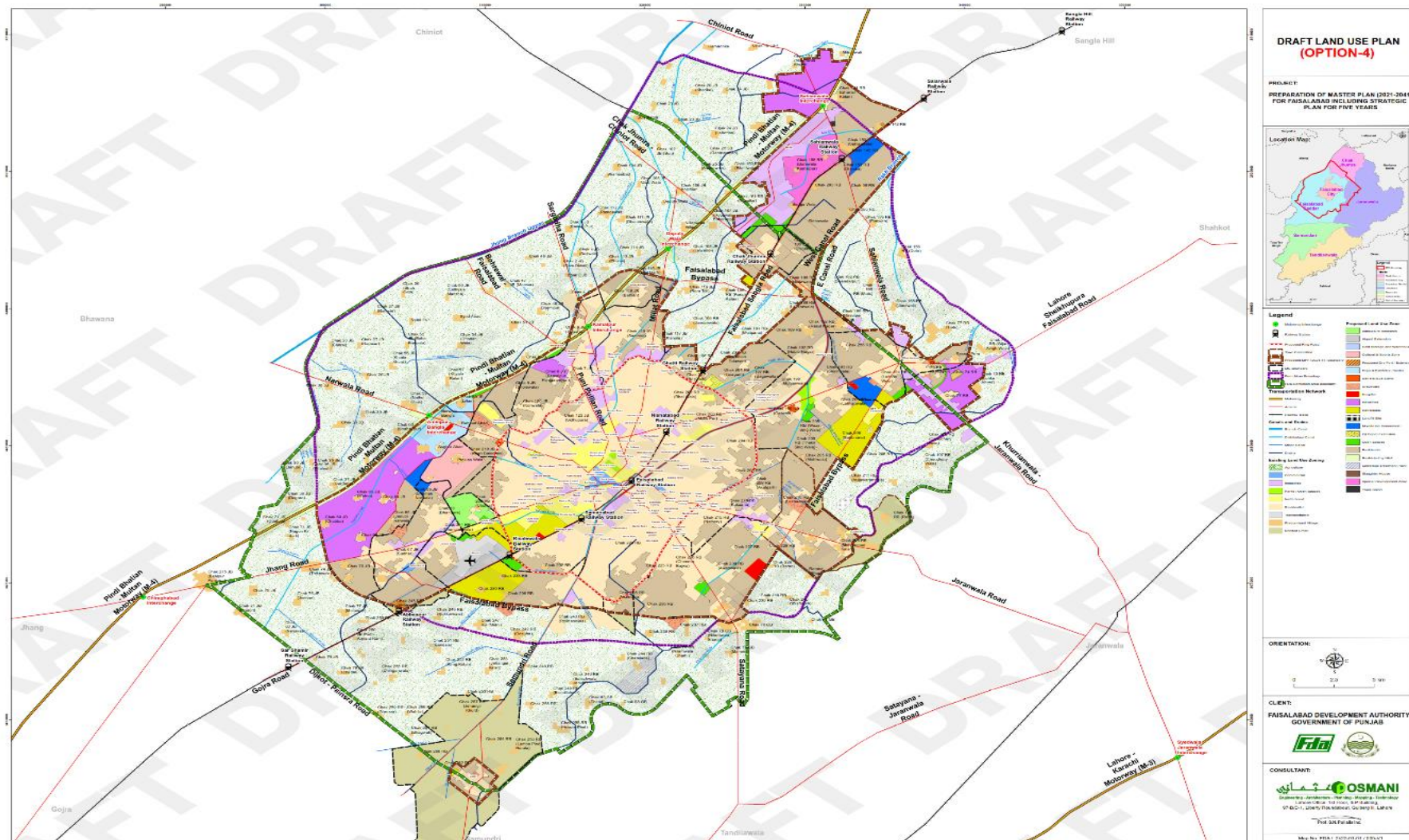


Figure 1-5: Draft Land Use Zoning Map Option-4

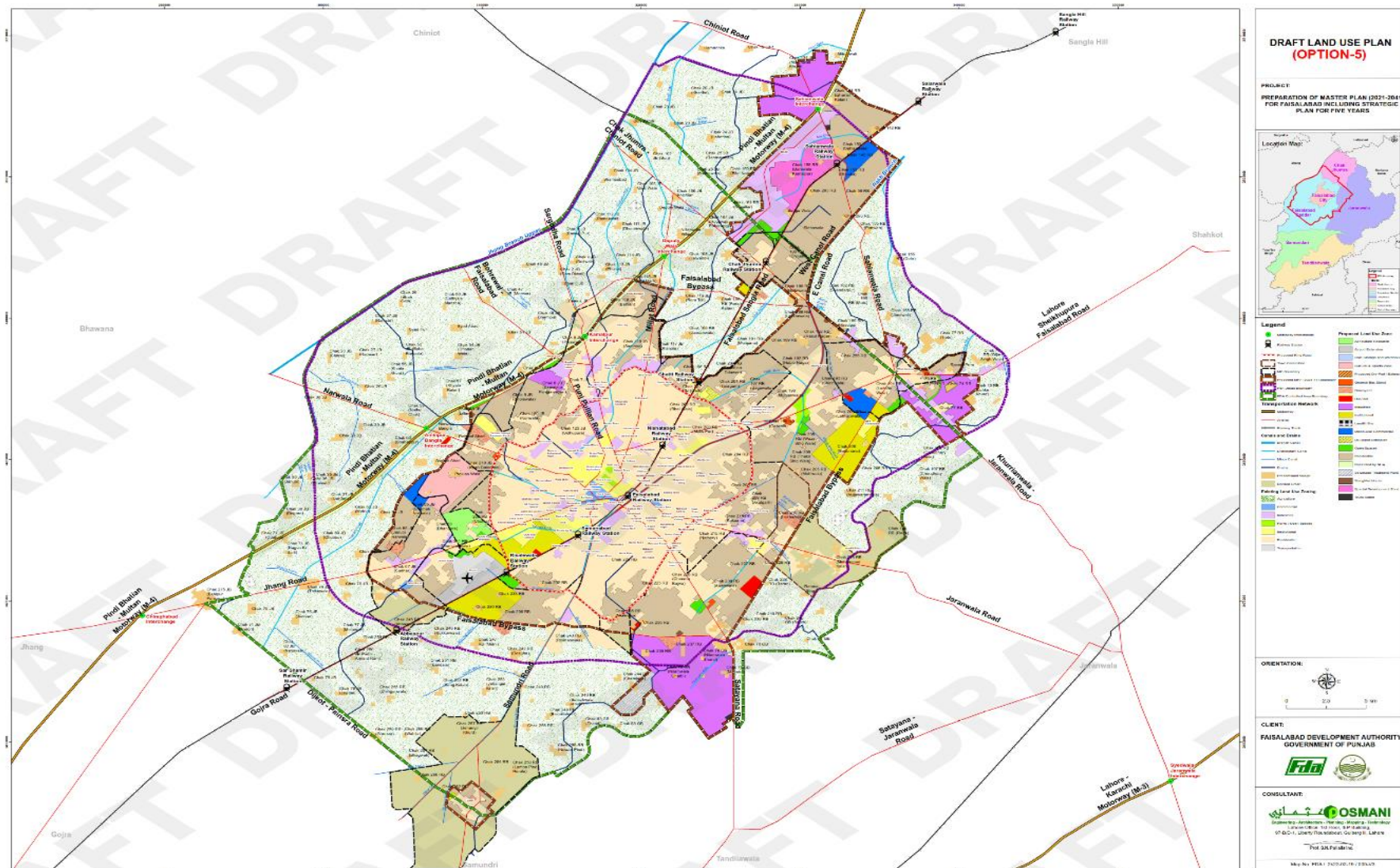


Figure 1-6: Draft Land Use Zoning Map Option-5

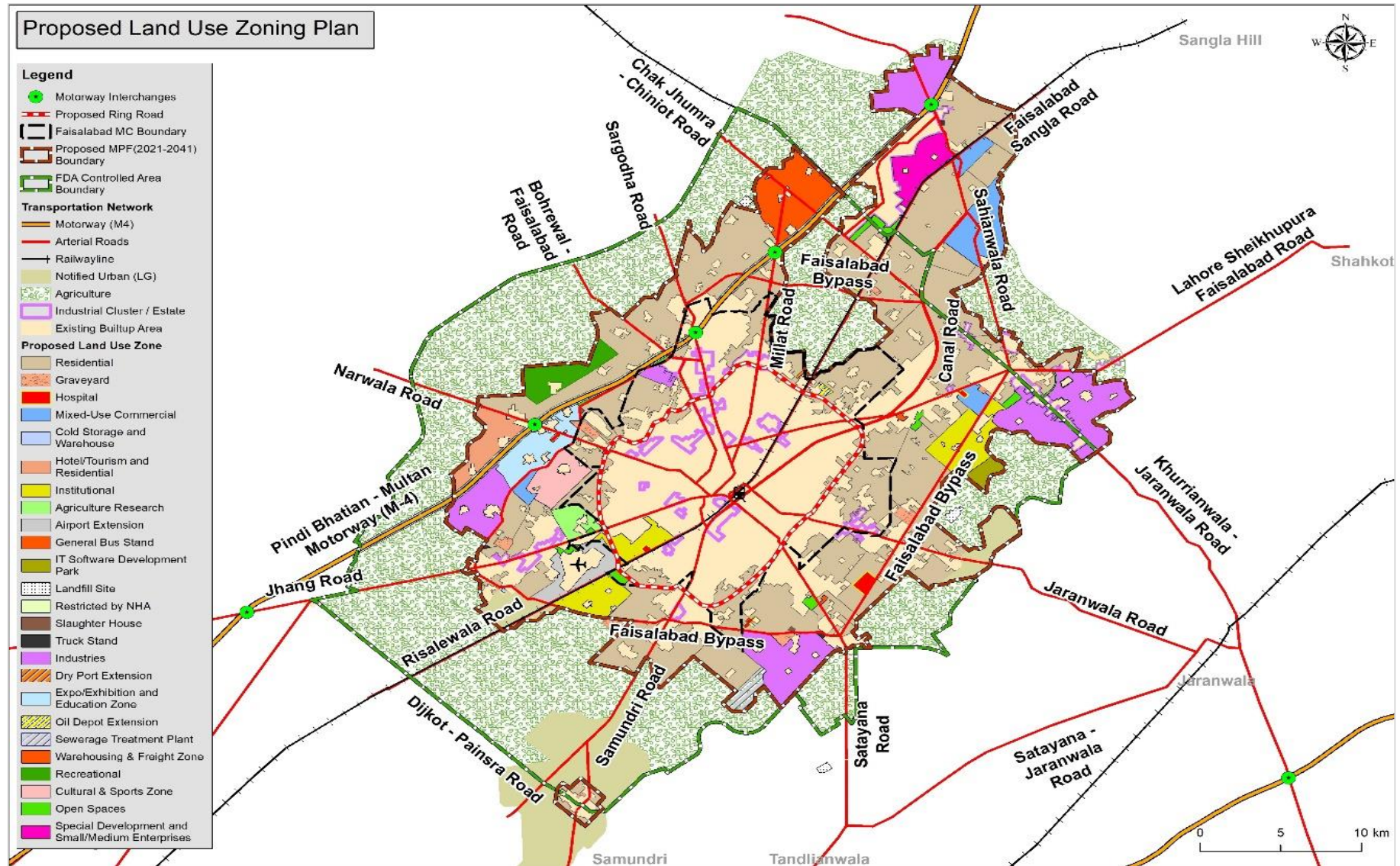


Figure 1-7: Proposed Landuse Zoning Map Option-6

Table 1-1: Landuse Statistics of Options 1, 2 and 3

| Sr. No | Proposed Land Uses | Option-1 | Option-2 | Option-3 |
|-------------------|--------------------------------|---------------|---------------|----------------|
| | | Area (Acres) | | |
| 1 | Agriculture Research | | 1,007 | 1,048 |
| 2 | AirPort (Existing + Extension) | 1,994 | 1,994 | 2,849 |
| 3 | Business & Technology Park | | | 1,561 |
| 4 | Cold Storage and Warehouse | 18 | 18 | 18 |
| 5 | Cropland | | | 97,642 |
| 6 | Cultural & Sports Zone | | 2,046 | 2,046 |
| 7 | Dry Port Extension | 66 | 66 | 66 |
| 8 | Expo & Exhibition Center | | 1,755 | 2,752 |
| 9 | General Bus Stand | 125 | 125 | 125 |
| 10 | Graveyard | 1,238 | 1,238 | 1,238 |
| 11 | Hospital | 463 | 463 | 463 |
| 12 | Hotel & Tourism | | | 1,451 |
| 13 | Industries | 6,008 | 5,841 | 16,866 |
| 14 | Institutional | 5,357 | 6,702 | 5,067 |
| 15 | IT Software Development Park | | | 1,425 |
| 16 | Landfill Site | 159 | 159 | 159 |
| 17 | Low Income Residential | 1,228 | | |
| 18 | Mixed-Use Commercial | 255 | 1,692 | 8,145 |
| 19 | Oil Depot Extension | 126 | 126 | 126 |
| 20 | Open Spaces | 1,759 | 1,528 | 2,744 |
| 21 | Residential | 56,185 | 55,700 | 63,355 |
| 22 | Restricted by NHA | | 6,024 | 6,024 |
| 23 | Sewerage Treatment Plant | 908 | 908 | 908 |
| 24 | Slaughter House | 26 | 26 | 26 |
| 25 | Special Development Zone | | 2,243 | 2,243 |
| 26 | Truck Stand | 58 | 58 | 58 |
| 27 | Warehousing & Freight Zone | | | 4,972 |
| 28 | Water Lake | | | 671 |
| Total Area | | 75,972 | 89,720 | 224,049 |

Table 1-2: Landuse Statistics of Option 4,5 and 6

| Sr. No | Proposed Land Uses | Option-4 | Option-5 | Option-6 |
|--------|---|--------------|----------|----------|
| | | Area (Acres) | | |
| 1 | Agriculture Research | 1,007 | 1,007 | 1,007.5 |
| 2 | Air Port (Existing + Extension) | 1,994 | 1,994 | 2,820.3 |
| 3 | Cold Storage and Warehouse | 18 | | 18.3 |
| 4 | Cultural & Sports Zone | 2,046 | 2,046 | 2,046.3 |
| 5 | Dry Port Extension | 180 | 66 | 66.2 |
| 6 | Expo/Exhibition Center & Education Zone | 1,755 | | 2,737.5 |
| 7 | General Bus Stand | 125 | 168 | 167.9 |
| 8 | Graveyard | 1,238 | 1,242 | 1,238.5 |
| 9 | Hospital | 463 | 520 | 519.7 |
| 10 | Industries | 12,174 | 12,988 | 16,665.3 |
| 11 | Institutional | 6,702 | 6,702 | 6,560.3 |
| 12 | Landfill Site | 159 | 361 | 460.7 |
| 13 | Mixed-Use Commercial | 1,692 | 1,692 | 5,029.7 |
| 14 | Oil Depot Extension | 126 | 126 | 126.4 |
| 15 | Open Spaces | 1,528 | 1,528 | 1,543.5 |
| 16 | Residential | 58,469 | 52,349 | 81538.4 |
| 17 | Restricted by NHA | 6,024 | 5,996 | 5,497.2 |
| 18 | Sewerage Treatment Plant | 908 | 908 | 907.6 |
| 19 | Slaughter House | 26 | 70 | 69.7 |

| | | | | |
|-------------------|--|---------------|---------------|------------------|
| 20 | Special Development and Small/Medium Enterprises | 2,243 | 2,539 | 2,243.1 |
| 21 | Truck Stand | 58 | 128 | 122.1 |
| 23 | IT Software Development Park | | | 714.9 |
| 24 | Hotel & Tourism/ Residential | | | 2,263.3 |
| 25 | Recreational | | | 2,311.9 |
| 26 | Warehousing & Freight Zone | | | 4,533 |
| Total Area | | 98,934 | 92,430 | 141,209.1 |

1.9 KEY FEATURES OF OPTION 6 OF DRAFT MASTER PLAN

1.9.1 Industrial Development

Establishment of new Industrial Estates, Allama Iqbal Industrial City (AIIC), Khurrianwala Industrial Estate, Southern Industrial Estate, Northwest Industrial Estate

Allama Iqbal Industrial City (AIIC), Faisalabad

Faisalabad is the third largest city of Pakistan, it is an industrial hub of the country well connected with Islamabad, Lahore, Multan and Karachi through air, Rail and Road. Motorway M3 and M4 has enhanced its physical and economic links with rest of the country. After successful establishment of M3IC there was a need to establish another industrial area to encourage and facilitate investment in industrial sector and to get benefit of Motorway M4. Therefore, another industrial estate by the name of Allama Iqbal Industrial City (AIIC) is being developed at Sahianwala Interchange opposite to M3IC through which Sahianwala-Chiniot Road has been passing. The work on this Industrial Estate is in full swing and it is expected to be developed within shortest possible time with the cooperation of Chinese industries.

Khurrianwala Industrial Estate

Khurrianwala small town about 20 km from Faisalabad situated at junction of Lahore-Sheikhupura-Faisalabad Road and Sahianwala-Jaranwala Road has emerged as an industrial town. A number of industries has already been established in Khurrianwala over the time. Value Addition City (VAC) has already been working in Khurrianwala further strengthening the industrial character of the town. Due to industrial potential of the town it has been recommended as an industrial estate with supportive facilities. About 6,172 acres industrial area have been added in the existing industrial area.

Southern Industrial Estate along Satayana Road

Development of Motorway M3 has strengthened physical links of the industrial hub with Lahore Multan and Karachi especially the southern part of the city. Industrial development has been proposed on the northern side of the city, however, no industrial development has been proposed on the southern side of the city. The improved physical links of this part of the city has created a lot of potential in the area. To create a balance and to encourage industrial development on the southern side of the city an industrial estate has been proposed on an area of about 3,929.9 acres. This would accelerate the industrial investment in the town attracting foreign investment as well.

Northwestern Industrial Estate in between Motorway M4 and Faisalabad Bypass south of Expo/Exhibition and Education Zone.

To create a balance in the provision of industrial development an industrial estate has been proposed on the north-western side of the city on an area measuring 2690 acres. This would speed up the industrial investment in a planned manner in this part of the city.

Extension of Small Industries Corporation (SIC) Industrial Estate

A number of industries have been working in the SIC Industrial Estate, Sargodha Road Faisalabad. To encourage more industries extension has been proposed in the existing industrial estate. About 472.3 acres have been proposed to be added in the existing industrial estate.

Regularization of Existing Industrial Clusters as Industrial Estates

Existing industries have been working in the town in residential areas in a haphazard manner. However, at 8 locations in the town industries have emerged in clusters. These 8 industrial clusters have been recommended to be declared as industrial estates. Further expansion of these industries at same location may not be allowed. Punjab Environmental Quality Standards (PEQS) may be enforced in these 8 industrial estates to minimize their harmful effects.

Warehousing and Freight Zone near Deputy Wala Interchange

To support industrial activities in the town an independent Zone has been planned for Warehousing and Freight activities on land measuring about 4533 acres near Deputy Wala Interchange.

Expo/Exhibition and Education Zone

To showcase the industrial products and holding of Industrial Exhibitions an Expo/Exhibition and Education Zone on an area of 2,737.5 acres has been proposed near Narwala Interchange on Motorway M4.

Industrial Park in the Science City

An industrial park has been proposed in the Science City which would accommodate small and medium size industries.

Establishment of New Dry Port within Southern Industrial Estate

To facilitate industries a new Dry Port over an area of 100 acres has been proposed within the Southern Industrial Estate.

Extension of Existing Dry Port

To facilitate the movement of goods extension has been proposed in the existing Dry Port at Gatti Railway Station.

1.9.2 Residential Development

To accommodate future population of the city (25 lakhs (approx.) upto 2041), 81,538.4 acres (approx.) have been proposed for residential development all around the city. The residential area would be developed according to the space standards recommended in National Reference Manual on Planning and Infrastructure Standards published by the Ministry of Housing & Urban Affairs, Environment and Urban Affairs Division, Govt. of Pakistan, Punjab Private Housing Schemes and Land Subdivision Rules and the decisions and directions of the Govt. issued from time to time. The Master Plan Area has been increased to 926.5 km² from existing 290 km²

Satellite Towns, Chak Jhumra and Khurrianwala

Two Satellite Towns Chak Jhumra and Khurrianwala have been proposed which are located approximately 20 km from center of the city. These two satellite towns would be self-sufficient in all the town level facilities i.e., industrial areas, residential areas, commercial areas, education and health facilities, parks and playgrounds, etc. However, would be dependent on Faisalabad city for higher level facilities, like trade and Business centers, hospitals, universities, etc.

Residential areas near Industrial Estates for staff and laborer's

Adequate areas have been earmarked near the industrial estates to accommodate residential requirement of the staff and laborers. This would not only provide convenience to the staff and laborers but would reduce traffic pressure on city roads.

Incorporation of Private Housing Schemes approved by FDA and DPDC

To protect the investment in the real estate sector it has been recommended in the Master Plan that the housing schemes and land subdivisions which have been approved by FDA and DPDC as per the FPUSP would not be disturbed rather protected. The request of NOC of a

housing scheme already received by FDA and DPDC as per the FPUSP prior to the Notification of the Master Plan would be examined and scrutinized as per the FPUSP.

Regularization of Katchi Abadies

The Faisalabad Area Upgrading Project (FAUP) may be resumed. Regularized Katchi Abadies of Faisalabad may be rehabilitated as per the Faisalabad Area Upgrading Project (FAUP) to improve the living condition in these settlements.

Regeneration of core Urban area

The old areas of the town center especially the Clock Tower area may be regenerated with the participation of the residents to improve the living conditions in these eight bazars.

1.9.3 Special Zones

Special Development Zone near FIEDMC

An area measuring about 2243.1 acres have been earmarked near M3IC as Special Development Zone. Expo Center, Vocational training Institute, Mixed use Commercial area, Apartments, etc. may be provided in this area. The Authority may declare any specific use or number of uses in the Special Development Zone and it shall be incorporated in the Master Plan as per the clause 11 of the Punjab Development Authority Rules 2021.

Mixed Use Development

Mixed use development has been proposed at three location near Chak Sahianwala (636 acres), Khurrianwala near Chak No. 200 RB (626 acres) and on Narwala Road near Chak 65 JB (430 acres). This mixed-use development area would accommodate commercial, business activities along with apartments, etc.

Cultural and Sports Zone

Cultural and Sports Zone has been earmarked in between Narwala Road and Jhang Road. This would facilitate Cultural and Sports activities in the area.

Commercial areas/markets

To meet the local commercial needs of the population commercial areas and markets would be planned and developed in the area earmarked for residential development in the city. These commercial areas would be provided as per the space standards recommended in National Reference Manual on Planning and Infrastructure Standards published by the Ministry of Housing & Urban Affairs, Environment and Urban Affairs Division, Govt. of Pakistan, Punjab Private Housing Schemes and Land Subdivision Rules and decisions and directions of the Govt. issued from time to time.

Auto Spare parts Markets

Auto Spare parts Markets would be developed at 5 proposed Truck Stands.

Cold Storage and Warehouses

For storage of agriculture produce i.e., Fruits and Vegetables an area measuring about 18.3 acres have been earmarked for Cold Storages and Warehouses.

1.9.4 Public Facilities and Amenities

Improvement of 1122 Centers

There are three Rescue Stations within Municipal Limits besides one on Jaranwala Road which falls outside Municipal Limits of Faisalabad. To improve the effectiveness of the emergency services one more Rescue Station has been proposed on Lahore-Sheikhupura-Faisalabad Road as shown on the plan placed at Annex-A.

Modern Slaughterhouse

Three Modern slaughterhouses have been proposed on i) Satayana Road Chak 237 RB, ii) Narwala Road near Chokera iii) Khurrianwala near Chak 189 RB.

Science City

Establishment of Science City, comprising of Universities, Research Institutes, IT Towers etc. Vocational and Technical Training Centers. Science city (2915 acres) has been planned near Khurrianwala on Faisalabad Bypass, where UET Campus has already been established and the campus of Women University is under construction. Two phases of the Science city have been planned on Jhang Road in close proximity of the Airport. This would also be accessible through train and Risalewala railway station would serve both the phases of Science city. Phase-I (1504 acres) has been planned on the north side of Risalewala Road where Govt. College have already established its new campus. Phase-2 (1979 acres) of the Science City has been planned on the southern side of the Risalewala Road. The Science City would also be benefitted from the close proximity of the Airport.

Open spaces/Parks (08, 1543.5 acres)

To meet the Open spaces/Parks requirements of the residents of Faisalabad city 8 large parks have been proposed distributed all over the city. Extension has also been proposed in the Gatwala Forest Park. The total area of these 7 parks + extension in Gatwala Park is 1543.5 acres.

Hotel/Tourism and Residential Zone near Narwala Interchange (2263.3 acres)

To meet Hotel/Tourism and Residential requirements an area of 2263.3 acres have been proposed near Motorway M4.

A cluster of activities complementing each other have been planned near Aminpur Bangla interchange on the Motorway M4 e.g., Industrial Estate, Mixed Use Commercial, Cultural and Sports Zone, Expo/Exhibition and Education Zone, Hotel/Tourism and Residential Zone. The total area of these 5 complementing zones have become 11,155. These zones would also be benefitted from Motorway M4 and the proximity of the Faisalabad Airport. Recreational Zone (2312 acres) have also been planned in the vicinity of the Aminpur Bangla Interchange.

Hospitals (04), One Hospital Complex

Five hospitals have been proposed in the city over an area of 520 acres. These would meet the future needs of the inhabitants of Faisalabad city. The location of proposed hospitals has been shown on the Master Plan placed at Annex-A.

Graveyards

Three new graveyards have been proposed in addition to the extension in the six existing graveyards. The total area proposed for the graveyards including the extension is 1238.5 acres. Location of these graveyards have been shown on the Master Plan placed at Annex-B

Balance between the North and South of the city

Attempt has been made to achieve a balance in the north and south side of the city as far as industrial development is concerned. This has also been necessitated due to the development of M3 and improvement in linkages with Lahore, Multan and Karachi.

1.9.5 Transportation

Network of Roads

Road network of Faisalabad city has been improved by proposing new roads and widening of existing roads. The major roads have been proposed while the local roads would be planned at the time of the detail planning. The proposed road network has been divided into three phases, i.e., short term, midterm and long-term phases. Moreover, the priority ranking has also been done into low medium and high priority.

Regional Connectivity

Regional connectivity of Faisalabad city has been improved by proposing new links, and improvement of existing links with M3 and M4.

Expressway

An expressway has been proposed linking M3 and M4 through Jaranwala-Khurrianwala Road upto Sahianwala. In this way the industrial areas of Khurrianwala and Sahianwala would also be connected through Expressway. The movement of people and goods between Jaranwala-Khurrianwala-Sahianwala would be facilitated.

Rail Shuttle Service

Rail Shuttle Service having length of about 65 kms have been proposed for mobility of the labour, from Sangla Hill to Abbaspur in first phase and from Chak Jhumra to Chiniot in Second phase. This would facilitate the movement of labor in the morning and evening time and also reduce pressure of traffic on inter-district roads in peak hours.

Links between M-3 and M-4 in the north, center and south of city

To improve regional connectivity three links have been proposed between M3 and M4 i) Sahianwala-Khurrianwala-Jaranwala-Syed wala Jaranwala Interchange (54.5 km) ii) Satayana Road from Faisalabad Bypass to M3 (45.8 km) (a new interchange has been proposed at this location) iii) Painsara-Dijkot Road to Samundri Interchange on M3 (50.4 km). In this way Faisalabad would have link with M3 and M4 from north side, center and southern side of the city.

Three Ring Roads, Concentric Rings

To achieve smooth flow of traffic, reduce congestion of traffic on city roads, city center three Ring Roads have been proposed as shown on the Master Plan placed at Annex-A, i) The improved alignment of the ring road proposed by M/s Techno in 2010-12 ii) Faisalabad Bypass has been proposed as 2nd Ring road and iii) A larger ring has been proposed connecting expressways and inter-district roads.

Upgradation of Faisalabad bypass

To achieve the objectives of the Faisalabad by pass its upgradation has been proposed with extension in the Right-of-way of the bypass.

Parking Plazas (02) in addition to 01 under construction

Two more Parking plazas have been proposed in addition to the already under construction parking plaza. The location of the parking plazas has been shown in the Master Plan placed at annex-A.

Pedestrian Bridges (52), Underpasses (02), overhead bridges at Railway crossing (03)

To streamline the traffic in the city and to achieve safety for the pedestrians. 52 Pedestrian Bridges have been proposed along with 2 underpasses and 3 overhead bridges.

Truck Stands

Four Truck Stands have been proposed in addition to extension of the existing Truck Stand on Sargodha Road near Faisalabad Bypass. The total area proposed for the Truck Stands is 122.1 acres.

Table 1-3: Detail Land Use Analysis with Location w.r.t. Mouza

| Sr. No | Proposed Land Uses | Area (Acre) |
|--------|--|-------------|
| 1 | Army area north of Jhang Road near village Opposite Ayub Research Institute (Agriculture Research) | 1,007.0 |
| 2 | Air Port (Existing + Extension) | 2,820 |
| 3 | Cultural & Sports Zone (Prokianwala) | 2,046.0 |
| 4 | Existing Dry Port Extension Gatti RS | 66.0 |
| 5 | General Bus Stands | |

| | | |
|----|---|----------|
| | Lahore-Sheikhupura Road Khurrianwala | 31.0 |
| | Lahore-Sheikhupura Road Near Gatwala | 59.6 |
| | Narwala Road near 218 JB | 34.2 |
| | Stayana Road near 238 RB | 43.1 |
| | Total | 168.0 |
| 6 | Graveyards | |
| | Proposed Faisalabad Bypass near Chak 210, 229 RB | 251.6 |
| | Faisalabad Bypass near Chak 237 RB (Extension) 28.9 | 199.0 |
| | Faisalabad Bypass near Chak 247 RB (Extension) 25.6 | 200.7 |
| | Faisalabad Bypass near Chak 65, 67 JB (Extension) 2.3 | 175.8 |
| | Proposed Faisalabad Bypass near Chokera | 253.7 |
| | Faisalabad Bypass near Chak Jhumra (Extension) | 58.4 |
| | Faisalabad Bypass, Khurrianwala 76 RB (Extension) | 23.7 |
| | Faisalabad Bypass, Khurrianwala 194 RB (Extension) | 43.5 |
| | Dijkot | 32.1 |
| | Total | 1238.5 |
| 7 | Hospitals | |
| | Narwala Road near Narwala Bangla | 50.0 |
| | Hospital Complex, Faisalabad Bypass near Satayana Road near 228 RB | 309.0 |
| | Lahore-Sheikhupura Road near Chak 200 RB | 51.4 |
| | In between Samundri road and Satayana Road Chak 235 RB on State Land | 57.1 |
| | Resalewala Road in proposed Science City | 52.2 |
| | Total | 520.0 |
| 8 | Industries | |
| | Allama Iqbal Industrial City | 3400.0 |
| | Industrial Area on the Southern side (Chak 237 RB, 236 RB, 78 GB) | 3929.9 |
| | Extension of Small Industrial Corporation Industrial Estate Sargodha Road | 472.3 |
| | Khurrianwala Industrial Estate (Chak 74 RB and 77 RB) | 6172.1 |
| | Industrial Area on the West side (Chak 63 RB, 64 RB) | 2690.5 |
| | Total | 16,665.3 |
| 9 | Institutional | 6,560.3 |
| 10 | IT Software Development Park | 714.9 |
| 11 | Expo/Exhibition and Education Zone near Narwala Interchange | 2737.5 |
| 12 | Hotel/Tourism and Residential near Narwala Interchange | 2263.3 |
| 13 | Warehousing & Freight Zone near Deputy Wala Interchange | 4533.0 |
| 14 | Cold Storage and Warehouse near Sabzi Mandi (Bypass) | 18.3 |
| 15 | Landfill Sites | |

| | | |
|----|---|--------------|
| | Chak 211 RB (JICA) | 158.7 |
| | Chak 275 JB | 102.5 |
| | Chak 105 JB | 99.4 |
| | Near Chak 80 GB | 100.1 |
| | Total | 460.7 |
| 16 | Mixed-Use Commercial | |
| | Near Chak Sahianwala 153, 145 RB | 773.6 |
| | Khurrianwala near Chak 194, 200 RB | 625.5 |
| | Narwala Road Chak 61,66 JB | 429.8 |
| | Near Chak Sahianwala 155, 163 RB | 3200.7 |
| | Total | 5,029.7 |
| 17 | Oil Depot Extension Gatti | 126.0 |
| 18 | Open Spaces/Parks | |
| | Near Proposed Science City on Jhang Road north side | 40.3 |
| | Near Proposed Science City on Jhang Road south side | 118.3 |
| | Near Chak Jhumra | 498.1 |
| | Near Khurrianwala | 157.9 |
| | On Satayana Road near Faisalabad Bypass | 153.0 |
| | Extension in Gatwala Forest Park | 132.7 |
| | Near Resalewala Railway Station | 202.1 |
| | Along Motorway M-4 near Small Industry Corporation Industrial Estate | 132.7 |
| | Total | 1,543.5 |
| 19 | Residential | 81,538.4 |
| 20 | Recreational | 2311.8 |
| 21 | Restricted by NHA along M-4 | 5,497.2 |
| 22 | Sewerage Treatment Plant near proposed industrial area 244 RB (JICA) | 907.6 |
| 23 | Slaughter Houses | |
| | Near Satayana Road Chak 237 RB on State Land | 28.6 |
| | Narwala Road near Chokera (Bypass) | 22.2 |
| | Khurrianwala near Chak 189 RB | 18.9 |
| | Total | 70.0 |
| 24 | Special Development and Small/Medium Enterprises | |
| | Expo-Center | |

| | | |
|-------------------|--|------------------|
| | | |
| | Vocational Training Institute | |
| | Mixed Use Commercial Area | |
| | Apartments | |
| | The Authority may declare any specific use or number of uses in a Special Development Zone and it shall be incorporated in the Master Plan as per the clause 11 of the Punjab Development Authority Rules 2021 | |
| | Total | 2,243.1 |
| 25 | Truck Stands | |
| | Extension Sargodha Road near Faisalabad Bypass | 13.9 |
| | Near Jhang Road Chak 65 JB | 25.0 |
| | Near M-3 Industrial City (M3IC) | 21.8 |
| | Near VAC | 22.0 |
| | Near Southern Industrial Estate | 39.4 |
| | Total | 122.1 |
| Total Area | | 141,209.1 |

1.9.6 Water, Sanitation and Safety

Adjustment/Extension of Planning boundaries

Keeping in view the extent of spatial expansion and the proposed land use plan the Master Plan boundaries have been proposed. This would facilitate the planning and development control by FDA.

Sewerage Treatment Plant Site (JICA)

A site measuring 907.6 acres have been proposed by the JICA near Chak No. 244 RB along Maduana drain on southern side of city.

Sanitary Landfill sites

Three Sanitary Landfill sites have been proposed over an area of 460.7 acres. This include the site already proposed by JICA in Chak No. 211 RB.

Shifting of Oil Depots

The Oil depots located along Ganesh Mills road in the heart of the city may be shifted near Gatti Railway Station along Jhumra Road. Shifting of these Depots to the proposed site would not only eliminate the public safety risk but also reduce the traffic problems in the city Centre.

2. CITY PROFILE

2.1 BACKGROUND

Faisalabad was originally known as Chenab Colony, then Sandal Bar and Then Lyallpur. In the 1870s the colonial Punjab Government decided to increase the cultivated land by making barrages and canals to meet the demand at European Markets. This led to the canal-based irrigation of the areas now comprising the district of Faisalabad. In 1880, a colonial officer, Captain Poham Young, with the support of Sir James Broadwood Lyall, proposed a town. The design was based on the British Flag (Union Jack), with the eight roads radiating from a large clock tower in the centre (shown in **Figure 2.1**). The eight roads developed into eight separate bazaars.



Figure 2-1: Satellite View of Faisalabad (2021) and British Flag (Union Jack), with the Eight Bazaars

The construction of artificial canals allowed the surrounding areas to be irrigated. The town grew rapidly as framers settled on newly irrigated land. Many settlers came from different areas of Punjab, especially from Ludhiana, Jalandhar, and Ambala on the promise of large agricultural lands. With the extensively planned distribution of land, the canal irrigated areas of Sandal Bar soon became populated. This led to a rapid transformation of the nomadic environment of the Bar into a more agriculture-based one.

In 1892 the British Raj decided to join Faisalabad (then Lyallpur) with a rail link to the major rail network to transport agricultural surplus to the ports to be shipped to European markets. In 1895 the rail link between Wazirabad and Lyallpur was completed. In 1896, Lyallpur was given the status of a tehsil of the Jhang District and its administration was carried on in tents on the old the (Mound) of Pucca Mari near Tariqabad. The majestic Clock Tower was constructed out of the funds raised by the landowners. The fund thus raised was handed over to the Town Committee, which undertook to complete the project. The pictures and aerial view of majest Clock Tower is attached in **Figure 2.2 & Figure 2.3** underneath.

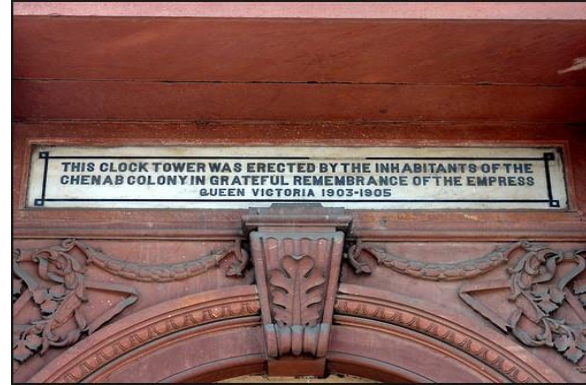


Figure 2-2: Majestic Clock Tower



Figure 2-3: Aerial View of Majestic Clock Tower and Surrounding Eight Bazaars

Industry came to the town during the 1930s with the Lyallpur Cotton Mills (completed in 1934) being the first major unit followed by three other units during the same decade. After Independence in 1947, the town grew rapidly, initially due to the influx of Muslim refugees from India and later due to government policies that promoted industrialization and green revolution technologies.

Today Faisalabad has become a sprawling, very rapidly expanding city characterized by large un-serviced and under-serviced areas (slums and katchi abadis).

2.2 GEOGRAPHY

Faisalabad is situated on the flat plains of northeast Punjab, at 184 meters (604 ft.) above sea level. The city proper comprises approximately 1,230 square kilometers (470 sq. mi) while the district encompasses about 6000 sq.km. The district lies from 30-35 to 31-45 C North latitude and 72 - 01 to 73 - 40 C East longitude.

River Chenab flows about 30 km in the Northwest while River Ravi meanders about 40 km off the city in the Southeast. Lower Chenab canal is the main source of irrigation water, which meets the requirements of 80% of cultivated land. The soil of Faisalabad is generally fertile.

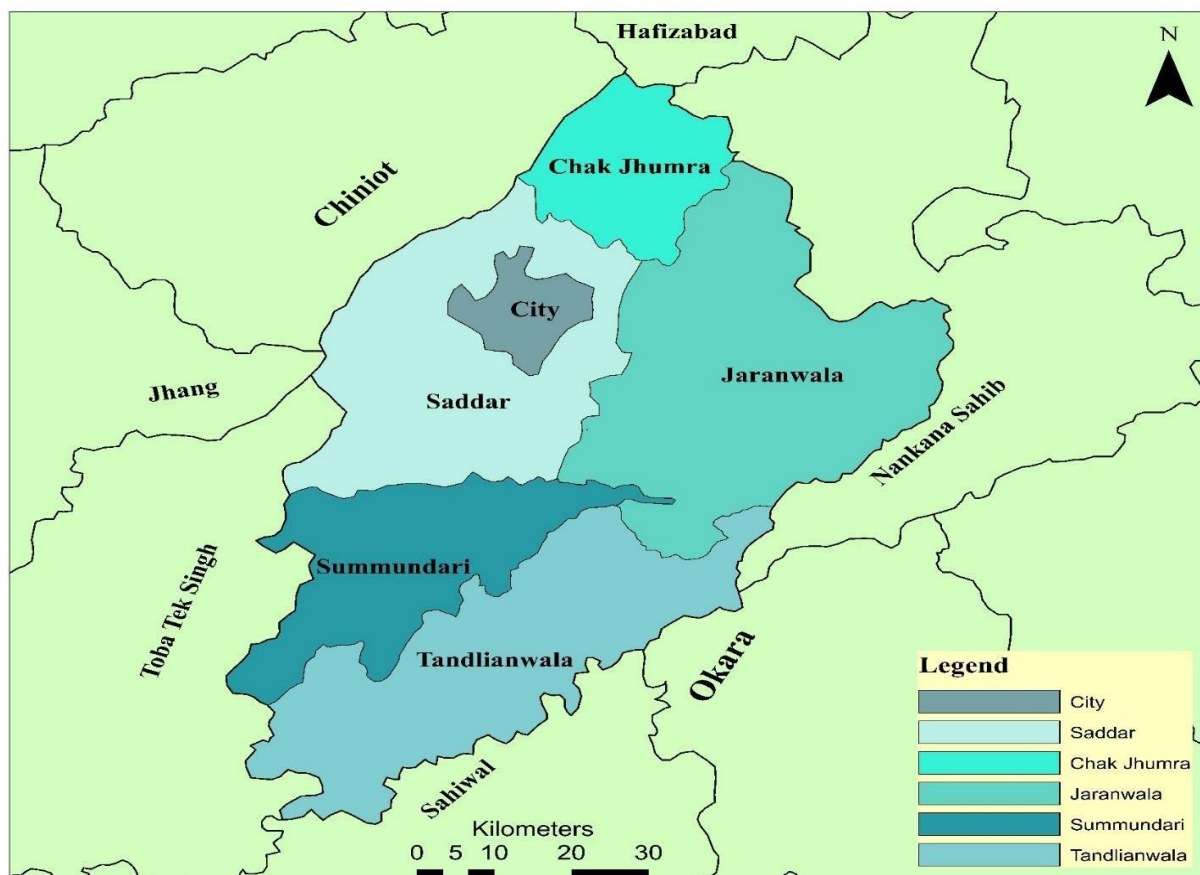
2.2.1 Boundary

According to 2017 census, Faisalabad division encompasses an area of 17,917 sq. km and a population of 14,177,081. It consists of following four districts (refer **Table 2.1** underneath):

Table 2-1: Districts of Faisalabad Division

| District | Area (km ²) | Population (2017) |
|----------------|-------------------------|-------------------|
| Faisalabad | 5,856 | 7,873,910 |
| Jhang | 6,166 | 2,743,416 |
| Toba Tek Singh | 4,364 | 2,190,015 |
| Chiniot | 2,643 | 1,369,740 |
| Total | 17,917 | 14,177,081 |

District is bound on the north by Chiniot and Sheikhupura, on the east by Sheikhupura and Sahiwal, on the south by Sahiwal and Toba Tek Singh and on the west by Jhang. The city is linked to the M-2 motorway (Islamabad-Lahore motorway) with the M-3 motorway section (Pindi-Bhatia Faisalabad motorway). Faisalabad (formerly known as Lyallpur) is also linked with the railway system. Map showing the boundary of Faisalabad District is attached in **Figure 2.4** underneath.


Figure 2-4: Boundary of Faisalabad District

2.2.2 Administrative Setup

Faisalabad is a divisional headquarters and the division comprises Faisalabad, Jhang, Chiniot and Toba Tek Singh. There are 6 tehsils in district Faisalabad and 33 kanungo circles, 299 patwari circles, 287 UCs and 820 Mouzas. It has 11 Commissioner is the district in-charge and looks after the administrative issue in the district. There is one tehsil municipal administration office in each tehsil. Faisalabad is administered through Faisalabad Development Authority. The **Table 2.2** describes administrative arrangements in district Faisalabad.

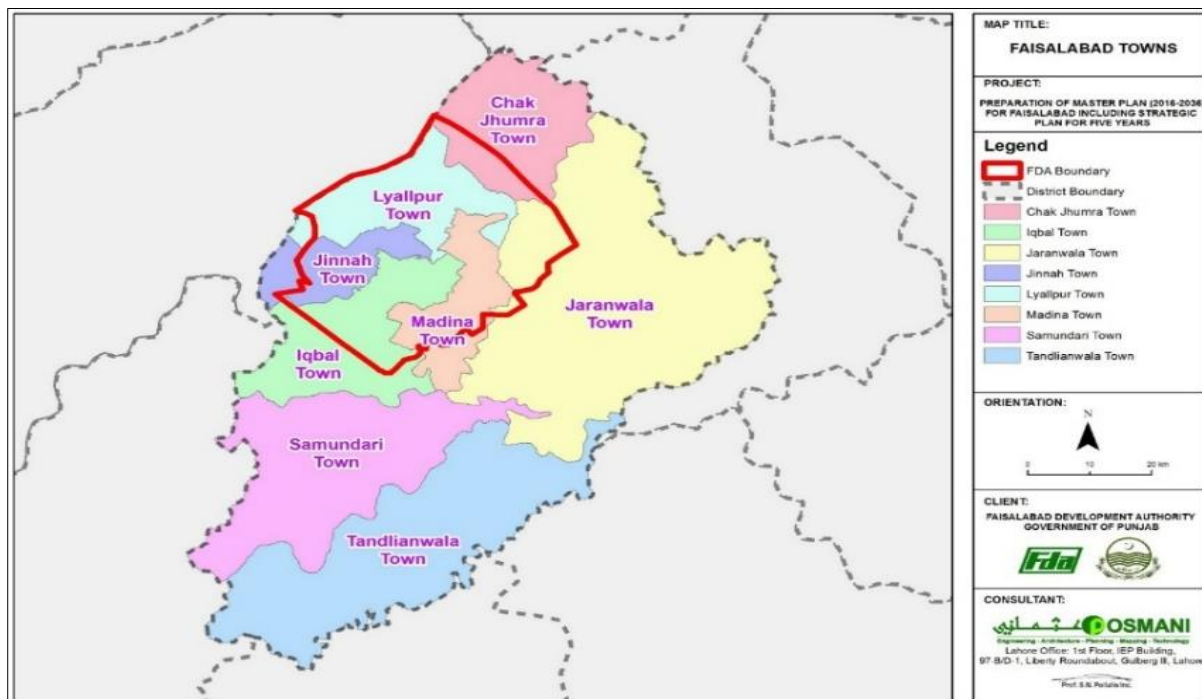
Table 2-2: Administrative Division of District Faisalabad¹

| Faisalabad | Kanungo Circles/ Supervisory | Patwar Circles/ Supervisory | Number of Mouzas | | | | | |
|-------------------|---------------------------------|--------------------------------|------------------|------------|-----------|--------------|----------|--------------|
| | Tapas | Tapas | Total | Rural | Urban | Partly Urban | Forest | Un-Populated |
| Faisalabad City | 3 | 22 | 26 | 1 | 16 | 9 | - | - |
| Faisalabad Saddar | 7 | 59 | 174 | 167 | - | 7 | - | - |
| Chak Jhumra | 2 | 22 | 68 | 63 | 1 | 4 | - | - |
| Jaranwala | 10 | 91 | 260 | 246 | 2 | 12 | - | - |
| Samundri | 6 | 49 | 133 | 124 | 1 | 8 | - | - |
| Tandlianwala | 5 | 56 | 181 | 159 | 3 | 11 | - | 8 |
| Total | 33 | 299 | 842 | 760 | 23 | 51 | - | 8 |

The District is under the charge of a Commissioner who combines the functions of the District Magistrate as well as Collector. He is also responsible for the coordination of functions of all nation-building departments in the District.

The Faisalabad district is currently divided into six tehsils: Faisalabad City, Faisalabad Saddar, Jaranwala, Jhumra, Samundri and Tandlianwala. The district headquarter is Faisalabad city. However, until divisions were abolished in the year 2000 it was part of the Faisalabad Division. Whereas, since 2005, Faisalabad was re-organized as City District and comprises of eight Tehsil Municipal Administration (TMAs) (or Towns).

The towns of Faisalabad district are; Faisalabad, Madina Town, Jinnah Town, Iqbal Town, Chak Jhumra Town, Jaranwala Town, Samundri Town and Tandlianwala Town, as shown in **Figure 2.5** underneath.


Figure 2-5: Locations of Faisalabad Towns

Further, in 2016 the administrative status was changed to the Tehsils and now Faisalabad has the following 06 tehsils; Faisalabad City, Faisalabad Sadar, Chuk Jumra, Jaranwala,

¹ Source: Pakistan Emergency situational analysis

Samundri and Tandlianwala. Total population of Faisalabad District as per census 2017 is summarized in **Table 2.3** below.

Table 2-3: Total Population of Faisalabad District – 2017²

| Administrative Units | House-holds | Population - 2017 | | | | Population 1998 | Sex Ratio 2017 | 1998-2017 Average Annual Growth Rate |
|----------------------|-------------|-------------------|-----------|--------------|-----------|-----------------|----------------|--------------------------------------|
| | | Male | Female | Trans-gender | All Sexes | | | |
| Faisalabad District | 1,225,266 | 4,034,515 | 3,838,854 | 541 | 7,873,910 | 5,429,547 | 105.10 | 1.97 |
| Rural | 631,434 | 2,102,745 | 2,010,623 | 214 | 4,113,582 | 3,111,114 | 104.58 | 1.48 |
| Urban | 593,832 | 1,931,770 | 1,828,231 | 327 | 3,760,328 | 2,318,433 | 105.66 | 2.57 |
| Faisalabad M.Corp. | - | - | - | - | 3,203,846 | 2,008,861 | - | - |

2.3 POPULATION OF FAISALABAD CITY

2.3.1 Population Censuses

According to the 2017 Census of Pakistan, the total population of Faisalabad District amounts to 7,874,790 with 1,225,413 households (refer Table 2.4 below).

Table 2-4: Total Population According to Censuses

| Administrative Unit | 1981 | 1998 | 2017 |
|----------------------------|------------------|------------------|------------------|
| Chak Jhumra | 202,078 | 253,806 | 332,461 |
| Faisalabad City | 1,181,562 | 2,140,346 | 3,238,841 |
| Faisalabad Sadar | 666,023 | 924,110 | 1,465,411 |
| Jaranwala | 747,890 | 1,054,698 | 1,492,276 |
| Samundri | 378,302 | 515,785 | 643,068 |
| Tandlianwala | 386,054 | 540,802 | 702,733 |
| Faisalabad District | 3,561,909 | 5,429,547 | 7,874,790 |

The increase in the population of Faisalabad City from 1901 to the 2017 census is given in the **Table 2.5**.

Table 2-5: Population 1901 – 2017³

| Year | Population | Increase Over Last Census Figure | Percentage Growth over Last Census Figure | Growth Rate Percent Per Annum |
|------|------------|----------------------------------|---|-------------------------------|
| 1901 | 9,171 | - | - | - |
| 1911 | 19,008 | 9,337 | 101.8 | 7.6 |
| 1921 | 23,136 | 4,128 | 21.7 | 2.0 |
| 1931 | 42,922 | 19,786 | 85.52 | 6.4 |
| 1941 | 69,930 | 27,008 | 62.92 | 5.0 |
| 1951 | 179,000 | 109,070 | 155.7 | 9.9 |
| 1961 | 425,240 | 246,240 | 147.62 | 8.9 |
| 1972 | 823,344 | 398,104 | 93.61 | 6.2 |
| 1981 | 1,232,000 | 408,656 | 49.63 | 4.6 |
| 1998 | 1,977,246 | 745,246 | 60.49 | 2.8 |
| 2017 | 3,203,846 | 1,226,600 | 62.04 | 2.49 |

² Source: Census 2017

³ Government of Pakistan Census Reports

2.3.2 Reasons for Population Growth

From 1901 to 1921

In these two decades, the population of Faisalabad increased from 9,171 to 23,136. This increase was due to the establishment of the city and its administrative structure. In this period the flood plain was brought under cultivation and in 1910 the railway was established to link the town with Karachi port.

From 1921 to 1941:

During 1921 - 1931 the increase in population was due to an increase of about 40% in the production of wheat and almost 100% in the production and export of cotton. Between 1931 and 1941 industries started to develop in Faisalabad and in this period three large cotton mills, including the Lyallpur Cotton Mills, which was completed in 1934, were set up. Labour for these mills was also imported from Eastern Punjab thus increasing the settler population.

From 1941 to 1951:

In the period between 1941 and 1951, the population of Faisalabad increased by 155.7% t. The reason for this was an influx of refugees from India into the city. Camps for the incoming refugees were set up near the city centre and these eventually became permanent settlements. Almost all these settlements were on agricultural land. In addition to the refugee influx, anarchic conditions in the countryside, because of the partition of British India, forced many people into the city.

From 1951 to 1961:

In the period from 1951 to 1961, the population again increased by 147.62%. This was because of two reasons: one, Faisalabad was declared an industrial zone with a tax holiday as an incentive for investors. Because of this many textile mills came into being. Two, green revolution technologies were introduced in the agricultural hinterland of Faisalabad. This forced, and continued to force, many peasants off their land or requires that at least one member of the family of small landowner's works in the urban areas so that the household can be sustained in the long run.

From 1961 to 1981:

During the 1961 - 1971 period Faisalabad increased at a rate of 6.2% per year. The natural growth rate was about 3%. Migration into the city was the result of a demand in the international market for cotton yarn. To meet this demand small looms were installed all over the city and labour from the rural areas moved in to operate them.

From 1981 to 1998:

Faisalabad has continued to grow at a rate of 2.8% per year. This fall in the growth rate is due to the fall both in the natural growth rate and the migration rate. The rate of increase of industrial units has fallen considerably and the disruption caused in the countryside by the introduction of green revolution technologies in the 1960s is stabilizing. In addition, Pakistan has over-produced both cotton textiles and yarn and wheat is no longer an item of export.

1998 Onwards:

Faisalabad has continued to grow and recently 6th demography was done in 2017 and its results are the city population is 3,203,846 with a rate of 2.6 per year. The increase in population is due to industrial units.

The historic spatial growth of Faisalabad (1984-2017) is shown in **Figure 2.6** below.

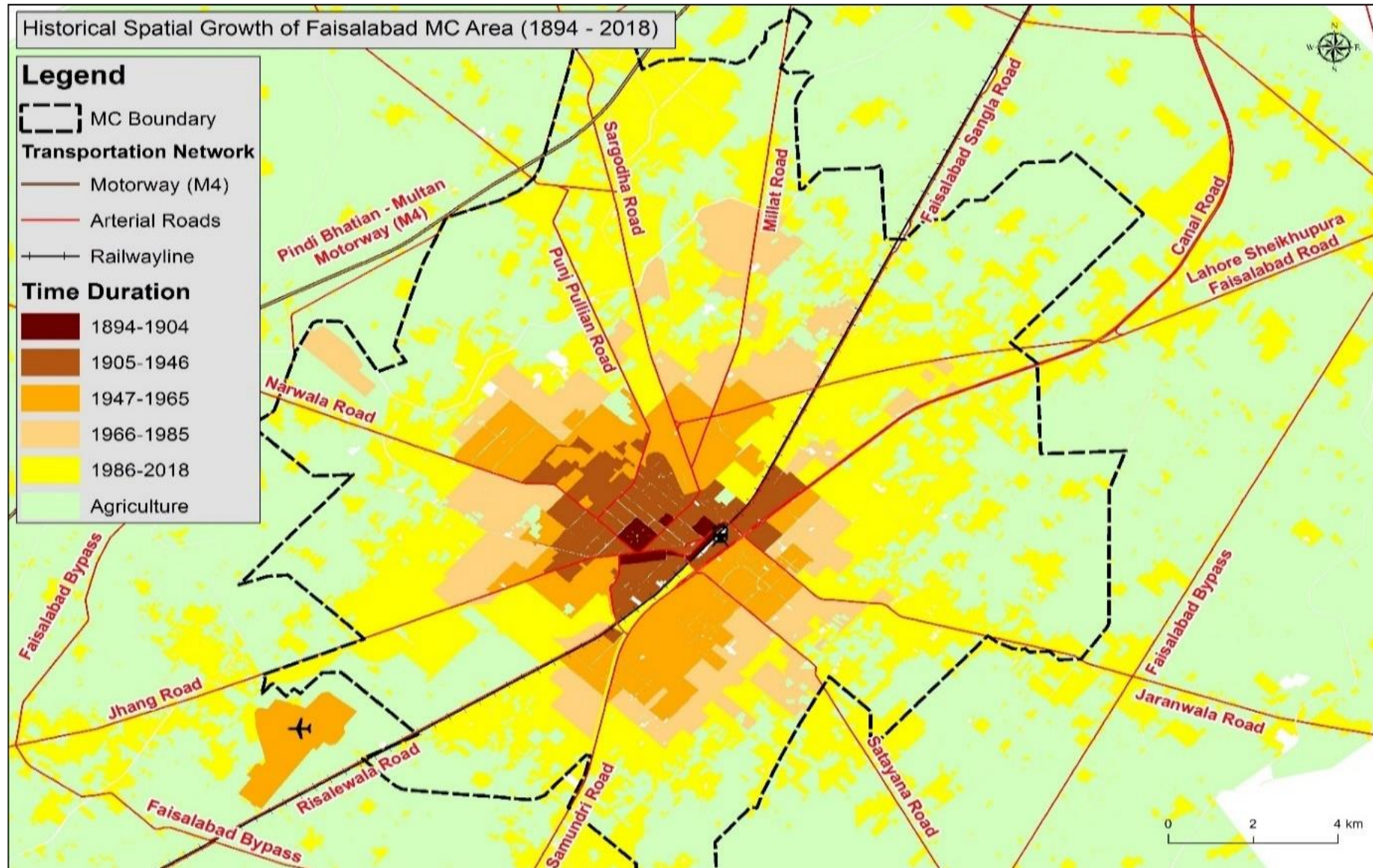


Figure 2-6: Historical Spatial Growth of Faisalabad (1984-2017)

2.4 FAISALABAD IN THE REGIONAL CONTEXT

2.4.1 Districts and Subdivisions in the surrounding of Faisalabad District

Faisalabad is the 2nd largest city of Punjab and apart from its own six tehsils it also serves the surrounding districts and tehsils. Roads often bring significant economic and social benefits, but they can also have substantial negative impacts on communities and the natural environment. As we become more aware of these impacts, there is a growing demand for the techniques and skills needed to incorporate environmental considerations into road planning and management. The Faisalabad Pindi Bhattian Motorway Project (M-3) with 52.5 Km length, 100 meters R.O.W. and Rs. 532.66 million cost falls under the category of projects.

M2 and M4 are crossing and had a great impact on the city transportation network. Faisalabad is an industrial area where FIEDMIC is developed for industries that serve at the regional level.

Faisalabad city serves the following districts and areas having a population of more than 200,000 people:

- | | |
|--------------------|--------------------|
| 1. Faisalabad City | 10. Okara |
| 2. Chak Jhumra | 11. Hafizabad |
| 3. Jaranwala | 12. Sahiwal |
| 4. Andlianwala | 13. Toba Tek Singh |
| 5. Samundri | 14. Pir Mahal |
| 6. Chiniot | 15. Sangla Hill |
| 7. Sargodha | 16. Bhawana |
| 8. Jhang | 17. Lalian |
| 9. Gojra | |

The dependence of connectivity on the physical distance between districts and tehsils is a direct consequence of trade-off mechanisms between costs of establishing and sustaining links, processing rates between linkages. **Figure 2.7** shows the distance of 50 km between linkages. Faisalabad regional connectivity is shown in **Figure 2.8** underneath

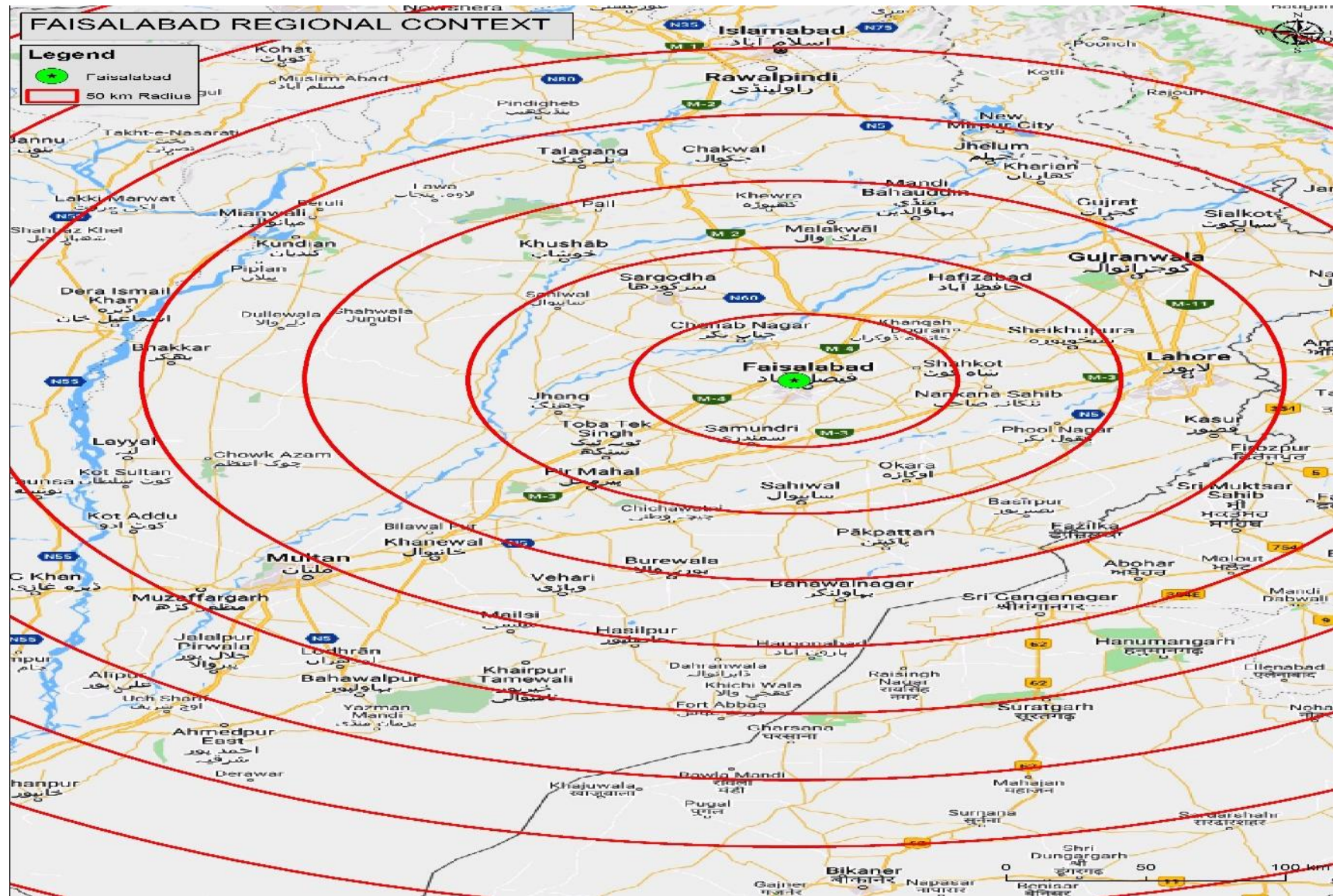


Figure 2-7: Distance between Linkages

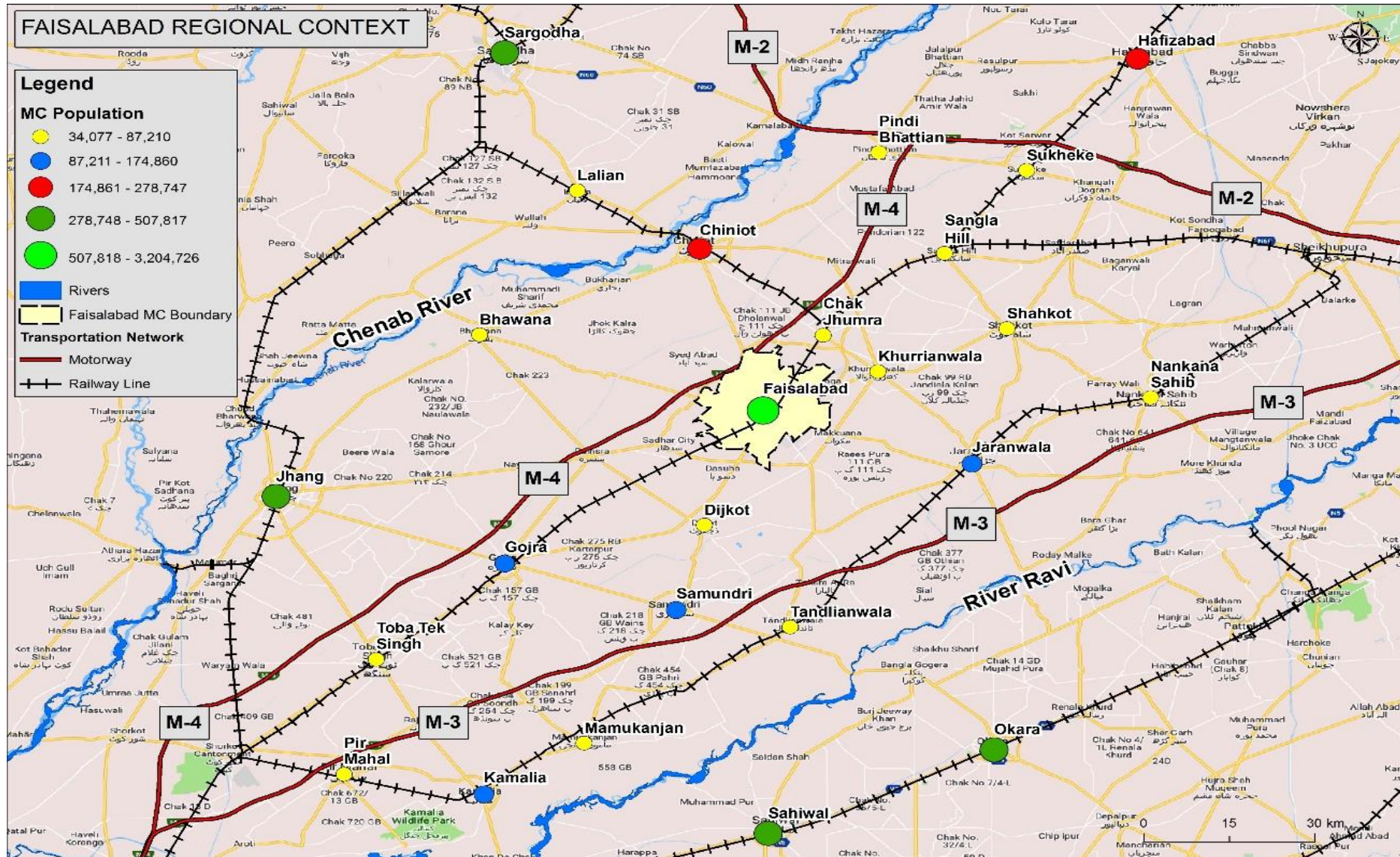


Figure 2-8: Faisalabad Regional Connectivity

Chak Jhumra:

Chak Jhumra is a town, railway junction and a Tehsil of Faisalabad district situated at a distance of about 21 km (13 miles) Northeast of Faisalabad city, on Faisalabad-Sangla Hill Road. The Khanewal – Wazirabad Branch and Sangla Hill – Khudian Branch intersect in the town and connect it to Faisalabad and Sargodha respectively. The total population of Chak Jhumra tehsil is 332,966 persons and the town has a population of 48,796 persons (2017).

Before the establishment of Pakistan, the town was known as a hub of the cotton trade. At the time, three cotton grinding factories operated within the town. Following the Partition of India, the town's Hindu population, of which the majority of traders were apart, immigrated to India, causing the business to decline significantly.

Beginning in the 1960s, the town began to again experience economic growth and development of infrastructure. At this time many schools, hospitals, and textile factories were constructed within the town. Today, textile manufacturing is the dominant industry within Chak Jhumra.

Jaranwala:

It is a Tehsil of Faisalabad district situated at a distance of about 35 km southeast of Faisalabad and 110 km from Lahore. According to the Census of Pakistan 2017, the population of Jaranwala Tehsil is 1,493,3923 while the population of Jaranwala MC (Municipal Committee) is 150,380 persons. The city serves as the headquarters of Jaranwala Tehsil, an administrative subdivision of the district.

Jaranwala has fertile land. It produces crops like rice, wheat, sugarcane, vegetables and fruits. Jaranwala grain market is one of the busiest markets in Punjab. It is also the biggest consumer of fertilizers by volume in Pakistan. Jaranwala has one sugar mill known as "Husein Sugar mills"

Jaranwala is 10 km from the M3 motorway. There are many Bus services daily from Lahore and Faisalabad. Many trains are coming from Lahore on Shahkot – Sheikhpura Branch line. The nearest airport is Faisalabad International Airport at a distance of 50 km.

For its industries, Jaranwala is second to Faisalabad Tehsil in the district and is called the city of mills. There are jute, sugar, fertilizer and chemical mills in the town. The famous industrial area of Khurrianwala is part of Tehsil Jaranwala other than those main industries in Jaranwala are Rafhan Maize Products Plant, Crescent Jute Products Ltd established in 1965 was the largest jute mill in Pakistan but now it has been closed, Aslam Textile Mills and Hussein Sugar Mills.

Tandlianwala:

It is a sub-division of Faisalabad district and is located 35 km from the city of Faisalabad. As per the Population Census Report of 2017, the total population of tehsil is 703,155 persons and the population of the town is 84,495 persons. The Ravi River flows about 9 km in the east which is the main source of irrigation meeting the requirements of 90% of cultivated land. Tandlianwala is home to major grain, Whole corn and Sugar Market. The town is also well known because of the high quality of sugarcane. It has two sugar mills and dozens of cotton factories, rice factories and flour mills. The city is traditionally known for pure Desi Ghee, though it is rare now. Politically, it is the most important Tehsil of Faisalabad District.

Sammundri:

It is a city in Faisalabad District. It is the headquarters of Sammundri Tehsil, a subdivision of the district. It has a total population of 643,114 persons (2017) while the population of the Sammundri Municipal Committee is 156,938 persons. Sammundri is home to a major grain, Whole Corn & Sugar market. Sammundri is also known for its custom truck painting business.

Sammundri is 45 km from Faisalabad, 100 km from Lahore and just 15 km from Tandlianwala. The Karachi-Lahore Motorway (M3) has been passing through the neighbourhood of Tandlianwala known as Sammundri Interchange on Sammundri Tandlianwala Road. It is easily accessible from Lahore and Multan.

Sugarcane and Wheat are the major crops of the area, While Corn is the most traded commodity in the local trade market. Rice is also grown here but due to less water availability, this crop is also vanishing as a farmer choice. Vegetables are grown on many hectares and fulfilling 50% of the demand.

Hafizabad:

The population of Hafizabad city is 245,784 persons (2017). It is ranked 31st in the list of the Largest cities of Pakistan. The city is located at a distance of 101 km from Faisalabad and 117 km from Lahore. Since the construction of an interchange near Sukheke Mandi, Hafizabad is now just 22 km away from the Motorway (M2). Hafizabad is 30 miles (48 km) from Gujranwala and 37 miles (60 km) from Wazirabad.

It is an agricultural city. It is known for its rice industry on the agricultural side has top 5 exporters of rice. A major portion of the country's rice exports is from Hafizabad, which is sometimes referred to as the Land of Rice or City of Rice. Cotton power loom (weaving) is the second largest industry in Hafizabad. It is linked directly with the cotton market in Faisalabad and businessmen from Faisalabad deal directly with the cotton industry in Hafizabad. It plays an important role in the development of Hafizabad. This industry has been badly affected by the energy crisis.

Before the independence of Pakistan in 1947, the per-annum income of Hafizabad just from the rice was 15 million. Peshawar, Agra, Mithra, Calcutta, Karachi, and Sukker were Hafizabad's main clients. Up to 23 rice mills were there until the independence of Pakistan.

Rice and Power Loom industry are also important industries, located in Hafizabad city. Hafizabad Power Loom industry is directly connected with Faisalabad that is the major industrial city in Pakistan.

Sangla Hill:

Sangla Hill is a tehsil in the Nankana Sahib District of the Punjab Province of Pakistan. Until 2005, it was part of the Sheikhpura District. According to the census report of 2017, the total population of Tehsil Sangla Hill is 227,604 and Sangla Hill Municipal Committee is 61,498 persons. It is situated 67 km from Faisalabad and 103 km from the provincial capital Lahore. It is a city of high historic and religious value and a popular pilgrimage site for Sikhs from all over the world.

Okara:

Okara is the capital city of Okara District in the Punjab province of Pakistan. In 1982, the city became the headquarters of the newly created Okara district. Okara has had a railway line since 1892. According to the census report of 2017, the total population of Okara district is 3,040,826. The population of Okara Tehsil is 1,206,319 and the population of Okara Municipal Committee is 358,146 persons. It is the 25th largest city in Pakistan. Okara has located at a distance of 107 km from Faisalabad and 130 km from Lahore. The nearest major city to Okara is Sahiwal, formerly known as Montgomery. It is known for its agriculture-based economy and cotton mills. The city of Okara is Pakistan's largest producer of maize, potato and dairy products. Pakistan military dairy farms, known for their cheese, are situated in Okara. These farms were established before the creation of Pakistan in 1947.

Okara is known for its cattle breed known as Sahiwal and a water buffalo breed known as Nili-Ravi. It is very rich in livestock population and production. Livestock Production Research

Institute Bahadar Nagar Farm is a very large government farm near Okara. The farm has many cows, buffalo, bulls (for reproduction), goats and sheep.

Sahiwal:

It is one of the nine divisions of Punjab province, Pakistan. A small village on the Karachi – Lahore railway line during 1865 was named Montgomery after Sir Robert Montgomery, the then Lieutenant-Governor of Punjab. Later, it was made the capital of the Montgomery District. Its name was reinstated as Sahiwal in 1966.

The city is in the densely populated region between the Sutlej and Ravi Rivers. In 2017, the population of the Sahiwal district was 2,513,011. In 2008, Sahiwal Division was divided into three districts, i.e., Sahiwal District, Okara District and Pakpattan District. The city of Sahiwal is the capital of both Sahiwal District and Sahiwal Division. The population of Tehsil Sahiwal is 1,488,831 while the population of Sahiwal Municipal Corporation is 388,795 persons. The city is located 101 km from Faisalabad and 171 km from Lahore between Lahore and Multan. About 18 miles (29 km) southwest of Sahiwal is Harappa, an ancient city of the Indus Valley civilization.

The economy of the Sahiwal Division depends on agriculture and associated industries. The principal crops are wheat, cotton, tobacco, legumes, potato, and oilseeds. Cotton goods and lacquered woodwork are manufactured. The largest crop is wheat, followed by cotton. Crops farmed in Sahiwal include wheat, sugarcane, cotton, tobacco, rice, mustard seed, and maize. Plants such as rapeseed are grown for the production of vegetable oil. Vegetables are cultivated including potato, onion, cauliflower, peas, carrot, turnip, and Okra. Fruits grown in this area include citrus, guava, orange, lemon, mango, dates, jambul, jujube and mulberry. Sahiwal's sandy region near the dry bed of the Dias River is used for growing cotton and peanuts.

Toba Tek Singh:

Toba Tek Singh is the city and Tehsil of Toba Tek Singh District with a total population of 2,191,495 according to the census report of 2017. The population of Toba Tek Singh Tehsil is 740,017 while the population of Toba Tek Singh MC is 87,246 persons. It is located 84 km from Faisalabad and 188 km from Lahore.

Toba Tek Singh is one of the best producers of oranges, locally known as Kinno. It contributes towards the export standard quality of oranges are produced in Pakistan. The majority of people living in this district work in agriculture and the region produces several kinds of agricultural and dairy products, including meat, eggs, cotton, maize, several pulses, peaches, guava, tomato, melon, watermelon, mangoes, tobacco, onion, etc.

Gojra:

Gojra is the administrative capital of Gojra Tehsil, District Toba Tek Singh. Gojra is 30 miles (50 km) from Faisalabad, 170 km from Lahore, and 20 miles (32 km) north of Toba Tek Singh. Founded in 1896 during the British colonial period, Gojra was the commercial centre of lands that had recently come under cultivation and was known for its "mandi" (market) for cash crops.

The total population of Gojra Tehsil is 657,222 persons while the population of Gojra MC is 174,831 persons (2017). Gojra was the commercial centre of lands that had recently come under cultivation and was known for its "mandi" (market) for cash crops.

The surrounding countryside, irrigated by the Chenab River, produces cotton, wheat, sugarcane, vegetables and fruits. The city is an industrial centre with major railway yards, engineering works, and mills that process sugar, flour and oilseed. Gojra is known for producing crops, especially wheat production, as well as sugarcane and cotton. Gojra has its fabric mills, which import and export to other countries.

Pir Mahal:

Pir Mahal is the capital city of Pir Mahal Tehsil of District Toba Tek Singh in the Punjab province of Pakistan. The name Pir Mahal means the place where kings live in Urdu. It started a very small city and over time it grew both in size and population; now it is the capital of the newly made Administration sub-division Pir Mahal Tehsil. It is a neighbouring city of Toba Tek Singh and is included in the Toba Tek Singh District. According to the census report of 2017, it has a total population of 422,246 while the population of Pir Mahal Municipal Committee is 44,220 persons. It is located at a distance of 120 km from Faisalabad and 295 km from Lahore.

Jhang:

Jhang is the capital city of Jhang District, in the central portion of the province of Punjab, Pakistan. Jhang is 70 km (43 miles) from Faisalabad, 248 km from Lahore. It is situated on the east bank of the Chenab River. It is the 18th largest city in Pakistan.

According to the Census of Pakistan (2017), the population of the city had risen to 414,131 with a growth of 41.17% in the past 19 years. The economy of Jhang mainly depends on agriculture. It is known for the shrine of Sultan Bahoo, Heer and Ranjha's Tomb.

Chiniot:

Chiniot city is the administrative headquarter of Chiniot District with a total population of 1,368,659 according to census report of 2017. The population of Tehsil Chiniot is 555,796 while the population of Chiniot Municipal Committee is 278,528 persons. Located on the bank of the River Chenab, it is known for its intricate wooden furniture, architecture and mosques and is home to the Omar Hayat Mahal. Chiniot is at the intersection of Faisalabad-Sargodha and Lahore-Jhang roads. It is 158 km northwest of Lahore and 38 km north of Faisalabad.

Chiniot is famous for his wooden furniture. A large amount of Pakistan furniture is met by Chiniot furniture. Chiniot furniture is also exported worldwide. Other important products of Chiniot include silk, cotton, wheat, sugar, rice, milk, pottery etc. The city's agricultural economy is largely derived from "canal colonies" established during British rule when a vast network of canals was laid to irrigate Punjab.

Rabwah City, the headquarters of the Ahmadiyya Community is on the other side of the Chenab River. In the centre of the river, a worship centre (or Chilla Gah) of the Sufi Bu Ali Shah Qalandar is located.

The important products of Chiniot include silk, cotton, wheat, sugar, rice, milk, pottery, wooden furniture, etc. The city's agricultural economy is largely derived from "canal colonies" established during British rule when a vast network of canals was laid to irrigate Punjab.

Chiniot is famous for his wooden furniture and developed as a centre of woodworking given its proximity to the Chenab River - as timber from Kashmir would be floated down the river towards Chiniot. Chiniot's artisans are renowned for their skill and were employed in the construction of both the Taj Mahal and Wazir Khan Mosque. The city's metalworkers, along with those of Lahore, were considered the best in Punjab during the British period, and Chinioti designs and were considered superior to those of Hoshiarpur or Jalandhar. Ramzan Sugar Mills is located at Faisalabad Road.

Chiniot relates to the rest of Pakistan by a main highway and rail line. The nearest international airport is Faisalabad International Airport, which is 48.5 km from Chiniot.

The railway track is the easiest and cheapest way of transportation. The railway is the main source of transporting the furniture from Chiniot to the rest of Pakistan, it is the main source of importing the wood for furniture from all over Pakistan. Chiniot Railway Station was built in 1927 during British Empire. It was a great step for the local economy. Khatam-e-Nabuwat

Chowk is the main place of and the main intersection between G.T road connecting large cities of Pakistan. Chiniot Bridge is crossing over Chenab River on the Chiniot-Sargodha road.

Sargodha:

Sargodha city is the capital of the Sargodha Division located in Punjab province, Pakistan. It is located 129.6 km from Faisalabad and 187 km (116 miles) northwest of Lahore, in Sargodha District. It lies about 48 km (30 miles) from the M2 motorway, which connects Lahore and Islamabad. Due east is the city of Jhang, toward the west, are the city of Mianwali and the Chashma Barrage. It is Pakistan's 12th largest city and one of the fastest-growing cities in the country. It has a total population of 659,862 persons (2017). Sargodha is also known as the "City of Eagles".

According to the Census of Pakistan (2017), the population of district Sargodha is 3,696,212 while the population of Tehsil Sargodha is 1,535,152 and the population of Sargodha Municipal Corporation is 506,095 persons (2017). The population of the Sargodha Division was recorded as 8,181,499 as per the Census of Pakistan (2017).

The economy of Sargodha mostly depends on oranges and sugarcane. Sargodha is known for cultivating the most delicious citrus. Punjab produces 95% of the citrus product out of which Sargodha business alone accounts for 70% of the provincial production.

The majority of the economy of Sargodha depends upon agriculture. Sargodha is considered the best citrus-producing area of Pakistan and therefore, it is also known as California of Pakistan. Sargodha is the largest Kinnow producing district in the world. It produces the best quality oranges and supplies to the different parts of the country. These oranges are also exported to other countries and contribute to the economy of Pakistan. Sargodha also produces a huge amount of wheat, cotton, rice, and vegetables that are transported to other parts of the country and exported to other countries.

There are also Textile mills, Rice processing plants and juice factories of Nestle and Shezan. The Sargodha Chamber of Commerce and Industry monitors industrial activity in the city and reports its findings to the Federation of Pakistan Chamber of Commerce and Industry and the provincial government. The dry port is also under construction in Sargodha. There are also several shopping malls and trade centres in the city that have a presence of international and national brands.

Bhawana:

Bhawana is Tehsil of Chiniot District. It is one of the ancient cities of Pakistan. The Mughal Emperor Zahir-ud-din Babar also mentions the area in his book the Tuzk-e-Babari for its fine architecture and finely handcrafted jharoka windows of many of the old Havelis (manors) and other buildings of the old/medieval town.

The population of Tehsil Bhawana is 373,841 persons (2017) and Bhawana MC is 34,087 persons (2017). Bhawana is located by the side of Jhang Chiniot road and on the left bank of the Chenab River. Its soil is very fertile and is among the largest agricultural areas, and the city itself also depends considerably on agriculture to bolster its economy.

It is situated 37 km from Chiniot, 50 km from Faisalabad, 48 km from Jhang and 197 km from Lahore. Its weather is much like the rest of Pakistan, with summer, spring, winter and autumn seasons. Its temperatures are usually moderate.

Lalian:

It is a city in the Chiniot district of Punjab province and is situated on the Faisalabad-Sargodha road. It is located at a distance of 60 km from Faisalabad and 182 km from Lahore. With the establishment of Chiniot District, it became its tehsil in 2009. Lalian is the only transit market

for more than 100 villages. The population of Lalian Tehsil is 439,022 and Lalian MC is 45,411 persons (2017).

The population and distance analysis of subdivisions and districts near Faisalabad is shown in Table 2.6 below.

Table 2-6: Population and Distance Analysis of Subdivisions and Districts near Faisalabad

| Sr. No. | City | Population | Distance from Faisalabad (km) |
|--------------|-----------------|-------------------|-------------------------------|
| 1. | Faisalabad City | 3,210,158 | 0 |
| 2. | Tandlianwala | 703,155 | 35 |
| 3. | Jhang | 2,742,633 | 70 |
| 4. | Gojra | 657,222 | 50 |
| 5. | Chiniot | 1,368,659 | 38 |
| 6. | Samundri | 643,114 | 50 |
| 7. | Okara | 3,040,826 | 107 |
| 8. | Hafizabad | 1,156,954 | 101 |
| 9. | Sahiwal | 2,513,011 | 101 |
| 10. | Toba Tek Singh | 2,191,495 | 84 |
| 11. | Pir Mahal | 422,246 | 120 |
| 12. | Sangla Hill | 455,260 | 67 |
| 13. | Sargodha City | 659,862 | 129 |
| 14. | Bhawana | 373,841 | 50 |
| 15. | Chak Jhumra | 332,966 | 19 |
| 16. | Lalian | 439,022 | 60 |
| 17. | Jaranwala | 1,493,923 | 35 |
| Total | | 22,404,347 | |

The population of the Faisalabad district is the highest of all its neighbouring districts, i.e., Hafizabad, Chiniot, Toba Tek Singh, Sahiwal, Okara, and Nankana Sahib. Among six tehsils of Faisalabad district, the highest population after Faisalabad City Tehsil (3,244,259) is of Jaranwala Tehsil (1,493,923) and then Faisalabad Saddar Tehsil (1,465,027). Jaranwala is well connected to other parts of the country through roads and railways. The population of cities and towns which are connected through rail and road both is comparatively higher. The population of towns and cities which fall on the main railway line i.e., Peshawar Karachi railway line is also comparatively higher i.e., Okara, Sahiwal, etc. In Chiniot district the population of Bhawana Tehsil is comparatively less than the other two tehsils i.e., Chiniot and Lalian one of the reasons may be that it is not connected to other parts of the country through railways.

Sammundri is Tehsil of district Faisalabad and its population is 643,114 and Gojra is Tehsil of Toba Tek Singh and its population is 657,222. The population of two tehsils falls comparatively in the same range. However, the population of Gojra MC is higher (174,831) than the population of Samundri MC (156,938) because Samundri is not connected through railways although distance-wise Samundri MC is closer to Faisalabad than Gojra MC. In Toba Tek Singh district, the two tehsils Toba Tek Singh and Gojra out of four tehsils, which are connected by rail, have a major population share i.e., 63% of the total population of the district.

2.5 PHYSICAL CHARACTERISTICS

2.5.1 Topography

The district of Faisalabad is part of the alluvial plains between the Himalayan foothills and the central core of the Indian Subcontinent. Faisalabad is situated in the centre of the Lower Rachna Doab, the area between River Chenab and Ravi which has a mild slope from North-

East to South-West with an average of about 0.2 to 0.3 meters per kilometre. The topography is however marked by relatively flat valleys, local depression and relatively high ground. The city is situated at an elevation of 184 meters above sea level and there is a difference of about 35 feet from one end of the city to another end, a degree of slope imperceptible which makes the area, for all practical purposes, almost perfectly flat plain, with trees and other man-made features breaking the line of vision to the horizon on all sides.

2.5.2 Geology

Faisalabad is situated in gentle sloping plains of the Upper Indus Basin. These plains are covered by Quaternary Unconsolidated deposits of enormous thickness and bedrock belonging to the Indian Basement exists at a greater depth. The Quaternary deposits are comprised of silt clay and sand in varying proportions which are accumulated by braided tributaries of the Indus river system, originating from the north-west Himalayas. The geologic study is based on general site reconnaissance and detailed geologic and geotechnical investigations. The substrata are comprised of alluvial deposits of the Indus river system. The sediments are unconsolidated as deep as 900 feet. The unlined irrigation canals and distributaries including watercourses are the main source of groundwater recharge. Rainfall contribution to groundwater recharge is not considerable. Ponds also slightly contribute towards the recharge.

2.5.3 Seismicity

According to the Pakistan Seismic Activity and Zoning Map (See **Figure 2.9**), Faisalabad lies in Zone 2A, which is a low seismic risk zone. Zone 2A is the flat area of the country, therefore it is a low seismic hazard-prone area.



Figure 2-9: Seismic Map of Pakistan ¹

¹ Geological Survey of Pakistan, (2015)

2.5.4 Climate

Faisalabad has located just outside the tropics at latitude 31°26', longitude 71°06' and altitude of 184.4 m. According to the Köppen-Geiger classification, the climate of Faisalabad features a semi-arid climate (BWh) with very hot and humid summers and dry cool winters. According to the revised classification by Sarfraz et al., 2014, the climate of Faisalabad features steppe hot with dry winter (BSHW). The average maximum and minimum temperatures in June are 41 °C and 27.6 °C. In January the average minimum and maximum are 19.4 °C and 4.8 °C. Here the sun's rays do not slant much especially in the summer therefore high temperature prevails during the summer months. Many scientists have predicted that rising global temperatures are making our weather and climate not only warmer, wetter and windier but more unpredictable and violent ². The temperature has a direct effect on the plant growth rate and temperature above optimum results in reduced growth rate and may cause severe stresses at critical stages of development.

In Faisalabad, rainfall does not occur throughout the year, most of the rainfall occurs in two seasons namely summer, from July to September and winter, from December to March. Winter rainfall accompanies the western disturbances. A small quantity of rainfall occurs during a thunderstorm.

The data of calamities (see **Table 2.7**) in the past showed that the temperature of the city has reached a summer maximum record temperature of 48.0 °C, which was observed on 9 June 1947 and again on 26 May 2010. An extreme minimum temperature of -4.0 °C was recorded on 15 January 1978. The record 24-hour rainfall stands at a massive 264.2 millimetres recorded on 5 September 1961, which is roughly 70% of the city's annual average rainfall. The highest wind gust ever recorded in Faisalabad occurred during a severe dust thunderstorm on 2 June 2000, when the maximum wind speed reached 151.0 Km/h. ³

Table 2-7: Climate Summary of Faisalabad⁴

| Climate data for Faisalabad | | | | | | | | | | | | | |
|-----------------------------------|-------------|-------------|-------------|-------------|--------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Year |
| Record high °C (°F) | 26.6 (79.9) | 30.8 (87.4) | 37 (99) | 44 (111) | 47.5 (117.5) | 48 (118) | 46.1 (115) | 42 (108) | 41.1 (106) | 40 (104) | 36.1 (97) | 29.2 (84.6) | 48 (118) |
| Average high °C (°F) | 19.4 (66.9) | 22.2 (72) | 27.4 (81.3) | 34.2 (93.6) | 39.7 (103.5) | 41.0 (105.8) | 37.7 (99.9) | 36.5 (97.7) | 36.6 (97.9) | 33.9 (93) | 28.2 (82.8) | 22.1 (71.8) | 31.6 (88.9) |
| Average low °C (°F) | 4.8 (40.6) | 7.6 (45.7) | 12.6 (54.7) | 18.3 (64.9) | 24.1 (75.4) | 27.6 (81.7) | 27.9 (82.2) | 27.2 (81) | 24.5 (76.1) | 17.7 (63.9) | 10.4 (50.7) | 6.1 (43) | 17.4 (63.3) |
| Record low °C (°F) | -4 (25) | -2 (28) | 1 (34) | 7 (45) | 13 (55) | 17 (63) | 19 (66) | 18.6 (65.5) | 15.6 (60.1) | 9 (48) | 2 (36) | -1.3 (29.7) | -4 (25) |
| Average precipitation mm (inches) | 16 (0.63) | 18 (0.71) | 23 (0.91) | 14 (0.55) | 9 (0.35) | 29 (1.14) | 96 (3.78) | 97 (3.82) | 20 (0.79) | 5 (0.2) | 2 (0.08) | 8 (0.31) | 346 (13.62) |

Faisalabad district is located in a hot arid climatic zone. The following sections describe the climate of the Faisalabad district.

2.5.5 Solar Radiation

The distribution pattern for direct and diffuse solar radiation in Pakistan for every day of the year is shown in the **Figure 2.10** below. Pakistan lies in an area of one of the highest solar insulations in the world and has immense solar resources.

² Rajindra, K. and K. Pachauri, 2005. Making sense of climate change. P: 3. NEWS from ICTP spring 2005 #112

³ <http://rmcpunjab.pmd.gov.pk/P-historical.html>

⁴ Climate Data Processing Centre (CDPC), Pakistan Meteorological Department

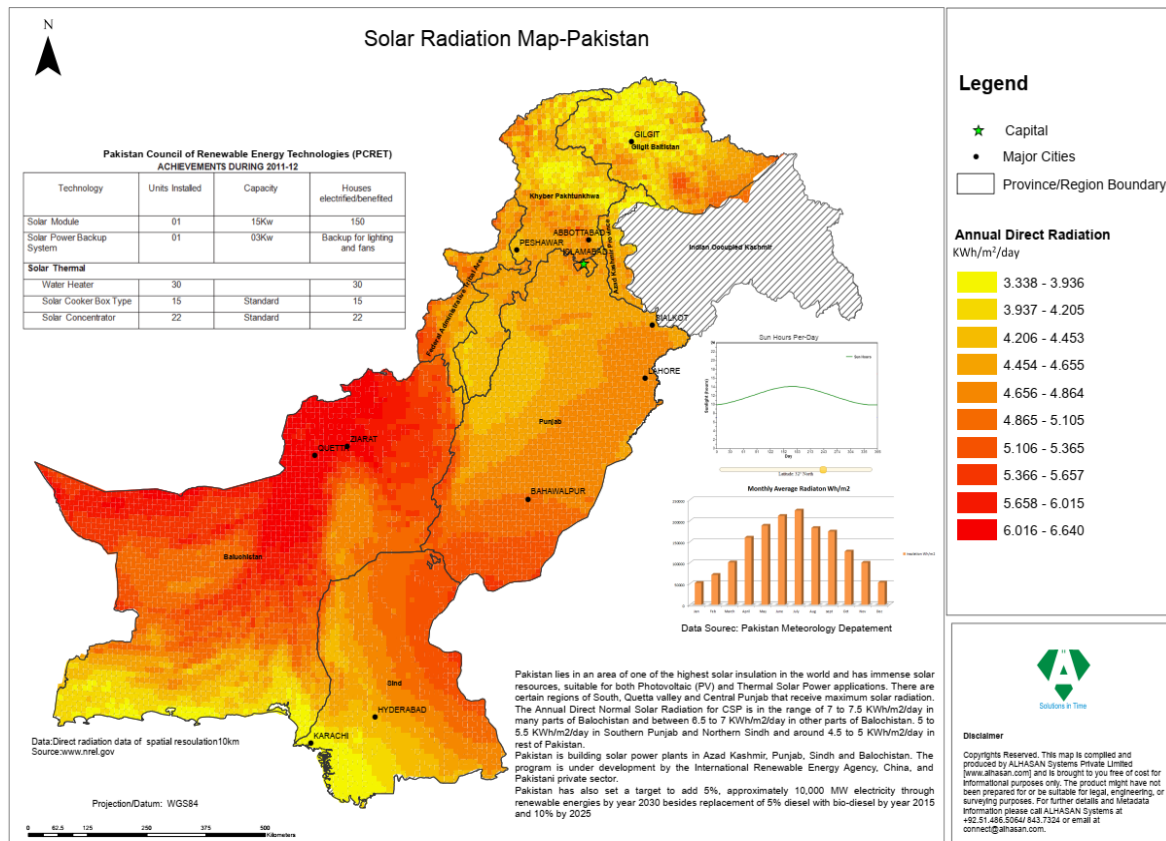


Figure 2-10: Annual Hourly Solar Radiation⁵

There are certain regions of South, Quetta valley and Central Punjab that receive maximum solar radiation. Faisalabad lies in an area where the solar radiations are 4.45 to 4.65 kWh/m²/day.

2.5.6 Temperature

Due to high evaporation, Faisalabad features a hot desert climate in the Köppen-Geiger classification. The climate of the district can see extremes, with a summer maximum temperature of 44.3°C and a winter temperature of 8.3°C. The mean maximum and minimum temperatures in summer are 39 °C and 27°C respectively. In winter it peaks at around 17°C and 6°C respectively. The summer season starts in April and continues until October. May, June and July are the hottest months. The winter season starts in November and continues until March. December, January and February are the coldest months.

Figure 2.11 below shows the average maximum and minimum temperatures of Faisalabad throughout the year.

⁵ <http://www.alhasan.com/maps/solar-radiation-map-pakistan>

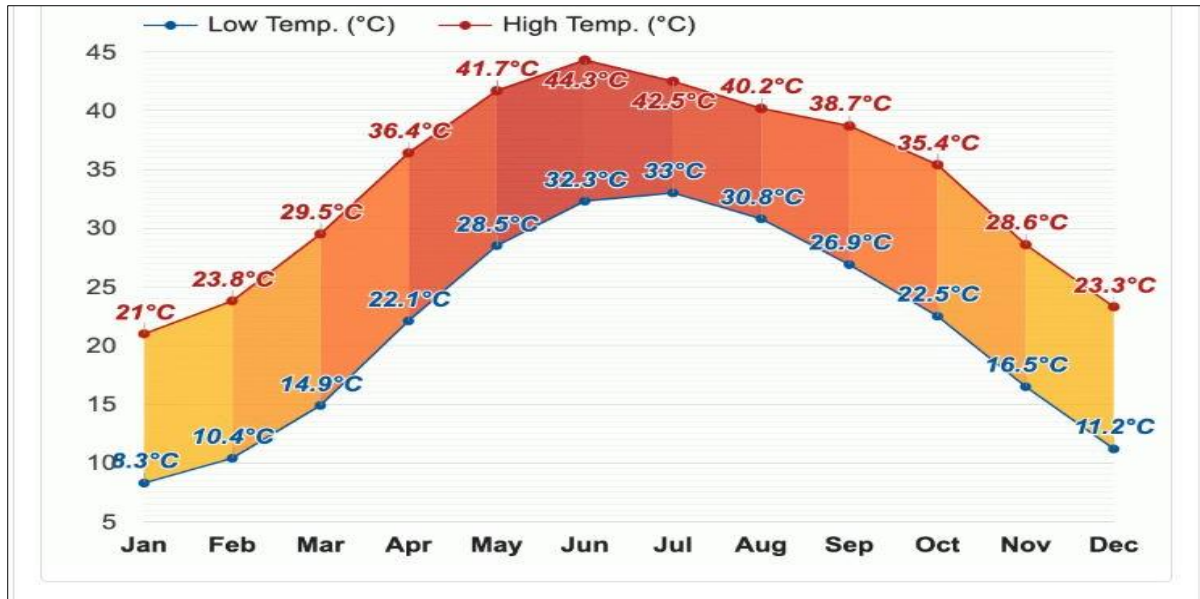


Figure 2-11: Average Annual Temperature in Faisalabad ⁶

2.5.7 Ambient Air Temperature Profile

To map the micro-level ambient air temperature variation within Faisalabad City, Landsat satellite data were used. Over 200 satellite scenes from 1989 to 2020 (31 years) were downloaded and processed for the calculation of surface temperature.

Figures 2.12 & 2.13 depict a comparison between past and current temperature trends. It can be seen from the images that the summer months become relatively cooler whereas, the winter months becomes warmer.

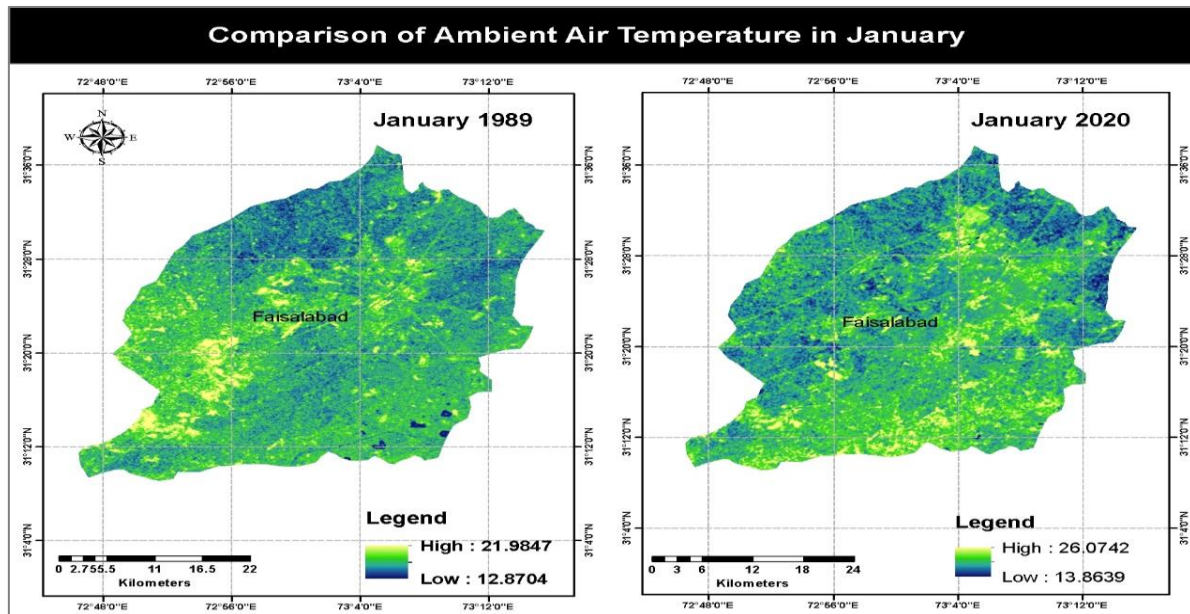
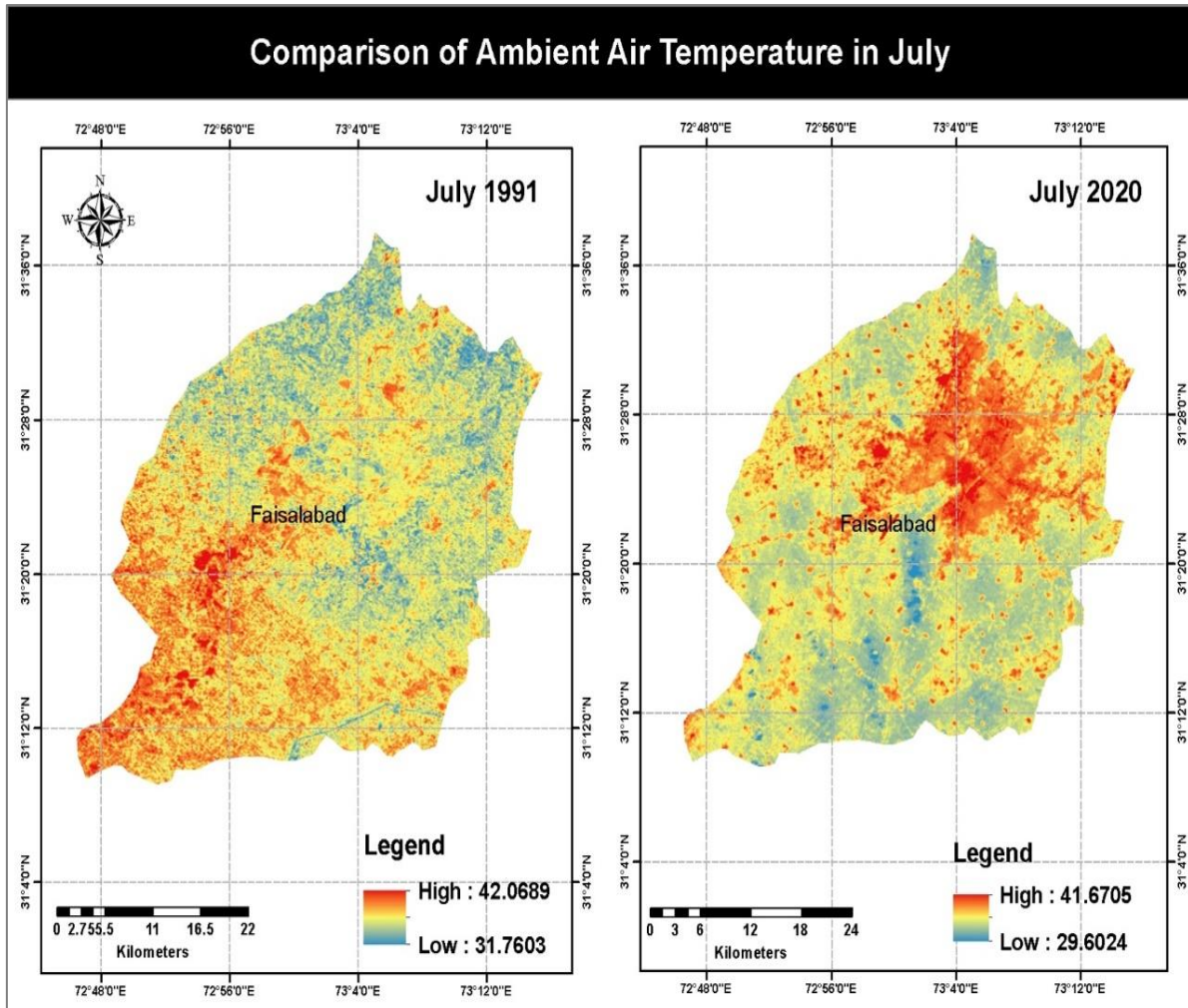


Figure 2-12: 31 Years Comparison of Temperature January (Ambient Air Temperature)

⁶ <https://www.weather-atlas.com/en/pakistan/faisalabad-climate#temperature>



**Figure 2-13: 29 Years Comparison of Temperature in December
(Ambient Air Temperature)**

2.5.8 Precipitation

The average yearly rainfall lies only at about 385 mm. However, the average annual rainfall in Faisalabad during the period from 2009 to 2018 was about 431.4 mm as shown in Table 2.8.⁷

Table 2-8: Annual Rainfall in Faisalabad (2009-2018) ⁸

| Year | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | Average |
|---------------|------|------|------|------|------|------|------|------|------|------|---------|
| Rainfall (mm) | 377 | 545 | 545 | 361 | 378 | 481 | 518 | 430 | 327 | 352 | 431.4 |

It is highly seasonal with approximately half of the yearly rainfall in the three months of the monsoon period i.e. July, August and September within 241 mm precipitation. Most precipitation occurs in August with an average precipitation of 93 mm. The difference between the highest precipitation (August) and the lowest precipitation (November) is 88mm. The average monthly precipitation in Faisalabad is shown in **Figure 2.14** below.

⁷ Punjab Development Statistics 2016, Bureau of Statistics, Planning & Development Department, Government of the Punjab

⁸ <http://hikersbay.com/climate-conditions/pakistan/faisalabad>

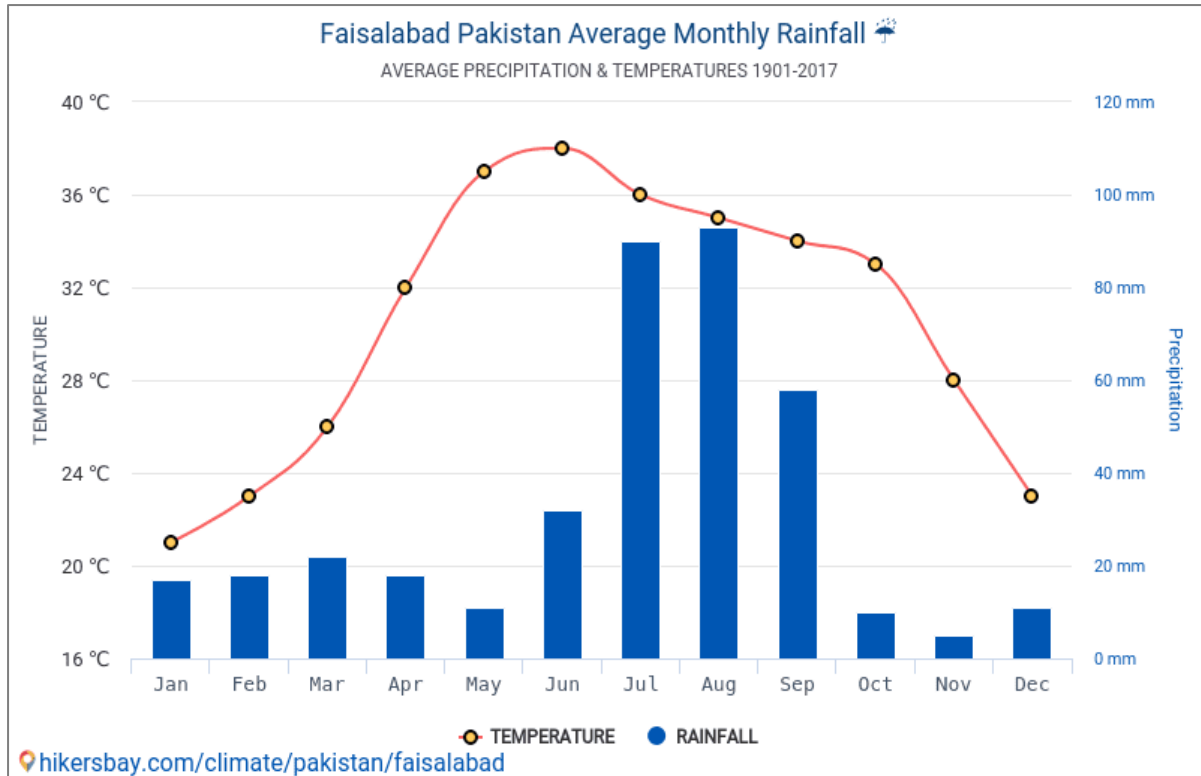


Figure 2-14: Average Monthly Precipitation in Faisalabad⁹

Relative humidity in Faisalabad varies between 31.9% and 69%. The higher humidity during summer is due to the higher rates of evapotranspiration, as the monsoon rain, irrigation and Kharif cropping pattern favors its rise.

2.5.9 Wind

Nine years of wind data of Faisalabad was acquired from the World Weather Online website. The showed that the highest wind speed (12.4 km/h) was recorded in April 2016. The data showed that before 2015 the average wind speed was around 6 mph in the first quarter of the year, which is increased to around 7 km/h from 2015 to 2017. In the last quarter of the year, the average wind speed was around 4mph from 2009 to 2017 except for 2015 and 2016 when the wind speed reached 5 km/h.

2.5.10 Humidity

Faisalabad experiences extreme seasonal variation in the perceived humidity. The muggier period of the year lasts for 4.0 months, from June 5 to October 5, during which time the comfort level is muggy, oppressive, or miserable at least 24% of the time. The muggiest day of the year is August 10, with muggy conditions 96% of the time. The least muggy day of the year is January 14, when muggy conditions are essentially unheard of. Figure 2.15 shows the humidity data for the years 2009 to 2017. Overall, the trend shows that the least humidity levels were observed in June, whereas, January, February, August and September have high humidity levels as compared to other months of the year.

⁹ Director, Regional Meteorological Centre, Lahore.

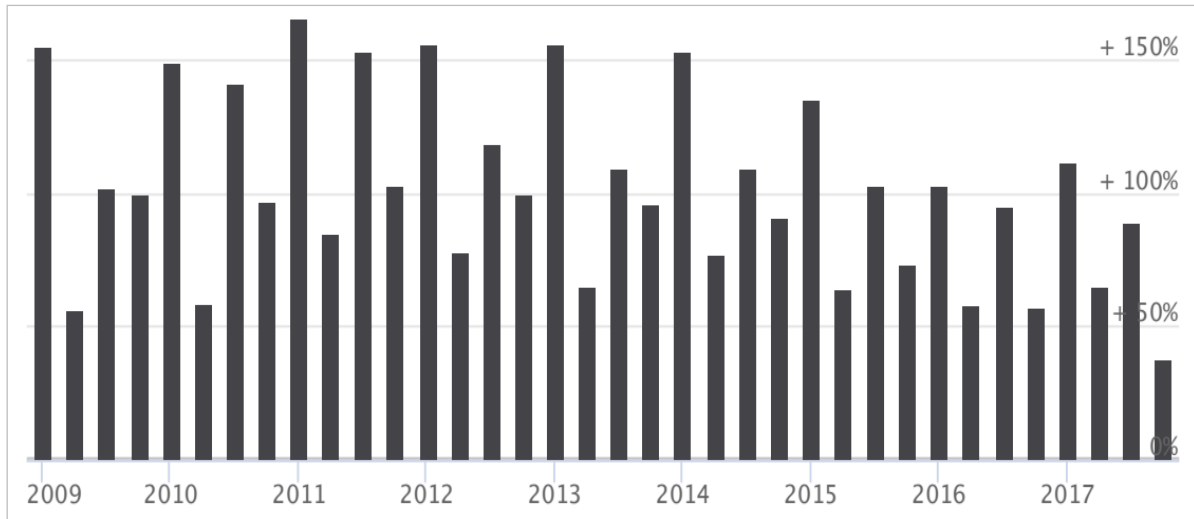


Figure 2-15: Average Humidity for the Years 2009-2017

2.5.11 Water Demand and Water Availability

The deficit of in supply is met by groundwater pumping of low water quality thus threatening long-term sustainability of agriculture. High water demand crop like sugarcane needs to be curtailed to prevent depletion of groundwater resource and increased salinization of agriculture land due to low water quality. Agricultural, industrial, domestic and livestock water demand of Faisalabad District is shown in **Figure 2.16** below.

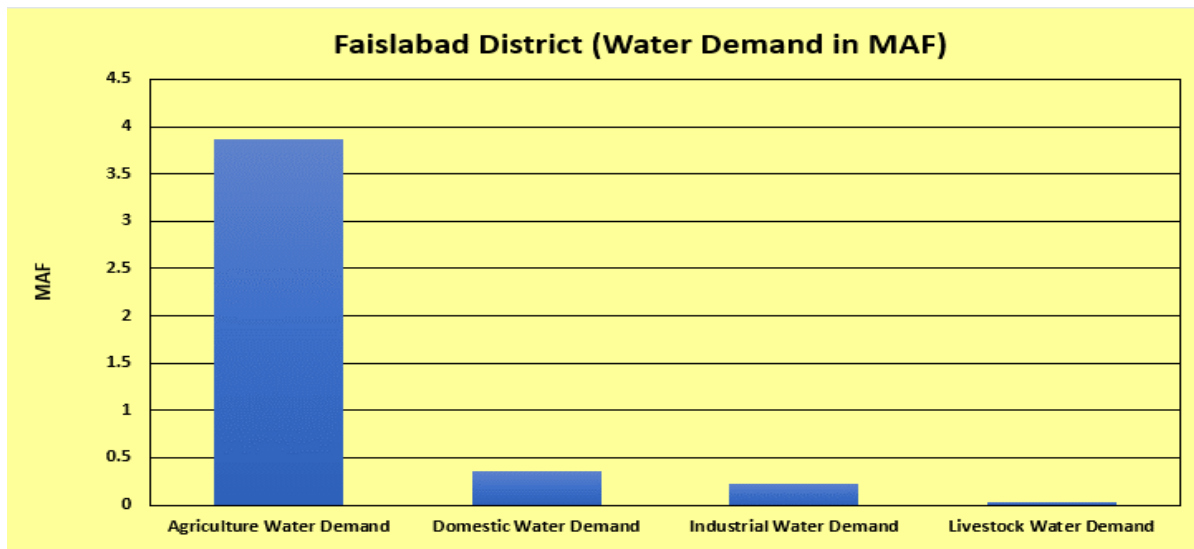


Figure 2-16: Agricultural, Industrial, Domestic and Livestock Water Demand

2.5.12 Groundwater and Water Quality

Domestic water demand for municipal, industrial, livestock is supplied through tube wells pumping 0.350 maf of water which is categorized as saline groundwater with TDS greater than 3000 ppm. The recharge from irrigation is supplying freshwater with TDS less than 1000 ppm which has lessened the impact of underlying saline groundwater zone. Water quality status of Rachna Doab (2006) can be seen from **Figure 2.17** below. The details of tehsils where surface water is urgently required are summarized in **Table 2.9** below.

Rachna Doab Water Quality Status map for Pre-monsoon 2006

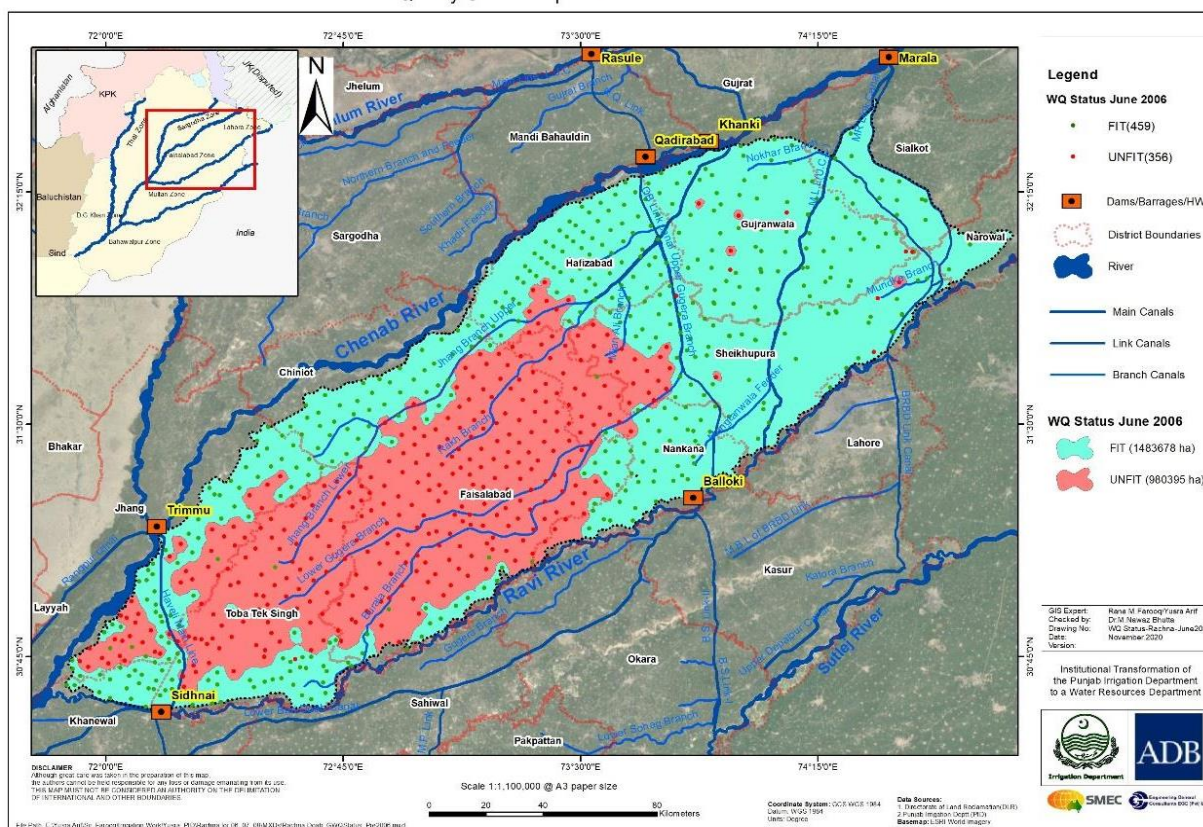


Figure 2-17: Water Quality status of Rachna Doab, 2006

Table 2-9: Tehsils where Surface Water is Urgently Required
(Saline Ground Water Areas)

| Tehsils with urgent surface water requirement (Saline Ground Water) | | | | |
|---|-------------------------|-----------------|-----------------|---------------|
| District | Tahsil/Canal | Area | Domestic Demand | |
| | | km ² | MGD | MAF |
| Faisalabad | District Area | 5464.7 | | |
| | Chak Jhumra Tehsil | 503 | 6.175 | 0.0083 |
| | Faisalabad City Tehsil | 87.4 | 161.391 | 0.2171 |
| | Faisalabad Sadar Tehsil | 1256.6 | 35.245 | 0.0474 |
| | Jaranwala Tehsil | 1693.1 | 32.064 | 0.0431 |
| | Summundari Tehsil | 853.7 | 13.849 | 0.0186 |
| | Tandlian Wala Tehsil | 1061.7 | 11.646 | 0.0157 |
| | Total | 5455.5 | 260.37 | 0.3502 |

The need for supply of freshwater from irrigation canal directly for MIL use is required which may be pursued with recently established Water Resource Commission established under Water Act 2018 by Govt. of Punjab.

3. AGRICULTURE

The agricultural sector is a vital component of Pakistan's economy as it provides the raw materials to down the line industries and helps in poverty alleviation. According to the Pakistan Bureau of Statistics, this sector contributed 19.8% in GDP and it remains by far the largest employer absorbing 42.3% of the country's total labour force. There is a strong relationship between agriculture and climate temperature, precipitation, floods and other aspects of weather that finally affect economic performance including agriculture production, commodity prices and finally economic growth.

The emerging challenges of national food security and climate change have shifted the policy focus globally towards the development of the agriculture sector during the past few years. The high potential of this sector in earning valuable foreign exchange has been greatly realized through taping the potential in value addition sectors. Pakistan's agriculture community consists of small farmers having various limitations in their day to day farming practices that have been translated into the fact that per yield level in Pakistan has been graded in the lower to middle ranged economy fulfilling the propensity to cater for the food requirements of its growing population and with the current pace of development envisages to slip to the lower ranged economies having the ability to cater the nutritional needs of its population by the year 2030.

The government is focusing on improving agricultural productivity by increasing crops yield, systematic application of better inputs and advanced technology to enhance the profitability of the farming community, improve competitiveness and ensure the environmental sustainability of agriculture. The overall objective is to achieve a sustained agriculture growth rate percentage of four to five per annum to support the overall GDP growth trajectory. To protect the farmers from the vagaries of unprecedented climate change and global slowdown in commodity prices, the government announced Kissan Package in September 2015.

3.1 CHARACTERISTICS OF AGRICULTURE ACTIVITIES IN FAISALABAD

Faisalabad contributes over 20% toward Pakistan's annual GDP. Faisalabad's average annual GDP is \$20.55 billion (USD) of which 21% comes from agriculture. The historical background rank ties hub of cotton, sugarcane and wheat production territory.

Now although this territory has been transformed from an agricultural economy to industrialization, still the major fraction of the population of this district practices farming; no doubt on account of the rapid mechanization of the industry has polluted underground water and rendered the soil barren and unproductive. In **Table 3.1** land utilization statistics are compiled based upon summarization of crop inspection data.

Table 3-1: Land Utilization Statistics (2013-14)¹³

| District | Reported Area (Sq. m) | Cultivated Area | | |
|------------|--------------------------|------------------|---------------------|----------------------------|
| | | Total (Sq.km) | Net Sown (Sq.km) | Current Fallow (Sq. Km) |
| Faisalabad | 5.84 | 4.73 | 4.72 | 0.01 |

The following characteristics are evaluated:

- The reported area covers the total physical area of the district. It includes the cultivated area (net area sown and current fallow), cultivable waste and uncultivable land and forest area.

¹³ Bureau of Statistics Planning and Development Department Govt of Punjab.

- The cultivated area covers the land currently being used for agricultural purposes, including land under crops, orchards as well as current fallow. It is the area net sown plus the current fallow.
- Current Fallow means the part of the cultivated area which has not been used for cropping during the year under reference but for which the total vacant period does not exceed three crop seasons. The land remaining vacant for more than three successive seasons should be shown under the head 'cultivable waste'.
- Net Area Sown means the area which has been sown at least once a year. It will include area under crops, fruit, vegetables etc.
- Total Cropped Area indicates the total area sown during Kharif and Rabi seasons during a given year including Zaid Kharif and Zaid Rabi.
- Not Available For Cultivation means the land barren, roads, canals, tanks, beds of rivers, torrents and ravines, sites of villages, houses, hills, mountains, dunes and all land devoted to uses alien to agriculture.
- Forest Area means the area of any land classed or administered as forest under any legal enactment dealing with forests. Any cultivated area which may exist within such forest should be excluded and shown under the heading cultivated area.
- Area Sown More Than Once means the difference between the total cropped Area and net sown i.e. the difference between Cropped Area and Net Area Sown.

The land utilization statistics are summarized in **Table 3.2** below.

Table 3-2: Land Utilization Statistics (2013-14) (square km)

| Area Sown more than Once | Cropped Area | | | Uncultivated Area | | | |
|--------------------------|--------------|--------|------|-------------------|--------|------------------|-------------------------------|
| | Total | Kharif | Rabi | Total | Forest | Cultivable Waste | Not available for cultivation |
| 2.13 | 6.84 | 3.18 | 3.66 | 1.11 | 0.01 | 0.51 | 0.59 |

Kharif and Rabi Crop Seasons run from April to September and October to March. In **Table 3.3** below fertilizer sales count have been given that shows the yearly sale of fertilizer for agriculture.

Table 3-3: Sales of Fertilizers (2010-2015) (Thousand Nutrient Tons)

| Division | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 | 2014-2015 |
|------------|-----------|-----------|-----------|-----------|-----------|
| Faisalabad | 114 | 95 | 91 | 97 | 109 |

3.2 IRRIGATION

Faisalabad is a plain area situated in the northeast region of Punjab, Pakistan. In Faisalabad, mostly the rainfall occurs in July, August and September. The average rainfall calculated is about 300mm. Because of the high Evapotranspiration, Faisalabad has an arid climate therefore irrigation system is used as a major source of water to the crops.

Canal Rakh Branch is one of the dominant canals that irrigate the agricultural farms of Faisalabad. This canal progress through the centre of Faisalabad City. The influenced area of this canal is rural farms. It also serves peri-urban farms. Such farmlands are small and their presence affects the agricultural markets.

Faisalabad lies in multiple cropping regions. There is a lack of regular patterns of cropping among Farming communities in Faisalabad. The water supply to agriculture is decreasing due to an increase in industrialization. Farmers are using Groundwater and wastewater. The soil type of Faisalabad is silt loam which is high in water retention capacity.

Table 3.4 shows the total area that is being irritated by the irrigation system. canals, wells, tube-wells and canal tube-wells participated in the Faisalabad irrigation process.

Table 3-4: Area Sown and Mode of Irrigation (2010-2015)

| Faisalabad Division | Total Area Sown (Sq. Km) | Un-Irrigated | Irrigated | | | | | |
|---------------------|--------------------------|--------------|----------------|--------|-------|------------|---------------|------------------|
| | | | Total (Sq. Km) | Canals | Wells | Tube Wells | Canal / Wells | Canal Tube Wells |
| | 701 | 0 | 701 | 407 | 5 | 32 | 4 | 253 |

3.3 CROPPING PATTERNS AND PRODUCTION

There are two main cropping seasons winter (Rabi) and summer (Kharif). Rabi (October-March) produce different crops like vegetables, berseem and wheat. Kharif (April- September) include summer crops e.g., vegetables, cotton, rice, sugarcane, fodder, maize and sorghum. Sugarcane is a full year crop though it is categorized as a Kharif crop. The area and production of each major crop for the period 2011-12 to 2017-18 for Faisalabad District is shown in **Figures 3.1 to 3.3** and **Table 3.5 & 3.6** below.

Wheat is largest sown crop with a minimum area of 268,700 hectares in 2017-18 and maximum area of 305,000 hectares in 2014-15. However, there is successive decline of wheat area from 2014-15 onwards while the area under sugarcane has been progressively increasing.

The area under sugarcane of 112,500 ha in 2017-18, is the largest in the period. There are 6 sugar mills in Faisalabad District. Sugarcane is water intensive crop consuming 1700 mm of water per acre per year to 300 mm for wheat, 600mm for rice. It also causes excessive pollution and land degradation. Moreover, the country production of sugarcane is 67 m.metric tons resulting in 5.3 m. metric tons of refined sugar which is 10-15 % more than the consumptive requirement in the country. In 2018, 600,000 tons of sugar was exported with a subsidy of \$ 35 per metric ton. The sugarcane crop reduces the area under wheat. Pakistan is fast approaching its wheat production capacity and will require more area for wheat for which sugarcane area need to be reduced. The sugarcane industry is patronized by the ruling classes which has provided extra incentives for sugarcane production with the result that a water intensive, pollution creating, land degrading crop has replaced wheat and cotton cash crops with much more value added export potential. Faisalabad need to increase its area under wheat and cotton.

The wheat production in 2012-13 was 865 thousand tonnes and it was increased up to 950 thousand tonnes in 2013-14. The wheat production expanded from 950 to 978 from 2014 to 2015 (refer Table 3.5 below). It indicated the subsequently increased manifold in the production of wheat.

The sugarcane production in the Faisalabad district is ranked 2nd in Punjab Province. The sugarcane production was 5472 thousand tonnes in 2010-11. From 2011-12 the overall production was 5769 thousand tonnes. However, the sugarcane production was reduced to 5559 and 5537 thousand tonnes in 2012-13 and 2013-14 respectively. In 2014-15 the sugarcane production was 5621 thousand tonnes. So maximum production was made in 2011-12 (refer Table 3.5).

Figure 3.1 shows the sown area for the sugarcane crops in the Faisalabad district. According to the Bureau of statistics planning and development department 2016, the sown area was 1050 square km (105,000 hectares) in 2010-11. In 2012 the area was reduced to 960 square km. The overall trend was satisfactory from 2010 to 2015.

Table 3-5: Sugarcane and Wheat Cropped Area and Production of Faisalabad District (2012-2018)

| Faisalabad District - Cropped Area and Production (2012-2018) | | | | | | | | |
|---|-----------|---------|---------|---------|---------|---------|---------|---------|
| Crop Years | | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 |
| "000" Hectares | Sugarcane | 111.7 | 107.8 | 104.4 | 104.0 | 96.3 | 108.9 | 112.5 |
| | Wheat | 281.3 | 277.2 | 301.5 | 305.5 | 291.2 | 288.9 | 268.7 |
| "000" Tonnes | Sugarcane | 5768.9 | 5558.8 | 5537.1 | 5621.2 | 5285.5 | 6245.1 | 6412.5 |
| | Wheat | 855.8 | 864.9 | 949.9 | 977.6 | 934.0 | 947.1 | 861.5 |

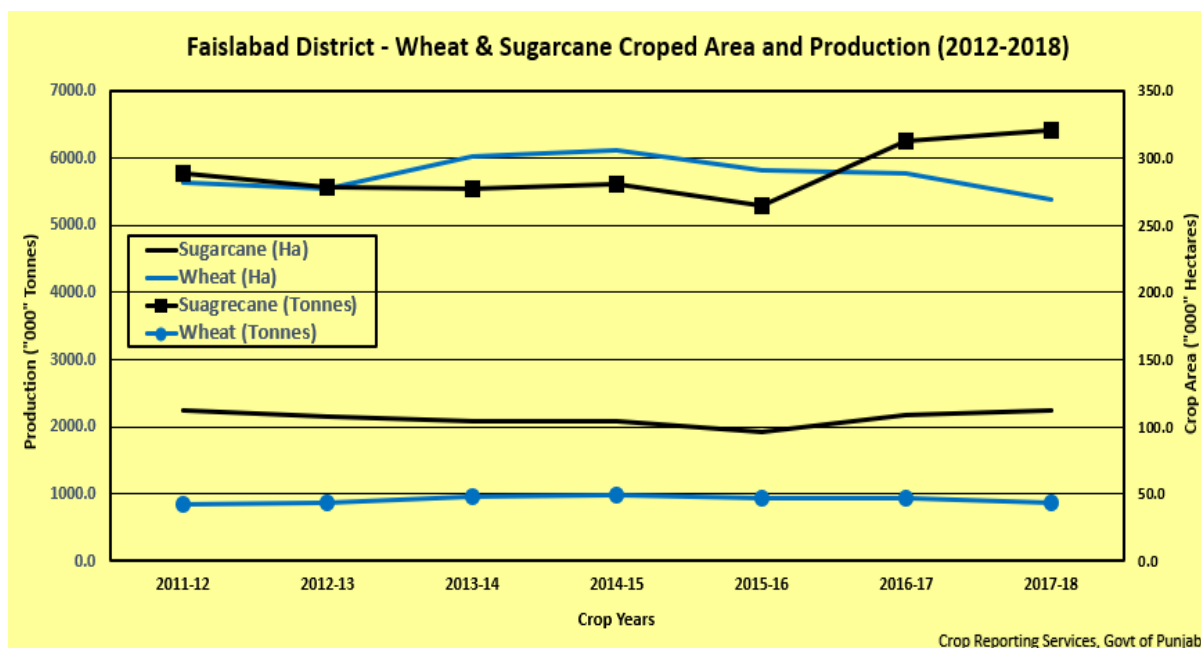


Figure 3-1: Area Sown and Production under Wheat & Sugarcane (2012-2018) ¹⁴

In 2010, 260 square km of land have been used to grow rice crops. In 2011, 280 square km of the area have been used for the production of crops. In 2015, a 300 square km area is informed to be sown for rice crops as per Punjab development statistics report 2016. The following Table 3.6 & Figure 3.2 shows how the production of rice changes over time. The production was 47 thousand tonnes during 2010-2011. In 2015 the rice production extended up to 58 thousand tonnes.

It is evident from the following Figure 3.2 that the percentage of availability of sown area is greater in 2011-12. After that, the sown area decreased consecutively under cotton crops. The higher production area was 61 thousand hectares and the minimum area is calculated as 30 thousand hectares in 2014-15. The decrease in area is more than 50%.

The maximum cotton production was attained in the year 2011-2012. The overall trend of cotton production remains low according to the Punjab statistics report 2016. This fall in production reduced from 170 to 100 thousand tonnes (refer Figure 3.2) is due to increase in sugarcane area due to higher support price by the Government which is detrimental to country's economy.

¹⁴ Bureau of Statistics Planning and Development Department Govt of Punjab

Table 3-6: Cotton, Rice & Fodders Cropped Area and Production of Faisalabad District (2012-2018)

| Faisalabad District - Cropped Area and Production (2012-2018) | | | | | | | | |
|---|---------|---------|---------|---------|---------|---------|---------|---------|
| Crop Years | | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 |
| "000" Hectares | Cotton | 60.7 | 44.9 | 32.8 | 30.4 | 29.5 | 18.6 | 24.7 |
| | Rice | 27.1 | 27.5 | 30.4 | 32.4 | 29.5 | 23.9 | 27.1 |
| | Fodders | 167.1 | 167.0 | 166.3 | 165.4 | 170.2 | 171.9 | 178.6 |
| "000" Tonnes | Cotton | 36.4 | 25.5 | 17.3 | 21.5 | 13.6 | 10.8 | 16.6 |
| | Rice | 46.1 | 50.4 | 52.7 | 58.4 | 52.9 | 44.7 | 52.1 |
| | Fodders | 3355.4 | 3387.6 | 3354.2 | 3364.0 | 3472.0 | 3536.3 | 3650.8 |

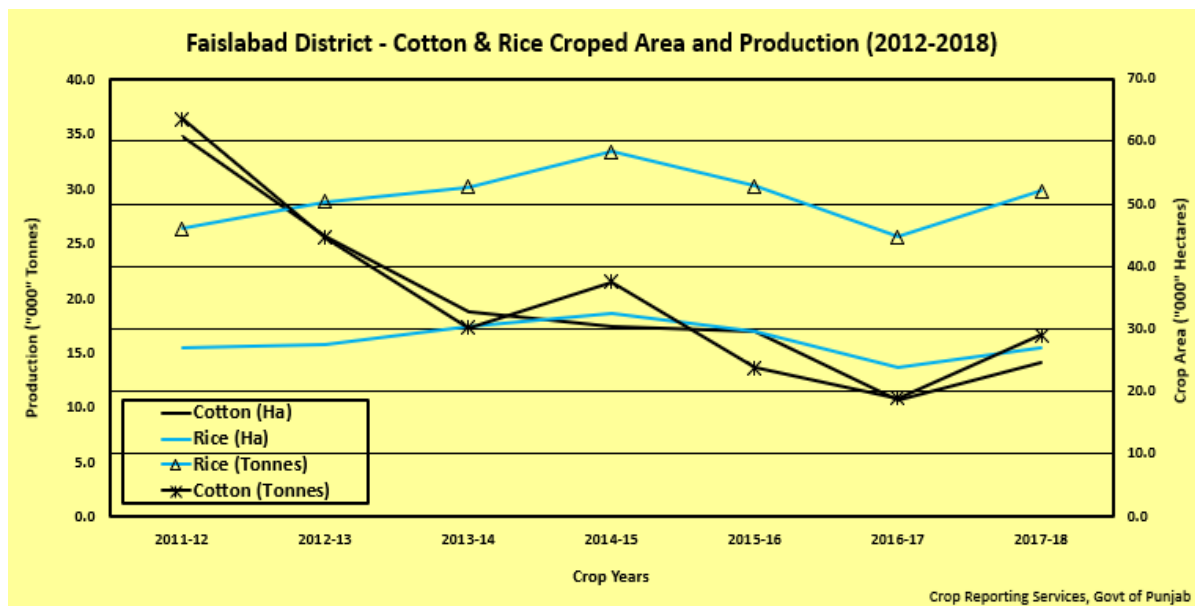


Figure 3-2: Area sown and production, Cotton & Rice (2011 to 2017) ¹⁵

The fodder cropped area and production from 2012 to 2018 is shown in **Figure 3.3** below.

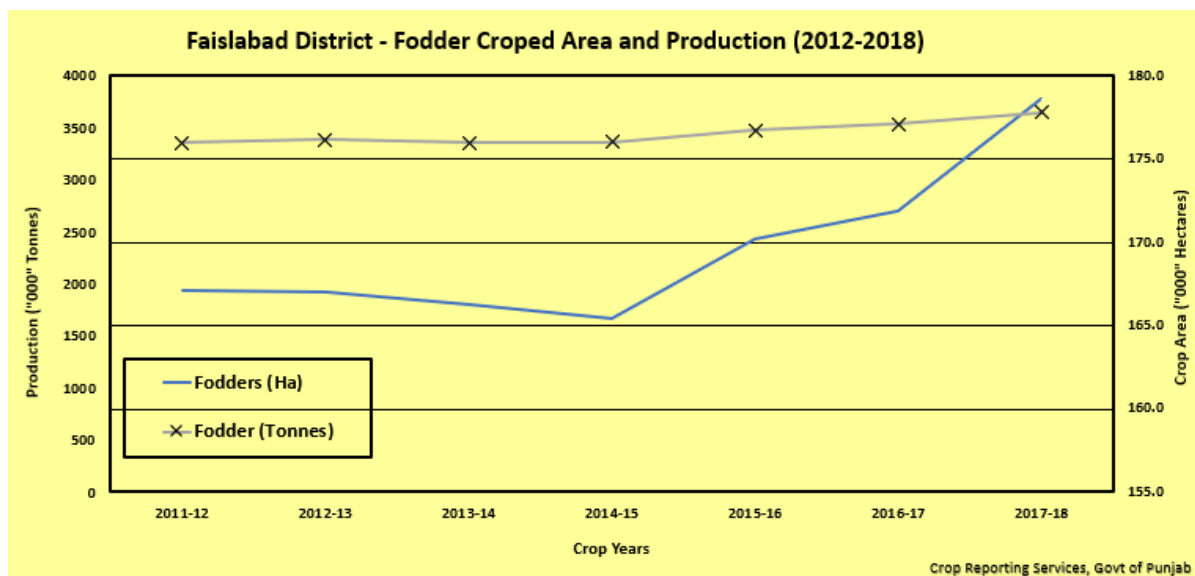


Figure 3-3: Area sown (Kharif & Rabi) and Production of Fodder crops (2011 to 2017) ¹⁶

¹⁵ Bureau of Statistics Planning and Development Department Govt of Punjab

¹⁶ Bureau of Statistics Planning and Development Department Govt of Punjab

3.4 LIVESTOCK KEEPING

In Pakistan, the value of livestock is 6.1 % more than the combined value of major and minor crops. It has been estimated that 2.58 million households with an average of 6-7 members of family size are engaged in livestock businesses. It means that 17.6 million people are involved in livestock rearing and fodder production is the 3rd largest crop in area after wheat and sugarcane. The livestock that Punjab produced include cattle, buffaloes, sheep, goats, poultry, camels, horses, mules and donkeys (refer Figure 3.4). Faisalabad also participates a major role in livestock production. The details are given in the following **Tables 3.7 to 3.9**.

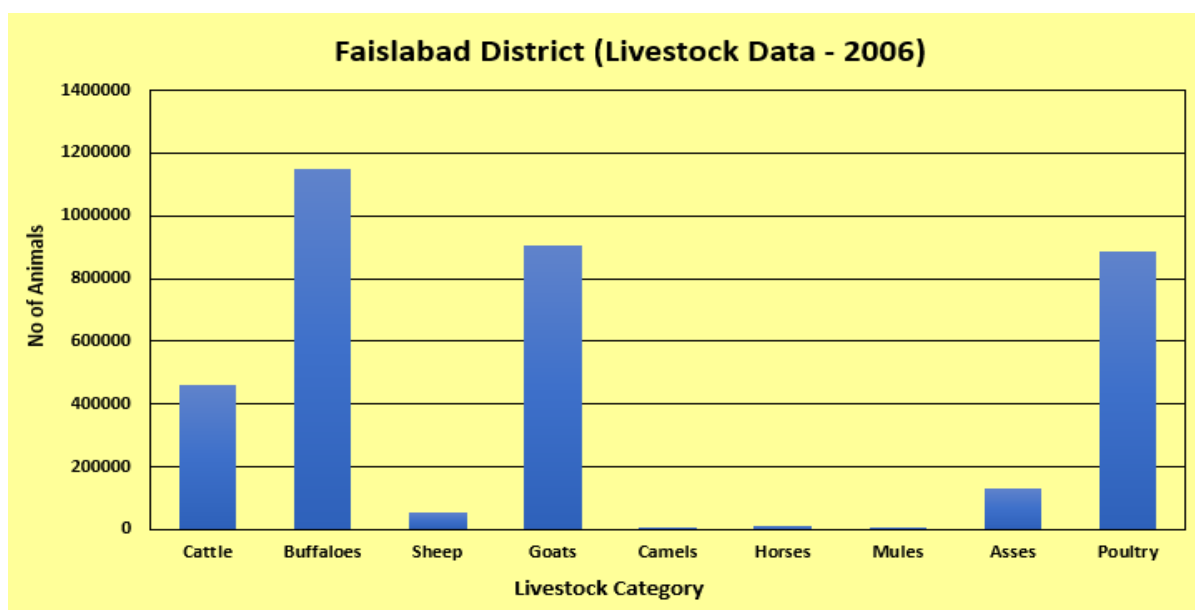


Figure 3-4: Livestock Data of Faisalabad District (2006) ¹⁶

Table 3-7: Number of Cattle and Buffaloes in Faisalabad District (2000-2010)

| District | 2000 (Thousand) | | 2006 (Thousand) | | 2010 (Thousand) | |
|------------|--------------------|-----------|--------------------|-----------|--------------------|-----------|
| | Cattle | Buffaloes | Cattle | Buffaloes | Cattle | Buffaloes |
| Faisalabad | 299 | 854 | 461 | 1148 | 231 | 835 |

Table 3-8: Number of Sheep and Goats in Faisalabad District (2000-2010)

| District | 2000 (Thousand) | | 2006 (Thousand) | | 2010 (Thousand) | |
|------------|--------------------|-------|--------------------|-------|--------------------|-------|
| | Sheep | Goats | Sheep | Goats | Sheep | Goats |
| Faisalabad | 80 | 851 | 55 | 905 | 66 | 731 |

Work animals are a crucial factor in agriculture though farm mechanisation has almost eliminated the use of bullocks for tillage operations . The following table provides the relative details.

Table 3-9: Number of Work Animals by Type in Faisalabad District¹⁷

| Faisalabad | Total | Bullocks | Cows | Male Buffaloes | Female Buffaloes | Camels | Horses | Asses | Mules |
|------------|--------|----------|------|----------------|------------------|--------|--------|-------|-------|
| | 127876 | 40069 | 458 | 1640 | 1427 | 112 | 8599 | 71364 | 4207 |

3.5 STRATEGY FOR AGRICULTURE DEVELOPMENT

The analysis of agriculture sector potential, opportunities and constraints presented in the master plan suggests that rapid and sustained growth in the sector will only be achieved through raising the quantity, value-added and productivity in agriculture, fisheries and forestry. Current national policy instruments are already in place in this regard. In the master plan strategy, agriculture has to be the engine for economic growth with a focus on production, processing and marketing of domestically consumed and export-oriented crops, livestock, forestry and fisheries products. The agenda recognizes that, from a pro-poor growth perspective, raising quantity and value-added productivity in agriculture and fisheries is critical to poverty reduction as the majority of Faisalabad persons are engaged in agricultural activities.

3.5.1 Increasing Agriculture Productivity

Pakistan's agriculture productivity lags behind world's averages and also behind India. Increasing agriculture productivity through intensification and diversification, in particular among the rural poor small farmers, who constitute the poorest segment of society, through a variety of support measures along the entire agricultural value chain, from pre-planting to marketing is urgently required. This will include the use of agricultural equipment; the establishment of supply chains for inputs such as fertilizers, integrated pest management and high yielding seed varieties; irrigation facilities; and the enhancement of agro-processing marketing and distribution.

3.5.2 Promoting Commercial Agriculture

Commercial agriculture should be promoted by creating an enabling environment that is attractive for the private sector to invest in. Post-harvest storage facilities should be facilitated in the form of storage, drying floors, rice mills, threshers, animal feed mills and abattoirs through loans and cost-sharing arrangements. Access to rural credit should be improved through the establishment of community banks and financial services associations. Feeder roads and community markets should be rehabilitated and or constructed to facilitate the movement of goods to marketplaces. Farmer-based organizations should be reformed and trained to build their capacity to engage in commercial agriculture and link to the market economy.

3.5.3 Promoting Agriculture Research and Extension Services

Regional Agricultural Research and Extension policies, strategies and programmes should be formulated as soon as possible. Implementation of these will improve the quality of extension services provided to farmers and therefore allow them to improve their productivity.

3.5.4 Efficient and Effective Sector Resource Management Systems

Effective and efficient resource management should include establishment of a database for agricultural statistics as well as creating a sector coordination mechanism, to strengthen sector policy formulation, planning, monitoring and evaluation, and resource management.

¹⁷ Bureau of Statistics Planning and Development Department Govt of Punjab

3.6 AGRICULTURE INFRASTRUCTURE DEVELOPMENT

Appropriate infrastructure for movement of public goods should be developed to support agricultural development. Infrastructures of most immediate need are roads, irrigation facilities, markets, processing, packaging and storage facilities.

3.6.1 Support to the Rehabilitation and Upgrading of Feeder Roads

Feeder roads play a critical role in efficient transportation of goods from farm to market. This component should be implemented in collaboration with the department of transportation, work and services department, local councils and private contractors.

Specific activities to be carried out include:

- Identification and prioritization of strategic feeder roads that will link major production areas to market centres.
- Formulation of a common policy on feeder roads construction, rehabilitation and maintenance.
- Construction, rehabilitation and upgrading of feeder roads into all-weather roads within five years.
- Regular maintenance of the upgraded roads.

Key Performance Indicators are:

- Reduction in cost of transportation.
- Increase in the volume of goods and services transported from production areas to market centres
- Several kilometres of feeder roads rehabilitated

3.6.2 Rehabilitation of Existing Storage and Processing Facilities

Local storage, processing and marketing facilities should be developed to improve the stability of food supplies.

The key activities include:

- The strategic location of market centres, storage and processing facilities to effectively service production areas
- Storage facilities should be commodity-focused to ensure quality control
- Providing drying, processing and packaging facilities (private sector) to the storage facilities and market centres
- Establishing market information systems encourage the private sector to invest in transportation, especially water transport for the river areas.
- Increase in the number of locally processed products in the market.
- Increase in the number of storage and processing facilities.

3.7 URBAN AGRICULTURE

Urban agriculture has become a means to increase access to locally grown food and a way of reintroducing the public to the many aspects of food that we have lost as a culture. How food grows, what grows regionally and seasonally are all important lessons and make a better-informed urban consumer. Urban farms can be the front line of the food system.

There is no single characterization of size or placement; some are on rooftops, on landfills, brownfields, or areas where housing or industry may have been demolished. Some cities are giving up part of their park systems to allow urban farmers to plant their seeds.

Growing vegetables around or near the house for household use is called kitchen gardening. Due to the ever-increasing population and increase in demand for vegetables, farmers have adopted new techniques to increase per unit of vegetable production. This involves the use of chemical fertilizers and pesticides. Although the production of vegetables has increased at the farm level, the quality of vegetables is seriously affected.

Moreover, irrigation of vegetables with sewage water in urban areas has arisen serious health concerns for consumers. Hence, the purpose of kitchen gardening is to produce organic vegetables free of any pesticides and chemicals for domestic use. For successful cultivation of vegetables at domestic level, the following principles need to be followed:

- Acquisition of direct sunlight:
- Selection of the site:
- Selection for the type of soil:
- Easy access to the kitchen garden:
- Appropriate irrigation for kitchen gardening:
- Air circulation in vegetables
- Planning for Kitchen Gardening
- GIS-based agricultural projection:

There is a need for training centers or workshops for farmers providing complete guidance of GIS application, how it will help them in demand and supply matrix, cultivation of crops. Crops area estimates are based on two approaches which are Satellite data supervised classification and area frame sampling system. Overall, classification accuracy ranged from 85-95%.

3.8 GUIDING PRINCIPLES

To achieve the Faisalabad master plan vision, the following guiding principles must be observed for the agriculture sector:

- Poverty reduction through suitable approaches that promote economic growth and reduce vulnerability, increase work productivity and income and reduce the proportion of family's dependent on subsistence agriculture.
- The human right to adequate food, which assumes access to enough diversified, safe, and nutritional food.

A solid entrepreneurial base (private, cooperative, and other) can attract private investment, contributing to a dynamic commercial climate based on agents with the Capacity to intervene and create efficiencies in the value chain.

- An agriculture sector that supplies diversified raw materials to the agro-industrial sector and can compete, substitute imports, produce good quality surpluses for export, and to coordinate with the domestic inputs and equipment industry and suppliers of services.
- A legal framework that is favorable to investment and competitive commercial operations.
- Sustainable natural resource management following the goals of socio-economic and environmental development, based on management plans that balance community, public and private interests.
- Regional balance, to which agriculture contributes through the creation of opportunities to develop the specific potential of every area.
- Increased support for women's role in agriculture, contributing towards integrated and equitable social and rural development.
- Technological innovations and the dissemination of new technologies for increasing production and productivity, supported by training systems for producers to increase their capability to choose, absorb and adapt technologies.

- Use of agricultural information and statistics systems that are harmonized and produced by universally accepted methods.
- Collaboration between the public sector and all other sectors involved in agricultural development, including public-private partnerships, to improve efficiency and reduce costs throughout the value chains.

3.8.1 Develop or Adapt Advanced Technologies and Agricultural Practices

The following practices ought to be adopted to further the advancement in agricultural practices:

- Give priority to research focusing on agricultural productivity, especially concerning improved seeds and materials for planting, plant and animal disease control, developing improved pasture, improved methods of cultivation and animal breeding, and the development of efficient technologies for increasing the participation of farmers living with HIV/AIDS;
- Develop research investigating pasture, rations, and food supplements for animals, especially for cattle in times of drought.
- Create effective and ongoing links between research, extension, farmers and other Actors (e.g. manufacturers of agricultural equipment).
- Increase the number of scientists dedicated to agricultural research through establishing training programmers and attractive working conditions and promoting Private sector participation in research.
- Strengthen mechanisms for establishing research priorities that are demand-led, Market-oriented and innovatory, considering the needs of specific groups Such as women.
- Give priority to research into reducing post-harvest losses of food crops.
- Give priority to increasing investment in agricultural research.
- Orient production by agro-ecological areas with productive potential.

3.8.2 Management of Water for Agriculture and Animal Production

The following practices are necessary for the availability and management of water for agriculture and animal production processes:

- Improve the knowledge of the relevant actors through increased support for training institutions and extension systems, including increased knowledge for farmers about managing irrigation schemes.
- Promote the incorporation and use by farmers of irrigation technologies using rainwater, thus increasing the irrigated area, especially in dryer areas.
- Improve water management through developing and implementing an integrated national water management policy, with legal instruments and a strategy for agriculture and other use and for mitigating the risks stemming from climate change.
- Strengthen and rationalize the institutional framework for providing support to farmers regarding irrigation, under the water management policy and strategy.
- Improve the collection, conservation, and management of rainwater through creating capacity and promoting appropriate technologies.
- Build and rehabilitate irrigation and drainage systems.
- Promote GIS-based agriculture production.

4. SOCIO-ECONOMIC CHARACTERISTIC

4.1 BACKGROUND

Urban centres are the bloodline for a country's economy. These centres generate great amounts of revenue through business activity and industrial estates. The facilitated lifestyle in big cities attracts more and more village dwellers to migrate to the cities. Lyallpur was a little beautiful town before independence but the rapid growth has embellished its looks. The population of Faisalabad city is increasing rapidly due to industrialization since 1930. Now the Faisalabad city is the third-largest city of Pakistan, in terms of its population size. Before the foundation of the city in 1880, the area was very thinly populated. The population has risen from 9,171 in 1901 to 179,127 in 1951 and it further jumped to 2,008,861 in 1998. The total increase in the last 47 years (1951-1998) is 1000%, which is 21.3 % per annum. However, during the inter censal period 1981-1998 the city grew at an average annual growth rate of 3.58%. The growth rate of the Faisalabad period 1986-2017 grew at an average annual growth rate of 4.06%.

4.2 DEMOGRAPHICS AND POPULATION

4.2.1 Population Growth

Faisalabad was a small town of 9, 171 people when the first census of the city was conducted in the year 1901. In 1911 its population more than doubled and recorded an increase of 113.4%. During the next three decades i.e., between the year 1911-1941, the rate of increase of population was slightly more than the average increase of urban population of Pakistan and it varied between 43.7% to 63.8%.

During the 1941 Census, only 69,930 persons were enumerated in the city. It is assumed that this gradually rising rate of increase of population continued up to the year 1947 after which the rate of increase jumped to a fantastic all-time high and the decade 1941-51 showed an increase of 156.2% highest rate of increase for any decade. The total population of the city in 1951 was 179, 244 persons.

Most of the population of the city before independence consisted of non-Muslims who migrated in 1947 and were replaced by migrants from India. The 1951 figure (179,244) indicates that the in-migration of people was considerably more than the out-migration. The population growth in Faisalabad from 1941-61 and its comparison with other cities is shown in **Table 4.1** below.

Table 4-1: Population Growth in Faisalabad 1941-61 and Comparison with other Cities¹⁸

| City | Population | | | Percentage Increase | | |
|------------|------------|-----------|-----------|---------------------|---------|---------|
| | 1941 | 1951 | 1961 | 1941-51 | 1951-61 | 1941-61 |
| Karachi | 435,887 | 1,064,557 | 1,912,508 | 144.2 | 79.7 | 338.8 |
| Lahore | 671,659 | 849,333 | 1,296,477 | 226.5 | 52.6 | 93.0 |
| Dacca | 239,728 | 335,928 | 556,512 | 40.1 | 65.7 | 132.2 |
| Hyderabad | 134,693 | 241,801 | 434,537 | 79.5 | 79.7 | 222.6 |
| Faisalabad | 69,930 | 179,127 | 425,248 | 156.2 | 137.4 | 508.1 |
| Chittagong | 224,732 | 289,981 | 364,205 | 29.0 | 25.6 | 62.2 |
| Multan | 142,768 | 190,122 | 358,201 | 33.2 | 88.4 | 150.9 |
| Rawalpindi | 185,042 | 236,877 | 340,176 | 28.0 | 43.6 | 83.8 |
| Gujranwala | 84,545 | 120,852 | 196,154 | 42.9 | 62.3 | 132.0 |
| Peshawar | 173,420 | 151,434 | 218,691 | 12.7 | 44.4 | 26.1 |
| Sialkot | 138,708 | 167,506 | 164,346 | 20.8 | 1.9 | 18.5 |

¹⁸ Master Plan for Greater Lyallpur 1968

It is evident from the Table 4.1 above that Faisalabad achieved the highest rate of growth from amongst the listed towns during 1941-61. Its population turns out to be nearly six times greater than it was in 1941. Consequently, Faisalabad is the 3rd largest town of Pakistan whereas it was just a local agriculture market.

The main cause of its growth has been the large-scale migration from other areas. Since the establishment of the city, the movement of people into Faisalabad has been much higher than the average rate of migration from rural to urban areas of Pakistan. During 1951-61 the rate of increase of population of Faisalabad was more than twice the rate of national urban growth and about six times the national overall increase of population. For every child born in Faisalabad during 1951-61, 5 persons came into the city from other areas of the country. At the rate of the overall increase of population of Pakistan only 42,278 persons would have been added to the city's population whereas the total increase was 246,104 persons meaning that 193,826 persons migrated into the city, a number higher than the total population of the city in 1951. **Table 4.2 & Figure 4.1** below shows the trend of population and population growth in Faisalabad.

Table 4-2: Past Population Increase Faisalabad (Source: District Census Reports)

| Sr. No. | Year | Population | Percentage Growth over Last Census | Intercensal Av. Annual Growth Rate (% age) |
|---------|------|------------|------------------------------------|--|
| 1 | 1901 | 9,171 | - | - |
| 2 | 1911 | 19,571 | 113.4 | 7.87 |
| 3 | 1921 | 28,124 | 43.7 | 3.69 |
| 4 | 1931 | 42,889 | 52.5 | 4.31 |
| 5 | 1941 | 69,930 | 63.1 | 5.0 |
| 6 | 1951 | 179,244 | 156.3 | 9.86 |
| 7 | 1961 | 425,240 | 137.2 | 9.02 |
| 8 | 1972 | 823,343 | 93.6 | 6.2 |
| 9 | 1981 | 1,104,209 | 34.1 | 3.31 |
| 10 | 1998 | 2,008,861 | 81.9 | 3.58 |
| 11 | 2017 | 3,210,158 | 59.8 | 2.49 |

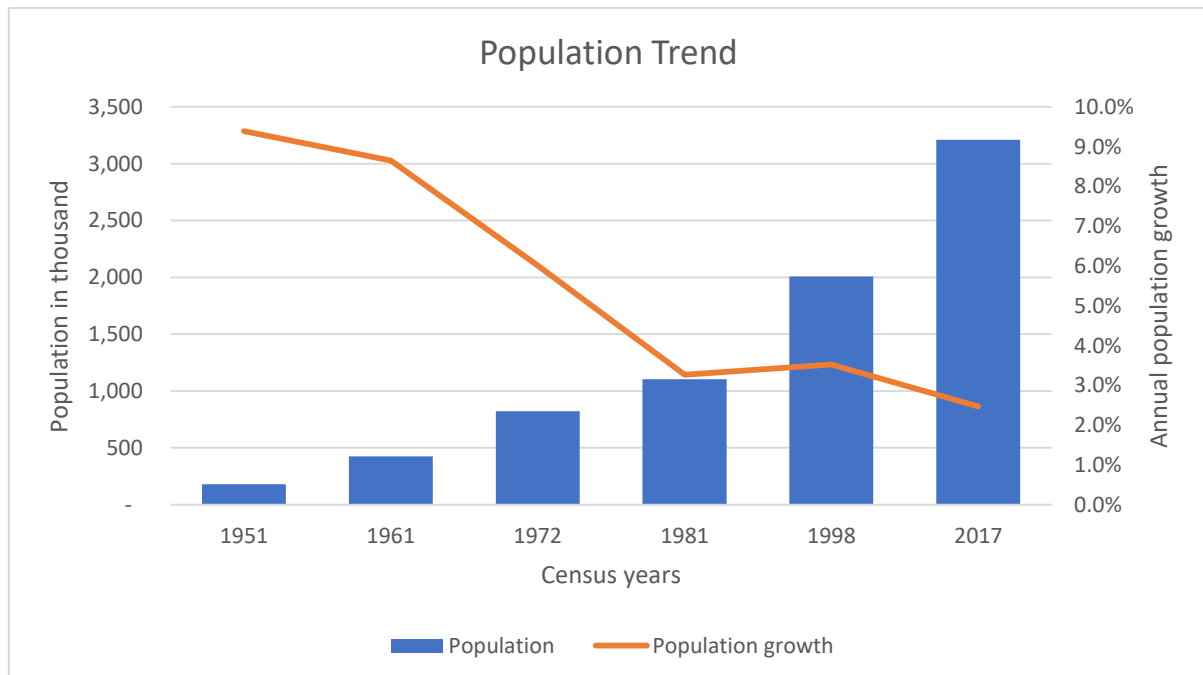


Figure 4-1: Population Growth Trend

4.2.2 Age-Sex Ratio

The information about the age-sex composition of any community is very crucial for determining its social needs as education, health, recreation, commercial etc. The population of the city is divided in such a way, that the working-age group, School and College age groups and retiring age groups can be easily identified.

In 1961, out of total population of 425,248 persons, 239,267 (56.3%) were males and 185,981 (43.7%) were females. In another word, there were 777 females for every 1000 males. Compared with the ratio of females with males in 1951 there was a considerable decrease of females (808) for every 1000 males. 1961 census also shows that compared with other major cities of Pakistan, Faisalabad showed the lowest ratio of females with the males. Against 792 females per 1000 males in Lahore Municipal area, 786 in Hyderabad city and 773 in Karachi Municipal area. For the same year, Faisalabad district had 869 females for every 1000 males. The percentage of male population at various age levels is summarized in Table 4.3 below.

Table 4-3: Percentage of Male Population at Various Age Levels ¹⁹

| Age group | Percentage of Males | | |
|------------|---------------------|---------------------|----------|
| | Faisalabad City | Faisalabad District | Pakistan |
| 0-4 | 51.97 | - | - |
| 5-9 | 53.02 | 53.46 | 53.39 |
| 10-14 | 53.99 | 52.81 | 56.08 |
| 15-19 | 58.21 | 58.88 | 54.24 |
| 20-24 | 59.56 | 52.57 | 53.02 |
| 25 & above | 58.45 | 54.10 | 54.47 |
| Overall | 56.26 | 58.52 | 58.54 |

The **Table 4.3** above shows that the percentage of males with females rises gradually with the increase in age. This percentage becomes considerable for the age group 15-19 and above. Males made the highest percentage for age group 20-24 compared with the percentage of males for the same age groups for the district of Faisalabad and Pakistan. The most apparent reason for a high percentage of males in the upper age groups is the migration of people from rural areas to urban areas. Census 1961 shows that there were 5295 single families (male) households in Faisalabad city. The high ratio of males with the females, particularly in the upper age groups, points towards the fact that compared with other areas and even with other major cities in Pakistan, Faisalabad city is attracting more single males. This is apparently due to the availability of more jobs in the city which is based upon the high rate of economic development in the city. The population (of year 1998) by age and sex of tehsil Faisalabad is summarized in **Table 4.4** below.

Table 4-4: Population by Age and Sex of Tehsil Faisalabad - 1998

| Age | Both Sexes | %age | Male | Female |
|----------|------------|--------|---------|---------|
| All Ages | 2140346 | 100.00 | 1122115 | 1018231 |
| 00-04 | 276800 | 12.93 | 141418 | 135382 |
| 05-09 | 294304 | 13.75 | 151349 | 142955 |
| 10-14 | 286007 | 13.36 | 148085 | 137922 |
| 15-19 | 245981 | 11.49 | 127857 | 118124 |
| 20-24 | 218412 | 10.21 | 113575 | 104837 |
| 25-29 | 163262 | 07.63 | 86173 | 77089 |
| 30-34 | 143842 | 06.72 | 76817 | 67025 |
| 35-39 | 113556 | 05.30 | 61120 | 52436 |
| 40-44 | 99949 | 04.67 | 53613 | 46336 |
| 45-49 | 70766 | 03.31 | 38162 | 32604 |
| 50-54 | 67653 | 03.16 | 35818 | 31835 |

¹⁹ District Population Census, 1998

| Age | Both Sexes | %age | Male | Female |
|------------|------------|-------|-------|--------|
| 55-59 | 46897 | 02.19 | 25759 | 21138 |
| 60-64 | 41298 | 01.93 | 22717 | 18581 |
| 65-69 | 26066 | 01.22 | 14498 | 11568 |
| 70-74 | 21106 | 00.99 | 11835 | 9271 |
| 75 & above | 24447 | 01.14 | 13319 | 11128 |

The age-sex composition of the population (1998) indicates as under:

- The biggest age group is up to 10 years i.e., 29.77%
- 16.68% falls in the age group of 11-17 years.
- The working population (18-60) is 49.13%
- The remaining about 4.41% population belongs to the above 60+ age group.

4.2.3 Dependency Ratio

Children and aged persons are considered dependent populations. The population distribution depicts that 50.87% is a dependent population. It shows that out of 1000 population 508 are dependent. Male population of year 1961 and 1998 is shown in Table 4.5 below.

Table 4-5: Male Population, 1961 and 1998

| Age Group (In Years) | Percentage of Males | |
|-------------------------|---------------------|-------|
| | 1961 | 1998 |
| 00-04 | 51.97 | 51.09 |
| 05-09 | 53.02 | 51.43 |
| 10-14 | 53.99 | 51.78 |
| 15-19 | 58.21 | 51.98 |
| 20-24 | 59.56 | 52.00 |
| 25 & above | 58.45 | 53.71 |
| Overall | 56.26 | 52.43 |

In 1961 there were 777 females for every 1000 males. In 1998 there were 907 females for every 1000 males in Faisalabad Tehsil. In 2017 the number of females increased to 943 for every 1000 males in the Faisalabad Municipal Corporation area. The %age of the male population has also decreased from 56.26% in 1961 to 51.45% in 2017.

4.2.4 Population Projection

Population projections are a necessary prerequisite for establishing the potential future demand for urban services. Pakistan has not conducted a regular population census since 1981, as indicated by gaps between the census years (1951, 1961, 1972, 1981, 1998 and 2017). For the most recent census (2017), only partial and provisional data has been made publicly available.

The gaps between the most recent census years (1981, 1998 and 2017) mean that for the equivalent of two generations the census counts are considered inconsistent, and assumptions based on past trends are likely to have significant margins of error. Further complicating the population assessment are changing definitions of urban areas across different census periods, and in some census years, the aggregation of some cantonment populations with urban populations.

Thus, to estimate the current city population, the compared population numbers using several sources: the census data; and population estimates generated from night-time light (NTL) satellite imagery. The use of NTL data is considered highly accurate in estimating human settlement, density and distribution in countries and regions where traditional economic and demographic data is not available or where it is thought to be inaccurate. The approach is

considered a key aspect of international best practice for the validation of economic and demographic data.

The population forecast sets out some of the key factors involved in population change in Faisalabad City and identifies potential growth scenarios to be considered in assessing future populations. The population growth scenarios and forecasts are the fundamental assumptions for long-range planning with significant implications for the impacts of budget decisions related to capital facilities and infrastructure. As such they are a necessary prerequisite for establishing the potential future demands for municipal services.

The city-specific population growth scenarios (high, medium and low) to 2041 were developed. Each scenario provides a reasonable, alternative projection of what the city's population growth may be. These are based on several key assumptions: 1) Pakistan's average population growth trajectory is presently around 1.9% but expected to be less than 1% by 2050 (as summarized in UN 2019 World Population Prospects report); 2) the trajectory for the national average urban growth rate declining to 1.5% by 2050 (Hoorweg & Pope, 2014); and 3) the Consultants estimate for the city's growth trajectory based on the exponential growth methodology. The **Table 4.6 & Figure 4.2** below summaries three growth scenarios for the city and project area, respectively.

Table 4-6: Population Growth Scenario

| Years | Low Growth Scenario | Medium Growth Scenario | High Growth Scenario |
|-------|---------------------|------------------------|----------------------|
| 2017 | 3,210,158 | 3,210,158 | 3,210,158 |
| 2022 | 3,594,945 | 3,630,228 | 3,665,787 |
| 2027 | 4,025,855 | 4,105,267 | 4,186,058 |
| 2032 | 4,508,416 | 4,642,468 | 4,780,230 |
| 2037 | 5,048,820 | 5,249,965 | 5,458,704 |
| 2042 | 5,654,000 | 5,936,957 | 6,233,476 |

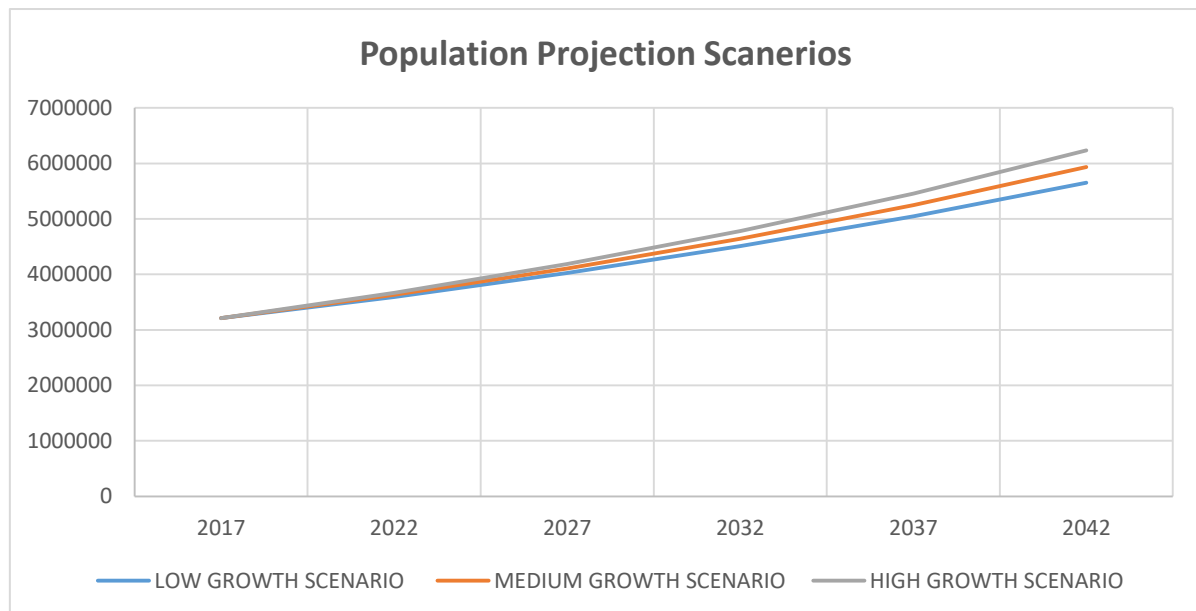


Figure 4-2: Population Projection Scenarios

The total population of Faisalabad city is 3,210,158 (2017). Population Census 2017 indicates that during the last 19 years 1998-17 the population has been increased with a medium growth rate of 2.49%. According to the following table, in a low growth scenario, the population in 2042 will be 5,654,000 with a growth rate of 2.29%. In a medium growth scenario, the population will be 5,936,957 with a growth of 2.49 %. In the same way in a high growth

scenario, the population will exceed 6,233,476 with a growth rate of 2.69% by the year 2042. On his basis, the consultant adopted a low growth scenario using a 2.29 growth rate. The reason for adopting such a scenario is the Punjab Population policy 2017.

4.2.5 Population Density

Population density is population divided by total area or number of people per unit area usually quoted per sq. kilometre or sq. miles. Population density may be calculated for a country or city or territory. Cities with high population density are considered overpopulated though this will depend on factors like quality of housing and infrastructure and access to resources. Densities are almost higher in the central city area than the suburban areas. There are two ways to look at the density of the city i) Gross Density ii) Net Density. Net Residential Density means the number of dwelling units per acre or hectare of Net Residential Area. Gross Residential Density means the number of dwelling units per acre or hectare of Gross Residential Area. By the year 2017, the density of Faisalabad was 2,500/km² (6,500/sq. mi).

In the Master Plan of 1968, the gross and net Residential densities have been given as under in **Table 4.7**.

Table 4-7: Residential Densities in Various Sectors²⁰

| Sr. No. | Name of the locality | Gross Density | Net Density |
|---------|---|---------------|-------------|
| 1 | Central Area (Douglas Pura, Sant Pura, Dhobi Ghat, etc.) | 323 | 587 |
| 2 | Jinnah Colony, Gulberg, Mohammad Pura, Gurunanak Pura and Gobind Pura, etc. | 157 | 311 |
| 3 | Nazim Abad and Partab Nagar | 9 | 120 |
| 4 | Ghulam Muhammad Abad | 63 | 179 |
| 5 | Nighaban Pura and Tariqabad | 7 | 172 |
| 6 | Abdullahpur and Mansoorabad | 14 | 180 |
| 7 | Civil Lines area and Model Town | 36 | 128 |
| 8 | Peoples Colony | 11 | 36 |
| 9 | Railway Colony | 49 | 980 |
| 10 | D Type Colony, Samanabad and Jewala Nagar | 28 | 242 |

The table above shows that about half the localities of Faisalabad were in a state of acute congestion at that time. However, in the case of newly developed colonies like People's Colony, Jinnah Colony, etc., the situation may be termed as satisfactory. The highest density was recorded in Railway Colony (Sr. No. 9) i.e., 980 persons per acre.

In 1985 the total area of the city was 22,400 acres and the total population was 1,475,000 persons. The total built-up area was 8,331 acres. Thus, the gross density of Faisalabad city in 1985 was 66 persons per acre and net density was 177 persons per acre or 437 persons per hectare. The present built-up area is 37,622 acres (152.3 sq. km) and area under residential use is 19,670 acres (79.6 sq. km) and the population is 3,372,014 persons (2019). After 34 years (2019) the gross density of Faisalabad city has increased to 90 persons per acre and net density has reached 171 persons per acre.

Figure 4.3 below shows the block-wise population according to census 2017 represented with a spatial map for a clear understanding of growth trends and densely populated areas.

²⁰ Master Plan for Greater Lyallpur 1968

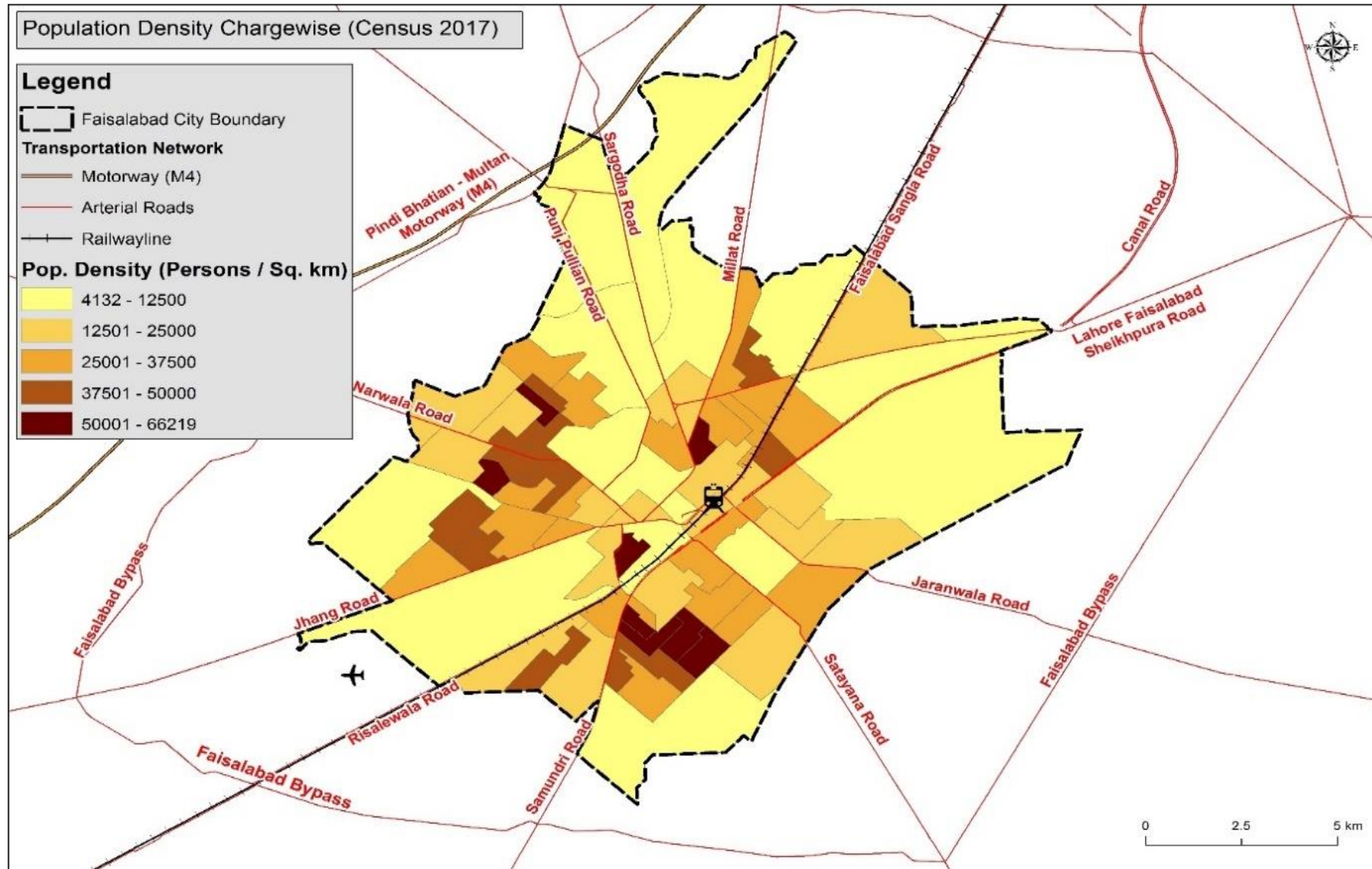


Figure 4-3: Population Density

4.3 ETHNIC COMPOSITION

The important castes inhabiting this district are the Jat. Gujjar. Rajput. Mughal Awan. Malik. Chohan. Arain and Bhatti. Some of the minor castes of the district are Syed and Pathan. After colonization and Independence a large number of people from various parts of the country. Especially refugees from India (East Punjab) came over and settled in the district. The history of colonization in Faisalabad exercised a profound influence on the socio-economic pattern of the area. They belong to different races but due to frequent inter-marriage, these castes have intermingled and it is now difficult to distinguish their entity and thus the tribal system is no more dominated in the culture. Common culture has emerged. (DCRF, 1998) The main ethnic groups in the district are Arain, Baluch, Bodla, Chishti, Dhudhi, Hans, Johiya, Kathia, Khagga, Kharal, Khichi, Langrial, Syal, Waince, Tarohly(Jats), Wattu. Punjabi is the most widely spoken language. Urdu and Saraiki are also spoken.

4.4 RELIGIOUS COMPOSITION

Islam is the common heritage in the region with a 97.22% Muslim majority according to the 1998 Pakistan census report Islamic influences are evident in the fundamental values of various inhabitants including cultural traditions, marriage, education, diet, ceremonies and policies with may reflect stark differences in rural villages as compared to urban areas. Though, like the other districts of Pakistan, an overwhelmingly Muslim majority district, the Catholic Christian population of Faisalabad is the second largest in Pakistan with a Catholic population of over 150,000 people.

4.5 CULTURAL DIVERSITY

People live in tight-knit joint families, although a nuclear family system is emerging due to changing socio-economic conditions. The influences of more modern societies have effected some change, particularly in the area of the dowry system. In following ancient culture, marriages are customarily arranged by the parents or matchmakers. Marriage ceremonies, which can be more or less formal, include rituals that are universal and hold sociological importance.

The district represents the typical Punjabi culture where traditional customs, norms and values of Punjab can be observed. Men wear shalwar-kameez, and Tehmad in the rural areas and the urban areas, trouser-shirt is also a common dress. The ladies mostly wear shalwar-kameez with a dupatta or a shawl. The women use Sari on festivals and other special occasions. The popular sports of the region are hockey and cricket in the urban areas while Kabaddi and wrestling (kushtee) are in rural areas. The famous festivals and fairs of the Faisalabad region are Horse and cattle Show (Mela Mavayshi), Expo-Exhibitions and Jashan-e-Baharaan.

4.5.1 Cultural Importance

Faisalabad is an industrial and agricultural city. It is the second-largest business city in Punjab and it is a region for investment and economic prosperity. Textiles generate the best business in this city. "D Ground" is the second most important market after Ghanta Ghar. The area has been continually developing into a shopping area with many brands from all over the world. There are many local and western restaurants ranging from Namwah Chinese, Bundu Khan, KFC, Al Maida, McDonald's, Pizza Hut, Olive Garden, Sardines, Yummy 36, Cube and many open-air barbecues. The Jinnah Garden is the most famous park in Faisalabad. It is locally known as "Company Baagh". The tomb of H.E. Sir Charles James Lyall is situated here. The park is often used by the local council for holding rallies, concerts, shows and melas. Getwala Park is a small park situated on the edge of Faisalabad. It is popular for family picnics and relaxing. Canal Park is on the west bank of the Rakh Branch Canal.

The majestic "Chenab Club" is a social club. It was the first such club established in Faisalabad. It stands in the beautiful surroundings of "Jinnah Garden". The club is situated in

the heart of the city, Faisalabad famous monuments are Gumti Water Fountain, Qaisery Gate (Entrance to the Eight Bazaars), Ghanta Ghar and various Sikh Gurudwaras and Hindu Mandirs. Faisalabad Arts Council has a major role in promoting cultural activities and art in the city. It has an auditorium Ustad Nusrat Fateh Ali Khan Auditorium with a seating capacity of 500 people.

4.6 TOURIST ATTRACTIONS

Faisalabad is famous for travel, recreation, leisure, and business purposes. The Faisalabad clock tower is the oldest monument still standing in its original form since British rule. Eight bazaars are originated from this clock tower; each of the eight bazaars is given a special name which is as follow:

1. Katchery Bazaar is famous as its name shows because of the court (Katchery) situated opposite to it.
2. Rail Bazar is famous for gold and cloth market.
3. Bhawana Bazaar is famous for electronics.
4. Jhang Bazaar is famous for fish, meat, vegetables, and fruits.
5. Aminpur Bazaar is famous for stationary stuff and interior décor.
6. Kharkhana Bazar is famous for herbal medicines.
7. Chiniot Bazaar is famous for homoeopathic medicinal stores, cloth, blankets, sofa cloth, curtains.
8. Montgomery Bazaar is famous for yarn merchandizing and raw cloth trading. It is also known as Suter Mandi.

It is worth visiting the eight bazaars of Faisalabad as high-quality different things are available here and it is the home ground for all the wholesale dealers of various goods. Tourists are especially welcome here and would always find great bargains. Other recreational spots include Happy Land Water Park which is an international level park built as a complete entertainment centre for families and contains the biggest water slides in Pakistan. It is also equipped with amazing swings for both children and adults. Rex City is a big computer market where one can find computer sales and service shops easily. Jinnah Garden is also a beautiful park in the city commonly known as "Company Bagh". The tomb of H.E Sir Charles James Lyall is situated here.

Moreover, Am Tex Waterfall is located at Am Tex Square which is the biggest artificial waterfall in Asia. Canal Park located at the west bank of Rakh Branch Canal is also a good outing place for families. The majestic Chenab Club standing in the shades of trees and complemented by vast lush green lawns is located in the beautiful surroundings of "Jinnah Garden" which is a great attraction. Lyallpur Museum is also worth seeing as it is not only a heritage museum but contains an art gallery too. The gallery provides a memory of the ancient and modern culture of Faisalabad.

4.7 EMPLOYMENT

Employment is the key mechanism through which the benefits of the growth can be distributed to the poor segment of society. Access to decent work is thereby vital in the process towards reduction in poverty and income inequality. The number of people employed in Pakistan in 2014-15 was 57.42 Million Employment Status of Pakistan comprises employees (38.7%) followed by own-account workers (36.1%), contributing family workers (23.8%) and employers (1.4%). As far change during the comparative periods, own-account workers (35.4%, 36.1%) and employers (1.1%, 1.4%) trend up, while employees (39.1%, 38.7%) and contributing family workers (24.4%, 23.8%) scale down (Labor Force Survey, 2014-2015). Workers occupational statistics is shown in Table 4.8 below.

Table 4-8: Workers Occupational Statistics²¹

| Workers Occupational Statistics of Faisalabad | |
|---|-------------|
| Occupation | Percentages |
| Working hands per household | 1.5% |
| Skilled labour | 4.01% |
| Semi-skilled/Unskilled labour | 58.49% |
| Govt./Private employees | 37.50% |

4.8 HOUSEHOLD INCOME

One of the key factors in trip making is household income. HIS recorded income in some ranges from less than Rs.5000 to more than Rs. 50,000 per month. Low-Income Class ranges between Rs. 5,000 to Rs. 20,000, Middle Income Class ranges between Rs. 20,000 to Rs. 50,000 and High Income Class ranges more than Rs. 50,000 per month. The income distribution of the study area shown in the table presents the results of HIS. The data has been aggregated into three income groups: Low-income Class, Middle Income Class and High Income Class. The percentage of household income classes is shown in Table 4.9 below.

Table 4-9: Percentage of Household Income Classes in Study Area²²

| Sr | Income Class | Percentage of Household Income Classes |
|-------|---------------------|--|
| 1 | High-Income Class | 8.7 |
| 2 | Middle Income Class | 34.1 |
| 3 | Low Income Class | 57.2 |
| Total | | 100.00 |

The high-income class has a very low percentage approximately 9% of households within the Study Area, the Middle-income group accounts for just over 32% of households and the low-income class accounts for a high percentage about 58% of all households within the Study Area.

According to a recent survey covering household monthly income distribution in Faisalabad, it is evident that about one-third of the households fall in low-income groups (below Rs. 3000/month). About another one-third of the population belongs to the non-middle income group (Rs. 3001-5000). About 15% of households are in the middle-income group, while nearly 12% belong to the upper-middle-income group. Slightly more than 8% are in the high-income group. The average monthly household income is approximately Rs. 5500. But according to the poverty profile prepared by the ASB team in December 2000 the household average monthly income in slums and Katchi Abadis is Rs. 2500- 3000. An overview of household income disposition is shown in **Table 4.10** below.

Table 4-10: Overview of Household Income Disposition²³

| | |
|--|--------------|
| Household Size | 6.3 |
| The average income per month | Rs.2500-3000 |
| Occupation: • Working hands per household | 1.5 |
| • Skilled agriculture, forestry and fishry workers (in %age terms) | 4.01% |
| • professionals | 4.2% |
| • craft and related trade workers | 6.0% |
| | 20.0% |
| Housing: • Owned | 78.1% |
| • Rented/others | 11.2% |
| • In-house water supply | 92% |

²¹ Source: Integrated Slums Development Program (ISDP), 2001

²² OCL Survey

²³ Multiple Indicator Cluster Survey, 2017-18

| | |
|---|-------|
| Social attributes: | |
| Total %age of Literate 15-49 years male | 71.4% |
| Total %age of Literate 15-24 years male | 79.2% |
| Total %age of Literate 15-49 years female | 66.6% |
| Total %age of Literate 15-24 years female | 78.0% |

4.9 ECONOMIC DISPOSITION

A Price Waterhouse Cooper's study released in 2009, surveying the 2008 GDP of the top cities in the world, calculated Faisalabad's GDP (Purchasing Power Parity-PPP) at \$14 billion. The city was third behind Karachi (\$78 billion) and Lahore (\$40 billion). Faisalabad's GDP is projected to rise to \$37 billion in 2025 at a growth rate of 5.7%, higher than the growth rates of 5.5% and 5.6% predicted for Karachi and Lahore.

Faisalabad is one of the three planned cities of the country. Faisalabad has a strong industrial base including textiles, jewellery, home furniture and pharmaceuticals, assisted by the expanding transport network which includes newly-built motorways and highways to Lahore, Multan, Sargodha and Islamabad / Rawalpindi.

Before Pakistan's independence, there were only five industrial units in Faisalabad, but now there are numerous textile mills, engineering units and chemical and food processing units. Other industries include hosiery, carpets and rugs, Nawar and lace, printing and publishing, and pharmaceutical products. There are also several thousand household industries, including some 60,000 power loom factories. Executives of Muslim Commercial Bank (MCB) are also from Faisalabad. Local companies include Sitara Group, Manno Group (Rafhan foods), Crescent Group, and Ibrahim Group (owner of Allied Bank) also belongs to Faisalabad. Karachi and Faisalabad have the highest population growth rate in Pakistan.

The textile industry of Faisalabad constitutes more than 70% of the textile export market of Pakistan, which itself forms 68% of the total exports of Pakistan. This makes Faisalabad's share of total exports from Pakistan more than 45%. The city is unmatched for its agricultural productivity. Faisalabad's major export crops include the Kharif crops which include maize, rice, sugarcane and bajra as well as the Rabi crops which include wheat, barley, Gram (disambiguation)gram and barseen. In addition to these, there are also Zaid Kharif and Zaid Rabi crops. Zaid Kharif crops are toria, raiya, sarsoon and Zaid Rabi crop is tobacco. Important fruits are oranges, bananas, apples, sugarcane, tangerines, fruiter, mangos, guava and Falsa. The total area under fruit orchards is 34,517 acres (13,969 ha). The establishment of a dry port at Gatti, a few kilometres away from the main city has greatly boosted economic activities in Faisalabad by facilitating direct imports and exports of goods and cargo. **Table 4.11** shows the Faisalabad industrial ststics.

Table 4-11: Faisalabad Industrial Statistics²⁴

| Faisalabad Industrial Ownership | Percentages |
|---------------------------------|-------------|
| Individual Proprietorship | 90% |
| Partnership | 7% |
| Private limited | 3% |

4.9.1 Revenue

Tax revenue refers to compulsory transfers to the central government for public purposes. Certain compulsory transfers such as fines, penalties, and most social security contributions are excluded. Federal Board of Revenue (FBR) collected more than Rs 3130 billion in the tax year 2015-16 as per figures consolidated and reconciled by AGPR, surpassing the revenue

²⁴ Faisalabad Peri-Urban Structure Plan, 2015

collection target of Rs 3104 billion sets for the year, which is unprecedented (FBR). Faisalabad collected tax of Rs 21.098 Billion from July to January 30-2017 (RTO, FBR, 2017).

5. LANDUSE AND LAND DEVELOPMENT

Land Use Dynamics is aimed at publishing innovative insights into land-use variation and the temporal dynamics of land-use change, as well as highlighting the driving forces behind land dynamics and their socio-ecological factors. The Faisalabad city of today presents a complex mixture of planned and haphazard development and desirable and undesirable growth of built-up areas. This has resulted mainly due to two factors i.e.

- i. High growth rate due to migration of people from rural areas and other small and medium-size urban settlements in the region and
- ii. Poor development control and least efforts by the concerned authorities to channel and guide the growth and development of the city.

Master Plans of Faisalabad were prepared from time to time but serious efforts were not made to implement these Master plans. Fortunately, the origin and skeleton of the city are based on a planned move and that planned move although spread over a small area of 110 acres have impacted the future growth direction and set the growth pattern of the city. It has long-lasting effects on the city growth and provided a strong core for the commerce and trade of the metropolitan city.

5.1 HISTORY AND EVOLUTION OF CITY EXPANSION

Faisalabad city was established as a Colony Town towards the end of the last century. The area comprising the city was then included in Tehsil Jhang of Multan Division and had little human habitation. Since the area was desolate and uncultivated for regular crops, it only served as grassing ground for the Cattle of the nomad tribes. The opening of the Lower Chenab Canal in 1892, and its subsequent extension to the area in the form of Rakh Branch, Jhang Branch and Gogera Branch not only introduce the canal irrigation system in the region for the first time but also brought the whole of this area under cultivation, ultimately leading to the Foundation of the Faisalabad city in 1896 to serve as a mandi or Market Town for the agricultural produce. In 1896 Faisalabad was given the status of a tehsil of the Jhang District.

The city was founded by Sir James Broadwood Lyall, the then Lt. Governor of Punjab and was named after him as “Lyallpur”. The design of the town was prepared by Captain Poham Young, C.I.E. in a square form with eight bazars radiating out from a Central Clock Tower. Figure 5.1 shows eight bazars of Faisalabad out from a central clock tower. It is generally accepted that Faisalabad (previously known as Lyallpur) is popular due to its clock tower (locals refer to it as Ghanta Ghar) and eight bazaars (markets), along with its textile industry. Although the clock towers were also constructed in other cities of Punjab such as Multan, Sialkot, and Samundri, the clock tower of Faisalabad is the most famous.

The city was planned on the pattern of the Union Jack, the national flag of the United Kingdom (then the United Kingdom of Great Britain and Ireland) and eight radial bazaars were extended from the clock tower. The inscription at the bottom of the clock tower reads that the building was laid in loving memory of Queen Victoria by the loyal inhabitants of Chenab Colony.

The bazaars were designed in such a way that the clock tower could have been seen from all the bazaars even from their ends. The way the bazaars are intertwined and linked together with the clock tower right in the centre is just astounding.



Figure 5-1: Eight Bazzars of Faisalabad

Very clear zoning of different land uses was given by the Town Planner, the particularly industrial zone was specified broadly. The design of the Town was further improved by Sir Gunga Ram, a renowned Town Planner of the time. The main town covered an area of 110 acres or four squares (Murabba) of land with room for an extension on the North-West and South-West direction. A major portion of the land in the original town and its surrounding extension had been sold by 1904. The town grew rapidly as farmers settled on newly irrigated land. A large number of settlers came from different areas of Punjab especially from Ludhiana, Jalandhar and Ambala on the promise of large agricultural lands. In 1904 a new district of Faisalabad was constituted composed of the tehsils of Faisalabad, Samundri and Toba Tek Singh. By 1906 the district headquarters began to function in Faisalabad. The Town Committee was upgraded to a Municipal Committee in 1909 and the Deputy Commissioner was appointed as its first Chairman.

The first-ever building constructed in Faisalabad city was the present residence of the Deputy Commissioner (refer Figure 5.2), followed by the Qaisri Gate in 1898, the Empress Clock Tower in 1913 and subsequently the Town Hall, District Courts, Govt. High School, the grain market, the district jail and the Canal offices in between this period. In 1895 the rail link between Wazirabad and Faisalabad was completed. The Railway Line connecting Faisalabad with Lahore via Sangla-Hill was also laid during the year 1910. Mohallah Doglaspura was built in 1920 and in 1934 the Faisalabad Cotton Mills started functioning. Other Mohallas like Santpura, Harchanpura, Partap Nagar, Dhobi Ghat, Gujjar Basti etc., emerged on the scene thereafter.



Figure 5-2: Commissioner Office

The area of Faisalabad city at the time of its establishment was three square miles. Later, with time, physical growth continued. Resultantly, the Municipal limits had to be extended in November 1947, increasing the area of the city from 3 to 9.73 sq. miles. In 1951 the Govt. of Pakistan made a plan to boost industrial activities and Faisalabad was declared Industrial Zone with certain incentives such as tax holiday, etc. and thus Kohinoor Textile Mills (1949),

Crescent Textile Mills (1950), Premier Textile Mills (1949), Nishat Textile Mills (1951), Zeenat Textile Mills (1954) and some other prominent industrial units were established and residential area namely People's Colony, Ghulam Muhammad Abad, Labour Colony, Mohallah Afghan Abad, Jhang Road Market area, etc. were added to the city which necessitated the extension of the Municipal Limits in 1958. In 1968 the area increased to about 29 sq. miles spreading 5 to 6 miles on each side starting from the Clock Tower.

A study conducted in 2012 shows an increase in built-up area from 5661 hectares in 1980 to 9480 hectares in 2010, a 67.5% increase in a built-up area of 1980. Similarly, its agricultural land decreased from 9562 hectares in 1980 to 7308 hectares in 2010, i.e., the average per year decrease in agricultural land has been 75 hectares/year. In 30 years (1980-2010) the increase in a built-up area is 3819 hectares i.e., 9438 acres. The average per year increase over 30 years was 315 acres per year (1.2 sq. km /year). The average per year increase in built-up area was 42 ha/year during 1980-92 which has increased to 238 ha/year during 2005-2010 (Bhalli, M. N. 2012).

The city was founded in 1895 primarily to serve as a market for agricultural produce of the area and it acted as such till 1951 when the industrial economy made its beginning in this town. Now it has emerged into one of the biggest industrial cities of Pakistan. This change in its economy has considerably increased its population. The city population according to the 1961 Census has increased from 179,244 persons (1951) to 425,248 persons (1961) showing an increase of 138% during the decade. Ever since its establishment the city continue to grow in physical structure gradually but after 1947 it grew very rapidly because of changes in its economic structure from agriculture to industrial economy. It can be observed from the map that major growth of the city has taken place in the post-1947 period and the trend of growth in this period has largely been in the direction of North-East. After 1947 a large number of refugees migrated to the town and thus all planning provisions were jeopardized. The city grew haphazardly and there was no plan for guided development. The city could not grow to the south and eastern direction perhaps due to the obstruction of the Railway line as well as Rakh Branch Lower Chenab Canal. The growth of the city started on the southern side mainly with the launching of the People's Colony in 1954 and its Extension in 1958 and the D-type Colony in 1965. Except for these planned Govt. Schemes, the natural trend of growth mainly was towards North-west and South-west directions. The **Table 5.1** below show the launching year and area of planned Govt. Housing Schemes in Faisalabad.

Table 5-1: Launching Year and Area of the Planned Govt. Housing Schemes²⁵

| Sr. No. | Name of Housing Colony | Launching Year | Area in Acres |
|---------|---|----------------|---------------|
| 1 | Ghulam Muhammad Abad Block A, B, C, D | 1953-54 | 607 |
| 2 | Jinnah Colony (C.F.G) | 1954 | 109 |
| 3 | People's Colony Block A, B, C, D | 1954-55 | 651 |
| 4 | Ghulam Muhammad Abad Block D-Extension | 1956 | 102 |
| 5 | Saman Abad Block-B | 1957 | 231 |
| 6 | People's Colony Extension Block-A and Block-B Extension | 1958 | 325 |
| 7 | Kanak Basti D-Extension-II | 1958 | 16 |
| 8 | D-Type Colony | 1965 | 126 |
| 9 | Batala Colony (District Gurdaspur Mohajreen) | 1958 | 141 |
| 10 | Saman Abad Block-A | 1984 | |
| 11 | 3-Marla Housing Scheme Satiyana Road | 2002 | 72 |
| 12 | Ghulam Muhammad Abad Block D & E | 2006 | |
| | Total | | 2380 |

²⁵ PHATA 2019

5.2 CITY PLANNING PATTERN AND SPATIAL CHARACTERISTICS

Initially, Faisalabad was a planned Mandi Town on an area of 110 acres for a population of 20,000 persons. The design of the Town was prepared by Mr Young and it was further improved by Sir Gunga Ram, a renowned Town Planner of the time. It was laid down on a parcel of land measuring 100 acres in a square form with eight bazars radiating from the central Clock Tower (Ghanta Ghar). The design was based on the Union Jack, with eight roads radiating from a large clock tower in the centre. The eight roads developed into eight separate bazars. The fundamental motive behind the establishment of the city was to serve as a centre for the marketing of the agricultural produce of the area. Gradually the city was linked with other parts of the country through railways and roads. The development of the Rakh Branch Canal and Railway line on the southern side of the Clock Tower, and administrative buildings like Dy. Commissioner Residence, Town Hall, District Courts, Govt. High School, the Grain market, the District Jail, the Canal offices and Agricultural College (1903) on the western side of the Clock Tower, all development on the north of Railway line set the growth of the city towards north and north-west of the railway line. The railway line and Canal become a barrier for the growth of the city on the north-east and south-east of the Railway line till 1947.

All the intercity roads converge at Clock Tower and divide the city into about 10 compartments of varying sizes i.e., 5 compartments on North West of Railway line and five compartments on north-east and south-west of the Railway line. The name of these inter-city roads in Lahore-Sheikhupura-Faisalabad Road, Jaranwala Road, Satayana Road, Samundri Road, Risalewala Road, Jhang Road, Narwala Road, Panjpullian Road, Sargodha Road and Faisalabad Sangla Hill Road. The radial pattern evolved gradually over time without any planned effort. No effort was made to develop a link between intercity roads, at some distance from the centre of the town, in the form of a ring road. Had this been done timely the traffic situation of the town would have been in a much better position. A by-pass to Faisalabad had been planned but could not be executed due to a shortage of funds. Now a by-pass has been created by connecting the existing roads and partly constructing new roads but the average distance of this by-pass from the centre of the town is about 13.5 kilometres. This by-pass does not act as a ring road for the city traffic thus does not help much in facilitating the traffic within the city. Its total length is about 100 kilometres. There is a need to provide a link between inter-city roads in the form of a Ring Road, closer to the city centre, if feasible. Alternatively, links can be developed between inter-city roads that were feasible with little investment and small modifications in the design of existing roads. The city has been growing in all directions along these inter-city roads. The historical spatial growth of Faisalabad city from 1894 to 2017 is shown in **Figures 5.3 to 5.5** below. Major housing schemes launched by public sector since 1953 are shown in **Figure 5.6** below.

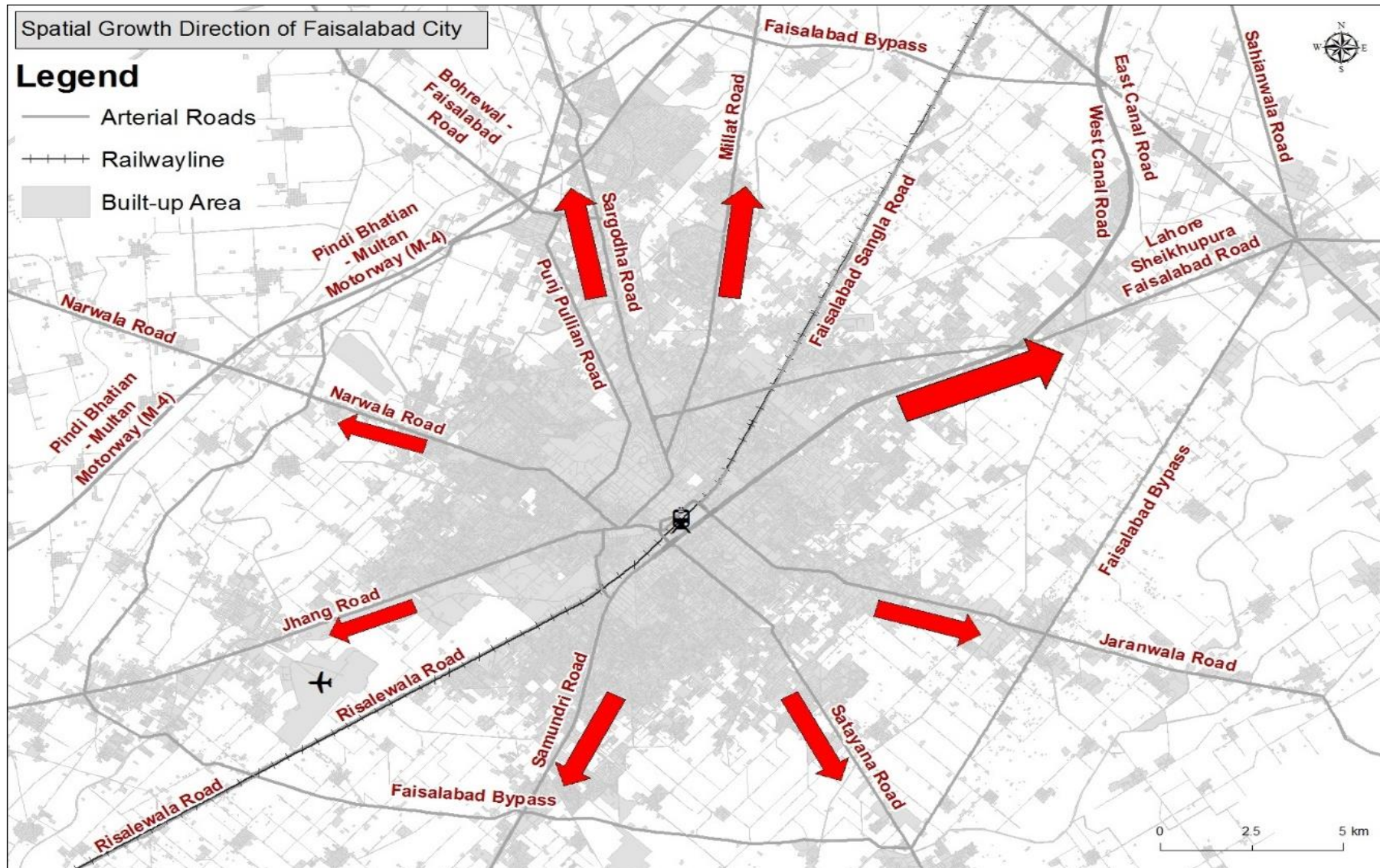


Figure 5-3: Historical Spatial Growth of Faisalabad City 1894-2017 (a)

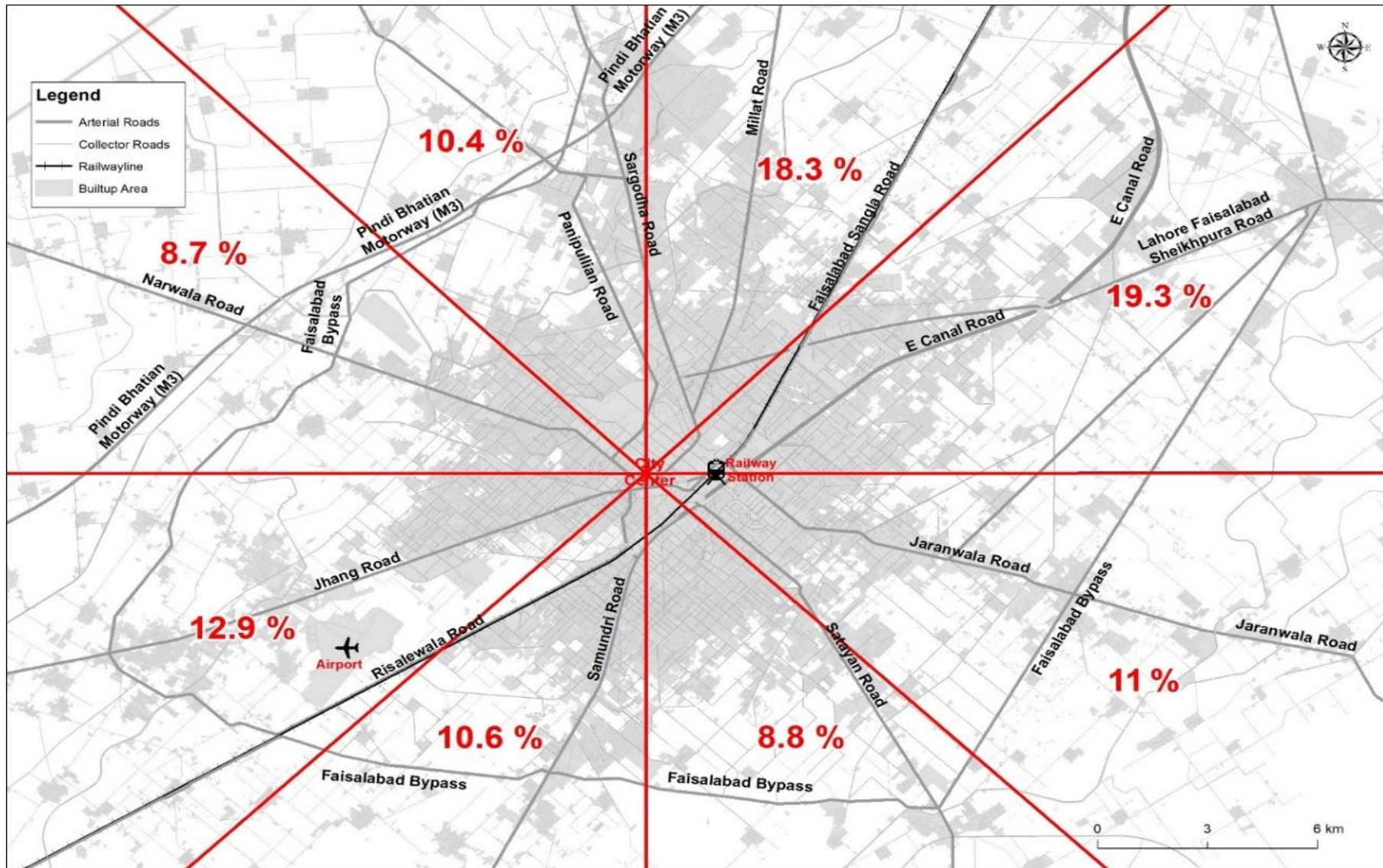


Figure 5-4: Historical Spatial Growth of Faisalabad City 1894-2017 (b)

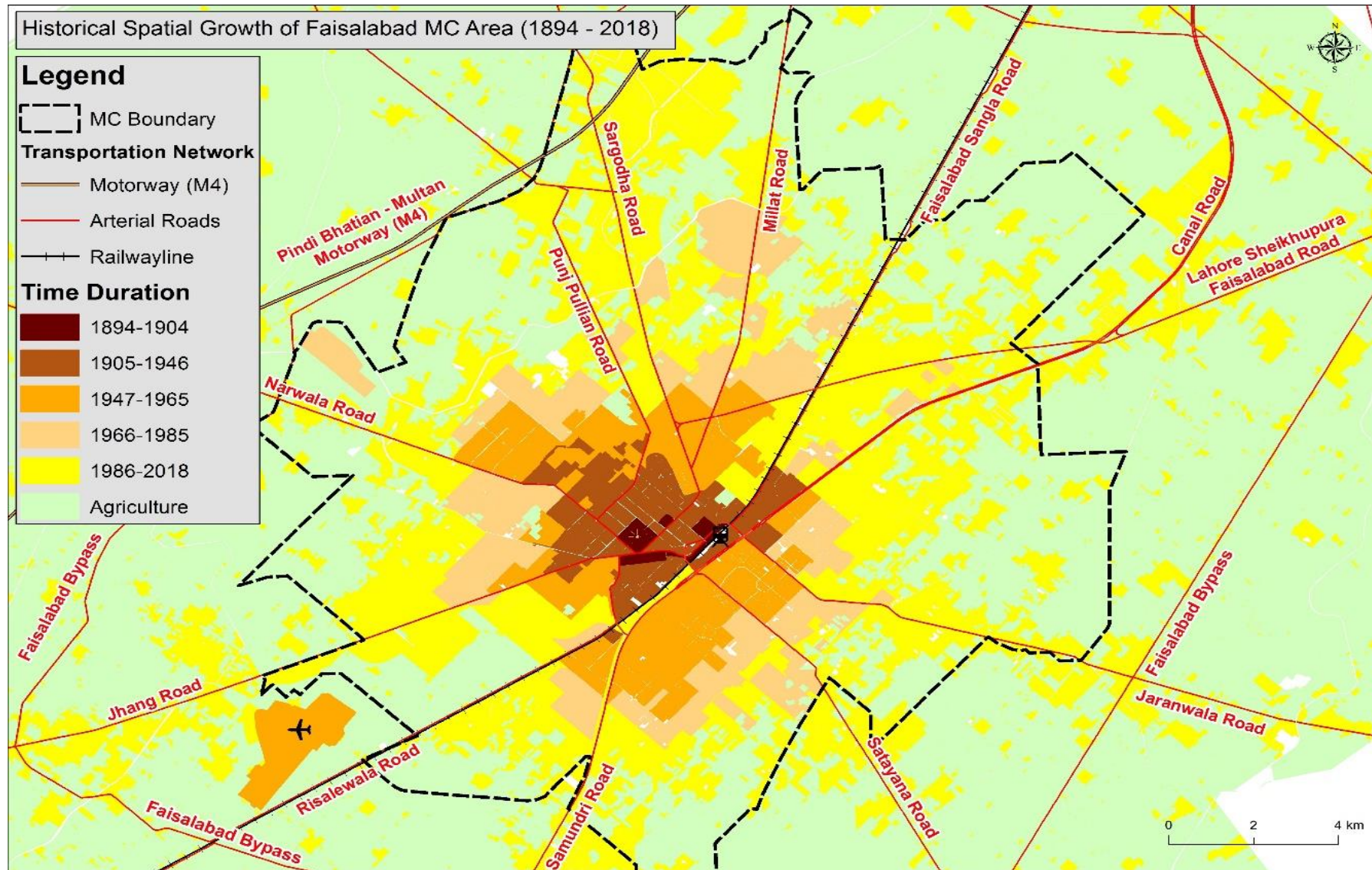


Figure 5-5: Historical Spatial Growth of Faisalabad City 1894-2017 (c)

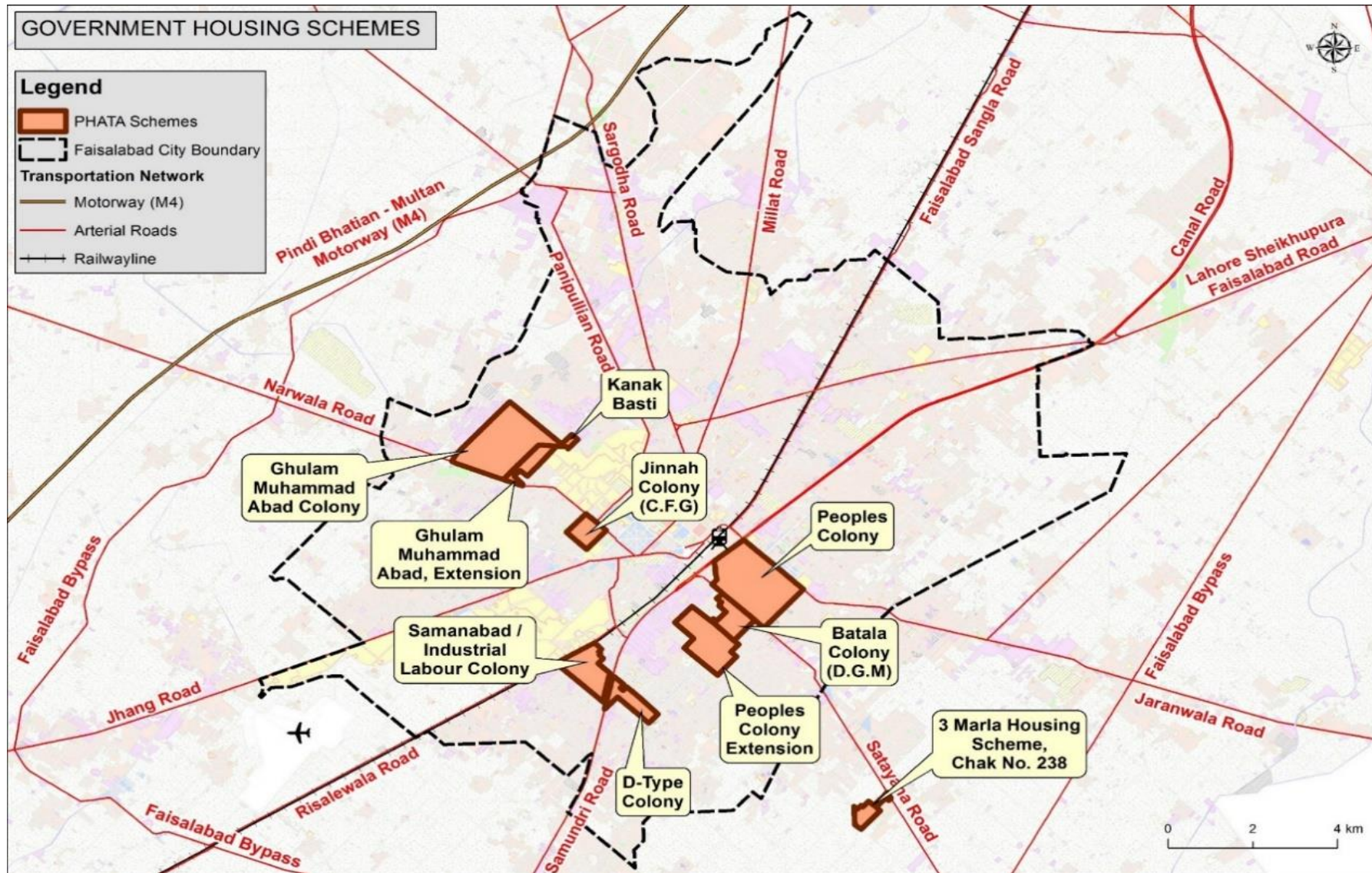


Figure 5-6: Major Housing Schemes Launched by Public Sector Since 1953

5.3 LAND USE ANALYSIS AND TEMPORAL VARIATION

As per the Land Use survey conducted in 1962 for preparation of the Master Plan for Greater Lyallpur a major part of the area within Municipal Limits was undeveloped i.e., 56% of the total area. Therefore, this area was excluded from the land use analysis and Land Use analysis was done only of the built-up area. As per the survey, 37% of the total built-up area was under residential use, the second largest user of land was education (22%), under roads, streets and railways use 20%, industries occupy 11%, and the rest of the area was under other uses. Land use analysis of 1985 is summarized in **Table 5.2** below.

Table 5-2: Land use Analysis 1985²⁶

| Sr. No. | Land Use | Area in Acres | %Age |
|---------|----------------------------|-----------------|---------------|
| 1 | Residential | 8334.4 | 45.40 |
| 2 | Commercial | 678.85 | 03.70 |
| 3 | Educational | 1925.45 | 10.49 |
| 4 | Industrial | 1462.01 | 07.96 |
| 5 | Public Buildings/Amenities | 1033.34 | 05.63 |
| 6 | Parks & Open spaces | 943.86 | 05.14 |
| 7 | Graveyard | 131.33 | 00.72 |
| 8 | Roads, Streets, Railways | 3848.32 | 20.96 |
| | Total | 18357.56 | 100.00 |

The residential area of the town has increased over 57 years from 37% of the total built-up area in 1962 to 52% of the total built-up area in 2019. Similarly, the commercial share in the total built-up area has increased from 2.7% in 1962 to 3.46% in 2019. In the same period, the percentage of educational use has reduced from 22% in 1962 to about 9% in 2019. The industrial share has reduced from 11% in 1962 to 8.67% in 2019. Parks and open spaces have also witnessed a decrease in their share from 6% in 1962 to 2.5% in 2019. It is evident from the tables below that the residential and commercial land-use outpaced the educational, industrial, and open spaces land-uses. Land use analysis of 2019 is summarized in **Table 5.4** and graphically presented in **Figures 5.7 & 5.8** below.

Table 5-3: Faisalabad City Area

| Faisalabad City Area | | | | |
|----------------------|-------------------------|----------------|--------|-------|
| Sr. No | Built-up / Non-Built-up | Land Uses | Area | |
| | | | Sq. km | % |
| 1 | Built-up | Residential | 98.0 | 34.05 |
| 2 | | Commercial | 5.6 | 1.93 |
| 3 | | Industries | 17.9 | 6.21 |
| 4 | | Institutional | 21.4 | 7.44 |
| 5 | | Transportation | 33.7 | 11.72 |

²⁶ Source: Structure Plan 1986

| | | | | |
|-------------|--------------|---------------------|-------|-------|
| 6 | | Vacant Land | 1.8 | 0.62 |
| 7 | | Parks / Open Spaces | 4.5 | 1.55 |
| 8 | | Graveyard | 2.6 | 0.89 |
| Sub Total | | | 185.3 | 64.42 |
| 9 | Non-Built-up | Water Bodies | 1.0 | 0.35 |
| 10 | | Agriculture | 101.4 | 35.23 |
| Sub Total | | | 102.4 | 35.58 |
| Grand Total | | | 287.7 | 100 |

Table 5-4: Land use Analysis 2019²⁷

| Sr. No. | Land Use | Area Sq. km | %age |
|---------|------------------------------|--------------|---------------|
| 1 | Residential | 79.6 | 52.26 |
| 2 | Commercial | 05.3 | 03.46 |
| 3 | Educational | 13.5 | 08.86 |
| 4 | Industrial | 13.2 | 08.67 |
| 5 | Public Buildings / Amenities | 05.7 | 03.74 |
| 6 | Parks & Open spaces | 03.8 | 02.50 |
| 7 | Graveyard | 02.0 | 01.33 |
| 8 | Roads, Streets, Railways | 27.7 | 18.20 |
| 9 | Vacant land | 01.5 | 00.97 |
| | Total | 152.3 | 100.00 |

²⁷ OCL 2019

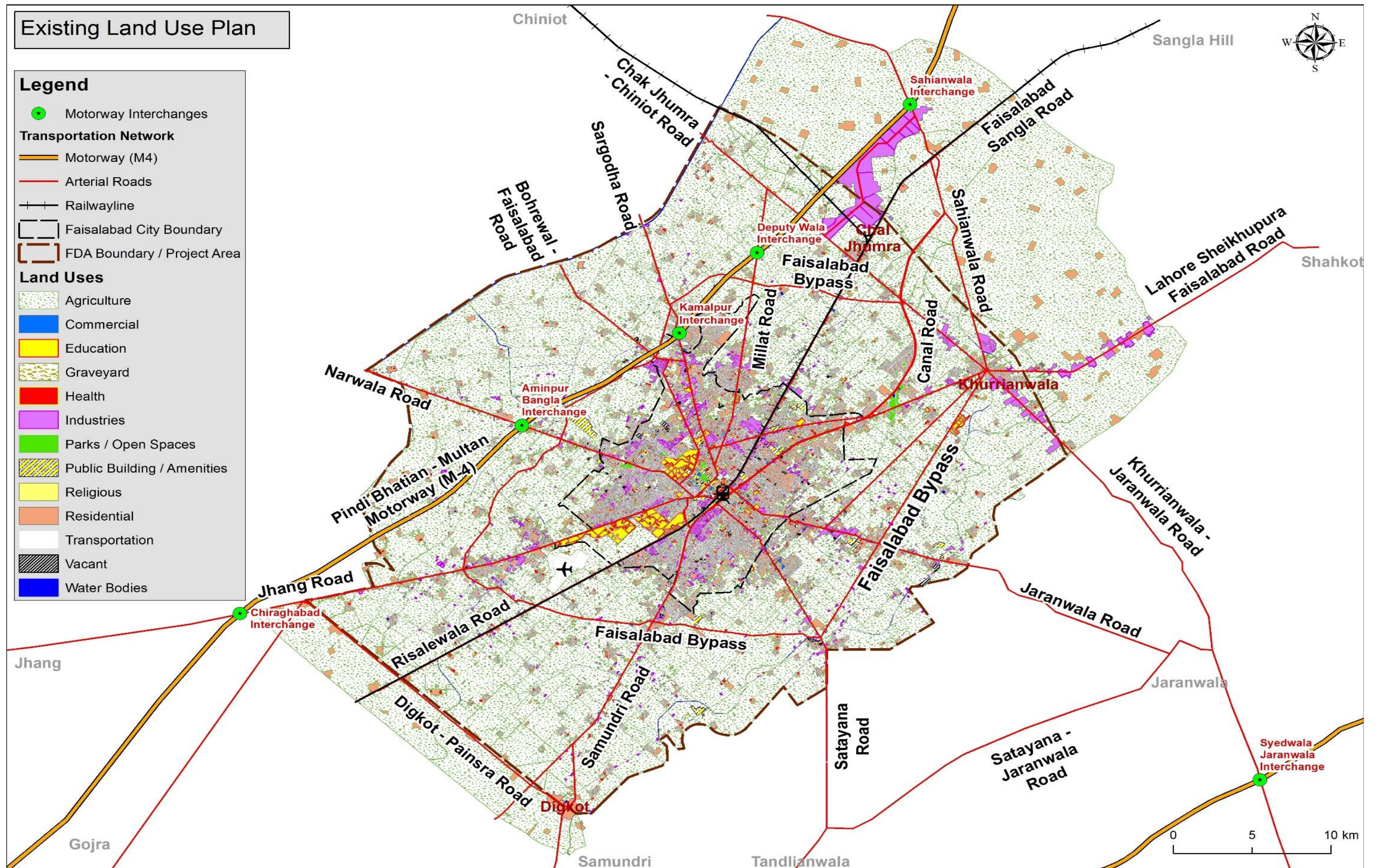


Figure 5-7: Land Use Map FDA Area 2019

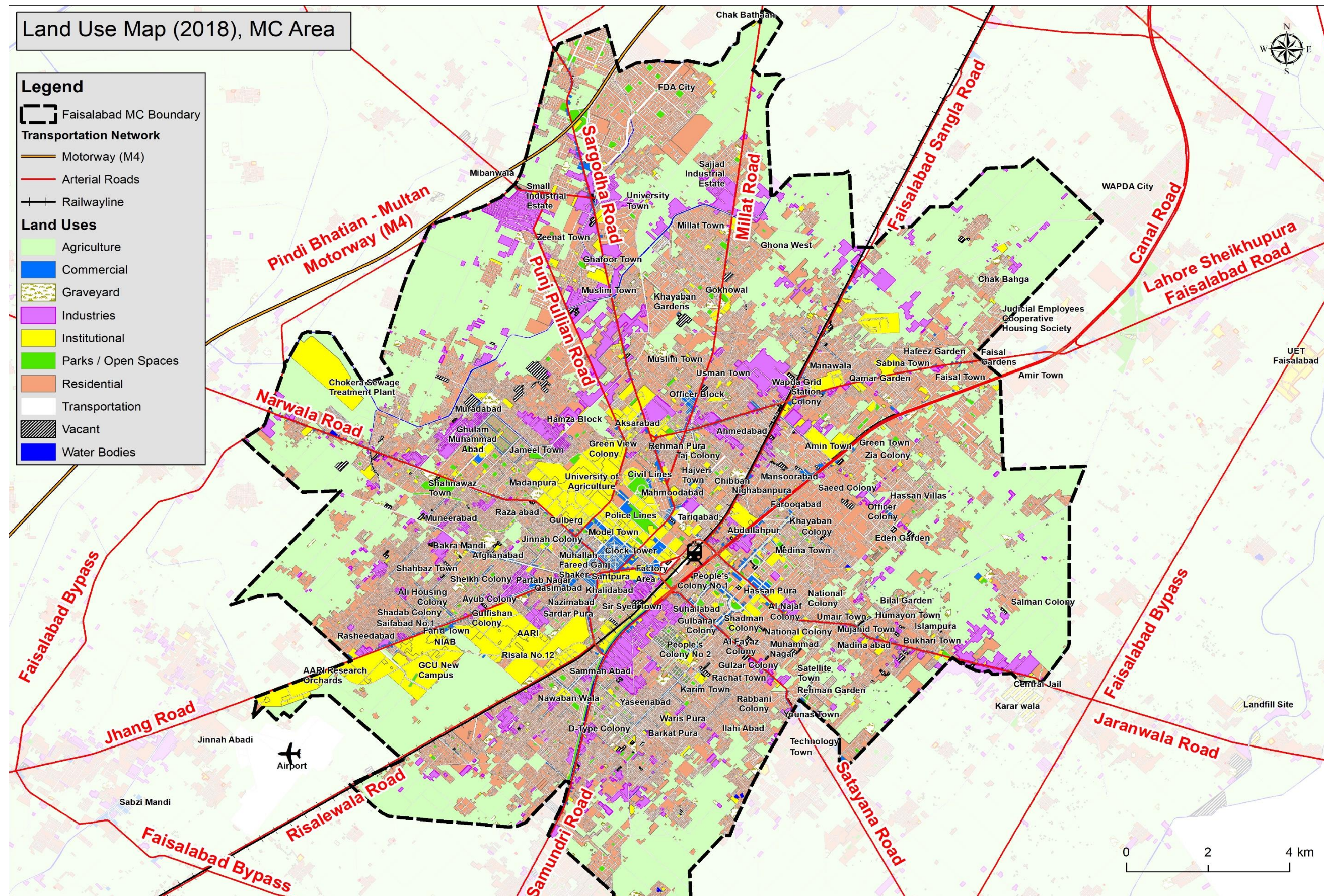


Figure 5-8: Land Use Map Faisalabad MC Area 2018

5.4 LAND USE COMPATIBILITY ANALYSIS

In the initial plan of the city, Faisalabad was designed to be a “Mandi Town” covering an area of 110 acres, the city was designed in a square shape and residential and commercial uses were mixed up with each other – shops lining the major bazars and residences in small streets. Functions like administration, education, industry and transportation were situated around the commercial and residential part of the old town. After independence, the city emerged as a major industrial-cum-commercial town. Since no comprehensive plan was available, land in the town was given for various uses without seeing its suitability for the particular use and was mostly based on expediency rather than on the principles of land development. In 1968, the first Master Plan of the city was prepared by the Town Planning Department of the West Pakistan Government. Unfortunately, it could not be implemented in letter and spirit and thus haphazard growth continued to emerge at a faster speed than before. The city keeps on growing along the arteries with large wedges of built-up mixed land use area between these arteries. The radial plan fostered the development of housing, industry and businesses along the roads/railways stretching out from the city centre. Consequently, the present-day city is a mixture of various, and quite often incompatible, land uses. Except for a few planned Govt. colonies i.e., People’s Colony, Jinnah Colony, Ghulam Muhammad Abad, etc., there has been intensive mixing up of land uses, particularly small-scale industry established within the residential areas is a source of pollution and causing a health hazard. Broadly, the built-up area of Faisalabad city is divided into two large parts due to the existing Railway line. The growth on the western side of the Railway line, comprised of one part which originates from the Clock Tower (Ghanta Ghar) and accommodates commercial and trade activities, administrative functions; Civil lines, Police lines, District Jail, educational and research institutions; Faisalabad Agricultural University, Govt. College University, NIAB, NIGBE, Transportation; Bus Terminals and Truck Addas, AirPort, Recreational; Cinemas, Parks, playgrounds and Clubs, Industrial; Large industrial establishments, Small Industries Corporation Estate, FIEDMC Industrial Estate, Power Houses, planned Residential colonies, etc. All city functions are situated in this part of the town. The second part is situated on the Eastern and Southern side of the Railway line comprises planned residential colonies; public and private, and mixed land uses i.e., industrial, commercial, educational and recreational, etc. For the overall pattern of land uses the city can be divided into the following major Zones:

1. Central Commercial Zone,
2. Administrative and Educational Buildings Zone
3. Mixed land-uses Zone
4. Planned Colonies Zone

5.4.1 Central Commercial Zone

The Central Commercial Zone is limited to the “Old City” surrounded by the Circular Road with ribbon-like extensions along the Jhang Road and a few scattered roads joining the Circular Road. The development of commercial activity within this area is due more to historical reasons rather than any planned effort. All kinds of commercial activities namely wholesale, specialized retail, large scale retail, etc. catering for the needs of the entire city as well as the surrounding rural and urban areas are concentrated in this zone. The commercial zone is shown in **Figure 5.9** below.

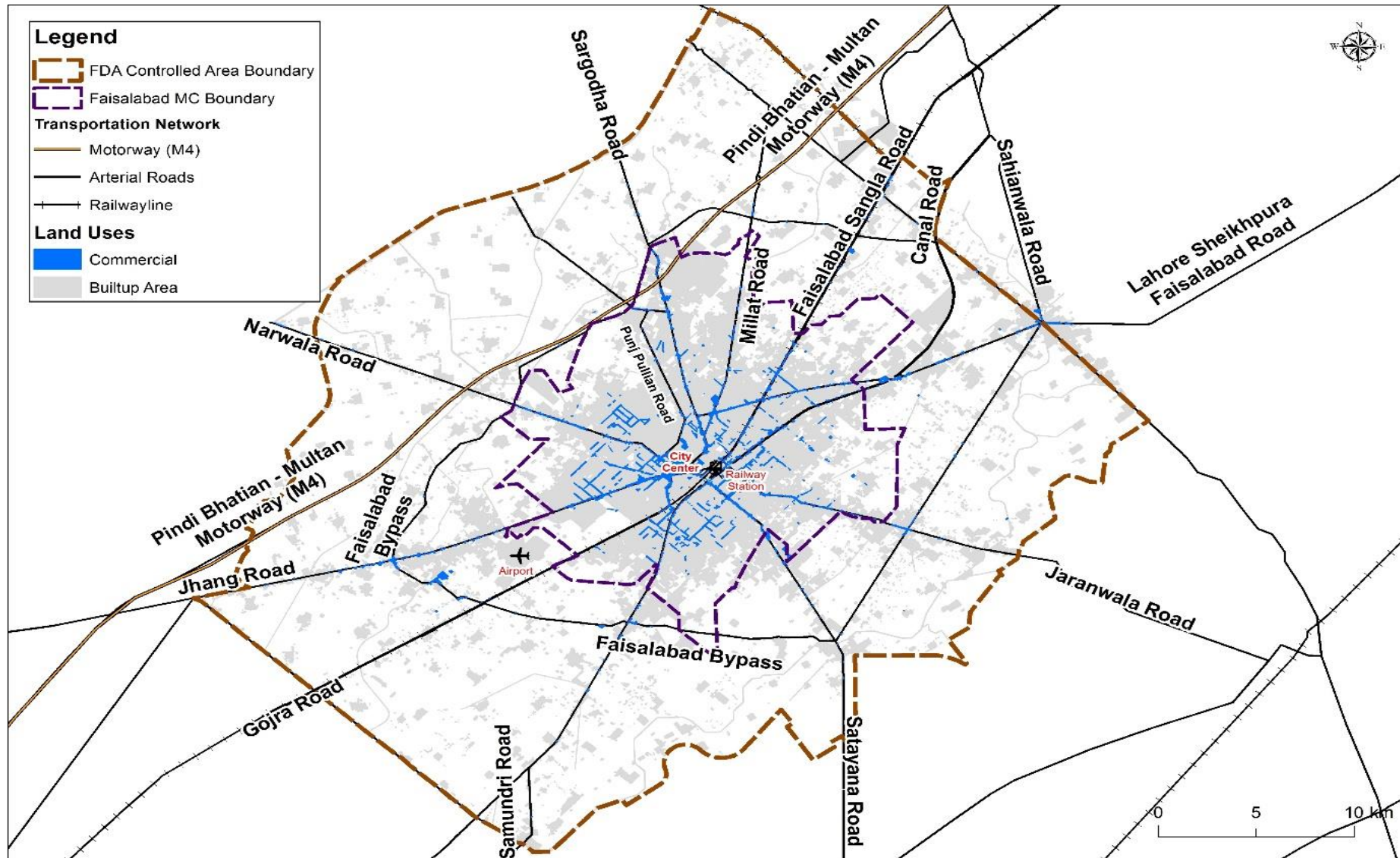


Figure 5-9: Commercial Zone

5.4.2 Administrative and Educational Buildings Zone

This zone comprises the Civil Lines area and the Agricultural University Campus. The Civil Lines area is the centre of administrative functions of the district and the region. Extended up to the Agricultural University in the east & west the area of Civil Lines and Agricultural University put together, covers a substantial part of the built-up part of the entire city. Another Educational area developed between Risalewala Road and Jhang Road comprising of Universities and Research Institutions may be made part of this Zone although disjointed due to some residential and commercial development in between. The public and educational buildings zone is shown in **Figure 5.10** below.



5.4.3 Mixed Land-Uses Zone

The large residential colonies and industrial establishments surrounding these two Zones, west of the Railway line, constitutes this Zone. This zone is bounded by the Railway line in the East, South and South West and FDA City, Small Industrial Estate, Sajjad Industrial Estate, Millat Town, Large-sized industrial development, Dry Port, etc., in the North and Sewage Treatment Plant (STP) and Airport in the West. This Zone accommodates functions like transport, industry, commerce, institutions, Govt. residential schemes, Katchi Abadies, grid station, powerhouse, and other miscellaneous uses. The only exception of any identical uses of the area is those of Industrial Estates, planned residential schemes and a few big industrial units otherwise the entire zone is a mixture of all the uses. The reason for this haphazard growth was individual pursuits of the inhabitants especially immediately after the independence.

5.4.4 Planned Colonies Zone

The large planned residential colonies i.e., People's Colony, D type colony, Lower Chenab Canal, and private housing schemes are the major land uses of this Zone along with clusters of industries within residential areas along the Railway line and major roads like Jaranwala Road, Satayana Road, Samundri Road and Risalewala Road, etc. The large public sector residential colonies have been developed in this area due to the availability of Govt. land. These lands, if left undeveloped for a longer period would have been encroached by unauthorized abadies or "Katchi Abadies". Due to the development of high-speed roads along and on both sides of the Lower Chenab Canal many private housing schemes are being developed along and on both sides of the Canal Road.

5.5 INDUSTRIAL CLUSTERS

Apart from the land use zones explained above, there are nine prominent industrial clusters in the city that have emerged over time almost along the roads (refer Figure 5.11). These industrial clusters are as under:

1. Khurrianwala
2. Millat Industrial Estate
3. Sargodha Road industrial cluster
4. Jhumra Road industrial cluster adjacent to Old Powerhouse
5. Samundri Road Foundries Cluster
6. Maqbool Road
7. Odeon Street
8. Dost Street
9. Rehman Abad
10. Ghulam Muhammad Abad (GM Abad)

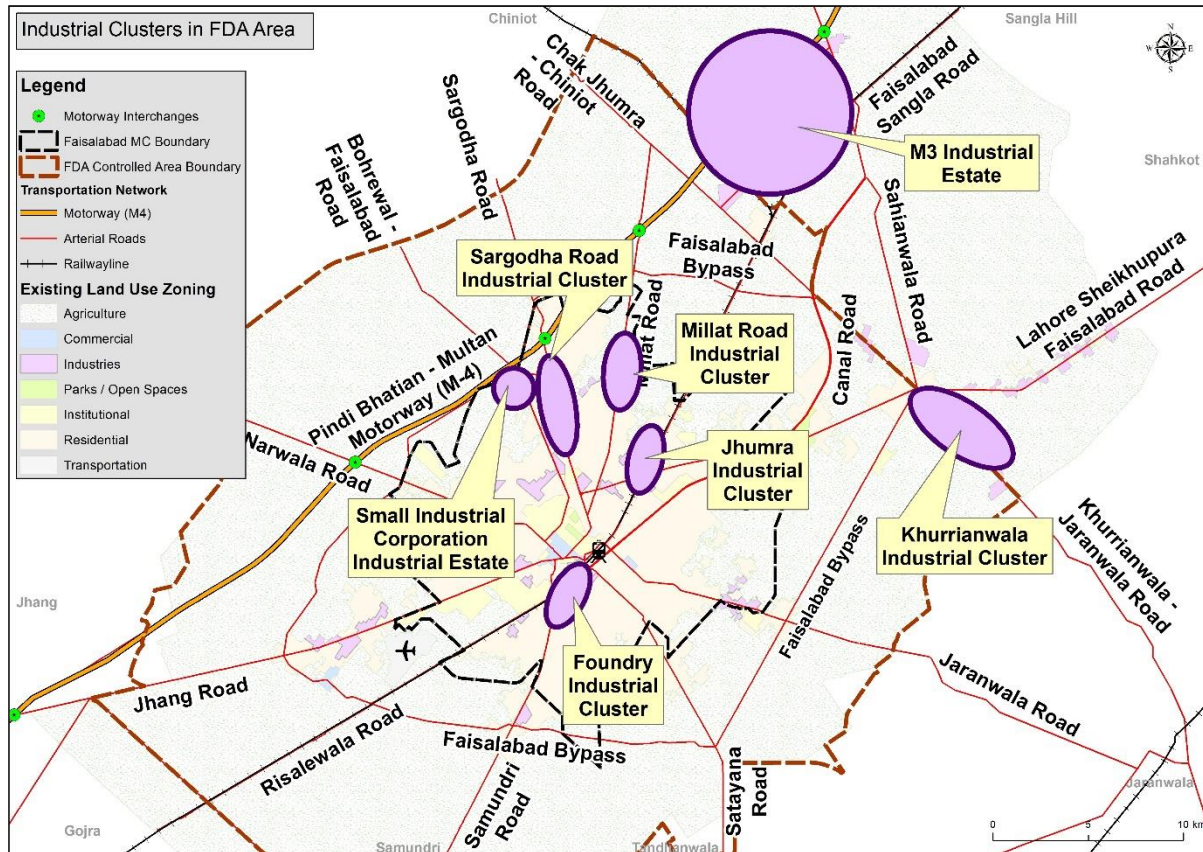


Figure 5-11: Industrial Clusters

5.6 PROPOSED SATELLITE TOWNS

To provide relief to the housing pressure on Faisalabad City. The immediate impacts of satellite town formation and the primary advantages would be at least partial decongestion of the central city and a rise in property valuations in the satellite town. The appreciation rate would depend on what kind of infrastructure has been put in the satellite town, and what other market drivers it features. They are cities that have been established independent of the nearby large metropolitan areas. Their growth took place before the larger suburban growth took place.

They have always existed as their separate cities. It has also been proposed that Chak Jhumra and Khurrianwala be utilized as Satellite Towns of Faisalabad. Which are smaller municipalities that are adjacent to a major city Faisalabad which is the core of a metropolitan area. Conceptually, satellite cities could be self-sufficient communities outside of their larger metropolitan areas. These two satellite towns are proposed to provide a perfect balance between the population and resources, concerning environment-friendly development. The aim is to create affordable housing for a large section of the Faisalabad city and Industrial zone.

5.6.1 Chak Jhumra Town

The area surrounding the existing built-up area of Chak Jhumra will be utilized for the following uses :

- i. Residential Use
- ii. Mixed-use Commercial
- iii. Institutional

- iv. Graveyard
- v. Industries
- vi. Special development zone
- vii. Truck stand

Chak Jhumra Residential Area

The total residential area is 14,023.3 acres. The proposed uses in residential of Chak Jhumra includes residential and institutional development, the area in the surrounding of Sahianwala village be utilized for residential purposes. It would also facilitate the industrial workers of FIEDMIC and Allama Iqbal Industrial Estate housing in this area. According to the National Reference Manual of 50 persons per acre are recommended for industrial workers. For this purpose G+3, residential building apartments have been recommended for the low-income group. The above-proposed measures would provide adequate housing for the next 20 years up to 2041 along with other development. Chak Jhumra Town have the potential to expand on all side and also have good connectivity with the surrounding towns and settlements through road and railway, it has a Town Committee and a park has been proposed in between Industrial Estate and Chak Jhumra Town which would also act as a buffer between industrial and residential activities, cricket ground, hockey ground and football ground would be developed in this open space.

Landuses proposed in Chak Jhumra includes house, apartment building, parks and playgrounds, neighbourhood level shops, mosques, schools including coaching centre for academy, dispensary, indoor sports facility, community centre or club, polyclinic, parking plaza, post office, fire station, rescue and emergency service office.

Chak Jhumra Institutional Sub-Zone

An institutional sub-zone has also been provided in the industrial Zone/Town Chak Jhumra along the Railway line and FIEDMIC An area of about 125.5 acres have been proposed for the institutional sub-zone. The mixed commercial uses include multi-storey building, place of worship, parking plaza or parking site, playland, marriage hall, hotel or motel, petrol or gas station, shopping mall, residential apartment, mixed-use building, departmental store, offices, car showroom, boutique or beauty parlour, restaurants, bakery, logistics office, gymnasium, fitness centre, wholesale market area etc.

Chak Jhumra Open Spaces & Recreational Sub-Zone

An area measuring about 498.7 acres has been proposed for recreational activities and a big park. An artificial lake would be developed in the Park to provide boating and water sports facilities. A swimming pool would also be developed within this park on a commercial basis. Sports Complex, Cricket Ground, Hockey Ground, Football Ground would be developed in this park area. This park would also provide a buffer between industrial and educational activities.

Chak Jhumra Police Station

To maintain law and order in the Industrial Estate and to provide security in the Estate a Model Police Station already existed near FIEDMIC industrial estate.

Chak Jhumra Fire Brigade Services

Industrial specific Fire Brigade Station would be established in the town.

Chak Jhumra Graveyards

To accommodate the present and future graveyard needs of the industrial town it has been proposed that the existing graveyard be expanded at the present location instead of earmarking new sites for the graveyard. The exiting area of the graveyard is 58.4 acres. This expanded area of the graveyard would be planned properly on the pattern of the graveyard of Islamabad. Janazgah would also be developed within this area. A committee of the residents would be constituted to manage the graveyard. Quarters would also be constructed within this area for the gravediggers. The details of Chak Jhumra land use are shown in **Table 5.4** and **Figure 5.12** below.

Table 5-5: Chak Jhumra Land use

| Chak Jhumra Industrial Estate | |
|--|----------------|
| Land Use | Areas (Acres) |
| Residential | 14023.3 |
| Graveyard | 58.4 |
| Industries | 3400.4 |
| Institutional | 125.5 |
| Mixed-use Commercial | 773.7 |
| Open spaces | 498.7 |
| Special development and Small/Medium Enterprises | 2243.1 |
| Truck stand | 21.8 |
| Total | 21144.9 |

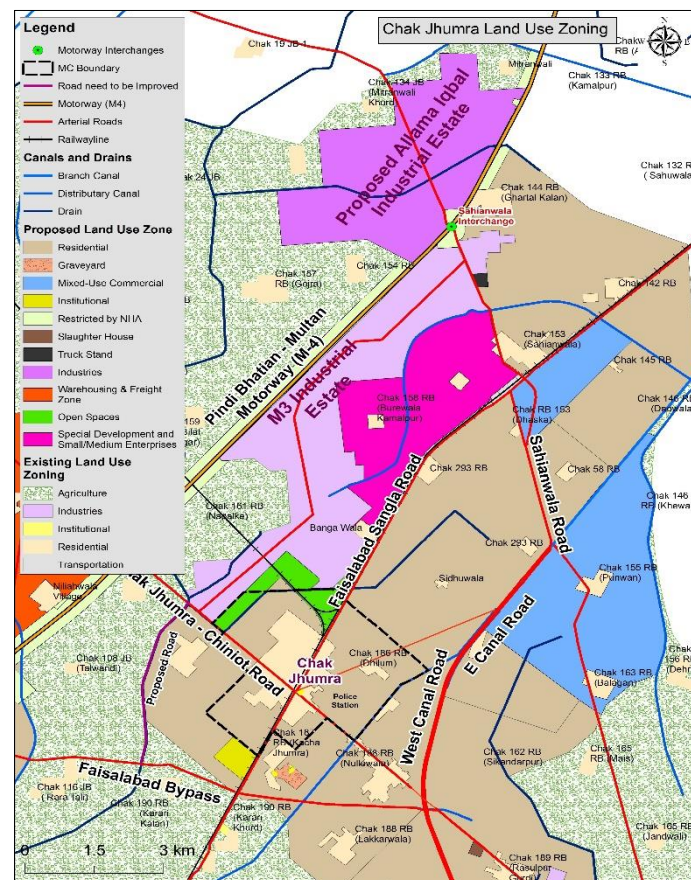


Figure 5-12: Chak Jhumra Land Use Zoning

5.6.2 Khurrianwala Town

To meet the residential requirements of the present and future population in the industrial zone, expansion of the town has been proposed on the western side of the existing town along Lahore-Sheikhupura-Faisalabad Road, Approx. area of the expansion is 22487.7 acres, this would also accommodate the residential requirements of industrial workers, and the development of residential area close to the industry/workplace not only reduce the traffic on roads but also save energy and time for the workforce.

Khurrianwala town also increases the productivity of the labour force, the commercial, educational, health and recreational facilities would be planned in this residential area while preparing the detailed layout plan.

Khurrianwala Commercial Sub-Zone

An area of 3826.2 acres has been earmarked for mixed-use high-rise residential-cum-commercial development on Faisalabad Bypass. This commercial sub-zone would also accommodate wedding halls, restaurants, hotels, condominium complexes and high-rise apartment buildings. The map showing the proposed land use for Khurrianwala Satellite Town is shown in **Figure 5.13** below.

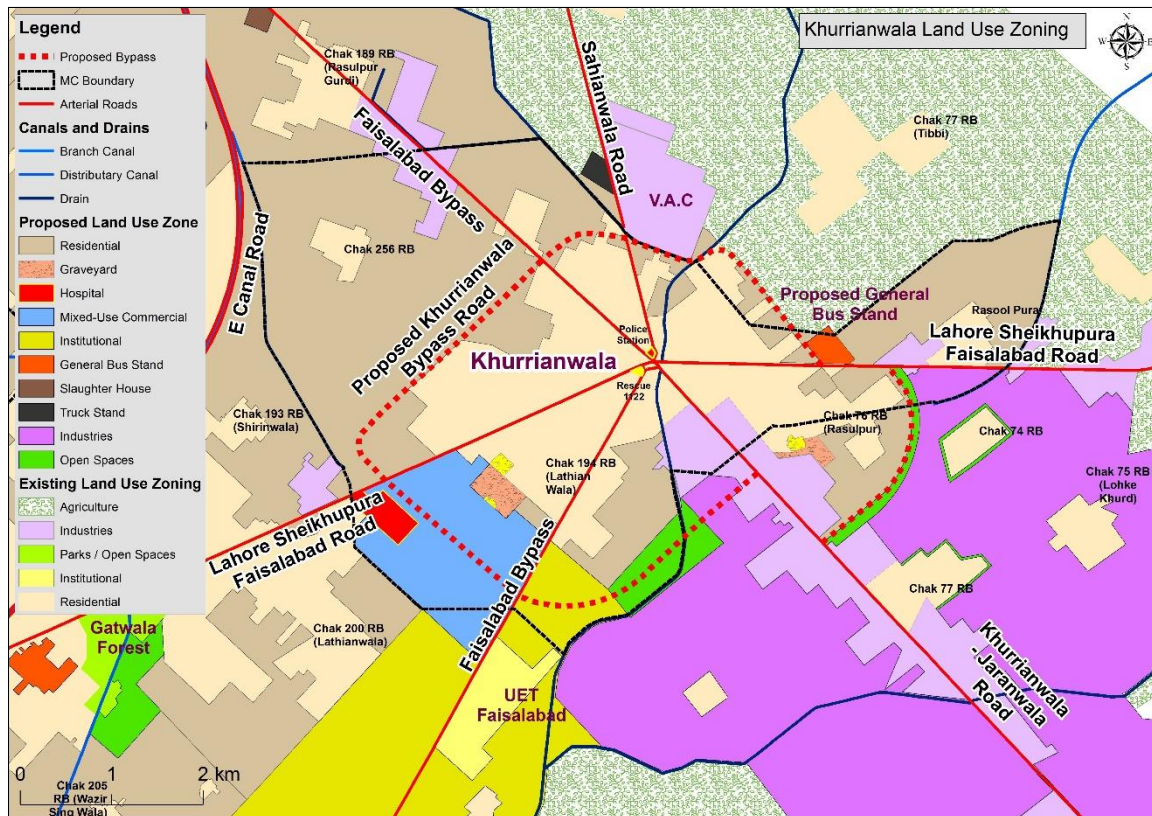


Figure 5-13: Proposed Land-Use for Khurrianwala Satellite Town

Khurrianwala Institutional Sub-Zone

Educational sub-zone has also been provided in the Khurrianwala industrial Zone/Town along Faisalabad Bypass in the surrounding of the existing UET Faisalabad campus. An area of about 2915.7 acres has been proposed for the educational sub-zone. This area would not only accommodate the expansion of UET, Faisalabad but would also accommodate new universities and higher education and research institutions for the next 20-25 years. Khurrianwala Bypass pass-through this educational sub-zone which increase its accessibility with the surrounding areas.

Khurrianwala Open Spaces & Recreational Sub-Zone

An area measuring about 381.6 acres has been proposed for recreational activities and a big park. An artificial lake would be developed in the Park to provide boating and water sports facilities. A swimming pool would also be developed within this park on a commercial basis. Sports Complex, Cricket Ground, Hockey Ground, Football Ground would be developed in this park area. This park would also provide a buffer between industrial and educational activities.

Khurrianwala Police Station

To maintain law and order in the Industrial Estate and to provide security in the Estate a Model Police Station would also be established on Lahore-Sheikhupura-Faisalabad Road.

Khurrianwala Fire Brigade Services

Industrial specific Fire Brigade Station would be established in the town at the junction of Faisalabad Bypass with Khurrianwala Jaranwala Road.

Khurrianwala Graveyards

To accommodate the present and future graveyard needs of the industrial town it has been proposed that the two existing graveyards be expanded at the present location instead of earmarking new sites for the graveyards. The exiting area of graveyard No. 1 is 6.2 acres and graveyard No. 2 is 10.6 acres. The proposed expansion of the existing graveyards No. 1 is 25 acres and graveyard No. 2 is 42 acres. The total expanded area of two graveyards becomes 67.2 acres. This expanded area of graveyards would be planned properly on the pattern of the graveyard of Islamabad. Janazgah would also be developed within this area. A committee of the residents would be constituted to manage the graveyards. Quarters would also be constructed within this area for the gravediggers. The land use analysis of proposed Khurrianwala Industrial Estate is shown in **Table 5.5** below.

Table 5-6: Land use Analysis of Proposed Khurrianwala Industrial Estate

| Khurrianwala Industrial Estate | | |
|--------------------------------|--------------|----------|
| Land Use | Area (Acres) | |
| | Existing | Proposed |
| Residential | 2123 | 8286.7 |
| Housing Neighborhoods | | |
| Apartments | | |
| Mixed Used Commercial | | 3826.6 |
| High Rise Commercial | | 255 |
| Wedding Halls | | |
| Industries | 1395 | 6172.1 |
| Institutional | | 2915.7 |
| Schools | | |
| Colleges | | |
| Universities | 208 (UET) | |
| Vocational Training Institutes | | |
| IT Software Development Park | | 714.9 |
| Hospital | | 51.4 |
| Fire Brigade 1122 | 1.8 | |
| Police Station | 1.6 | |
| Open Spaces and Parks | | 381.6 |
| Recreational Park | | 80 |
| Industrial Exhibition Ground | | 20 |
| Sports Complex | | 20 |
| Cricket Ground | | 10 |
| Hockey Ground | | 10 |
| Football Ground | | 10 |

| | | |
|-------------------------------------|--------|---------|
| Swimming Pool | | 8 |
| Khurrianwala Bypass (ROW 100 ft) | | 111 |
| General Bus Stand | | 31 |
| Truck Stand | | 22 |
| Slaughter House | | 18.9 |
| Graveyards | | |
| Existing area Graveyard No. 1 and 2 | | |
| Proposed Expansion Graveyard No. 1 | 16.8 | 25 |
| Proposed Expansion Graveyard No. 2 | | 42.2 |
| Total | 3746.2 | 16105.2 |

5.7 PROPOSED HOUSING SCHEMES ON A PRIORITY BASIS

The proposed housing of Faisalabad city was undertaken as a priority project but the timeline of the projects is tentative and is flexible which can be changed depending upon the availability of funds and policy of the government. Similarly, the priority can also be modified depending upon the availability of funds and the policy of the government. In the first instance, after initial consultation within FDA on housing proposed projects consultation would be made with the concerned departments individually with the consent of FDA like District Health Authority (DHA), Faisalabad Waste Management Company (FWMC), Faisalabad Municipal Corporation, WASA Faisalabad, Faisalabad Electric Supply Company (FESCO), Parks and Horticulture Authority (PHA), Faisalabad, Shehar-e-Khamoshan Authority, etc. The number of departments may be reviewed in consultation with FDA. The tentative location of these projects may also be finalized after consultation with the concerned departments, and after the information of availability of State land is received. Table 5.6 below shows the proposed housing scheme on priority basis for Faisalabad district.

Table 5-7: Proposed Housing Scheme on Priority basis for Faisalabad District

| Sr. No. | Project | Timeline Ranking | | | Priority Ranking | | | Estimated Cost |
|---------|---------------------------------------|------------------|-----------|------|------------------|--------|-----|----------------|
| | | Short Term | Long Term | Both | High | Medium | Low | Rs. In million |
| 1 | 5 Million Housing Project | ✓ | | | ✓ | | | 500 |
| 2 | Low-Income Housing Projects / Schemes | ✓ | | | ✓ | | | 500 |

5.8 FINAL ZONING MAP AT FDA LEVEL

Land use analysis shows that most of the development of the city comprises along all arterial roads of the city. Residential and Industrial areas are developed in scattered chunks throughout the whole city which is seen by the map. Major land-use classes have been considered to be accommodated in the Zoning Plan;

Different zones have been designated to accommodate residential component on basis of existing residential zones with all ancillary components such as open spaces, public uses and commercial district which is strictly desired to be located in a zonal hub. Industrial land uses are proposed to be placed on Satiyana Road near Bypass.

FDA will identify, acquire, develop and maintain zonal parks through PHA whereas neighbourhood parks shall be provided by the prospective developers through Site Development/Neighborhood Design Regulations in due course of development.

Each zone shall have a zonal park in addition to local neighbourhood parks and it is suggested that this zonal park should be at least 25% of the total open space planned for the zone and the rest 75% distributed among neighbourhood level parks.

Each zone shall have a zonal commercial hub/district having 5% area of the zone and FDA shall identify, conserve, acquire and develop these zonal commercial areas and shall be sold in the shape of commercial lots in future. Rest 3% area shall be distributed as neighbourhood commercial centres/shops and shopping areas.

Public buildings and institutions Spaces to be reserved as 5-10% variably and distributed in the zone as per zone planning and locational standard guidelines. Land use area distribution details by different sectors are summarized in **Tables 5.7 & 5.8** below.

Table 5-8: Land use Area Distribution by Different Sectors

| Sr. No | Land Use | Area (Acres) | % |
|--------|---------------------------|------------------|-------------|
| 1. | Residential | 82,776.9 | 59% |
| 2. | Commercial | 589.4 | 0.42% |
| 3. | Industrial | 25,448.8 | 18% |
| 4. | Institutional | 16,956.4 | 12% |
| 5. | Mixed use | 5,029.7 | 4% |
| 6. | Open space & Recreational | 8,165 | 6% |
| 7. | Special Development zone | 2,243.1 | 2% |
| | Total | 141,209.1 | 100% |

Table 5-9: Proposed Land use Areas – Option 6

| Sr. No | Proposed Land Uses | Option-6 |
|--------|--|------------------|
| | | Area (Acre) |
| 1. | Agriculture Research | 1,007.5 |
| 2. | AirPort (existing & Proposed) | 2,820.3 |
| 3. | Cold Storage and Warehouse | 18.3 |
| 4. | Cultural & Sports Zone | 2,046.3 |
| 5. | Dry Port Extension | 66.2 |
| 6. | Expo/Exhibition Center & Education Zone | 2,737.5 |
| 7. | General Bus Stand | 167.9 |
| 8. | Graveyard | 1,238.5 |
| 9. | Hospital | 519.7 |
| 10. | Hotel/Tourism & Residential | 2,263.3 |
| 11. | Industries | 16,665.3 |
| 12. | Institutional | 6,560.3 |
| 13. | IT Software Development Park | 714.9 |
| 14. | Landfill Site | 460.7 |
| 15. | Mixed-Use Commercial | 5,029.7 |
| 16. | Oil Depot Extension | 126.4 |
| 17. | Open Spaces | 1,543.5 |
| 18. | Recreational | 2,311.9 |
| 19. | Residential | 81,538.4 |
| 20. | Restricted by NHA | 5,497.2 |
| 21. | Sewerage Treatment Plant | 907.6 |
| 22. | Slaughter House | 69.7 |
| 23. | Special Development and Small/Medium Enterprises | 2,243.1 |
| 24. | Truck Stand | 122.1 |
| 25. | Warehousing & Freight Zone | 4,533 |
| | Total Area | 141,209.1 |

The Proposed Land Use Plan is attached in Appendix A. Three A0 size copies of the Plan duly stamped and signed have also been submitted separately.

6. TRAFFIC AND TRANSPORTATION

6.1 GENERAL

An efficient transportation system is essential for the movement of people and goods from one place to another. The Faisalabad district is bounded in the North by Sargodha and Hafizabad districts, in East by Nankana Sahib, Sheikhupura, Kasur and Lahore districts, in the South by Okara, Sahiwal and Toba Tek Singh districts and in the West by Jhang district as shown in **Figure 6.1** below. National Highways Network provides inter and intra provincial connectivity to Faisalabad. Faisalabad is well connected with surrounding districts through National Highways Network. The Motorway M-3 in the north-east connects the Lahore District with Faisalabad, there is another dual carriageway link that exist between Lahore and Faisalabad known as Lahore Sheikhupura Grand Trunk Road (G. T. Road). In the south the Motorway M4 connects Faisalabad to Multan. Whereas the district roads provide connectivity within the district and surrounding villages and towns.

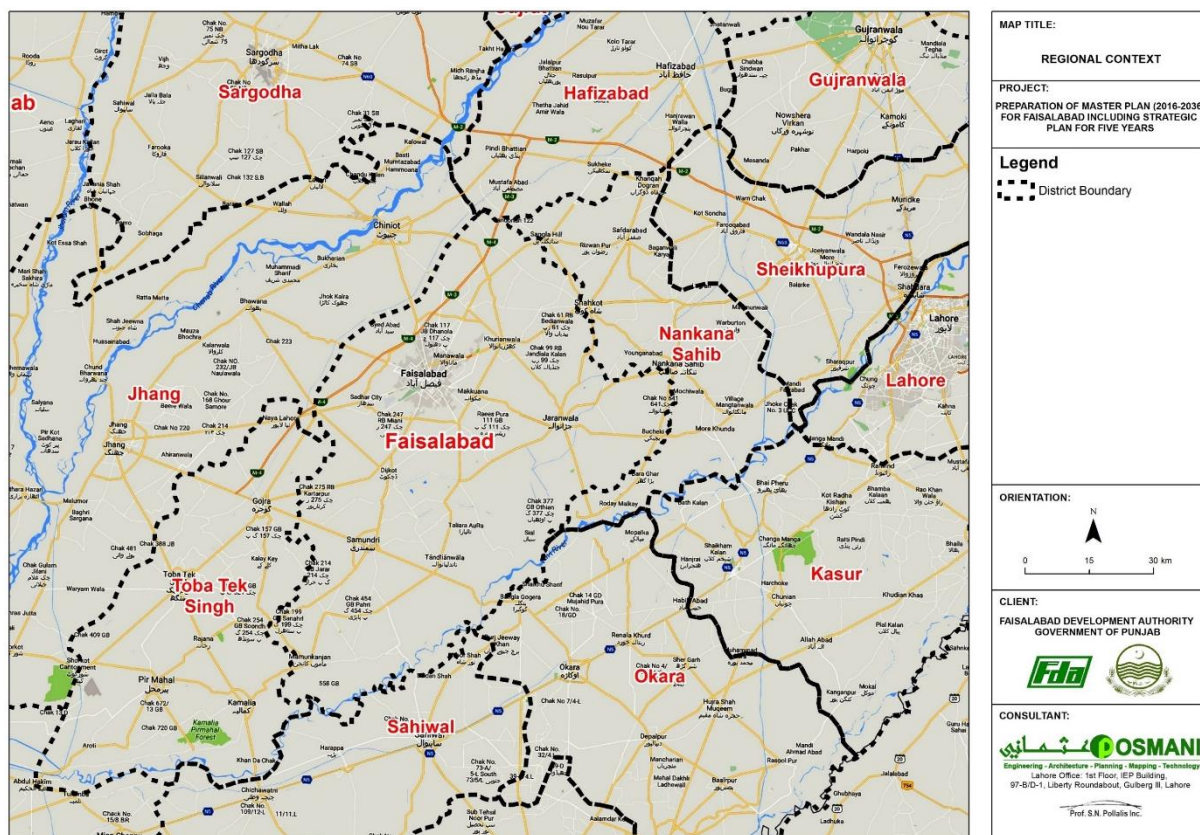


Figure 6-1: Location Map of Faisalabad and Road Network

6.1.1 History of Transport Network Development

Initially, Faisalabad was a planned Mandi Town on an area of 110 acres for a population of 20,000 persons. It was laid down on a parcel of land in a radial pattern with eight bazars and corresponding roads radiating from the central Clock Tower (Ghanta Ghar). The eight roads developed into eight separate bazars. The fundamental motive behind the establishment of the city was to serve as a centre for the marketing of the agricultural produce of the area. Gradually the city was linked with other parts of the country through railways and roads. The development of the Rakh Branch Canal and Railway line on the southern side of the Clock Tower, and administrative buildings like Dy. Commissioner Residence, Town Hall, District Courts, Govt. High School, the Grain market, the District Jail, the Canal offices and Agricultural College (1903) on the western side of the Clock Tower, all development on the north of

Railway line set the growth of the city towards north and north-west of the railway line. The railway line and Canal become a barrier for the growth of the city on the northeast and south-east of the Railway line till 1947.

All the intercity roads converge at Clock Tower and divide the city into about 10 compartments of varying sizes i.e., 5 compartments on the north-west of the Railway line and five compartments on the northeast and south-west of the Railway line. The names of these inter-city roads are:

1. Lahore-Sheikhupura-Faisalabad Road
2. Jaranwala Road
3. Satyana Road
4. Samundri Road
5. Risalewala Road
6. Jhang Road
7. Narwala Road
8. Panjpullian Road
9. Sargodha Road, and
10. Faisalabad Sangla Hill Road.

The radial pattern evolved gradually over time without any planned effort. No effort was made to develop the link between intercity roads, at some distance from the centre of the town, in the form of a ring road. A by-pass has been created by connecting the existing roads and partly constructing new roads but the average distance of this by-pass from the centre of the town is about 13.5 kilometres. Its total length is about 100 kilometres. The city has been growing in all directions along these inter-city roads as depicted in the **Figure 6.2** below.

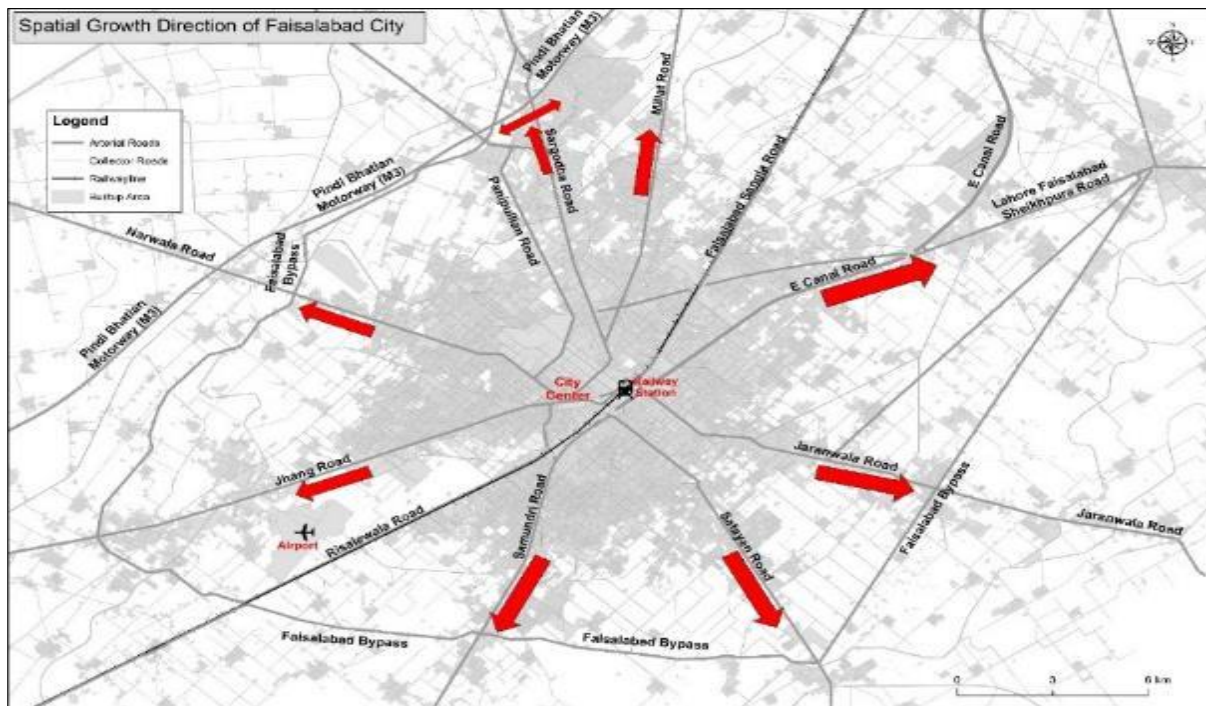


Figure 6-2: Historical Spatial Growth of Faisalabad City 1894-2017

6.1.2 Analyses of Traffic Issues

Originally the city was laid out in square form with eight bazars radiating from the Central Clock Tower to act as a focal point for inflow traffic. These radiating roads merged with the road running along the perimeter called Circular Road, which also rings the eight bazars. Commercial activities were located in front of each Bazar while other activities such as

residential, religious, education etc., were sited between these bazars. Due to pressure of business activities, the invasion-succession process took place and increased commercial activities invaded residential land use resulting in traffic congestion on streets meant to serve residential areas. The central area is now overcrowded with traffic and it is difficult to find parking space in this area. The uncontrolled physical growth of the city facilitated an irregular road system to some extent in radial form without any ring or loop road to link these diversified roads and as a result of these developments coupled with industrial growth within residential areas the objectives of a good circulation system like comfort, convenience, safety, etc., has been compromised. The surrounding settlements are now being served by inadequate and irregular patterns of roads. Traffic issues, typical to any city in Pakistan, are the following:

- Encroachment on roads
- Problems with Intersections/Junctions
- Non-motorized Traffic Hazards
- The nuisance of Billboards
- Encroachment along Railway Line
- Lack of Parking in Eight Bazaar Area
- Traffic Congestion:
- Absence of Public Transport Policy:
- Improper Institutional Coordination:
- Lack of professionally qualified and trained human resources
- Lack of Mass Transit System:
- Lack of Implementation of Traffic Safety Rules:
- Increase in Accidents:
- Miscellaneous Traffic Issues:

Faisalabad has an enormous intra-city and inter-city movement of persons through conventional transportation modes. Rapid population growth and increasing vehicle ownership of Faisalabad, due to its industrialized activities and as an economic hub, has made its traffic worse. Conventional transportation modes are strained under heavy demand for intercity and urban transport facilities. With intercity transport links and its geostrategic location, this situation will only get worsened in the absence of a complete overhaul of the transport infrastructure and public transport facilities.

Description and characteristics of major transport components of the city, such as Faisalabad International Airport, railway network, road network, bus terminals, warehouses and storage facilities, logistical supplies, are described in great detail in this Master Plan Sectoral study report '**Traffic and Transportation Plan of Faisalabad**'.

6.2 ROAD NETWORK OF FAISALABAD

The roads in Faisalabad may be classified as: Primary Roads, Secondary Roads and Local Roads. Primary Roads are the most important roads of the city, the major districts and other urban areas as they carry the bulk of the traffic. They include Sheikhpura Road, Sargodha Road, Jaranwala Road, Satayana Road, Samundri Road, Jhang Road, Millat Road, Narwala Road, Jhumra Road, Risalewala Road, Gutwala Road and Circular Road.

Secondary Roads provide access to major areas of the city and carry large traffic volumes. They complement the primary network providing links to destinations inside the district. They include Jail Road, Dijkot Road, Club Road, Katchery Road Civil Line, Stadium Road, University Road, Kashmir Road, Darbar Qaim Sain Road, Passport Office Road, Sir Zafar Ali Road and Susan Road.

Local Roads penetrate localities and are fed by traffic from the primary and secondary networks. They include Jinnah Colony Road, Ghalla Mandi Road, Peoples Colony Pahari Chowk towards Waris Pura Road, Tatha Bridge to Liberty Market Road, Liberty Market to Imtiaz Shaheed Road, Samanabad Road, Narwala Chowk to Latif Chowk Road, Ghulam

Muhammadabad to Qasmi Mosque Road and Tota Bazaar Fatima Jinnah Road. The road network of Faisalabad is shown in the Figure 6.3 below.

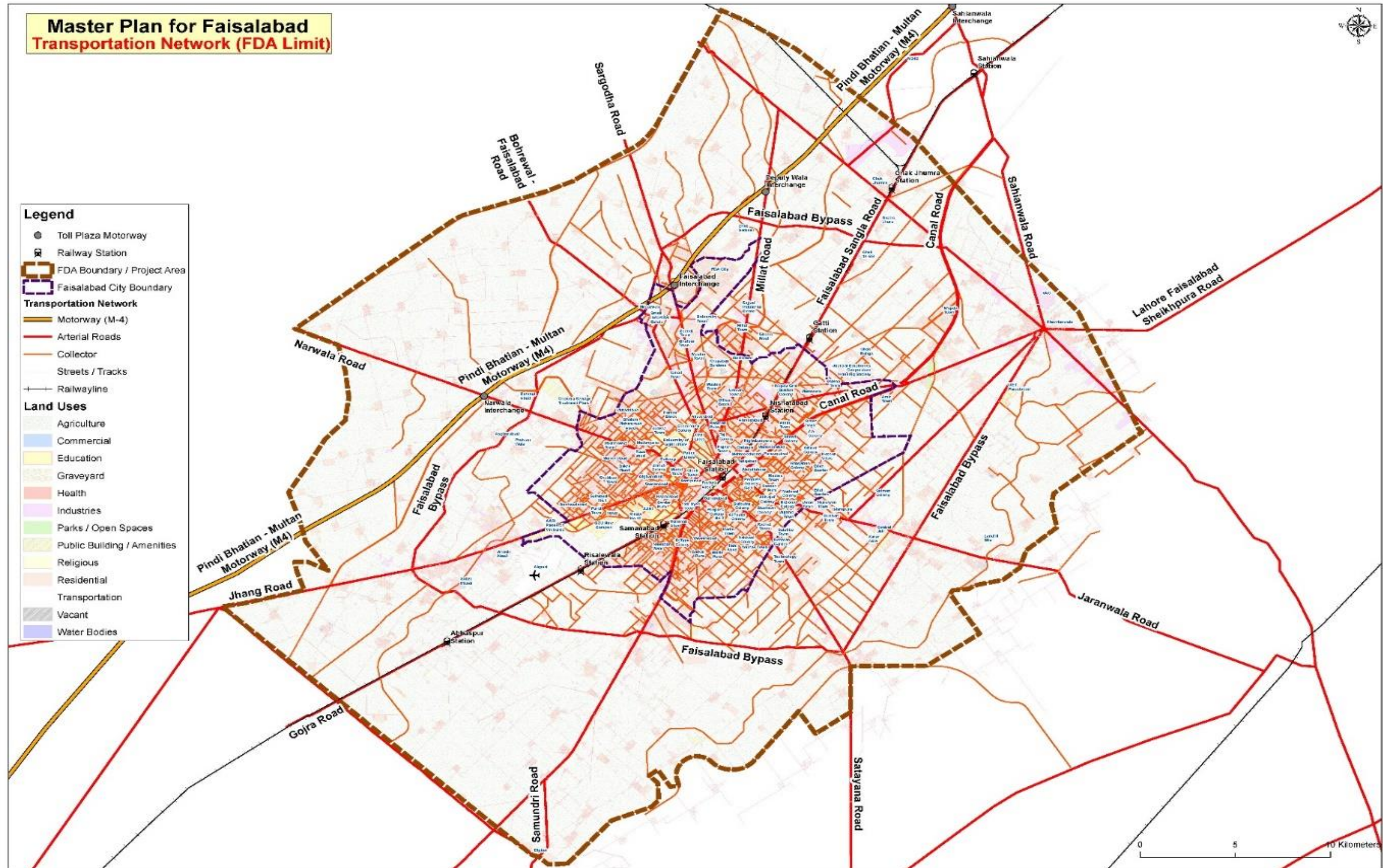


Figure 6-3: Road Network of Faisalabad

The difference is visible in the old and new parts of the City. Heavy traffic, mixed modes of transportation, narrow and encroached right-of-way (ROW) are the main characteristics. This results in traffic jams and accidents. The conditions are comparatively better at the new developments in the peripheral areas of the city.

The major roads in Faisalabad are as follows: Faisalabad Bypass, Canal Road, Lahore-Sheikhupura-Faisalabad Road, Jaranwala Road, Satayana Road, Samundri Road, Gojra Road, Jhang Road, Narwala Road, Punjpullian Road, Sargodha Road, Millat Road and Sangla Hill Road. The major intersections on above roads are: Abdullah pur Overpass, GTS Chowk, Hilal-e-Ahmer Chowk, Jhal Chowk, Minerva Cinema Chowk, Novelty Pull etc.

Detail description, characteristics, constraints of above are described in Report ***'Traffic and Transportation Plan of Faisalabad'***

6.3 ROAD TRAFFIC

To know the traffic situation, a reconnaissance survey was conducted on all entry/exit (cordon) points, major roads and intersections of the city. Traffic counts were conducted during the peak hours at selected 10 intersections during June 2018.

6.3.1 Number of Registered Vehicles

The **Table 6.1** below gives an overview of registered motor vehicles from the year 2003 till the year 2015 in Faisalabad.

Table 6-1: Number of Registered Vehicles in Faisalabad²⁸

| Year Cycle | 2003-2012 | 2004-2013 | 2005-2014 | 2006-2015 |
|--------------------------|----------------|----------------|------------------|------------------|
| Vehicle Type | | | | |
| Cars, Jeeps and Wagons | 79,005 | 80,994 | 85,714 | 86,797 |
| Motorcycles and Scooters | 61,1682 | 70,9376 | 881,098 | 946,623 |
| Trucks | 4,456 | 4,512 | 4,593 | 8,441 |
| Delivery Vans | 7,722 | 7,994 | 8,399 | 11,943 |
| Buses | 5,456 | 5,523 | 5,571 | 5,653 |
| Taxis | 1,928 | 1,928 | 1,929 | 3,245 |
| Rickshaws | 18,688 | 19,424 | 20,510 | 21,292 |
| Tractors | 28,459 | 29,317 | 30,186 | 30,476 |
| Other | 57 | 47 | 83 | 101 |
| Total | 757,453 | 859,115 | 1,038,083 | 1,114,571 |

The table above shows that the highest number of vehicles were registered between the year 2006 and year 2015 while the major contributor for the number of registered vehicles were motorcycles and scooters. The table shows an increase of almost 13% each year.

6.3.2 Motorization

Between the years 2006 and 2015, 1.1 million motorized vehicles were registered in Faisalabad District. The number of registered vehicles in Faisalabad District rapidly increased with a rate of 13% per year.

Two-wheeler patronage may shift to public transport usage with the provision of attractive public transport services and the imposition of stricter policies to two-wheelers such as a local ban on riding two-wheelers within Central Business Districts (CBDs).

6.3.3 Traffic Count on Cordon Points

Traffic counts were conducted during the peak hours at selected 10 intersections during June 2018. The traffic count surveys were conducted on major entry/exit (cordon) points of

²⁸ Source: Bureau of Statistics, Government of the Punjab, Lahore

Faisalabad during peak hours. Following were the points on which the survey was conducted; Chak Jhumra, Khurrianwala, Makuana, Millat Road Interchange, Narwala Bypass, Risalewala, Sadhar Bypass, Samundri Road, Kamalpur Interchange, Satayana Bypass and Wapda Town. The locations of these points are shown in the **Figure 6.4** below:

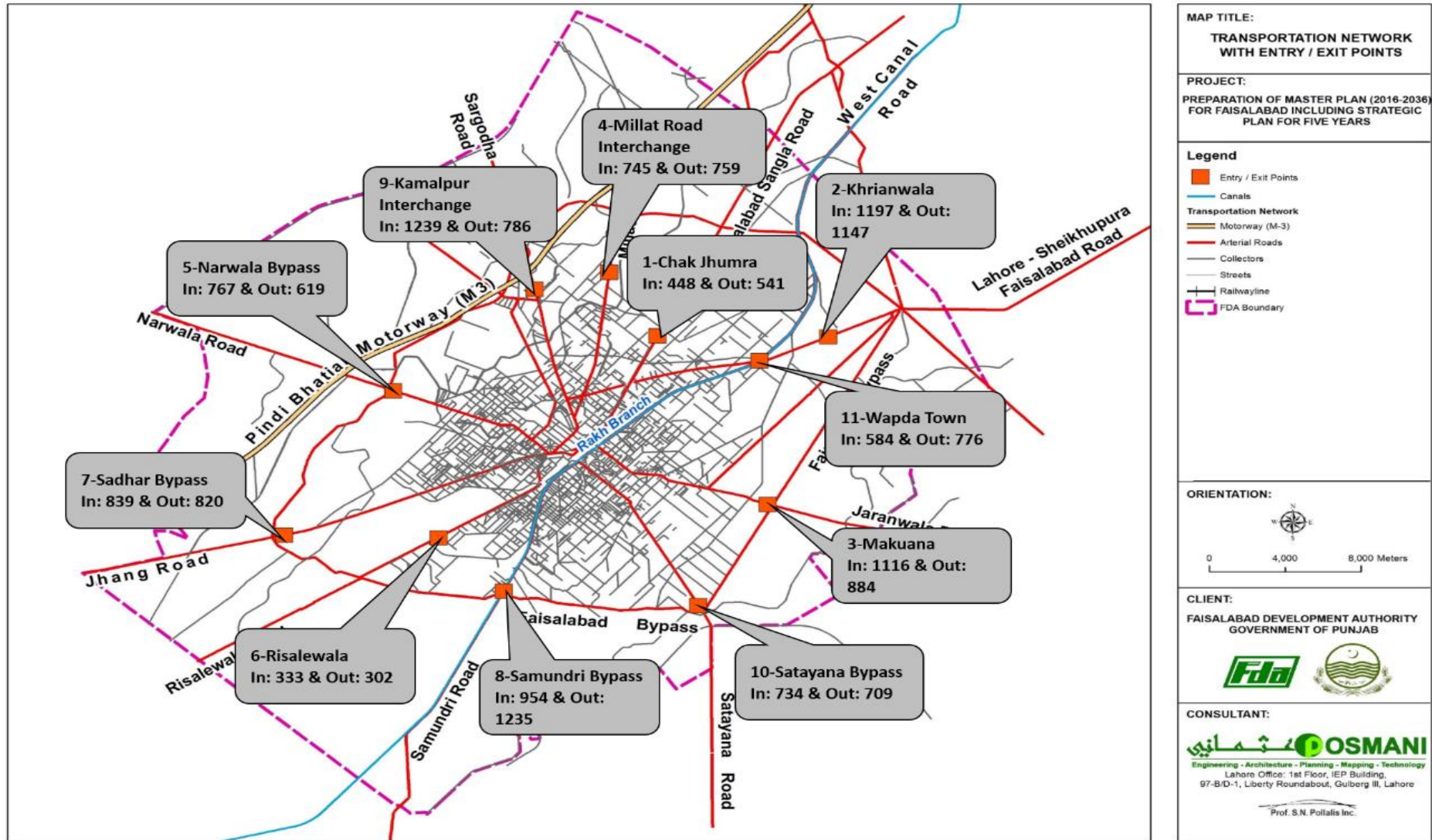


Figure 6-4: Traffic Count on Cordon Points of Faisalabad

6.3.4 Traffic Analysis and Forecasting of Major Roads

After assessing the existing traffic on major roads at cordon points, the traffic analysis and forecasting was carried out. The growth rate of 4.95% used for traffic analysis is given in Table 8-3, Page 22 Traffic Factors for Pakistan II, National Transport Research Council Report 1.

The LOS is the key factor for the estimation of road capacity for the proposed design facility. The **Table 6.2** below gives the summary of LOS in Years 2021 and 2041 for major roads in Faisalabad.

Table 6-2: LOS of Major Roads

| Road Name | LOS | |
|---------------------------------------|-----------|-----------|
| | Year 2021 | Year 2041 |
| Sangla Hill Road (Chak Jhumra) | A | B |
| Sheikhupura Road (Khurrianwala) | B | F |
| Jaranwala Road (Makuana) | A | D |
| Millat Road (Millat Road Interchange) | A | C |
| Narwala Road (Narwala Bypass) | A | B |
| Risalewala Road (Risalewala) | A | A |
| Jhang Road (Sadhar Bypass) | A | D |
| Samundri Road (Samundri Bypass) | C | F |
| Sargodha Road (Kamalpur Interchange) | A | D |
| Satayana Road (Satayana Bypass) | A | C |
| Canal Road (Wapda Town) | A | A |

6.3.5 Traffic on Major Intersections

The traffic count surveys were conducted on major intersections of Faisalabad. Following were the intersections on which the survey was conducted; Abdullahpur Overpass, GTS Chowk, Hilal-e-Ahmer Chowk, Jhal Chowk, Minerva Cinema Chowk and Novelty Pull. The locations of these intersections on the map of Faisalabad with their peak hour traffic volumes are shown in the **Figure 6.5** below:

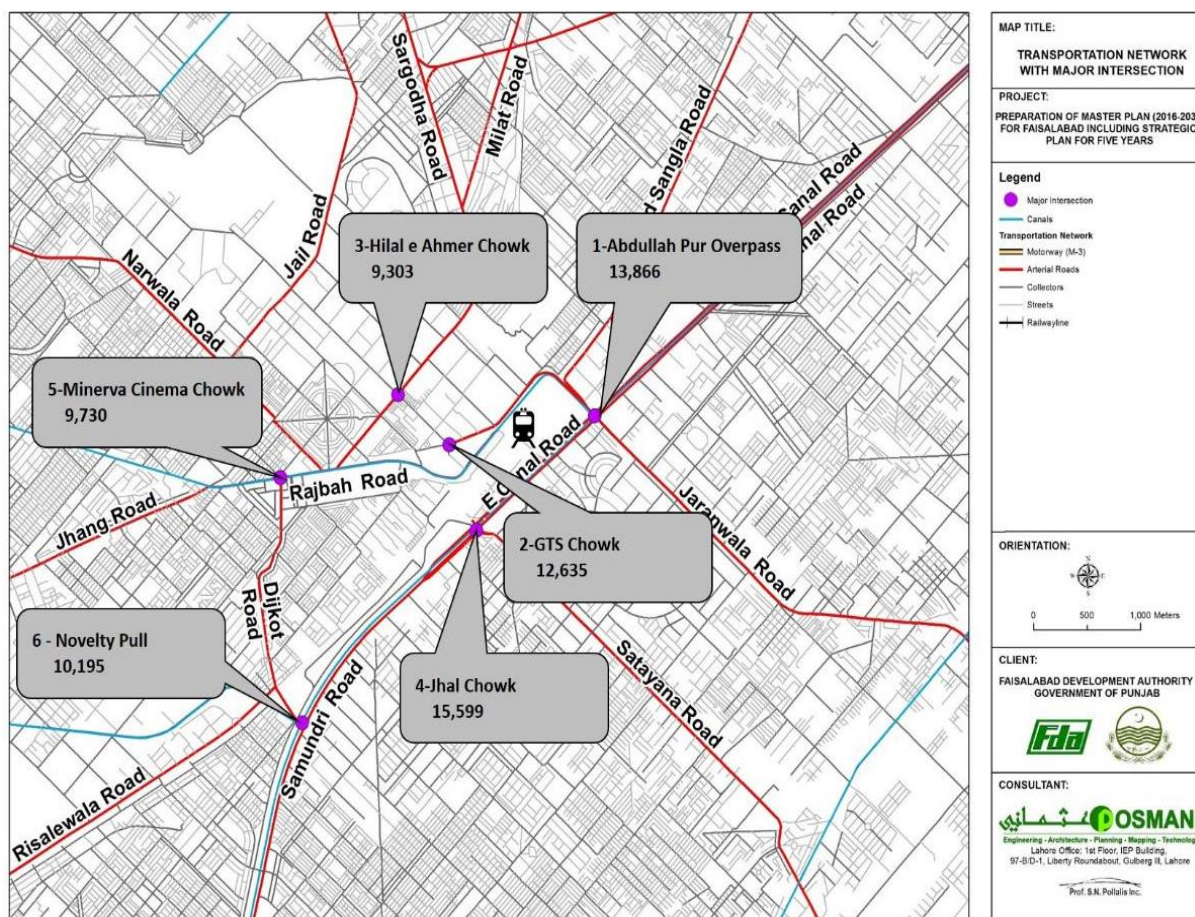


Figure 6-5: Traffic on Major Intersections of Faisalabad Analysis of Critical Intersections

The analysis of critical major intersections has been done and the Table 6.3 below summarizes the existing and proposed scenarios of major critical intersections:

Table 6-3: Existing and Proposed Scenarios of Major Intersections

| Existing Scenario | | Possible Proposals | |
|---------------------|---------|---|---------|
| Intersection Type | ICU LOS | Intersection Type | ICU LOS |
| GTS CHOWK | | | |
| Roundabout | H | <ul style="list-style-type: none">Remodelling of the roundabout.Proper Left Turn Channelization may be ensuredBus Terminals may be shifted to reduce traffic on GTS Chowk to improve LOS. | N/A |
| | | <ul style="list-style-type: none">Un-signalizedUnderpass/Flyover (Railway Road - Church Road) | B |
| HILAL E AHMER CHOWK | | | |
| Roundabout | H | <ul style="list-style-type: none">Remodeling of roundabout.Proper Left Turn Channelization may be essential along with the geometric design of the roundabout including ICD and circulatory lanes width. | N/A |
| Roundabout | H | <ul style="list-style-type: none">Un-signalized Underpass/Flyover | A |

| Existing Scenario | | Possible Proposals | |
|---|---------|--|------------------------------|
| Intersection Type | ICU LOS | Intersection Type | ICU LOS |
| | | (GTS Chowk - Katchery) | |
| | | <ul style="list-style-type: none">Un-signalized Underpass/Flyover (Gumti - Chenab Chowk) | B |
| MINERVA CINEMA CHOWK | | | |
| Un-Signalized along with the provision of U-Turns for turning moments | H | <ul style="list-style-type: none">Proper Left Turn Channelization.Protected U-Turns at optimal distances to avoid weaving may be a short-term solution. | N/A |
| | | <ul style="list-style-type: none">Signalized | H C (Intersection LOS) |
| NOVELTY PULL | | | |
| Un-Signalized along with the provision of U-Turn for turning moment | - | <ul style="list-style-type: none">Geometric Design may be revised by providing a protected U-Turn for turning movement coming from Jhal Chowk towards Novelty. | N/A |

6.4 PARKING SURVEYS AND ANALYSIS

The parking locations in Faisalabad include minor parking spots like outside buildings, shopping malls, small hospitals and other centres, and major parking spots like Airport Parking, Railway Station Parking, Katchery Parking, and big Hospitals Parking of the city. Parking surveys were conducted on major parking spots as follows; Airport Parking, Allied Hospital Parking, Civil Hospital Parking, Katchery Parking and Railway Station Parking

After analyzing the parking survey data, it can be deduced that Faisalabad needs more Parking spaces in the city especially in areas with more public movement such as public buildings, shopping markets, colleges and universities, hospitals etc. Table 6.4 below shows the existing average parking time at major areas of Faisalabad.

Table 6-4: Existing Average Parking Time at Major Areas of Faisalabad

| Parking Area Name | Average Parking Time (Minutes) |
|-------------------------|--------------------------------|
| Airport Parking | 33 |
| Allied Hospital Parking | 26 |
| Civil Hospital Parking | 44 |
| Kachehri Parking | 107 |
| Railway Station Parking | 36 |

Further analysis of data shows that at Airport Parking the vehicles are parked for longer durations during the night shift with an average of 61 minutes compared to 16 minutes during the daytime.

6.5 PUBLIC TRANSPORT SYSTEM IN FAISALABAD

According to Punjab Development Statistics 2016, the road network of Faisalabad comprises 532 km of Provincial Highways, 261 km R&B Sector Roads, 1127 km of Farm to Market Roads, 534 km of Sugar Field Access Roads and 1408 km of District Council Roads.

Several studies have been conducted in past to highlight the overall transport need and structure of Faisalabad city. These studies include Master Plan of Great Lyallpur (1968), Faisalabad Structure Plan (1986), Faisalabad Development Authority Master Plan (1994),

Strategic Development Plan (2006), Infrastructure Investment Proposal (2010), and City Boundary Study (2010). Many of them have urged to introduce and develop transport network infrastructure to meet future transport needs.

There were around fourteen intra-city public transport routes in Faisalabad, shown in Figure 6.6 below but today majority of these routes have been closed and the only routes operational are B-10, B-11 and W-20 as shown in **Figure 6.7**, which is very few to provide services to the public transport prospect users of Faisalabad.

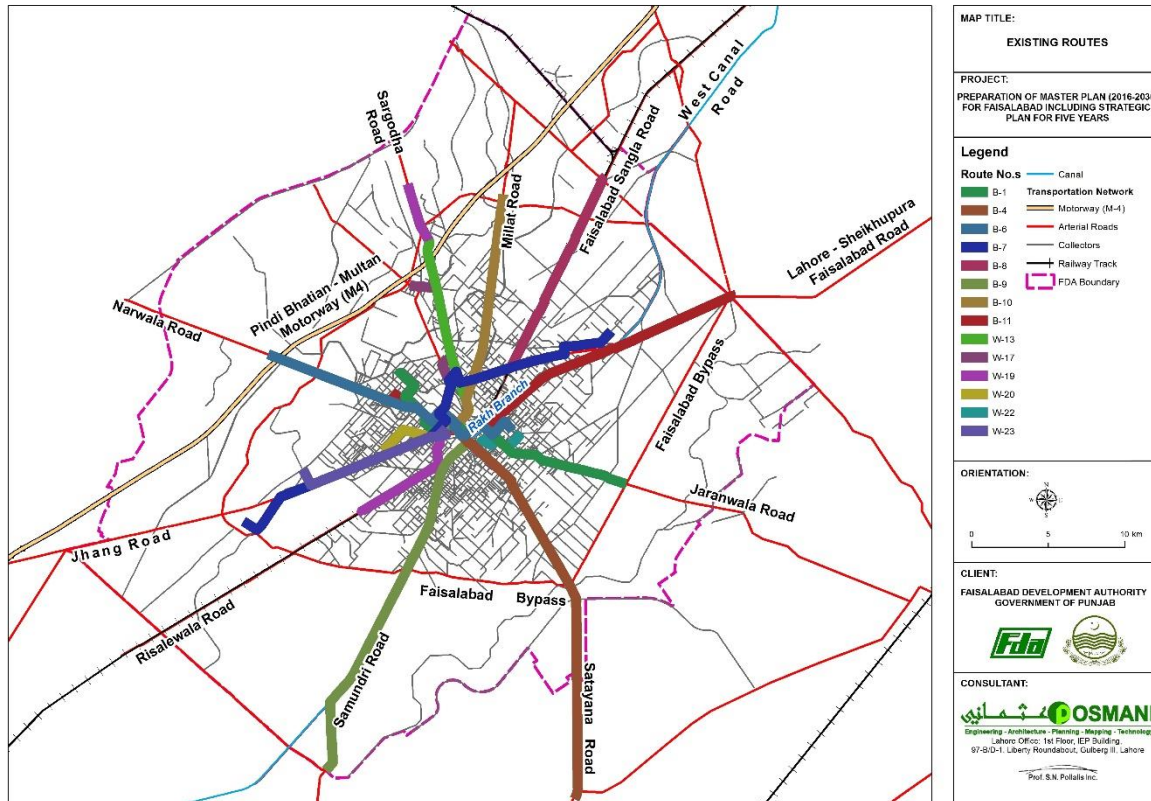


Figure 6-6: Original Public Transport Routes in Faisalabad

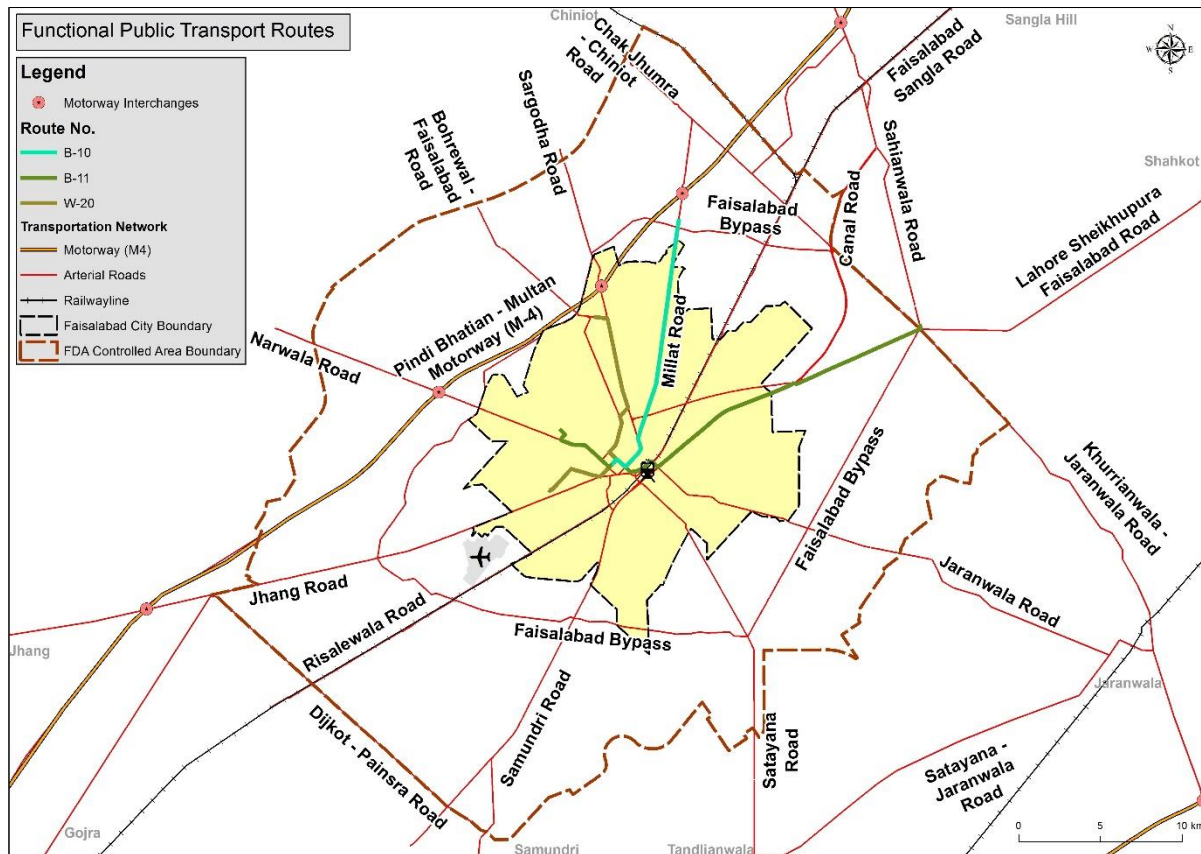


Figure 6-7: Functional Public Transport Routes in Faisalabad

The intercity public transport system of Faisalabad consists primarily of private service providers like Kohistan, Daewoo, New Khan, Baloch Transport, Bandiyal Transport, Bilal Daewoo, Faisal Movers, New Subhan Travels, Al Halal Travels, Khawaja Travel Service, Niazi Services and Skyways. These services provide transportation to other cities and districts such as Lahore, Sialkot, Multan, Jhang, Sargodha, Okara, Gojra, and Sahiwal. Intra City Bus Service

Many of the Wagons and minibuses are operated by private organizations while a large number of wagons also operate without any type of regulation or licenses. Qingqis & Rickshaws

Qingqis and rickshaws are also a favourite mode of public transportation in Faisalabad, as these services provide door-to-door services and hence are more convenient.

6.6 STRATEGIC DEVELOPMENTS IN PUBLIC TRANSPORT SYSTEM

An efficient public transport system is necessary for the stability of the traffic situation of a city. The city traffic can move towards more motorization and more congestions if free movement of people across the city is not provided via a sophisticated public transport system. With the issues in the public transport system in Faisalabad, the following developments are suggested;

- A network of public transport buses should be introduced into the city, which can provide the Faisalabad public, a comfortable, cheap, and efficient mode of public transportation.
- Moreover, private transport system operators should be taken into confidence and should be operated and maintained.

- Competing modes such as rickshaws and qingqis should be given proper permits to operate at certain locations in the city to serve as feeder routes to the main public transport modes.

6.6.1 Faisalabad Bus Rapid Transit (Brt) System

Faisalabad Bus Rapid Transit (BRT) system is a project which has significant potential in developing the Public Transport System of the city. The BRT network of Faisalabad consists of 2 lines as advised in *The Feasibility Study for Mass Transit System in Faisalabad, December 2016*.

- Red Line
- Orange Line

The parameters of the corridors of the Faisalabad BRT System are shown in **Table 6.5**.

Table 6-5: Faisalabad Bus Rapid Transit (BRT) Parameters

| Line Name | Line Length (Km) | | | No. of Stations | | |
|-------------------------|------------------|--------------|--------------|-----------------|-----------|-----------|
| | Elevated | At-Grade | Total | Elevated | At-Grade | Total |
| Red Line | 8.85 | 12.68 | 21.53 | 10 | 14 | 24 |
| Orange Line | 4.68 | 14.67 | 19.35 | 6 | 15 | 21 |
| Orange Line (Extension) | - | 9.56 | 9.56 | - | 8 | 8 |
| Total | 13.53 | 36.91 | 50.44 | 16 | 37 | 53 |

The Alignment of the proposed lines in the Feasibility Study Report for Mass Transit System, Faisalabad is shown in **Figure 6.8**.

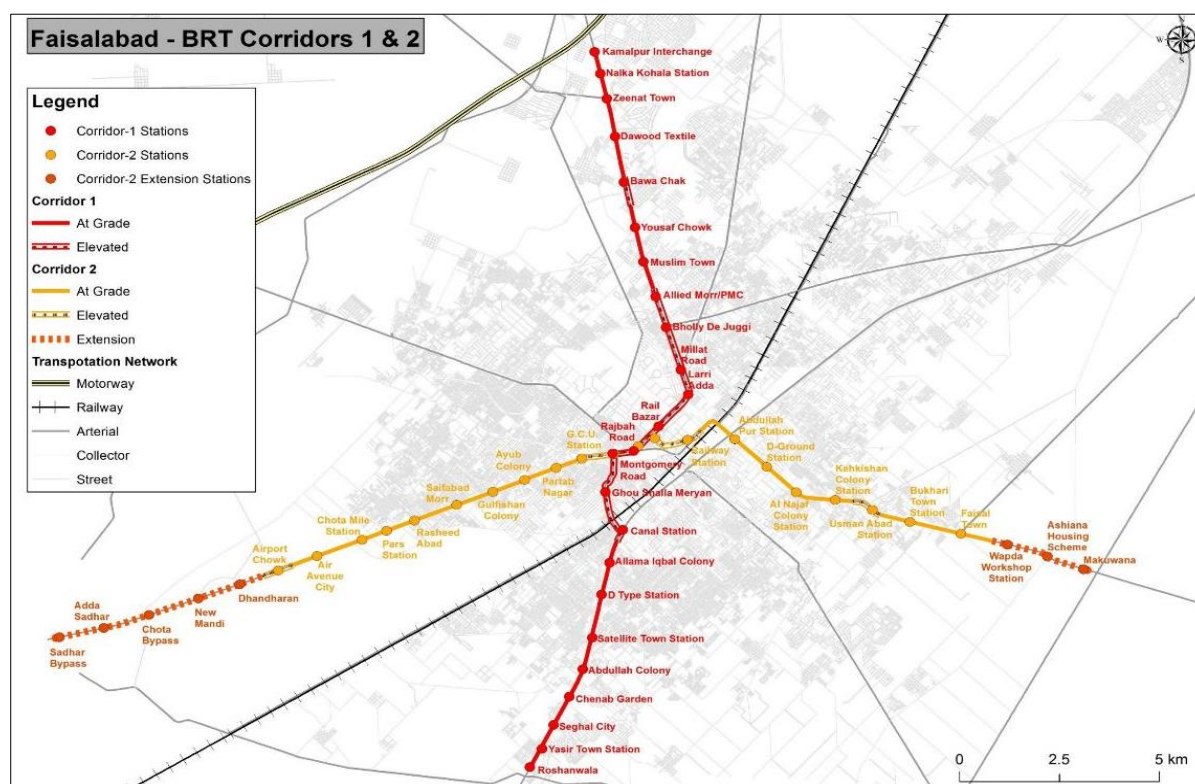


Figure 6-8: Proposed Red & Orange Bus Rapid Transits (BRTs) in Faisalabad

In addition to the BRT system, according to the Feasibility Study Report of Faisalabad BRT, the BRT network consists of feeder routes as well to provide the people with a proper feeder network and easy access to the main BRT corridors. The BRT feeder route network for the

Red line consists of 43 routes with a total length of 664km. Similarly, the feeder route network of Orange Line consists of 41 routes with a total length of approximately 675km.

Table 6.7 and Table 6.7 shows the feeder route networks for Red Line and Orange Line respectively in the Faisalabad BRT network.

Table 6-6: Summary of Integrated Feeder Routes (Red Line)

| SUMMARY OF INTEGRATED ROUTES (RED LINE) | | |
|---|---------------|-------------------|
| Description | No. of Routes | Route Length (Km) |
| Phase-I | 9 | 123.21 |
| Phase-II | 5 | 24.70 |
| Phase-III | 3 | 31.21 |
| Phase-IV | 12 | 93.05 |
| Phase-V | 4 | 72.49 |
| Phase-VI | 6 | 230.00 |
| MBS | 4 | 89.40 |
| Total | 43 | 664.07 |

Table 6-7: Summary of Integrated Feeder Routes (Orange Line)

| SUMMARY OF INTEGRATED ROUTES (ORANGE LINE) | | |
|--|---------------|-------------------|
| Description | No. of Routes | Route Length (Km) |
| Phase-I | 8 | 98.71 |
| Phase-II | 5 | 54.51 |
| Phase-III | 2 | 9.28 |
| Phase-IV | 12 | 120.10 |
| Phase-V | 4 | 72.49 |
| Phase-VI | 6 | 230.00 |
| MBS | 4 | 89.40 |
| Total | 41 | 674.49 |

The feeder routes networks for the Red and Orange Line of the Faisalabad BRT network are shown in **Figure 6.9 & Figure 6.10** respectively.

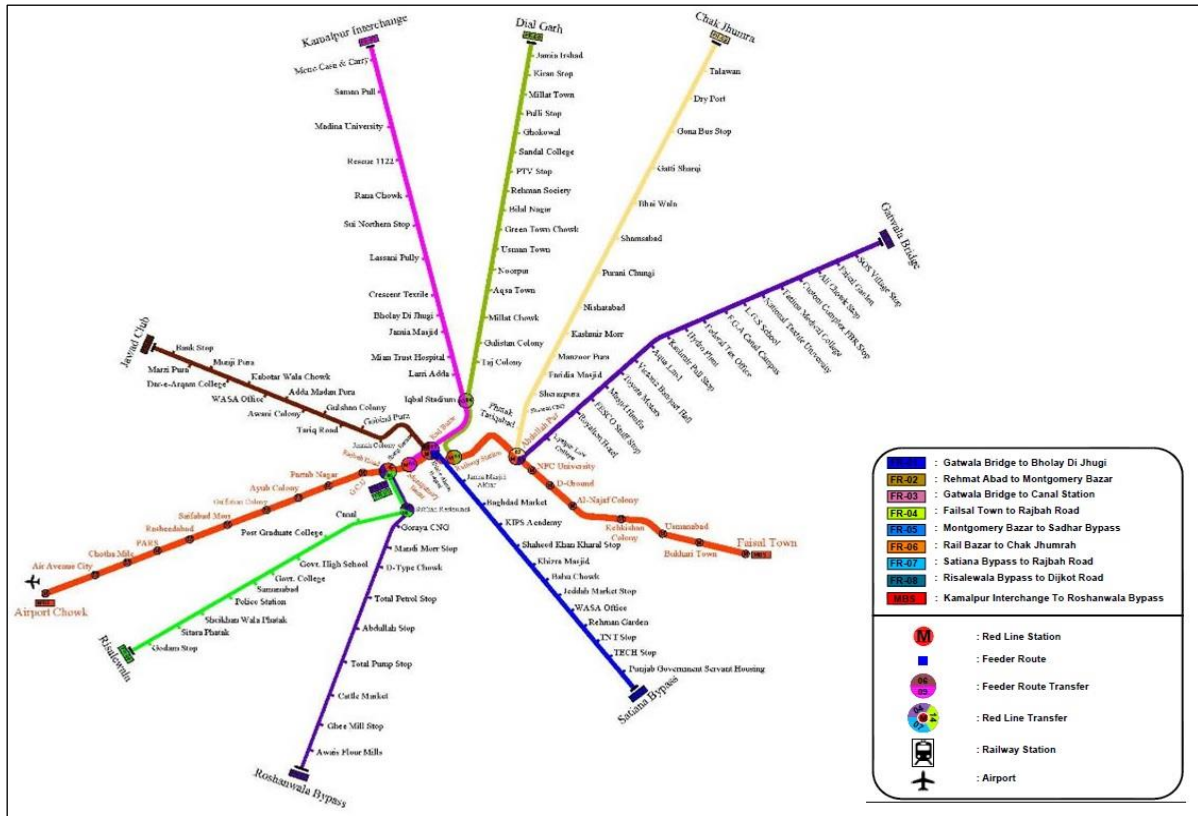


Figure 6-9: Feeder Routes Network of BRT Red Line

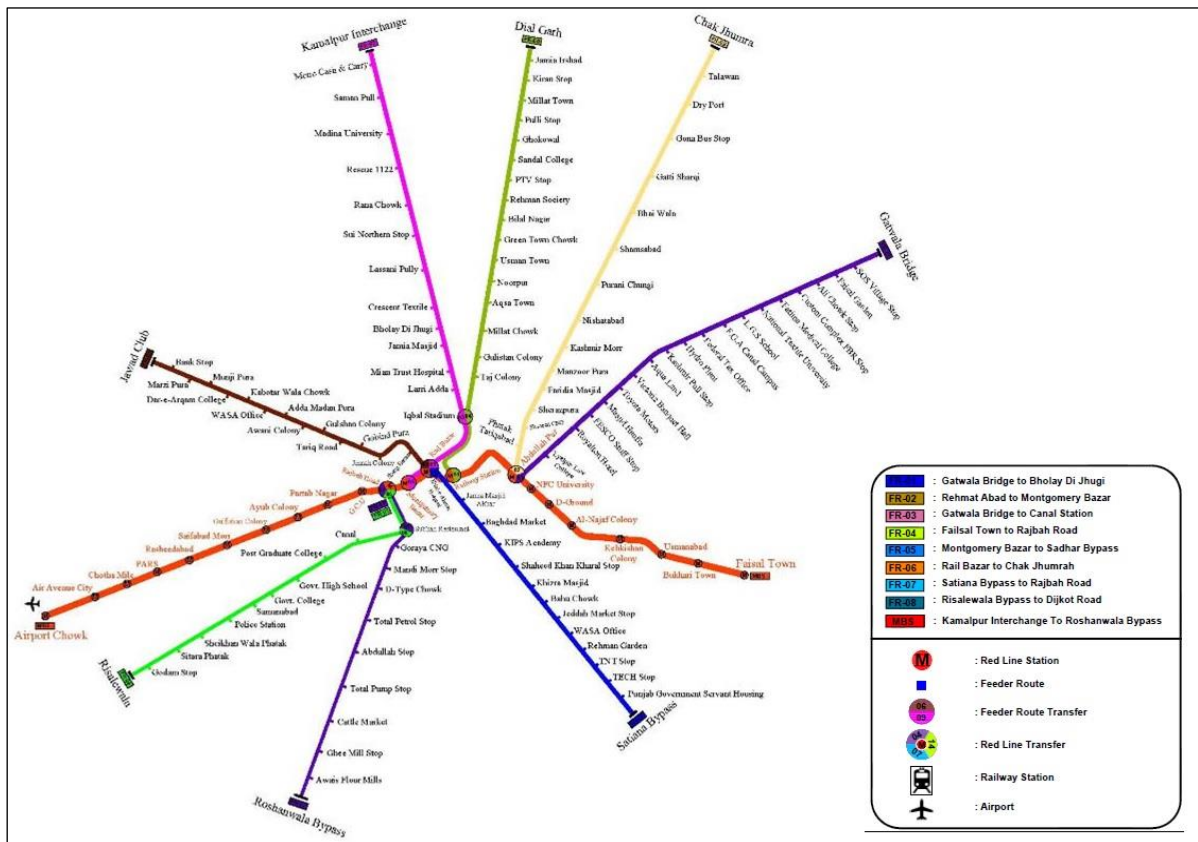


Figure 6-10: Feeder Routes Network of BRT Orange Line

6.6.2 Integration of Public Transport System with Mass Transit Network

As we know the majority of the public transport providers in Faisalabad City are privately owned services such as wagons, minibuses, rickshaws and Qingqis. With the future development of the Faisalabad BRT System, these services need to be integrated into the Mass Transit Network in such a way that they do not compete in ridership with the Mass Transit System. To achieve this target, the following steps should be considered;

- Privately owned services such as wagons and minibuses should be given proper permits to operate in the city.
- The wagons and minibuses can be made part of the feeder route network by designating pre-planned and scheduled routes along the planned feeder routes of the Mass Transit Network.
- All services such as buses, wagons, rickshaws, and qingqis that are not a part of the Mass Transit Network should be removed from the main BRT corridor to urge the public to use the efficient articulated bus system only.
- Rickshaws and Qingqis should be allowed to operate inside the city's residential areas to allow people to move from their homes to the feeder routes.

6.6.3 Integration of Mass Transit System with Faisalabad Bypass

The Faisalabad bypass, circling the city starts from the Pindi Bhattian Motorway (M4) and goes towards Samundari and other adjoining areas. With some people travelling via Faisalabad Bypass, it can be a huge prospect for the Faisalabad Mass Transit System. The Mass Transit Lines (Red & Orange) touch the Faisalabad Bypass at some point/station and can provide people moving on the Faisalabad Bypass an opportunity to easily move within the city from the bypass. The points at which the Mass Transit Lines touch the Faisalabad Bypass are shown in **Table 6.8**.

Table 6-8: Integration of BRT Lines with Faisalabad Bypass

| Line Name | Stations on Faisalabad Bypass |
|-------------------------|-------------------------------|
| Red Line | Roshanwala Bypass |
| Orange Line + Extension | Sadhar Bypass, Makuana |

The locations of these points along with the Faisalabad Bypass and BRT Lines are shown in **Figure 6.11**.

Moreover, access to Red Line and Orange Line (advised in the Faisalabad Mass Transit Network Feasibility Study) from various points is also possible through feeder routes.

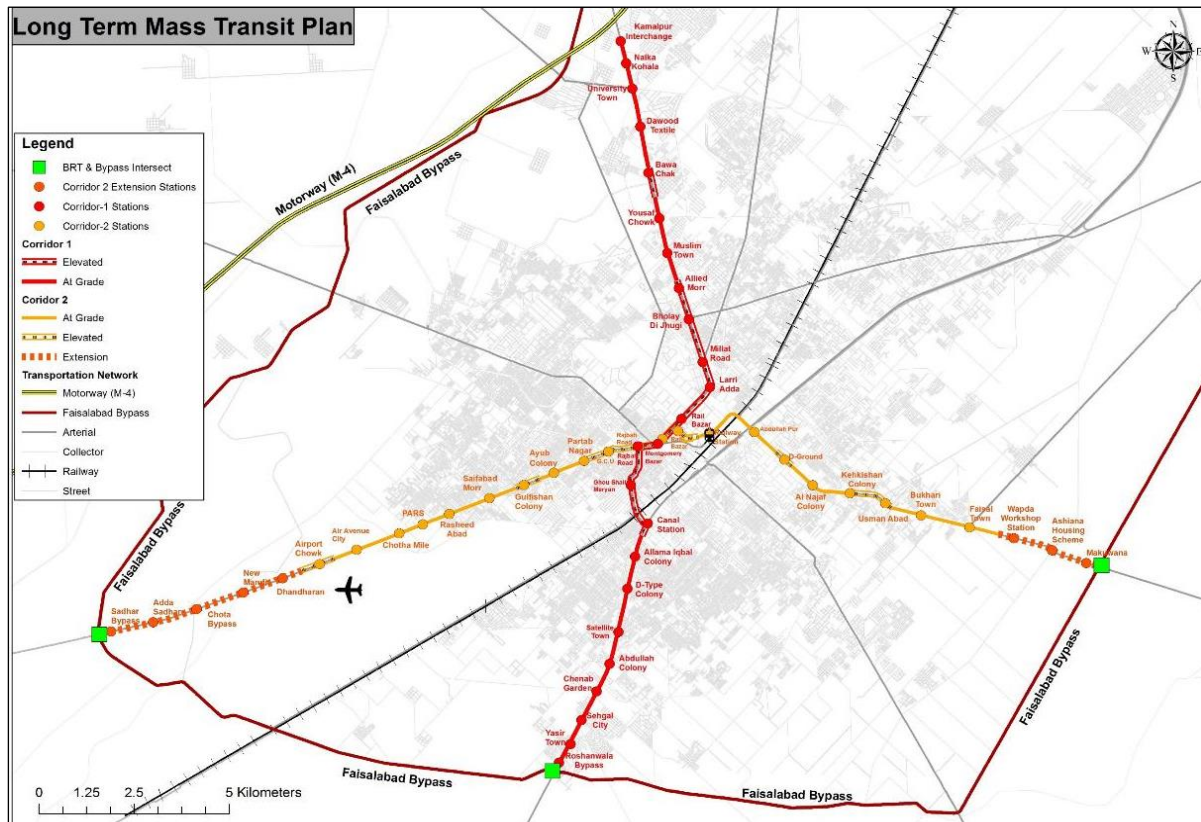


Figure 6-11: Long Term Mass Transit Plan with stations on Faisalabad Bypass

6.7 TRAFFIC MANAGEMENT

Mainly due to institutional issues, traffic management is highly inefficient and ineffective in Faisalabad. The main aspects are traffic laws, management of the public spaces, management of the physical infrastructure, traffic control, management of the drivers, and provision of pedestrian facilities and safety of all road users.

6.7.1 Traffic Laws Issues

In general, traffic-related regulations are insufficient, ineffective and obsolete; moreover, enforcement of rules is quite weak. This generally implies a chaotic and in-disciplined traffic on roads and therefore results in a high rate of accidents and even loss of life, injuries and damages to the properties. This chaotic situation is exacerbated by the diversity of the traffic in Faisalabad. The traffic laws are not applied to pedestrians, cyclists, animal-drawn carts and hand-pushed carts, even though these modes make up a larger portion of the total road users. The typical traffic enforcement fines are quite low and are in the range of around PKR 200 to 750.

6.7.2 Management of Public Spaces

Management of public spaces is very poor in Faisalabad which results in an overall slow movement of traffic due to obstructions on the road. Encroachments on the sides of roads such as street hawkers, disorderly movements of pedestrians, animal-driven carts and illegal parking result in an overall chaotic traffic scenario with delays and congestions.

Due to limited or no facilities present for the movement of pedestrians and cyclists, the overall traffic scenario in Faisalabad is haphazard.

Since most of the traffic on the roads of Faisalabad consist of motorized vehicles like cars, buses, wagons, motorcycles, rickshaws and qingqis, the movement of animal-driven carts and

other slow-moving non-motorized vehicles on the main roads of the city results in long queues at turns, intersections and interchanges. These animal-driven carts enter into fast-moving traffic and cause serious disruptions as well. These animal-driven carts are usually parked on the road or on footpaths which cause hindrance in the movements of pedestrians as well.

Due to the encroachments on footpaths and sidewalks, the pedestrians are forced to move on main roads which cause conflicts and results in serious accidents. Solid waste containers are also placed on the side of main roads hence resulting in restricted movement of road traffic. The presence of these encroachments also forces two-wheeler traffic to enter the fast lanes and cause problems for cars and other larger vehicles. The traffic authorities also do not enforce the laws effectively and do not charge the offenders.

6.7.3 Road Safety Issues

Road safety measures have not significantly improved in Faisalabad from the year 2012 to 2016 as the number of accidents resulting in fatalities has slightly decreased as shown in Table 6.9 below.

Table 6-9: Accidents & Fatalities Data

| Year | Total Accidents | Fatalities |
|------|-----------------|------------|
| 2012 | 193 | 136 |
| 2016 | 149 | 121 |

Source: Bureau of Statistics, Government of the Punjab, Lahore

Vulnerable road users are more exposed to traffic fatalities, including pedestrians, cyclists and motorcyclists due to inadequate walkways and cycle routes. The recent introduction of segregated highways within the city environment has led to severe disconnection, without adequate provision for road crossing via pedestrian bridges, particularly in dense urban areas, resulting in such high fatalities.

6.7.4 Traffic Control

Traffic control devices include traffic signs, signals, road markings and other devices (CCTV) are used and are key elements for managing traffic flow. There is no standard practice of using uniform traffic control devices in Faisalabad, as well as Punjab. Also, many of the traffic signals are inoperative and signage is almost non-existent.

6.7.5 Driver Awareness

Most drivers especially those who operate public transport vehicles such as rickshaws and wagons are untrained and do not follow traffic rules. They usually do not follow speed limits on major roads and frequent lane changes result in accidents and traffic incidents. There is a significant safety issue concerning motorbikes use, sometimes transporting two or more passengers, often without a helmet for both driver and passengers. The general situation causes a fatal failure to follow traffic rules, which in turn leads to worsening of congestion level and contribute to road accidents.

6.7.6 Public Management Issues

Public management refers to the effective management of public movement across the city so that the public does not cause chaos in the traffic system. In Faisalabad, there are numerous issues with public management and movement.

1. In Faisalabad, there are limited footpaths and sidewalks provided for the free movement of people.
2. Encroachments of motorized and non-motorized vehicles on the sides of roads and footpaths cause obstructions in movements of the public and pedestrians.

3. Proper road crossings are not provided on main roads due to which jaywalking is a serious issue that leads to road accidents sometimes resulting in fatalities.
4. The public is not educated enough to use crossing facilities like zebra crossings on signalized intersections.
5. Due to the lack of proper parking facilities in business hubs and areas with high commercial activities, the public is forced to adjust along with the illegally parked vehicles.
6. Enforcement of laws for public movement is also not regulated by authorities. These laws prevent the illegal movement of the public on the roads especially jaywalking.

A proposal is shown below in **Figure 6.12** which depicts tentative locations of pedestrian bridges or underpasses to facilitate pedestrian movements across the roads. The locations were marked near commercial / shopping hubs, hospitals, major parks, universities and major colleges, major intersections, bus stands (G.T.S., Larri Adda, Daewoo, etc.) and Railway Station, where the pedestrian bridges/underpasses were not available. The total proposed bridges locations are 52 and shown on the map below. These may be constructed in phases depending on the location for the downtown and major junctions warranting the safety of pedestrian movements.



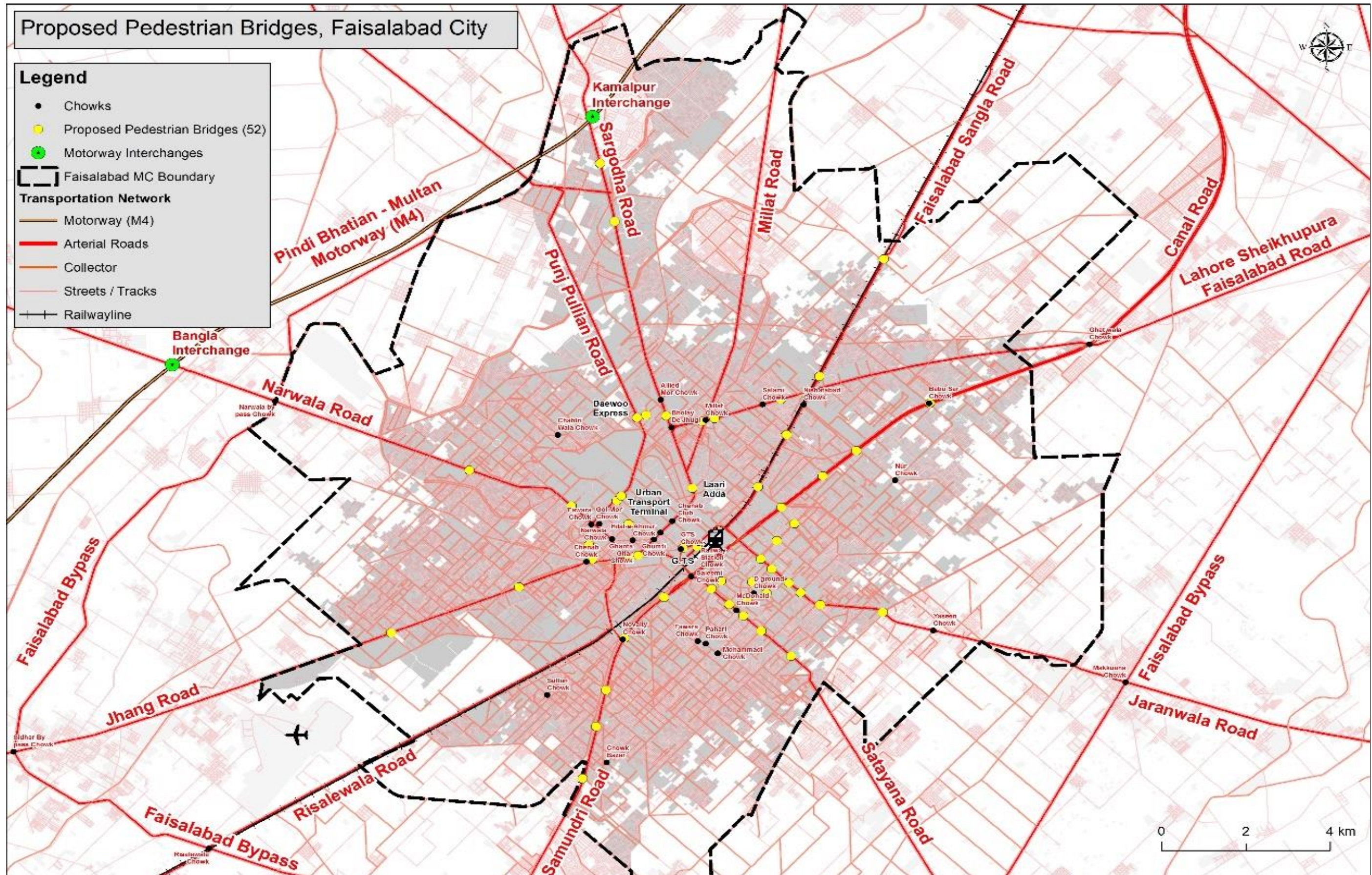


Figure 6-12: Proposed Location of Pedestrian Bridges / Underpasses

6.7.7 Commercial Activities

The commercial activity whether wholesale or retail is mainly concentrated in the CBD area i.e., around the Clock Tower in eight bazars and on the Circular road. Faisalabad is the 3rd largest city of Pakistan and has earned a reputation internationally for the manufacturing of fine textile, yarn, printed cloth, coarse cloth, oil, ghee, soap, sugar, chipboard and agricultural tools etc.

In the preceding years, no effort has been made to decentralize commercial activities. This resulted in congestion in the CBD area. This state of affairs led to some problems in various fields, such as vehicular traffic, pedestrian movement, noise etc. However, FDA has made tremendous efforts in redressing this situation by providing the following markets/commercial areas in the different parts of the city.

1. Faisal Market
2. Quaid-e-Azam Market
3. Dijkot Road Market
4. Cotton Mills Road Market
5. Samundri Road Market
6. 212 Market
7. Iron Market
8. Faizabad Market
9. Shaheed-e-Millat Market
10. Millat Town Commercial Area

This has helped a lot in relieving the ever-increasing burden on the CBD and also the people have easy access to their commercial needs. The traffic problems which were getting serious have been solved to a considerable extent. This has good effects on the health, safety and convenience of the people. The commercial land use of Faisalabad city is depicted in **Figure 6.13**.

At most of the commercial areas, no space is available to plan designated parking plazas, however, in the clock tower, eight bazaar areas at three locations parking plazas have been proposed. Two more parking plaza locations in the Eight Bazaar Area were identified by Faisalabad Transport Company representative during Consultative Meeting on Traffic and Transportation on 26th November 2020. Besides, new commercial zones have been planned in Khurrianwala and accordingly, parking plazas will be planned in detailed plans of the commercial zones.

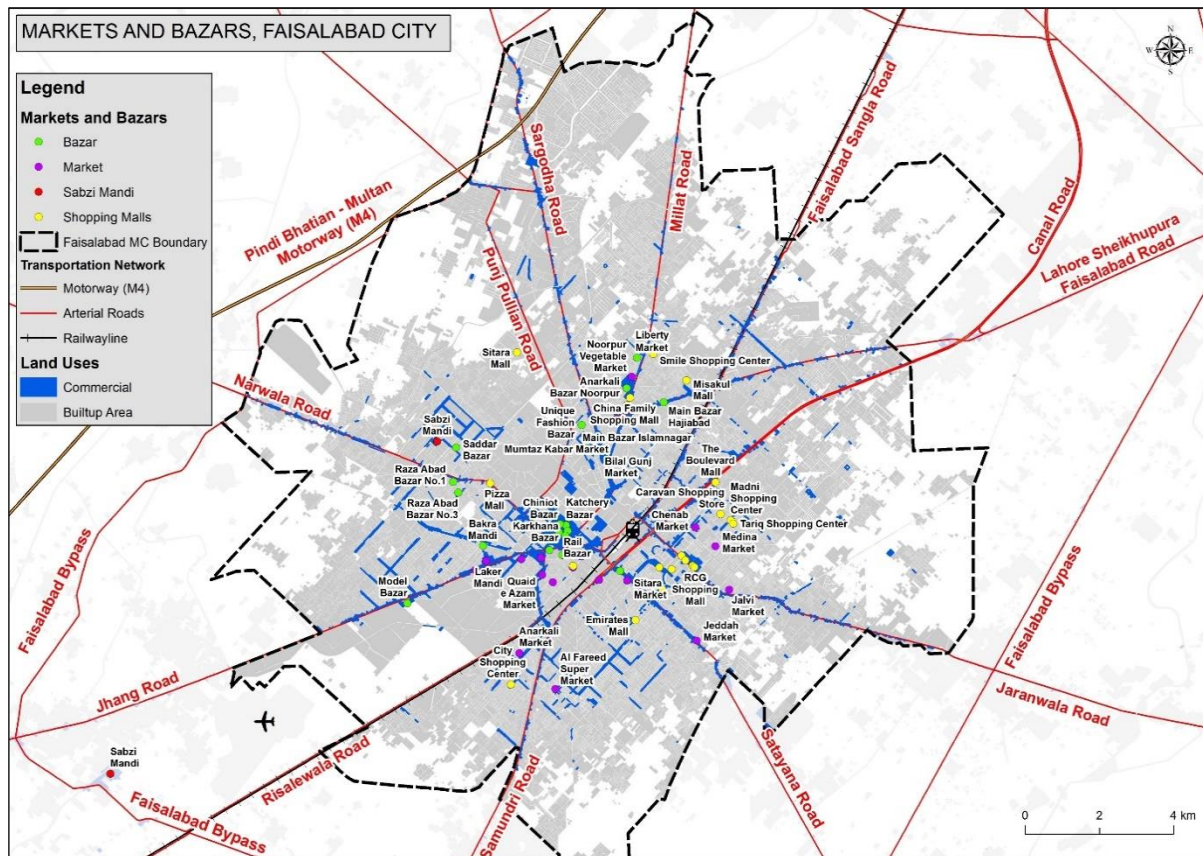


Figure 6-13: Commercial Land use of Faisalabad City

6.8 SHORT TERM DEVELOPMENT PROJECTS (STDP) – 2021 TO 2025

The entire Master Plan period 2021-2041 has been divided into three phases for the development of transport sector projects i.e., the first phase spread over five years from 2021-2025 is categorized as Short Term Development Projects (STDP), 2nd phase also spread over next five years from 2025-2030 is categorized as Mid Term Development Projects (MTDP), and the third phase spread over ten years from 2030-2041 is categorized as Long Term Development Projects (LTDP). However, this is tentative phasing which can be reviewed keeping in view the priority and available funding for the development of the Transport Sector Development Budget.

Faisalabad needs road development projects which can improve the traffic situation in the city and provide the people with a free, fast and reliable method of vehicular movement around the city. The road network of Faisalabad needs immediate improvement warranting road rehabilitation and reconstruction. Besides, the road right of way (ROW) needs to be clear off all encroachments especially on footpaths. Traffic management includes repair and operation of existing traffic signals at major junctions, traffic signs and pavement markings and channelization of major intersections for turning movements. By improving road infrastructure and traffic management, the capacity of inner-city roads could be enhanced temporarily up to 20-25%.

The short-term development projects discussed in the following paras are conceptual only for the Master Plan of Faisalabad. Further refinement through preliminary design and detailed design by appointed Consultants of the executing agency will be required before the preparation of tender documents for execution of these projects.

6.8.1 Roads Rehabilitation and Reconstruction

Road rehabilitation includes overlay and minor repairs, whereas full depth pavement reconstruction will be required at deteriorated segments of the road network. It will also include the construction of footpaths, median, islands, drains, traffic signs and road markings, etc. Major road networks include the following:

1. Faisalabad Bypass
2. Canal Road
3. Sheikhpura Road
4. Jaranwala Road
5. Satayana Road
6. Samundri Road
7. Gojra Road
8. Jhang Road
9. Narwala Road
10. Punjpullian Road
11. Sargodha Road
12. Millat Road
13. Sangla Hill Road

6.8.2 Proposed New Road Network

Efforts have been made to follow the existing revenue paths/tracks to strengthen the future circulation pattern in the areas expected to be developed in the next 20 years. Most of the proposed new roads except a few roads are on the existing revenue paths. A Road network has also been proposed within the FDA area. In doing so, in some areas very good gridiron pattern has emerged. In the peripheral area of the city, a good gridiron pattern can be observed linking villages / small settlements, specifically, on Faisalabad-Sangla Hill Road in between the West Canal Road and Millat Road. A similar pattern can be observed on the southwestern side of the city beyond the Faisalabad bypass.

The inner-city traffic can be improved by taking improvement measures proposed in this chapter, like carpeting of the existing major roads, marking of lanes, signalization, ensuring footpaths along roads for safe pedestrian movement, proper parking arrangements, phasing out of slow-moving traffic in the town centre, etc. No new road could be introduced in the central area of the town. However, to facilitate the traffic movement a Ring Road has been proposed which would reduce traffic pressure in the town centre to some extent.

The alignment, design and Right-of-way of these proposed roads are preliminary and can be finalized at the time of the detailed feasibility study of the project before execution.

Some of the proposed links look very important and needs to be developed within the next five years have been included in the STDP (first phase) because if these are not constructed immediately then it would be difficult to execute them due to expansion of the built-up area and it would be too late to develop these roads/links.

It is also proposed that the Right-of-way (ROW) of all the roads connecting two settlements may be fixed as 80 ft wide. If it is difficult to acquire land immediately due to lack of funding, then construction may not be allowed 40 ft from the centre of the revenue road on either side. In this way, 80 ft wide ROW can be ensured through development control without spending money on the acquisition of land for the ROW. This rule may be applied on all other roads having ROW of 100 ft, 120 ft and 150 ft. but these roads and their ROWs may be notified in the official gazette for the information of the general public and all other stakeholders. Four widths of roads have been proposed depending upon the importance of the proposed link. The break-up of the roads i.e., the number of roads and length of roads regarding the Right-of-way is given in **Table 6.10** below:

Table 6-10: Proposed New Road Network

| Sr. No | Proposed ROW | No. of Roads | Length (km) |
|--------------|--------------|--------------|--------------|
| 1 | 80 | 28 | 111.5 |
| 2 | 100 | 44 | 331.6 |
| 3 | 120 | 27 | 226.2 |
| 4 | 150 | 6 | 80.0 |
| Total | | 105 | 749.3 |

Out of a total number of proposed roads of 104, roads having 80 ft Right-of-way are approximately 27%, 100 ft Right-of-way are 42% and 31% roads are having Right-of-way more than 100 ft. The proposed new road network with respective ROWs is shown in Figure 6.14 below.

The total length of all the proposed roads becomes 750 kilometres (approx.), this does not include Ring Road, Bypass and Expressways. All the proposed roads would be developed in the next 20 years in phases. Three phases have been proposed i.e., STDP - Phase I (2020-25), MTDP - Phase II (2025-30) and LTDP - Phase III (2030-40). The break-up of these roads regarding the Right-of-way and phases is given in Table 6.11 below:

Table 6-11: Number of Proposed Roads, Right-of-Way, Length and Phasing for Development

| Phase | No. of Roads | | | | Total Number of Roads | Length of Roads in km | | | | Total Length of Roads (km) |
|------------------|--------------|------------|------------|------------|-----------------------|-----------------------|--------------|--------------|-------------|----------------------------|
| | 80 ft ROW | 100 ft ROW | 120 ft ROW | 150 ft ROW | | 80 ft ROW | 100 ft ROW | 120 ft ROW | 150 ft ROW | |
| STDP (Phase I) | 11 | 24 | 13 | 1 | 49 | 40.8 | 172.6 | 59.4 | 10.4 | 283.2 |
| MTDP (Phase II) | 8 | 9 | - | 1 | 18 | 29.7 | 63.2 | - | 14.8 | 107.7 |
| LTDP (Phase III) | 9 | 8 | 7 | 4 | 28 | 41.0 | 64.3 | 97.7 | 54.8 | 257.8 |
| Total | 28 | 41 | 20 | 6 | 95 | 111.5 | 300.1 | 157.1 | 80.0 | 648.7 |

Phasing for Development of Road Network

The most important roads and the roads falling in the area expected to be developed in the next five years have been included in STDP (first phase), while the other roads have been included in the next two phases. Out of a total length of about 750 kilometres, 40% length of roads falls in STDP (First Phase) and 40% in LTDP (Third Phase) while 20% length of roads falls in MTDP (Second Phase) of development. A major part of the Phase-I roads is coming within the Faisalabad Bypass, while the major part of the Phase-III roads is coming beyond Faisalabad Bypass. The phasing of road network is shown in Figure 6.15 below.

Cross-Section of the Proposed Roads

Cross-Section of four types of roads having Right-of-way of 80 ft, 100 ft, 120 ft and 150 ft has been prepared as shown in figure below.

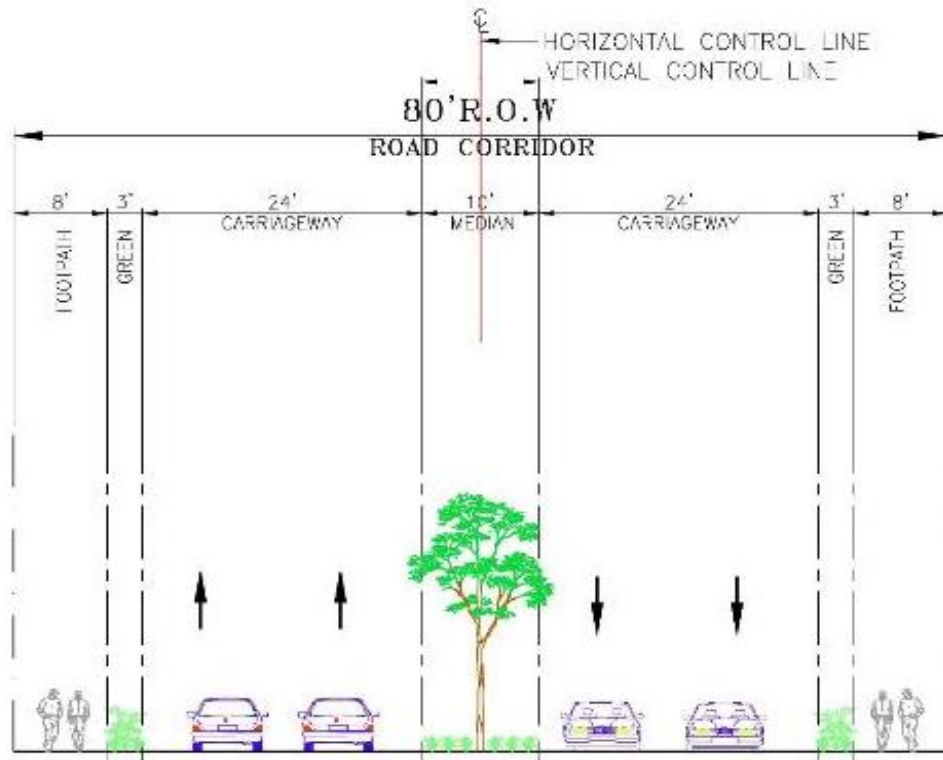


Figure 6-14: Cross-section of 80' R.O.W

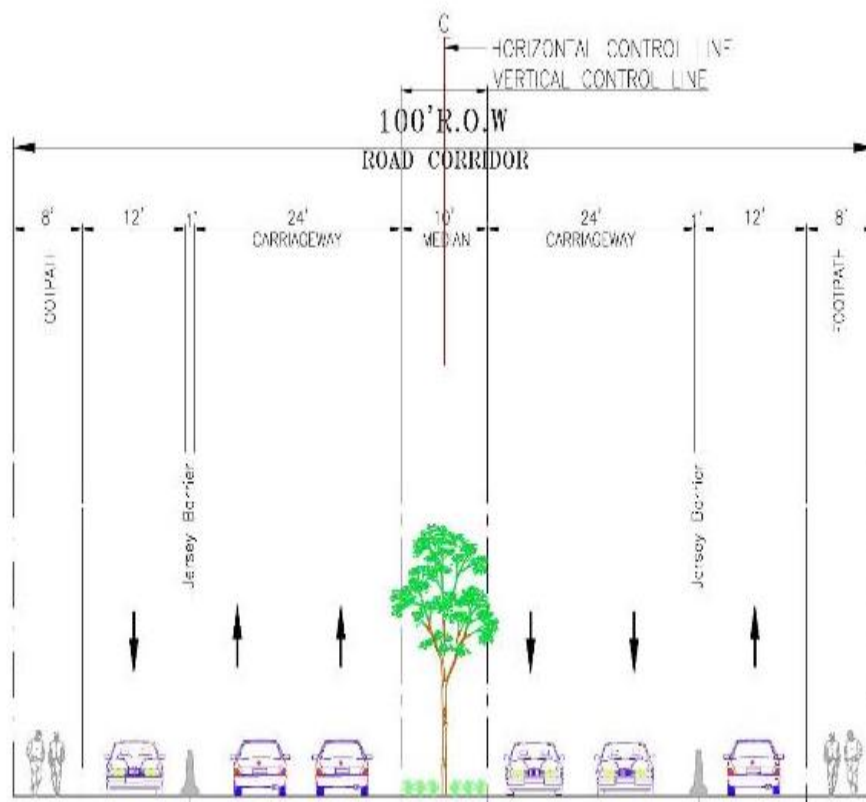


Figure 6-15: Cross-section of 100' R.O.W

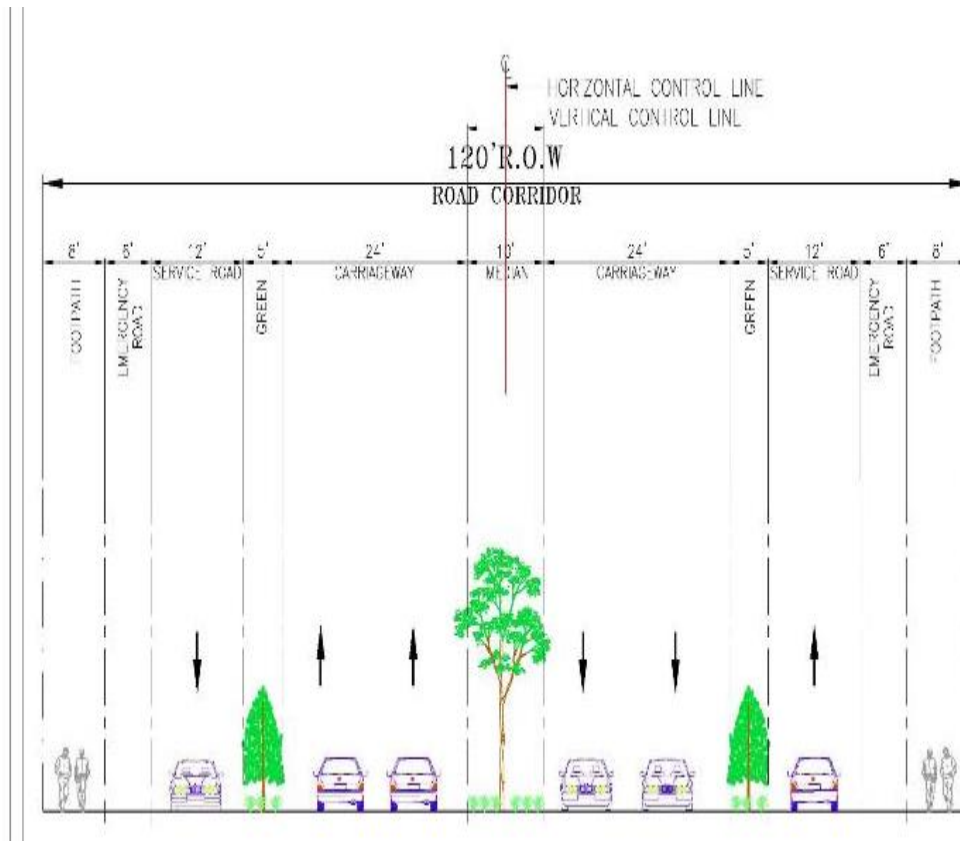


Figure 6-16: Cross-section of 120' R.O.W

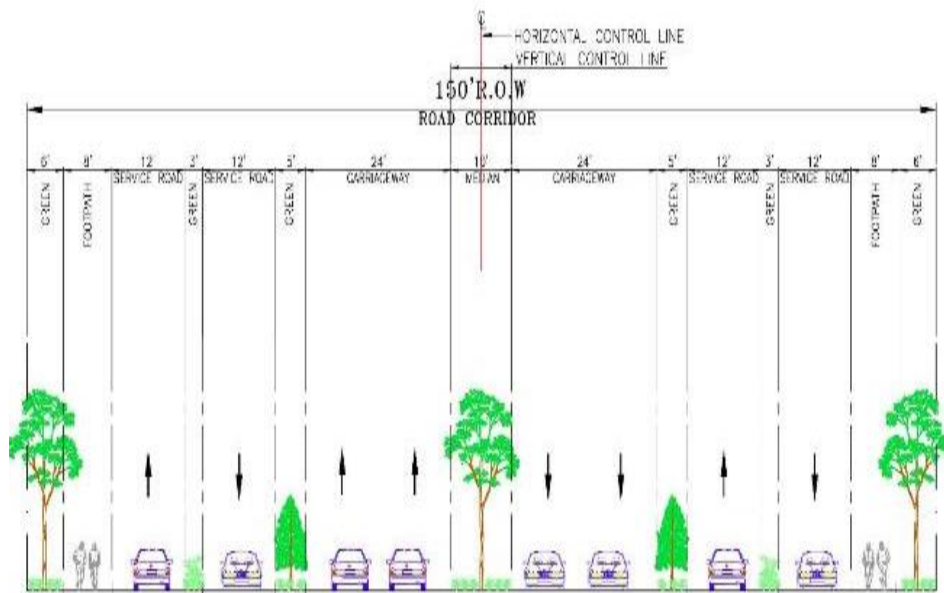


Figure 6-17: Cross-section of 150' R.O.W

6.8.3 Improvement of Major Intersections

Most of the major junctions in Faisalabad need channelization to improve their functionality. It will primarily include construction of Islands, resurfacing, drainage, footpaths, median, traffic signs and road markings, etc. Besides, most of the existing signalized intersections warrant

rehabilitation to make them fully functional. Traffic police will be required at each signalized intersection for strict adherence to the traffic lights by drivers. Major intersections are listed in **Annex B.1** and mapped in **Figure 6.16 & Figure 6.17** below.

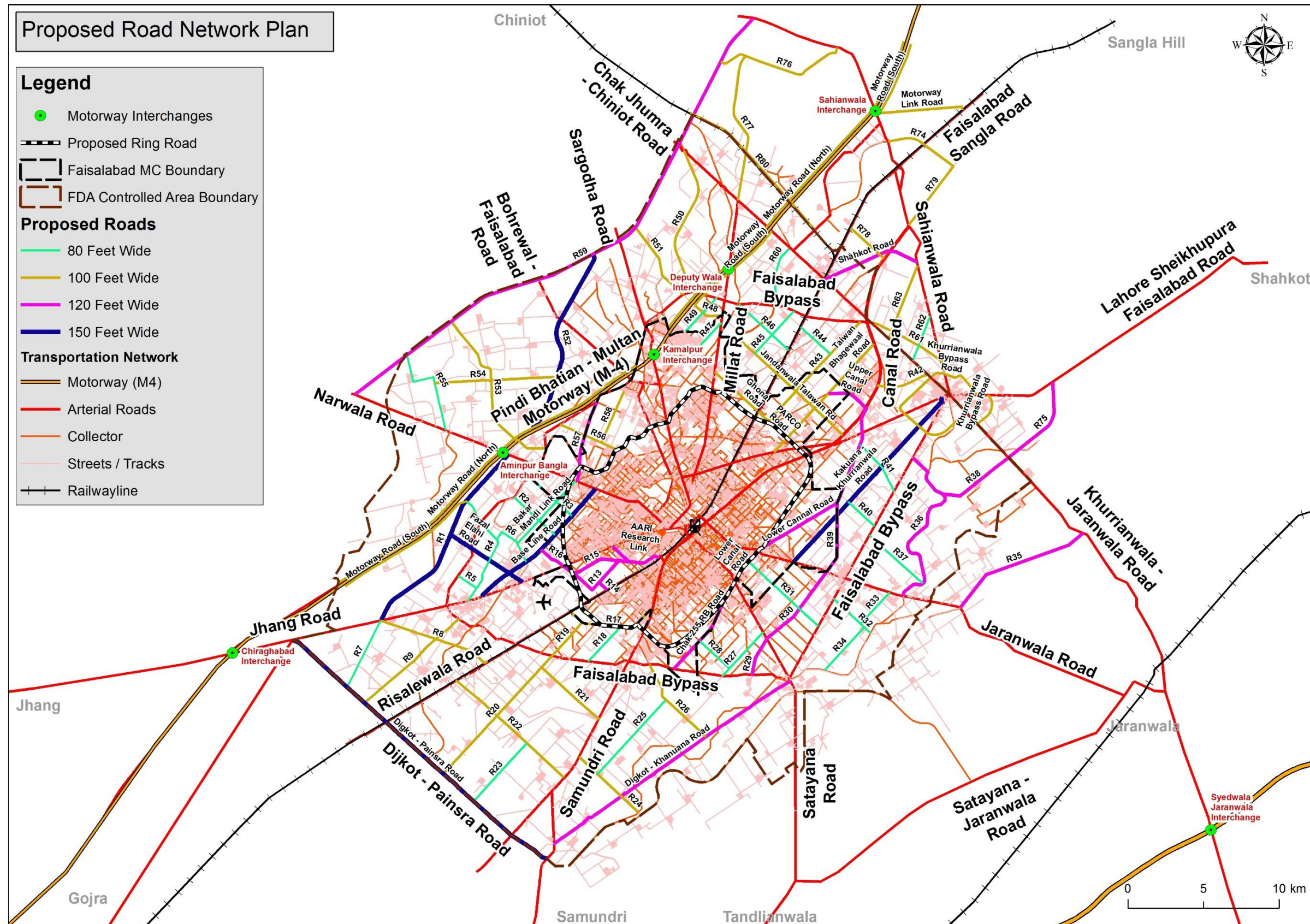


Figure 6-18: Proposed New Road Network with ROWs

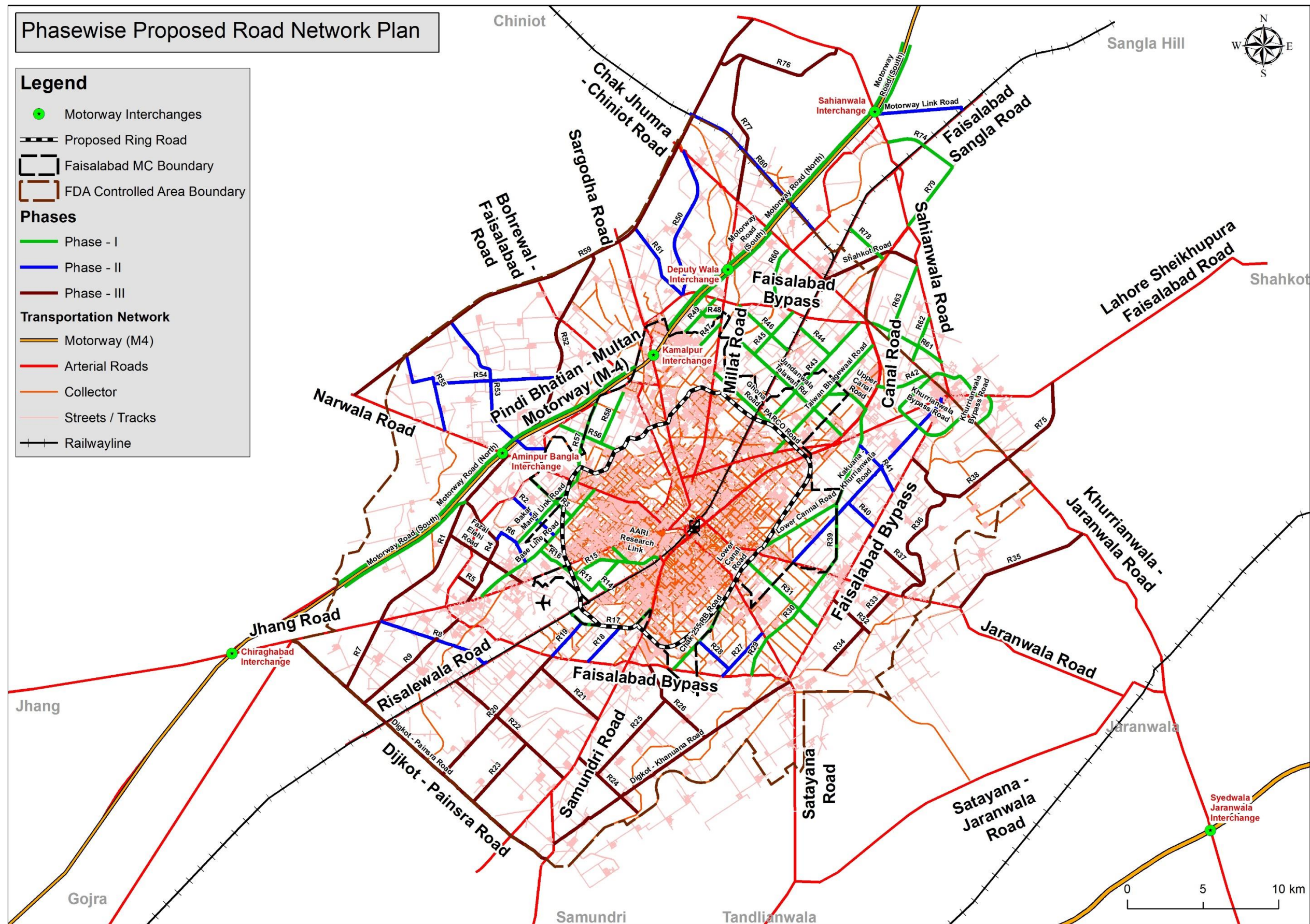


Figure 6-19: Proposed New Road Network with Phases

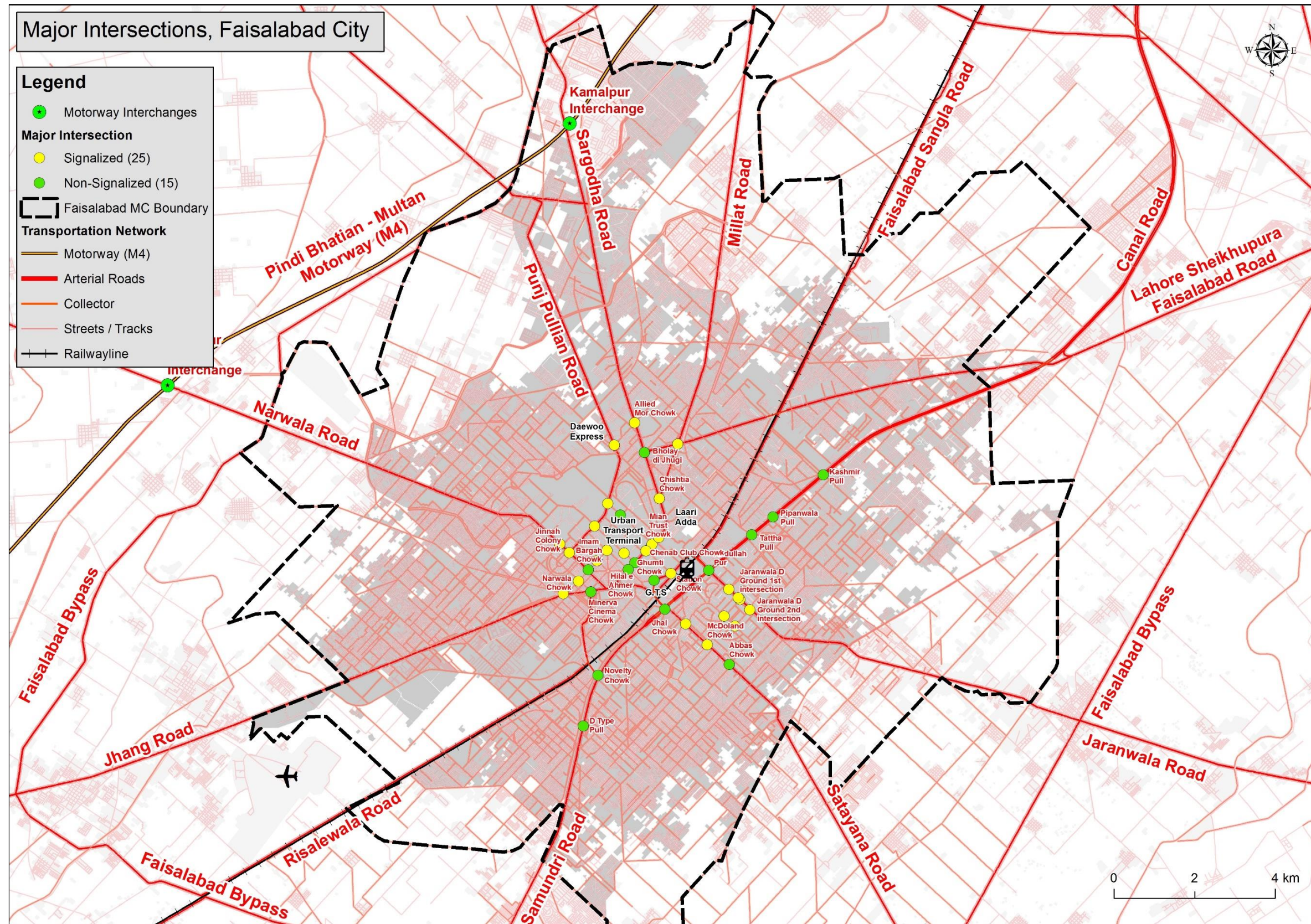


Figure 6-20: Major Intersections, Faisalabad City

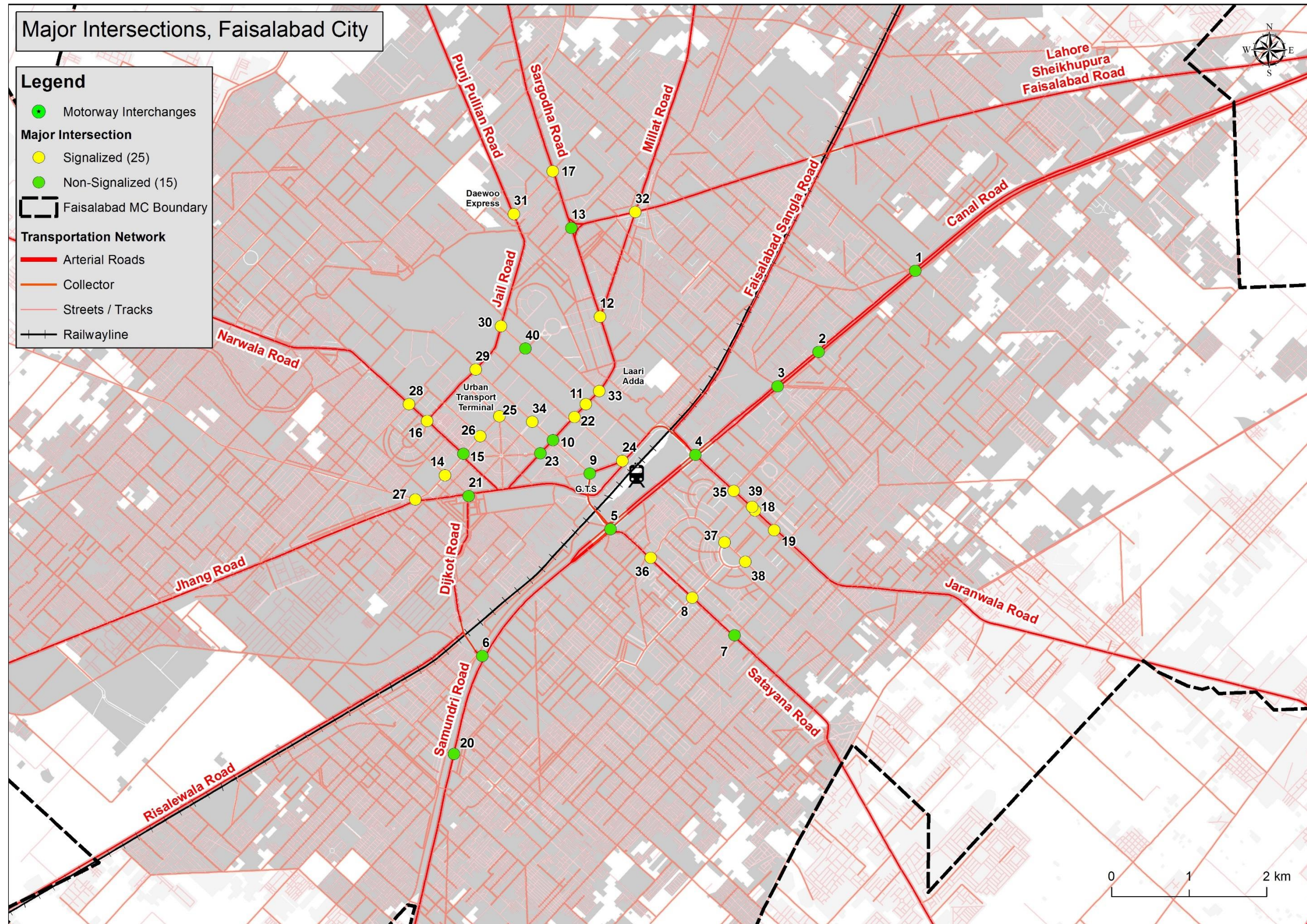


Figure 6-21: Major Intersections in Faisalabad City

6.8.4 Pedestrian Movement

Due to the lack of footpaths, walkways the movement of pedestrians in the city especially in the centre of the town is very unsafe. Footpaths are usually encroached by traders and vendors. This state of affairs results in conflict between pedestrians and vehicular movement. With the growth of traffic, such conflicts are likely to increase in magnitude. In the absence of proper road signs, Zebra crossings further increase the risk of vehicle-pedestrian accidents. **Section 6** already covers the issue in-depth and shows the proposed location of pedestrian bridges/underpasses to be constructed. An awareness campaign will also be required to educate people to use the pedestrian crossings for their safety.

6.8.5 Parking and Parking Plazas

Lack of adequate parking spaces is apparent, especially in the central areas. People are forced to park their vehicles along roadsides of a circular road. The problem is a serious one and with the increasing number of cars in the city the need for more parking areas is obvious. In the research study done in 2018 by Engr. Hassan Zaheer of FDA and others, three sites for parking garages were identified in the vicinity of Eight Bazaar area as shown below in Figure 6.18 with further details of each site in **Figure 6.19 & Figure 6.20**.

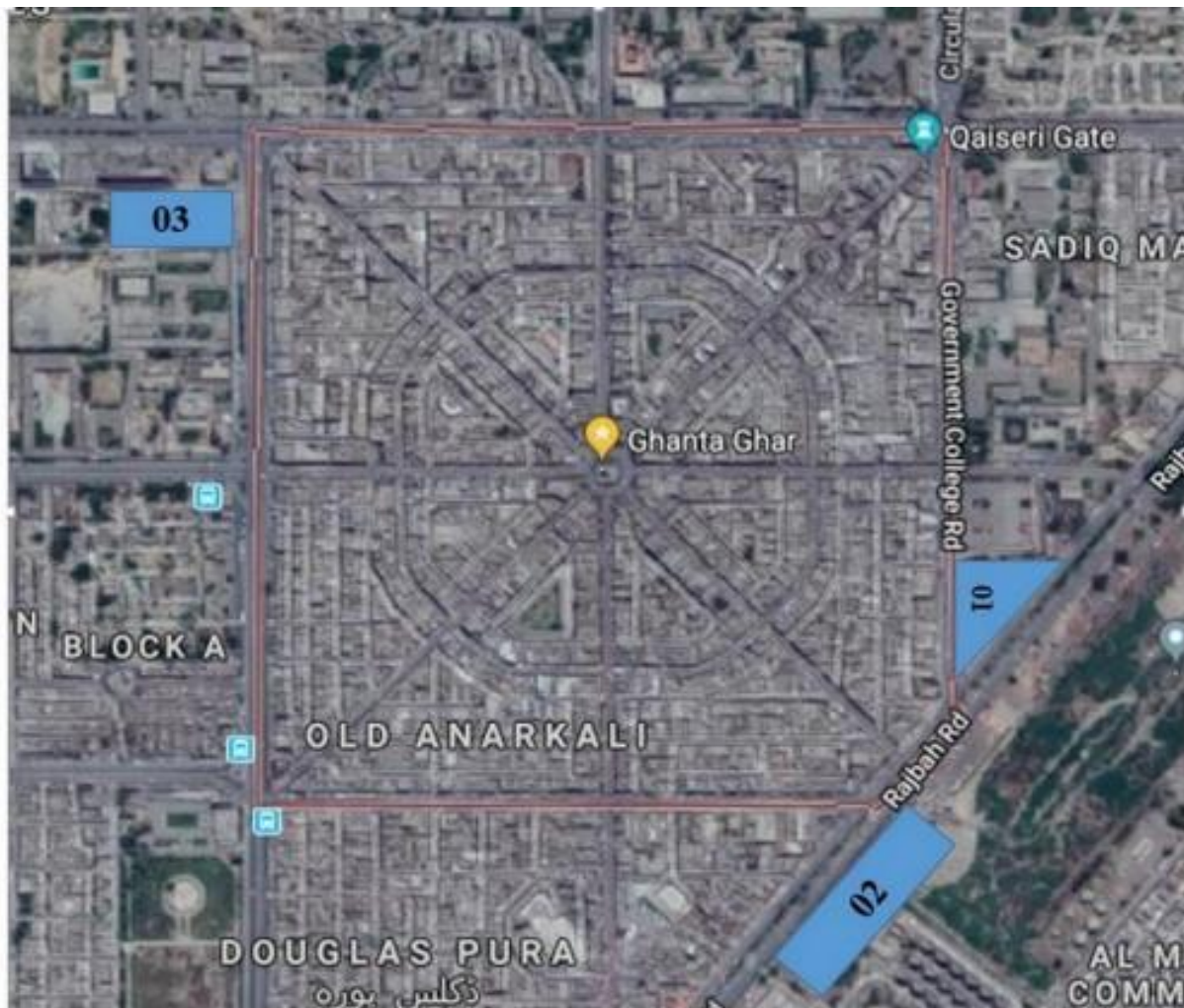


Figure 6-22: Proposed Sites for Parking Plazas

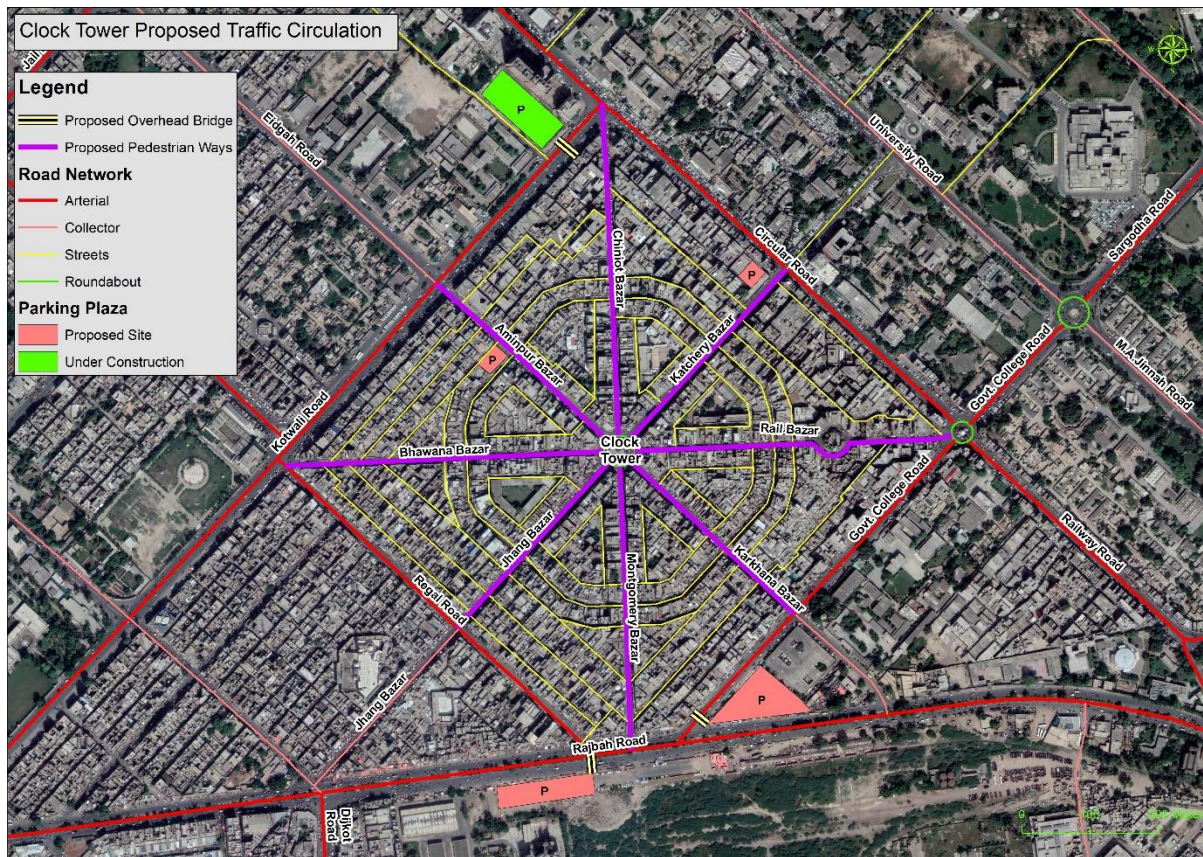


Figure 6-23: Proposed Additional Sites for Parking Plazas within Eight Bazar

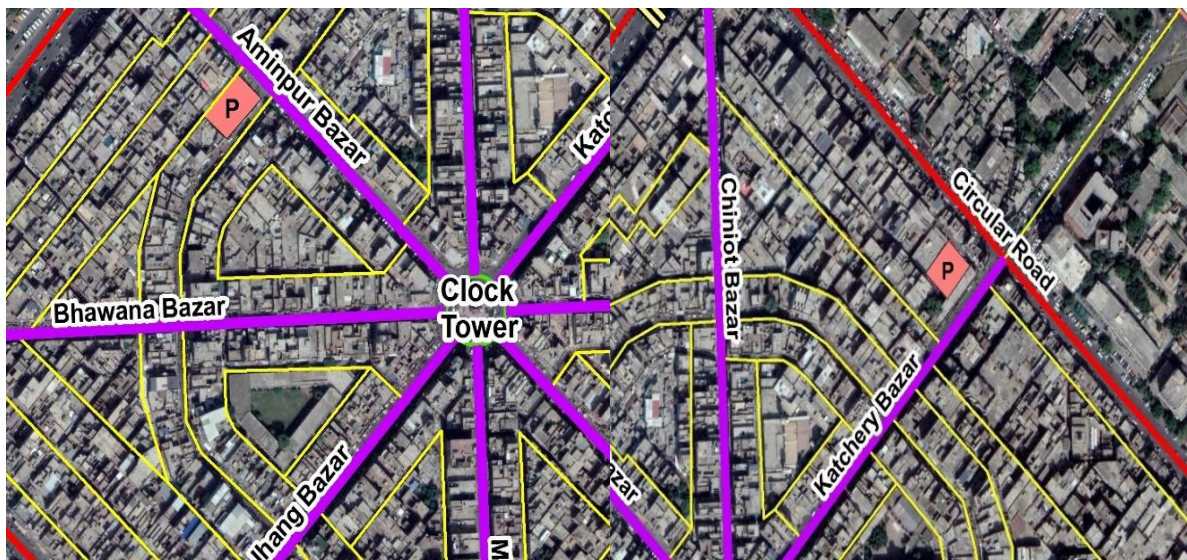


Figure 6-24: Parking Plaza Site 4 & 5

(Parking site 4 Along Aminpur Bazaar, parking site 5 Opposite to the Imam Bargah, Near Zail Ghar at Entrance to Katchery Bazaar)

The Parking of Bikes may also be accommodated in the Parking Plazas and this would further reduce the congestion on the roads. These Parking Plazas may be developed through PPP mode. The location of the Parking Plaza plays important role in its success; therefore, these may be developed at a walking distance from busy business areas.

6.8.6 Pedestrianization of Eight Bazaar Areas

To give relief to the traffic congestion in eight bazars, all bazars may be made pedestrian-friendly by banning vehicular traffic in the evening as shown below in **Figure 6.21**. Much more is needed to be done to improve the traffic and parking situation in these bazars like removal of encroachments, removal of advertisement boards from the footpaths, adjustment of the parking facilities, installing traffic signs and signals, improvement of the physical condition of roads and footpaths, road marking, improvement of the geometry of intersections, etc. Besides, the use of donkey carts and tractor trolleys needs to be discouraged and phased out with time to improve traffic in the area.

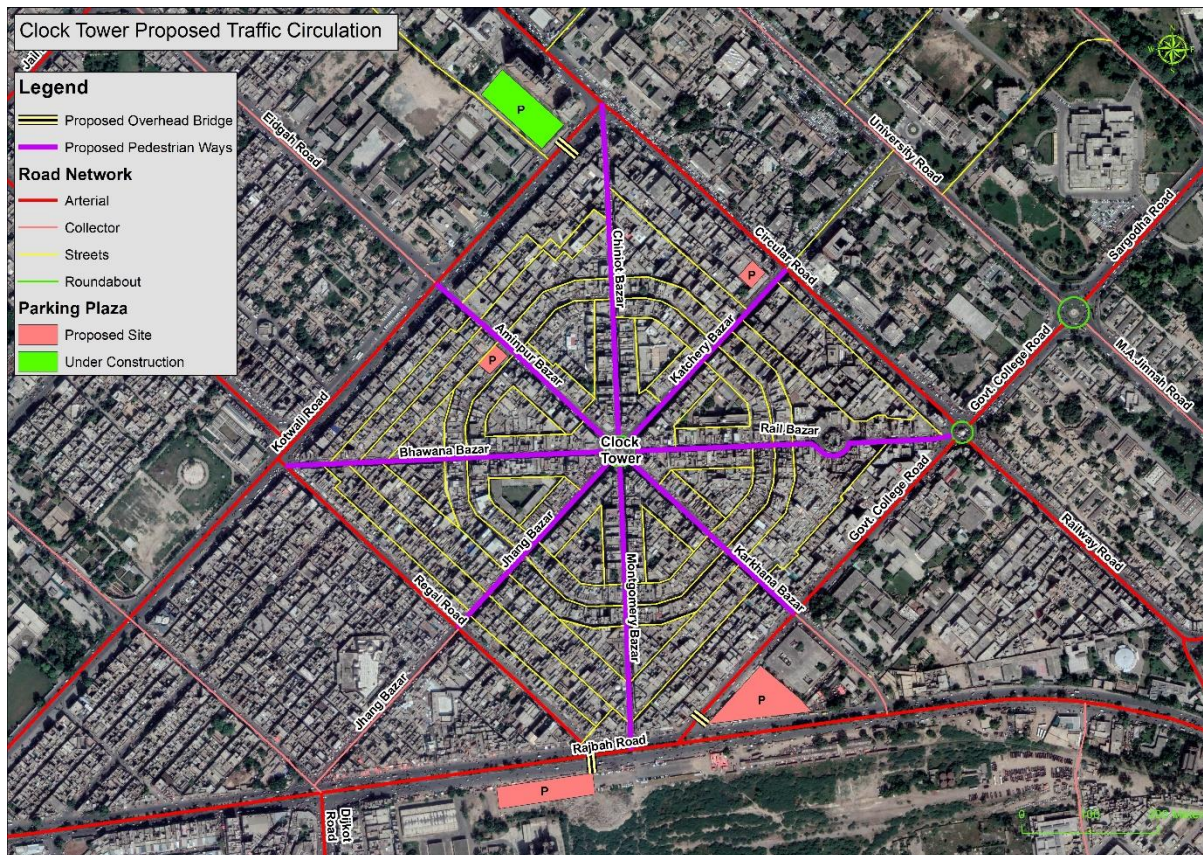


Figure 6-25: Pedestrianization of Eight Bazaar Area

6.8.7 Streetscaping/ Landscaping

Streetscaping is an approach to roadway design that emphasizes a street's civic role as public open space. This is achieved by including elements that make the experience more enjoyable, particularly for people on foot, such as trees, seating, special lighting, sidewalks and more, depending on the street and location.

Therefore, the term streetscaping is an important urban design element that has the potential to convert just a path into a happening place. Streetscaping or revitalizing any street can be done by keeping in mind elements that help in creating a better environment.

In Faisalabad city, the streets are the reflection of its cultural and traditional values. Development authorities have to develop the scheme that looks after the sustainability and publicness of the area and can contribute towards the liveliness of the place. For sustainable streetscaping, there are many components that characterize street life such as legibility, safety, adaptive and economical, etc. If any design proposal fulfills all the necessary

requirements in streetscaping, it is providing the city one of the happening places where people live, work and play together.



Following Approach and Methodology for preparation of Landscaping in the Project Area should be adopted.

The Design Team established parameters for the development of the landscape designs which includes the following:

1. Landscape design contributes to the overall character of the urban environment and the road user's experience. It provides landmarks along a journey, highlight views /glimpses to influence driver behavior.
2. Locally sourced native vegetation species proposed in the landscape designs supports local biodiversity and landscape distinctiveness which helps create connections between native vegetation.
3. Landscaping shall be safe to implement and maintain and safe for road users and pedestrians. Ensure separation of pedestrian and vehicular traffic. Trees shall be located outside clear zones and away from utilities with their name, family, benefits for education purpose e.g planters of aesthetic designs.
4. Local hard landscape materials proposed in the designs, such as gravel, rock or stone, concrete, timber, glass, metals, etc. and painting of Kerb stones.
5. Treating Street corners or edges. Edges are basically the junctions where the streets intersect. The junction that is created acts as a meeting or gathering spot for people. These cross-sections, when planned precisely, create a sense of identity in that neighborhood as well e.g Street Light Poles of aesthetic designs, flowering beds.



Figure 6-26: Street Furniture

6. Adding Street furniture. Street furniture such as benches of appropriate design and material at appropriate locations especially in commercial areas, lighting fixtures, signage, waste receptacles, etc. when placed consistently on a street, it gives a user a sense of comfortable environment. The street furniture provides, especially the pedestrians, an enjoyable experience where way-finding, relaxing or moving out at night becomes easy.
7. Different Patterns and designs of Pavements.
8. Fountains at important junctions.
9. Periodic lane marking and zebra crossing marking and Zebra-crossing using different colour of pavements.
10. Signboards, information boards and directional boards of proper size and at appropriate locations.
11. Shelters at appropriate Locations.
12. Fences at bridges and culverts along the Road of attractive design and durable material.
13. Facade of buildings fronting roads be maintained.
14. Appropriate location and design of dustbins.
15. Special light impact on important buildings. Infusing public art can help in contributing to the local identity of any neighborhood. It adds to the richness of the built environment and at the same time, provides an expression of that community. It builds a sense of ownership as well for the community.
16. Proper footpath (preferably covered) linking parking areas and commercial/business areas.

6.8.8 Flyovers / Underpasses:

There are 6 level crossings in the city which are very significant due to being located in densely built-up areas. Railway track divides the city into two parts. Overhead bridges have been constructed on the four-level crossing to ensure the smooth flow of traffic and to avoid delays. Due to the increase in the frequency of trains and the increase in the average time of gate closure overhead bridges on the all-important level crossing has been justified. Flyovers or underpasses are required at the following locations where analysis warrant grade separation traffic:

1. GTS Chowk (Railway Road to Church Road)
2. Hilal-e-Ahmer Chowk (GTS Chowk to Katchery)
3. Hilal-e-Ahmer Chowk (Gumti to Chenab Chowk)
4. Railway Station at Chak Jhumra
5. Faisalabad Bypass (2 locations)

Refer to **Table 6.12** for the approximate budget needed for short term development projects:

Table 6-12: Approximate Budget Amount for STDP

| Sr. No. | Project Description | Qty. | Unit | Rate (Pak Rs.) | Budget Amount (Pak Million Rs.) |
|---|---|---------|------|----------------|---------------------------------|
| 1 | Roads Rehabilitation | 280 | Km. | 52,175,000 | 14,609 |
| 2 | Roads Reconstruction | 70 | Km. | 122,187,500 | 8,553 |
| 3 | Proposed New Road Network (Phase I) | 295 | Km. | 111,177,583 | 32,797 |
| 4 | Improvement of Major Intersection | 40 | Nos. | 45,000,000 | 1,800 |
| 5 | Repair of Existing Signals to Make them Operational | 25 | Nos. | 45,000,000 | 1,125 |
| 6 | Traffic Signs and Pavement Markings | 350 | Km. | 3,500,000 | 1,225 |
| 7 | Parking and Parking Plazas near Eight Bazaar Area (290,619 sqft Floor Area, 5 Nos.) | 987,339 | Sft. | 7,500.00 | 7,405 |
| 8 | Pedestrianization of Eight Bazaar Area | 464,000 | Sft. | 300 | 139 |
| 9 | Pedestrian Bridges in CBD Area (Phase 1 - 10 Out of 52) | 10 | Nos. | 65,000,000 | 650 |
| 10 | Flyover / Underpasses | 6 | Nos. | 900,000,000 | 5,400 |
| Sub-Total Amount Million Rs. | | | | | 73,703 |
| Consultancy Services for Preliminary Design, Detailed Design, Tender Documents and Construction Supervision of STDPs (5% of Total Cost) | | | | | 3,685 |
| Total Amount Million Rs. | | | | | 77,388 |

6.9 MID TERM DEVELOPMENT PROJECTS (MTDP) – 2025 TO 2030

There are several projects which need to be undertaken under Mid Term to develop the transport sector of Faisalabad. The major ones include rehabilitation of the Faisalabad Bypass, construction of segments of Ring Road and Khurrianwala bypass and bus stand. Besides, a link of M3 Industrial Estate with Faisalabad Bypass, an interchange on M3 on Satayana road, improvement of existing links and junctions within Science city, airport connection with Risalewala road and railway station are also proposed as part of MTDP.

The mid-term development projects discussed in the following paras are conceptual only for the Master Plan of Faisalabad. Further refinement through preliminary design and detailed design by appointed Consultants of the executing agency will be required before the preparation of tender documents for execution of these projects. The rough cost given in **Table 6.12** is indicative only based on similar projects.

6.9.1 Faisalabad Bypass

The Faisalabad Bypass is an expressway constructed that bypasses the Faisalabad city starting from the Motorway (M-3) and provides approaches to outer areas of the city such as Sahianwala, Lahore, Sheikhpura, Jaranwala, Satayana, Samundari, Risalewala, Jhang Narwala, Sargodha, Sangla, etc. The traffic from the internal parts of the city and other adjoining areas use the Faisalabad Bypass to move to other cities via Motorway.

Most of the segments of the Faisalabad bypass are in deteriorated condition warranting rehabilitation of the 95 km bypass.

The Right-of-Way of the Faisalabad Bypass is not uniform throughout its length. This is not desirable from a traffic point of view. Moreover, it is a single carriageway. Keeping in view the importance of this road in future, it is proposed that the Right-of-way of Faisalabad Bypass be fixed as 120 feet and dual carriage be developed to increase its utility as shown in **Figure 6.22**.

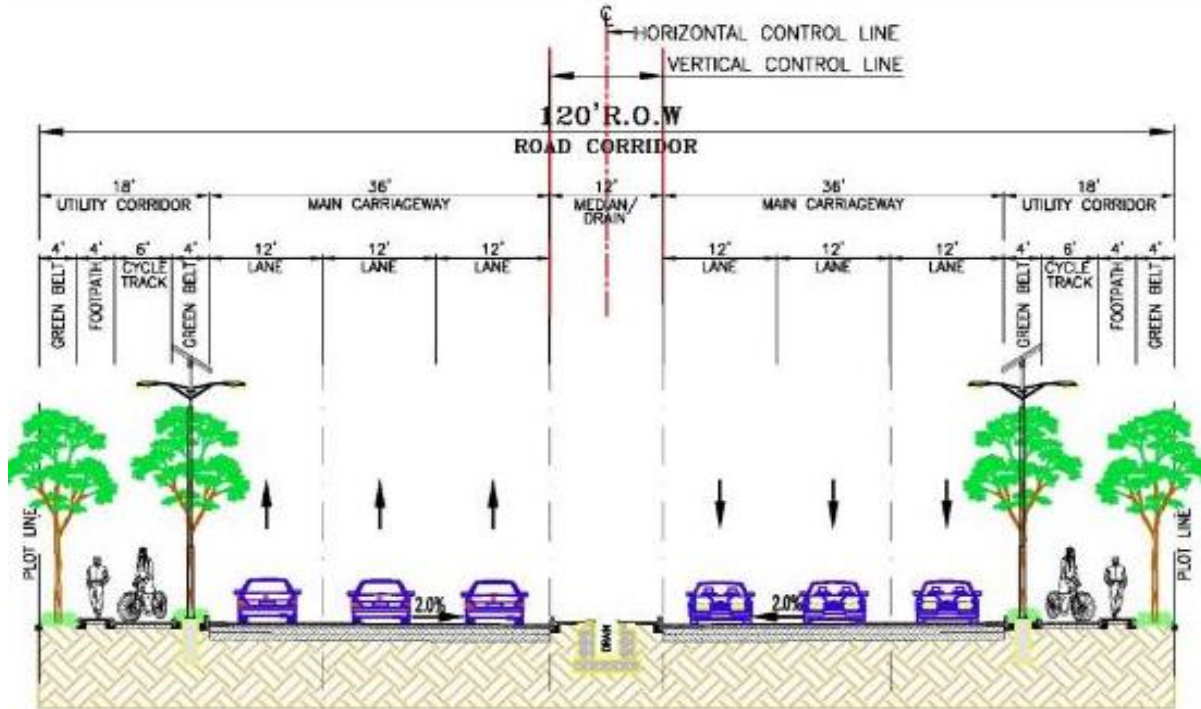


Figure 6-27: Proposed Cross Section for 120' ROW Faisalabad Bypass

6.9.2 Ring Road

All the major roads of Faisalabad City are linear and no effective link exists between them resulting in an independent traffic flow. The traffic from one road terminates on to the other road through the city junctions, thus creating undesirable traffic load on these junctions. To relax the traffic burden on the junctions within the city area, the establishment of a radial-ring road is the most suitable solution to the inter-roads traffic.

The Faisalabad Ring Road (FRR) is one of the key projects proposed by the Faisalabad Development Authority (FDA) for the development of the road network of Faisalabad and enhancing the traffic conditions of the city. The project was proposed keeping in view the following objectives under consideration;

1. To relieve the traffic on internal urban arteries.
2. Smooth and more efficient movement of goods and passengers.
3. Facilitate the traffic by providing different diversion options and reliable links.
4. Provide ease to the overall environment.

The detailed study of FRR was awarded to Techno Consult International in 2009. The study commenced in April 2010 and was completed in December 2011. The alignment of Faisalabad Ring Road was proposed by Techno Consult, which circled the city with a total length of 66km and 13 interchanges.

As per alignment study by Techno Consult:

- Length of proposed ring road = 66 km
- Nos. of Interchanges = 13
- The average distance from the city centre = 8 km

- *Total Travelled Time (Approx.) = 39 min.*

The proposed Option-1 as shown in **Figure 6.23** for Faisalabad Ring Road is passing through all the major Cordon/Entry/Exit points of Faisalabad City. Faisalabad Ring Road (Proposed by Techno Consult) is also serving the Faisalabad Bypass, which is a major part of the planning infrastructure of the city. The Ring Road will serve the traffic moving on the Faisalabad bypass as well to provide movement for them, in case they decide to travel within the city.

Based on available data from *the Feasibility Study for Mass Transit System in Faisalabad, December 2014*, one option has been proposed, the length of Option-2 is 54.2 km along with 12 nos. of interchanges as shown in **Figure 6.24**.

Option-2 have reduced length and travel time as compared to the option-1 as shown in **Table 6.13** given below.

Table 6-13: Features of Faisalabad Ring Road (FRR) Option-2

| Sr # | Description | Length (km) | Reduction in Length (km) | Reduction in Time (Minutes) |
|------|----------------|-------------|--------------------------|-----------------------------|
| 1 | FRR (Option-2) | 54.2 | 12 | 7 |

Faisalabad Ring Road will attract the majority of the road users travelling in and out of all the cordon points of the city as it will provide them with a faster and efficient means of travel from one part of the city to another. The Origin-Destination Surveys conducted on all the major cordon points mentioned in **Section 2** show that people travel via these routes on daily basis for different purposes such as work, business, education, shopping and social activities. With such a diverse movement along with these cordon points daily, a Ring Road passing through these points will benefit the daily road users greatly. People who enter the city from these points will not be restricted to using local roads for internal movements to other parts of the city and will easily be able to move to their desired locations.

Table 6.14 describes the parameters of all the two options proposed for Faisalabad Ring Road.

Table 6-14: Features of Faisalabad Ring Road (FRR) (Option-1 & 2)

| Sr # | Faisalabad Ring Road (FRR) Alignment | Length (km) | Interchanges (Nos.) |
|------|--------------------------------------|-------------|---------------------|
| 1 | Option-1 (By Techno Consult) | 66 | 13 |
| 2 | Option-2 | 54.2 | 12 |

Figure 6.25 shows all the three options of FRR along with cordon points. The creation of a complete ring connecting all major roads is not possible as the land in some of the areas is not available. However, an attempt can be made to connect Sheikhpura Road with Satayana Road via Jaranwala Road and Sargodha Road with Jhang Road via Narwala Road. These two links would facilitate the diversion of traffic to the inter-connecting road bypassing the main city junctions. The two links comprising of 26 km length will be constructed in Phase 1 under MTDP, whereas the 28 km of remaining ring road length will be taken up under LTDP. The total length of the dual carriageway Ring Road is approximately 54 Kilometers and the estimated cost is Rs. 540 million. The proposed Right-of-Way of the Ring Road is 120 feet. Thus, the total surface area becomes 21,260,880 sqft (470 acres).

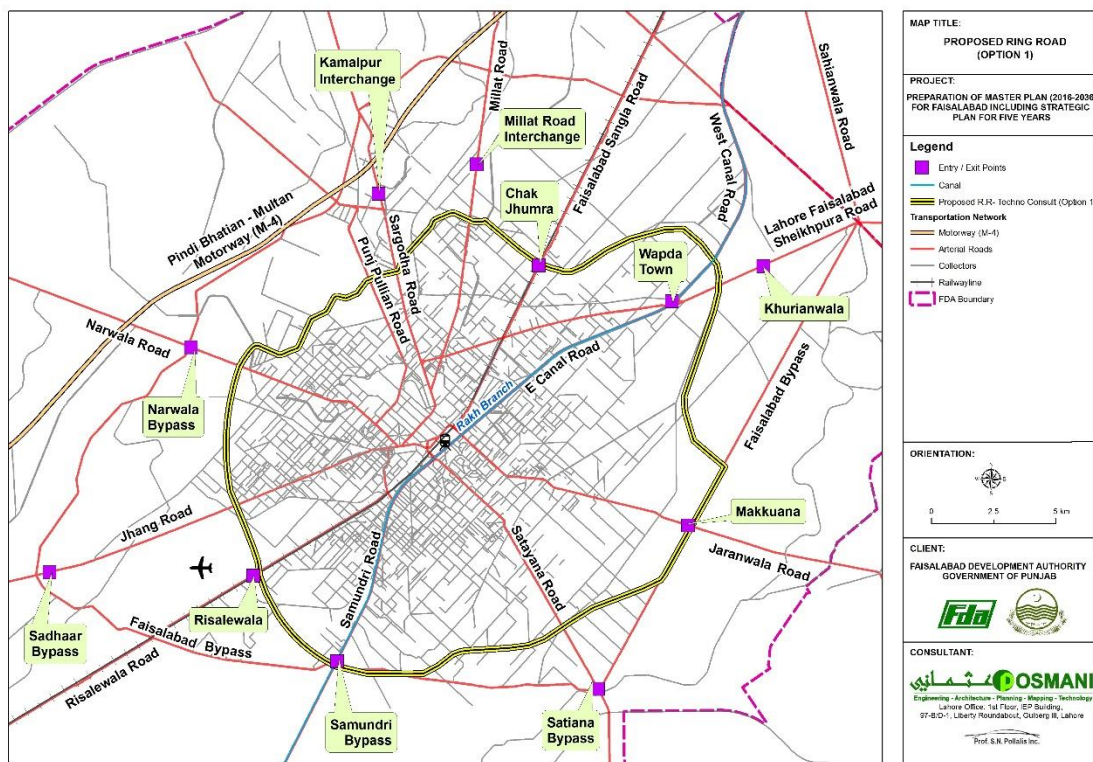


Figure 6-28: Faisalabad Ring Road (Option-1) with Cordon Points

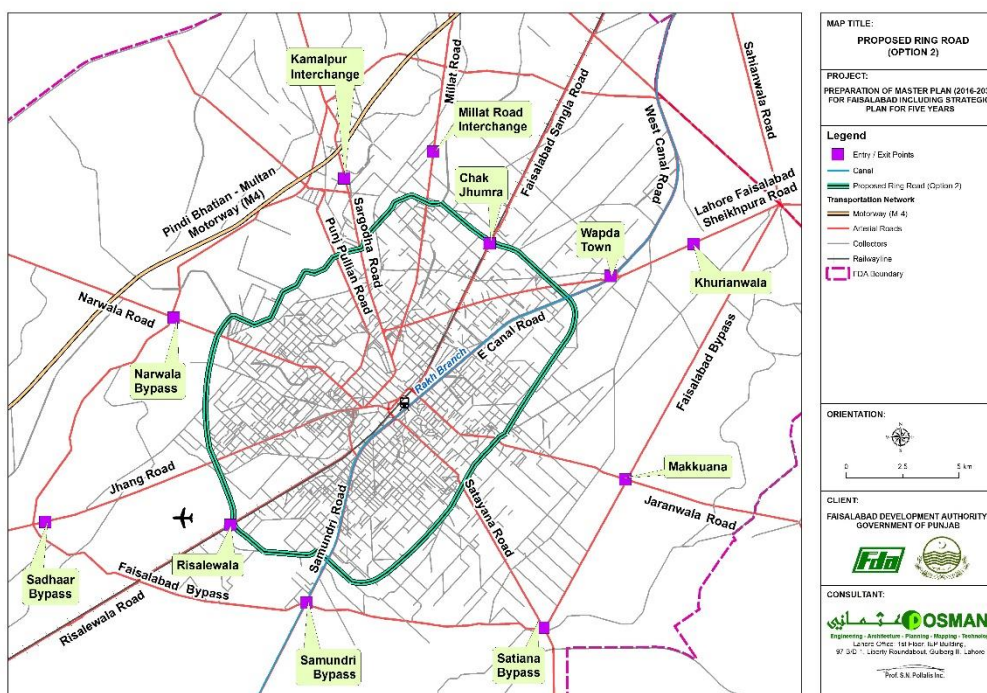


Figure 6-29: Faisalabad Ring Road (Option-2) with cordon points

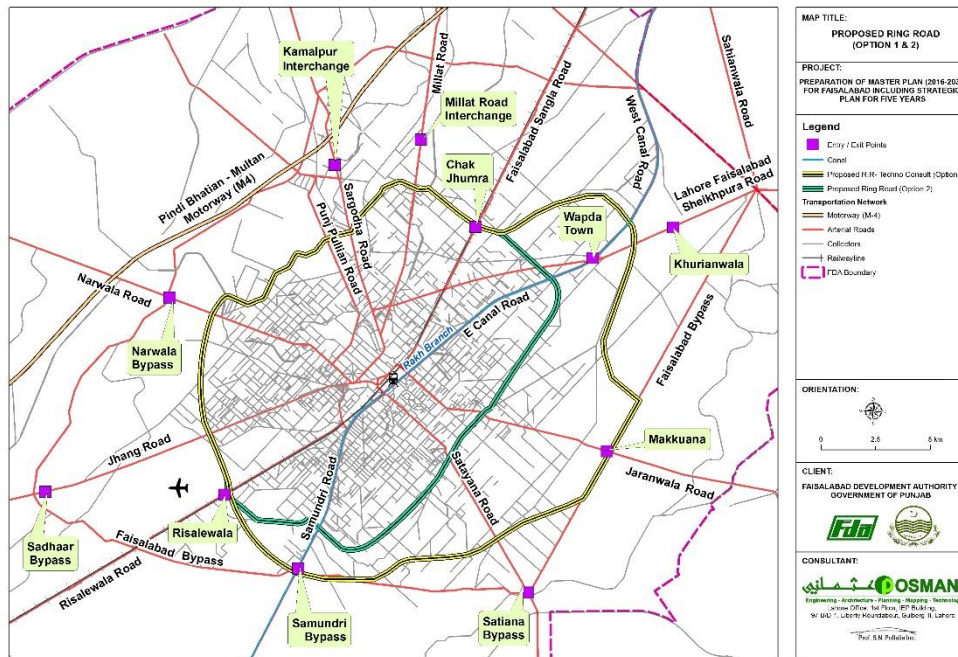


Figure 6-30: Faisalabad Ring Road (Option-1, 2) with Cordon Point

6.9.3 Proposed Road Linking M3IC Industrial City with Faisalabad Bypass

To improve the connectivity of the M-3 Industrial Estate a road has also been proposed linking Industrial Estate with the Faisalabad Bypass along the exiting drain. The length of this road would be 4.2 kilometres with a Right-of-way of 80 feet the area of this road would be 25.3 acres as shown in Figure 6.26.

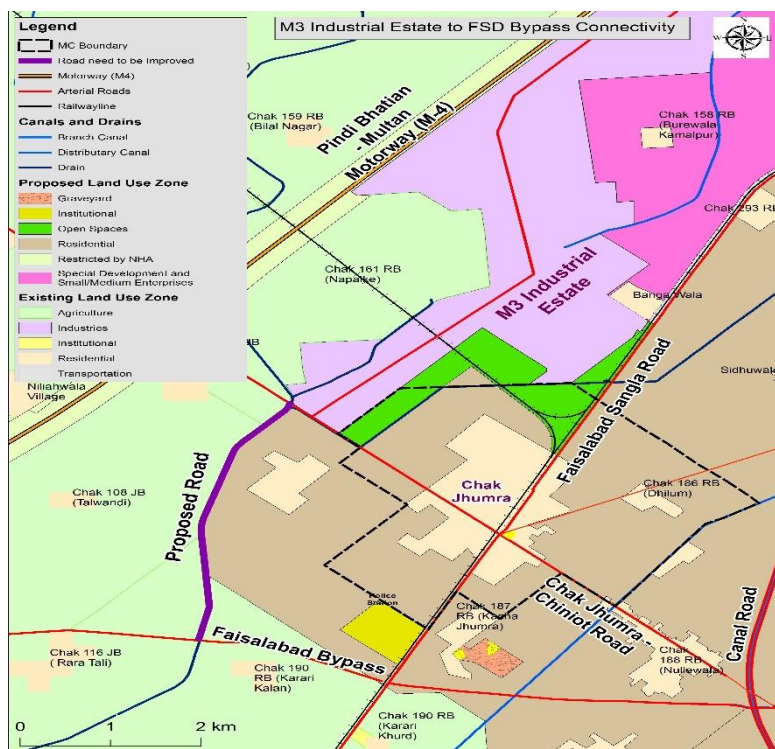


Figure 6-31: Link to M3 Industrial Estate (FIEDMC) with Faisalabad Bypass

6.9.4 Khurrianwala Arterial Road Network

Khurrianwala Town about 20 Kilometers from Faisalabad on Lahore-Sheikhupura-Faisalabad Road has been growing as an urban settlement. Industrial Estate by the name of Value-Added City (Faisalabad Garment City Company) and other important industries on Khurrianwala-Sheikhupura Road and Khurrianwala-Jaranwala Road already exist there. The town would expand at a fast pace due to the proposed Industrial Estate and proposed Residential, Commercial, Institutional and Recreational development. Therefore, its arterial road network needs to be improved without further delay. The existing Right-of-Way of Khurrianwala-Faisalabad Road is 120 feet. The same Right-of-Way is fixed for Khurrianwala-Sheikhupura Road i.e., 120 feet. Khurrianwala-Jaranwala Road is an important link, and it would further become more important due to industrial development, therefore, it is proposed that its Right-of-Way be further widened from 100 feet to 120 feet. Khurrianwala-Sahianwala Road is an important link between Khurrianwala-Chiniot and between two industrial estates, therefore, its Right-of-Way is increased from 70 feet to 120 feet. The Right-of-Way of the Faisalabad Bypass varies from 60 feet to 80 feet. Keeping in view its importance in future, it is proposed that its Right-of-Way be fixed as 120 feet dual carriage-way throughout its length. With the proposed commercial, institutional and recreational development in Khurrianwala town the Khurrianwala - Khanuana road would become important in future. Therefore, it is proposed that its Right-of-Way be fixed as 100 feet. If due to paucity of funds it is difficult to acquire land for the widening of the Right-of-Way of Roads building construction should not be allowed within 50 feet from the centre on either side of the road where the Right-of-Way is fixed as 100 feet. Similarly, buildings should not be allowed within 60 feet from the centre of the road on either side where the Right-of-Way has been fixed as 120 feet. Most of these road segments will be improved under other identified projects.

Currently, seven existing roads have been radiating out from the Khurrianwala Town as presented in **Figure 6.27**. Their names and Right-of-ways are given in the following **Table 6.15**.

Table 6-15: Khurrianwala Roads with Existing and Proposed Right-of-Ways

| Sr # | Name of Road | Existing Right-of-Way (ROW) in feet | Proposed Right-of-Way (ROW) in feet |
|------|-------------------------------|-------------------------------------|-------------------------------------|
| 1 | Khurrianwala-Sheikhupura Road | 100 | 120 |
| 2 | Khurrianwala-Faisalabad Road | 120 | 120 |
| 3 | Khurrianwala-Jaranwala Road | 100 | 120 |
| 4 | Khurrianwala-Sahianwala Road | 70 | 120 |
| 5 | Khurrianwala-Makuana Bypass | 80 | 100 |
| 6 | Khurrianwala-Canal Bypass | 60 | 100 |
| 7 | Khurrianwala-Khanuana Road | 40 | 100 |

6.9.5 Khurrianwala Bypass

To improve the traffic condition in the town and to achieve sustainable industrial development in the proposed Zone a Bypass has been proposed around the town. The length of this bypass would be 14.7 kilometres with a Right-of-way of 100 ft. The total area required for this bypass would be 111 acres. This proposed bypass would connect all the roads converging in the centre of the town thereby improving the connectivity among radial roads as depicted in **Figure 6.27**.

6.9.6 Khurrianwala Bus Terminal

A Bus Terminal over an area of 31 acres has been proposed on Lahore-Sheikhupura-Faisalabad Road to cater for the needs of the industrial town as shown in **Figure 6.27**.

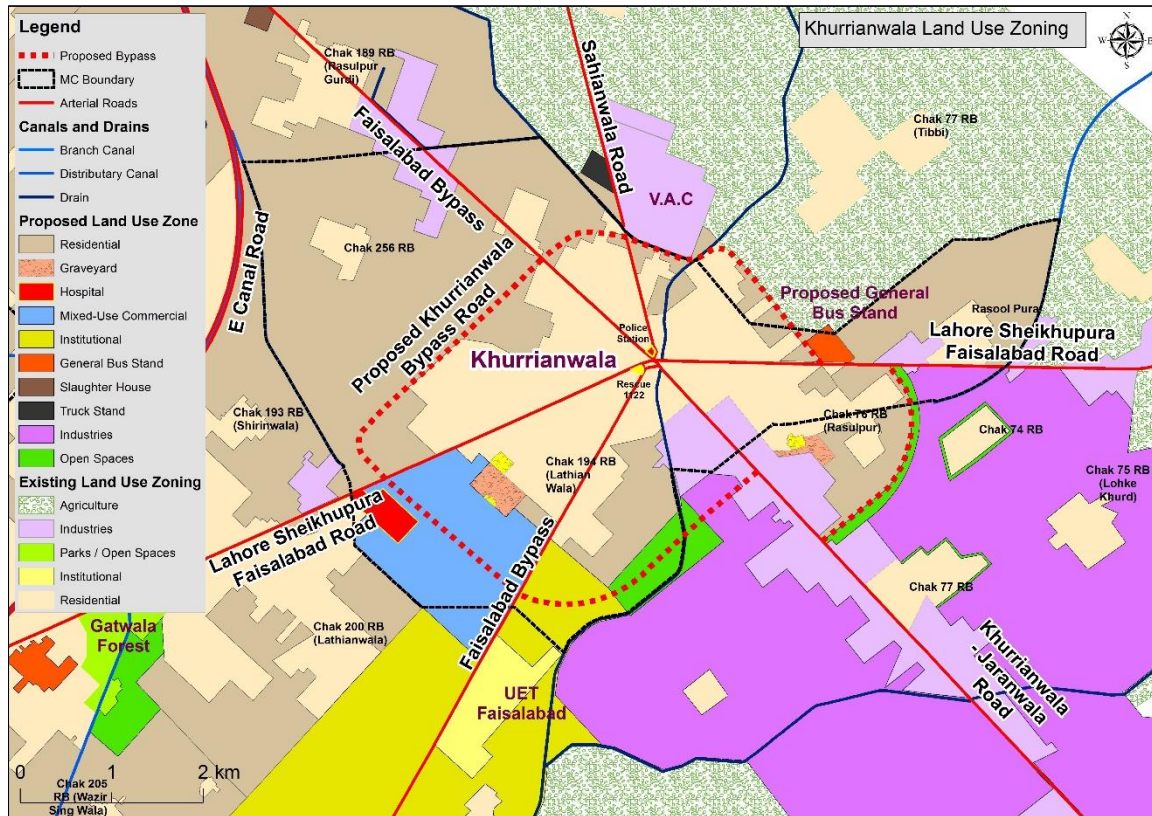


Figure 6-32: Khurrianwala Arterial Network - Proposed Bypass – Proposed Bus Stand

6.9.7 Linkages to Lahore-Karachi Motorway (M-3) I.E., Satayana Road and Samundri Road

Two interchanges on M3 links Faisalabad city with the Lahore-Karachi Motorway i.e., Syed Wala Jaranwala Interchange and Samundri Interchange. It is proposed that one more interchange be developed in between these two interchanges at Satayana Road. This would further shorten the travelling between Faisalabad and M-3 Motorway. The proposed interchange has been shown in **Figure 6.28**.

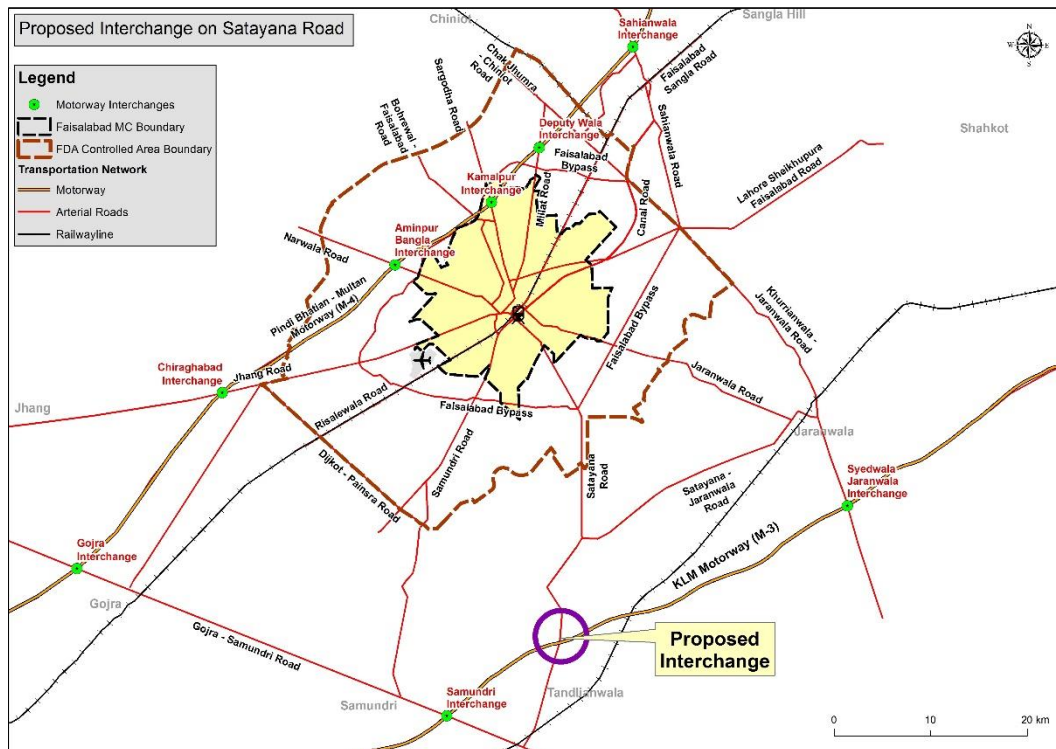


Figure 6-33: Proposed Interchange on M3 at Satayana Road

6.9.8 Improvement of Existing Link Roads Between Risalewala Road and Jhang Road

It is proposed that two existing link roads of Science City between Risalewala Road and Jhang Road be widened, and 9 junctions of these links are improved. The total length of these links is 14 Km and the existing ROW is 40 ft. It is proposed that the Right-of-Way (ROW) of these links be increased to 80 feet. In this way, the total area required to be acquired for these links would be 42 acres. The suggested links and associated junction to be improved within Science City are shown in **Figure 6.29**.

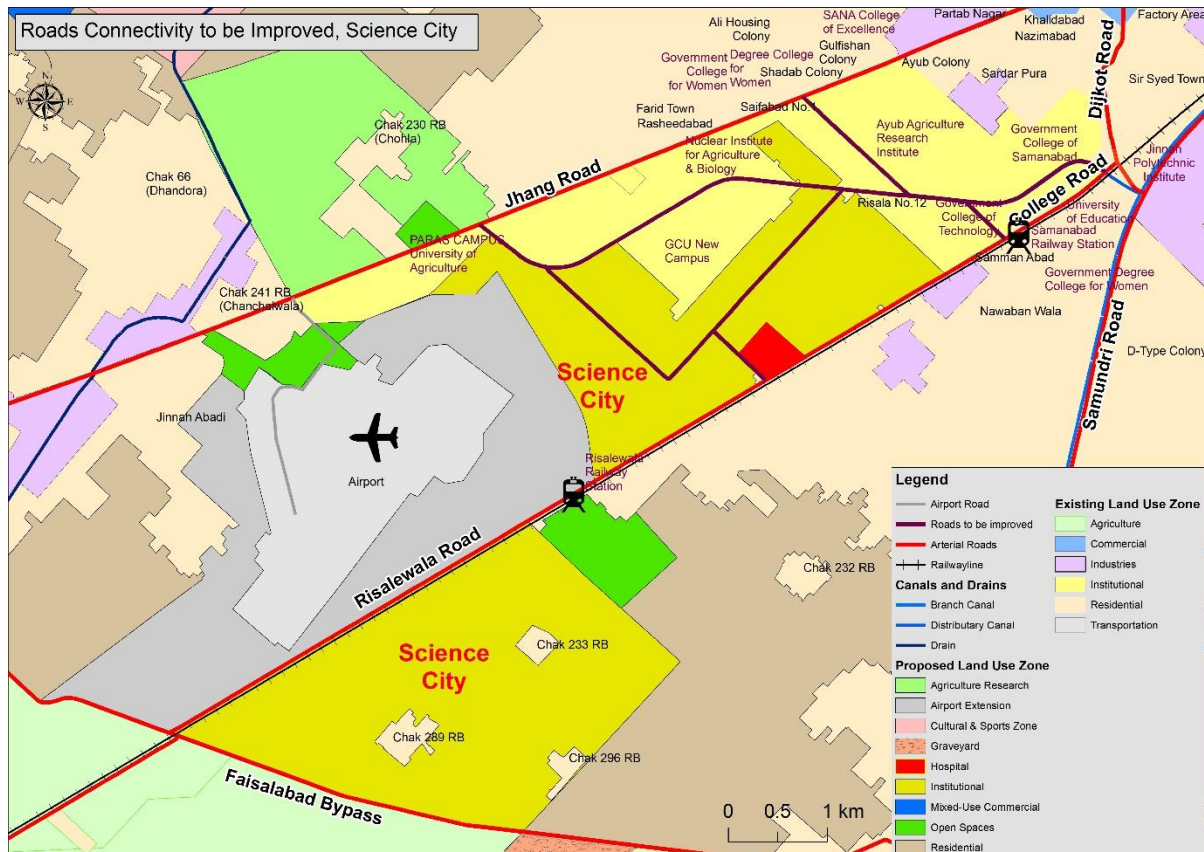


Figure 6-34: Improvement of Proposed Links and Associated Junctions of Science City

Refer to **Table 6.16** below for the approximate budget needed for mid-term development projects:

Table 6-16: Approximate Budget Amount for MTDP

| S. No. | Project Description | Qty | Unit | Rate (Pak Rs.) | Budget Amount (Pak Million Rs.) |
|---|--|-------|-------|----------------|---------------------------------|
| 1 | Proposed New Road Network (Phase II) | 135 | Km | 110,035,768 | 14,855 |
| 2 | Faisalabad Bypass Rehabilitation | 95 | Km | 75,600,000 | 7,182 |
| 3 | Construction of Faisalabad Ring Road Links (Phase 1) | 26 | Km | 205,840,000 | 5,352 |
| 4 | Faisalabad Bypass Link with M3-Industrial Estate (FIEDMC) | 4.20 | Km | 142,250,000 | 597 |
| 5 | Khurrianwala Bypass | 14.70 | Km | 190,840,000 | 2,805 |
| 6 | Khurrianwala Bus Stand | 31 | Acres | 110,000,000 | 3,410 |
| 7 | Interchange on M3 at Satyana Road | 1 | No. | 2,500,000,000 | 2,500 |
| 8 | Improvement of Existing Links and Associated Junctions of Science City | 14 | Km | 131,600,000 | 1,842 |
| 9 | Airport Link between Risalewala and Jhang Roads | 4 | Km | 190,840,000 | 763 |
| 10 | Pedestrian Bridges in CBD Area (Phase 2 – 15 out of 52) | 15 | Nos. | 65,000,000 | 975 |
| Sub-Total Amount Million Rs. | | | | | 40,281 |
| Consultancy Services for Preliminary Design, Detailed Design, Tender Documents and Construction Supervision of MTDPs (5% of Total Cost) | | | | | 2,014 |
| Total Amount Million Rs. | | | | | 42,295 |

6.10 LONG TERM DEVELOPMENT PROJECTS (LTDP) – 2030 TO 2041

There are several projects which need to be undertaken under Long Term to develop the transport sector of Faisalabad. The major ones include the construction of an expressway between motorways M-3 and M-4, railways shuttle service from Sangla Hill to Abbaspur in two phases and construction of BRT corridors (Red Line and Orange Line). Besides, General Bus Stands on Millat Road and Lahore – Sheikhupura – Faisalabad Road, Extension of Truck Stands on Sargodha Road, construction of new Truck Stands on Faisalabad Bypass near Satayana Road, Sahianwala Road near VAC and Sahianwala Interchange on M4 are also proposed as part of LTDP.

The long-term development projects discussed in the following paras are conceptual only for the Master Plan of Faisalabad. Further refinement through preliminary design and detailed design by appointed Consultants of the executing agency will be required before the preparation of tender documents for execution of these projects. The rough cost is indicative and only based on similar projects.

6.10.1 Construction of Expressway Between Motorway M-3 and M-4

To improve connectivity and convenience, Motorway M-3 and M-4 are proposed to be connected by the construction of Expressway on the Public-Private Partnership Model. This road will link Sahianwala Interchange on M4 and Syed Wala Jaranwala Interchange on M3 through Khurrianwala – Jaranwala Road. It will improve intercity connectivity and gear up industrialization. The approximate length of the proposed expressway is 54.5 km, 45.8 km, 50.4 km and 41.2 km with 120' ROW. **Figure 6.36, Figure 6.37, Figure 6.38** shows the proposed alignment of the expressway connecting M3 and M4.

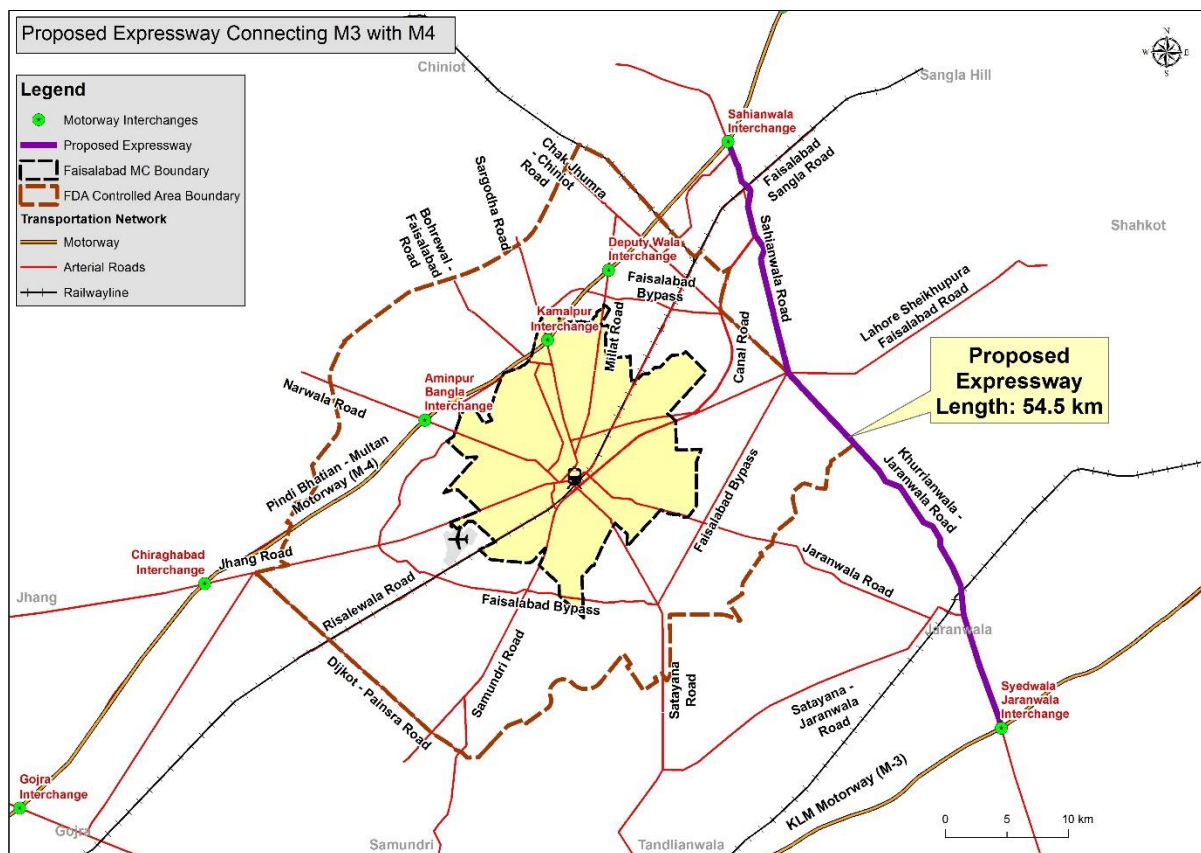


Figure 6-35: Proposed Expressway Connecting Motorways M3 and M4

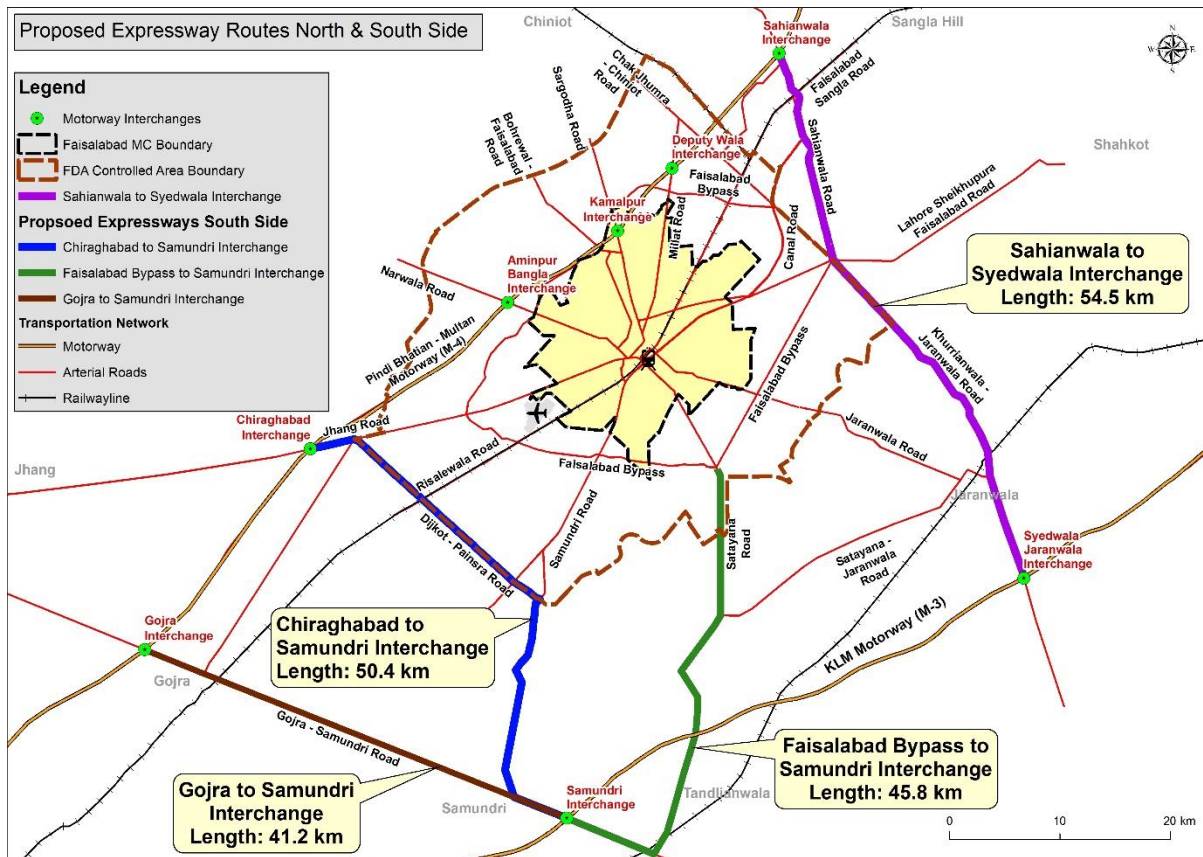


Figure 6-36: Proposed Expressway Routes North & South Side

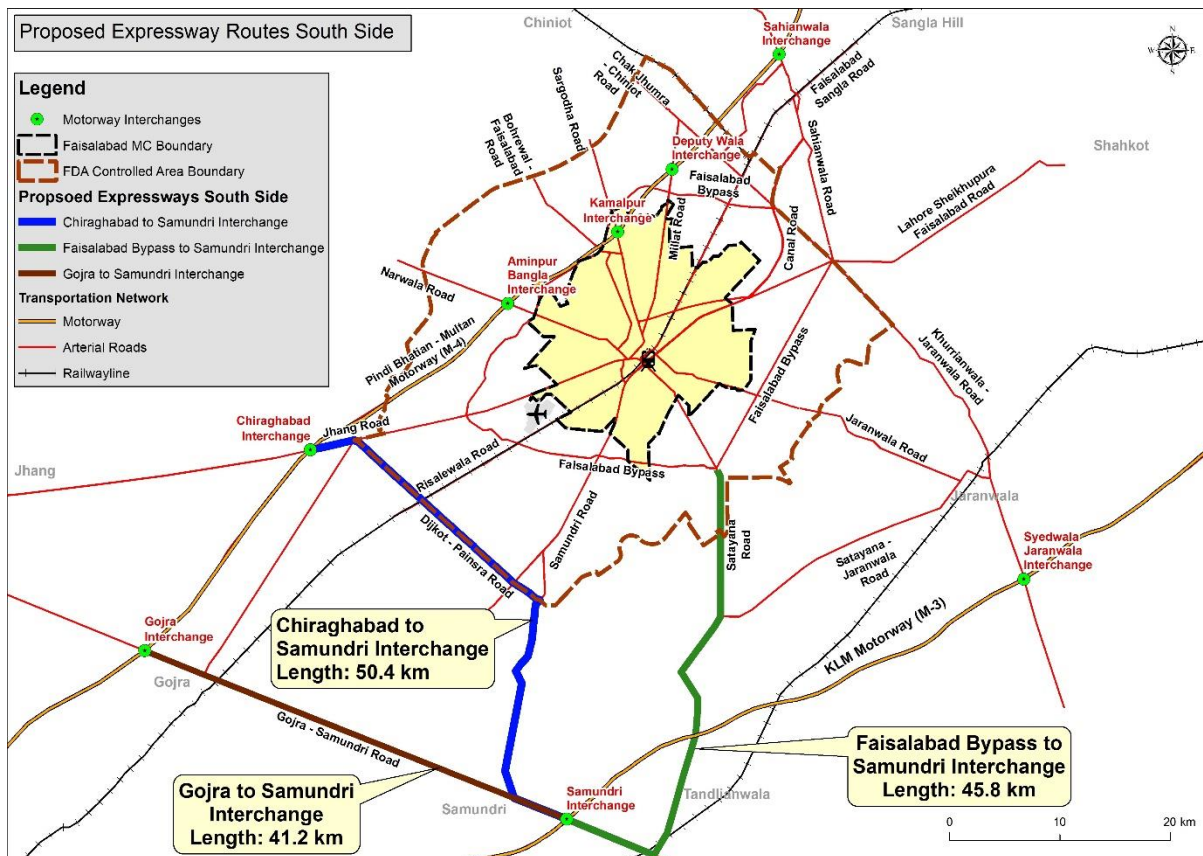


Figure 6-37: Proposed Expressway Routes South Side

6.10.2 Railways Shuttle Service from Sangla Hill To Abbaspur

A maximum number of passengers travel to Lahore, followed by Karachi. The Rail network is used by people living at Sangla Hill, Chak Jhumra, Gatti, Toba Take Singh and Gojra. The people travel in the usual express and slow trains. The express trains are always overcrowded and tightly packed. On the other hand, passenger trains run very slow and a lot of man-hours are wasted. To overcome this problem to improve traffic conditions in the Faisalabad city and to facilitate mass movement of industrial labour a Railway Shuttle Service has been proposed from Sangla Hill to Abbaspur Railway Station as shown in **Figure 6.32**. The total length of this shuttle service would be about 60 Kilometers which would be laid in two phases. In the first phase, the shuttle service would be provided from Sangla Hill to Gatti Dry Port via Sahianwala and Chak Jhumra. The total length of the first phase would be about 34 Kilometers. In the 2nd phase, the shuttle service would be extended from Gatti Dry Port to Abbaspur via Faisalabad. The total length of the 2nd phase would be 26 kilometres.

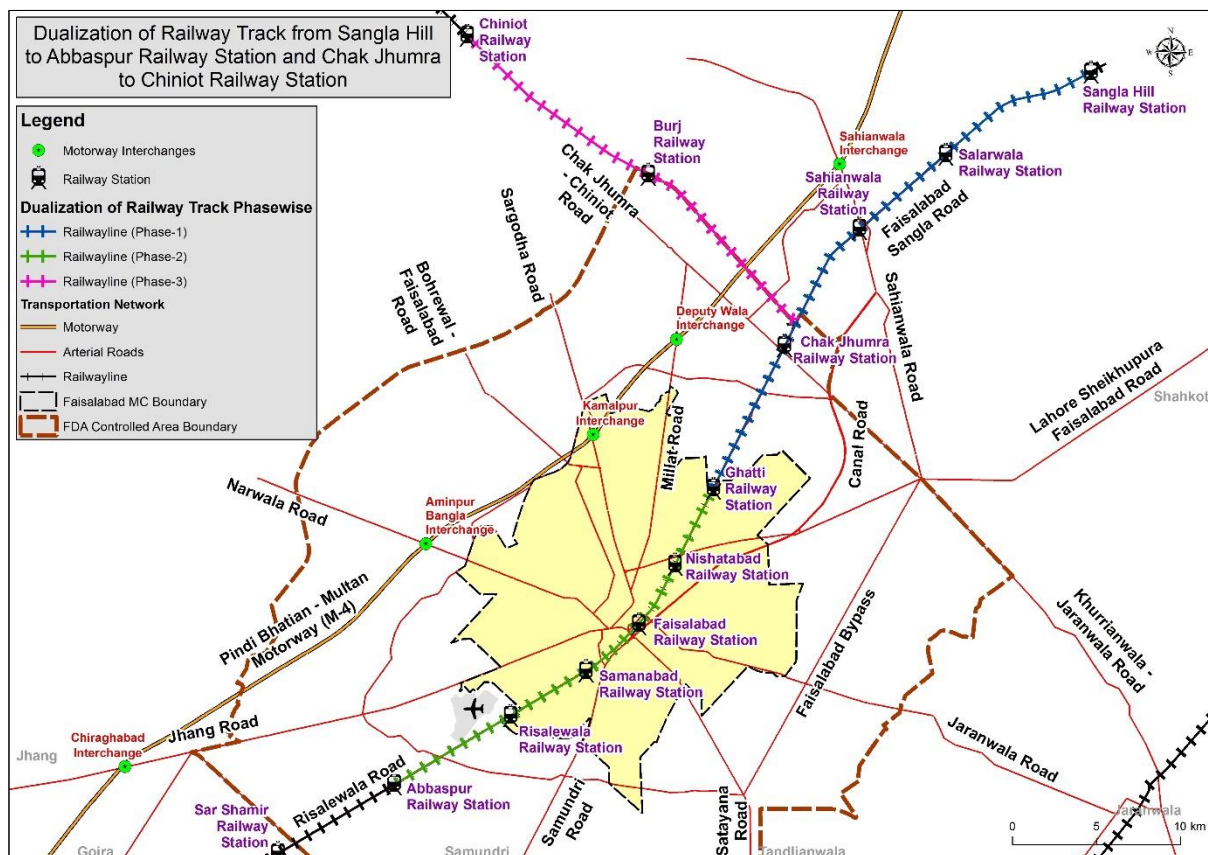


Figure 6-38: Proposed Railway Shuttle Service from Sangla Hill to Abbaspur Railway Station

6.10.3 General Bus Stand

The present General Bus Stand (GBS) often called Lari Adda spread over an area of about 31.3 acres is located in the centre of the city along Sargodha Road. In close vicinity to the Lari Adda, there is a Government Transport Service (GTS) bus stand on 8.3 acres. Besides, the private transporters bus stands are also scattered in the city centre as shown in the figure below for Faisal Movers, Kohistan Express, Bilal Travels, New Subhan Bus Service, Nadir Flying Coach, Daewoo Express, Al-Halal Travels, etc. Traffic accidents, congestion in addition to environmental pollution are the problems associated with these bus stands in the centre. They are required to be shifted out from the centre of the city. Four General Bus Stands have been proposed for the city traffic. One has been proposed on Millat Road at a distance of about 11 kilometres from the centre of the city with an area of 34.2 acres. It would cater for

the traffic requirements coming from Sargodha and Islamabad through Pindi-Bhettian-Multan Motorway (M4). The second two GBS has been proposed on Lahore-Sheikhupura-Faisalabad Road about 11 kilometres from the centre of the town, with an area of 90.6 acres. Both the proposed General Bus Stands are 2.5 kilometres away from the proposed Ring Road. And the last GBS has been proposed on Satyana road with an area of 43.1 acres. The vacant land is available at both proposed locations, but the land is to be purchased from the open market. Faisalabad Municipal Corporation (FMC) is the agency responsible for developing and maintaining the General Bus Stand. A suitable fee can be levied to recover the investment. The initial investment may be loaned by the Government to FMC. The location of both the above-proposed bus terminals is presented. A General Bus stand in Khurrianwala on 31 acres along Lahore – Sheikhupura – Faisalabad Road is also proposed as already discussed under MTDPs.

The land vacated by the General Bus Stand (Lari Adda), belonging to the Municipal Corporation/provincial government may be utilized as City Park. Figure 6.33 below shows the existing & proposed bus terminals.

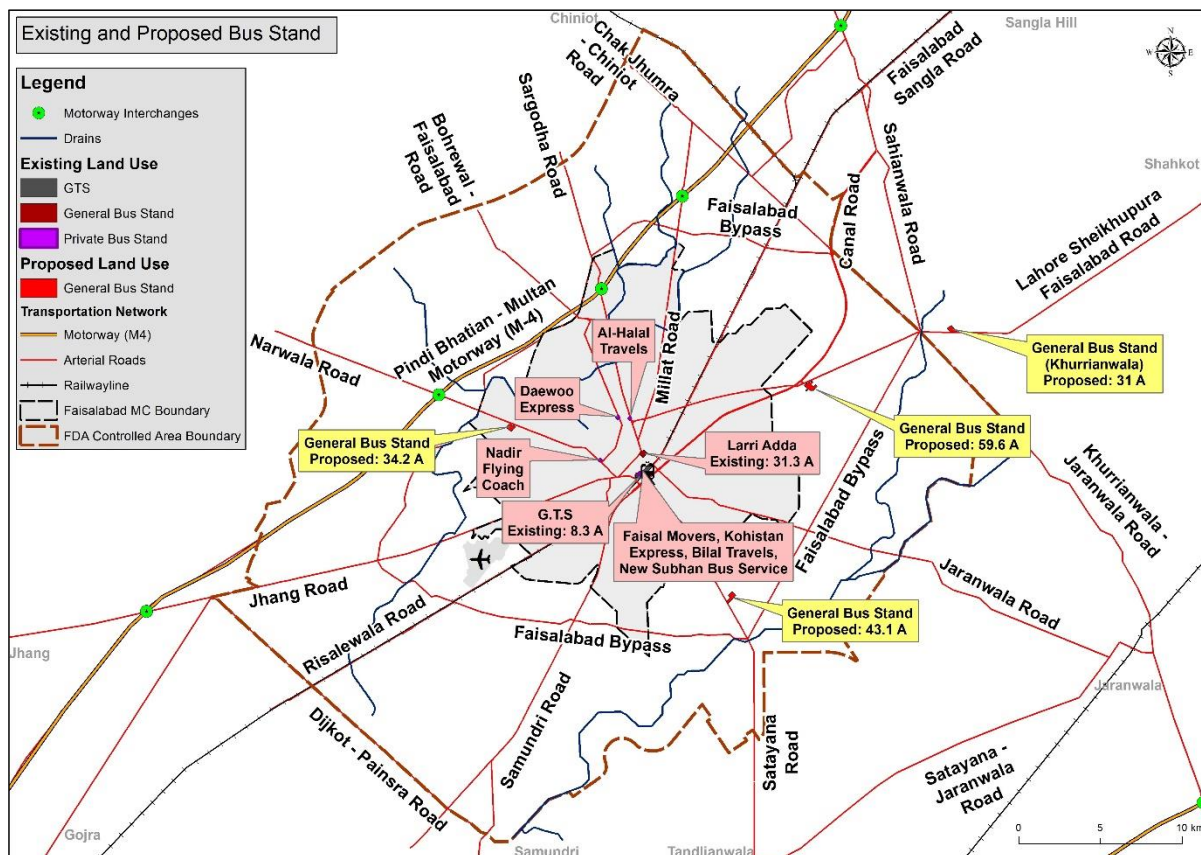


Figure 6-39: Existing and Proposed Bus Terminals

6.10.4 Truck Terminals, Auto Workshops and Auto Spare Parts Markets

A Truck Stand along with workshops has been recently established on Jhang Road having an area measuring 15.3 acres. One existing truck stand at the junction of Sargodha Road and Faisalabad Bypass is proposed to be increased in area from 16.1 acres to 13.9 acres. Goods forwarding agencies, auto workshops and an auto spare parts market are also proposed to be accommodated within this area. One truck stand measuring 39.4 acres has been proposed on Faisalabad Bypass near its junction with Satayana Road. This would cater for the needs of goods traffic coming from the southern side of the city. Goods forwarding agencies and auto workshops would also be accommodated within this area to facilitate the repair and

maintenance of heavy vehicles. It is appropriate that an auto spare parts market may also be planned within this area. A Truck Stand on 22 acres is proposed on Sahianwala Road in the vicinity of the planned Khurrianwala Industrial area, Value Added City (VAC) and existing industries on Khurrianwala-Sheikhupura Road and Khurrianwala-Jaranwala Road. Another Truck Stand is planned on 21.8 acres near Sahianwala Interchange on M4 to serve the M3 Industrial Estate (FIEDMC). All the existing and proposed truck stands are shown in the Figure 6.34 below.

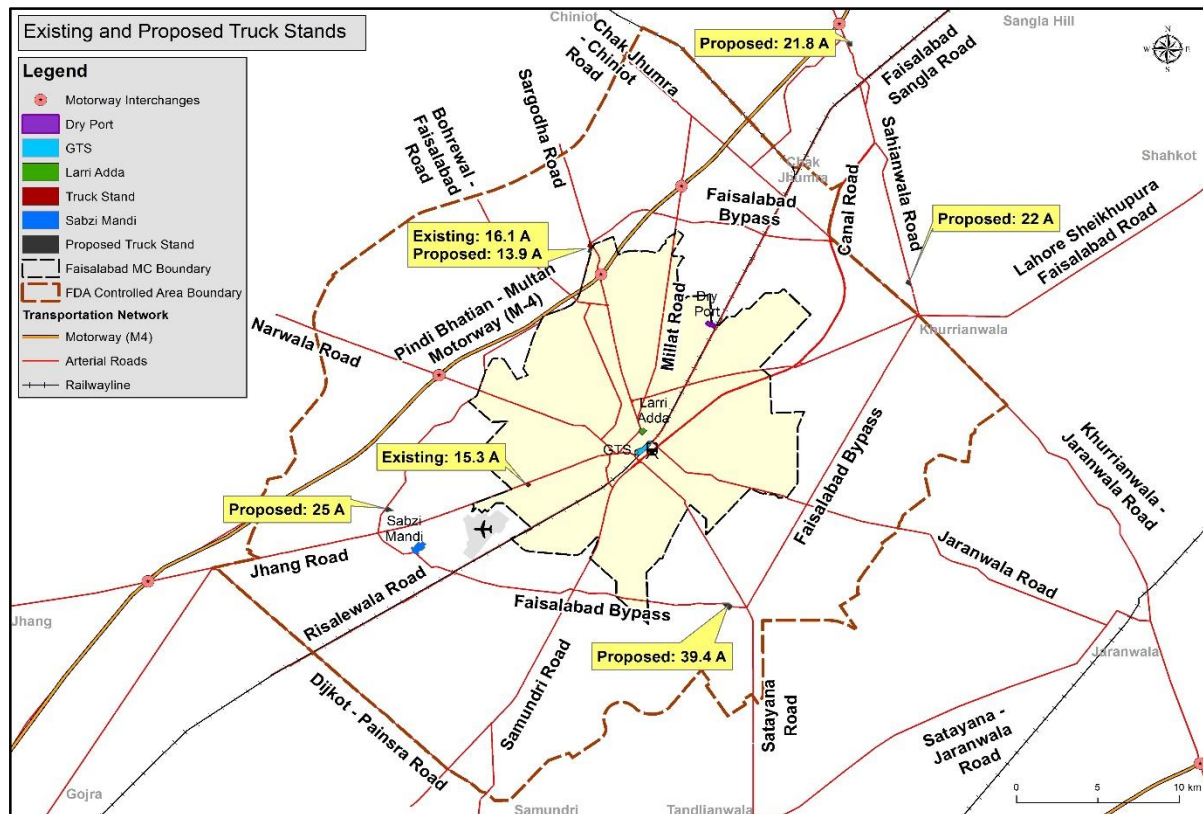


Figure 6-40: Existing and Proposed Truck Stands

6.10.5 Dry Port

The existing dry port at Gatti Railway Station covering an area of 23.1 acres is proposed to be extended to 66 acres as the goods traffic would increase many folds with the increase in industrial manufacturing activity in the city in the shape of new industrial estates. The existing dry port location is shown in **Figure 6.35**.

6.10.6 Shifting of Oil Depots

The Bulk Oil Depots belonging to M/s Pakistan State Oil, M/s Caltex and M/s Burma Shell are presently located over an area measuring 9.1 acres along Ganesh Mills road in the heart of the city. The existence of these depots is a serious safety risk. There is an urgent need for shifting these Depots from this area on a top priority basis to ensure public safety. M/s Pak-Arab Refinery Company (PARCO) has developed a site over 66 acres at Chak No. 201/RB (Gatti) for the establishment of Bulk Oil Depots near Gatti Railway Station along Jhumra Road. PSO also has an Oil Depot over an area of 12.4 acres 6 kilometres from Gatti towards Sangla Hill. Shifting these Depots to the proposed PARCO site would not only eliminate the public safety risk but also reduce the traffic problems in the city centre. The site so vacated may be used for flatted industries with adequate car parking in the basement. This area may also be used for middle-class apartment housing. The existing and proposed bulk depots for dry port, PSO, Caltex, Burma Shell and PARCO are shown in **Figure 6.35**.

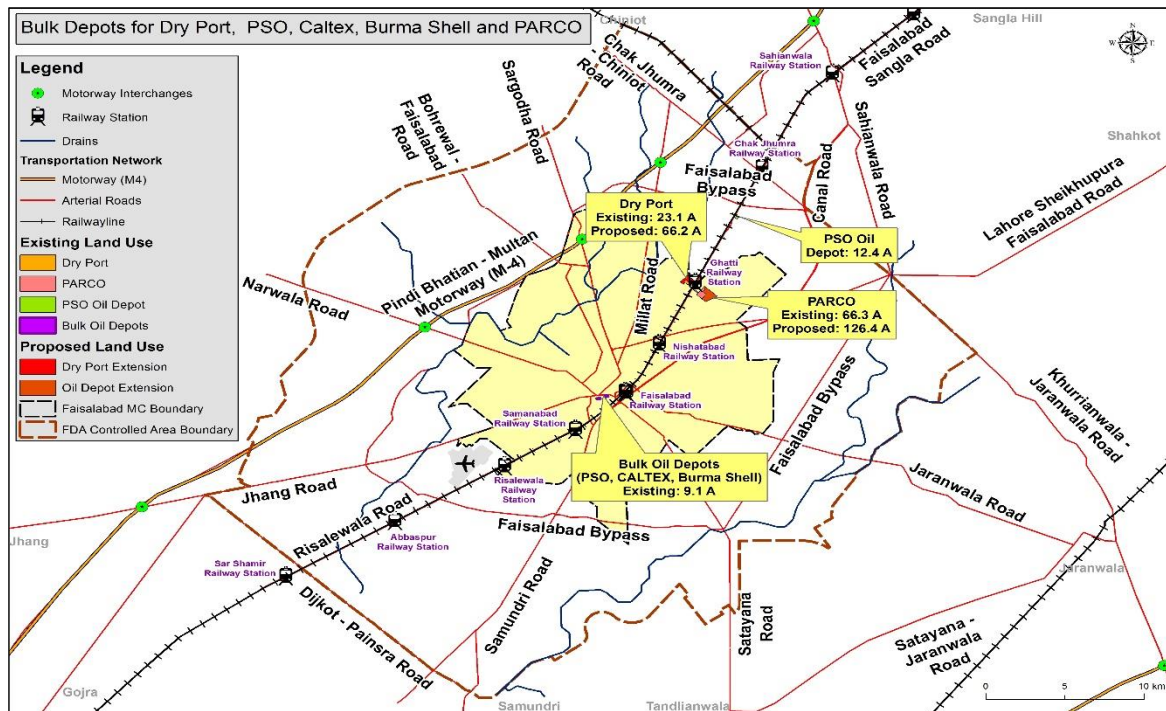


Figure 6-41: Existing and Proposed Bulk Depots for Dry Port, PSO, Caltex, Burma Shell and PARCO

6.10.7 Mass Transit System (Bus Rapid Transit)

As advised in *The Feasibility Study for Mass Transit System in Faisalabad, December 2016*, and discussed in preceding **Section 3**, there are two potential BRT corridors in Faisalabad:

1. Red Line
2. Orange Line

However, since the Feasibility Study for mass transit systems was carried out a long time ago, it is recommended to re-validate the study before the execution of BRT corridors or any other associated contracts. The parameters of the corridors of the Faisalabad BRT System are shown in table below.

Table 6-17: The parameters of the corridors of Faisalabad BRT System

| Line Name | Line Length (Km) | | | No. of Stations | | |
|-------------------------|------------------|--------------|--------------|-----------------|-----------|-----------|
| | Elevated | At-Grade | Total | Elevated | At-Grade | Total |
| Red Line | 8.85 | 12.68 | 21.53 | 10 | 14 | 24 |
| Orange Line | 4.68 | 14.67 | 19.35 | 6 | 15 | 21 |
| Orange Line (Extension) | - | 9.56 | 9.56 | - | 8 | 8 |
| Total | 13.53 | 36.91 | 50.44 | 16 | 37 | 53 |

The Alignment of the proposed lines in the Feasibility Study Report for Mass Transit System, Faisalabad is shown in Figure 6-8 of section 3:

6.10.8 Feasibility Study for Integrated Bus Operations (IBO)

An integrated public transport system provides seamless travel to a passenger who can enjoy good services connection, reasonable waiting time at transfer, comprehensive information and integrated ticketing between different transport modes. Consequently, the system is essential

to offer passengers integrated travel using all public transport modes to suit their routing. The major components of an IBO are as follows:

Fare Integration:

The introduction of a single, common fare smartcard that can be used in the recommended Primary (Mass Transit routes), Trunk and Feeder services of Public Transport. Fares could be distance-based fare, flat fare, or zone-based fare.

Physical Integration:

Physical Integration of Public Transport Network which will ease commuters transfer from one mode to another.

Operational Integration:

Operational Integration aspect of the planned system which will ensure that headway (Successive interval between buses) and operation hours matched between different types of Public Transport Services.

Information Integration:

Information Integration of public transport services to provide fare information, route information and departure and arrival time to commuters.

For IBO Network Operation following are essential features:

Physical Infrastructure:

The public transport infrastructure for IBO contains bus stops, bus bays, depots, terminal stations, and other allied facilities associated with the smooth and efficient operation of the public transport of the city.

Engineering & Communication System:

It includes Command and Control Center (CCC), Automated Fare Collection System (AFCS), Surveillance System (SS), Bus Scheduling System (BSS)

The major cost components of an IBO are as follows:

Civil Works Costs:

Civil works costs include infrastructure cost, parking facilities cost and other costs (contingencies etc.).

Operational Cost:

Operational cost includes procurement, operation, and maintenance of buses; operation and maintenance (O&M) of engineering systems and other O & M Costs.

A Feasibility Study is required to be conducted for Integrated Bus Operations (IBO) in Faisalabad before its implementation.

6.10.9 Feasibility Study for Circular Connectivity of Thirteen (13) Radial Roads

After the up-gradation of the Faisalabad Bypass and construction of Faisalabad Ring Road, the expansion of the existing radial road network with circular connectivity is essential in the form of shorter / partial ring roads. A Feasibility Study needs to be conducted to identify those links for circular connectivity of radial road network comprising of 13 roads. Refer to Table 6.18 for the approximate budget needed for long term development projects:

Table 6-18: Approximate Budget Amount for LTDP

| Sr. No. | Project Description | Qty. | Unit | Rate (Pak Rs.) | Budget Amount (Pak Million Rs.) |
|---|---|--------|------|----------------|---------------------------------|
| 1 | Proposed New Road Network (Phase III) | 320 | Km | 121,052,035 | 38,737 |
| 2 | Construction of Expressway Connecting M3 and M4 | 54.50 | Km. | 205,840,000 | 11,218 |
| 3 | Railway Track from Sangla Hill to Gatti Dry Port (Phase 1) | 34 | Km. | 75,000,000 | 2,550 |
| 4 | Railway Track from Gatti Dry Port to Abbaspur (Phase 2) | 26 | Km. | 75,000,000 | 1,950 |
| 5 | Construction of Faisalabad Ring Road Remaining Links (Phase 2) | 28 | Km. | 205,840,000 | 5,764 |
| 6 | General Bus Stand on Millat Road | 75.90 | Acre | 110,000,000 | 8,349 |
| 7 | General Bus Stand on Lahore - Sheikupura - Faisalabad Road | 84.30 | Acre | 110,000,000 | 9,273 |
| 8 | Extension of Existing Truck Stand on Sargodha Road | 37.50 | Acre | 50,000,000 | 1,875 |
| 9 | Truck Stand on Faisalabad Bypass Near Satayana Road | 110.80 | Acre | 50,000,000 | 5,540 |
| 10 | Truck Stand on Sahianwala Road near VAC | 22 | Acre | 50,000,000 | 1,100 |
| 11 | Truck Stand on Sahianwala Interchange on M4 | 21.80 | Acre | 50,000,000 | 1,090 |
| 12 | Extension of Dry Port at Gatti Railway Station | 43.10 | Acre | 50,000,000 | 2,155 |
| 13 | Construction of BRT Corridors (Red Line + Orange Line) | 50.44 | Km. | 1,795,200,000 | 90,550 |
| 14 | Pedestrian Bridges in CBD Area (Phase 3 - 27 out of 52) | 27 | Nos. | 65,000,000 | 1,755 |
| 15 | Feasibility Study for Integrated Bus Operations (IBO) | - | - | 100,000,000 | 100 |
| 16 | Feasibility Study for Circular Connectivity of Thirteen (13) Radial Roads | - | - | 100,000,000 | 100 |
| Sub-Total Amount Million Rs. | | | | | 182,106 |
| Consultancy Services for Preliminary Design, Detailed Design, Tender Documents and Construction Supervision of STDPS (5% of Total Cost) | | | | | 9,105 |
| Total Amount Million Rs. | | | | | 191,211 |

6.10.10 Prioritized Plan – 2021 to 2041

The prioritized plan for Transport Projects with timeline and priority for the proposed projects with possible modes of financing are given in **Annex B.2**.

6.11 STRATEGIC DEVELOPMENTS IN TRAFFIC & PUBLIC MANAGEMENT

For improvement of the overall traffic and public movement scenario in Faisalabad, several steps need to be taken to make developments in these sectors. These solutions do not necessarily address capital-intensive infrastructure development. Instead, institutional coordination among relevant government agencies and public involvement and awareness is keen to improve the situations for efficient and safe road space utilization. To overcome traffic and public management issues such as traffic safety, the following developments are suggested;

6.11.1 Short Term Developments in Traffic Management

- Street vendors, hawkers and other encroachments should be removed from the main road as they cause hindrance in traffic movement.

- Parking facilities need to be provided to stop the parking of vehicles on roads. Special parking tickets/tokens should be introduced, and vehicles should be only allowed to be parked at dedicated parking spots in commercial zones.
- Proper registration of all motorized and non-motorized vehicles should be brought into practice to make them an integral part of the traffic infrastructure of the city.
- The encroachments in the Right-of-way of the Railway line must immediately be removed and plantation is done all along the Railway line to create an aesthetic view along the railway track and to control environmental pollution in the area.

6.11.2 Mid Term Developments in Traffic Management

- Provisions of proper pedestrian crossings/bridges and sidewalks/footpaths for movements of people along roads with significant movement of traffic. In addition to this, dedicated lanes for the movement of cyclists should be provided to reduce obstructions to motorized traffic movement on the roads.
- Proper service lanes should be provided in areas with high commercial and social activities so that the parking, slow-moving public and traffic are restricted to service lanes only.
- Proper education and training of law enforcement officials should be carried out so that they can deal with traffic-related matters more professionally and efficiently.

6.11.3 Long Term Developments in Traffic Management

- All road junctions/intersections must be provided with some sort of traffic control methods such as roundabouts, traffic signals, or grade separation.
- Non-motorized vehicles such as animal-drawn carts and cycles should be completely removed from the main roads and dedicated lanes should be provided for their movements.
- Dedicated lanes for motorcycles and scooters should be adjusted on the main roads of the city so that they don't intervene in the movement of larger vehicles on the roads.

6.11.4 Developments in Public Management System

Following are some of the possible and practical solutions to the public management issues in Faisalabad;

- Dedicated footpaths/sidewalks should be provided on all major roads of the city, especially in areas with high business and social activities.
- Illegal parking of vehicles on footpaths and sidewalks should be removed by law enforcement agencies.
- All vehicles should be restricted beyond a certain point at commercial and social areas and the public movement should be given priority in these areas.
- For pedestrian movements across the roads, overhead bridges should be provided, and the public should be encouraged to use them.
- Traffic enforcement authorities should implement and enforce laws related to public movement e.g. In the US, Jaywalking carries a fine of up to \$60 (approx. Pak Rs. 8500). Only well trained, well equipped and adequately staffed traffic police can come up to the expectations in tackling the problems of traffic violations in the city.

7. HOUSING

7.1 INTRODUCTION

Shelter or living place is one of the basic needs for human life sometimes it takes precedence over the workplace. Housing consumes the largest land use, provides security to the inhabitants and plays an important role in forming and upbringing society. Access to housing has long been viewed as a basic human right and is an integral factor for the enjoyment of other economic, social and cultural rights. According to UN Committee on Economic, Social and Cultural Rights, satisfactory housing consists of legal security of tenure; availability of accessible services; facilities and infrastructure; habitability; accessibility (e.g., access to education, health services, employment, etc.); cultural adequacy; and affordability.

The National Housing Policy also seeks to facilitate the provision of affordable shelter for all by creating an enabling environment for housing by the public agencies. Food, clothing and housing are required in that order for fulfilling the aspirations of the people. The demand for housing increases due to the growth of population, rapid pace of industrialization and urbanization. Rapid growth in our cities is straining the capacity of their shelter delivery systems. Governments have chosen a variety of implicit and explicit policies to ameliorate these strains. However, these policies are not always consistent with their objectives, often because of a lack of knowledge of how housing markets work and how policies affect and are constrained by market behavior.

Pakistan is experiencing an unprecedented urban housing crisis. Low-rise, low-income urban settlements are rapidly and informally becoming high-rise, high-density informal settlements, with all the physical, social and environmental problems of unplanned densification. Meanwhile, speculative low-density elite housing is encroaching on the ecological assets of the city. According to the census, urban housing demand in Pakistan is 350,000 units. Of this, 62 per cent is for lower-income groups, 25 per cent for lower-middle-income groups, and 10 per cent for higher and upper-middle-income groups. The formal supply per year is 150,000 units. The unmet demand is taken care of by two types of informal settlements: the occupation and subdivision of government land (katchi abadis) and the informal subdivision of agricultural land (ISALs) on the periphery of urban settlements. In the last two decades, however, the demand is increasingly being met by the densification of existing low and lower-middle-income settlements.

At present, the housing policies of the government and private housing sectors are highly skewed in favour of upper and middle-income groups. The affordability of most low-income households is very low and cannot afford conventional housing. The infrastructure standards are unrealistically high when compared to the housing affordability of low-income households. Zoning requirements regarding minimum plot size, materials used and construction methods mean that even the cheapest publicly produced house/developed plot usually exceeds the recipient's capacity to repay. Even if some of the low-income households succeed in obtaining plots informally planned schemes; they are pushed out by market forces. The poorer people have different priorities than living in a relatively decent locality. They need money for more pressing needs. As a result, they are attracted by the price offered for their plot, sell it to relatively well-off families and go back to live in another katchi Abadi. They may become slightly richer in the process or may be able to meet some of their pressing needs, but their housing problem remains unsolved. A pragmatic and practical approach is required to solve the problem. Failure to do so will result in an expansion of existing katchi abadis and the formation of new squatter settlements.

In Faisalabad, one of the physical features, namely overcrowding requires special attention especially in central areas of the city. Secondly, the housing environment in the Town is in very deplorable condition and there is a dire need to formulate policies for upgrading the environmental quality. Due to large scale migration from various parts of India at the time of

independence urbanization and its related issues emerged in Pakistan. These urban issues were further aggravated due to two wars with India in 1965 and 1971. Afghan refugees further worsened the urbanization problem. Due to the rapid process of urbanization in Pakistan, it is estimated that the urban population would reach 50% of the total population in Pakistan. With the rapid increase in urban population, the gap between housing demand and supply would further widen unless a planned effort is made towards its solution.

Faisalabad also experienced the same situation. After partition, thousands of people migrated to this city and occupied vacant pockets of state land. This trend deteriorated the whole environment of the city and results in serious problems of housing, transportation, water supply and sewage. There is a need to replace the houses which have lived their life. Moreover, the supply of houses is increased to meet the demand so that no further shortage occurs, in future.

As per the survey conducted in 1962 for preparation of the Master Plan of Greater Lyallpur, there were 78,950 housing units against the requirements of 117,187 housing units. There was a backlog of 44,553 housing units. Of total housing units, 55,793 housing units were Pacca and 23,157 housing units were Katcha. 60.11% were owner-occupied and 39.89% were rented.

As per a survey conducted during 1985, there were 195,452 houses in Faisalabad city against the requirements of 268,181 units. There was a shortage of about 73,000 housing units. Besides this, shortage due to dilapidated and bad condition houses (13,000) and for annual increase of population (12,000) houses are required. Therefore, in total there was a backlog of about 100,000 houses in 1985.

As per the 1998 Population Census, there were 750,975 housing units in the Faisalabad district. Out of this 524335 (68.5%) were pacca housing units. The total population of the Faisalabad district was 5429547 persons (1998) with an average household size of 7.2 persons. Thus, there were 750,975 housing units against the 754104 households in the district. There was a backlog of 3129 housing units in the district (Basic Population and Housing Data by Union Councils 1998). Wood was being used as cooking fuel in 67.4% of housing units while gas was being used as cooking fuel in only 26.75% of housing units.

As per the 1998 Population Census, there were 292182 housing units in Faisalabad City Tehsil. Out of this 242286 (82.9%) were pacca housing units. The total population of Faisalabad City Tehsil was 2140346 persons (1998) with an average household size of 7.3 persons. Thus, there were 292182 housing units against the 293198 households in Faisalabad City Tehsil. There was a backlog of 1016 housing units in the Faisalabad City Tehsil (Basic Population and Housing Data by Union Councils 1998). Gas was being used as cooking fuel in 60.78 housing units while wood was being used as cooking fuel in 30.59% of housing units. The map showing the existing residential and built-up area of Faisalabad city is attached in **Figure 7.1** below.

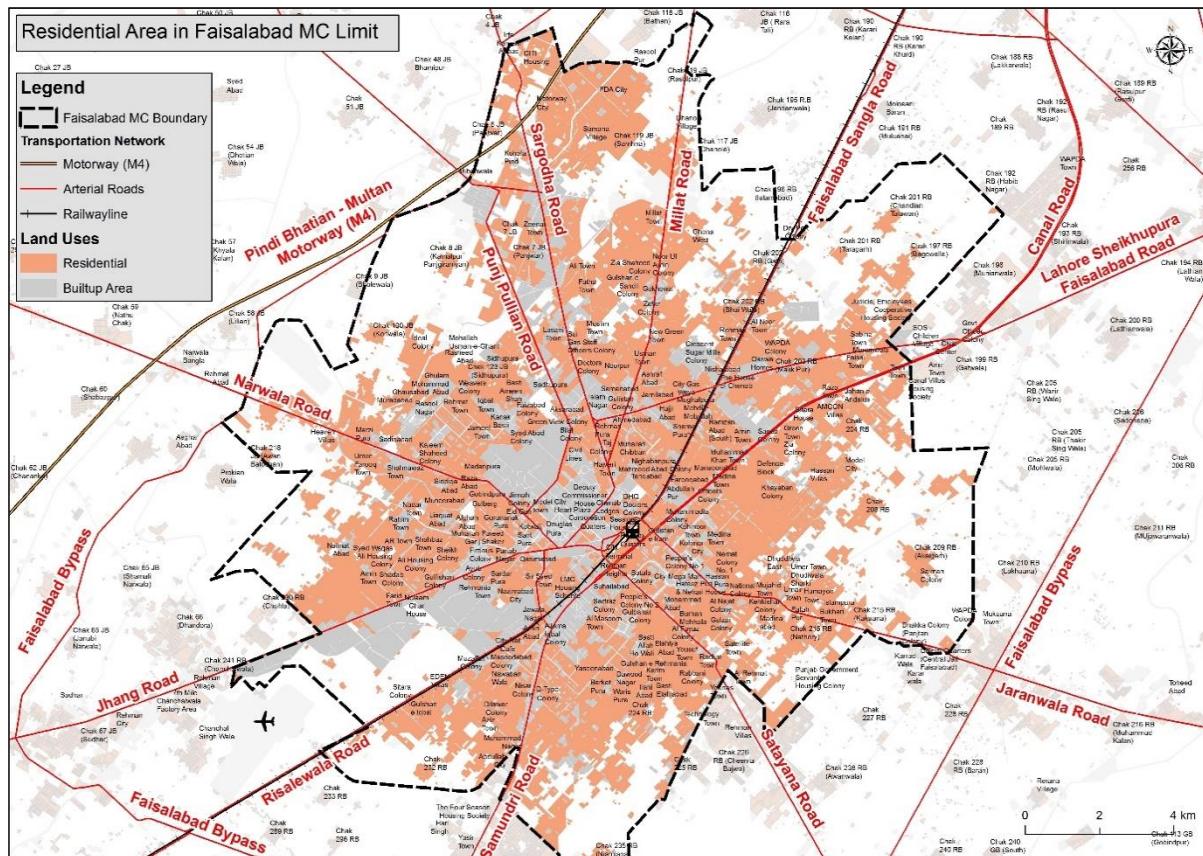


Figure 7-1: Existing Residential and Built-up Area of Faisalabad City

The total population of Faisalabad city Tehsil was 3238,841 persons (2017) with an average household size of 6.1 persons.²⁹ Thus, there were 512,284 households in Faisalabad City Tehsil. There was a backlog of 208,926 housing units³⁰ and the whole district is facing a housing shortage of 208,962 units³¹. Gas was being used as cooking fuel in 64.7% of housing units while wood was being used as cooking fuel in 34.7% of housing units. In the Faisalabad district, there were 95.4% pacca housing units and 0.7% katcha housing units.³² (MICS, 2017-18)

The demand for housing increases with the rise in population. Currently, there are over 1.2 million housing units in Faisalabad district, 0.74 million in the FDA area and 0.51 million in Faisalabad city. According to census 2017, 56% of the urban households in the Faisalabad district are living in the housing units of one or two rooms. Around 60% of these urban housing units were constructed more than 10 years ago. Nearly 20% of households are living in rental accommodation in more densely populated Faisalabad city. This percentage is 16% in the FDA area, as shown in Table 2, and 13% in the Faisalabad district. Most likely, the high population density and high rate of rental accommodations are by-products of multi-story housing units and expensive property prices. It specifies the need for low-cost housing units in the FDA area. New low-cost housing societies are warranted that may partly replace existing housing units at urban localities but with some better-planned facilities. The existing urban societies are not appropriately planned due to insufficient and higher per-unit cost of required public services, health hazards, and environmental degradation.

²⁹ Pakistan Bureau of Statistics 2017

³⁰ Naya Pakistan Housing Project Faisalabad 2017

³¹ City Profile: Faisalabad, Nasir Javed & Nadia N. Qureshi

³² Multiple Indicator Cluster Survey Punjab 2017-18

7.2 HOUSING SUPPLY

Table 7.1 below shows housing schemes/Resettlement Schemes launched by Public Sector including FDA since its establishment in 1976. In total 47,905 residential plots have been developed out of which 22,778 (47.55%) were 3-marla plots.

Table 7-1: Details of Housing Schemes/Resettlement Schemes (Source: FSD)

| Sr. No. | Name of Scheme | No. of Residential plots/flats | Area of Scheme (in acres) | Cost (In millions) |
|---------|--|--------------------------------|---------------------------|--------------------|
| 1 | Gulfishan Colony | 1,539 | 74.70 | |
| 2 | Gulistan Colony No. 1 | 2,786 | 170.12 | |
| 3 | Gulistan Colony No. 2, Millat Road | 920 | 111.50 | Rs.23.4 |
| 4 | Madina Town | 4,545 | 400.00 | |
| 5 | Nazim Abad | 1,096 | 52.75 | |
| 6 | 212 Part I and II, (for the lower- and middle-income group) A Katchi Abadi situated adjacent to this scheme was also included in this scheme | 275 | 21.00 | |
| 7 | 212 Part III, Resettlement scheme for Katchi abadi Factory area | 3,404 | 139.00 | Rs. 33.0 |
| 8 | Saeed Abad | 822 | 21.00 | |
| 9 | Millat Town, Millat Road, 9 Km from city | 5,237 | 386.00 | Rs. 107.60 |
| 10 | Weaver Colony adjacent to GM Abad | 601 | 19.08 | Rs. 8.7 |
| 11 | Gulberg Colony-I and II | 1,074 | 104.35 | |
| 12 | Gulshan & Awami Colony | 966 | 50.38 | |
| 13 | Madina Town Extension | 32 | 8.45 | |
| 14 | Ahmed Nagar, 225/RB | 2,420 (3 marla plots) | 81.98 | Rs. 20.0 |
| 15 | Allama Iqbal Colony Resettlement Scheme (1976) from Punjab's largest Katchi abadi 'Factory area' | 6,287 | 190.00 | Rs. 93.0 |
| 16 | Khurrianwala Township, 20 km away from Faisalabad. This scheme also includes a business and industrial area within it. | | 3700.00 | |
| 17 | Millat Town Extension | 5,237 | 386.68 | |
| 18 | FDA City | 10,664 | 1480.67 | |
| 19 | Islam Nagar Flats (1980) (G+2) | 96 Flats | | Rs. 0.50 |
| | Total | 47,905 | | |

7.3 SQUATTER SETTLEMENTS

Large scale migration from rural to urban areas resulted in a fast pace of urbanization and the growth of the city multiplied. Thus, the emergence of unplanned shanty Towns in the city, initially around the major industries and then on other areas especially on state land and land belonging to government organizations such as Railway, Auqaf, Irrigation Department, etc. With time these settlements became a permanent feature of the city. 1962 survey indicates that Katchi Abadies occupy an area of 457 acres comprising of 23,157 structures accommodating a population of 158,000 people. In 1985 these were increased to 27,228 housing units over an area of 596 acres 7 kanals and 7 marlas accommodating 185,900 people. In March 1986 as per the decision of the Govt. 40 more Katchi Abadies were identified in Faisalabad. Currently, as per the information given by FDA, there are 110 Katchi Abadies in Faisalabad over an area of 6,378 Kanals and having 31,303 dwelling units. The list of Katchi Abadies along with their location, area and dwelling units is at **Annex C.1**.

The socio-economic and physical condition of these Katchi Abadies was very poor. Structures were mostly katcha, very small, dilapidated and deteriorated. No sanitation system existed in

these Katchi Abadies. These Katchi Abadies are mostly located in low-lying areas. Life in these Abadies was miserable and human beings were living in highly substandard conditions. Surveys were conducted by FMC in 1972 and the characteristics like total population, number of families, number of houses, family income, occupation, etc. were studied.

19 Katchi Abadies in Faisalabad which were not located in low lying areas and their layout was also reasonable were upgraded by widening and paving the streets, provision utilities and public facilities. These settlements cover an area of 406 acres, 6 Kanal and 10.1 marlas accommodating 24,629 housing units.

6 Katchi Abadies were required to be shifted to some other location as the settlements were situated in low lying areas with very bad conditions where the situation becomes worse in the rainy season. These settlements cover an area of 44 acres, 7 Kanals and 7 Marlas, having 2,412 housing units.

Ahmad Nagar:

To rehabilitate the above said 4212 housing units a project named Ahmed Nagar was started in 1981 having an area of 91.89 acres. 2289 plots of 3 marlas each were developed in this scheme.

Allama Iqbal Colony:

4700 constructed quarters were allotted to the squatters dislocated from low-lying areas.

Islam Nagar Flats:

In Islam Nagar, 228 constructed flats were allotted to the residents of Katchi Abadi Islam Nagar.

7.3.1 Factory Area Katchi Abadi Redevelopment Plan

The largest Katchi Abadi of the Province spread over an area of 139 acres having 11,500 families and one lac population was redeveloped providing all the necessary facilities at a reasonable cost. The central part of the Abadi was planned for major commercial centres. The residents were allotted fully developed plots by charging the development cost.

7.3.2 Proposal for Katchi Abadies

Rapid migration in Faisalabad may be minimized by providing more job opportunities, health and education facilities in the surrounding small and medium towns/settlements. Satellite Towns with better living facilities be established in the surrounding of Faisalabad City. Simultaneously, an efficient, safe and economical Mass Transit System be also established to facilitate the movement of people from surrounding Satellite Town to Faisalabad. Keeping in view this strategy. This plan has been proposed not only for the strengthening of the industrial base of Faisalabad but also Satellite Towns have been proposed like Khurrianwala, Chak Jhumra and Sahianwala. In addition to this Rail Shuttle Service has been proposed from Sangla Hill to Abbaspur for the movement of industrial labour/workers along with dualization of Rail track. Health facilities have been proposed at Tehsil Headquarters in addition to the establishment of Hospitals in Faisalabad city.

There are various innovative approaches adopted by developing countries to rehabilitate and improve the Katchi Abadies in their respective countries based on the socio-economic conditions of these abadies. The innovative Kampung Improvement Programme (KIP) in Jakarta, Indonesia launched in 1969 is the world's first urban slum upgrading project. KIP got universal recognition due to its innovative approach. This government-assisted, self-help community planning programme provided three levels of infrastructure: paved access roads, bridges and footpaths; water supply, sanitation and drainage canals; schools and health clinics. These improvements were threaded along existing rights-of-ways, with little disturbance to the existing housing. Although the programme does not offer direct housing

assistance, the improved access, flood control and increase economic activity within the Kampung has stimulated home improvement. KIP quickly became a model programme that served to transform slums from illegal settlements into a part of the urban fabric.

Orangi Pilot Project (OPP), Karachi was another renowned program regarding the improvement of Katchi Abadies

The incremental development approach (1987) has explored an alternative whereby initial services are limited to a strict minimum so that a very low down-payment is sufficient to acquire a plot with basic sanitary facilities. Subsequent improvements take place after the residents build their own house and gradually pay for the services requested. This project 'Khuda Ki Basti' constitutes a pioneering attempt on the part of the public sector to make land accessible to the urban poor. In this programme, shelterless people are allotted a 65 sq. m plot with public stand posts for water supply and an individual WC pan. Provision for the remaining services is made on an incremental basis as the residents indicate their preferences; the works are then implemented through community participation. Some 700 jobs were created by the fast-growing construction activity, showing that investment in housing exerts a considerable impact on both income and employment.

Faisalabad Area Upgrading Project (FAUP) may be revived with the help of the donor agencies. This project adopted a participatory approach built on the establishment of grass-root level organizations called Multipurpose Community Organizations (MPCOs). There were many innovations of the project the main was that it was implemented through government line departments using government institutions, procedures, rules and regulations. With its principal focus on the development of human resources and capacity building, the FAUP has achieved the formation of over 140 MPCOs, more than 50% of which have been female organizations. Its physical achievement includes the execution of over 1000 projects, about half of which, costing 37% of the total cost of the infrastructure projects, have been related to environmental sanitation (sewerage). The community contribution towards sanitation projects has been 50% of the total cost of the tertiary level infrastructure. It is estimated that about 185,000 people residing in slums and katchi-abadies and approximately 1.2 million people city-wide have benefited from FAUP interventions.

Housing can be made affordable for the target group with a cross-subsidy system. Investors and developers can be persuaded to apply this approach to achieve the objectives of providing affordable housing. If we plan and develop a scheme on a piece of land around 400 Kanals and sell constructed houses on 50% of the plots with different covered area options like one-room, two-rooms and three-rooms houses at affordable prices. Later on, when the scheme matures then sell the remaining 50% plots at commercial rates and get a reasonable return on the initial investment. Custom based Affordable housing can be designed for industrial labour on demand. Market study and analysis is required before launching such an affordable housing project. **Figure 7.2** below shows the existing situation of Katchi Abadies, area wise in Faisalabad city.

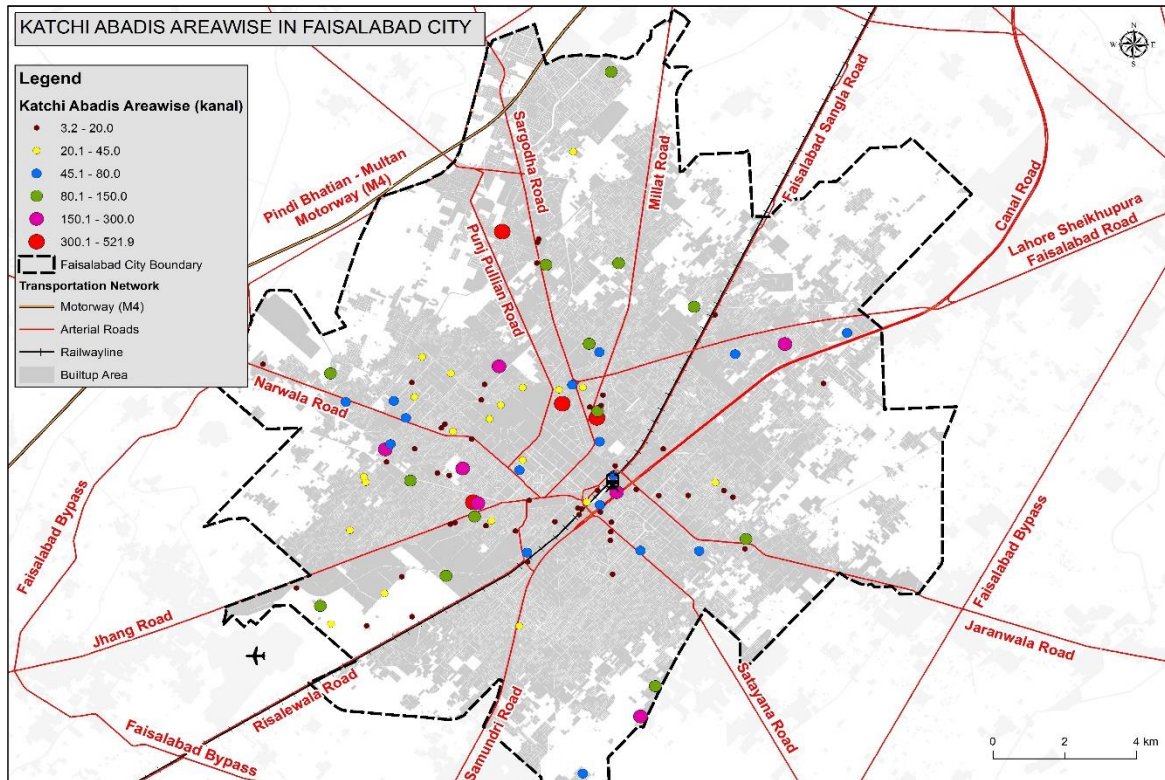


Figure 7-2: Existing Situation of Katchi Abadies, Area wise in Faisalabad City

7.4 CONTRIBUTION OF PRIVATE HOUSING IN SUPPLY OF HOUSING

Faisalabad Development Authority (FDA) has also been monitoring private housing schemes/colonies as per the Private Housing Schemes Regulations 2010. Up till 1986, 37 housing schemes were approved by FDA having approximately 12,785 plots along with other community facilities.

Initially, most of the housing has been provided by the public sector. Only a small fraction of housing was contributed by the private sector. However, gradually over time, the share of private housing schemes has been increasing. With the introduction of the Private Housing Schemes Regulations 2010, the monitoring of private housing schemes has become easier. FDA has been monitoring all private housing schemes in the FDA area. Up till 2019 FDA has approved 82 private housing schemes on 3,686 acres in the FDA area.

The detailed information about these housing schemes i.e., number of plots, size of plots, land use analysis is not available. However, the year-wise breakdown of these private housing schemes along with the area is shown in the **Table 7.2** underneath and graphically presented in **Figure 7.3** below.

Table 7-2: Sanctioned Housing Schemes in Faisalabad

| Sanctioned Housing Schemes | | | |
|----------------------------|-------------|-------------------|--------------|
| Sr. No | Time Period | Number of Schemes | Area (Kanal) |
| 1 | Up to 1980 | 5 | 921.7 |
| 2 | 1981 - 1990 | 28 | 6768.2 |
| 3 | 1991 - 2000 | 6 | 7106.6 |
| 4 | 2001 - 2010 | 9 | 3727.8 |
| 5 | 2011 - 2019 | 34 | 10966.9 |
| Total | | 82 | 29491.1 |

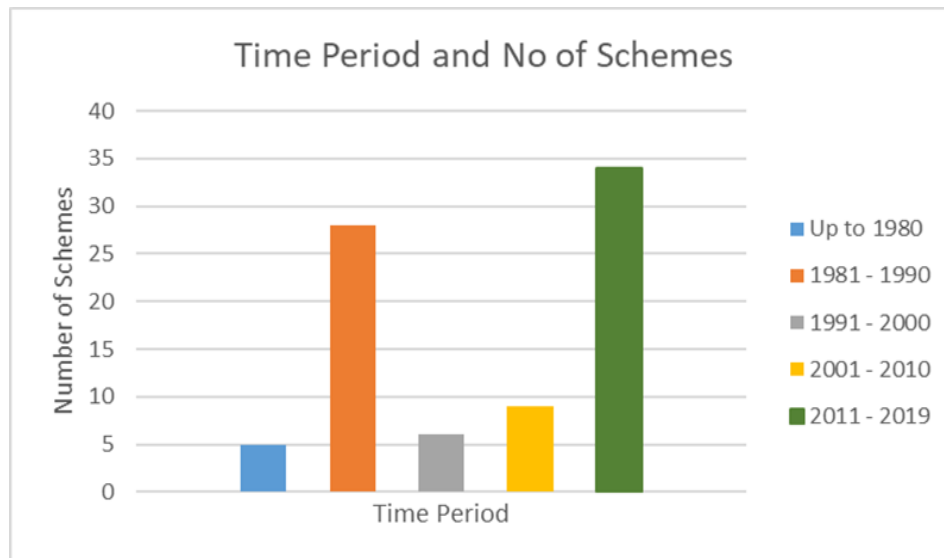


Figure 7-3: Total Number of Sanctioned Housing Schemes

The maximum no of schemes has been launched during 2011-19 over an area of 10967 Kanal. With the development of roads along the Canal, there is a trend of private housing schemes along the canal. High-income people are buying plots and constructing their houses in these private housing schemes.

It should be ensured that these private housing schemes are self-sufficient neighbourhoods accommodating all the requirements of the residents of the scheme/colony i.e., educational (school, colleges), health (hospital, dispensaries), recreational (parks and playgrounds), commercial, institutional, graveyard, etc. Some considerations are good for land use distribution and neighbourhood planning:

According to bylaws minimum of 100 Kanal is the standard size for a housing scheme which is insufficient for giving higher facilities like college, hospital, graveyard, etc. there should be a 500 Kanal minimum standard of a housing scheme in regulations.

1. Distribution of major land uses within the boundary.
2. Locate the main commercial centre at an appropriate location.
3. Consider the walking distance rule.
4. Easily accessible to all residents.
5. Comfortable walking distance is about 2000 ft. (Transit-oriented development. 2004 Island press Washington DC P.120)
6. Building bylaws must be in mind.
7. Consider town planning Principles (Beauty, Health, Convenience, Safety etc.)
8. Self-sufficient planning.
9. Try to avoid odd junctions especially on main roads. T-junctions are preferred in neighbourhoods.
10. Alignments of plots are preferable. The front should be at a 90 angle to the road.
11. Never compromise on quality. Avoid unnecessary openings on main roads.
12. The roads should have enough ROW to avoid traffic congestion.
13. Location should be appropriate to cater not only for residents of the scheme but also outsiders as well.
14. Designated parking space.

7.5 ILLEGAL AND UNAUTHORIZED HOUSING SCHEMES

Along with sanctioned housing schemes, there is a mushroom growth of illegal and unauthorized housing schemes that emerged within the FDA area. FDA has detected at least

301 illegal housing colonies in the FDA area whose developers were carrying on with this billion-rupee business with impunity (Daily the Dawn, 14-5-2019). Chakwise illegal housing schemes are shown in **Figure 7.4** below.

As per the Regulations 2010 before initiating any sale, advertisement or development activities, the developers are legally bound to seek approval from the FDA. However, the developers did not bother following legal formalities and where advertising and selling plots for a couple of years without approval.

The housing shortage is a national level issue. To avail better facilities and job opportunities, people migrated towards bigger cities. Due to this, housing shortage automatically generates. So, it is suggested to provide affordable housing and also provide better facilities to control the mushroom growth of illegal and unauthorized housing schemes.

There are several solutions to tackling the housing shortage problem in Pakistan.

- Ban slums and illegal settlements.
- Focus on vertical growth for future cities.
- Formulate effective building by-laws.
- Revamp housing regulatory bodies.
- Promote the concept of affordable housing through awareness campaigns.
- Seek suggestions from developers, town planners and experts instead of corporate executives.
- Encourage developers and start-ups engaged in providing low-cost houses.
- Educate the public on building and house finance issues.
- Discourage plot culture through taxation.
- Identify the root cause of the problem by establishing a three-way link between citizens, local regulatory bodies, and provincial governments.

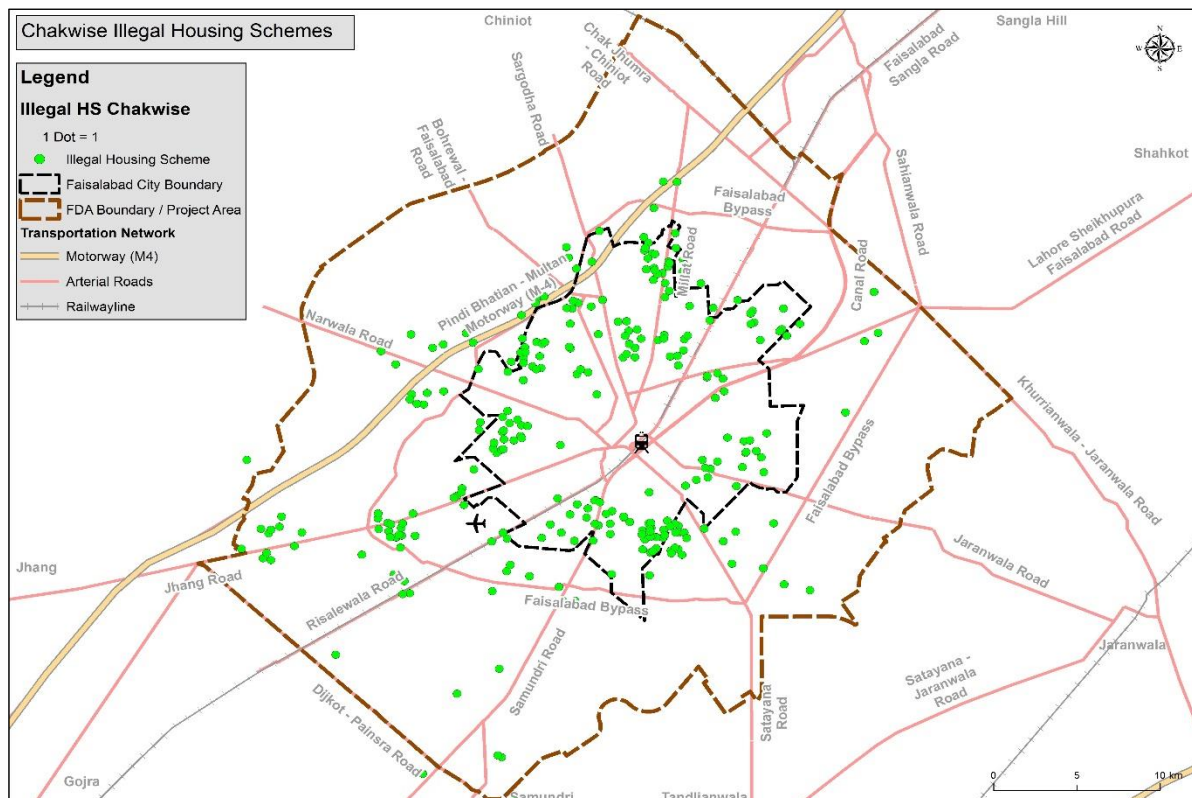


Figure 7-4: Chakwise Illegal Housing (Source: FDA)

7.6 HOUSING AGENCIES

The Housing and Physical Planning Department (H & PP) was created in August 1972 by replacing the West Pakistan Housing and Settlement Agency with a single attached department named the "Directorate General Housing & Physical Planning" at Lahore. Later on, the Improvement Trusts at Faisalabad, Gujranwala, Multan, Rawalpindi, Sargodha and Murree were placed under the administrative control of the Housing & Physical Planning Department during 1973. Improvement Trusts ultimately were converted into Development Authorities except for Murree and Sargodha. In 1978 Public Health Engineering Department (PHED) was placed under the administrative control of the Housing & Physical Planning Department. The Department was renamed Housing Physical & Environmental Planning (HP & EP) in 1978 and Environmental Protection Agency (EPA) was created as its attached wing. In 1996 Environmental Protection Agency was detached from Housing Physical & Environmental Planning Department and was made an independent provincial Department. Finally, Housing Physical & Environmental Protection Department was given the name "**Housing, Urban Development & Public Health Engineering Department (HUD & PHED)**" in 1997 to depict Urban Development Authorities and Public Health Engineering Department as its main organs.

The present Organization of HUD & PHED consists of the following:

1. **Punjab Housing and Town Planning Agency (PHATA)**
2. Public Health Engineering Department (PHED)
3. Lahore Development Authority (LDA)
4. Rawalpindi Development Authority (RDA)
5. Gujranwala Development Authority (GDA)
6. **Faisalabad Development Authority (FDA)**
7. Multan Development Authority (MDA)
8. Water and Sanitation Agency, Lahore
9. Water and Sanitation Agency, Rawalpindi
10. Water and Sanitation Agency, Gujranwala
11. **Water and Sanitation Agency, Faisalabad**
12. Water and Sanitation Agency, Multan
13. Traffic Engineering and Transport Planning Agency (TEPA), Lahore
14. Parks & Horticulture Authority (PHA), Lahore
15. **Parks & Horticulture Agency (PHA), Faisalabad**
16. Parks & Horticulture Authority (PHA), Multan
17. Improvement Trusts (Murree & Sargodha)

7.6.1 Punjab Housing and Town Planning Agency (PHATA)

The Directorate General of H&PP Punjab has been revamped as "**Punjab Housing and Town Planning Agency (PHATA)**" under the PHATA Ordinance, 2002. The said agency has been effectuated w.e.f., 01.04.2004 to rejuvenate the housing sector in general and provision of shelter to shelter-less low-income groups. The main objectives of the PHATA are

- Develop and Regulate Low Income Housing
- Area Development Schemes
- Three Marla Housing Schemes
- Regulate Private Housing Schemes
- Physical / Spatial Planning
- Regional Development Plans
- Master Plans
- Outline Development Plans
- Small Town Development Plans
- Provincial Land-use Plan

- District/Tehsil/Union Council Plans
- Provide technical assistance to the TMAs and District Governments in the housing and spatial planning

In Faisalabad, there are ten schemes developed by PHATA. The list of these schemes is below.

1. Peoples Colony
2. Peoples Colony Extension
3. Jinnah Colony (C.F.G)
4. Ghulam Muhammad Abad Colony
5. Ghulam Muhammad Abad Extension
6. Kanak Basti, Ghulam Muhammad Abad
7. D-Type Colony
8. Batala Colony (D.G.M)
9. Samanabad / Industrial Labor Colony
10. 3 Marla Housing Scheme, Chak No. 238

The map showing the PHATA developed schemes in Faisalabad is attached in **Figure 7.5** below.

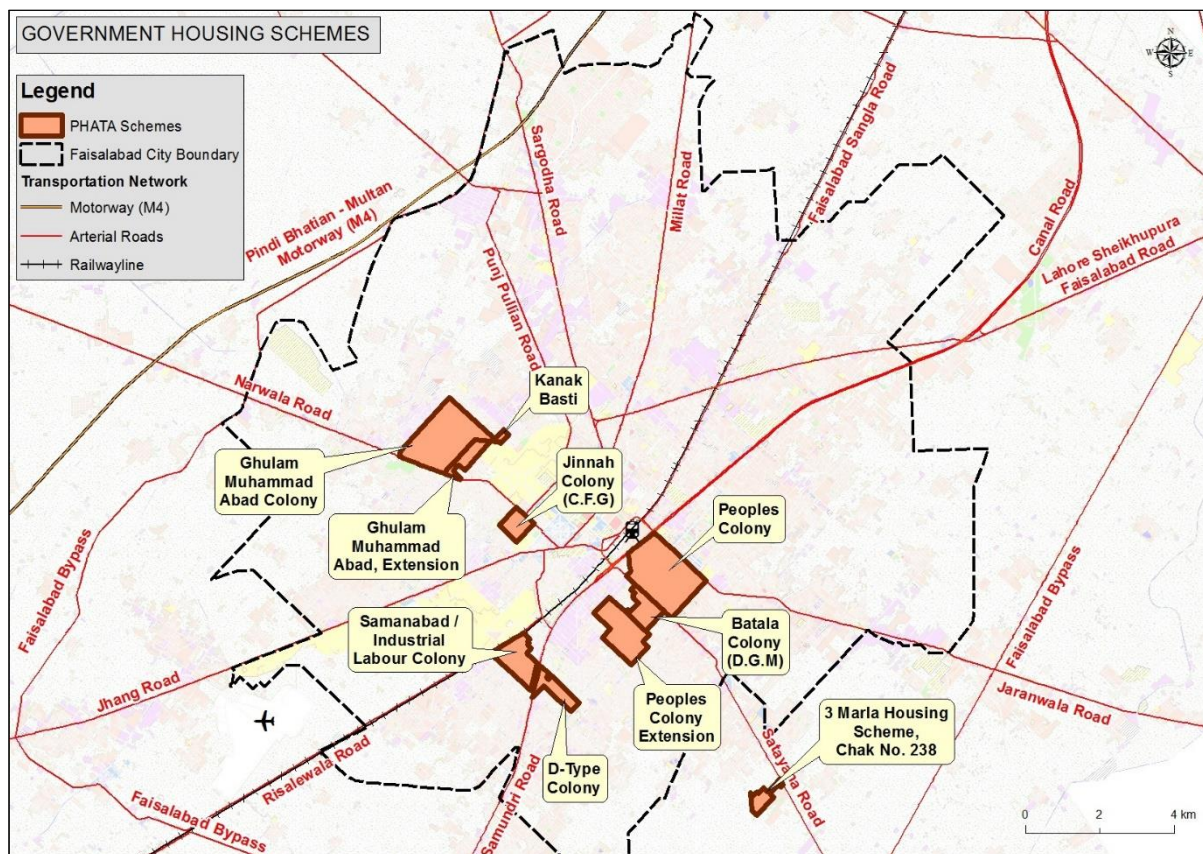


Figure 7-5: PHATA Developed Schemes in Faisalabad

7.6.2 Faisalabad Development Authority (FDA)

Faisalabad Development Authority (FDA) was constituted under the Punjab Development of Cities Act 1976 as a successor body to Lyallpur Improvement Trust (1966).

The Faisalabad Development Authority (FDA) is a body responsible for undertaking and monitoring planned developments in the city of Faisalabad. The body acts as a regulatory authority for overseeing the construction of houses, commercial developments and residential areas in the city. It has three main wings.

1. Urban Development Wing
2. Water and Sanitation Agency (WASA)
3. Traffic Engineering Planning Agency (TEPA)

7.7 PLANNING IMPLICATIONS ON HOUSING

The living place is one of more importance than where the people work. A great deal of human life lives within the family's dwelling unit. It is, therefore, natural to ask what effects the physical features of housing have on the family and its members. In the case of Faisalabad, one of the physical features, namely overcrowding (or internal density) requires special attention especially in central areas of the city. On one hand, adequacy or inadequacy of space has bearing on family and personal functioning and on the other hand, mental health, hygienic conditions, privacy and cultural aspects are also directly related to it. Secondly, the housing environment in the Town is very deplorable condition and there is a dire need to formulate policies for upcoming the environmental quality.

Shortage of housing is one of the pressing problems throughout the third world. The developing societies are faced with a difficult challenge-shelter, the task of assuring that everyone is adequately housed. The problem of over increasing shelterless people and lack of adequate facilities and services in the urban area of the "UNDERDEVELOPED WORLD" has assumed a gigantic position. The list of sanctioned housing schemes of Faisalabad development authority is at **Annex C.2**.

The entire Master Plan period 2021-2041 has been divided into three phases for the development of housing sector projects i.e., the first phase spread over five years from 2021-2025 is categorized as Short-Term Development Projects (STDP), 2nd phase also spread over next five years from 2025-2030 is categorized as Mid Term Development Projects (MTDP), and the third phase spread over ten years from 2030-2041 is categorized as Long-Term Development Projects (LTDP). However, this is tentative phasing which can be reviewed keeping in view the priority and available funding for the development of the housing sector development budget.

7.8 PROPOSED HOUSING SCHEME ON A PRIORITY BASIS

The proposed housing of Faisalabad city was undertaken as a priority project, but the timeline of the projects is tentative and is flexible which can be changed depending upon the availability of funds and policy of the government (refer **Table 7.3 & Figure 7.6**). Similarly, the priority can also be modified depending upon the availability of funds and the policy of the government. In the first instance, after initial consultation within FDA on housing proposed projects, consultation would be made with the concerned departments individually with the consent of FDA like District Health Authority (DHA), Faisalabad Waste Management Company (FWMC), Faisalabad Municipal Corporation, WASA Faisalabad, Faisalabad Electric Supply Company (FESCO), Parks and Horticulture Authority (PHA), Faisalabad, Shehar-e-Khamoshan Authority, etc. The number of departments may be reviewed in consultation with FDA. The tentative location of these projects may also be finalized after consultation with the concerned departments, and after the information of availability of State land is received.

Table 7-3: Proposed Housing Scheme on Priority Basis for Faisalabad District

| Sr. No. | Project | Timeline Ranking | | | Priority Ranking | | | Estimated Cost |
|---------|---------------------------------------|------------------|-----------|------|------------------|--------|-----|----------------|
| | | Short Term | Long Term | Both | High | Medium | Low | Rs. In million |
| 1 | 5 Million Housing Project | ✓ | | | ✓ | | | 500 |
| 2 | Low-Income Housing Projects / Schemes | ✓ | | | ✓ | | | 500 |

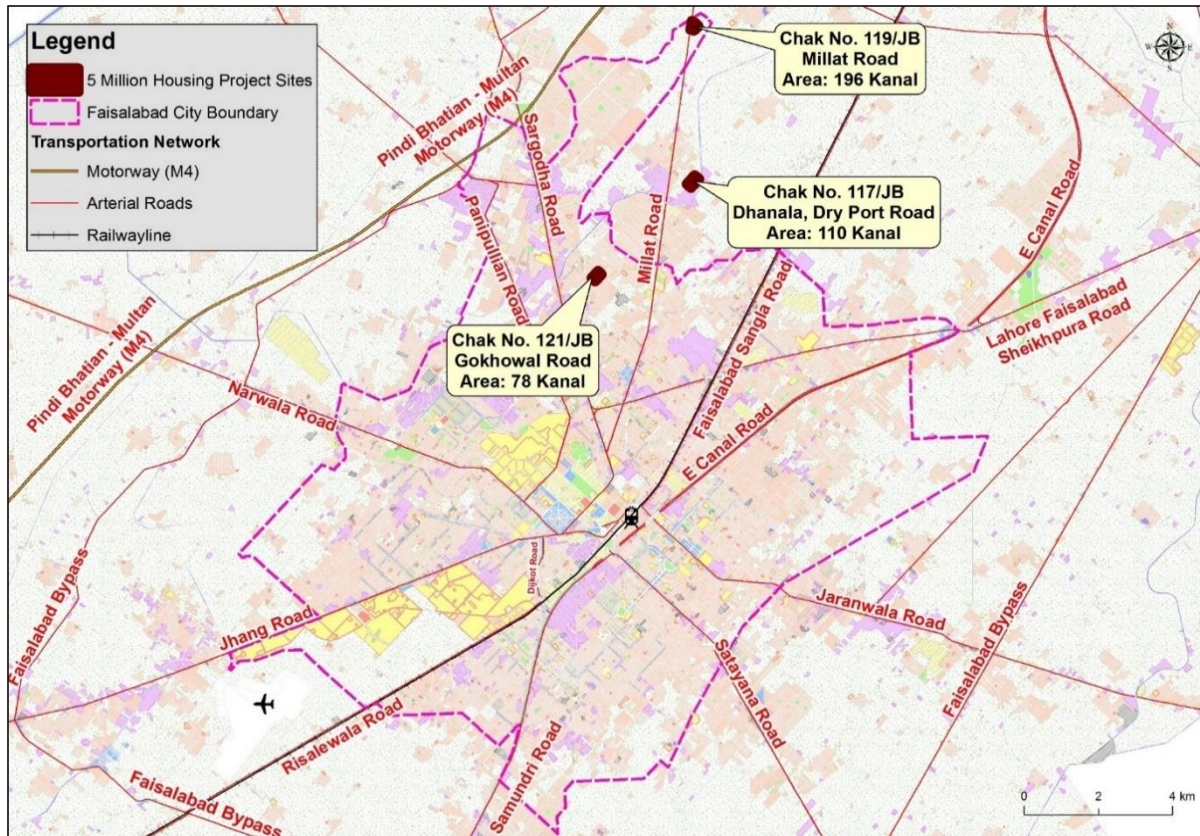


Figure 7-6: Proposed Housing Scheme on Priority Basis for Faisalabad District

7.9 SHORT, MID AND LONG-TERM DEVELOPMENT PROJECTS-2021 TO 2025

The existing Trend of development is in a southeastern direction along the Canal Road, Lahore-Sheikhupura - Faisalabad Road and on the north side along Sargodha Road. The area between Railway line and Jhang Road up to Faisalabad Airport be Zoned predominantly as 'Science City' (1st Phase) and the area further south to the Airport be utilized for residential neighbourhoods similarly, the area south of Airport across the Railway line be also Zoned as 'Science City' (2nd Phase) and a large recreational park be developed here. The rest of the area between Samundri Road and Railway line, beyond the existing built-up area, be utilized for residential purposes.

The area between Jhang Road and Narwala Road has been zoned predominantly as residential similarly, the area between Satayana Road and Samundri Road has been zoned as Residential, the area between Jaranwala Road and Satayana Road has also been zoned as Residential Major, residential development has been proposed along Lahore-Sheikhupura-Faisalabad Road. It would envelop the built-up area of existing Chak No. 193 RB, Chak No. 199 RB & Chak No. 194 RB. On this side, the residential development would touch Khurrianwala Town. Industrial workers housing would also be provided near Khurrianwala Town to facilitate the industrial labour expected to be working in the proposed Khurrianwala Industrial Estate, residential neighbourhoods have also been proposed on both sides of the Railway line near Gatti Railway Station, residential development has also been proposed along Millat Road and on the southern side of proposed extension of Small Industries Corporation Industrial Estate.

7.9.1 Residential Areas/Zones

The total area of the Faisalabad City is approximately 48,210 acres while the population is 3,238,841 persons (2017). In this way, the gross density of the Faisalabad city is 67 persons/acre. If the same gross density standard is followed for determining the future land

requirements of the Faisalabad City, then overall 33,394 acres of land would be required up to 2041 to accommodate an additional population of 2,237,416 persons. Keeping in view this situation and area of approved private housing schemes 58,469 acres land for Residential expansion has been proposed on all sides of the town following main inter-city roads and other parts of the city.

To provide relief to the housing pressure on Faisalabad it has also been proposed that Chak Jhumra and Khurrianwala be utilized as Satellite Towns of Faisalabad. The area surrounding the existing built-up area of Chak Jhumra be utilized for residential and institutional development. Similarly, the area in the surrounding Sahianwala village is utilized for residential purposes. It would also facilitate the industrial workers housing in this area. As detail land use is mentioned in Chapter 5 of this report. The proposed measures would provide adequate housing for the next 20 years up to 2041 along with other development.

In the commercial zone, the Condominium complex (multi-storey mixed-used building) has residential apartments with a maximum 20% floor area for commercial use, office, recreational area, place of worship, gym and play area. That caters to multiple ownership of one land parcel in verticle structures and binding builder accountability for maintenance and repair of shared areas have been proposed.

7.9.2 Low Income Housing

The approaches can be in form of public-private ownership. At present, the public sector is more interested in middle and upper-income housing because of better returns. The public sector should focus more on low-income housing and leave the upper/middle-income housing to the private sector but be more vigilant with regulations and planning control. The private sector should also be encouraged in low-income housing. Land should be secured/assembled in the private sector under a formal agreement and a percentage of planned/developed plots be returned to the original owners. Trunk infrastructure should be laid and subsidized. Infrastructure standards should be kept low and the development should be incremental, keeping in view the affordability of target households.

In Faisalabad City, there is a need for low-income housing because of the labour of industrial areas. The public sector should be the one to implement low-income housing schemes or apartment buildings for workers especially in Chak Jhumra, Khurrianwala and other industrial estate areas of the city.

7.9.3 Naya Pakistan Housing Scheme

Prime Minister's Vision is to deliver five million housing units with allied amenities to all citizens, especially focusing on the financially underserved and middle-income communities, as a measure of comprehensive socio-economic uplift. Thereby, reviving industrial growth and creating employment opportunities in the country.

For this purpose, in Faisalabad these goals need to be achieved:

- Need and demand-based construction of five million housing units in urban, peri-urban and rural areas.
- Offer respectable living to the citizens, especially the low to middle-income group, at affordable cost.
- Generate construction activity in the country to provide stimulus to over forty housing and construction-related industries.
- Create opportunities for financial investment and restore the confidence of the business community/ investors.
- Promote indigenous production and self-reliance in a sustained manner.
- Create employment opportunities for both skilled and unskilled human resources.

Rapid population growth and urbanization have resulted in the generation of a huge demand for housing. According to the State Bank of Pakistan, the housing backlog which was 4.3 million in 1998 has surged to 10 million in 2017, a significant portion of which is being contributed by Punjab. Furthermore, the existing supply of different sizes of houses is not following the income distribution.³³

In 2017, there was a shortage of 208,926 housing units in Faisalabad and it would grow up to 291,723 housing units by 2023. To meet the rising demand, a scheme is initiated under Naya Pakistan Housing Programme in Faisalabad under the Public-Private Partnership model to establish the housing units on the area of 574-Kanals available with Faisalabad Development Authority (FDA). The housing project will not only provide people with affordable residences but will also generate employment opportunities. **Table 7.4** shows the details of Naya Pakistan Housing Programme in Faisalabad.

Table 7-4: Naya Pakistan Housing Programme in Faisalabad

| Location | FDA Housing City, Near Sargodha Road, Faisalabad |
|---------------------|---|
| Sponsoring Agency | Housing Urban Development & Public Health Engineering Department (HUD & PHED) |
| Estimated Cost | Rs. 5,035/- Million |
| Proposal Type | Solicited |
| Implementing Agency | The Punjab PPP Authority/FDA |
| Source of Revenue | Sales of high-end commercial plots/units and annuity payments(if any) |
| Current Status | The hiring of a Transaction Advisor (TA) for the development of project proposal/bidding documents is under Process |

Source: https://ppp.punjab.gov.pk/naya_pak_fsd

Role of Private Party:

- Design
- Build
- Finance
- Transfer

Role of Government:

- Provision of encumbrance free land
- Obtaining necessary approvals/NOCs

³³ Naya Pakistan Housing Project Faisalabad

8. EMPLOYMENT, INDUSTRY & COMMERCE

8.1 INTRODUCTION

Faisalabad contributes over 20% toward Pakistan's annual GDP; therefore, it is often referred to as the "Manchester of Pakistan". Faisalabad's average annual GDP is \$20.55 billion (USD), of which 21% comes from agriculture. The surrounding countryside, irrigated by the lower Chenab River, produces agricultural commodities such as cotton, rice, sugarcane, wheat, fruit and vegetables. The city has carved a niche as an industrial centre with its highways, railways, railway repair yards, processing mills, and engineering works. It is a producer of industrial goods and textile manufacturing including cotton and silk textiles, superphosphates, hosiery, dyes, industrial chemicals, clothing, pulp and paper, printing, agricultural equipment, ghee (clarified butter), and beverages.

The Faisalabad Chamber of Commerce and Industry monitors industrial activity in the city and reports its findings to the Federation of Pakistan Chamber of Commerce and Industry and the provincial government.

Faisalabad is recognized as the centre of the textile industry in Pakistan, contributing to half of Pakistan's total textile shipments. At the end of June 2012, textile mills employed 20% of the nation's workforce and generated 1.3 trillion rupees (\$13.8 billion) in textile products, most of which were exported to the US and Europe. While Punjab's economy is driven primarily by agriculture, the textile industry along with leather products and light engineering goods play an important role, with more than 48,000 industrial units spread across Punjab. To boost bilateral trade, Romania and Turkey have honorary consulates in Faisalabad which enable trade links with the city. The Faisalabad clock tower and its eight bazaars (markets) remain a major trading zone in the city.

Faisalabad has received substantial funding from the government of Punjab and the city district government to improve infrastructure and roads to rural areas. To deal with the energy crisis, the FCCI has been working with private companies to develop renewable energy resources such as solar energy and the construction of dams within the district. CAE, a German-based renewable energy company, has disclosed plans to establish the first solar panel manufacturing facility in Faisalabad, the second of its kind in Asia, with intentions of investing upwards of €100 million (Rs 12.9 billion) for its development.

Faisalabad district has made rapid advances in the field of Industry after independence. Before independence, there were only five industrial units in Faisalabad city (then Lyallpur). According to the 1998 Census, there were dozens of textile mills in Faisalabad with other subsidiary units. Roughly, there were 768 large industrial units, of which 31 textile spinning units, 150 textile processing, 27 flour mills, 06 sugar mills, 13-vegetable Ghee/cooking oil units, 185 engineering units, 122 hosiery units, 9 cotton ginning factories, 193 soap and silicate, 26 Dall Mills, 01 Chipboard, 02 plywood units, 01 watches & clocks, 01 maize processing, 02 beverages, 01 jute mill, 01 Caustic soda. Other industries include carpets, rugs, printing and publishing paints & varnishes and pharmaceutical products etc.

According to the 1998 Census, there were 20,000 cottage industries which includes 1,20,000 power looms.

According to distribution of industry by technology level (CMI 2014-15) in Faisalabad district there were 942 Low technology, 964 medium low technology, 713 medium high technology and 33 high technology industries.³⁴ There were 418 reporting factories.³⁵

³⁴ Census of Manufacturing Industries (CMI) 2014-15 Urban Unit

³⁵ Punjab Development Statistics 2018

8.2 INDUSTRIES' CURRENT FUNCTIONS

An overview of the current functions of the Department helps identify the areas that are not in alignment with the functions discussed above and therefore may need to be reformed to support the achievement of the growth target. The Department performs regulatory, administrative and facilitation functions. The organogram below (refer **Figure 8.1**) illustrates the current functions of the Department.

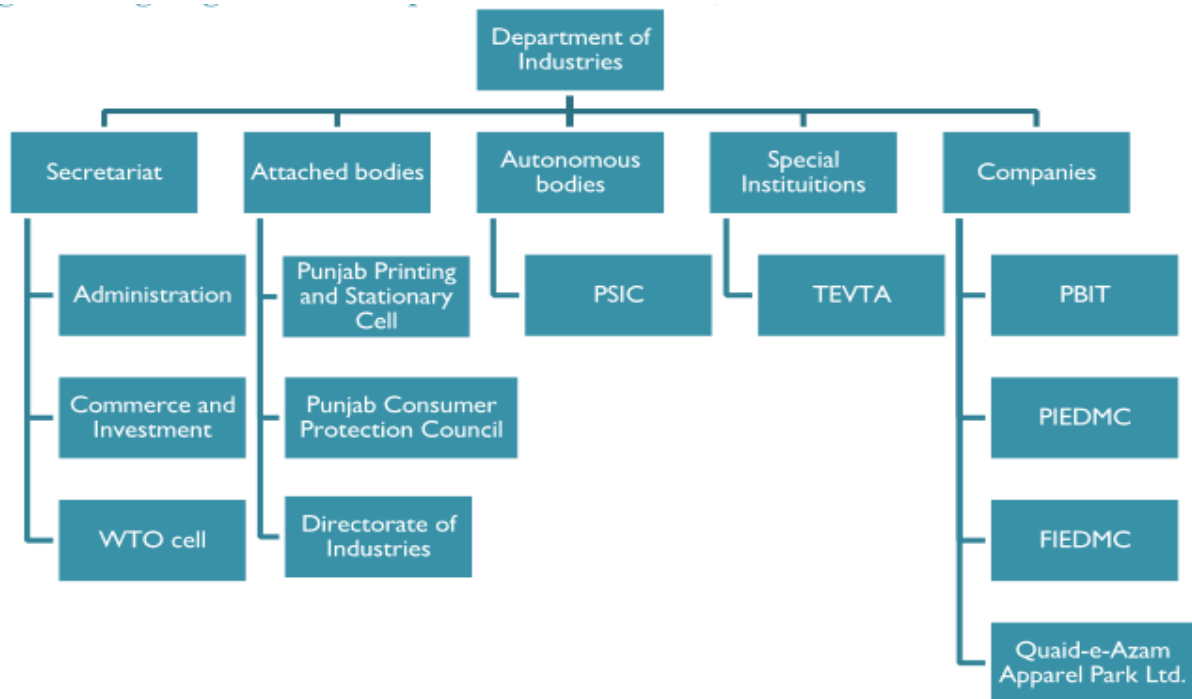


Figure 8-1: Organogram of the Department of Industries, Commerce and Investment

The Secretariat has an Additional Secretary each heading Administration, Commerce and Investment and a WTO cell. The administration section handles non-development functions such as appointments and transfers, litigation and new purchases. There is also a price monitoring function within the Administration department

The Commerce and Investment section handles the implementation and monitoring of the Annual Development Plan (ADP), trade and commerce matters such as Special Economic Zones, Quaid-e-Azam Apparel Park and trade-related issues such as GSP+ monitoring.

The **WTO cell** handles matters related to the Provincial implementation of Pakistan's agreements with the World Trade Organization and the registration of geographic specialities (such as the Pakistani mango, citrus, basmati rice). They also manage foreign training programs for Government employees.

The following are separate Attached Bodies: the Punjab Consumer Protection Council, Punjab Printing and Stationery Press and the Directorate of Industries. The Punjab Consumer Protection Council investigates complaints originating from consumers, and the Punjab Printing and Stationery Press prints the stationary and sensitive documents for the Government.

The Directorate of Industries is responsible for

- registering firms and societies,
- issuing location clearance certificates,
- enforcing the establishment of industrial units in permitted areas,
- assisting with land acquisition,

- inspecting boilers,
- assisting the Administration section in monitoring prices,
- compiling a directory of industrial units and
- undertaking surveys of industrial units

Within the Directorate of Industries are an Industrial Development wing and an Economic Analysis wing, which are under capacity. The Senior Economist is currently “on loan” to the Provincial Government. The Economic Analysis wing produces a summary of the survey, without subjecting it to detailed analysis. There is also a District Officer for Enterprise and Investment Promotion in each district, who is responsible for all district-level activities such as firm registrations and surveys, but not as such for actual promotion of enterprise and investment. On the regulation side too, there are severe capacity issues. For example, only a handful of under-qualified boiler inspectors for the entire province are present to undertake inspections of extremely technical equipment.

Serving as an **Autonomous Body, Punjab Small Industries Corporation (PSIC)** is responsible for the development of small and cottage industries, primarily through the development of industrial estates. These sectors are also supported through the provision of credit, though in the recent past this has been limited to loan recovery only. PSIC establishes industrial support centres and advisory services and also undertakes census and surveys of small and cottage industries.

The initiatives that are currently being undertaken are not based on feasibility studies, and therefore the success rate is low. Examples include low colonisation of the industrial estates and Export Processing Zones and projects that tend to lose momentum before fruition. The World Bank has recently completed a review of PSIC and has suggested that its functions be streamlined to reduce inefficiencies. The Department is currently evaluating these proposals.

Four Companies are linked to the Department. The Secretary Industries sits on their Board of Directors and is the main point of contact of these companies with the Government:

- **Punjab Industrial Estates Development and Management Company (PIEDMC)** is currently developing and managing industrial estates across the province as a Section 42 company.
- **Faisalabad Industrial Estates Development and Management Company (FIEDMC)** is currently developing and managing two industrial estates in Faisalabad as a Section 42 company. FIEDMC is the developing body of Allama Iqbal SEZ.
- **Punjab Board of Investment and Trade (PBIT)** is the trade and investment promotion agency of Punjab. It acts as a one-window facilitator between Government departments/agencies and investors and maintains a network of contacts with Pakistan trade missions and embassies to promote investment in Pakistan. It also currently compiles feedback on the ease of doing business to communicate to relevant Government bodies and undertakes benchmark exercises with organizations like the IFC and the World Bank on their investment policy framework. PBIT has recently played facilitating roles in several large foreign investments. PBIT is a Section 42 Company.
- **Quaid-e-Azam Apparel Park Pvt. Ltd.** is a Government-owned for-profit company that was formed very recently to develop the Quaid-e-Azam Apparel Park. The company is not yet operational, and it remains to be seen if it will be given full responsibility to develop the park.

8.3 CHARACTERISTICS OF INDUSTRIAL ACTIVITIES

Industrial units have been established haphazardly without following any scheme of planning and development. Big industrial units, such as textile, woolen textile, acid mills etc. Smaller industrial unit's especially dyeing, bleaching, calendaring, power-looms Hand-looms etc. Figure 8.2 below shows the map of scattered industries in Faisalabad tehsile while the Figure 8.3 shows the industrial ownership percentage in Faisalabad. Faisalabad industrial area is shown in **Figure 8.4** below.

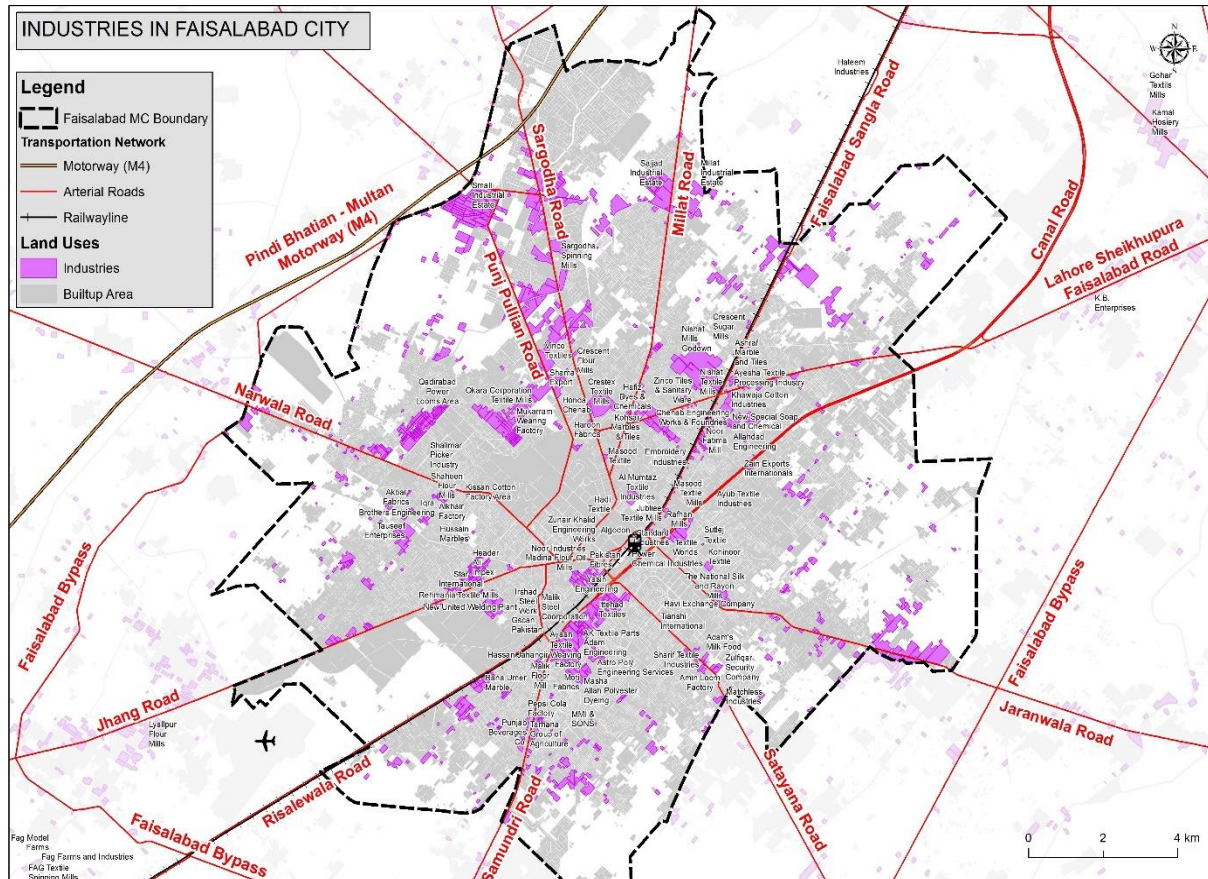


Figure 8-2: Scattered Industries in Faisalabad Tehsil

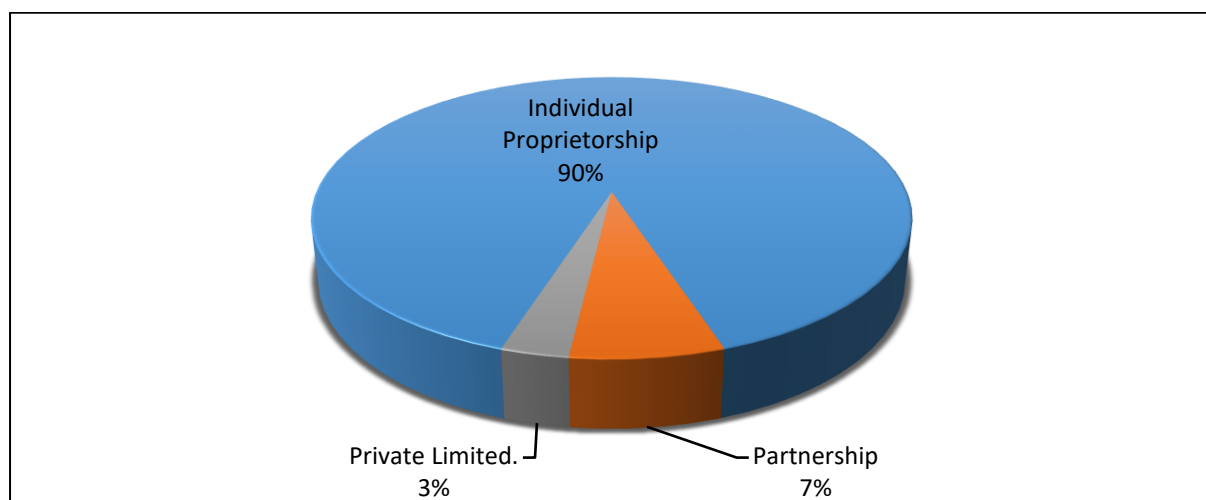


Figure 8-3: Faisalabad Industrial Ownership (Percentage)³⁶

³⁶ Source: Faisalabad Peri-Urban Structure Plan, 2015

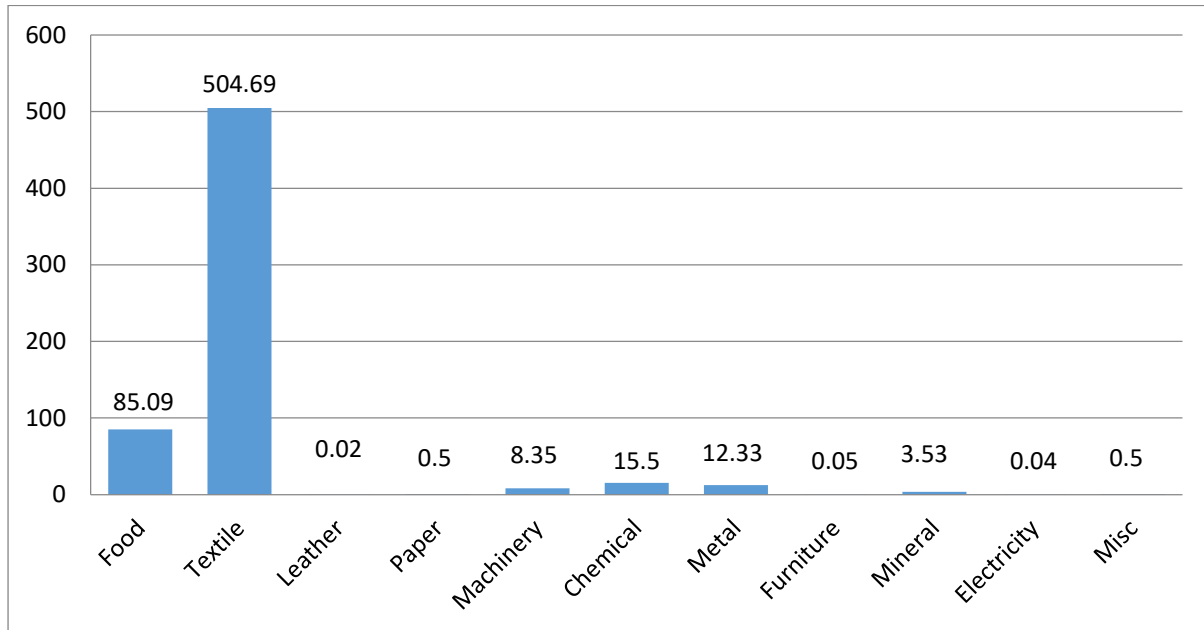


Figure 8-4: Faisalabad Industrial Area (Acres) ³⁶

8.4 ROLE OF INDUSTRIAL SECTOR

Industrialization plays a vital role in the economic development of underdeveloped countries. As the historical record shows, the developed countries of the world broke the vicious cycle of poverty by industrializing, rather than focusing on agriculture or the production of national resources.

Currently, Pakistan, as a developing country, wants to achieve a higher standard of living for its people. For this reason, it is pursuing policies that support privatization and deregulation of the economy. Industry plays a complex role in economic development, but these are some of its most important effects. The major role of the industrial sector is below

- Increase in National Income
- Higher Standard of Living
- Economic Stability
- Stimulated Progress in Other Sectors
- Increased Employment Opportunities
- Greater Specialization of Labor
- Greater Control of Economic Activity
- Larger Scope for Technological Progress
- Increased Savings and Investments
- Development of Markets
- Increase in Government Revenue

Industrialization increases the supply of goods for both external and internal markets. The exports of goods provide foreign exchange, as we know. In addition, the customs excise duties and other taxes levied on goods increase the revenue of the country's government. The income tax received from industrialists also adds to the revenue stream of the government and is eventually spent for the welfare of the country as a whole.

In Faisalabad, there are dozens of textile mills with other subsidiary units. Roughly, there are 512 large Industrial units, out of which 328 are Textile units, 92 engineering units and 92 chemicals and food processing units. Other industries include hosiery, carpet and rugs, Nawar and lace, printing and publishing and pharmaceutical products etc. There are also some 12,000 household industries, which include some 60,000 power loom factories.

In the world, textile is the second largest industry after agriculture. The textile industry in Pakistan holds the leading role in the manufacturing industry sector. This sector comprises almost 8.5% of the GDP, provides employment to more than 46% of the manufacturing sector labour force and contribute a major share in foreign exchange earnings for the country. Further, Pakistan is the 8th largest exporter of textile products in Asia, 4th largest producer of cotton, with the third largest spinning capacity in Asia after China and India, and contributes 5% to the global spinning capacity. This textile sector has an overwhelming impact on the growth and development of Pakistan's economy (Government of Pakistan (2015)). The textile sector is one of the most polluting industrial sectors. The textile industry is also associated with some environmental problems such as water pollution, soil pollution, noise pollution and air/dust pollution.

The Faisalabad Chamber of Commerce and Industry monitors industrial activity in the city and reports its findings to the Federation of Pakistan Chamber of Commerce and Industry and the provincial government. The city has a major Dry Port and International Airport.^{37 38}

8.5 COMMERCE AND TRADE

The district which had hitherto been famous for its grain markets has now become a great commercial centre. Trade has expanded considerably resulting in the setting up of new markets. The government has established a Trading Corporation for purchase and export of course as well as fine cloth. The cotton market has assumed the posture of an international market. Faisalabad, Chak Jhumra, Jaranwala, Samundri, Tandlianwala and Mamonkanjan are the important food grain markets and trading centres in the district. Important items of trade in these centres are wheat, rice, cotton, Gur, gram, maize and chillies (source: DCR Faisalabad 1998).

8.5.1 Trade and Supporting Agencies

In Faisalabad there are five trade supporting agencies are working.

- Faisalabad Chamber of Commerce and Industry (FCCI)
- Security and Exchange Commission of Pakistan (SECP)
- Small & Medium Enterprises Development Authority (SMEDA)
- Faisalabad Industrial Estate Development & Management Company (FIEDMC)
- Faisalabad Garment City Company (FGCC)

The top export to different countries in 2016 is shown in **Figure 8.5** underneath.

³⁷ "The Faisalabad Chamber of Commerce & Industry (FCCI)".www.fcci.com.pk. The Faisalabad Chamber of Commerce & Industry. Archived from [the original](#) on 14 May 2012. Retrieved 7 June 2016

³⁸ Rana, Imran (9 October 2014).["After Three Years Faisalabad Dry Port Expects Boom In Business"](#). Retrieved 17 April 2017

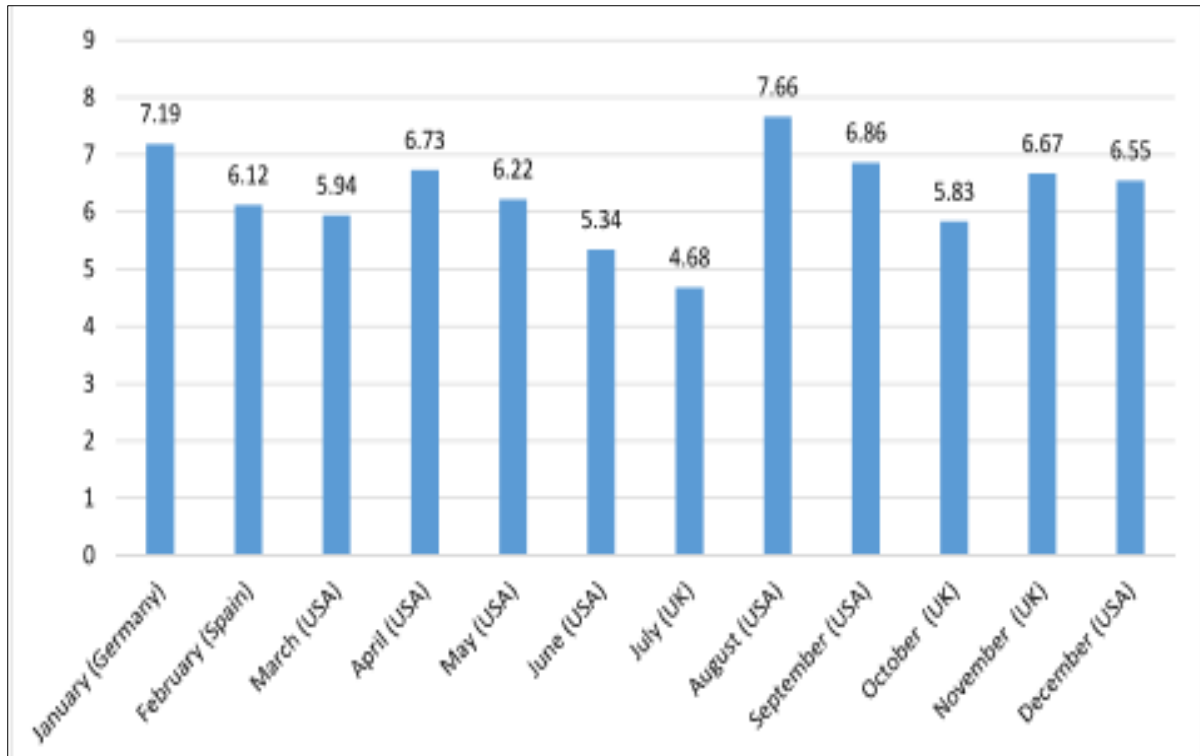


Figure 8-5: Top Export to Different Countries in 2016 (Millions \$)³⁹

Faisalabad Chamber of Commerce and Industry (FCCI):

Established in 1974, "The Lyallpur Chamber of Commerce & Industry". Promulgation of Trade Organizations ordinance 2007, re-registered & re-licensed as "The Faisalabad Chamber of Commerce & Industry" is a Non-Profit Organization under the regulatory control of "Directorate General of Trade Organizations" (DGTO) affiliated with "The Federation of Pakistan Chamber of Commerce and Industry" FPCCI.

Security and Exchange Commission of Pakistan (SECP):

The Securities and Exchange Commission of Pakistan (SECP) was set up in pursuance of the Securities and Exchange Commission of Pakistan Act, 1997 and became operational on January 1, 1999. It has investigative and enforcement powers (SECP, 2017).

Small & Medium Enterprises Development Authority (SMEDA):

A premier institution of the Government of Pakistan under the Ministry of Industries & Production. SMEDA was established in October 1998 to take on the challenge of developing Small & Medium Enterprises (SMEs) in Pakistan. With a futuristic approach and professional management structure, it has focused on providing an enabling environment and business development services to small and medium enterprises. SMEDA is not only an SME policy-advisory body for the government of Pakistan but also facilitates other stakeholders in addressing their SME development agendas.

Faisalabad Industrial Estate Development & Management Company (FIEDMC):

Faisalabad Industrial Estate Development & Management Company (FIEDMC) is owned by the Government of Punjab (Public-Private Partnership) under section 42 of Companies

³⁹ Source: Analysis of CO'S (Study Report) FCCI, 2016

Ordinance, 1984 on 16th July 2004 and has the distinction of being Punjab's first Special Economic Zone and 1st Punjab Public Sector ISO 9001; 2015 Certified Company. FIEDMC has played a pivotal role in the last five years in nurturing the economy of Pakistan in general and Punjab in particular. FIEDMC serves as a key Government entity in developing and diversifying the economy of Punjab through the creation of specialized industrial zones, creation of jobs, poverty alleviation and provision of international standard infrastructure to achieve orderly, planned and rapid industrialization according to the needs of the present era enabling entrepreneurs to step in the world market with sustained development & environment-friendly projects. Allama Iqbal Industrial City (AIIC) is a priority SEZ and being developed on approximately 3296 acres. It has an advantage for being adjacent to M3-Industrial city which comprises a large number of projects. Faisalabad Industrial Estate & Management Company (FIEDMC) is the developing body of Allama Iqbal SEZ. A number of national and international companies have committed to start business units within AIIC. Based on businesses interest, the SEZ has great potential for attracting foreign direct investment (FDI), employment generation, and contribution towards exports. To divide the city into North and South zones new industrial zone is proposed of approximately 6333 acres across the satyana road with an inland port of 114 acres and all the necessary infrastructure to cater for industry in southern side to balance the opportunities.

Objectives:

- To provide an enabling environment for planned, economical and rapid industrialization.
- To develop socially compliant international standard infrastructure and common facilities through cluster development cost-effectively.
- To facilitate national and international investors in the manufacturing sector through one window operation.
- To create job opportunities, poverty alleviation and skill development.
- Fast track development through Public-Private Partnership.

Projects:

Currently, FIEDMC is working on three main projects.

1. Value Addition City (VAC)
2. M-3 Industrial City (M-3IC)
3. Allama Iqbal Industrial City (AIIC)

Value Addition City (VAC):

Value Addition City (VAC) a state of the artfully functional Industrial Estate spread over 215 acres has been established. (Approved as Special Economic Zone on 3-Oct-2016). **Figure 8.6** below shows the Value Addition City (VAC) master plan.

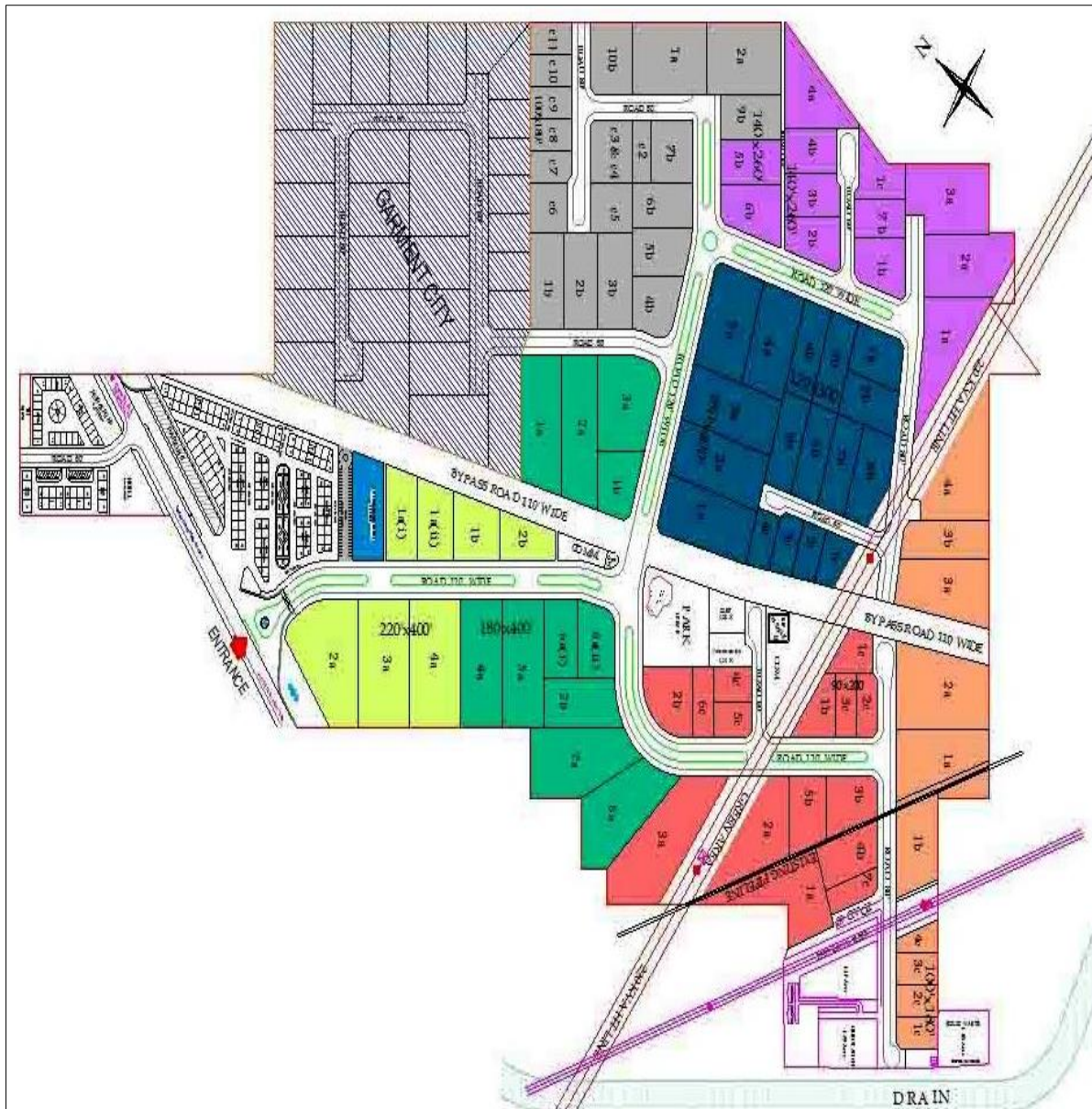


Figure 8-6: Value Addition City (VAC) Master Plan

M-3 Industrial City (M-3IC):

FIEDMC is the developing nation's largest industrial estate under the name of M-3 Industrial City spanning over an area of 17.7 million square meters (4356 acres) of prime land. It is strategically located on Motorway M-3, near Faisalabad city which connects the north with motorway M-2 for Islamabad, Peshawar and onward to China, Afghanistan and the Central Asian states and in the south with M-4 for the seaport of Karachi and national trade corridor for the deep seaport of Gawadar. M-3IC offers one window operation saving valuable time and money for our customers. This extends from allotment of plot to the provision of utility connections, obtaining of NOCs / permits/registration from different government departments and provides all possible facilitation till the enterprise comes into full production and afterwards. A remarkable benefit of 10 years tax holiday on corporate income, another is a one-time exemption on customs duty and taxes on import of plant and machinery for setting up the industrial unit. **Figure 8.7** shows the M-3 Industrial City master plan.

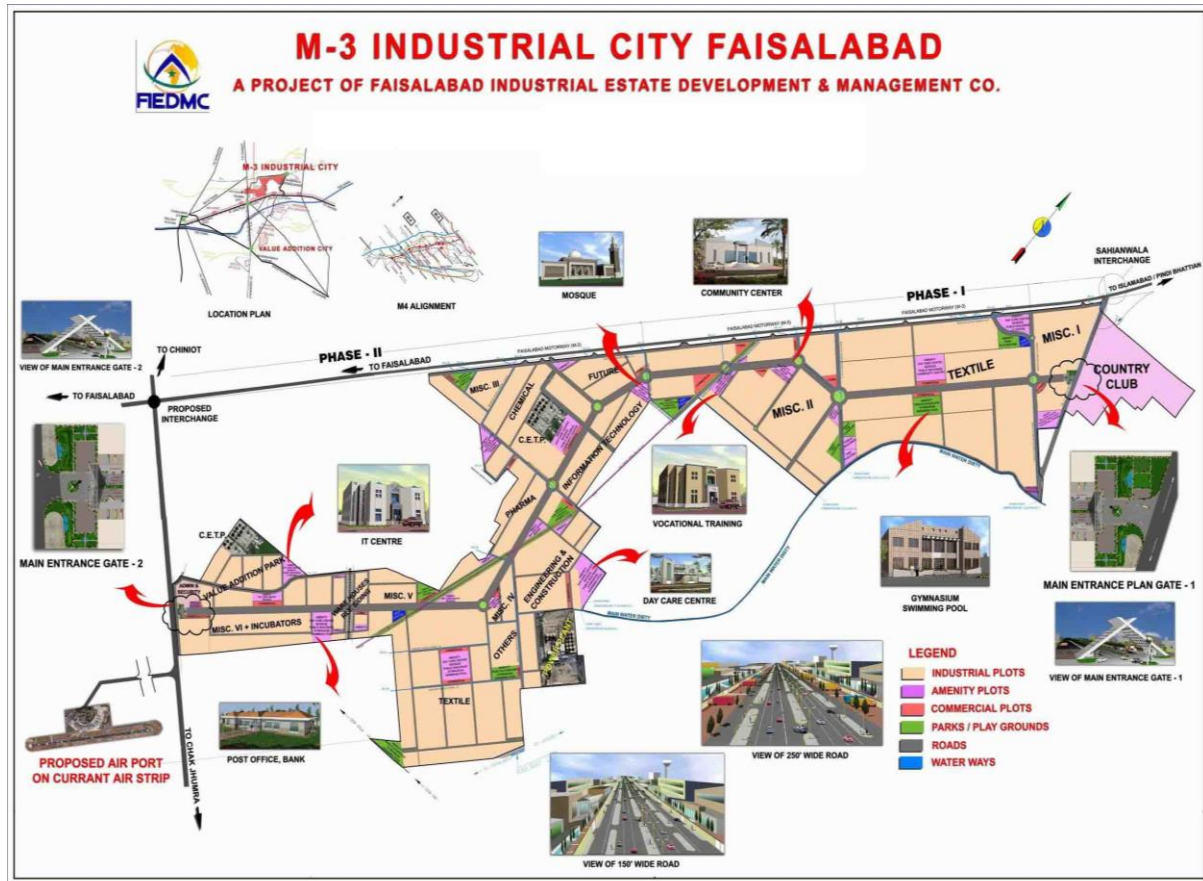


Figure 8-7: M3 Industrial City (M3 IC) Master Plan

Allama Iqbal Industrial City (AIIC):

After successful launch of M3IC FIEDMC has launched Allama Iqbal Industrial City (AIIC) on land measuring about 4000 acres on the north of the Motorway M-4 near Sahianwala interchange, Faisalabad. The planning and development of AIIC has been assigned to Osmani & Company Pvt Ltd., as per the TOR of the project given at Appendix. This SEZ has been designed on international standards to fulfill the needs of international investor's especially Chinese industrialists. Allama Iqbal Industrial City Priority Special Economic Zone is strategically located just opposite M-3 Industrial City SEZ and interconnected through flyover at Sahianwala Interchange, Motorway M-4 and Faisalabad.

Faisalabad Garment City Company (FGCC):

Because of the recent elimination of Textile quotas and subsequent opening of international markets, many supplier countries are investing in physical infrastructure to facilitate increased export. Similar Garment Cities are successfully operating in China, Singapore, Vietnam and Bangladesh. India is setting up large industrial parks for the same purpose. Under the Trade Policy of 2003, it was envisaged that three Garment Cities would be established at Lahore, Karachi and Faisalabad to develop state of art facilities for garment manufacturers.

The special characteristic of Faisalabad is its uniqueness in the trade of Textiles. It is famous as Manchester of Pakistan due to its peculiar trade of Textile. The detail of commercial activities based on survey analysis done by FDA in 1985 is given in **Table 8.1** underneath:

Table 8-1: Detail of Commercial Facilities (1985)⁴⁰

| Sr. No. | Category | No. of Shops |
|---------|-----------------------------------|--------------|
| 1 | Food item | 1647 |
| 2 | Food Grain Shops | 657 |
| 3 | Sewing Machine and Iron Merchants | 3565 |
| 4 | Hair cutting Saloons | 969 |
| 5 | Utensils and Glassware | 292 |
| 6 | Book Sellers and Stationers | 340 |
| 7 | Plastic and Raxin Shops | 818 |
| 8 | Banks | 94 |
| 9 | Property Dealers | 60 |
| 10 | Jewellers | 302 |
| 11 | Karyana Shops | 3294 |
| 12 | Cloth | 3560 |
| 13 | Chemists and Druggists | 1150 |
| 14 | Building Material | 110 |
| 15 | Goods and Forwarding Agencies | 49 |
| 16 | Railway Godowns | 15 |
| 17 | Chemicals | 77 |
| 18 | Vegetables Seed Stores and Fruit | 671 |
| 19 | Tailoring and Embroidery | 645 |
| 20 | Watch repair and Dealers | 367 |
| 21 | Oil Petrol and Lubricants | 174 |
| 22 | Tea Stall and Hotel | 2456 |
| 23 | Wood Works | 895 |
| 24 | General Stores | 1203 |
| 25 | Pan and Cigarettes | 884 |
| 26 | Miscellaneous | 4611 |
| | Total | 29003 |

The land use survey (1985) breakup has revealed that the total area under commercial activities was 679 acres which come out to be 3.03% of the total area of FMC limits. The commercial activity is mainly concentrated in the CBD area i.e., around the Clock Tower in eight bazars and on the Circular Road. Faisalabad is the 3rd largest city in Pakistan and has earned a reputation internationally for the manufacturing of fine textile, Yarn, Printed cloth, coarse cloth, oil, Ghee, Soap, Sugar Chip Board and Agricultural Tools etc.

In the preceding years, no effort has been made to decentralize commercial activities. This resulted in congestion in the CBD area. This state of affairs led to some problems in various fields, such as vehicular traffic, pedestrian movement, noise etc. However, FDA has made tremendous efforts in redressing this situation by providing the following markets/commercial areas in the different parts of the city.

1. Faisal Market
2. Quaid-e-Azam Market
3. Dijkot Road Market
4. Cotton Mills Road Market
5. Samundri Road Market
6. 212 Market
7. Iron Market
8. Faizabad Market
9. Shaheed-e-Millat Market
10. Millat Town Commercial Area.

⁴⁰ Source: Structure Plan of Faisalabad 1986

This has helped a lot in relieving the ever-increasing burden on the CBD and also the people have easy access to their commercial needs. The traffic problems which were getting serious have been solved to a considerable extent. This has good effects on the health, safety and convenience of the people. The map showing the markets and bazars in Faisalabad city is attached in **Figure 8.8** below.

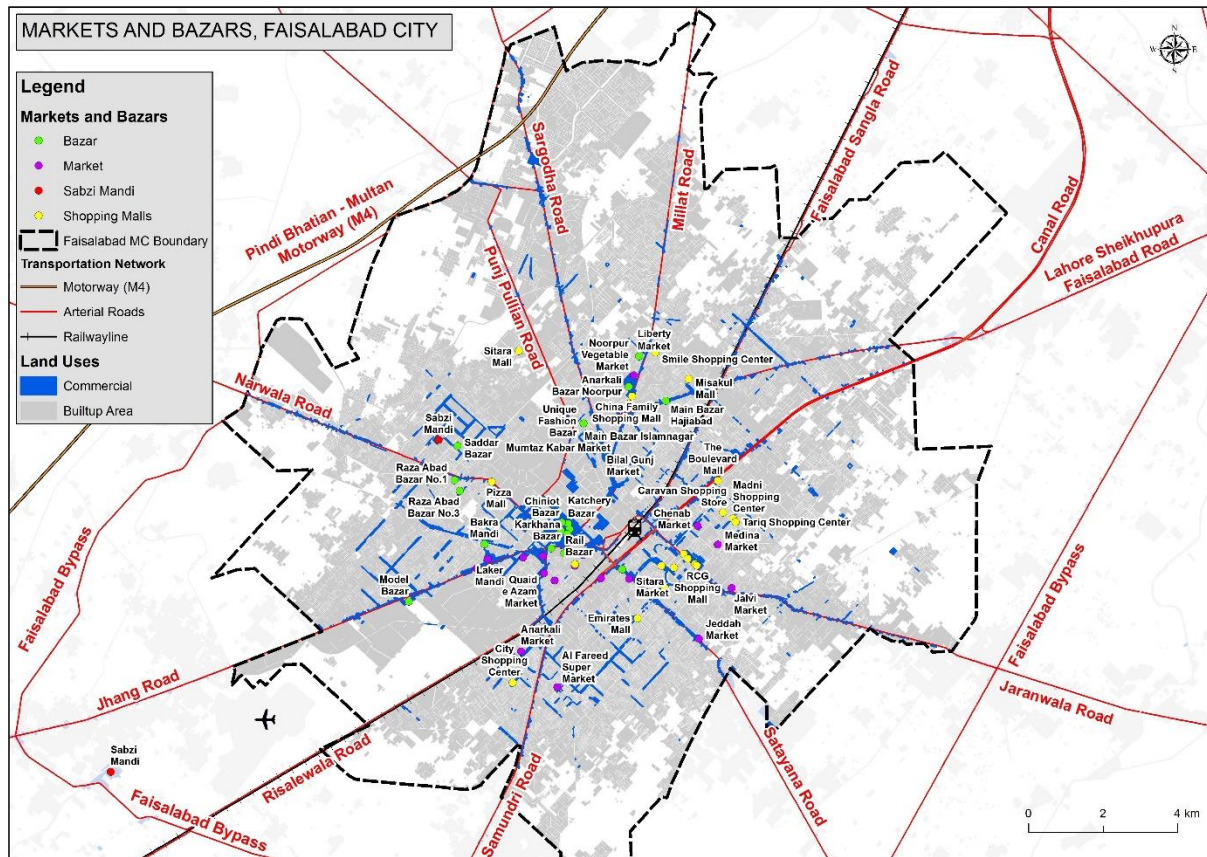


Figure 8-8: Markets and Bazars, Faisalabad City

9. EDUCATION AND HEALTH COMMUNITY FACILITIES

9.1 EDUCATION SYSTEM IN PAKISTAN

In Pakistan, education is now a provincial subject as a result of the 18 Constitutional Amendment legislated by the parliament in April 2010. The provincial/area governments enjoy greater autonomy in several social and economic sectors, including education.

The public sector formal school system, which is the largest service provider in Pakistan, consists of 12 academic years. It starts from Primary and ends at the Intermediate level or Higher Secondary School Certificate (HSSC). Pre-primary classes (local name Katchi class, translation: Pre-Primary; premature or not ripe yet) can be found in schools, but this level is not recognized in terms of budgetary provision or examination. The private sector caters for the educational needs of about one-third of enrolled children having diverse streams, some following public sector national curricula, while others opting for curricula of Cambridge International Examinations.

In addition to the public and private schools, there is another stream of 'Deeni Madrassas' (Religious Schools) offering free religious education with free boarding and lodging. These Madrassas are usually managed by local communities and are financed through charity and donations. These parallel systems of education in Pakistan have perpetuated inequalities and economic stratifications and are the root cause for behavioural divisions and social conflict in society.

The majority of the children, residing mainly in rural and semi-urban areas and belonging to low-income families, attend public schools which offer free education but are characterized by the poor quality of education due to lack of physical facilities, shortage or absence of teachers, and non-availability of suitable learning materials. Table 9.1 below shows the formal education institutions in Pakistan.

Table 9-1: Formal Education Institution in Pakistan⁴¹

| Categories | Balochistan | FATA | GB | ICT | KP | Punjab | Sindh | AJ&K | Pakistan |
|-----------------|-------------|-------|--------|-----|--------|--------|--------|-------|----------|
| Primary Schools | 11,079 | 4,836 | 11,079 | 364 | 24,991 | 52,414 | 46,759 | 4,852 | 146,185 |
| Middle Schools | 1,406 | 616 | 427 | 170 | 4,921 | 26,831 | 5,928 | 1,848 | 42,147 |
| High Schools | 917 | 439 | 268 | 248 | 3,774 | 17,958 | 5,189 | 1,081 | 29,874 |
| Colleges | 68 | 62 | 35 | 40 | 202 | 1,241 | 471 | 199 | 2,318 |
| Universities | 6 | - | 1 | 16 | 29 | 43 | 40 | 6 | 141 |

9.2 NATIONAL EDUCATIONAL POLICIES

The Constitution of the Islamic Republic of Pakistan (1973) promised to its citizens in Article 37 (b) & (c) that "the State shall remove illiteracy and provide free and compulsory secondary education within the minimum possible period; make technical and professional education generally available and higher education equally accessible by all based on merit". One key policy reform with positive implications for education was the 18 Amendment in the Constitution by the National Assembly of Pakistan in April 2010 and the insertion of Article 25-A. Following the 18 Amendment, free access to school education was recognized as a fundamental constitutional and enforceable right of all children of age 5 to 16 years. Article 25-A of the Constitution of the Islamic Republic of Pakistan states:

“State shall provide free and compulsory education to all children of the age of five to sixteen years in such manner as may be determined by law”.

⁴¹ Source: Pakistan EFA Review Report 2015

Provinces and the Federal government are gradually enhancing their budget allocations to education; nevertheless, a full thrust follows up for implementation of this landmark legislation is still awaited. It is encouraging that there is a strong political resolve to enhance budgetary allocations from 2% to 4% by 2016.

9.2.1 The National Education Policy (2009)

The NEP 2009 document identifies policy actions in pursuit of two overarching objectives: (i) widening access to education; and (ii) improving quality. Following key policy actions were identified:

- i) Achieving universal and free primary education by 2015 and up to class 10 by 2025
- ii) Promoting access and quality of Early Childhood Education.
- iii) Achieving 86% Adult Literacy by 2015.
- iv) Enhancing education budget up to 7% of GDP by 2015
- v) Promoting equity in education to eliminate social exclusion and provision of increased opportunities to marginalized groups, particularly girls.
- vi) Improve the quality of education.
- vii) National Standards for educational inputs, processes and outputs shall be determined.
- viii) Introduction of a common curriculum framework for public and private sectors.

The above-mentioned National Education Policy of 2009 though addressed all-important issues of education and envisaged strategic actions and clear targets, yet no mechanism could be instituted to follow up its implementation. As the 18 Amendment to the Constitution devolved school education to the provinces, a statutory platform for coordination arrangement at the institutional level among the provinces for primary and secondary education disappeared or was weakened.

The Federal Ministry of Education used to convene periodic meetings of Inter-provincial Education Ministers' Conference to brainstorm on key issues of this sector and make recommendations. No meetings of this high-level forum have been held after April 2010. With the creation of MET&SHE, the forum of Inter-Provincial Education Ministries Conference (IPEMC) has come up. Moreover, Provinces have agreed to formulate National Curriculum Council (NCC). The NCC will be headed by Provincial Ministers of Education by rotation. Nonetheless, this important policy document (NEP 2009) still serves as a reference and a source of guidance for planners and education managers at various levels in the country.⁴²

9.2.2 Education Sector Reforms (2001-06)

Soon after the meeting of the World Education Forum in Dakar, the Government of Pakistan took the initiative to push forward the EFA agenda, by launching Education Sector Reforms (ESR: 2001-06). This ESR program focused on 9 key areas including, ECCE, universal primary education of good quality, literacy, and improved technical and vocational education. Under the ESR program, the Federal Government disbursed special grants to the provinces to help them promote 9 key areas of education. Special financial assistance to the provinces provided the impetus for the EFA movement in the country.

9.2.3 National Plan of Action for EFA (2001-15)

The EFA National Plan of Action (2001-15) was prepared and endorsed by the first Poverty Reduction Strategy Paper (PRSP I 2003-06) but could not be implemented due to a lack of financial support, both indigenous and external. Similarly, 15-year provincial and district EFA plans were also prepared.

⁴² National Education Policy 2009, (2009), Ministry of Education, Government of Pakistan

9.3 PROVINCIAL EDUCATIONAL SECTOR PLANS

The provinces of Balochistan and Khyber Pakhtunkhwa have recently prepared Education Sector Plans. The KP Education Sector Plan (2010-15) aims at achieving Universal Primary Education (UPE) by 2015; as well as achieving 50% improvement in adult literacy, especially for women.

Pakistan was committed to implementing the Global document of Dakar Framework of Action, as a first step, an EFA Plan of Action (2001-2015) was prepared to meet the target. Through Education Sector Reforms (ESR) and other Provincial Sector Reforms Program such as Punjab Education Sector Reforms Program (PESRP) and Sindh Education Reforms Program, efforts towards meeting EFA goals were implemented during the first decade of the 2000s with partial success. Continuous conflicts in the border regions and civil instability due to law and order problems affected the progress in EFA goals. Moreover, earthquakes and annual floods resulted in heavy loss to human life and physical infrastructure including schools.

As mentioned in previous sections, EFA was welcomed by the country as a global agenda and preparation of NPA was primarily motivated by the expectations of financial assistance from the international development partners. Multi-pronged strategies were adopted for supporting the implementation of EFA targets envisaged in the NPA. These inter alia included:

Advocacy for EFA:

Highlighting the importance of education, pointing out low education indicators in the country, and highlighting the commitments of Pakistan to meet Dakar Goals was an important strategy. This pragmatic strategy was adopted to introduce and popularize the concept and targets of Education-For-All, particularly the right to free education. Information and communication are important tools for raising public awareness about an issue. Data on EFA status in Pakistan, number of illiterate and out-of-school children, poor learning conditions in schools, and other indicators of education in the country were compiled regularly and informative bulletins on EFA were disseminated to relevant institutions, individual educationists, civil society and media.

Development of Provincial and District EFA Plans (2001-2015):

Federal Ministry of Education developed a 15-year plan for achievement of EFA goals. Later on, provinces were persuaded and provided support for the development of provincial and district EFA Plans. This planning for EFA, helped education officials in the provinces to learn about gaps and EFA challenges in their respective areas, and possible actions to be taken to clear the backlog and improve education.

Professional Development for Neglected Themes:

Keeping in view the weak expertise of educationists and institutions in ECE and Adult Literacy, the professional base for the introduction of these neglected sub-sectors/goals of Dakar was developed by establishing Resource Centers in the provinces. These centres were commissioned to produce technical materials and organize training workshops on ECE and Literacy.

Quality Control Mechanism:

Educators were offered orientation on the importance and indicators of quality of education. The creation of mechanisms to monitor the quality of education in the country was also advocated at various levels.

Sensitization about Gender Equality:

The problem of gender disparities was highlighted and educationists, CSOs, and communities were sensitized about the importance and advantages of girls' education for socio-economic development.

National Plan of Action to Accelerate Education-Related MDGs (2013-16):

As part of a global exercise, Pakistan prepared a plan to expedite efforts for the achievement of education related MDGs. This plan is based on 8 Provincial and Area plans, each endorsed by its respective Government with technical and financial commitments of implementation. The Provincial and Area governments are committed to enhancing Net Enrolment Rate at the Primary level and quality of education by

Launching of New Initiatives and Reforms:

There was a need to offer models for introduction, piloting, and replication of programs for the new thematic areas of EFA, which were either ignored totally or underdeveloped in Pakistan, like ECE and Adult Literacy. Federal and some Provincial governments were persuaded to finance small- or large-scale projects of ECE and adult literacy in their respective areas. NCHD launched a nationwide program of adult literacy and feeder schools. Punjab established a new Literacy and NFBE Department and started implementing adult literacy and NFBE program in all districts of the country. KP province assigned the task of launching the Literacy For-All project to its Elementary Education Foundation.

Public Private Partnership:

Federal and Provincial governments are encouraging the private sector to invest in the provision of education facilities in the areas where the public sector cannot reach out. Provincial governments, through National and Provincial Education Foundations, are offering incentives (like Foundation Assisted Schools and Voucher Scheme) to the low-cost private schools intending to improve the quality and retention of children from the low-income families in these institutions.

9.3.1 Progress towards Education for All Goals

Education-For-All is an over-arching initiative, spanning across a broad set of educational dimensions. It focuses on early childhood care and education, universal primary education and secondary education to youth and adult literacy with gender parity and quality of education as crosscutting thematic and program priorities. More specifically, there are 6 EFA Goals, which are;

- i) Goal 1: Expanding and improving comprehensive Early Childhood Education (ECE) especially for the most vulnerable disadvantaged children
- ii) Goal 2: Ensuring that by 2015 all children, particularly girls, children in difficult circumstances and those belonging to ethnic minorities, have access to, and complete, free and compulsory primary education of good quality
- iii) Goal 3: Ensuring that the learning needs of all young people and adults are met through equitable access to appropriate learning and life skills programs.
- iv) Goal 4: Achieving a 50 per cent improvement in levels of adult literacy by 2015, especially for women, and equitable access to basic and continuing Education-For All adults.
- v) Goal 5: Eliminate gender disparities in primary and secondary education by 2015 and achieve gender equality in education by 2015 with a focus on ensuring girls' full and equal access to and achievement in basic education of good quality.
- vi) Goal 6: Improve all aspects of the quality of education and ensure excellence so that recognized and measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills.

Table 9.2 shows the overall school statistics of Punjab province.

Table 9-2: Overall School Statistics of Punjab Province⁴³

| Level | Schools | | Enrolment | | Teachers | |
|----------------|--------------|--------------|-----------------|----------------|---------------|---------------|
| | Male | Female | Male | Female | Male | Female |
| H.Sec. | 326 | 354 | 310736 | 408083 | 11047 | 11785 |
| High | 3412 | 2990 | 2021270 | 1878677 | 65331 | 59885 |
| Middle | 3736 | 4622 | 1112755 | 1209039 | 31836 | 48888 |
| Primary | 20030 | 16029 | 2553018 | 1753157 | 46322 | 67182 |
| Mosque | 710 | 22 | 47479 | 1319 | 1023 | 159 |
| Total | 28679 | 24262 | 6044258 | 5250275 | 155559 | 187899 |
| G.Total | 52231 | | 11294533 | | 343458 | |

9.4 DISTRICT EDUCATION PLAN

Education planning aims to achieve specific targets and objectives within available resources, ultimately contributing to the overall development of the education sector in the country. The instrument of education planning is important as it helps focus on education policies and their implementation through evidence- and research-based planning, effective budgeting, and its transparent utilization. Education plans, like planning for other sectors, are designed across the developed world around database needs and following the local fiscal realities. However, as mentioned earlier, the case in Pakistan is different – there exists a disconnect between the data, policy and the budget.

This disconnects manifests itself even in the numerous attempts in the past, largely by the civil society organizations and international development partners to devise education plans aimed at service delivery levels. These plans found little support for being either too ambitious in terms of required resources, or for being at odds with the reform agenda of the government. More often, however, the plans proposed failed to rally behind them a negotiated support from one or all the major stakeholders such as district education management, local communities, local political leaders etc.

For meaningful and result-oriented education planning at the service delivery level, it is important to understand that education planning in Pakistan is presently devolved to the District Education Management – the first line of contact between the public education apparatus in the district and the local communities. The rationale behind devolution is to make education planning more participatory and consultative. However, district education managers invite little input from the community – parents, local civil society members and organizations – in the development and implementation of education plans. In absence of wide ownership of the plan, there arise concerns related to transparency and accountability in the implementation of plans. Also, the priorities of the communities as regards the education of their children and the utilization of available resources remain outside the planning process.

The inability to carry out evidence-based planning that brings together data, policy and budget assumes greater significance when viewed from the lens of Free and Compulsory Education, were under the Article 25-A of the Constitution of Pakistan, the government is obligated to provide compulsory education to all the children between 5-16 years of age. The obligation cannot be fulfilled in the absence of robust participative planning, that reconciles priorities of local communities and reform agenda from the government, alongside setting realistic targets for equitable access to quality education with a nuanced appreciation for the budget realities. **Table 9.3** shows the education statistics for district Faisalabad.

⁴³ Source: <http://schoolportal.punjab.gov.pk/census/schoolcensusNew.htm>, retrieved on 09-10-2017

Table 9-3: Education Statistics for District Faisalabad⁴⁴

| Level | Category | | Enrolment | | Teachers | |
|----------------|--------------|----------------|---------------|-----------------|---------------|-----------------|
| | Male Schools | Female Schools | Male Students | Female Students | Male Teachers | Female Teachers |
| H. Sec. | 23 | 36 | 39376 | 50539 | 1097 | 1244 |
| High | 203 | 243 | 150418 | 177465 | 4245 | 4811 |
| Middle | 174 | 317 | 67050 | 105665 | 1530 | 3474 |
| Primary | 752 | 577 | 132121 | 97371 | 2222 | 2806 |
| Total | 1152 | 1173 | 388965 | 431040 | 9094 | 12335 |
| G.Total | 2325 | | 820005 | | 21429 | |

It is in this context that the Institute of Social and Policy Sciences (I-SAPS) has prepared District Education Plan for Faisalabad District. As discussed earlier, the plan is based on robust linkage between policy, data and the budget. It is among the series of District Education Plans (DEPs) that I-SAPS has prepared for Rahim Yar Khan, Lodhran and Muzaffargarh districts. It is important to note that the plan, like its predecessors, has been developed using the Minimum Standards Planning (MSP) technique. The concept of MSP and the methodology adopted for the preparation of this plan are presented below.

9.4.1 Profile of District Faisalabad

Faisalabad district covers an area of 5856 square kilometres with a population density of 1344.5 persons per square kilometre while the current population of the district is 7.8 million and the annual growth rate for 2017 is 1.97%. District Faisalabad consists of six tehsils, that is, Tehsil ChakJhumra, Tehsil Samundari, Tehsil Tandlianwala, Tehsil Jaranwala, Tehsil City Faisalabad and Tehsil Faisalabad Saddar, eight towns and twenty-two constituencies. The district has a literacy rate of 60.2%. Out of the total population of district Faisalabad, 1.87 million (53%) are between 5-16 years of age; 48% of which are girls. It is concerning to note that 42% out of 1.87 million children of 5-16 years age are out of school, where 11,375 more boys are out of school compared to girls. A huge population of children being out of school calls for immediate action given that Article 25-A of Pakistan's constitution holds the provincial government responsibility to ensure the provision of free and compulsory education to all children of 5-16 years of age.

There are 160 higher education institutions in Faisalabad District, which includes colleges for boys and girls, medical colleges and universities both public and private. The list of the higher education institutions is given below, it also includes different campuses of national and provincial universities. Faisalabad city has some world-known research and educational institutions namely the University of Agriculture (UAF), Nuclear Institute for Agriculture and Biology (NIAB), National Institute for Genetic Engineering and Biotechnology, Ayub Agricultural Research Institute (AARI), Punjab Forestry Research Institute (PFRI), The University of Faisalabad, National University of Textile Engineering etc. Besides, a regional campus of the University of Engineering & Technology Lahore also exists here.

A comprehensive analysis of education facilities in Faisalabad needed to be carried to identify a general pattern of distribution of formal education functions at all levels. The extent of the provision of special education is also needed to be examined. All other data which impacts educational planning for the future such as the common city's use of available educational facilities, student's enrollment, dropout number and size of classes and sections, accommodations, amenities and services etc. have to be critically reviewed.

Faisalabad has been ranked 34th among the 155 districts of Pakistan in infrastructure facilities at the primary school level. The district earned a score of 89.98 regarding five parameters

⁴⁴ Source: <http://schoolportal.punjab.gov.pk/census/schoolcensusNew.htm>, retrieved on 09-10-2017

selected for the evaluation i.e. electricity, water, toilet, boundary wall and building condition (Alif Elan 2016) due to the poor condition of buildings and the absence of boundary wall the overall score is less. Similarly, at the middle school level Faisalabad district ranked 37 out of 155 districts of Pakistan. It earned 91.08 scores in infrastructure facilities. Again, due to poor condition of the school building has affected the overall score. Therefore, there is a need to improve the condition of school buildings and the boundary wall of the existing primary and middle schools be constructed.

According to Programme Monitoring and Implementation Unit, Monthly Indicators (June 2021) boundary wall and other parameters are in poor condition now good condition. Their percentages show good results at the city level as well as at the district level (refer **Table 9.4**).

Table 9-4: PMIU Monthly Indicators (June 2021)

| Province/District / Tehsil | Teacher Presence | Non- Teacher Presence | SA (All grades) | Retention (All grades) | Head Teacher Presence | Availability of boundary wall | Availability drinking water | Availability of furniture | Sufficiency of toilets | School hygiene |
|----------------------------|------------------|-----------------------|-----------------|------------------------|-----------------------|-------------------------------|-----------------------------|---------------------------|------------------------|----------------|
| Punjab | 94% | 92.1% | 46% | 99.49% | 92.52% | 96.29% | 99.18% | 92.58% | 89.46% | 83.96% |
| Faisalabad District | 94.5% | 93.1% | 8% | 96.61% | 90.38% | 98.18% | 100% | 98.18% | 96.36% | 81.82% |
| Faisalabad City | 97.1% | 87.9% | 9.9% | 100% | 100% | 100% | 100% | 100% | 87.5% | 93.75% |
| Faisalabad Saddar | 93.4% | 95.5% | 7.6% | 86.01% | 81.82% | 100% | 100% | 100% | 100% | 93.08% |

Source: Programme Monitoring and Implementation Unit, Monthly Indicators (June 2021)

Furthermore, some public and private institutions at all levels are serving the purpose of educational dissemination. There are three polytechnic institutions located in Faisalabad, and the average number of students enrolled every year in these institutions is 3,556. Eight vocational institutes enroll 694 students every year. In all, about 7,220 skilled technicians/artisans/workers are trained every year. Further, some public and private schools are also actively engaged in educational enhancement for all ages. **Table 9.5** shows the status of literacy in Faisalabad district.

Table 9-5: Status of Literacy in Faisalabad District⁴⁵

| Literacy Rate | Male | Female |
|------------------|-------|--------|
| Urban | 79.0% | 68.8% |
| Rural | 64.9% | 39.9% |
| Overall District | 71.4% | 53.1% |

Education Facilities and Shortages in 1986:

According to the Structure Plan of Faisalabad 1986 – 2000, only 48% of the total population of Faisalabad was classified as literate. Many schools were established in rented buildings and many were poorly maintained. Also, many of the schools were housed in inadequate, or unsafe buildings. Most of the Educational Institutions were without playgrounds or recreational facilities. If it is analyzed the soft part of the education there was the little provision of technical training and adult education or community development and most of the staff was untrained. Also, shortage of amenities, boarding facilities and lack of funding were crucial facts at that

⁴⁵ Source: Peri-Urban Structure Plan 2015

time. Also, there was a shortage of Degree Colleges and Technical Colleges. **Table 9.6** shows the details of facilities and shortages in 1986.

Table 9-6: Details of Facilities and Shortages in 1986⁴⁶

| | No. | No. of Students | No. of Teacher | Ratio | No. of Rooms | Area in Acres | Govt. | Private |
|------------------------------------|-----|-----------------|----------------|-------|--------------|---------------|-------|---------|
| Nursery School | 85 | 37344 | 633 | 1:59 | 300 | 10 | - | 85 |
| Primary Schools for Girls and Boys | 260 | 91824 | 1558 | 1:59 | 850 | 80.48 | 241 | 19 |
| Middle Schools | 55 | 44004 | 807 | 1:54 | 361 | 39.94 | 48 | 7 |
| High Schools | 59 | 42280 | 1168 | 1:36 | 943 | 172.25 | 50 | 9 |
| Colleges for Boys | 12 | 13348 | 576 | 1:23 | 278 | 121.15 | 12 | - |
| Colleges for Girls | 4 | 6062 | 262 | 1:23 | 70 | 11 | 3 | 1 |
| Medical College | 1 | 1517 | 151 | 1:10 | 40 | 37.50 | 1 | - |
| Universities | 1 | 4145 | 340 | 1:12 | - | 2674 | 1 | - |

Proposals of the Structure Plan of Faisalabad 1986 -2000:

The following were the proposals made in the Structure Plan of Faisalabad 1986 – 2000 for the education sector.

1. The schools especially the Primary schools are properly maintained.
2. The necessary facilities should be provided.
3. More funds should be allocated.
4. The condition of the structures should be improved.
5. Any addition to the stock of Educational Institutions should be made according to the standards required for different levels of Educational Facilities.
6. The teacher training program should be arranged.
7. Boarding facilities in Educational Institutions should be enhanced giving priority to colleges.
8. The Educational Programme at Secondary as well as College levels should be diversified to provide more emphasis on technical trade and agriculture training.
9. A Community Centre in each residential area should be established to assist adults' education programs, self-help techniques and other informal training.
10. Since many existing schools have been housed in the rented residential buildings, the allocation of space for new schools in the proposed development be made generously to accommodate the shifting of the school from the rented building.

Standards Proposed in Structure Plan of Faisalabad 1986 -2000:

The following standards were proposed for the establishment of Educational Institutions.

1. Two sections segregated or combined schools for a population of 5000 – 6000 persons to be provided in different localities or a particular residential area.
2. Two High Schools for the population of 20000 – 25000 persons, one for each sex to be located or near to a particular residential area.
3. One Degree College for a population of 100,000 persons and Girls College for a population of 200,000 persons to be located at some appropriate focal place.
4. A primary School should be generally single storey per on classroom.

The proposals for area requirements are as under: -

1. For Primary School a site area at the rate of 100 sq. ft per student and 2 acres for the playfield.

⁴⁶ Source: Structure Plan of Faisalabad 1986 – 2000

2. For High School, a site area at the rate of 250 sq. ft. to 300 sq. ft. per student should be provided. The area for the playfield should be 4 acres.
3. For a college, the site area should be 400 sq. ft. per student plus a playfield over an area of 6 acres.

The proposed space standards in structure plan 1986-2000 are summarized in Table 9.7 below.

Table 9-7: Proposed Space Standards in Structure Plan 1986-2000

| Sr. No. | Education Facility (Level) | Area in Acres |
|---------|----------------------------|---------------|
| 1 | For Primary School | 03 |
| 2 | For Middle School | 05 |
| 3 | For High School | 08 |
| 4 | For Inter College | 12 |
| 5 | For Degree College | 15 |

The proposed standards of the Structure Plan of Faisalabad 1986 - 2000 were almost acceptable. The Primary Schools may be located in Neighborhood Centers i.e. localities and Colleges in Community or District Centers.

Future Projections of Structure Plan of Faisalabad 1986 – 2000:

The future projections made in structure plan of Faisalabad 1986-2000 are shown in **Table 9.8** below.

Table 9-8: Future Projections made in Structure Plan of Faisalabad 1986-2000⁴⁷

| Sr. No. | Category of Students | No. of Students | | |
|---------|-----------------------------------|-----------------|---------|-------|
| | | In 1990 | In 1995 | 2000 |
| 1 | Nursery School Students | 15817 | 18877 | 25529 |
| 2 | Primary School going Boy Students | 57775 | 68951 | 82288 |
| 3 | Primary School going Girl Student | 40575 | 48421 | 82288 |
| 4 | Middle School going Boy Students | 19614 | 23408 | 27936 |
| 5 | Middle School going Girl Students | 42062 | 50198 | 59909 |
| 6 | High School going Boy Students | 35570 | 42450 | 50662 |
| 7 | High School going Girl Students | 28576 | 23961 | 34026 |

The number of educational facilities projected in structure plan 1986-2000 are shown in **Table 9.9** below.

Table 9-9: The Number of Educational Facilities Projected in Structure Plan 1986-2000

| Sr. No. | Category of Educational Facilities | Years | | | Total |
|---------|------------------------------------|-------|------|------|-------|
| | | 1990 | 1995 | 2000 | |
| 1 | Nursery School Students | 108 | 129 | 154 | 391 |
| 2 | Primary School for Boy Students | 175 | 220 | 269 | 664 |
| 3 | Primary School for Girl Student | 132 | 154 | 187 | 473 |
| 4 | Middle School for Boy Students | 41 | 81 | 58 | 180 |
| 5 | Middle School for Girl Students | 91 | 69 | 124 | 284 |
| 6 | High School for Boy Students | 86 | 92 | 111 | 289 |
| 7 | High School for Girl Students | 60 | 88 | 107 | 255 |
| 8 | College for Boys | 9 | 12 | 14 | 35 |
| 9 | College for Girls | 5 | 6 | - | 11 |

The space requirements for various Educational Institutions based on proposed standards in future will be as following **Table 9.10**.

⁴⁷ Source: Structure Plan of Faisalabad 1986 – 2000

Table 9-10: The Space Requirement Projected in Structure Plan 1986-2000

| Sr. No. | Category of Educational Facilities | Space Requirement in Acres | | |
|---------|--|----------------------------|---------|---------|
| | | In 1990 | In 1995 | In 2000 |
| 1 | Primary School | 6 | 134 | 164 |
| 2 | Middle School | 207 | 309 | 97 |
| 3 | High School | 324 | 136 | 152 |
| 4 | Colleges | 74 | 24 | 12 |
| 5 | University Law College and Engineering College | 100 | | |

The above-said area requirements have been for the additional Institutions to establish over and above the existing number of Institutions.

9.5 CURRENT EDUCATION STATISTICS OF FAISALABAD

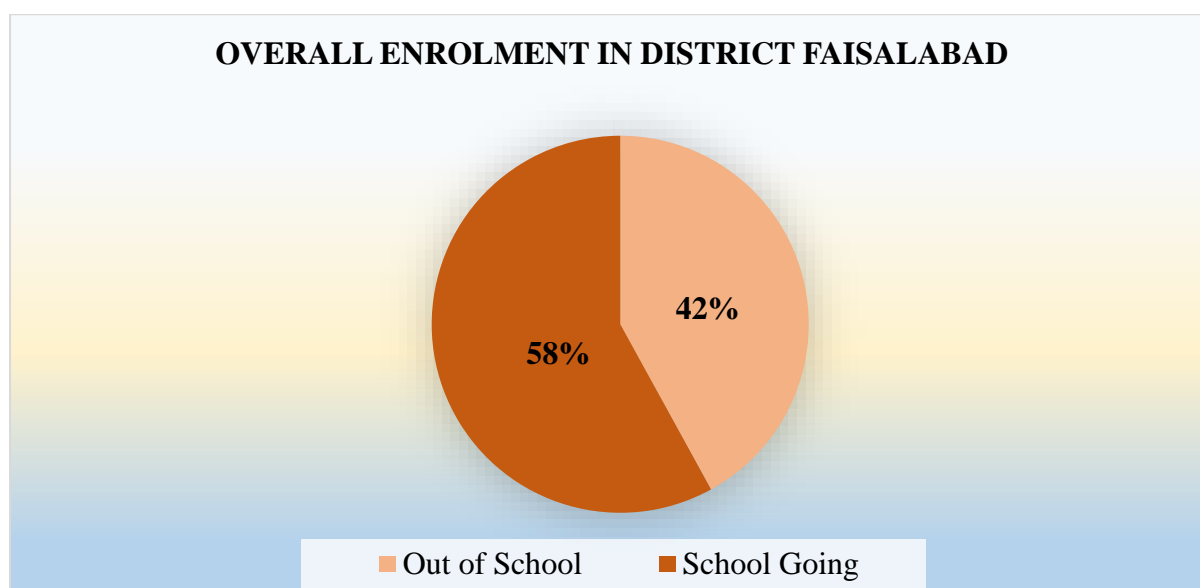
All the major indicators reflecting the situation of education in the district have been analyzed to elucidate the challenges faced by the education sector of the district.

Literacy Rate (10+ Population):

The overall literacy rate in the district has improved by 3% from the last survey, wherein the 2012-13 literacy rate has been recorded as 69% compared with 66% in 2010-11. There is an urban-rural divide in terms of literate population which is in favour of urban areas where literacy rate in urban areas is 16% higher than that in rural areas. Although, when male-female literacy rates are compared, male literacy rates are higher than female, it is encouraging to note that the gap between the two has largely diminished in the case of urban population, while rural areas are still lagging in this regard.

Enrollment:

With a total population of 1,867,466 children of 5-16 years of age in district Faisalabad, 58% of them are enrolled in schools (public and private sector schools combined). It is motivating to note that among the enrolled children, more girls are enrolled compared to boys as 51% of the enrolled students are girls (549,572) while 49% are boys (538,197). Figure 9.1 shows the ratio of school going and out of school childrens.


Figure 9-1: The Ratio between School Going and Out of School Children⁴⁸

⁴⁸ Source: Programme Monitoring and Implementation Unit (PMIU) Data for Enrolment in Public Schools and NEC Data Projections for Private Schools in Source: District Education Plan 2015 - 2021

Disaggregating the number of out of school children gender-wise, it is noted that 56% of them (432,885) are boys whereas 44% (346,811) are girls. In total, 41% of the children (440,822) are enrolled in private schools, at the primary and secondary levels. In private sector schools, girl enrollment is higher than boys. A total of 795,687 children are enrolled in public schools where unlike the combined situation of the public and private sector, enrollment of boys is higher. In public schools, 51% of the total enrolled population of district Faisalabad is boys compared with 49% girls. The highest enrollment has been recorded for the primary stage where 44% of the total public-school population is enrolled, followed by 37% at the secondary stage (VI-X), 17% at Katchi, and only 1% at the higher secondary stage. Looking at level-wise enrollment in public schools, the highest enrollment (39%) has been recorded for high schools and the lowest enrollment (11%) in higher secondary schools; while 29% and 21% enrollment has been registered for primary and middle schools, respectively. Figure 9.2 shows the enrollment in public schools of district Faisalabad.

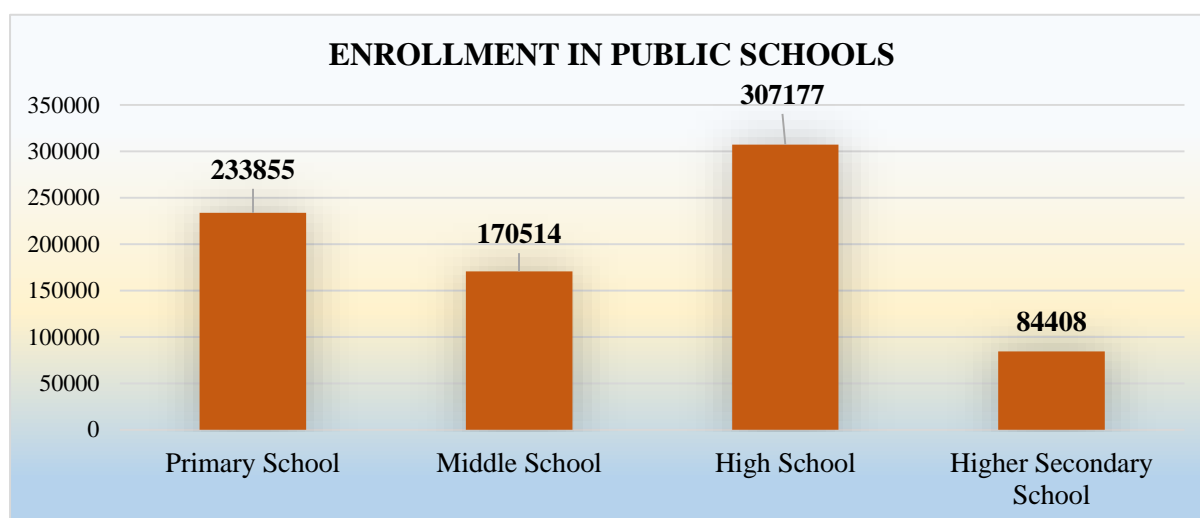


Figure 9-2: Enrollment in Public Schools of District Faisalabad⁴⁹

Gross Enrollment Rate (GER):

Gross Enrollment Rate (GER) not only makes the actual situation of enrollment in the district explicit by asserting the enrollment rate at that given level of education, but also a comparison of GER between different levels of education dispenses information regarding drop-out rate between levels. For Faisalabad, GER is 81% at the primary level (I-V) and 57% at the secondary level (VI-X). The evidence for the high drop-out rate from primary to secondary is discernible from these statistics (VI-X). The evidence for a high drop-out rate from primary to secondary is discernible from these statistics as GER has dropped by 24%. A gender-disaggregated review of GER in Faisalabad gives insightful information, unlike the commonly held view of lower participation of girls to acquire an education; here GER is higher for girls at both primary and secondary levels, as seen in the chart above. Moreover, girls' drop-out rate from primary to secondary level is also less than boys, though marginally. Figure 9.3 shows the gross enrollment rate of Faisalabad district.

⁴⁹ Source: Programme Monitoring and Implementation Unit (PMIU) – Punjab in Source: District Education Plan 2015 – 2021

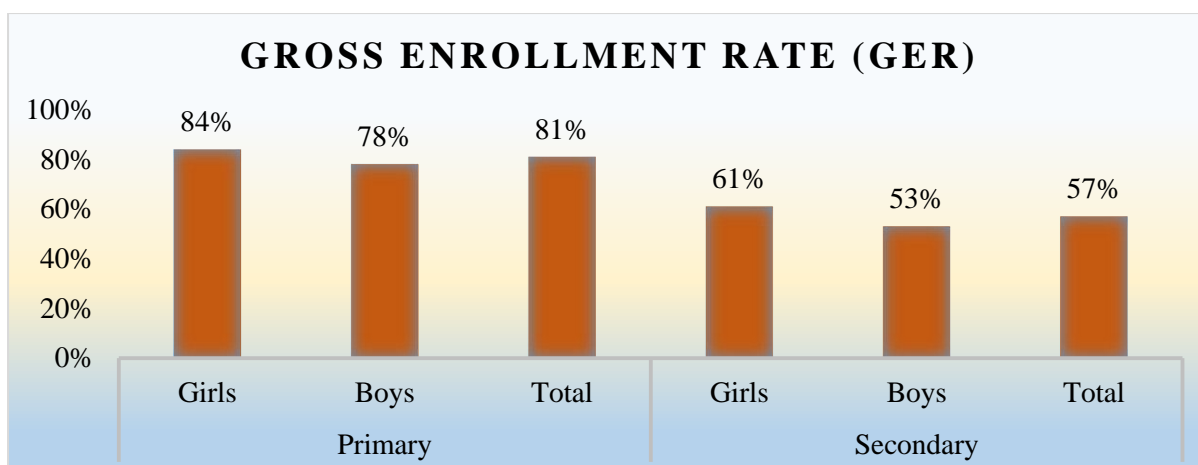


Figure 9-3: Gross Enrollment Rate (GER) of Faisalabad District⁵⁰

Number of Schools and Classrooms:

A total of 2,313 public schools are functioning in district Faisalabad, where girls' schools are a little more than boys' schools. Figure 9.4 shows the percentage distribution of schools in Faisalabad district.

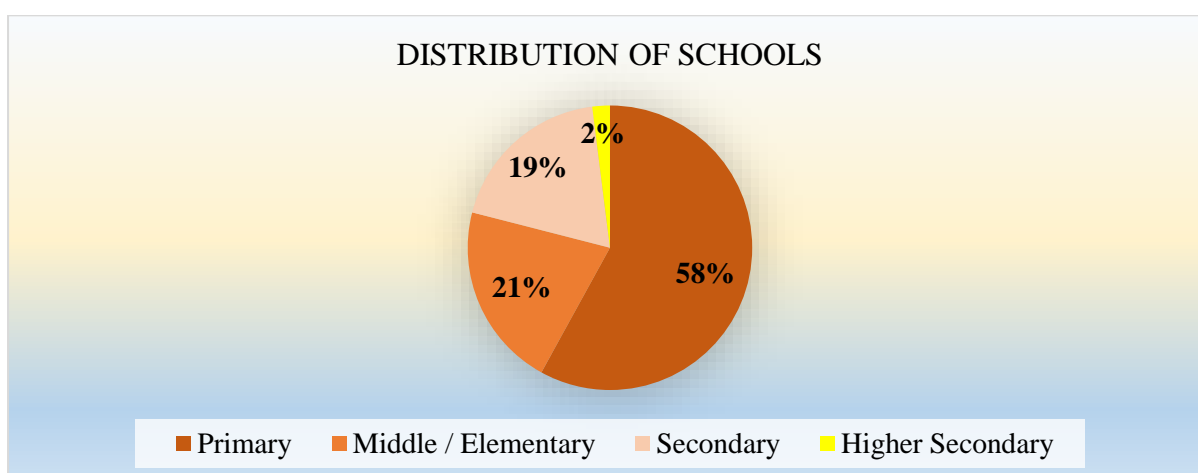


Figure 9-4: Percentage of Distribution of Schools in Faisalabad District⁵⁰

When the number of schools in the district is disaggregated for education levels, it is revealed that the highest number of schools turn out to be primary level (58%, 1,332 schools), followed by 21% of schools at the elementary level (486 schools), 19% secondary level (436 schools) and 3% higher secondary level (59 schools).

Corresponding to a total of 2,313 schools, there are 15,512 total classrooms available in the district, the highest number of classrooms are in high schools, followed by 4,871 classrooms in primary schools, 3,871 classrooms in middle schools and 1,452 classrooms in higher secondary schools. Figure 9.5 shows the class distribution across levels in Faisalabad district.

⁵⁰ Source: District Education Plan 2015 - 2021

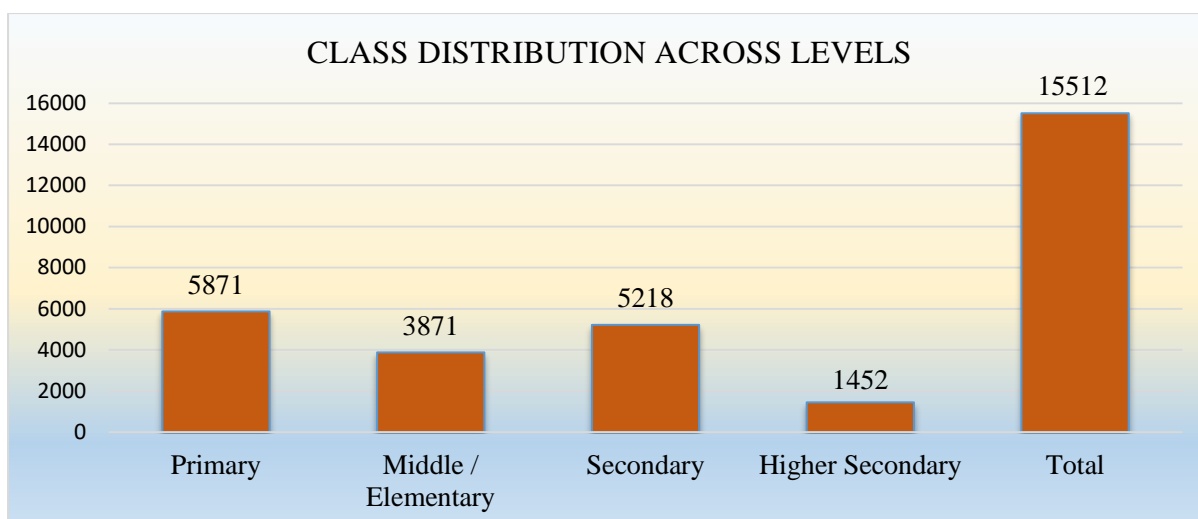


Figure 9-5: Class Distribution Across Levels in Faisalabad District⁵¹

Number of Teachers:

A workforce of 20,349 teachers is working in the schools of the Faisalabad district. Out of the total teaching force, 42% are teaching in secondary schools, and the least number of teachers in higher secondary schools (10%), while 24% and 23% teachers are employed in middle/elementary schools and primary schools, respectively (refer Figure 9.6).

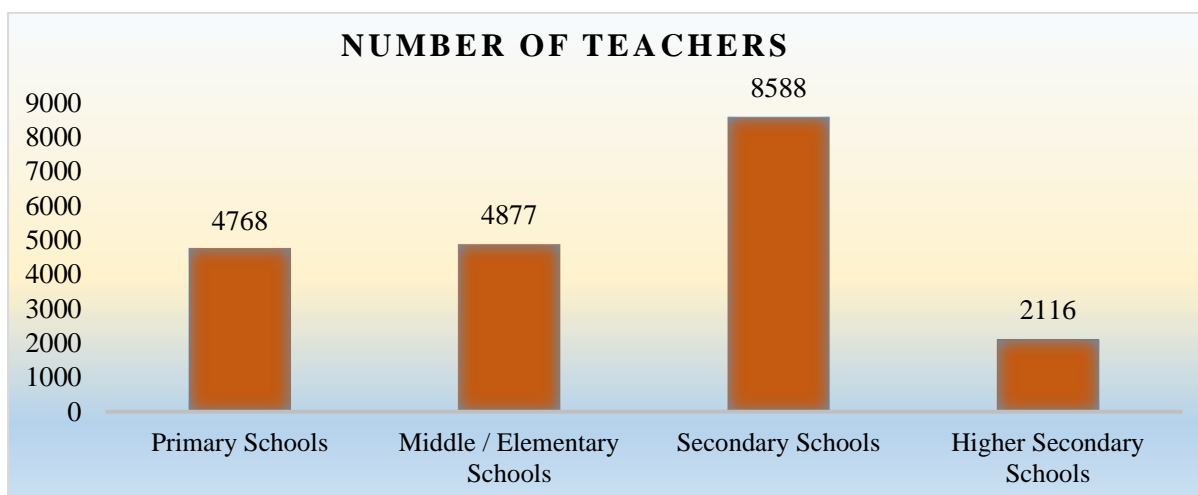


Figure 9-6: Number of Teachers in Faisalabad District (Public)⁵¹

Student-Teacher Ratio (STR):

Student-Teacher Ratio gives an idea of the number of students assigned to one teacher. It's a significant indicator reflecting whether the students are receiving adequate attention from the teacher, which is not possible when STR is above 40:1 as a single teacher can't do justice to such a large number of students. At the same time, overburdening teachers with a huge load of students that they cannot manage is unjust to the teacher as well.

Presently, for 795,687 students there are 20,349 teachers appointed at all four levels: primary, middle/elementary, high and higher secondary. Level-wise analysis discloses that for 233,588 students at primary level there are 4,768 teachers, for 170,514 students enrolled in middle schools there are 4,877 teachers, for 307,177 students in high schools there are 8,588

⁵¹ Source: District Education Plan 2015 – 2021

teachers and for 84,408 students enrolled in higher secondary schools, there are 2,116 teachers.

Learning Outcomes:

In District Faisalabad, learning outcomes can be analyzed through the performance of the students in class 3rd and 5th grade, in English, Urdu and Mathematics. 44% of students in grade III can read a sentence in Urdu, 58% of them can read a word in English and 45% can successfully do subtraction. While 66% of students of grade V can read a story in Urdu, 59% of the same class students can read a sentence in English and 40:1 only 42% of 5th class students can perform division. These percentages of students who can show some level of understanding of the three subjects is quite poor as on average only half of the student population at each of the given grade levels is capable of prevailing at the assigned task. Figure 9.7 shows the learning outcomes of Grade III & V in Faisalabad district.

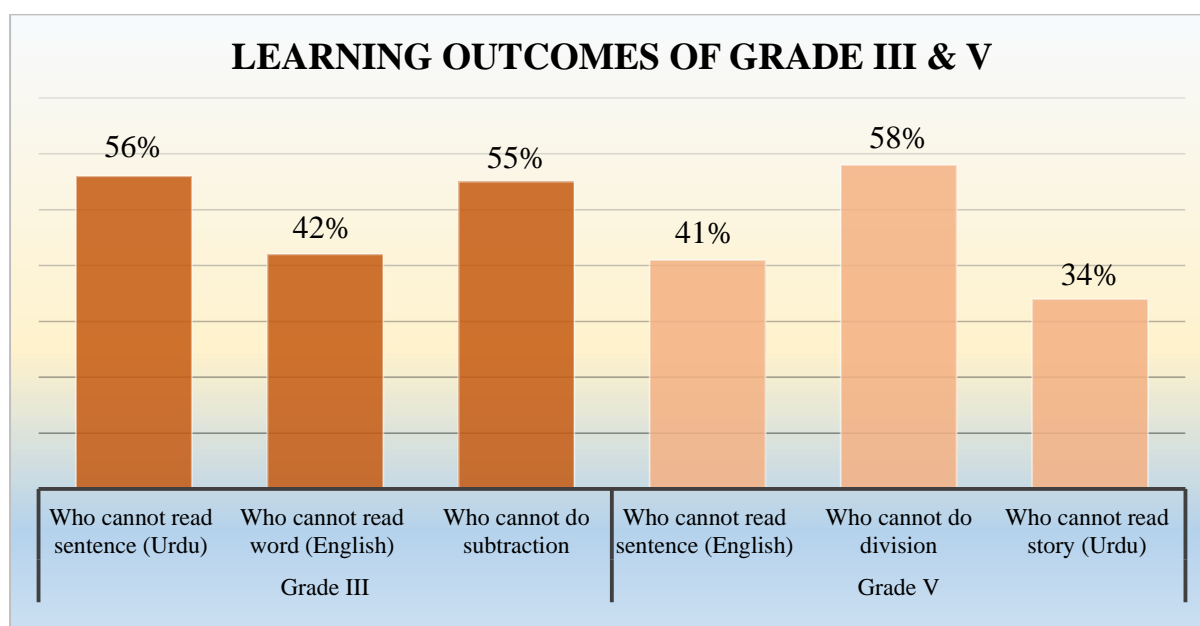


Figure 9-7: Learning Outcomes of Grade III & V in Faisalabad District⁵²

Schools without Basic Facilities:

A school's academic excellence is not independent of its infrastructure. Without complete basic facilities such as toilets, boundary walls, electricity and drinking water, it would be challenging for the students to perform well as these facilities provide an invigorating environment that guarantees them a secure and facilitated learning experience.

An analysis of the data showed that boundary walls are missing from a large number of schools, i.e. 144 schools, followed by 103 schools that are without electricity, in 13 schools there is no drinking water facility and toilet blocks are absent from 11 schools. Appreciably, there are no schools in the district that are shelterless.

It is commendable that out of a total of 2,313 schools in the district 90% of the schools (2,074 schools) have all four basic facilities, that is, boundary wall, electricity, toilet block and drinking water, which can be referred to as package-facilities. Education level-wise disaggregation shows that the highest number of schools which does not have all four basic facilities are

⁵² Source: District Education Plan 2015 – 2021

primary schools (16%), as all higher secondary schools are equipped with the four primary facilities, 97% of middle and high schools have all of the four basic facilities.

Education Budget of District Faisalabad:

For the year 2014-15, Rs. 12,684 million have been allocated for the education sector of district Faisalabad, where a major chunk of the total budget is earmarked for current expenses that is Rs. 11,608 million (92%) and only a meagre amount is left for development expenses, i.e., Rs. 1,075 million (8%). Given that resources required for building new schools and maintenance and repair of existing ones are expected to be drawn from the development budget, its minimal share is inauspicious for enrollment and retention of students in the district.

The current budget continues to follow its past trend of nominal allocation towards non-salary expenses, which is pivotal for day-to-day smooth running of the schools as it provides for chalks, dusters etc. The share of the non-salary budget out of the total current budget is merely 5% (Rs. 600 (million)). On the other hand, salary-related expenses receive 95% (Rs.11,008 million) of the current budget for the district. Thus, a huge imbalance exists between the two components which need to be reduced so that the non-salary budget can also get its due share to fulfil the unmet needs. Figure 9.8 shows the budget allocation 2014-15 of Faisalabad District.

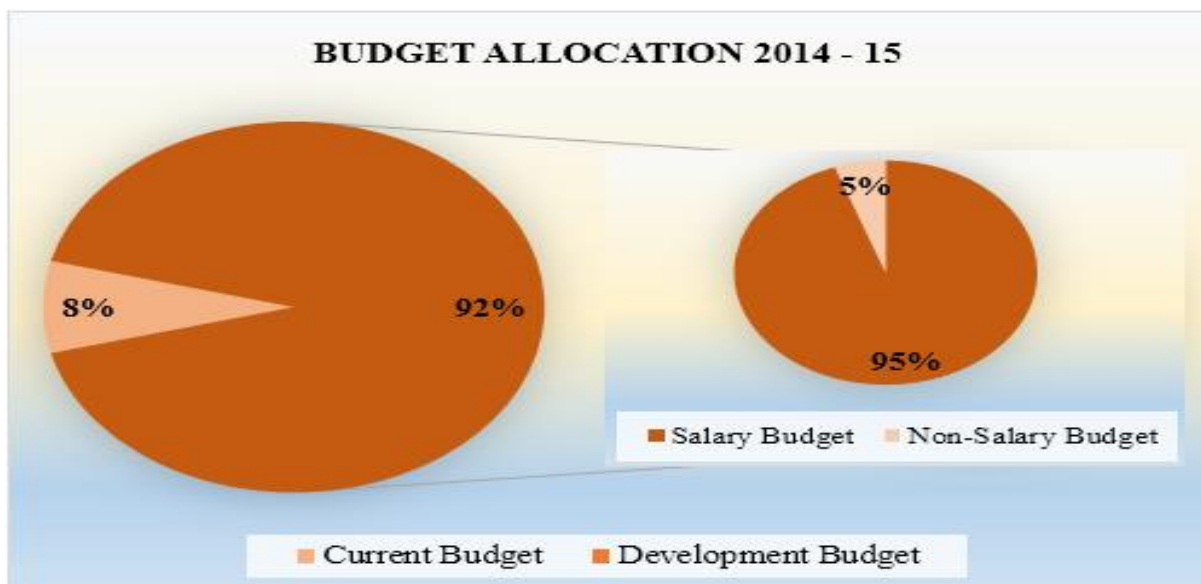


Figure 9-8: Budget Allocation 2014-15 of Faisalabad District⁵³

Basic Facilities:

While prioritizing and setting the goals to provide basic facilities in schools in Faisalabad, the stakeholders and the district education managers decided to keep two basic facilities on the top of the priority list i.e. toilet blocks and boundary walls. To provide these facilities to the schools, priority was given to girls' schools to increase the access of females to schools at all levels of education.

Based on the situation analysis, boundary walls are unavailable in 144 schools and toilet blocks in 11 schools in the year 2014-15. Education Management Information System (EMIS) code and name of schools is also mentioned in the list to ensure transparency and for record-keeping. Year-wise planning for the incremental budget required has also been carried out so

⁵³ Source: District Education Plan 2015 - 2021

that missing facilities are provided each year that can ultimately lead to the complete provision of facilities in the district. A total of Rs. 2,480 million are required in 5 years to provide all missing facilities.⁵⁴

Existing Colleges in Faisalabad:

There are 44 Government colleges exist in Faisalabad District. The list of these colleges is below.

- 1 Govt. Post Graduate College of Science, Faisalabad
- 2 Govt. Post Graduate College Samanabad, Faisalabad
- 3 Govt. Municipal Degree College, Jaranwala Road, Faisalabad
- 4 Govt. College of Commerce, Abdullah Pur, Faisalabad
- 5 Govt. Islamia College, Sargodha Road, Faisalabad
- 6 Govt. College Satiana Road, Peoples Colony No 2, Faisalabad
- 7 Govt. Millat Degree College, Ghulam Muhammad Abad, Faisalabad
- 8 Govt. College for Women, Karkhana Bazar, Faisalabad
- 9 Govt. Islamia College for Women, Eidgah Road, Faisalabad
- 10 Govt. College for Women, Gulistan Colony, Faisalabad
- 11 Govt. College Women, Peoples Colony No. 2, Faisalabad
- 12 Govt. College for Women, D-Type Colony, Faisalabad
- 13 Govt. College for Women, Ghulam Muhammad Abad, Faisalabad
- 14 Govt. College for Women, Saifabad, Jhang Road, Faisalabad
- 15 Govt. College for Women, Gulshan Colony, Afghan Abad No.2, ABC Road, Faisalabad
- 16 Govt. Degree college for Women, Samanabad, Faisalabad
- 17 Govt. Girls College, Chak No. 122/JB, Sargodha Road, Faisalabad
- 18 Govt. Institute of Commerce, Jhang Road, Faisalabad
- 19 Govt. College of Commerce, Peoples Colony, Faisalabad
- 20 Govt. Degree College For Women, Ayub Research Institute, Jhang Road, Faisalabad
- 21 Govt. College for Women, Dijkot, Faisalabad
- 22 Govt. Muslim Degree College, 41/JB, Faisalabad
- 23 Govt. Girls Degree College, 61/JB, Narwala Bangalow, Narwala Road, Faisalabad
- 24 Govt. Girls Degree College, 117/JB, Millat Road, Faisalabad
- 25 Govt. Girls Degree College, 215/RB, Jaranwala Road, Faisalabad
- 26 Govt. Degree College (Boys), 266/RB, Khurrianwala, Faisalabad
- 27 Govt. College for Women, 266/RB, Khurrianwala, Faisalabad
- 28 Govt. Post Graduate College, Jaranwala, Faisalabad
- 29 Govt. Post Graduate College for Women, Jaranwala, Faisalabad
- 30 Govt. College of Commerce, Jaranwala, Faisalabad
- 31 Govt. Degree College for Women, Chak No. 591/GB, Gangapur, Jaranwala, Faisalabad
- 32 Govt. Degree College for Women, Satiana Bangalow, Faisalabad
- 33 Govt. Degree College (W), 153/RB, Sahianwala, Faisalabad
- 34 Govt. Degree College for Women, Chak Jhumra, Faisalabad
- 35 Govt. Degree College for Boys, Salarwala, Faisalabad
- 36 Govt. Degree College for Boys, Chak Jhumra, Faisalabad
- 37 Govt. Post Graduate College, Samundari, Faisalabad
- 38 Govt. College for Women, Muridwala, Samundari, Faisalabad
- 39 Govt. Post Graduate College for Women, Samundari, Faisalabad
- 40 Govt. Institute of Commerce, Samundari, Faisalabad

⁵⁴ District Education Plan: Faisalabad 2015 – 2021, (2015), Institute of Social and Policy Sciences (I-SAPS), Islamabad

- 41 Govt. Degree College, Tandlianwala, Faisalabad
- 42 Govt. College for Women, Tandlianwala, Faisalabad
- 43 Govt. Degree College for Women, Mamukanjan, Faisalabad
- 44 Govt. Degree College for Boys, Mamukanjan, Faisalabad

The literacy rate among Faisalabad urban residents is higher at 79% than that of its rural residents which stand at 61%. As a whole 70% of the district population is literate. Similarly, the literacy rate amongst the population of the FDA area stands at 73% and it is 79% amongst Faisalabad city residents. The literacy rate is higher in Male as compared to females. This disparity is lower in Faisalabad city, where 81% of males and 76% of females are literate. The literate population is taking formal education in both urban and rural areas. Moreover, the literacy rate in the Faisalabad district has registered an increase from 52% to 70% during the census periods 1998 and 2017. In the male population, literacy has increased from 61% to 75% and in females from 42% to 65%. The census 2017 also show a higher literacy rate amongst females than males in the age bracket from 10 to 29 years. It reflects the potential for an increasing number of labour forces equipped with skilled manpower and an educated labour force. The increase in literacy ratio also increases the employment demand in general, specifically for female groups. Table 9.11 gives the details about educational facilities in the FDA area and Faisalabad city.

Table 9-11: Situation of Education Facilities for the Year 2017

| Statistics | FDA | Faisalabad City |
|--|---------|-----------------|
| Literacy rate | 73 | 79 |
| Statistics for Primary, Middle, and Secondary Schools | | |
| Number of government schools | 1,678 | 996 |
| Enrolment in government schools | 423,557 | 302,630 |
| Pupil-teacher ratio in government schools | 39 | 43 |
| Estimated total enrolment in schools (government & private) | 880,593 | 632,463 |
| The proportion of government schools' enrolment | 48% | 48% |
| Estimated percentage of school-going age children currently enrolled | 80% | 84% |
| Out of school (Unenrolled) going age children | 218,799 | 124,460 |
| Required Schools (for 100% enrolment of school-going age children) | 751 | 383 |
| Required teachers (for the 100% enrolment) | 5,491 | 3,292 |
| Arts and Science Higher Secondary Schools, Intermediate and Degree Colleges (public and Punjab, Federal Govt., PAF and Private Organizations) | | |
| Number of the Higher Secondary Schools & Colleges | 115 | 86 |
| Enrolment in the Higher Secondary Schools & Colleges | 60,495 | 48,297 |
| Teaching staff in the Higher Secondary Schools & Colleges | 1877 | 1399 |
| Pupil-teacher ratio in the Higher Secondary Schools & Colleges | 32 | 35 |
| Total enrolment in all professional and other institutions (higher secondary schools, colleges, & universities) | 145,306 | 117,260 |
| The proportion of professional colleges and universities enrolment | 58.40% | 58.80% |
| The proportion of boys and girls, between the age of 17 and 22, enrolled in all professional and other institutions (higher secondary schools, colleges, & universities) | 25.20% | 29.00% |

Source: Consultant's estimates based on Census 2017, Development Statistics of Punjab-2017

9.5.1 Education Statistics Based on 2017 Census

There are about 1000 government primary, middle, and secondary school buildings that exist in Faisalabad city. In the FDA area number of schools is estimated to be 1678. Altogether an estimated 0.69 million students are enrolled in these government schools in Faisalabad district, 0.42 million in the FDA area, and 0.30 million in Faisalabad city. Population census 2017 however reports that total school enrolments in Faisalabad district are much higher than

these numbers, which is largely attributed to the enrollments in private schools. As per estimations, 1.43 million students are enrolled in public and private schools in Faisalabad district, 0.88 million in the FDA area and 0.63 million in Faisalabad city. On average, 48% of the students are studying and enrolled in government schools located in the Faisalabad district. As far as gender classification is concerned, the majority of females (56%) are studying and enrolled in government schools and the remaining 44% are in private sector schools in Faisalabad city. On the contrary, 40% of the male students are enrolled in government school whereas 60% are acquiring their education in private sector schools of Faisalabad city. Despite this enrolment in public and private schools, over 0.4 million children of school-going age (5 to 14 years) are still out of school. Categorizing them by areas, out of school children in Faisalabad district estimated to be 22% in FDA area and 20% in Faisalabad city. Overall, 16% of the school-going age children (5 to 14 years) are still out of school.

The satisfactory maximum pupil to qualified teacher ratio is 40:1 as per SDG-4. This ratio falls in the required range except for the boys' government schools especially in the FDA area and Faisalabad city. To reach the 100% enrollment rate till Metric, it requires up-gradation of existing schools or establishment of new schools and recruitments of hundreds of teachers in the overall Faisalabad district.

The college and university education start from intermediate onwards. It is classified as (i) professional and university education and (ii) arts and science education. As per the given statistics, there are 180 private and public higher secondary school and intermediate and degree colleges in the Faisalabad district, out of which 105 are girls. Keeping the urban/rural educational attainment of intermediate and above, the FDA area has 115 higher secondary schools and colleges and Faisalabad city has 86.

Altogether the enrollment in these higher secondary schools and colleges is about 90,000 boys with 51,000 girls. The number of teachers is 2,936, which makes the pupil-teacher ratio fall in the required range. In the FDA area, more than 60,000 students and in Faisalabad city over 48,000 students are estimated to be enrolled in the higher secondary school and colleges.

The estimated number of total enrollments including both the professional and other arts and science enrollment is 0.21 million in Faisalabad district, 0.15 million in the FDA area, and 0.12 million in Faisalabad city. The number of students over and above the students of higher secondary schools and colleges is enrolled in professional colleges, institutes and universities. Altogether 57.9% of students in Faisalabad district, 58.4% in the FDA area, and 58.8% in Faisalabad city are enrolled in professional colleges, institutes and universities. Enrollment in the professional and other colleges, universities and institutes as a percentage of the population between 17 and 22 years is 22.4% in Faisalabad district, 25.2% in FDA area, and 29.0% in Faisalabad city. Overall, females are more inclined towards intermediate and higher education. The estimates reveal that 25.3% of the females between the ages of 17 and 22 and 19.7% of males between the same ages are enrolled in intermediate and higher education. In the FDA area this proportion is 28.6% for females and 22% for males and in Faisalabad city 33.1% for females and 25.2% for males. This situation highlights that male are more content in acquiring basic education (up to college levels) but the greater proportion of females are inclined towards higher education.

9.6 HEALTH POLICY

The vision of the National Health Policy is to improve the health and quality of life of all Pakistanis, particularly women and children, through access to essential health services. However, the goal of the national health policy is to remove barriers to access to affordable, essential health services for every Pakistan. To achieve the above-stated goal of removal of barriers to essential health services, the Government of Pakistan adopts the following six

Policy Objectives to reform and strengthen critical aspects of its health systems to enable it to:

1. Provide and deliver a basic package of quality Essential Health Care Services
2. Develop and manage competent and committed health care providers
3. Generate reliable health information to manage and evaluate health services
4. Adopt appropriate health technology to deliver quality services
5. Finance the costs of providing basic health care to all Pakistanis
6. Reform the Health Administration to make it accountable to the public

The Ministry of Health recognizes that provinces have varied needs and expectations regarding health and that each Department of Health is fully capable of identifying as well as delivering appropriate health care to their populations. It is in this spirit that the federal ministry will support and facilitate the provinces in the implementation of their strategies by providing relevant financial and technical resources to ensure that essential health service package is accessible to all the citizens. The national health policy has been formulated with the primary objective of resonating with the expectations of Provinces. It is designed to contribute to advancing and strengthening provincial health strategies.

9.7 STRUCTURE PLAN OF FAISALABAD- 1986 – 2000

During the preparation of the Structure Plan, a survey was conducted, which revealed that there were 14 hospitals and 881 dispensaries in Faisalabad at that time. There was only one T. B. hospital to cater for the entire region. In all, there were only 261 Doctors in those Medical Institutions, overall, the total trained staff including the Doctors was 3001. **Table 9.12** shows the total available facilities during 1986.

Table 9-12: The Total Available Facilities during 1986

| Sr. No. | Name of Facility | Staff | No. of Rooms | Beds | Area A-K-M | Govt. | Private |
|---------|---------------------|-------|--------------|------|------------|-------|---------|
| 1 | Hospitals 14 | 1001 | 435 | 1019 | 19-6-0 | 6 | 8 |
| 2 | Dispensaries 881 | 2000 | 1044 | 20 | 19-7-0 | 83 | 798 |

Table 9.13 below indicates the position of private practitioners in Faisalabad City at that time.

Table 9-13: Position of Private Practitioners during 1986

| Sr. No. | Registered Medical Practitioners | No. of Hakims | Homeo Practitioners | No. of Unregistered Practitioners |
|---------|----------------------------------|---------------|---------------------|-----------------------------------|
| 1 | 300 | 179 | 59 | 260 |

During that time, it was analyzed that the prevailing health facilities were facing some problems, such as an acute shortage of Hospitals, Dispensaries and Health centres, along with insufficient beds in the hospitals. Also, space was inadequate in available hospitals and medical facilities were centralized in the city. Similarly, the private sector was also suffering from a shortage of facilities and a lack of funds for DHQ to meet the requirements.

9.7.1 Policies and Proposals of the Structure Plan 1986 - 2000

There should be regularity, harmony, and proper balance in the distribution of health services in Faisalabad City. The Government should plan to provide more health centres adequately equipped with the necessities required. There should be an even distribution of basic health units in the city to provide easy access to health facilities. Due consideration should be given to the requirements needed for outdoor patients. Environmental pollution should be minimized

as much as possible.

The health proposals for Faisalabad were framed after extensive discussions with the District Health Officers of Faisalabad. To improve the existing medical facilities of the city the following recommendations were made:

1. The number of beds per 1000 persons should be 4 to 5. Thus, the population of Faisalabad city which is presently about 15 lacs should have at least 6000 beds against the available 1889 beds.
2. Faisalabad City should have 12 more hospitals each having 500 beds.
3. To work out the site area, 25 to 30 beds per acre should be adopted as a minimum standard.
4. A concept of Poly Clinic should be adopted instead of Dispensaries for various residential neighbourhoods. Poly Clinics are multipurpose clinics with all types of medical facilities, like surgical unit, coronary unit, pathology, urology, dental surgeon, children's diseases and eye etc.
5. One Poly Clinic is required for 25000 persons in a city. However, considering the resources of the country, this standard may be relaxed. A Poly Clinic may be established in an area of 5 acres.
6. A maternity hospital should be provided at a suitable place to serve the whole population.

The projected requirements upto the year 2000 are shown in **Table 9.14** underneath, while the area requirements for the projected health facilities are shown in **Table 9.15** below.

Table 9-14: Projected Requirements up to the Year 2000

| Sr. No. | Category of the Facility | Period | | |
|---------|--------------------------|--------|------|-------|
| | | 1990 | 1995 | 2000 |
| 1 | Beds | 7389 | 8988 | 10936 |
| 2 | Hospitals | 11 | 14 | 18 |
| 3 | Poly Clinics | 18 | 22 | 27 |

Table 9-15: Area Requirements for the Projected Health Facilities

| Sr. No. | Name of the Facility | Area Required in Acres | | |
|---------|----------------------|------------------------|------|------|
| | | 1990 | 1995 | 2000 |
| 1 | Hospitals | 176 | 48 | 64 |
| 2 | Poly Clinics | 90 | 110 | 135 |

When the Structure Plan of Faisalabad was being prepared there were 881 Government and Private Dispensaries, including Private Clinics of Allopathic systems of medicine, Homeopathic system of medicine and Unani. If the concept of establishments of Poly Clinic is not adopted, then the following number of such dispensaries will be required in 1990, 1995 and 2000 for Faisalabad (refer **Table 9.16**).

Table 9-16: Number of Dispensaries Required⁵⁵

| Sr. No. | Year | No. of Dispensaries Required |
|---------|------|------------------------------|
| 1 | 1990 | 1128 |
| 2 | 1995 | 1347 |

⁵⁵ Source: Structure Plan of Faisalabad 1986 – 2000

| | | |
|---|------|------|
| 3 | 2000 | 1604 |
|---|------|------|

9.8 CURRENT HEALTH FACILITIES

Health Department is the key department delegated by the people of Punjab with the fundamental responsibility for the health of communities and the entire population. Health Department delivers primitive, preventive as well as curative health care services of Primary Health Care level to Tertiary Health Care level. The services for Punjab are provided through a well-designed infrastructure. Health Department across the province is divided into:

1. 2,461 Basic Health Units (BHUs)
2. 293 Rural Health Centers (RHCs)
3. 88 Tehsil Headquarter Hospitals (THQs)
4. 34 District Headquarter Hospitals (DHQs)
5. 23 Teaching/ Tertiary Care Hospitals

Free of cost consultation, diagnostic facilities and medicines are provided to the patients particularly focusing on the poor and marginalized segments of the society. Health Department also provides free of cost preventive measures including immunization 8 vaccine for preventable diseases like:

- i) Polio
- ii) Tuberculosis
- iii) Diphtheria
- iv) Whooping Cough
- v) Tetanus
- vi) Hepatitis-B
- vii) H-Influenza
- viii) Measles

Besides measures to prevent, treat and control other communicable diseases and Epidemics / Disasters, these vaccines are provided through Expanded Program on Immunization (EPI) for children under 2 years and pregnant ladies. Health Department is producing its own trained and qualified Human Resource keeping the HR development needs and requirements of Health Care Infrastructure in mind.

9.8.1 Health Care Services

Health care services are the diagnosis, treatment, and prevention of disease, illness, injury, and other physical and mental impairments in citizens. Health care services are delivered by specialists in medicine, chiropractic, dentistry, nursing, pharmacy, associated health, and other care providers. The health care services represent the efforts put in delivering primary care, secondary care and tertiary care, as well as in public health.

Preventive Care Services:

Preventive care refers to measures taken to prevent diseases, (or injuries) rather than curing them or treating their symptoms.

Promotive Services:

These services are defined as "The process of enabling people to increase control over their health and its determinants, and thereby improve their health".

Curative Care Services:

Curative care is the kind of health care traditionally oriented towards seeking a cure for an existent disease or a medical condition.

Rehabilitation Services:

Rehabilitative services can help people, with disabilities, to get gainfully employed and do away with reliance on others. This includes meeting the physical, psychosocial, emotional and spiritual needs of patients and their families while incorporating the nursing and rehabilitative processes. Such services should be provided to all patients in both inpatient and outpatient settings at all levels of care.

Emergency services:

The public organizations that respond to and deal with emergencies when they occur, especially the ambulance service, the police, and the fire brigade.

9.8.2 Health Care Delivery System

The health sector of Punjab has an extensive network of public and privately managed health infrastructure throughout the province. The Government is by far the major provider of hospital services in rural areas, and it is also the main provider of preventive care throughout the province. **Table 9.17** shows the number of health facilities of Punjab province and Faisalabad.

Table 9-17: Number of Health Facilities of Punjab Province and Faisalabad

| Punjab Province | Teaching Hospital | District Headquarter (DHQ) | Tehsil Headquarter (THQ) | Rural Health Center (RHC) | Basic Health Units (BHU) |
|---------------------|-------------------|----------------------------|--------------------------|---------------------------|--------------------------|
| | 23 | 34 | 88 | 293 | 2461 |
| Faisalabad Division | 3 | 3 | 11 | 30 | 328 |
| Faisalabad District | 3 | 0 | 5 | 12 | 168 |

The public sector health delivery system is composed of four tiers:

Outreach and community-based services:

Outreach and community-based services focus on immunization, sanitation, malaria control, maternal and child health and family planning.

Primary Health Care:

The primary care facilities include Basic Health Units (BHUs) and Rural Health Centres (RHCs) mainly preventive, outpatient and basic inpatient care.

Secondary Health Care:

Tehsil Headquarters Hospital (THQ) and District Headquarters Hospital (DHQ) for outpatient, inpatient and also specialist care.

Tertiary Care:

Tertiary care hospitals located in the major cities for more specialized inpatient care.⁵⁶

Basic Health Units (BHUs):

A total of 34 BHUs were assessed for the provision of 8/6 preventive MNCH services. The detail indicates that 98% (32) BHUs were providing the complete set of 8/6 preventive MNCH services. However, the absence of essential staff and non-availability of laboratory service

⁵⁶ http://health.punjab.gov.pk/Tertiary_Care, retrieved on 09-10-2017

was reported in BHUs, Chak 237-GB and Chak 506-GB. The BHU Chak 506-GB was the least functional facility as it was only providing TT vaccination and Immunization services.

Rural Health Centers (RHCs):

Eleven (11) RHCs were assessed for the provision of a 24/7 basic health services package and additional complimentary services. The data indicates that only 2 RHCs Dijkot and Satiyana were completely functional according to the standard's of 24/7 basic health services. The shortage of Injection Magnesium Sulphate was the most common deficiency observed in 7 RHCs, while absence of all essential staff was reported in 5 facilities. Likewise, the services for assisted vaginal delivery and removal of retained products was reported in 54% (5) RHCs, i.e.: Lundian Wala, Mamun Kanian, Pindi Sheikh Musa and Chak 193-GB Murid.

Tehsil Headquarter (THQ) Hospital:

Five (5) THQ hospitals were assessed for the provision of a 24/7 comprehensive EmONC services package. THQ hospitals and services for manual removal of placenta, removal of retained products, assisted vaginal delivery, comprehensive family planning and normal vaginal deliveries were being routinely performed. However, due to the shortage of Injection of Magnesium Sulphate, lack of services for cesarean section and newborn care, none of the facilities in district Faisalabad were able to offer the complete set of 24/7 comprehensive EmONC services.

The healthcare facilities in the Faisalabad district and its sub-areas are analyzed in terms of the number of hospitals and the availability of beds. Table 3 indicates the situation of healthcare facilities in the FDA area and Faisalabad city. There are twenty-five (25) public and private hospitals in Faisalabad district, (21) in the FDA area and nineteen (19) in Faisalabad city. Furthermore, there are approximately 300 dispensaries, specialized centres and clinics available in the Faisalabad district. Out of which 146 are located in the FDA area and 64 in Faisalabad city. These centres and clinics include specialized centres/other units like T.B. Clinics, Rural Health Centers, Basic Health Units, Sub-Health Centers, Maternity & Child Health Centers, etc. Only minor improvements were observed in 2015 in setting up some new dispensaries and an increase in the number of hospital beds. The number of beds in these healthcare facilities is concentrated in Faisalabad city. Out of the 4425 beds in the Faisalabad district, 3,556 are in Faisalabad city. The city contains 41% of the population and over 75% of healthcare facilities in terms of hospitals and beds. Table 9.18 shows the situation of health care facilities.

Table 9-18: Situation of Health Care Facilities

| | FDA | Faisalabad City |
|--|-------|-----------------|
| Healthcare facilities (no. of units) | | |
| Hospitals | 21 | 19 |
| Dispensaries | 79 | 49 |
| Specialized centers | 67 | 15 |
| Number of Beds | | |
| Hospitals | 3585 | 3,532 |
| Dispensaries | 0 | 0 |
| Specialized centers | 168 | 24 |
| Total | 3753 | 3556 |
| No. of beds per healthcare facility | | |
| Hospitals | 171 | 186 |
| Specialized centers | 2.5 | 1.6 |
| Beds per 10,000 persons | 8 | 11 |
| Required no. of beds as per (SDG's maximum threshold of 18 beds per 10000 people) | | |
| Total beds required | 8,468 | 5,830 |
| Deficit | 4,883 | 2,298 |

Source: Consultant's estimates based on Census 2017, Development Statistics of Punjab-2017

Under SDG-3, Good Health and Well-being are considered as healthcare indicator which defines access/availability of hospital beds per 10,000 persons. Its earmarked threshold is 18 beds per 10,000 population of the area. However, in Faisalabad city, there are 11 beds per 10,000 persons currently available and in the FDA area its availability is 8 beds and in Faisalabad district, it is below 6 beds. These facts highlight two important conclusions, firstly, it points towards the lack of healthcare facilities in Faisalabad district and secondly, healthcare facilities seem overburdened due to their utilization by the residents of adjoining localities and districts.

In Consultation regarding Faisalabad master plan (2021-2041) proposals received on behalf of District Health Department and Consultant's recommendations are as follows:

1. Construction of 400 Bedded Government General Hospital, Sheikhpura Road, Faisalabad
2. Construction of 250 Bedded Hospital, Madina Town, Faisalabad
3. Laboratory of Punjab Forensic Science Agency, Faisalabad
4. Construction of 250 Bedded Hospital, Jhang Road, Faisalabad
5. Construction of 100 Bedded Gynae Hospital, Faisalabad
6. Upgradation of BHU Chak No.74/JB into 60-Bedded Hospital at Chak No. 74/JB, Jhang Road Entrance, Faisalabad
7. Upgradation of RHC 229/RB into 60-Bedded Government General Hospital Makuana
8. Upgradation of RHC into 60-Bedded Chak No.30/JB, District Faisalabad
9. Upgradation of BHU into 60-Bedded Government General Hospital Khanuana, District Faisalabad.
10. Establishment of Kidney Hospital in Faisalabad City
11. Establishment of Physiotherapy Hospital in Faisalabad City
12. Establishment of 125-Bedded Faisalabad Institute of Liver at Allied Hospital Faisalabad.
13. Establishment of 125-Bedded Psychiatry Hospital Faisalabad
14. Establishment of 250-Bedded Jinnah Hospital in West Side of Faisalabad
15. Establishment of 125-Bedded Allama Iqbal Hospital at Niamoana, Samundri Road Bypass Faisalabad
16. Establishment of 250-Bedded Madina Hospital in East side of Faisalabad city
17. Construction of Health Complex in Faisalabad City

Following **Table 9.19** shows the status of health facilities in the district.

Table 9-19: Status of Health Facilities in the District

| Sr. No. | Facility Type | No of Facility | Bed Strength |
|---------|---|----------------|--------------|
| 1 | Allied Teaching Hospital | 1 | 1187 |
| 2 | District Head Quarter | 1 | 720 |
| 3 | Faisalabad Institute of Cardiology | 1 | 200 |
| 4 | Government General Hospital Ghulam Muhammadabad | 1 | 250 |
| 5 | Government General Hospital Samanabad | 1 | 50 |
| 6 | Tehsil Head Quarter Hospital | 4 | 220 |
| 7 | Rural Health Centers | 12 | 240 |
| 8 | Basic Health Units | 168 | 336 |
| 9 | Government Rural Dispensaries | 5 | |
| 10 | Zila Council Dispensaries | 4 | |
| 11 | Civil Dispensaries | 26 | |
| 12 | TB. Clinics | 2 | |
| 13 | Sub Health Centers | 5 | |

| Sr. No. | Facility Type | No of Facility | Bed Strength |
|--------------|------------------------------|----------------|--------------|
| 14 | Mother Care Health Centers | 11 | |
| 15 | Infection Disease Hospital | 1 | |
| 16 | Government City Dispensaries | 29 | |
| 17 | Health House | 2573 | |
| Total | | 2845 | 3203 |

Source: Faisalabad Peri-Urban Structure Plan 2015

List of other health facilities of the district attached as ANNEX D.1, D.2, D.3 and D.4.

10. PARKS & OPEN SPACES

10.1 INTRODUCTION

Faisalabad has very few parks, covering an area of 481 acres, both developed and semi-developed. The total green area including parks is only 1.92% of the total built-up urban (Union Council) UC area, with the most prominent being Jinnah Park, Gatwala Park and Forest Research Institution, Kaleem Shaheed Park, D-Ground Park etc.⁵⁷ Most of these parks are maintained by the Parks and Horticulture Authority (PHA), Faisalabad. The oldest park in the city is Jinnah Garden, the city's central park, commonly known as "Company Bagh" and where the monument of Sir Charles James Lyall is situated. It also includes Canal Park, Fun Land, Sindbad, Amusement Park Faisalabad, Butt Water Land, Aqua land Water Park, Pahare ground, Madina Welfare Society Park etc. Canal Park is a family park located on the west bank of the Rakh Branch Canal.

The Gatwala Wildlife Park is a botanical natural reserve located at Gatwala. It was renovated by the city district government. The Pahari Grounds near D-Ground is another renovated park that has a Pakistan Air Force F-86 Sabre on display. Nearly 20% of visitors visit Jinnah Park at a distance of 2-4 km while only 9% of visitors visit Gatwala Park at the same distance. The fewer people gravitate toward the Gatwala Park with the increase in the distance while due to the suitable location of Jinnah Park, more visitors visit the Park daily for a walk. Most visitors visit the Gatwala Park on different occasions e.g. for picnic purposes, for a study tour and to enjoy entertainment.

The total area of open spaces and parks in Faisalabad city mainly is about 683 acres out of which 540 acres are under the jurisdiction of Faisalabad PHA, while the remaining 143 acres of parks and open spaces are developed by both public and private. The green belts covering an area of 60 acres are also maintained by Faisalabad PHA. Figure 10.1 shows the park & open spaces in city tehsil.

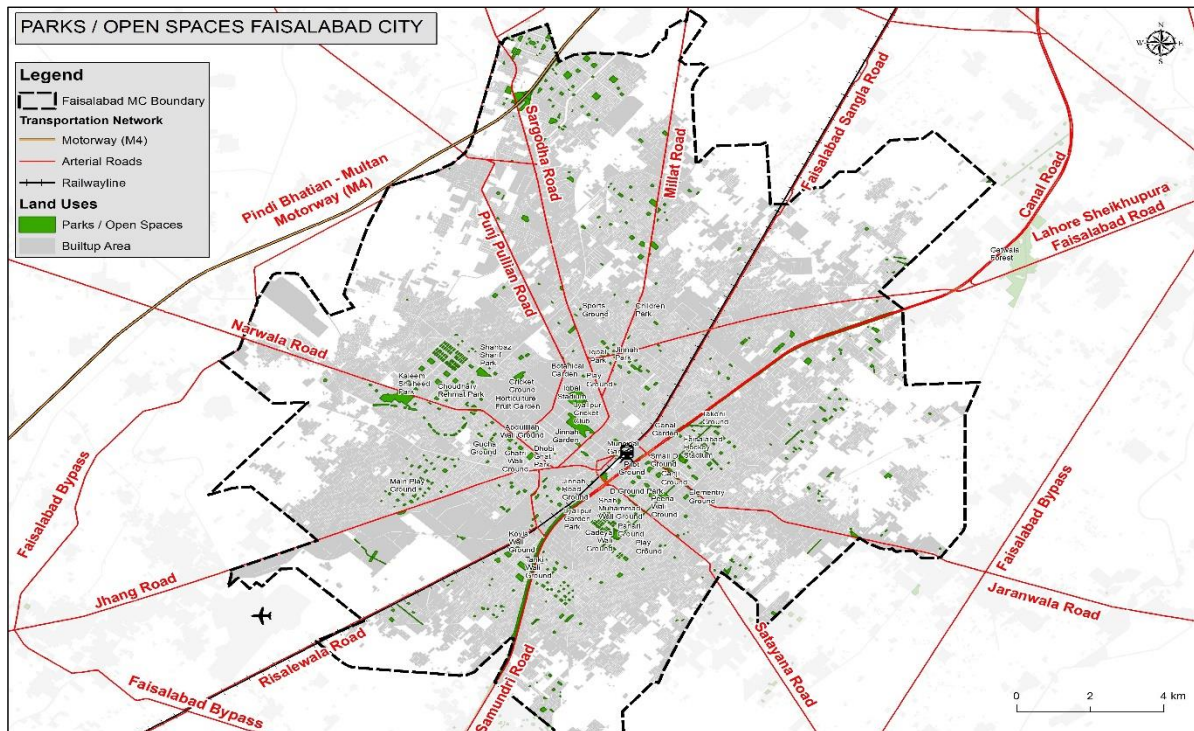


Figure 10-1: Park & Open spaces in City Tehsil

⁵⁷ Faisalabad Peri-Urban Structure Plan (2015-2035)

This Parks and Open Spaces Master Plan layout is a roadmap to guide planning, management, and investment over the next 21 years. The Parks and Open Spaces Master Plan is a strategic-level document that identifies broad goals and planning initiatives. It will be used to focus efforts and prioritize resources toward achieving measurable outcomes. To achieve this, the scope of this plan includes:

- Identification of key issues, opportunities, and constraints.
- Identification of community values, interests, and needs.
- Creation of a shared vision for the City's parks and open spaces.
- Creation of a set of goals for improving parks and open spaces.
- Identification of priorities for investment in parks and open spaces, and
- Development of an implementation plan to achieve the goals and priorities over the next 21 years.

The plan describes where we are, where we want to go, and how we get there. Each chapter is briefly described below.

Some plans and policies were reviewed for the Parks and Open Spaces Master Plan. Relevant goals, objectives, outcomes, actions, and recommendations were identified and incorporated directly or were used as inspiration for the Goals. The Objectives for Parks and Open Spaces are to ensure that both existing and future parks reflect the population's needs and interests; adhere to set park standards; and are designed to be successful and well-used spaces.

Parks and open spaces protect and improve native ecosystems and help the city adapt to climate change. Sensitive ecosystems and natural areas are an important part of the biodiversity of Punjab, and the parks and open spaces system. They create a unique landscape character that residents and visitors recognize as distinct from any other place. Sensitive ecosystems and natural areas also provide numerous benefits such as climate regulation and stormwater management. Protecting and enhancing natural areas are the highest priority of citizens, and it continued to be highlighted as an issue of great importance to residents throughout the public engagement process. The objectives and actions for this goal will help achieve the city's 2036 Vision.

10.2 CURRENT STATUS OF PARKS/OPEN SPACES

Faisalabad district is divided into eight towns in which PHA has the responsibility for maintaining parks and open spaces mainly in Iqbal Town, Jinnah Town, Lyallpur Town, and Medina Town. **Figure 10.2** shows the parks & open spaces in city tehsil in PHA controlled area.

10.2.1 Iqbal Town

The Municipal Administration Iqbal Town was established in 2005. Previously, the urban area of Iqbal Town was part of Tehsil City Faisalabad and the rural area part of Tehsil Saddar Faisalabad. According to the population census report of 1998, the total population of the town is 783,173. The Iqbal Town comprised of Mahfooz Park, Kashmir Park, Muslim Park, Gulshan-e-Ali, Dhakan Park, Bismillah Park, Kolay Wali Park, Usmania Park, and Canal Park. Canal Park is the biggest park of Iqbal Town which comprises 143 kanals of land. **Figure 10.3** and **Figure 10.4** shows the distribution of green areas controlled by PHA in Iqbal Town.

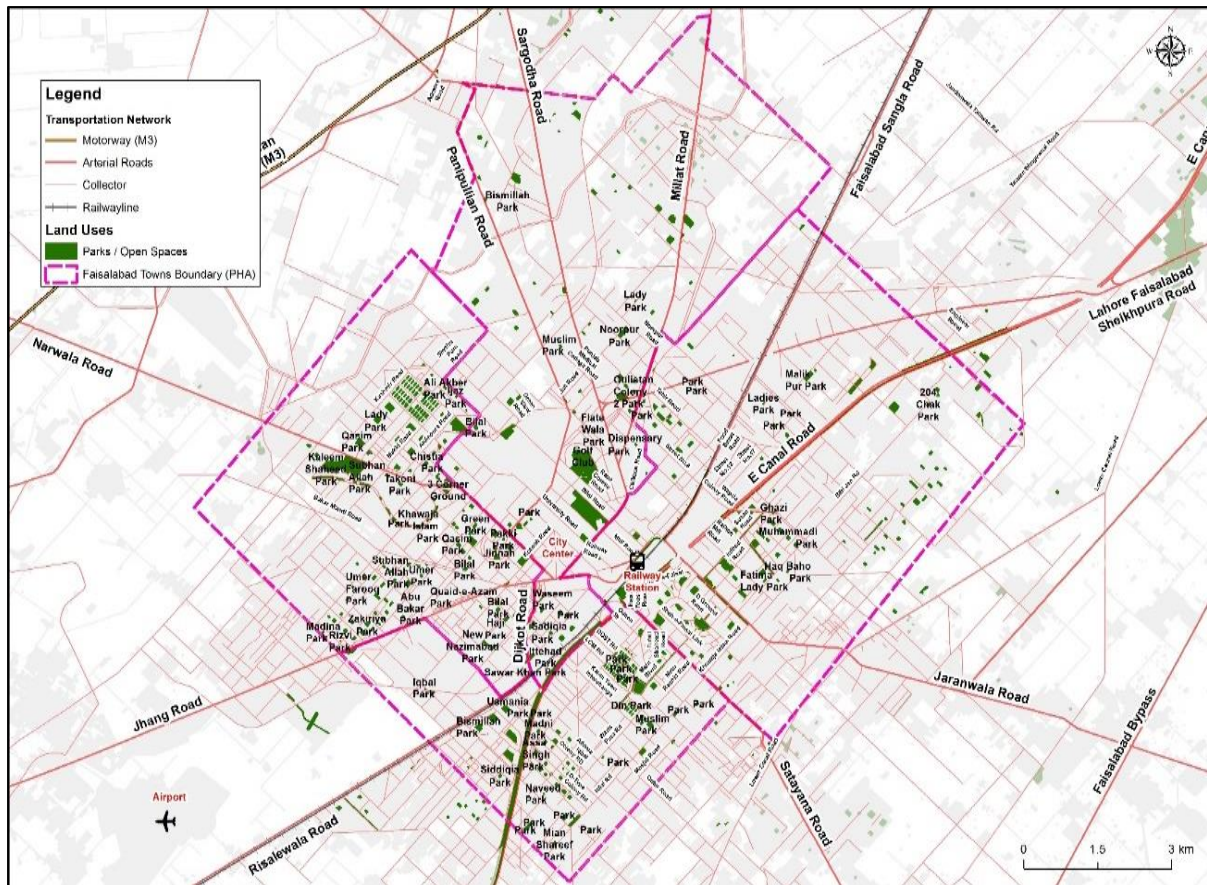


Figure 10-2: Parks & Open Spaces in City Tehsil in PHA Controlled Area

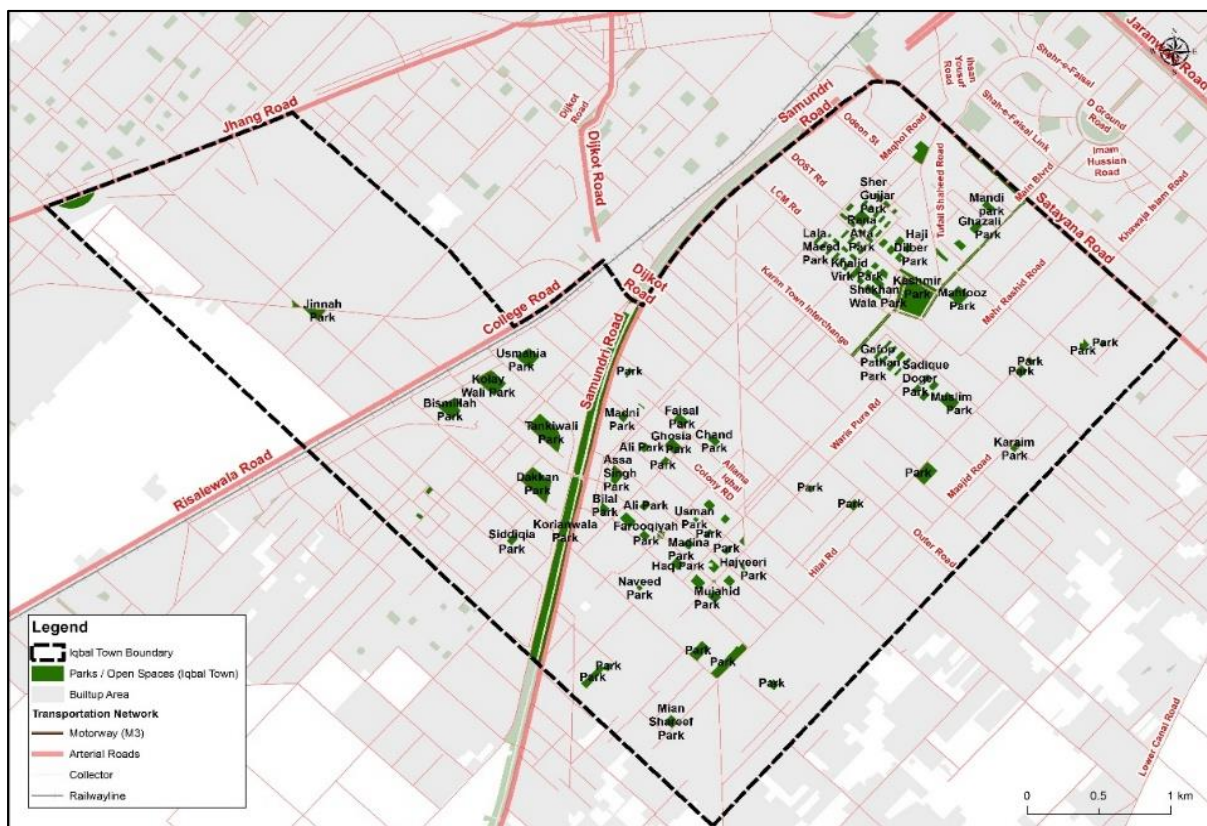


Figure 10-3: Distribution of Green Areas Controlled by PHA in Iqbal Town



Dhakan Park (64 Kanal)



Kashmir Park (75 Kanal)



Muslim Park (19 Kanal)



Gulshan-e-Ali Park (60 Kanal)



Mahfooz Park (20 Kanal)



Bismillah Park (22 Kanal)

Figure 10-4: Area of Different Parks in Iqbal Town

10.2.2 Madina Town

The Municipal Administration Jinnah Town was established in 2005. Previously, the urban area of Madina Town was part of Tehsil City Faisalabad and the rural area part of Tehsil Saddar Faisalabad. According to the population census report of 1998, the total population of the town is 797,873. Madina Town is comprised of D Ground, Central Park and Press Park. D Ground is the biggest park in Madina Town which comprises 9.7 acres of land. **Figure 10.5 & Figure 10.6** shows the distribution of green areas controlled by PHA in Madina Town.

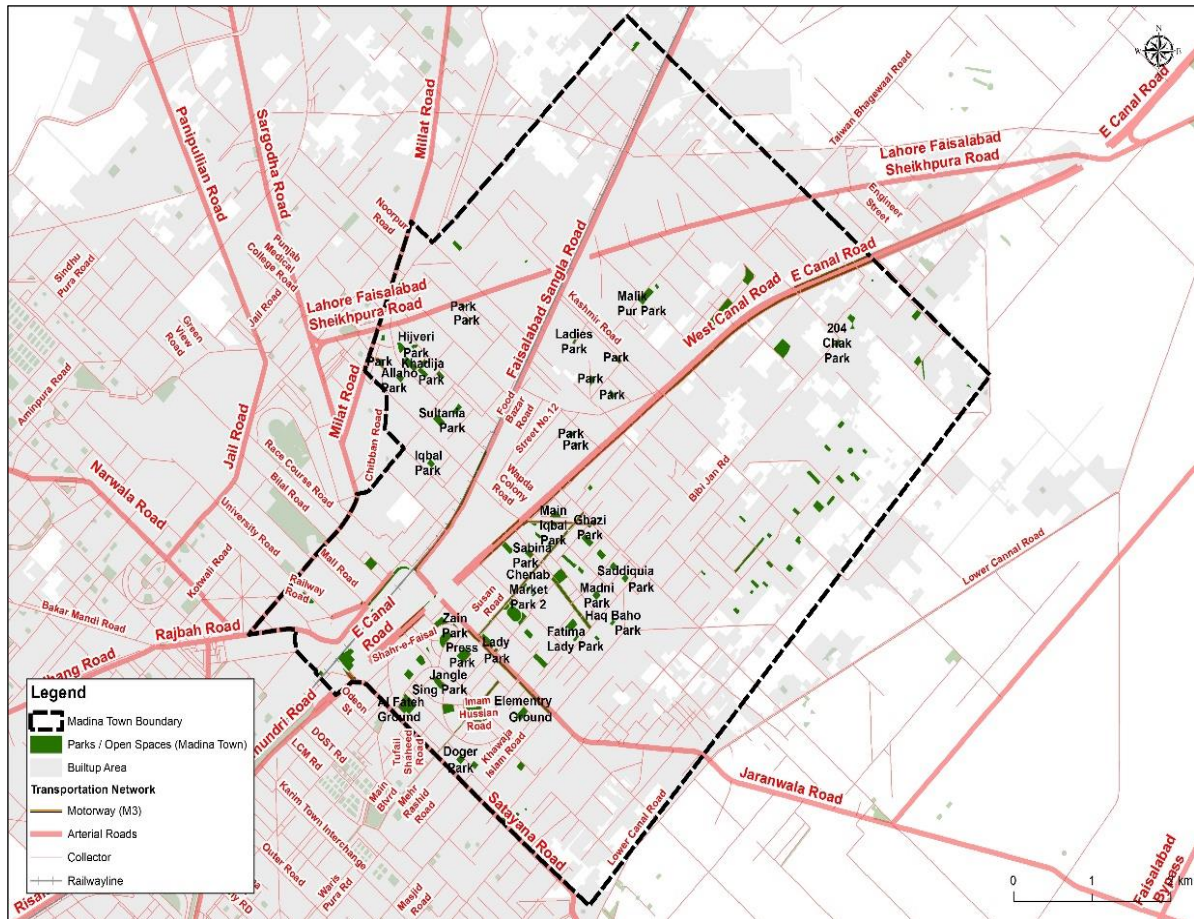


Figure 10-5: Distribution of Green areas Controlled by PHA in Madina Town



D Ground (9.7 Acre)



Central Park (4Acre and 5Kanal)



Press Park (2Acre and 6.6Kanal)



Jinnah Park (2Acre and 2.4Kanal)

Figure 10-6: Areas of Different Parks in Madina Town

10.2.3 Lyallpur Town

The Municipal Administration Jinnah Town was established in 2005. Previously, the urban area of Lyallpur Town was part of Tehsil City Faisalabad and the rural area part of Tehsil Saddar Faisalabad. According to the population census report of 1998, the total population of the town is 717,710. The Lyallpur Town is comprised of Crescent Park, Millet Park, Bagh-e-Jinnah, and Lady Bagh. Bagh-e-Jinnah is the biggest park of Lyallpur Town which comprises 32 acres of land. **Figure 10.7 & Figure 10.8** shows the distribution of green areas controlled by PHA in Lyallpur Town.

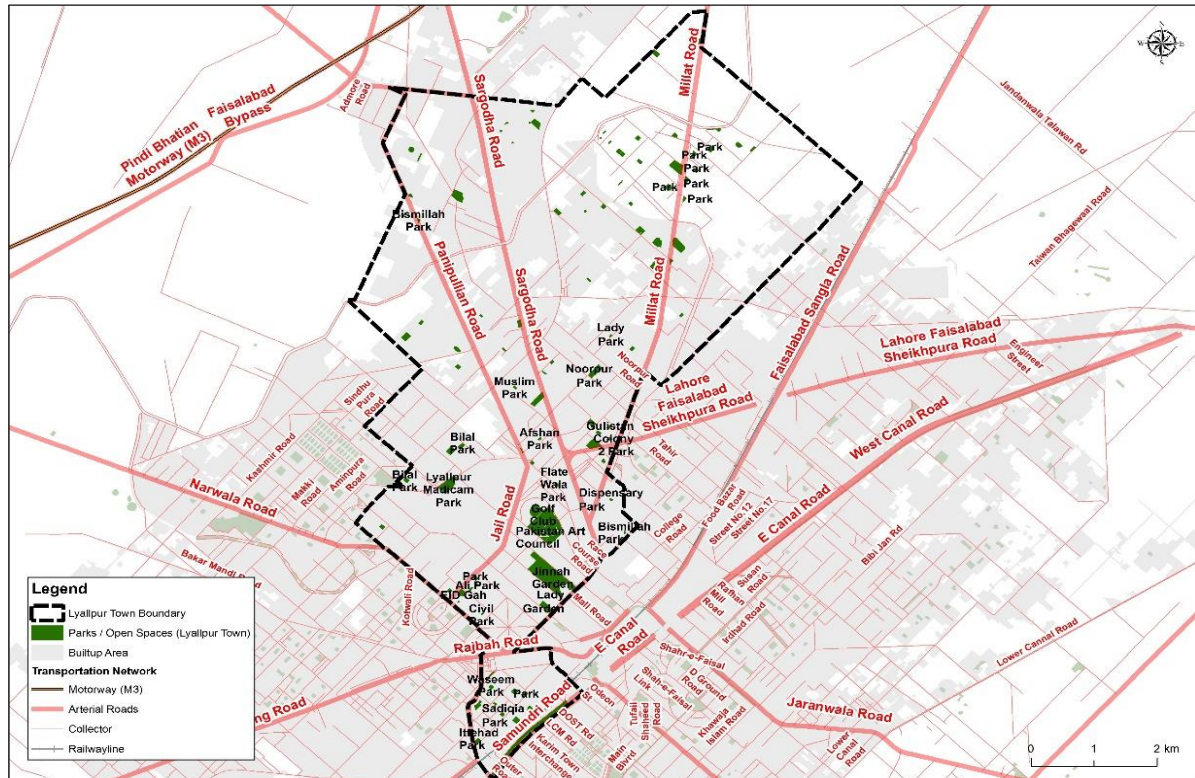


Figure 10-7: Distribution of Green Areas Controlled by PHA in Lyallpur Town



Bagh-e-Jinnah (32Acre)



Crescent Park (Under Construction) (8Acre)



Millet Park, Millet Town (4.33Acre)



Lady Bagh (4.25Acre)

Figure 10-8: Areas of Different Parks in Lyallpur Town

10.2.4 Jinnah Town

The Municipal Administration Jinnah Town was established in 2005. Previously, the urban area of Jinnah Town was part of Tehsil City Faisalabad and the rural area part of Tehsil Saddar Faisalabad. According to the population census report of 1998, the total population of the town is 765,700. The Jinnah Town is comprised of Shehbaz Sharif Park, Lady Park, Haidari Park, Fawara Park, Dhobi Ghat Park, Jinnah Park, Qasim Park, and Kaleem Shaheed Park. Kaleem Shaheed Park is the biggest park in Jinnah Town which is comprised of 55 acres of land. Figure 10.9 and Figure 10.10 shows the distribution of green areas controlled by PHA in Jinnah Town.

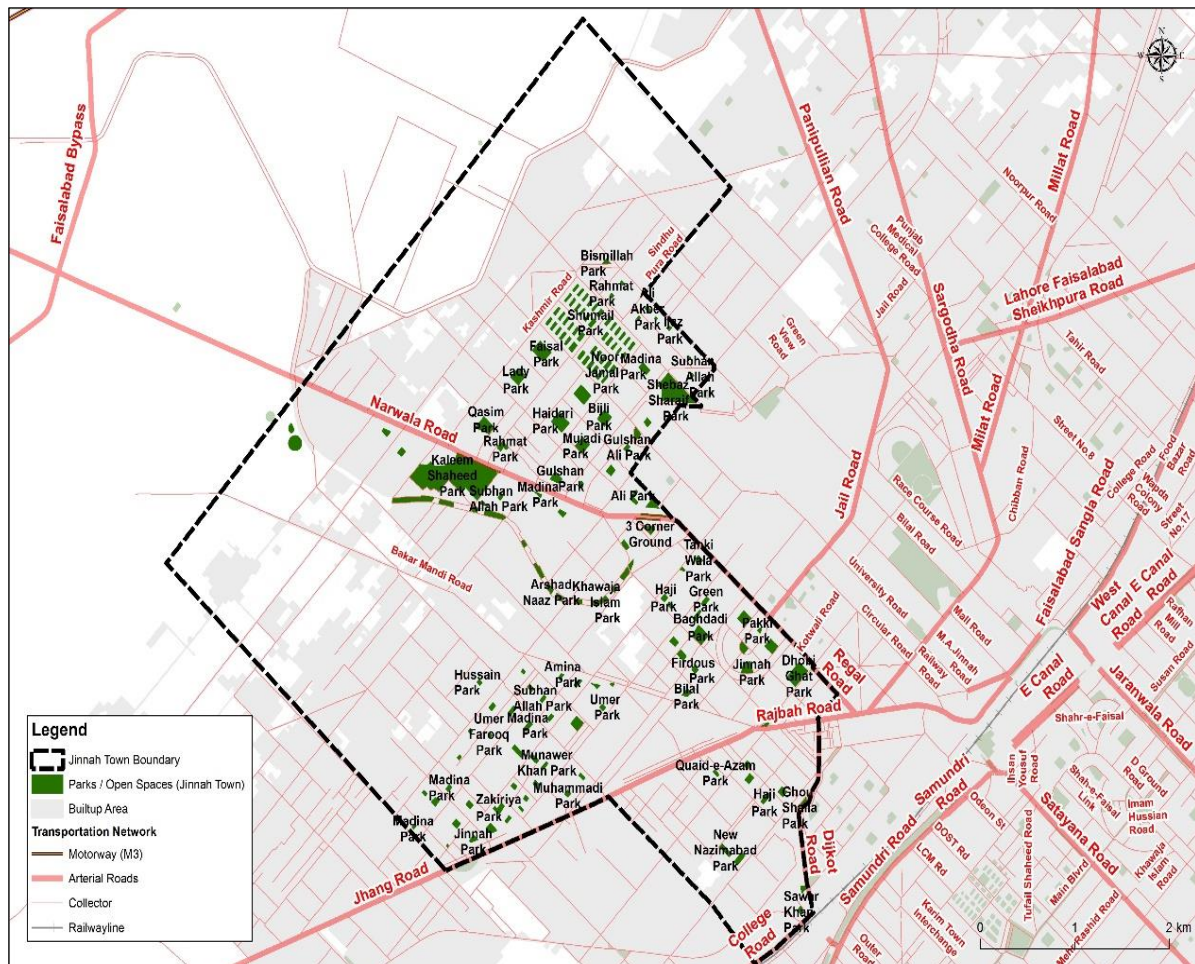


Figure 10-9: Distribution of Green areas controlled by PHA in Jinnah Town



Shehbaz Sharif Park (under construction)
(15Acre and 2kanal)



Kaleem Shaheed Park (55Acre)



Haddri Park (3Acre)



Fawara Park (2Acre and 2.6Kanal)



Dhobi Ghat Park (2Acre and 2.6Kanal)



Jinnah Park (2Acre and 5.5Kanal)



Qasimi Park (2Acre)



Lady Park (2Acre)

Figure 10-10: Areas of Different Parks in Jinnah Town

10.3 ACCESS TO PARKS

The specific target identified for measuring progress in terms of parkland provision and access to parks uses a distance of 300 meters, as this is generally accepted as the distance that people will walk to a destination.

An analysis of the proximity was completed to identify locations where new parks and open spaces need to be added to meet this target. Boulevards and other lands were considered within the parkland inventory, but those that do not provide places to play, socialize, or enjoy nature were excluded from this analysis. An additional analysis was done to determine if the gaps identified in the distribution of Municipal / Private parks were addressed by any other public open spaces. The results of these analyses are shown in the figures below.

10.3.1 Key Findings:

- If parks were added at unserved identified areas, there would still be some key gaps in the city.
- There are gaps within the neighbourhood. If new parks are pursued surrounding areas of the city, as specified in the below maps, this gap would largely be addressed.

The total built-up area of Faisalabad city is **290 Sq. km**, in which **95.8 Sq. km** area is unserved for parks and open spaces. This shows that approximate **44%** of the area have no parks as shown in **Figures 10.11 to 10.13** below.

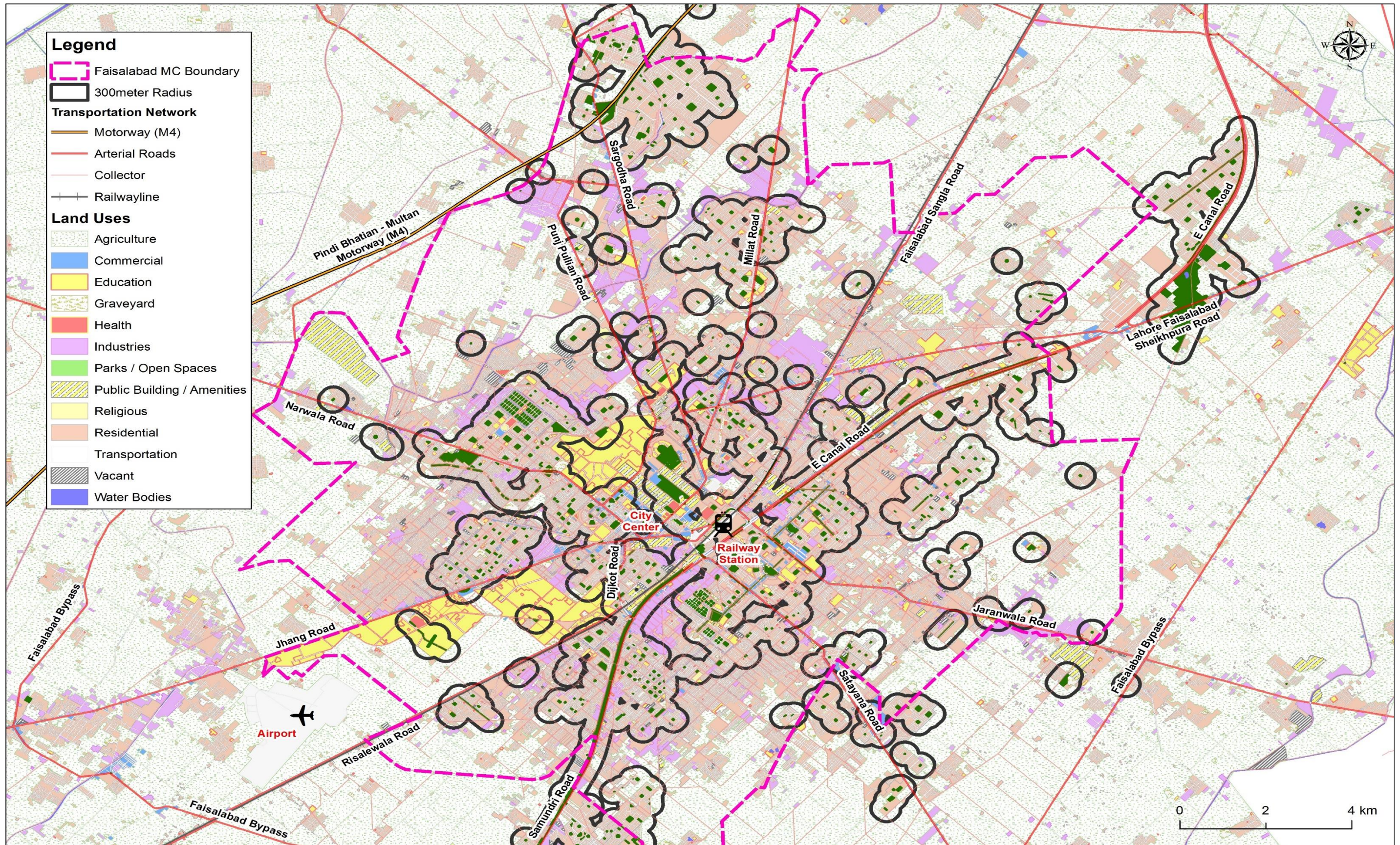


Figure 10-11: Existing Land Use and 300-meter Open Spaces Radius

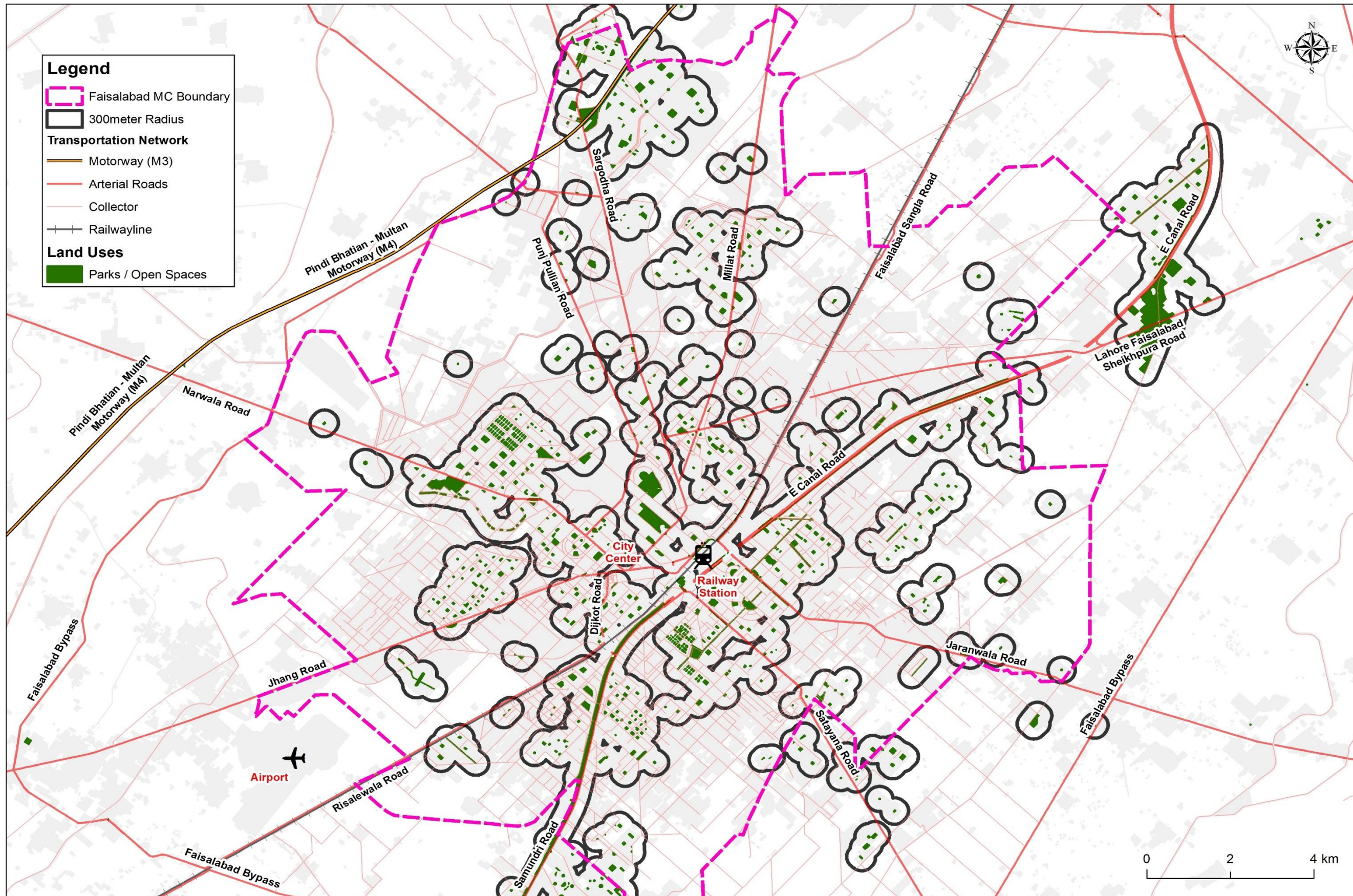


Figure 10-12: Served Area under 300-meter Radius

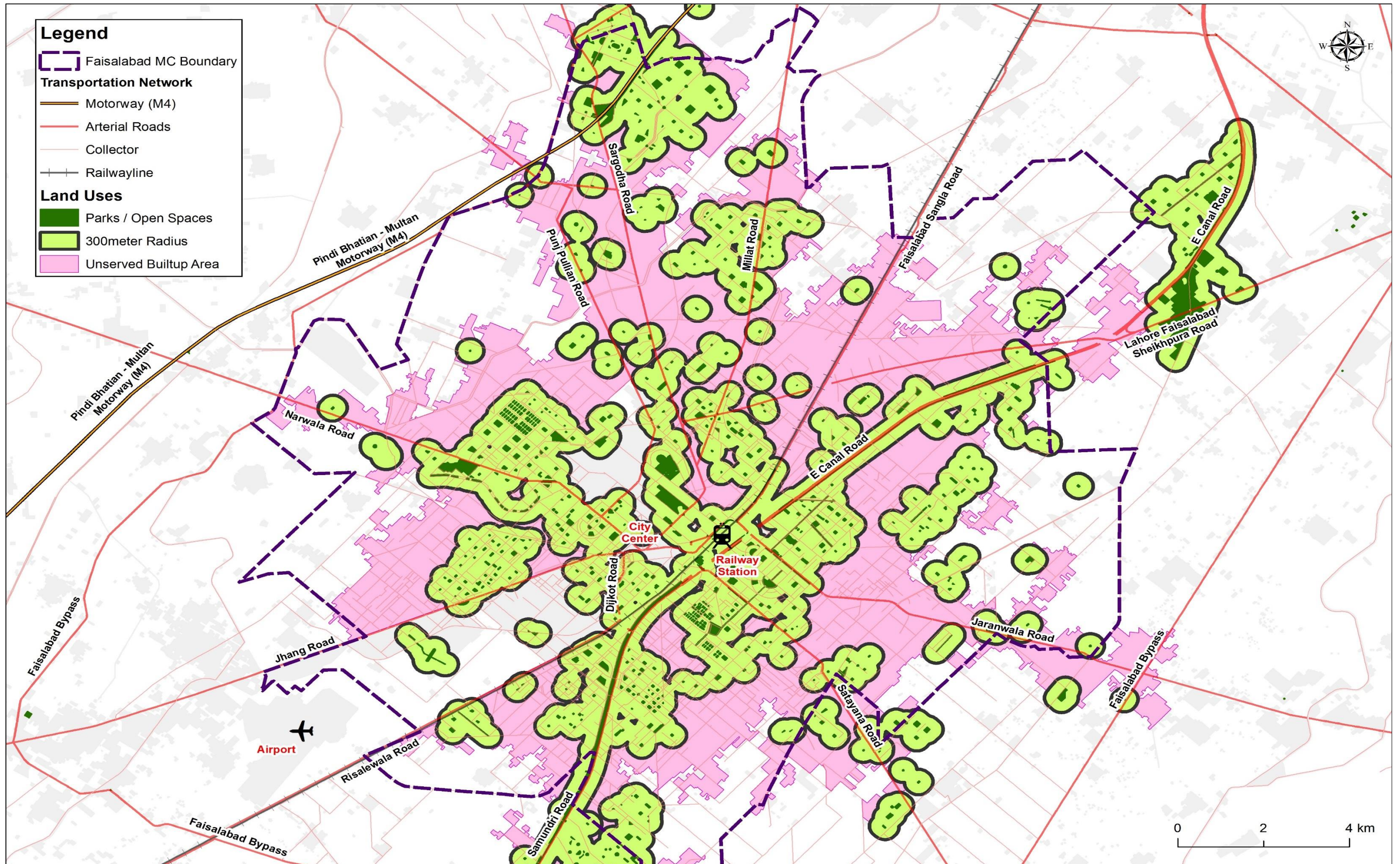


Figure 10-13: Unserved Area have no Parks and Open Space

10.4 TYPOLOGY OF PARKS & OPEN SPACES

Boulevards and Medians on Arterials and Residential Streets:

Boulevards consist of many forms of public plantings situated along roadway edges and medians. Plantings vary from highly visible gateways, treed corridors and grassy verges to hard landscaped medians and are part of both the City's beautification efforts and its urban forest.

Trails and Greenways:

Trails and greenways include the system of multi-use commuter trails that are being developed throughout the city as well as near environmentally sensitive corridors.

Speciality Plantings and Display Areas:

Many parks have speciality plantings and/or seasonal display areas. These are generally high-profile areas that require a high level of maintenance. These areas include Canal Park, Canal sides and Gatwala forest.

City Level Parks and Facilities:

Typically, these areas receive a higher level of maintenance than Neighborhood Parks because they are frequented by more people and/or are destination parks. Some, however, are natural and have limited horticultural display areas like Jinnah Park.

Neighbourhood Parks:

Neighbourhood parks are focal points for residents within walking distance of the park. Neighbourhood Parks are generally maintained to a lesser standard than City level parks.

Natural Areas:

Natural areas can be found throughout our parks and open spaces. They consist primarily of native plants and trees that provide valuable urban habitats for flora and fauna. A native community is the population of native plants, animals and many other organisms in a specific ecosystem. Each community has evolved together and depend on each other for food, shelter and survival. Non-native and invasive plants, animals and insects have demonstrated their ability to harm native communities and disrupt entire ecosystems.

10.5 BEST PRACTISES AND TRENDS

Parks and open spaces play a significant role in creating complete and sustainable communities, specifically:

Social and Cultural Exchange:

Parks and open spaces provide a public and neighbourhood space for recreation, physical activity, leisure, social gathering, and community interaction. Parks and open spaces generally enhance community quality of life and mental health by facilitating:

- Healthy, active living
- Stress reduction
- Community cohesion, goodwill, and civic pride
- Cultural exchanges and understanding

Ecological Protection:

Open spaces conserve and enhance a community's natural resources and biodiversity by providing tree sanctuaries, wildlife habitats, and natural infrastructure systems. Equally important, these areas offer a break from urban density and built form by providing a space to

understand and relate to the natural world. The ecological benefits of parks and open spaces specifically offer:

- Clean air and water
- Shelter and shade from the elements
- Biodiversity and resistance to pests and disease

Economic Development:

Parks and open spaces are a known economic catalyst enhancing property values, attracting tourism and new business as well as entrepreneurial activities such as street markets, events, and recreational programming. Economic development has a positive impact on a community, specifically through:

- Urban revitalization
- Stronger and more diverse local economies
- Reduced capital and maintenance costs of low impact and green infrastructure systems

10.5.1 Trends and Challenges

Several major demographics, environmental, and economic trends have an impact on parks planning.

Reduced Leisure Time:

Faisalabad's people have less leisure time to relax, recreate, and socialize. This is especially true for the demographics focused between school children to middle age who have time-consuming responsibilities, such as school, work, and raising families

The impact of this on parks and recreation is increasing demand for:

- Non-traditional hours of operation (day and night)
- Multi-purpose facilities offer a range of activities for all members of the family informal, casual activities.

Ageing:

Faisalabad's ageing population is expected to have a significant impact on communities within the next 10 years. The 65+ year age group has the most amount of leisure time and requires park facilities and activities that support their specific needs. To include this demographic, community parks must be accessible and incorporate the interests of this age group.

The Decline in Organized Sports:

Participation in formal organized sports, such as Cricket, football and golf is declining in Faisalabad. This decline has a concurrent significant increase in preferences for natural open spaces, trails and green corridors and park connections.

Sustainability:

Increasing environmental awareness and demand for sustainable development represents a major shift in community and government priorities. Key indicators include:

- Strong public demand for environmental preservation and natural spaces
- Increasing requirement for the use of green infrastructure and low impact development methods
- Federal and provincial funding tied directly to clear sustainability measures

10.6 PROPOSAL AND RECOMMENDATIONS

FDA will identify, acquire, develop and maintain zonal parks through PHA whereas neighbourhood parks shall be provided by the prospective developers through Site Development/Neighborhood Design Regulations in due course of development. Below Figures shows the proposed open spaces plan that is on the zonal level. Each zone has a zonal park in addition to local neighbourhood parks and zonal parks have at least 10 to 15% of the total open space planned for the zone and the rest 85% distributed among neighbourhood level parks. Parks and open spaces percentage on the zonal level is 3.06 and it is recommended that 2% of parks are created in a residential area as local neighbourhood parks. Proposed open spaces are shown in **Table 10.1** and **Figure 10.14** below.

Table 10-1: Proposed Open Spaces

| Sr. No. | Name/Location of Park | Area in Acres |
|---------|---|---------------|
| 1 | Khurrianwala Park | 158 |
| 2 | Chak Jhumra Park and Playgrounds | 499 |
| 3 | Science City Park | 202 |
| 4 | Gatwala Park Extension | 132 |
| 5 | Park on Jhang Road south side near Airport | 118 |
| 6 | Park on Jhang Road on north side | 40 |
| 7 | Orchards of dates, Agro-farms and Park along Pindi-Bhattian-Multan Motorway | 134 |
| 8 | Park on Satayana Road near Khanoana | 153 |
| | Total | 1,436 |

10.7 POLICY DIRECTIONS

The Directions have been developed from the findings of the background information contained within the initial section of the Master Plan as well as community input from Village residents, business owners and community organizations. There are five key parks and open spaces directions:

1. Provide enough parks and open spaces to support the current and future population's needs and interests.
2. Ensure parks and open spaces are located within a 5-10-minute walk of residents and business owners and geographically distributed to serve the population equally.
3. Ensure that all parks are physically and economically accessible to residents and business owners.
4. Actively use parks and open spaces to preserve sensitive ecological areas, natural resources, wild life habitat and transportation corridors.
5. Create a park and open spaces network that is socially, financially, and environmentally sustainable.
6. Increase their frequency of use and range of users in existing parks with the addition of facilities and equipment to support a broader range of users, especially small children, youth, and young families (reflecting the demographics of the community).
7. Plan for and expand the total supply of park space and the individual size of each park to meet park standards as the population grows within the UC boundaries.
8. Designate lands for a Community Active Park or multi-use sports field for future community needs.
9. Improve and develop the neighbourhood parks compatible with set park standards.

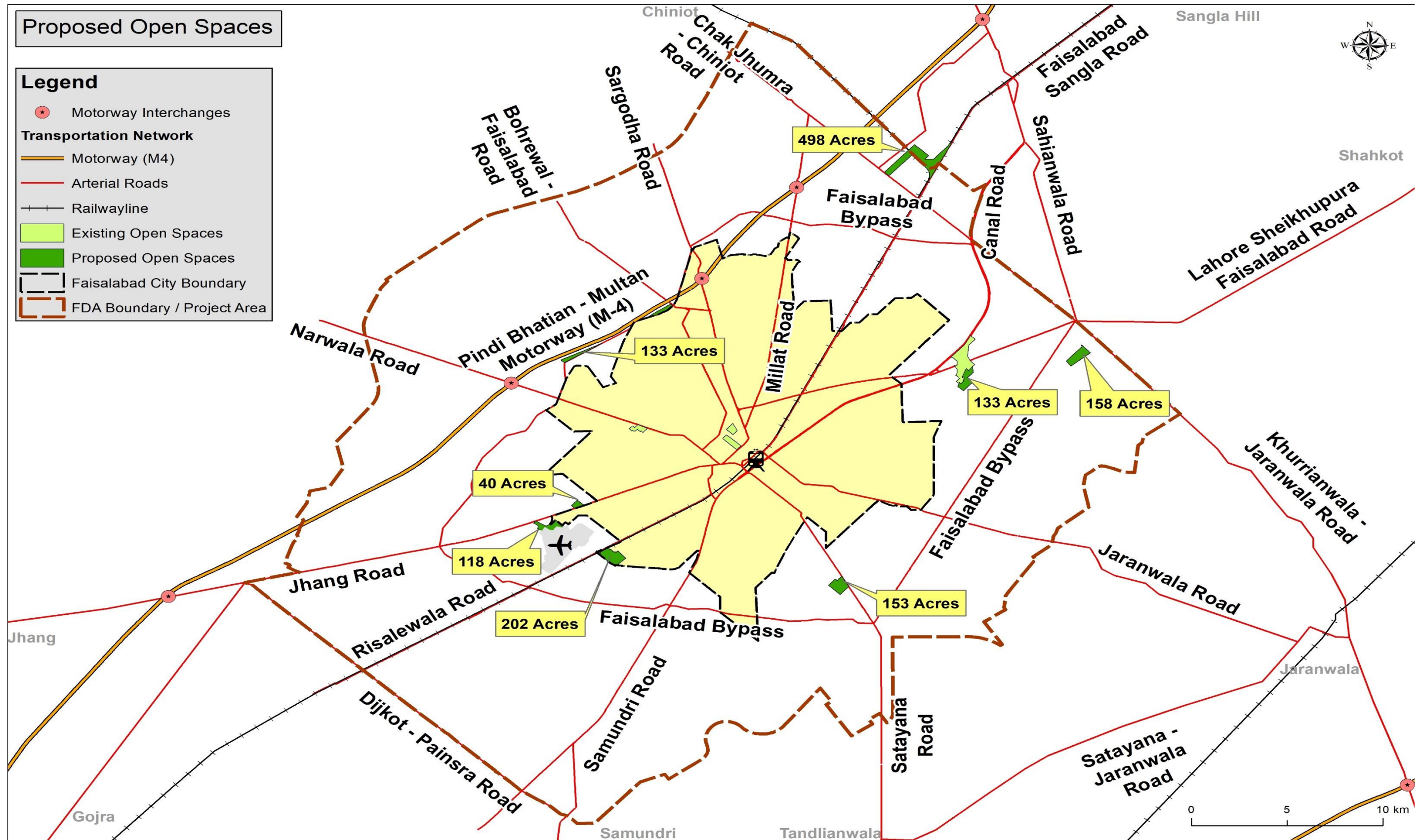


Figure 10-14: Proposed Parks and Open Space Plan

11. INTEGRATED SOLID WASTE MANAGEMENT PLAN

11.1 CURRENT SITUATION

According to the 2017 Census preliminary reports, the Metropolitan of Faisalabad has a population of around 3.5 million. The city has generated solid waste at the rate of 0.45 kg/capita/day which ultimately produces 1,575 tons of waste every day.⁵⁸ The annual quantity of solid Municipal Solid Waste (MSW) is 5, 84,000 tons (roughly 584 kTpa). The projected population of Faisalabad is more than 4 million in 2038, with the current waste generation rate the city will produce 1800 tons of waste every day. The **Figure 11.1** shows the existing situation of waste generation per UC.

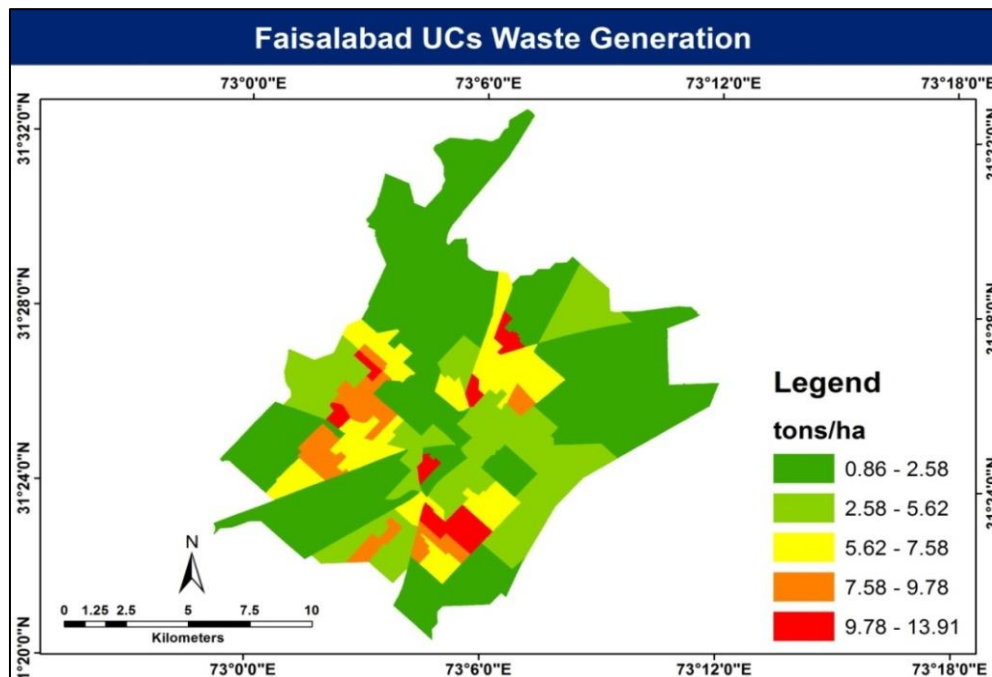


Figure 11-1: The Existing Capacity of Solid Waste Generation per Union Council

11.2 COLLECTION SYSTEM OF DAILY GARBAGE

The daily waste collection varies between 55-65% (which was never more than 40% under TMA) leaving the rest of the waste unattended due to inadequate physical, human and infrastructure resources (vehicle/equipment, allocation of budget and finances). Primary collection is carried out by the wheelbarrows/wheelie bins/push carts etc (refer **Figure 11.2**). The procurement and maintenance of the primary collection tools are the responsibility of the Faisalabad Waste Management Company (FWMC) as per the Services and Asset Management Agreement (SAMA).

⁵⁸ JICA Report, 2010. Basic Survey of Municipal Solid Waste Management in 8 major cities of Pakistan



Source: FWMC action plan 59

Figure 11-2: Existing Status of Waste Management in Faisalabad City

Some of the solid waste generated is dumped on the roadside, vacant plots, stormwater drains and open drains. In the urban centres, most of such solid waste is collected by sanitary workers and brought to the nearest collection point. However, peri-urban areas, associated towns and rural areas remain un-served and no proper waste collection and disposal mechanism exists. Sanitary workers after street sweeping collect solid waste from residential and commercial areas and bring it to the nearest collection point by using hand push carts/wheelie bins.

Waste collectors and households carry the waste to the secondary storage points. The secondary storage point is usually a metallic container, a concrete enclosure, or an open space (usually, Filth depots, container collection points, waste enclosures and open collection points). Collection vehicles include mini tippers, dump trucks, arm rolls, tractor trolleys, mechanical tractor loaders and trolleys. The tractor trolleys collect the solid waste from all collection points and transport it to the main dumping site. This process is generally carried out daily but for some localities, the collection is done on alternate days due to a shortage of vehicles.

⁵⁹ Faisalabad Waste Management Company – Action Plan to Expand Solid Waste Management Services to the Entire City Area (pcgip.urbanunit.gov.pk › WMC Faisalabad, Action Plan_upload), 2015.

11.3 DISPOSAL PRACTICES BY HOUSEHOLDS

Presently, there is no landfill /controlled dumpsite in Faisalabad. In Faisalabad city, the collected waste is disposed-off within and around city limits in low-lying areas, vacant plots, in open drains, alongside roads and railway lines. When the residents were asked about the disposal of their daily garbage, about 38% of respondents used the open dumping process for its disposal, 32% of the respondent's dispose of their garbage in fields, while 14% of respondents dump it in the form of stacked firewood. But only 08% of respondents are those who dispose of their daily garbage by dumping it in their own homes while 08% of respondents dispose of it by burning it. **Table 11.1** below shows the disposal of daily garbage.

Table 11-1: Disposal of Daily Garbage by households

| Disposal of Daily Garbage | | | |
|---------------------------|--------------------|------------|------------|
| Sr. No. | Type | Number | Percentage |
| 1 | Open dumping | 38 | 38 |
| 2 | Disposal in fields | 32 | 32 |
| 3 | Disposed in homes | 08 | 08 |
| 4 | Stacked firewood | 14 | 14 |
| 5 | Burning of Waste | 08 | 08 |
| Total | | 100 | 100 |

Currently, in Faisalabad, the collected waste is being disposed of at the "Muhammad Wala" dumpsite without any soil cover. The site has been used for many years where a trench was dug for solid waste disposal, without any provision of lining to prevent the seepage of leached to the groundwater. The city is still deprived of a sanitary landfill.

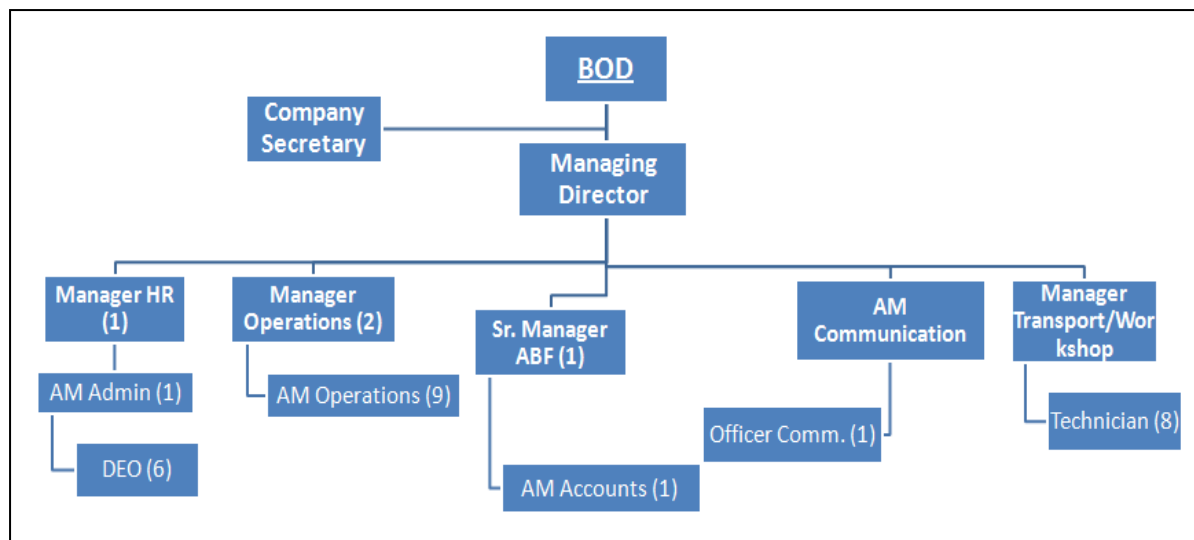
11.4 FAISALABAD WASTE MANAGEMENT COMPANY (FWMC)

Faisalabad Waste Management Company (FWMC) was established on 13th July 2013 under Section 42 of the Companies Ordinance, 1984. It started its work under the SAMA agreement which was executed on 11th December 2013 between different stakeholders including CDGF, TMOs and FWMC.

Before the establishment of the FWMC, the responsibility for solid waste management was lying with SWM, a department working under CDGF. Four towns fall under CDGF, i.e., Lyallpur Town, Madina Town, Jinnah Town & Iqbal Town which are transferred to FWMC for all types of sanitation and waste management services.

Helpline / Online Complaint Cell: 1139

The existing hierarchy of FWMC is shown in **Figure 11.3** below.



Source: FWMC action plan⁶⁰

Figure 11-3: Existing Hierarchy of Faisalabad Waste Management Company

9.1.1 FIELD WORK DISTRIBUTION

FWMC is acting as the private sector limbs to ensure the provision of services regarding solid waste management. The basic field operations performed by the FWMC are shown in **Figure 11.4** underneath.

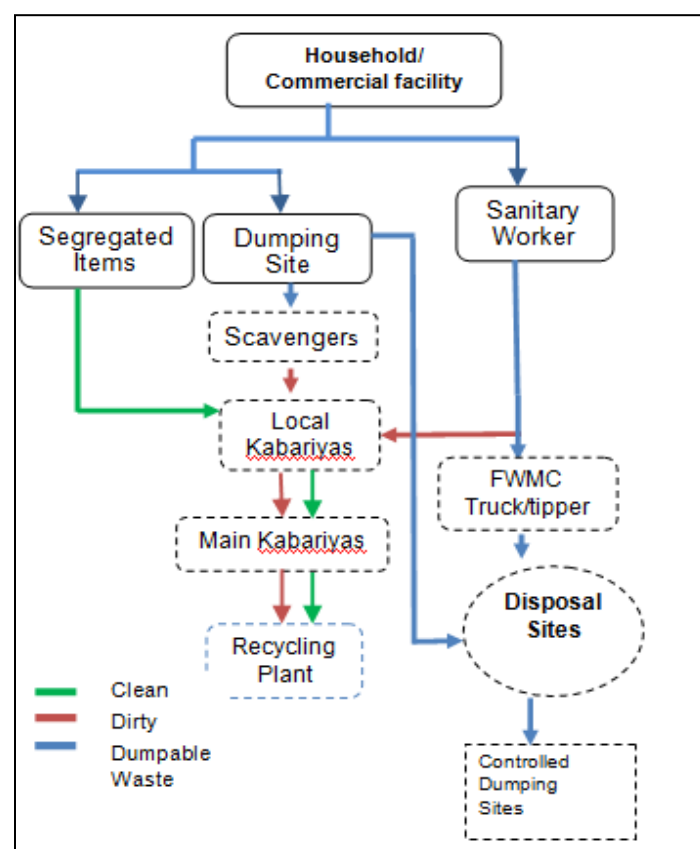


Figure 11-4: Map of Field operations of FWMC³

⁶⁰ Faisalabad Waste Management Company – Action Plan to Expand Solid Waste Management Services to the Entire City Area (pcgip.urbanunit.gov.pk › WMC Faisalabad, Action Plan_upload), 2015.

11.5 STATUS OF OPERATIONAL VEHICLES AND EQUIPMENTS

F-WMC inherited all the equipment and vehicles from the City District government through a lease agreement under SAMA. Thereafter, the Operation and Management (O&M) of the inherited assets is the responsibility of the FWMC. Under this responsibility, FWMC revamped the already existing workshop and operationalized its maximum fleet. Now 8 vehicles are equipped with tracking devices for their continuous monitoring in the field. Furthermore, FWMC is planning to procure 1000 containers, 20 compactors and 24 mini tippers. Through dynamic top management's keen involvement, FWMC has achieved 63% collection efficiency in a year. **Table 11.2** shows the Faisalabad's detailed inherited and current gear.

Table 11-2: Faisalabad's Detailed Inherited and Current Gear
(Source: FWMC Action Plan)

| Designation | Faisalabad | |
|--|------------|---------|
| | Inherited | Current |
| Dumpers | 24 | 24 |
| Arm Rolls | 28 | 28 |
| Container Lifter(s) | N/A | N/A |
| Containers | 110 | 150 |
| Tractor Loaders | 16 | 11 |
| Tractor Blade | 06 | 06 |
| Front end loader | N/A | N/A |
| Excavator | 01 | 01 |
| Compactor | 02 | 02 |
| Water Bowser(s) | 10 | 13 |
| Tractor Trolley | 06 | 06 |
| Tractors | 02 | 02 |
| Mechanical Sweepers | 04 | 04 |
| Mini Tipper/ Dumpers | 00 | 08 |
| Wheelie Bins | 90 | 90 |
| Hand carts | 570 | 570 |
| Transfer Stations | 17 | 17 |
| Weigh Bridge | 0 | 0 |
| Heavy Loader (Wheel Type) | 02 | 02 |
| Tractor Tanker | 00 | 00 |
| Vehicles equipped with monitoring system | 00 | 08 |

11.6 ISSUES IN WASTE COLLECTION AND TANSFER

The constraints and challenges are summarized in Table 11.3 below.

Table 11-3: Summary of the constraints and challenges

| Indicators | F-WMC |
|------------------------|--|
| Waste Collection | F-WMC with its existing resources is capable to collect 60-65% of municipal waste generated in the city. However, it is significantly understaffed in the management and skilled labour categories. The financial budget is not provided as per the requirements of the FWMC for 100% waste collection. |
| Resource Recovery | Currently, no formal resource recovery mechanism exists. Training programs at the city level should be organized to promote the <i>3R concept</i> . Besides this, capacity building programs for the informal sector shall be organized. Funds are required to accomplish this and FWMC as the newly established enterprise is struggling to maximize its collection efficiency and remove already piled up waste. |
| Sanitary Landfill Site | The collected waste is currently being disposed of at the "Muhammad Wala" dumpsite without any soil cover. This site has been used for the last 20-25 years. The city is still deprived of a sanitary landfill. |

| Indicators | F-WMC |
|-----------------------------|---|
| Industrial Waste Management | <ul style="list-style-type: none"> Currently, there is no industrial waste management system in place. Industrial wastes are being Commingled with municipal wastes and dumped in the same manner, greatly elevating environmental and public health risks. |
| Medical Waste Management | There is a strong possibility that hazardous medical waste is being commingled and dumped in the same manner as municipal waste. |
| Public Awareness | <ul style="list-style-type: none"> Public awareness of environmental and solid waste management issues is low. The primary segregation of recycled materials in Faisalabad is largely undeveloped. |

11.7 ANALYSIS

Faisalabad solid waste is divided into the following prominent type of waste:

- 1) Residential waste
- 2) Industrial waste
- 3) Commercial/Institutional waste
- 4) Hospital/hazardous waste
- 5) Construction & demolition waste
- 6) Agricultural waste
- 7) Electronic waste

The percentage physical composition of the collected solid waste by weight in Faisalabad is reported as per **Table 11.4**:

Table 11-4: Physical Composition of MWC, Faisalabad, 2014

| Sr. No. | Types of Waste | Composition |
|--------------|--------------------------------|-------------|
| 1 | Plastic & rubber | 6.60% |
| 2 | Metals | 1.00% |
| 3 | Paper & Cardboard | 7.67% |
| 4 | Rags / Textile Waste | 6.53% |
| 5 | Glass Ceramics | 2.43% |
| 6 | Bones | 2.40% |
| 7 | Food waste | 33.81% |
| 8 | Leaves, Grass & Straw | 7.36% |
| 9 | Wood | 1.07% |
| 10 | Animal waste | 2.34% |
| 11 | Dust, Dirt, Ash, Bricks, Stone | 28.79% |
| Total | | 100% |

Source: Faisalabad Waste Management Company Report (2015)

The stakeholder's analysis was done to identify the beneficiaries of Solid Waste Management and its implementation (refer **Table 11.5** below).

Table 11-5: Identify the Beneficiaries of Solid Waste Management and Implementation

| Sr. No. | Stakeholder | Motivation/ Beliefs | Powers | Resources |
|---------|-------------|---|---|---|
| 1. | Households | Disposal of their wastes A clean and healthy environment | Segregate their wastes; reuse, recycle Cooperate with FWMC | Household income They pay for the disposal of their wastes |

| Sr. No. | Stakeholder | Motivation/ Beliefs | Powers | Resources |
|---------|---|---|--|---|
| 2. | Commercial, institutional and industrial establishments | Disposal of their wastes A clean and healthy environment | Segregate their wastes; reuse, recycle Compliance with laws and policies | Business income; Educational campaigns |
| 3. | Local government | Collection and disposal of wastes Keep Faisalabad clean and ecological | Legislate and enforce policies on collection, segregation and disposal of wastes Plans and programs for SWM Collect fees | Aids, people Government's municipal Fund |
| 4. | Junkshops, scavengers, private collectors | Income | Go around and collect solid wastes Buy recyclable wastes Lessen collectables | Vehicles Employees |
| 5. | Farmers/ Farmers Organization | Input for fertilizer | Collect and utilize Biodegradable wastes | Organic Agriculture knowledge |
| 6. | National Agencies Provincial Government | National Solid Waste Management Ecological and Healthy environment | Financial, operational and Technical support | Government Fund Technical knowledge |
| 7. | NGOs | Ecological and healthy solid waste management | Financial, operational and Technical support | Fund Technical knowledge |
| 8. | Hospitals | Safe Disposal on Priority Basis | collection, segregation and disposal of wastes Financial, operational and Technical support | Public and Private funding Required |

11.8 PLAN AND PROPOSALS

The plan is to avoid, reduce and manage solid waste through source reduction, waste minimization measures, waste segregation, and establishment of solid waste management facilities.

As a consequence of conventional waste management practices, Faisalabad City is facing environmental and health risks as well as losing economic opportunities in terms of the resource value of the waste. Hence, a paradigm shift from conventional waste management practices to Integrated Solid Waste Management (ISWM) is essential for the effective management of the waste stream. ISWM is comprehensive waste prevention, recycling, composting, and disposal program that considers how to prevent, recycle, and manage waste in ways that most effectively protect human health and the environment. The main areas to be focused on in the implementation of the ISWM strategy for Faisalabad city are discussed below.

11.9 IMPLEMENTATION PLAN

11.9.1 Development of Solid Waste Management Zones

The smallest administrative unit in Faisalabad is the Union Council (UC). In total, the Faisalabad City area contains 157 UCs). The proposed solid waste management plan of Faisalabad city includes the categorization of UCs into Solid Waste Management Zones (SWMZ) based on their land uses. In this regard, the land use classes of Faisalabad city have been grouped into four main categories of solid waste. The industries, hospitals and agriculture areas are distributed in separate categories other than domestic waste because they produce solid waste (in conjunction with domestic waste) that require different collection, treatment and disposal methods. Table 11.6 shows the grouping of land use classes into a solid waste category. The map of UCs in Faisalabad city is attached in Figure 11.5 below.

Table 11-6: Grouping of Land use Classes into a Solid Waste Category

| Sr. No. | Category | Code | Land use classes |
|---------|------------------|------|---|
| 1 | Domestic Waste | DW | Residential, Education, Commercial, General Bus Stand, Vacant, Graveyard, Public Building/Amenities, Religious, Parks / Open Spaces |
| 2 | Industrial Waste | IW | Industries |
| 3 | Hospital Waste | HW | Health |
| 4 | Biological Waste | BW | Agriculture |

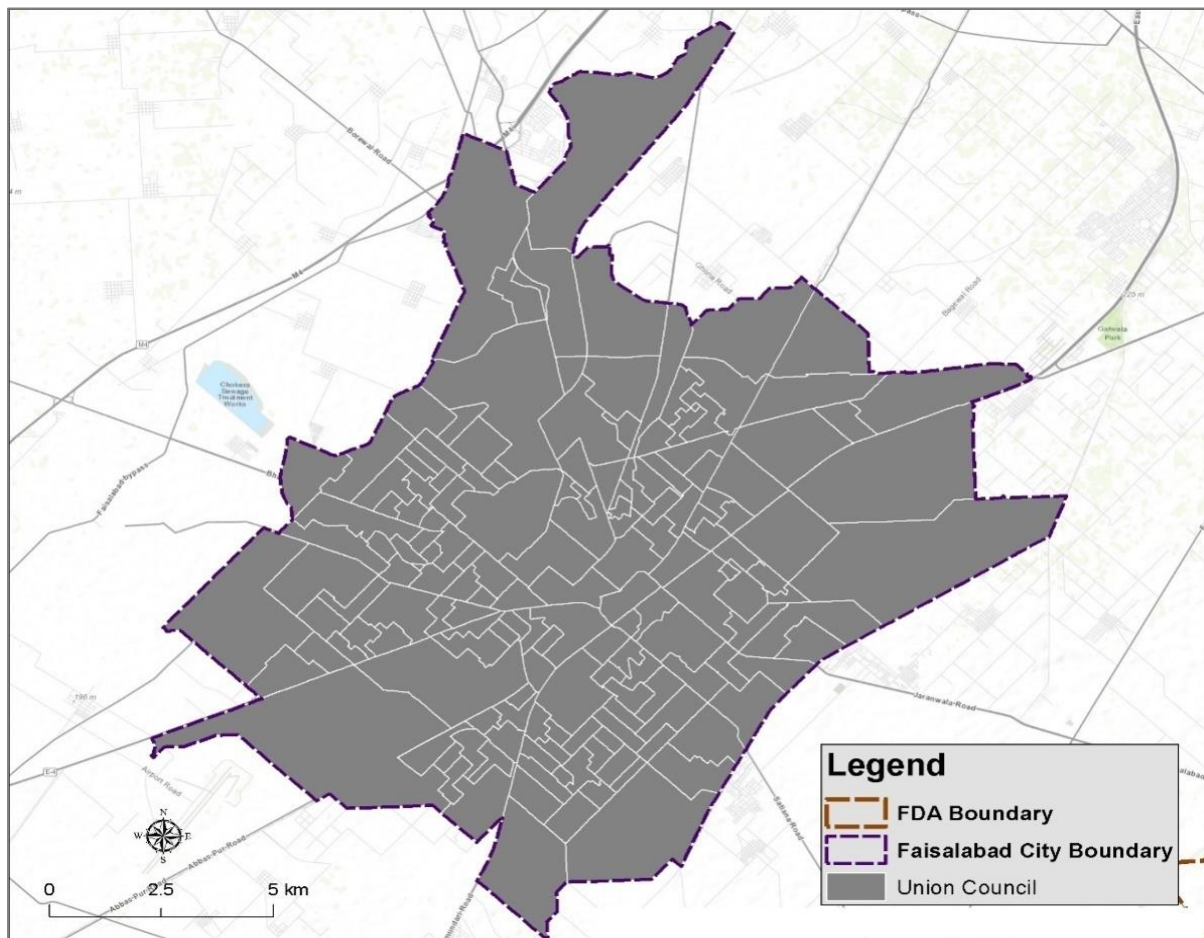


Figure 11-5: Map of UCs in Faisalabad City

In the second step, the percentage coverage of each waste category has been estimated in each UC using the following formula:

$$\text{Individual Solid Waste Category (\%)} = 100 \times \frac{\text{Area of each Solid Waste Category in a UC}}{\text{Total Area of UC}}$$

Due to the unavailability of population data at the UCs level, it is assumed that the share of land-use class, in terms of area, is equal to the share of solid waste type in that UC. The share is also a measure of the existence and non-existence of solid waste type in the UC. For instance, if the share of IW is 0.00 in a UC, it means that there is no industrial area in that UC which leads to the absence of industrial waste in the respective UC. ArcGIS 10.5 software was used to calculate the percentage distribution of each solid waste type in a UC.

The next step is to rank the solid waste type for the development of different SWMZ. All the solid waste categories were ranked from 1-10 according to the following formula.

$$\text{Rank} = 10 \times \frac{\text{Percentage of Individual Solid Waste Category}}{\text{Total Percentage of all Solid Waste Categories}}$$

In the last step, the ranks of UCs were used to develop different SWMZ. The criterion for the selection of each Zone is mentioned in Table 11.7. Zone A – D contain two types of solid waste having domestic waste a common type. Zone E and F are comprised of three types of solid waste having a combination of two more types in combination with domestic waste. The Zone with all four types of solid waste was categorized as Zone G and H. Zone G is mainly dominated by domestic waste with little quantities (less than 5%) of other waste categories.

Table 11-7: Criteria for the development of Solid Waste Management Zones in Faisalabad City

| S. No. | Zone Name | Zone Code | Colour | Criteria |
|--------|---|-----------|--------|---|
| 1 | Pure Domestic Waste | A | | "DW_Rank">0 and "IW_Rank"=0 and "HW_Rank"=0AND"BW_Rank"=0 |
| 2 | Industrial Waste + Domestic Waste | B | | "DW_Rank">0 and "IW_Rank"> 0 and "HW_Rank"=0 and "BW_Rank"=0 |
| 3 | Agriculture Waste + Domestic Waste | C | | "DW_Rank">0 and "IW_Rank"=0 and "HW_Rank"=0 and "BW_Rank">0 |
| 4 | Hospital Waste + Domestic Waste | D | | "DW_Rank">0 and "IW_Rank"=0 and "HW_Rank">0 and "BW_Rank"=0 |
| 5 | Industrial Waste + Biological Waste + Domestic Waste | E | | "DW_Rank">0 and "IW_Rank">0 and "HW_Rank"=0 and "BW_Rank">0 |
| 6 | Industrial Waste + Hospital Waste + Domestic Waste | F | | "DW_Rank">0 and "IW_Rank">0 and "HW_Rank">0 and "BW_Rank"=0 |
| 7 | Domestic Waste + Less (Industrial Waste + Hospital Waste + Biological Waste) | G | | "DW_Rank">0 and "IW_Rank"<0.5 and "HW_Rank"<0.5 and "BW_Rank"<0.5 |
| 8 | Domestic Waste + Large (Industrial Waste + Hospital Waste + Biological Waste) | H | | "DW_Rank">0 AND "IW_Rank">0.5 and "HW_Rank">0 and "BW_Rank">0.5 |

The last Zone H have all four types of waste categories, hence, needed more attention. For better management of Zone H, it was further categorized into four Sub-Zones namely H-HA, H-HB, H-HC and H-HD. For this reason, the UCs of Zone H was sub-ranked (Table 11.8) according to the following formulae.

$$\text{Sub - Rank} = Ri - \frac{Ri}{RIW + RHW + RBW}$$

Where,

Ri = Rank of individual solid waste category other than Domestic Waste





RIW = Rank of Industrial Waste category
RHW = Rank of Hospital Waste Category
RBW = Rank of Agriculture Waste Category

Table 11-8: Sub-Ranked UCs Lies in Zone H

| Sr.No. | UC Name | H_IW_Rank | H_HW_Rank | H_BW_Rank |
|--------|--------------------------------|-----------|-----------|-----------|
| 1 | Tariq Abad | -0.09 | 0.02 | 0.07 |
| 2 | Amin Town | 0.49 | -0.32 | -0.17 |
| 3 | Bawa Chak | 1.40 | -1.09 | -0.31 |
| 4 | Chak No. 7/JB Ghosia Town I | 0.93 | -0.59 | -0.34 |
| 5 | Crescent Mill Colony | 0.98 | -0.25 | -0.72 |
| 6 | Malik Pur | 0.51 | -0.71 | 0.20 |
| 7 | Afghanabad No. 2 | -0.61 | -0.88 | 1.49 |
| 8 | Ayyub Research | -0.08 | -0.30 | 0.38 |
| 9 | Chak No. 119/JB Samana | -0.82 | -1.22 | 2.05 |
| 10 | Chak No. 202/RB Bhaiwala | -0.92 | -1.44 | 2.35 |
| 11 | Chak No. 204/RB | -1.19 | -1.25 | 2.44 |
| 12 | Chak No. 222/RB, Sitara Colony | -1.65 | -1.63 | 3.28 |
| 13 | Farooqabad | -0.72 | -1.32 | 2.04 |
| 14 | Gokhuwal | -0.60 | -0.94 | 1.54 |
| 15 | Gulshan Colony/Raja Colony | -0.53 | -0.52 | 1.05 |
| 16 | Himmat Pura | -0.64 | -0.79 | 1.43 |
| 17 | Illahi Abad/Rachna Town | 0.07 | -0.32 | 0.24 |
| 18 | MarziPura | -0.46 | -0.67 | 1.13 |
| 19 | Muhalla Usman Ghani | -0.30 | -0.09 | 0.40 |
| 20 | National Colony | -0.09 | -0.31 | 0.40 |
| 21 | Rahim Town | -0.26 | -0.33 | 0.58 |
| 22 | Raja wala/Sidhu Pura | -0.07 | -1.60 | 1.66 |
| 23 | Rehman Garden | -0.70 | -1.21 | 1.91 |
| 24 | Usman Town/Green Town | -0.61 | -0.63 | 1.24 |

The criterion for the categorization of subzones is mentioned in Table 11.9. Whereas H-HA is a sub-zone that requires highly efficient management of solid waste as it contains all categories of solid waste inconsiderable amounts. The subsequent sub-zones H-HB, H-HC and H-HD have a major source of Industrial, Biological and Hospital solid wastes, respectively.

Table 11-9: Criteria for the Development of Sub-Zones of Zone H

| Sr. No. | Sub-Zone Name | Sub Zone Code | Color | Criteria |
|---------|--|---------------|---|--|
| 1 | All Non-Domestic waste has the same proportion | H-HA |  | "H_IW_Rank" > -0.1 AND "H_HW_Rank" > -0.1 AND "H_BW_Rank" > -0.1 |
| 2 | Industrial Waste as Major Source | H-HB |  | "H_IW_Rank" > 0.1 ANDAND "H_HW_Rank" < 0.1 "H_BW_Rank" < 0.1 |
| 3 | Biological Waste as Major Source | H-HC |  | "H_BW_Rank" > 0.1 ANDAND "H_IW_Rank" < 0.1 "H_HW_Rank" < 0.1 |
| 4 | Hospital Waste as Major Source | H-HD |  | "H_HW_Rank" > 0.1 AND "H_IW_Rank" < 0.1 AND "H_BW_Rank" < 0.1 |

The **Figure 11.6** below show the spatial distribution of the SWMZ proposed for Faisalabad City. In total, thirty-one (31) UCs were grouped in Zone A, thirty-seven (37) UCs were grouped in Zone B. Only one UC "Raza Abad Bazar No. 3" was grouped in Zone C, twenty-one (21) UCs were grouped in Zone D, twenty-three (23) UCs were grouped in Zone E, fourteen (14) UCs were grouped in Zone F. Moreover, four (4) were grouped in Zone G and twenty-four (24) were grouped in Zone H, respectively. The most important UC is "Tariq Abad" as it is categorized in Zone H-HA which contains all types of waste.

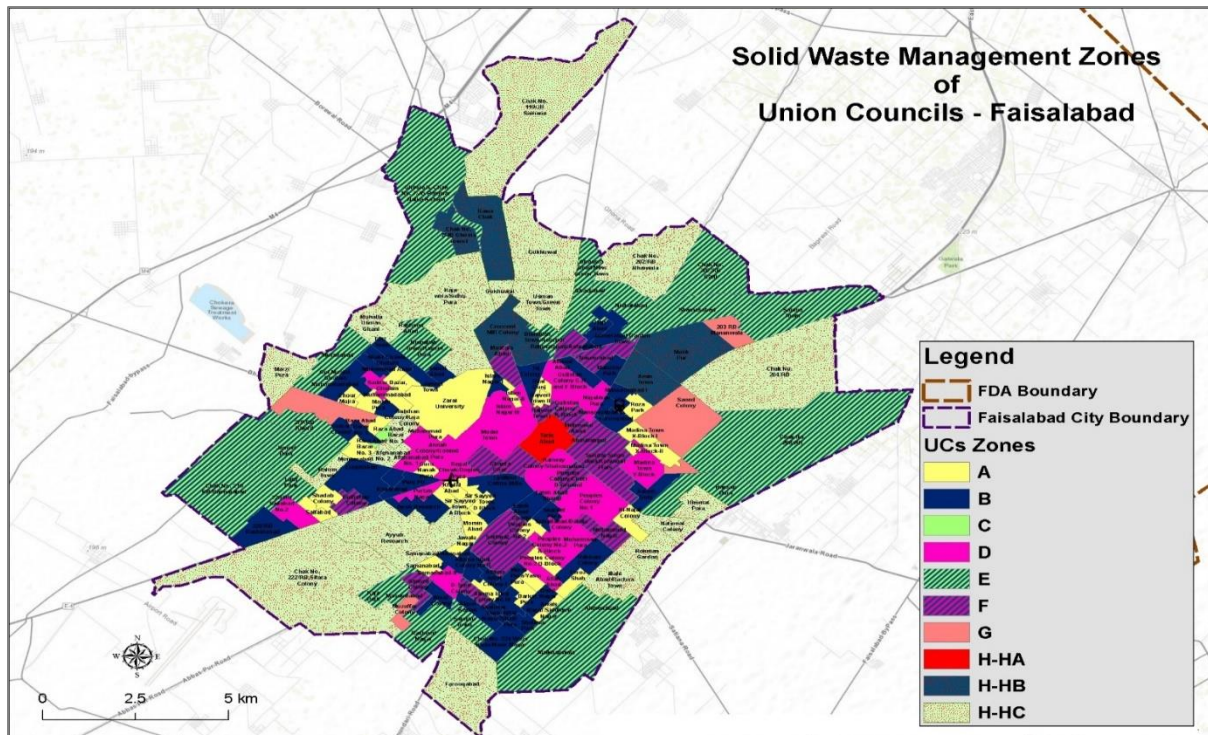


Figure 11-6: Spatial Distribution of Union Councils Grouped into Solid Waste Management Zones

11.10 WASTE AVOIDANCE AND MINIMIZATION

The generation of waste should be reduced to a minimum in terms of quantity and/or hazard potential. The marketing of goods in reusable containers, which could be returned to the supplier and could be reused. Waste generation could sometimes be reduced if commodities were available in bulk quantity to a retailer who would sell the goods in smaller quantities, thereby eliminating the need for as much packing. Packaging of goods for aesthetic reasons could be discouraged, as could the supply of a small item in a large package for marketing reasons.

11.11 SOLID WASTE PRELIMINARY TREATMENT

The ISWM principles suggested that the collected solid wastes need to be segregated into various types for recycling, reuse or transformation at various levels. Therefore, there must be a treatment process before disposal to separate the recyclable and reusable resources of the wastes. However, almost all the collected wastes are transported to the open disposal site without segregation. It is not also binding at present to separate recyclable or reuse materials from the collected wastes at the city level. However, informal recyclers at the small-scale level are accomplishing some form of sporadic recycling manually though it is insignificant. There are craftsmen, who recycle metal, wood, rubber, clay to provide essential goods to a great number of customers. Participation of the informal waste collectors and recyclers need to be encouraged with financial or technical support from the city government.

11.12 SEGREGATION OF SOLID WASTE AT SOURCE

The segregation of solid waste at the source is important for effective disposal and treatment. It is recommended to utilize, different types of colour-coded containers which shall be provided at the source for depositing items of different nature (see **Figure 11.7** below).



Figure 11-7: Waste bins for Municipal Waste Segregation at source

The recyclables shall be collected and transferred to the centralized facility for subsequent processing/treatment or disposal that involve sorting, segregation and processing such as; reuse, recovery and recycling, etc.

Hospitals and Industries are important sites for the generation of hazardous waste. Each hospital and industrial unit have its profile for the generation and transportation of waste according to its location. It is extremely important to properly segregate hospital and industrial generated waste at source into recyclables, Hazardous (if any), and organic waste to avoid health and environmental risks. The segregated solid waste from industry and hospital should be stored in a multi-chambered container placed in a nearby location.

11.13 COLLECTION OF SOLID WASTE

Domestic and Biological Waste

A curbside collection system has been proposed for domestic and biological waste in Faisalabad. In this system, a container is placed on the curb or in the alley at the corner or centre of streets for the collection of solid waste. The overall curbside locations of waste bins for the Faisalabad solid waste collection system are shown in the **Figure 11.8** below.

11.13.1 Industries and Hospitals

Hauled Container System (HCS) is a collection system of solid waste in which the containers used for the storage of waste are hauled to the processing, transfer, or disposal site, emptied, and returned to either their original location or some other location. Swap Container HCS System is proposed for the collection of solid waste from industries and hospitals in Faisalabad (adapted from McCreanor, 2008) as illustrated in **Figure 11.9**. In this system, the service vehicle arrives at a service location with an empty container. It replaces the used container with the empty one and then hauls the used one to the disposal site.

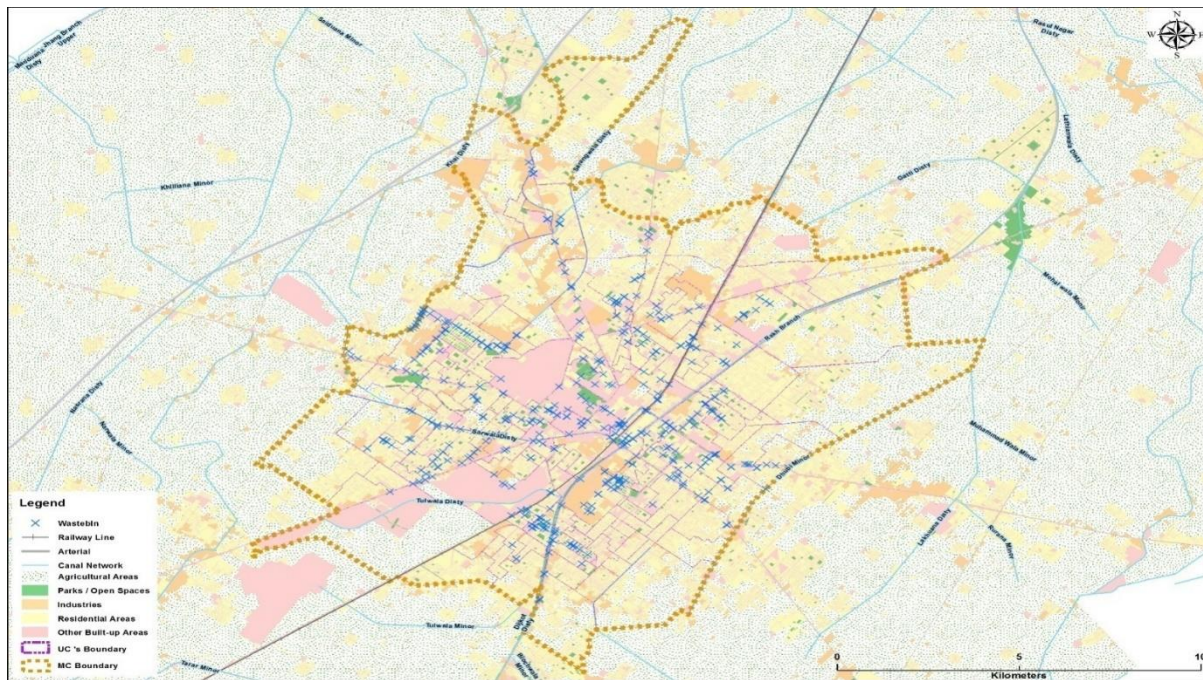


Figure 11-8: Overall Waste Collection Bins Locations in Faisalabad Solid Waste Management Plan

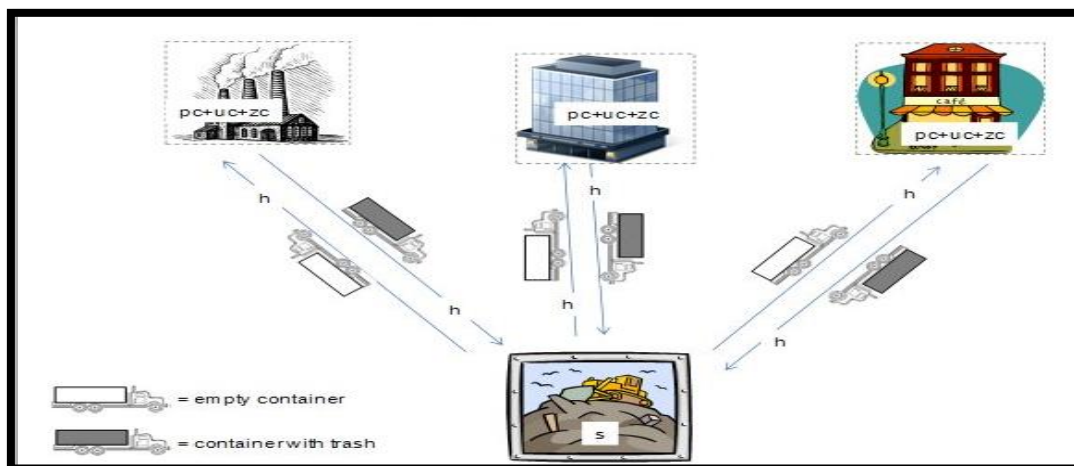


Figure 11-9: The Proposed Swap HCS System (Source: McCrea nor (2008))
11.13.2 Collection Vehicles

A garbage truck or dustcart refers to a truck specially designed to collect municipal solid waste and haul the collected industrial and hospital waste to a solid waste collection or treatment facility such as a transfer station and landfill. Collection vehicles should be selected based on the following considerations:

- Select vehicles which use the minimum amount of energy and technical complexity necessary to collect the targeted materials efficiently. High energy prices and vehicles that are difficult to repair will raise the cost of collection.
- Choose locally made equipment, traditional vehicle design and local expertise whenever possible. Internationally made are either not appropriate or do not work well in the local climate and break down after only a few months of service.
- Identify and select equipment that can be locally serviced and repaired and for which parts are available locally.

11.14 SANITATION OF GARBAGE AT SOURCE

The collection of garbage at the source and transporting it to the destination site is always a problem for people living along the route. To deter objections and prevent danger to the health of the people living in the community, the garbage truck is sprayed with deodorizer/sanitiser before leaving the area. The sprayed deodorizer is biological and contains beneficial microbes. The crew of the dump truck in its daily collection routine will conduct this operation.

11.15 TRANSFER STATION

Transfer stations are intermediate places where solid wastes are deposited and stored until transported to the final disposal site. However, they are not given due consideration in the existing solid waste management system of Faisalabad. The transfer station is provided for maximization of recovery, segregation and re-utilization options, such as; reuse, recycling, processing and treatment of municipal, industrial and hospital wastes and for bio-treatment and incineration of wastes before final disposal of solid waste. The primary reason for using a transfer station is to reduce the cost of transporting waste to disposal facilities. Consolidating smaller loads from collection vehicles into larger transfer vehicles reduces hauling costs by enabling collection crews to spend less time travelling to and from distant disposal sites and more time collecting waste. This also reduces fuel consumption and collection vehicle maintenance costs, plus produces less overall traffic, air emissions, and road wear. In addition, a transfer station also provides:

- An opportunity to screen waste before disposal
- Flexibility in selecting waste disposal options
- An opportunity to serve as a convention centre for public use

In general, it is best to build a facility to accommodate present and projected maximum volumes and peak flows, with a preplanned footprint for facility expansion. A useful exercise is calculating how much tipping floor space a facility would require to store a full day's waste in case of extreme emergency. One approach to estimating the required tipping floor space is, to begin with, a base area of 4,000 square feet and add to it 20 square feet for each ton of waste received in a day (assuming the waste will be temporarily piled 6 feet high on the tipping floor). For example, if the facility receives a portion of 1600 tons of waste per day (as the existing case with Faisalabad), a tipping floor space of 36,000 square feet would be required (i.e., $4,000 \text{ ft}^2 + (1600 \text{ TPD} \times 20 \text{ ft}^2 / \text{ton}) = 36000 \text{ ft}^2$). Due to the unavailability of space in one place, multiple transfer stations can be proposed and constructed.

The method used to handle waste at the transfer station from the time it is unloaded by collection vehicles until it leaves the site is central to any transfer station's design. In the simplest cases, waste from collection vehicles is unloaded directly into the transfer container or vehicle. As this eliminates opportunities to inspect or sort the material, other floor tipping methods are more common, as depicted in **Figure 11.10 to Figure 11.12**. The main components or functional areas of the proposed Transfer Station are the Material Recovery Facility (MRF) and Incinerator. Due to the current practices of solid waste disposal at the source, segregation has to be done also in MRF. The minor components of the transfer station include;

- Weighbridge;
- Waste Receiving Area;
- Storage Area; and
- Workshop.

11.16 MATERIAL RECOVERY FACILITY (MRF)

The installed system will address the needs of established MRF to process collected garbage by segregating inorganic waste and processing bio-waste into an environment-friendly fertilizer. The major operations at MRF include;

Secondary Segregation of Garbage Waste:

Reduction of garbage waste is the purpose of this component. The source segregated garbage still contains recyclables and bio-waste. The process of segregation is done as follows:

1. The holding bin received garbage from the truck.
2. The flatbed conveyor slowly conveys the garbage to the place receptacle of the power grinder machine. While moving slowly, segregation separates recyclables assigned to each of them respectively and place them in special boxes for papers, glass, metals, plastic, cardboard, and others. The flatbed conveyor is also provided with a magnet or metal separators to screen metals before reaching the power grinder. Selected recyclables go to the storage area through a conveyor and are packed for disposal to junk market outlets (refer **Figures 11.10 to 11.12**).



Figure 11-10: Tipping Floor Technology



Figure 11-11: Surge Pit Technology

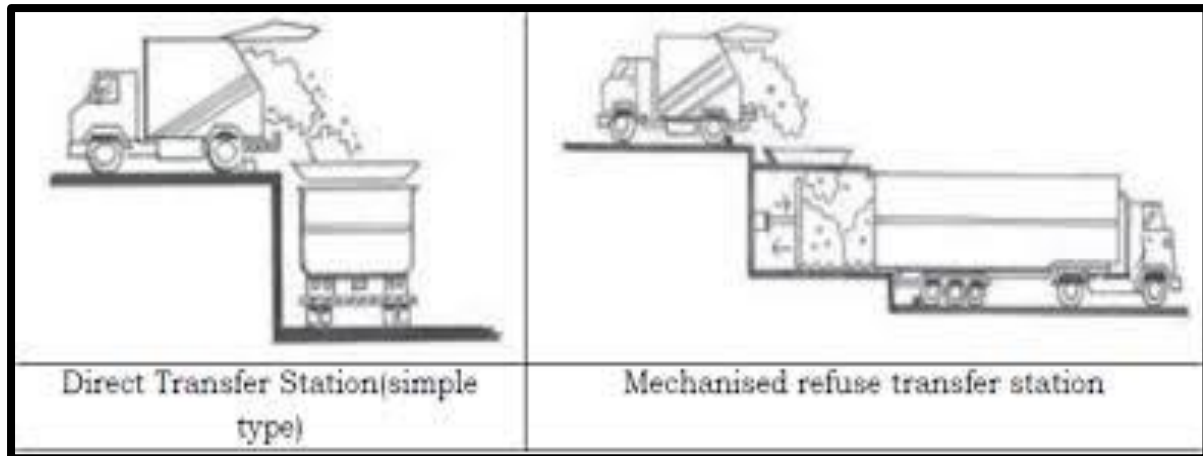


Figure 11-12: Direct Dump into Transfer Vehicle Technology

Grinding and Squeezing of Bio-waste:

Segregated bio-waste goes to the power grinder machine through an uptake screw conveyor. Attached to the conveyor are the special gadgets designed for a specific purpose. The first gadget holds the bio-inoculants that sprinkle the waste materials as it drops to the power grinder. The second gadget holds the solid activator and nutrient-rich additives are mixed with the waste material as it goes to the power grinder where it is mechanically reduced granules. Granulated bio-waste goes to the squeezer/hydrator machine through a screw conveyor where the moisture content of the material is reduced to 35% moisture content. A separate receptacle collects the squeezed liquid. This can be used as fertilizer for grass and lawn greening projects.

The Maturation and Curing Stage:

The processed fertilizer goes to the composition bin via an uptake screw conveyor. The composting bin rotates at the rate of 15 RPM. Maturation is completed after 24 hours, harvested and packed in a 25 kilos polybag with a moisture content of 28-30%.

Utilization and Application of Organic Fertilizer:

Organic fertilizer produced by the MRF shall be utilized as substrate placed in discarded or used poly bags. The substrate is enriched with coco coir dust at the ratio of 50% organic fertilizer, 20% coir dust and 30% garden soil.

Recyclables:

The recyclables will be temporarily stored in the MRF and shall be sold to the junk shops or accredited hauliers. Recyclable materials can be collected at a specific schedule (twice a month or depending on quantity) and be deposited at the MRF. This facility will be established in an area easily accessible to the public. At this stage, people could also dispose of the recyclable and high-value waste during MRF office hours. A different access road will be used by garbage trucks.

Residual Waste collected regularly will also be inspected for recyclable materials. Waste sorting will be done in the facility. Recyclable materials like cans, plastic containers and high-value waste which comprise 37% of the total amount of waste generated will be reduced to the amount of waste transferred and could be sold for additional income. Volunteers will also be accommodated for the manpower requirement of the sorting and recovery of recyclable materials to facilitate the MRF.

In the meantime, the municipality has no existing MRF facility. To start up the implementation, while waiting for the MRF to be established recyclable waste that could be segregated from

the garbage collection and the segregation bins will be sold (on a small-scale basis) at junk shops for extra income. This could be divided into those who volunteered to conduct the segregation.

11.17 INCINERATION

Incineration is a disposal method that involves the combustion of hazardous waste material. Incineration and other high-temperature waste treatment systems are sometimes described as "thermal treatment". Incinerators (refer **Figure 11.13**) convert hazardous solid waste materials into heat, gas, steam, and ash.

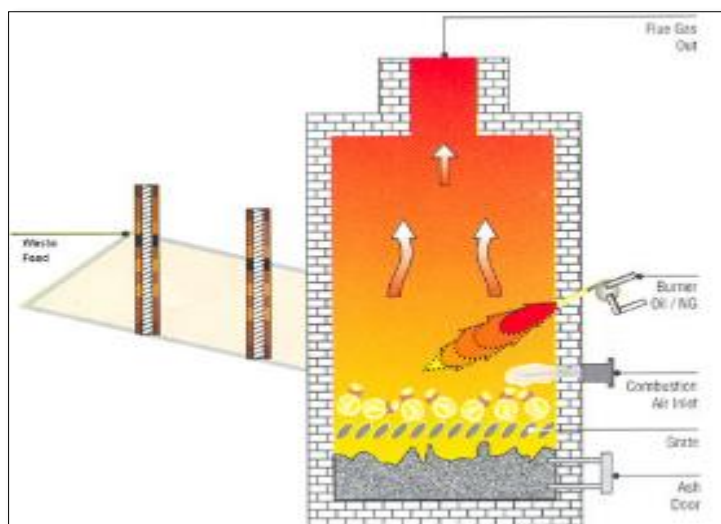


Figure 11-13: Design of Incinerator

Incineration is carried out both on a small scale by individuals and on a large scale by industry. It is used to dispose of solid, liquid and gaseous waste. Despite the criticism, it is recognized as a pragmatic method of disposing of certain hazardous waste materials (such as biological medical waste). Incineration is a controversial method of waste disposal, due to issues such as the emission of gaseous pollutants.

11.18 DISPOSAL AND TREATMENT

Faisalabad Waste Management Company (FWMC) intends to construct a sanitary landfill site at Lakhuana, Faisalabad to improve the existing situation of the environment, sanitary issues and to utilize the waste generated efficiently and sustainably. The waste residue after segregation and recovery may be disposed of in landfill sites. It is to be understood that within the landfill there may be different sections allocated for different types of wastes to facilitate landfill waste management plans for leachate and gas production that are likely to go on with the landfill development phase. It is estimated that organic or non-industrial waste after implementing and practising waste segregation and recovery that will promote processing of waste and predisposal treatment through organic composting shall not yield much or considerable residual waste remaining for landfill. The waste from the transfer station will be sent to the Landfill site proposed for Faisalabad city.

The site has a total area of 150 acres, which will be constructed on vacant government land near the Khurrianwala-Makuana site and at a distance of 19 km from the city Centre. The land belongs to the Government of Faisalabad and is allocated for the development of sanitary landfills and waste processing facilities. The landfill area is located at Lakhuana, 73.23° E and 31.40° and is linked with Jaranwala Khurrianwala road via 6 ft wide and 1.7 km length unpaved dirt road. **Figure 11.14** shows the location of Lakhuana Landfill site.

The proposed landfill shall comprise of the following components;

- i. Access Road.
- ii. Weighing Bridge.
- iii. Administrative Building.
- iv. Workshop.
- v. Wheel Washing Unit.
- vi. Water Reservoir.
- vii. Septic Tank.
- viii. Segregation of MSW.
- ix. Compositing Unit/ Refuse Derived Fuel (RDF).
- x. Landfill Lots.
- xi. Leachate and Gas collection systems.
- xii. Leachate treatment facility.
- xiii. Gas recovery system.
- xiv. Monitoring wells.
- xv. Surface Runoff Management System; and
- xvi. Fire Fighting System

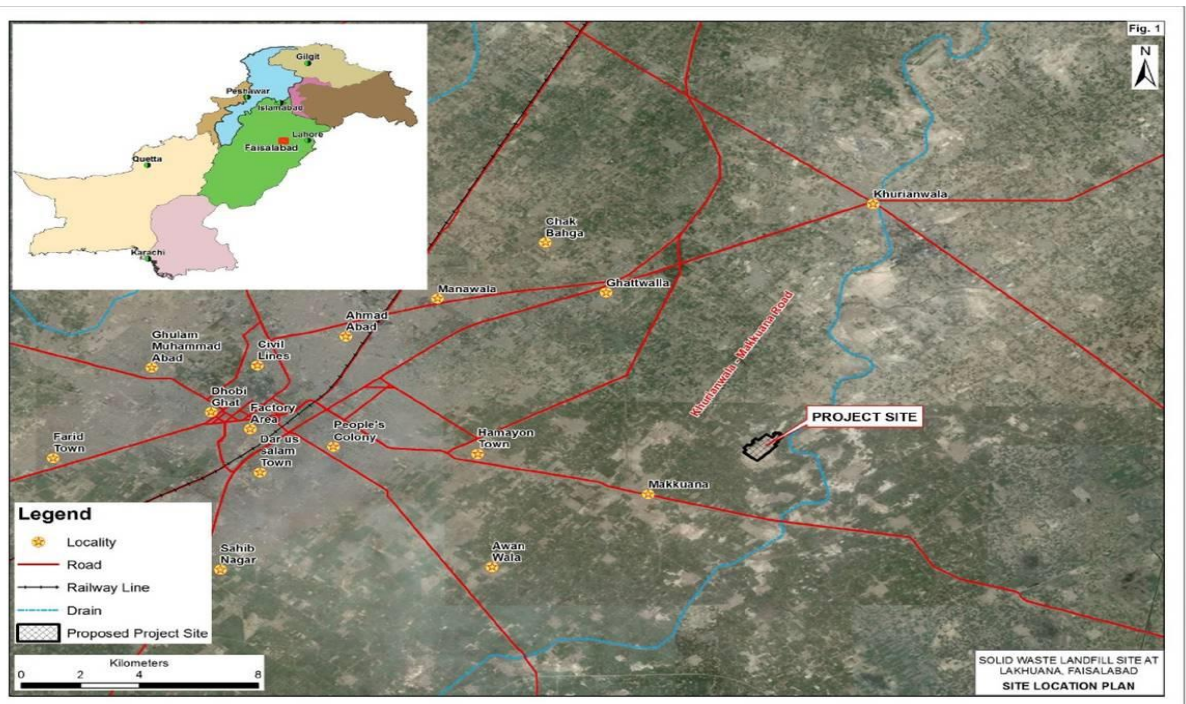


Figure 11-14: Location of Lakhuana Landfill Site

11.19 SALIENT FEATURES OF PROPOSED LANDFILL SITE

- The sanitary landfill site will be constructed on vacant government land near the Khurrianwala-Makhuana site.
- Net 32.6 ha of the total 60.7 ha project area is allocated for sanitary landfill area.
- The Sanitary landfill area is planned to consist of 6 lots. The average lot size is 5.43 ha.
- The design life of the landfill has been proposed for 25 years.
- The growth rate of Faisalabad City is 2.06% per annum.
- According to the Draft Guideline for Solid Waste Management by EPA, 2005; for cities to be relatively clean, at least 75% of generated waste should be collected. In the case of Faisalabad Landfill site Lakhuana, 80% of the generated waste will be collected.
- A solid waste characterization study of Faisalabad, 2010 reveals that 56.64% of collected solid waste is organic.
- Waste Density of Solid Waste for compacted waste in landfills is adopted as 1ton/m³.

12. PUBLIC UTILITIES

12.1 INTRODUCTION

The rapid growth of the population in Faisalabad has made it difficult to provide the infrastructure development and water resource development necessary to secure adequate quantities of water. As of 2015, only 60% of the households in the current service area of the city have access to municipal water supply from the Water and Sanitation Agency, Faisalabad (WASA-F). The sewerage coverage ratio in the current service area was only about 73% in 2015. This low ratio has led to chronically unsanitary conditions in the areas without sewerage and causes maintenance issues in the areas with sewerage drains.

In this context, the Government of Pakistan (GOP) requested the Government of Japan (GOJ) to support the establishment of a long-term plan for appropriate water resource development, facility investment suited to the urban planning in place, the proper maintenance of existing facilities, increased water and sewerage revenue, improved financial performance, and the sustainable operation of water supply and sewerage services. The study area of the JICA Master Plan is the Peri-Urban structure plan boundary after conducting pilot projects for purpose of testing and verifying service area of 251 sq. /km is selected which covers Municipal Corporation limits. In the future areas beyond MC limits is served by an extension of JICA master plan provided services.

The main objectives of the study are to develop an integrated Master Plan for water supply, sewerage and drainage in Faisalabad City (hereinafter referred to as "Master Plan" or "M/P") and to enhance the institutional capacity for implementation of the M/P. The location of the Project for Water Supply, Sewerage and Drainage Master Plan of Faisalabad (hereinafter referred to as "Project") area is shown in the Location Map of the Project at the top of this Executive Summary. **Figure 12.1** shows the location of pilot area.

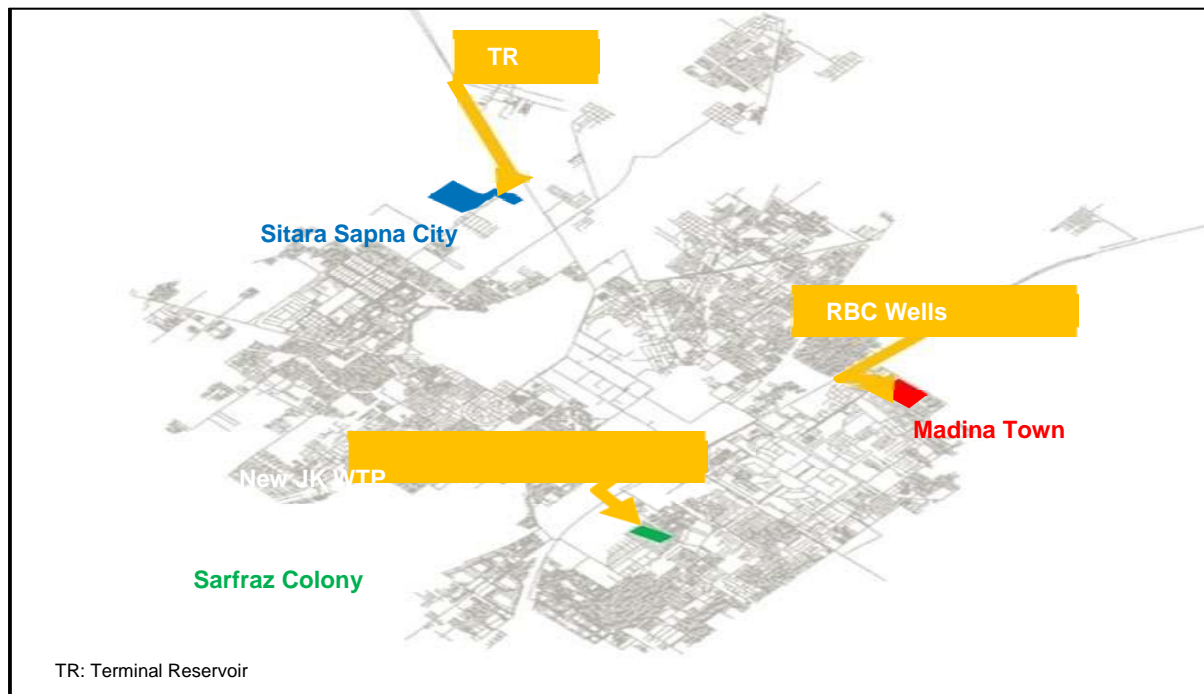
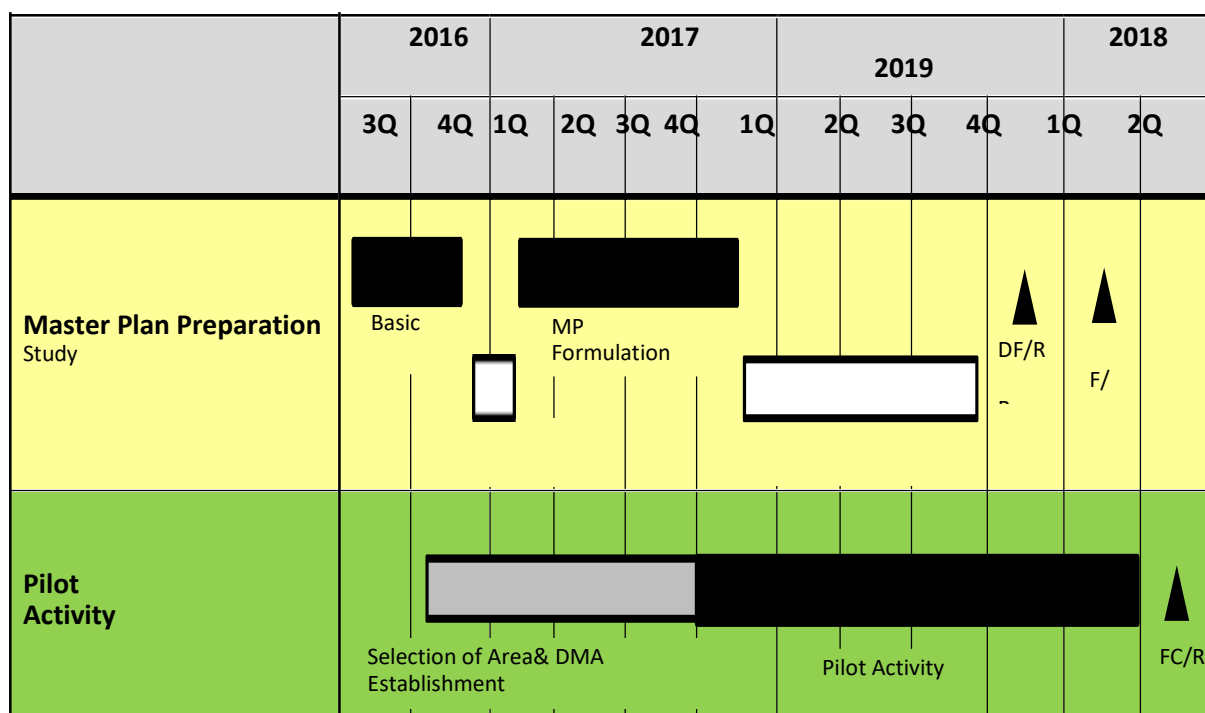


Figure 12-1: Locations of Pilot Areas

The M/P formulated in the Project will have to be verified by pilot activities to ensure that it will remain useful in the future. Pilot activities have been carried out in three (3) areas to test and verify whether the plans and assumptions included in the M/P are realistic: Sarfraz Colony, Madina Town, and Sitara Sapna City. **Figure 12.2** shows the project schedule.



DF/R: Draft Final Report, F/R: Final Report, FC/R: Final Completion Report

Source: JICA Mission Team

Figure 12-2: Project Schedule

12.2 CURRENT ISSUES IN WATER SERVICES

The actual conditions of WASA-F's operation for waterworks, sewerage/drainage works, and financial conditions are summarized in **Tables 12.1 to 12.3** below..

Table 12-1: Outline of WASA-F Water Supply Works in 2015

| Category | Item | | Quantity |
|---|--|-------------------------------|--------------------------------|
| Outline of the water supply works of WASA-F | Total number of households in Faisalabad City | | 400,000 |
| | Total number of households in the WASA-F Service Area | | 250,000 |
| | Total number of connections in the WASA-F Service Area | | 113,000 |
| | Water supply time | | 6 hours (2 hours x 3 times) |
| | Water intake volume (m ³ /day) | Groundwater (Design) | 427,000 |
| | | (Actual) | 209,000 |
| | Surface water (Design) | (Design) | 73,000 |
| | | (Actual) | 31,000 |
| | Water supply volume (m ³ /day) | Total (Design) | 500,000 |
| | | (Actual) | 240,000 |
| | Water treatment volume (m ³ /day) | Only disinfection (Design) | 427,000 |
| | | (Actual) | 209,000 |
| | | Slow sand filtration (Design) | 28,000 |
| | | (Actual) | 11,000 |
| | Rapid sand filtration (Design) | (Design) | 45,000 |
| | | (Actual) | 20,000 |
| | Number of Tube wells | Chenab Well-field | 25 |

| Category | Item | | Quantity |
|---|-------------------------|--|----------|
| Outline of WASA-F water supply facilities | | JBC Well-field | 25 |
| | | RBC Well-field | 28 |
| | Pumping stations | Chenab line 16-32 Cusec | 7 |
| | | Booster | 10 |
| | | JBC line 15-37 Cusec | 4 |
| | | Distribution | 5 |
| | Number of WTPs | Slow sand filtration 1.5-2.8 MGD | 3 |
| | | Rapid sand filtration 10 MGD | 1 |
| | Distribution pipes (km) | Arterial main 400 mm-1,600 mm | 101 |
| | | Secondary & tertiary line 75 mm-300 mm | 1309 |
| | Reservoirs | Ground Reservoirs (GRs) | 33 |
| | | Overhead Reservoirs (OHRs) | 42 |

Source: JICA Mission Team

Table 12-2: Outline of WASA-F Sewerage/Drainage Works

| Category | Item | | Quantity |
|--|--|----------------------------|--------------|
| Outline of WASA-F sewerage/drainage works | Total number of connections in the WASA-F Service Area | | 246,000 |
| | Wastewater collection volume (m ³ /day) | | |
| | (West) | | 680,000 |
| | (East) | | 378,000 |
| Outline of WASA-F sewerage/drainage facilities | Wastewater treatment volume of WWTPs (m ³ /day) | | |
| | (Design) | | 90,000 |
| | (Actual) | | 47,000 |
| | Collection system: Separate system, in principle | | |
| Outline of WASA-F sewerage/drainage facilities | Sewer system | Trunk sewers 500-2,250 mm | 193 km |
| | | Branch sewers 225-450 mm | 1,579 km |
| | Pumping Stations | Lift pumping stations | 14 |
| | | Disposal pumping stations | 18 |
| | Wastewater Treatment Plant | 90,000 m ³ /day | 1 |
| | Drainage Channels | Bed width: 1,275-3,300 mm | 7 (53,290 m) |
| | | Open channel | |

Source: JICA Mission Team

Table 12-3: Outline of WASA-F's Financial Condition

| Category | Item | | Quantity |
|---|-------------------------------|-------------------------|------------------------|
| Outline of WASA-F's financial condition | Tariff System | Domestic | Flat rate |
| | | Industry & Commercial | Flat-rate & meter-rate |
| | Bill collection ratio | Domestic | 28% at 2015 |
| | | Industry & Commercial | 75 – 80% |
| | Budget (2015-2016) | Total receipt | 3,943.236 Million PKR |
| | | Total expenditure | 3,941.236 Million PKR |
| | Operation Receipt (2015-2016) | Total | 2,079.622 Million PKR |
| | | Water & Sewerage Tariff | 840.000 Million PKR |

Source: JICA Mission Team

The location maps of existing water supply and sewerage/drainage facilities are shown in 12.3 and **Figure 12.4** below:

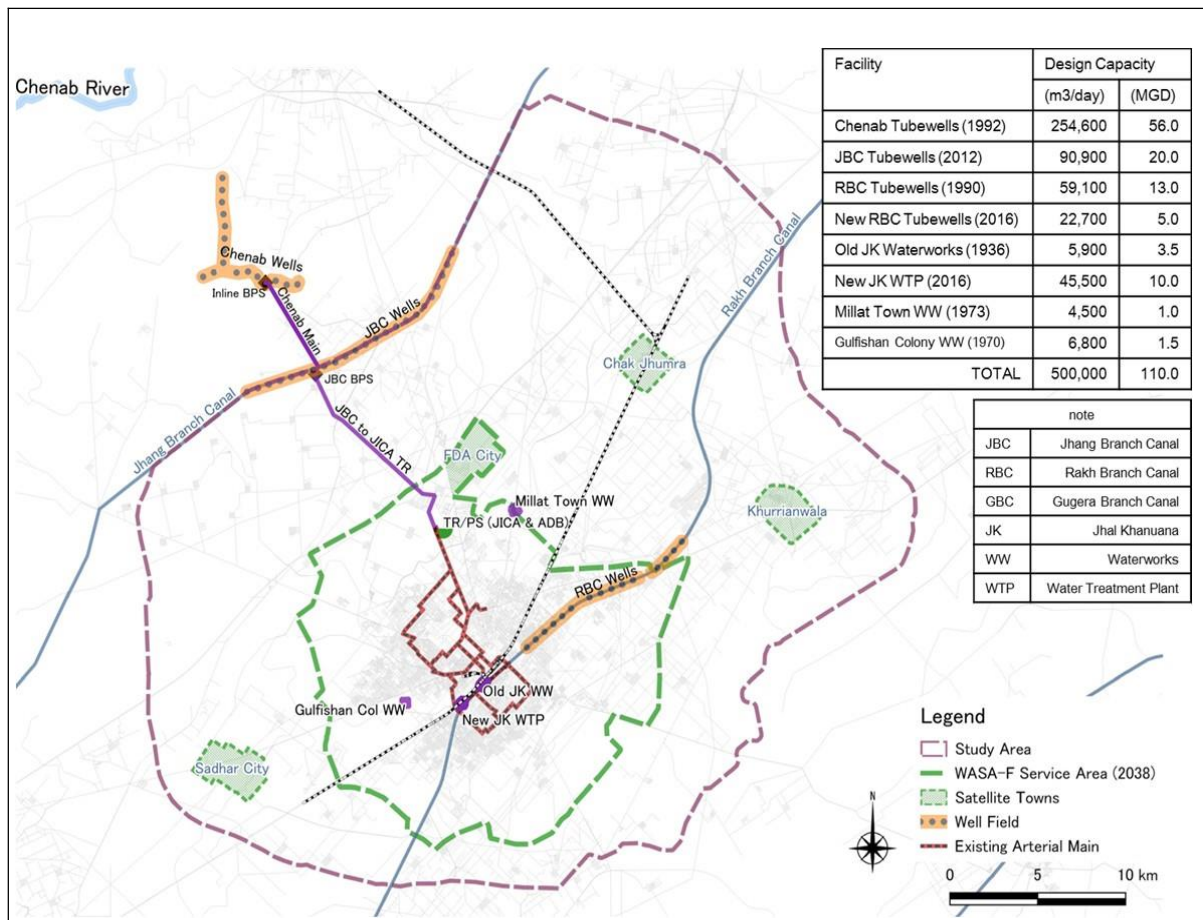


Figure 12-3: Location Map of Existing Water Supply Facilities

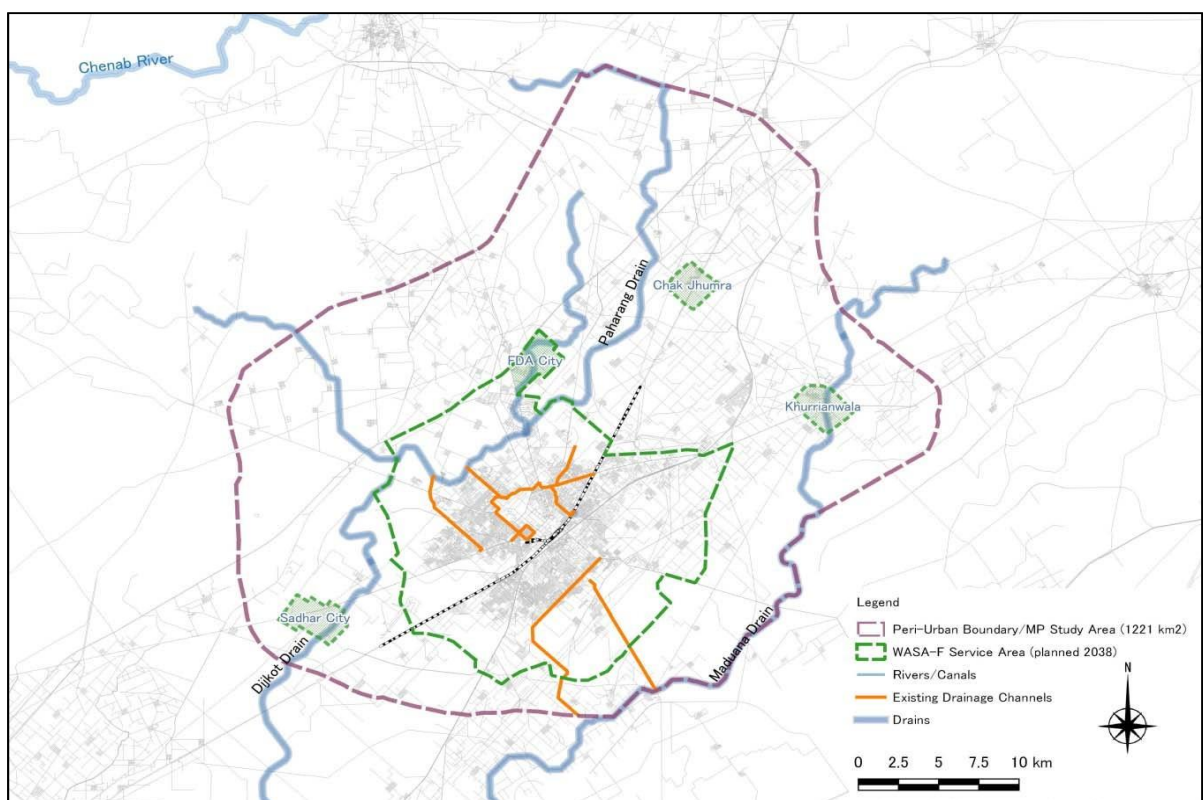


Figure 12-4: Existing Sewerage and Drainage Facilities (Source: JICA Mission Team)

12.3 CONDITIONS FOR PLANNING

12.3.1 Planning Background

The Faisalabad Development Authority (FDA) is responsible for regulating, supervising, and implementing development activities over a service area of almost 1,300 km². WASA-F is currently responsible for providing water supply, sewerage, and drainage services work under the administrative control of the FDA. WASA-F currently provides services to a limited city area under FDA, with plans to expand its services in the future. In a previous JICA survey, the Detailed Planning Survey on the Project for Updating the Water Supply Sewerage and Drainage Master Plan of Faisalabad City (2015), the survey area discussed for this M/P was defined by either the FDA boundary or Peri-Urban boundary. As the current basis for the urban development in Faisalabad City, the survey area for this study was defined as the area within the Peri-Urban boundary.

12.3.2 Considerations in Planning

To achieve the target set under the Master Plan, the following issues need to be considered:

Water Rights:

WASA-F proposes intake from irrigation canals as a future water source and discharge of treated wastewater in return. This idea of a trade-off or reciprocity requires further discussion and mutual understanding between WASA-F and the Irrigation Dept. (e.g., the development time frames for the water supply system and sewerage system differ.)

Canal Closure:

Coordination with the Irrigation Dept. to avoid multiple canals closures at the same time and to shorten the closure periods. Construction of a raw water reservoir with adequate capacity to reserve water during canal closure is recommended. The connection between the WSZs to share water to minimize water shortage areas by diverting excess water to shortage zones.

Industrial Wastewater:

Enforcement of the regulations on industrial wastewater management and monitoring to ensure compliance.

- The commitment of politicians and the industrial sector is important.
- Cross-sectoral industrial wastewater management unit to be established.
- The roles and responsibilities of relevant institutions must be clearly defined.

12.3.3 Future Development Plans

The area to become WASA-F's future service area in this M/P was set in consideration of population data from the bureau of statistics in GOPb, survey results on water supply conditions, and discussions with WASA-F. Once the target year of 2038 is reached, the service area will encompass the following urban areas, including FDA City and three remote towns (satellite cities), namely, Chak Jhumra, Khurrianwala, and Sadhar City. The map showing the future development areas is attached in **Figure 12.5** below.

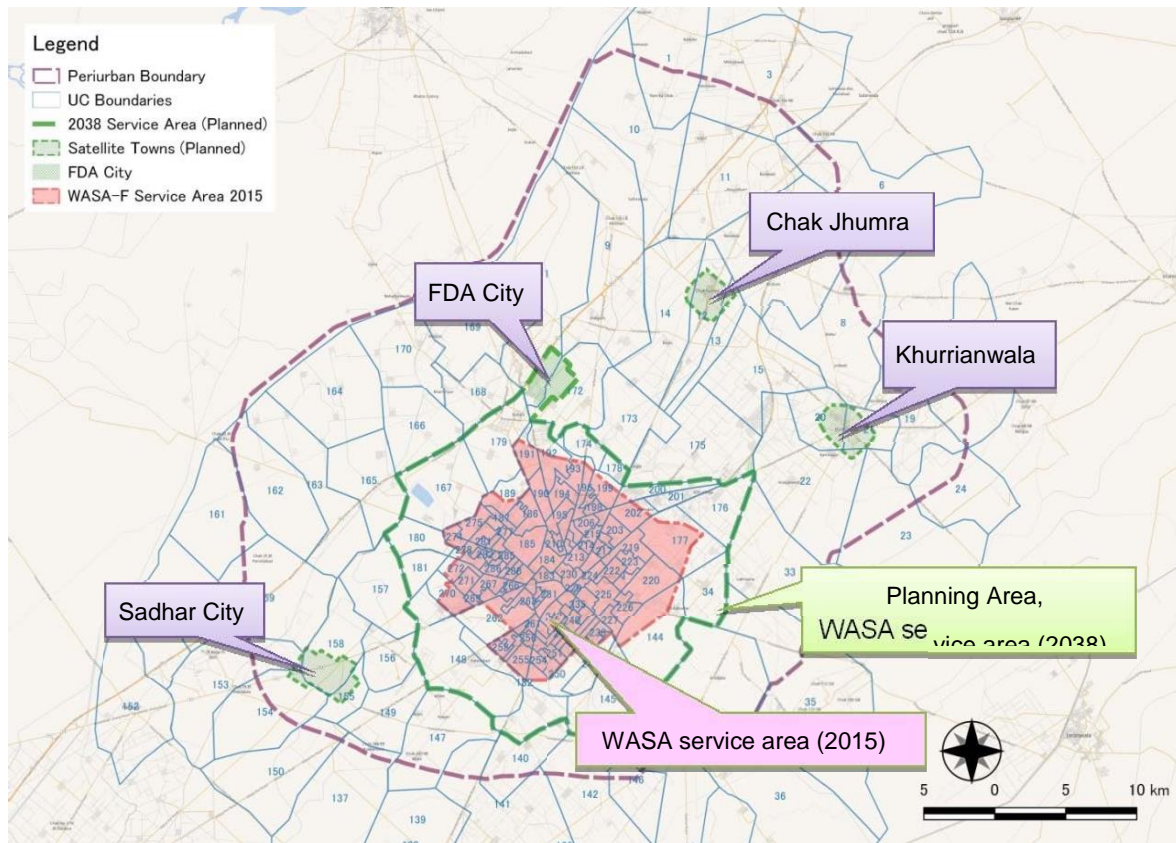


Figure 12-5: Future Development Areas (Source: JICA Mission Team)

12.4 OBJECTIVES AND GOALS

Water Supply:

WASA-F is currently pressed to develop water supply infrastructure to cope with a growing urban population and industrial expansion. In practice, however, water with pressure is supplied for only six hours a day. Water supply services provided for customers are not improving, which is leading to low customer satisfaction and a poor bill collection rate. As a consequence, WASA-F's financial conditions are deteriorating, which feeds a vicious cycle that must be remedied without fail in the future. One idea for shifting to a virtuous cycle through WASA-F's business operations is illustrated in the Figure 12.6 below.

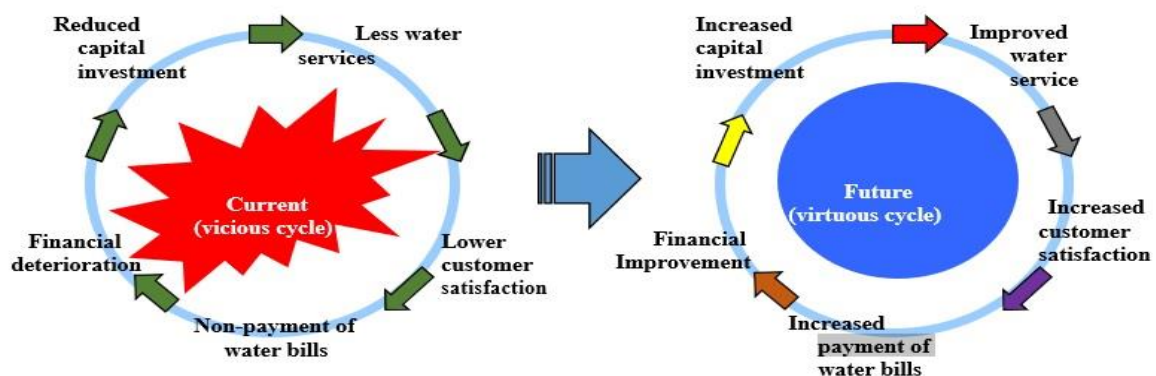


Figure 12-6: Idea for Shifting to a Virtuous Cycle through WASA-F's Business Operations

To improve the above-mentioned situation, the M/P will deliberate on technical and management issues to enhance water supply services, particularly in terms of the supply water quantity (a duration of water supply), water pressure, and water quality. It aims at increasing customer satisfaction and willingness to pay. Furthermore, the M/P will restructure the water supply system to achieve optimal efficiency and energy conservation, which will enable financial conditions to improve. The ultimate objective is to plan self-supporting service management, i.e., sustainable business, for WASA-F, and strategic investment in development on a long-term basis. This Master Plan thus seeks to create a road map for a shift from a vicious to a virtuous cycle. Trials and demonstrations will also be scheduled as pilot activities to make the M/P a practical plan. The goal of the above is to provide 100% of the population in the urban area, including FDA City, with a high-level WASA-F water supply service, as shown in the **Table 12.4** below.

Table 12-4: Targetting the Water Supply Service in the WASA-F Service Area

| Parameter | 2015 | 2038 | Balance |
|--|-----------|-----------|------------|
| 1) Population in the service area | 2,428,904 | 4,146,110 | +1,717,206 |
| 2) Population served | 1,008,000 | 4,146,110 | +3,138,110 |
| 3) Water supply coverage in the service area | 42% | 100% | +58% |
| 4) Water supply amount (Daily Max. in m ³ /day) | 500,000 | 1,259,000 | 759,000 |
| 5) Water supply amount (Daily Max. in MGD) | 110 | 277 | 167 |
| 6) Operation Rate (Daily Max.) | 64% | 99% | +35% |

Note: Three satellite cities, Chak Jhumra, Khurrianwala, and Sadhar City, are excluded (each has a system of its own).

Sewerage:

The domestic and commercial wastewater generated in the urban area of Faisalabad is collected by the public sewerage system, but most are discharged to the Paharang Drain, Madhuana Drain, and drainage channels without any treatment. Most of the industrial wastewater is discharged to the sewerage system without any pre-treatment or to the drains without any treatment of any form. The heavily polluted water in the drains is discharged to Chenab River or Ravi River. Though hazardous for human health, some of the wastewater in the drains and drainage channels is used to irrigate farmlands near the drains.

To improve the present situation, the M/P will deliberate on technical and management issues to enhance sewerage services and industrial wastewater management, particularly in terms of service expansion, system efficiency, and wastewater quality. Sustainable water use and wastewater reuse are also important issues for the M/P, as the rapid urbanization and industrialization to come are expected to accelerate the water shortage and water pollution problems in the water-stressed area. The objectives set for sewerage development are therefore to improve the living environment in the urban areas of the Faisalabad district and contribute to sustainable wastewater use. Three specific goals to this end will be pursued: to increase the sewerage service population in the urban areas and satellite cities; to collect wastewater in the sewer system and treat all of it at wastewater treatment plants (that is, no wastewater is to be directly discharge to drainage channels or drains), and improve the sewerage system for that purpose to supply the treated wastewater to irrigation canals to return the water supplied by WASA-F.

Under the first goal, the population with access to the sewerage system is to be increased from 72% (in the current WASA-F service area) to 100% (in the total urban area, including FDA City and the two satellite cities) by the target year of 2038. The remaining 22% live in rural areas and are to use on-site sanitation facilities. Table 12.5 shows the target sewerage service population in the study area.

Table 12-5: Target Sewerage Service Population in the Study Area

| Parameter | 2015 | 2038 | Balance |
|--|-----------|------------|------------|
| 1) Population in the Study Area | 3,804,300 | 5,503,790 | +1,699,490 |
| 2) Population in the urban area (sewerage planning area) | 2,456,000 | *4,292,110 | +1,836,110 |
| 3) Population served by sewerage | 1,769,400 | *4,292,110 | +2,522,710 |
| 4) Population using on-site sanitation | 2,034,900 | 1,211,680 | -823,220 |
| 5) Population coverage by sewerage in the Study Area | 47% | 78% | +31% |
| 6) Population coverage by sewerage in the urban area | 72% | 100% | +28% |

Note: * Figures includes the population of 71,000 in the Satellite cities of Sadhar City and Khurrianwala

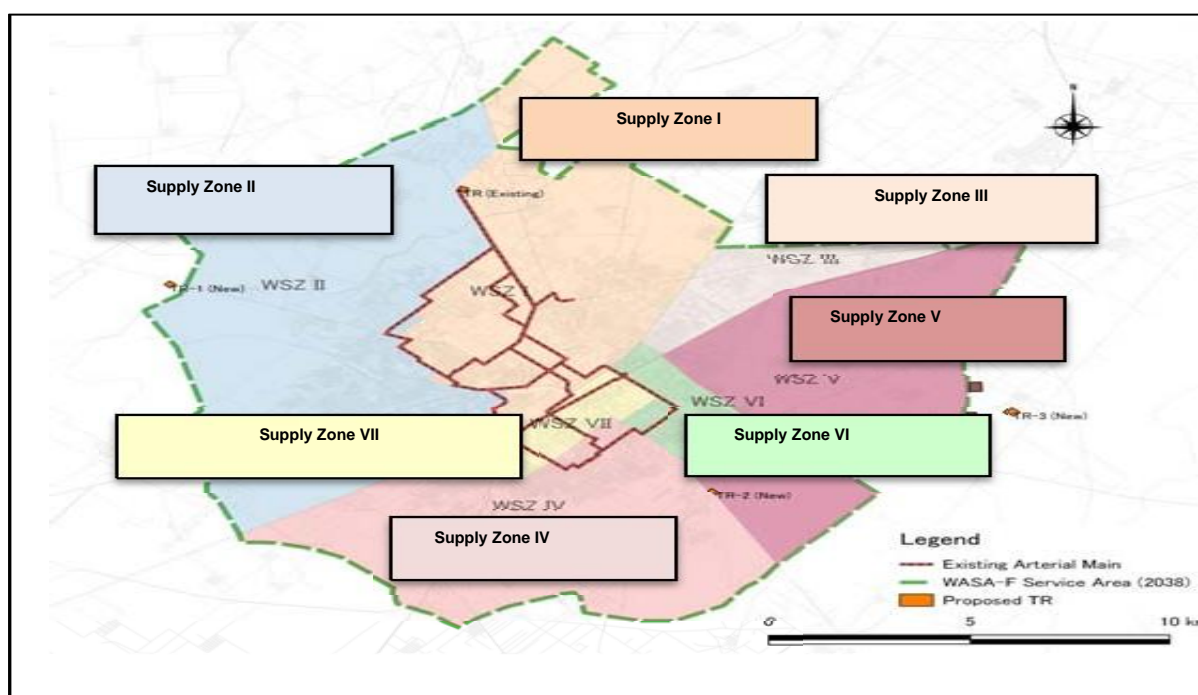
Goals are set to prepare sewerage plans by which to realize the second and third objectives.

Drainage:

Conventional drainage facilities planned by the rational methods would be large and require huge investment. The effects, on the other hand, would be either limited due to the low number of rainfall events annually or essentially unneeded given that the inundation causes little damage to the Faisalabad district beyond temporal nuisances (the inundation caused by stormwater may disrupt the flow of traffic or detract from the healthy living environment in the urban area in Faisalabad district). The objective of the drainage plan is therefore focused on mitigating the disadvantages caused by inundation. Goals are set in the drainage plan to formulate mitigation measures, albeit ones that can be executed at a low cost.

12.5 WATER SUPPLY PLANS

The entire WASA-F service area is to be divided into seven Water Supply Zones (WSZs), each of which is provided water from Water Treatment Plants (WTPs) or directly from good fields. Four WSZs have individual Terminal Reservoirs (TRs) that receive cleaned water from either WTPs or well-fields. A WSZ is independent and hydraulically isolated from adjacent supply zones. **Figure 12.7** below illustrates the proposed WSZs.


Figure 12-7: Proposed Water Supply Zones (Source: JICA Mission Team)

12.6 PRIORITY PROJECT

The existing Jhal Khanauana Water Works (JK WW) is currently operating with a slow sand filtration system that produces treated water at only 43% of the original capacity of 16,000 m³/day (3.5 MGD). The selected Priority Project includes the renewal of the JK WW into a rapid sand filtration system with a capacity increase to 45,400 m³/day (10 MGD), the construction of new DCs, and pipeline installations. The locations of the JK WW to be renewed, new DCs, pipelines, and phased development area of the Priority Project are shown in **Figure 12.8**.

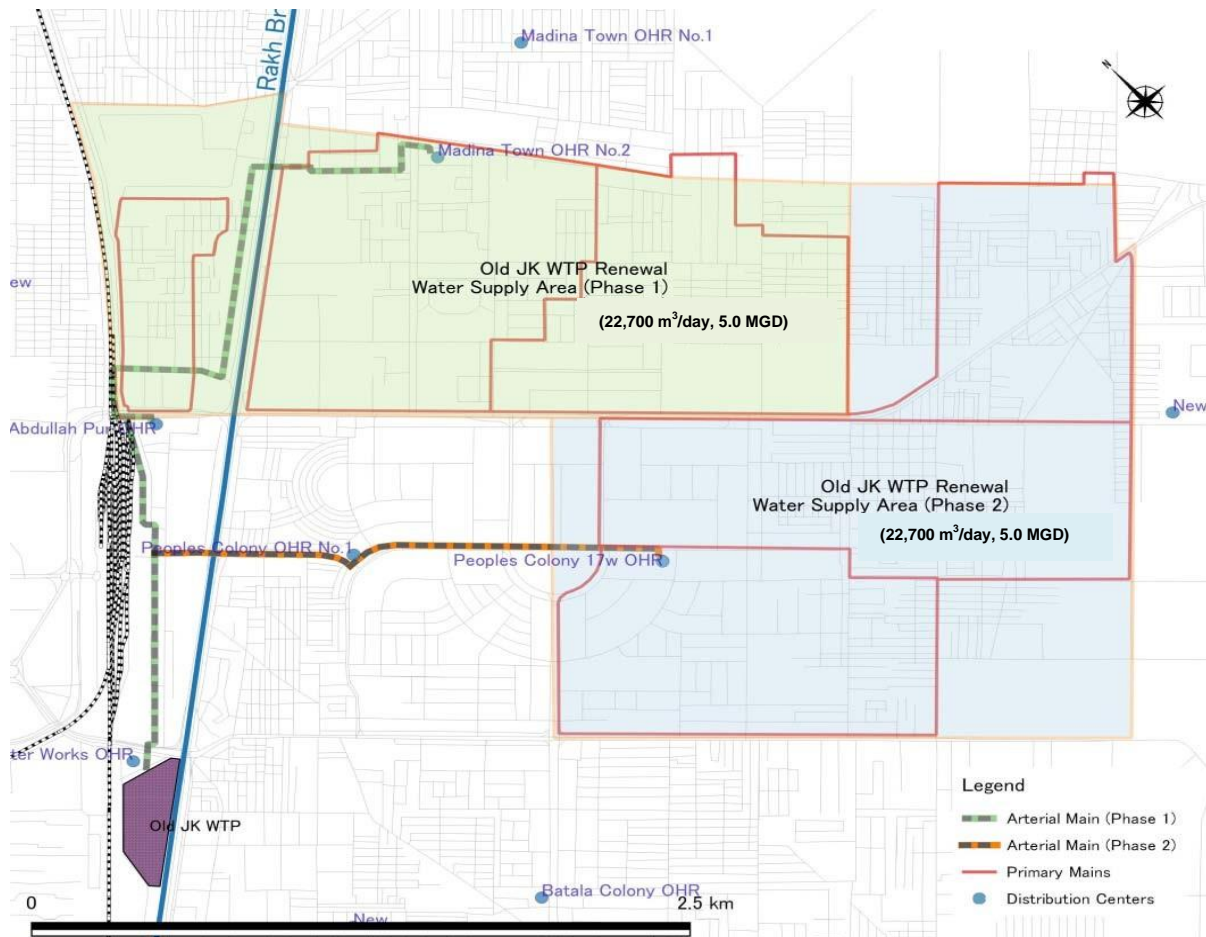


Figure 12-8: JK WW to be Renewed, New OHRs, Pipelines and Phased Development Area

The design criteria for water treatment is shown in **Table 12.6** underneath. **Figure 12.9** below shows the layout of renewal Jhal Khanuana WTP.

Table 12-6: Design Criteria for Water Treatment

| Category | Facility | Item | Criteria | Remark |
|--------------------|------------------------------|---------------------|--|--------------|
| General | Design Capacity | Production capacity | 45,400 m ³ /day | 10.0 MGD |
| Water Purification | Receiving/ Distribution tank | Pre-chlorination | 1 to 3 mg/l | |
| | | Pre-lime | 0 to 20 mg/l | |
| | Flash mixing tank | Aluminium Sulphate | 15 to 40 mg/l | Solid Alum |
| | Flocculation tank | Polymer dosage | 0.2 to 1.0 mg/l | |
| | Settling tank | Surface loading | < 0.8 m ³ /hr./m ² | Up flow rate |

| Category | Facility | Item | Criteria | Remark |
|-----------------|----------------------|-------------------|--|---|
| | Rapid sand filter | Backwashing | 0.5 m ³ /min/m ² | Air 6 min + air/water 2 min + water 8 min |
| | | Post-chlorination | 1 to 2 mg/l | |
| | Clearwater reservoir | Detention time | 2 hours | |
| | | Detention tank | | |
| Sludge Handling | Wastewater tank | Detention tank | | |
| | Drying bed | Average dry time | 1 to 3 months | |

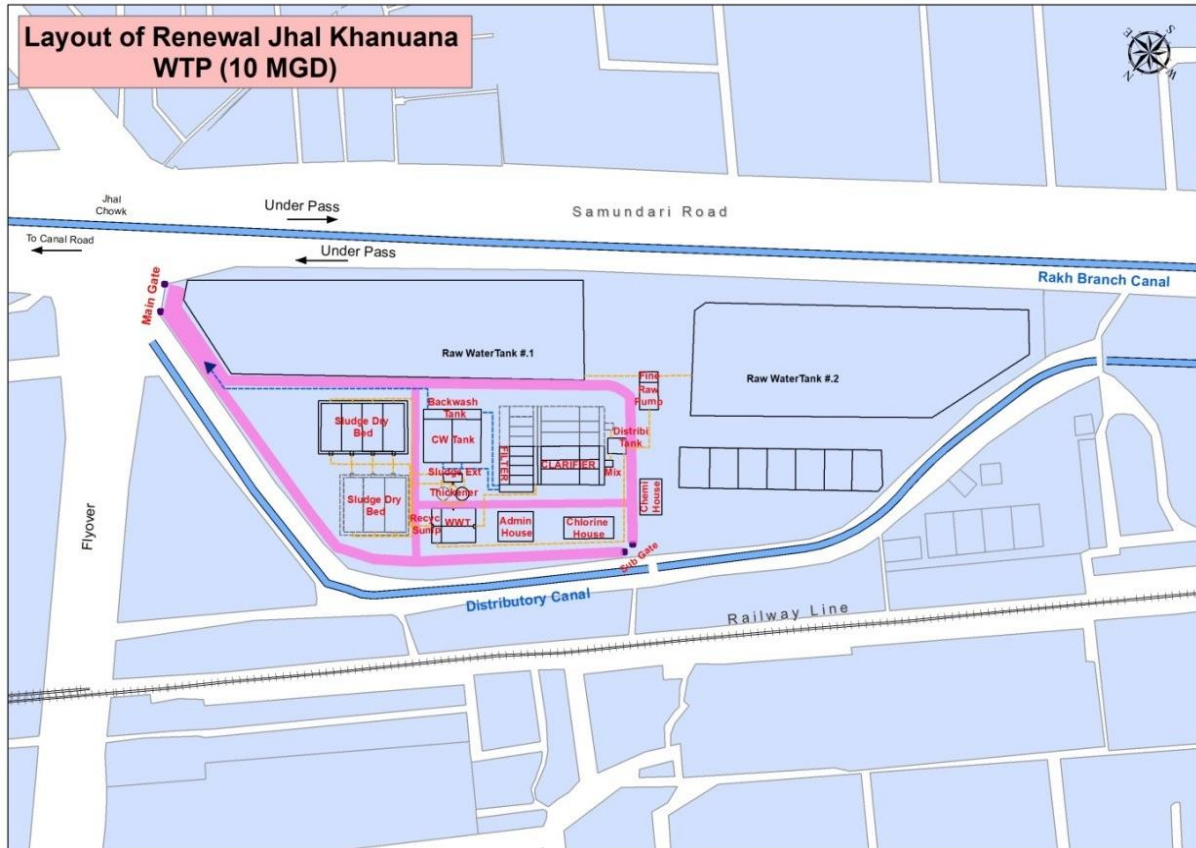


Figure 12-9: Layout of Renewal Jhal Khanuana WTP

12.7 SEWERAGE AND DRAINAGE PLANS

The **Table 12.7** shown below summarizes the respective areas (in km² and hectares) and their service populations in 2038.

Table 12-7: Sewerage Service Areas and Service Populations in the Study Area (2038)

| Zone | Service Area | Service Population in Urban Area | Service Population in Satellite City | Total Service Population | Total Population in the Study Area |
|--------------|---|----------------------------------|--------------------------------------|--------------------------|------------------------------------|
| Western SWD | 175.2975 km ² (17,530 ha) | *2,176,290 | 30,000 | 2,206,290 | - |
| Eastern SWD | 204.0677 km ² (20,407 ha) | 2,044,820 | 41,000 | 2,085,820 | - |
| Service Area | 379.3652 km ² (37,937 ha) | 4,221,110 | 71,000 | 4,292,110 | - |
| Study Area | 1,221 km ² (122,100 ha) | - | - | 4,292,110 | 5,503,790 |

Note: * Figures include those of FDA City of 75,000

Table 12.8 below summarises the design flow for the Western and Eastern SWDs, respectively. (Unit: m³/d)

Table 12-8: Design Average Flows (2038)

| WSD | Domestic WW in Urban Area | Non-Domestic WW in Urban Area | | | WW in Urban Area | Point Source* | Total WW | I/I of Groundwater | Ave. Flow | Design Ave. Flow |
|---------|---------------------------|-------------------------------|---------|---------|------------------|---------------|----------|--------------------|-----------|------------------|
| | | Comm. | Indus. | Total | | | | | | |
| Western | 289,980 | 39,790 | 68,170 | 107,960 | 397,940 | 15,160 | 413,100 | 20,650 | 433,750 | 433,800 |
| Eastern | 282,190 | 40,840 | 85,350 | 126,190 | 408,380 | 4,920 | 413,300 | 20,660 | 433,960 | 434,000 |
| Total | 572,170 | 107,960 | 153,520 | 234,150 | 806,320 | 20,080 | 826,400 | 41,310 | 867,710 | 867,800 |

Note: * FDA City, Sadhar City and Khurrianwala

The **Table 12.9** below outlines the sewerage facility plan and Figure 12.10 shows the general plan for the proposed sewerage facilities.

Table 12-9: Outline of the Sewerage Plan

| Parameter | | Western SWD | Eastern SWD |
|-----------|--|--|--|
| 1.1 | Service Area | 17,530 ha | 20,407 ha |
| 2.1 | Service Population by Project | 2,206,290 persons | 2,044,820 persons |
| 2.2 | Service Population by service | 126 persons/ha (=2,206,290/17,530) | 100 persons/ha (=2,044,820/20,407) |
| 2.3 | Service Population Increase by Project | 1,443,890 persons (=2,206,290-762,400) | 1,037,820 persons (=2,044,820-1,007,000) |
| 3. | Proposed Sewerage Facilities | 1) Trunk/Interceptor sewer: 450-2,700 mm, 42.57 km 2) Main sewer: 300-1,650 mm, 43.42 km, including existing sewer replacement 3) Branch sewer: 225 mm, 2,081.6 km 4) 6 lift stations, Rehabilitation 5) New influent pumping station: Coarse/Fine Screens, Grit chambers, Pumps (capacity 65 m ³ /min, total head 17.0 m, 2 units, capacity 130 m ³ /min, total Head 17.0 m, 4 units.) 6) Chokera WWTP improvement, Capacity 433,800 m ³ /d, UASB reactors, Facultative Ponds, Sludge Drying Beds. 7) Treated Wastewater Pumping and Transmission Facilities, Pumps (capacity 75.33 m ³ /min, total head 25.0 m, 5 units), Force Main: DCIP, Dia. 1,500 | 1) Trunk/Interceptor sewer: 600-2,700 mm, 66.79 km 2) Main sewer: 225-1,350 mm, 79.15 km, including existing sewer replacement 3) Branch sewer: 225 mm, 2,389.3 km 4) 3 lift stations, Rehabilitation 5) New influent pumping station: Coarse/Fine Screens, Grit chambers, Pumps (capacity 63 m ³ /min, total Head 30.0 m, 2 units, capacity 126 m ³ /min, total Head 30.0 m, 4 units). 6) New WWTP, Capacity 434,000 m ³ /d, Anaerobic Ponds, Facultative Ponds. 7) Treated Wastewater Pumping and Transmission Facilities, Pumps (capacity 75.33 m ³ /min, total head 22.0 m, 5 units), Force Main: DCIP, Dia. 1,500 mm, Length 12.3 km, 2 lines, Surge tank |
| 4.1 | Construction Cost | 109,855 Million PKR | 137,976 Million PKR |
| 4.2 | Project Cost | 150,987 Million PKR | 193,448 Million PKR |

| Parameter | | Western SWD | Eastern SWD |
|-----------|-------------------------------------|---|---|
| 4.3 | Project Cost per Service Population | 68,430 PKR/person (=150,987,000,000/2,206,2) | 94,600 PKR/person (=193,448,000,000/2,044,8) |

The most appropriate wastewater treatment process for both sewerage districts was selected by comparing three alternative wastewater treatment processes (Anaerobic Pond + Facultative Pond, UASB + Facultative Pond, and Anaerobic Pond + Trickling Filter + Polishing Pond) with a focus on technical aspects and the costs of construction, land acquisition, and O&M in present-day terms, applying discount rates of 7% and 9%. The details will be presented in Section 9.4 of Part C in the Main Report. The UASB + Facultative Pond process was selected for the improvement of the Chokera WWTP in the Western SWD. The Anaerobic Pond + Facultative Pond process was selected for the new East WWTP in the Eastern SWD.

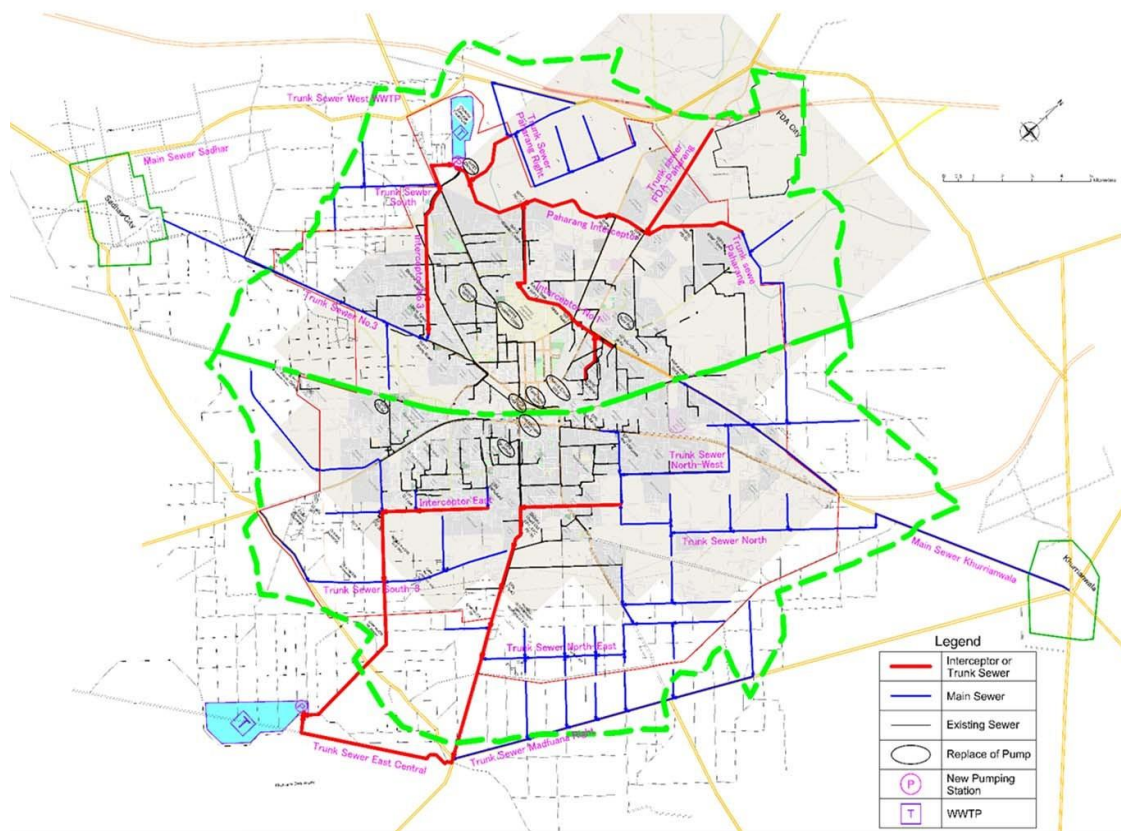


Figure 12-10: General Plan for the Sewerage System

12.8 DRAINAGE PLAN

Some of the existing branch sewers in Faisalabad receive part of the stormwater through the inlets of house connections within the full capacity of the sewers during the rainy season. In some cases, the stormwater in inundated areas is discharged to nearby sewers by mobile WASA-F pumps. In general, the inflow and infiltration (I/I) of stormwater and groundwater to sewers can not be protected completely in the separate sewer system. Volume reduction of the I/I of stormwater and groundwater is one of the big issues in the sewer O&M and cost in the separate sewer system. Therefore, the sewers in Faisalabad are to accept some part of the inflow of stormwater within the capacity allowance of the new trunk and interceptor sewers designed under dry weather flow conditions. To arrange for the acceptance of stormwater, diversion chambers are to be installed between the present inlet sewers to the disposal

pumping stations and the new trunk (interceptor) sewers. The diversion chamber has a weir to control the dry weather design flow to the interceptor sewer, while the overflow of wastewater and stormwater is discharged to the pumping station and finally pumped up to the open drainage channels or Paharang or Madhuana Drain. The diagram (refer Figure 12.11) illustrates the flow of stormwater discharge using the existing sewer and using the new road drain system to be introduced. The new road drain system will be explained in the next section.

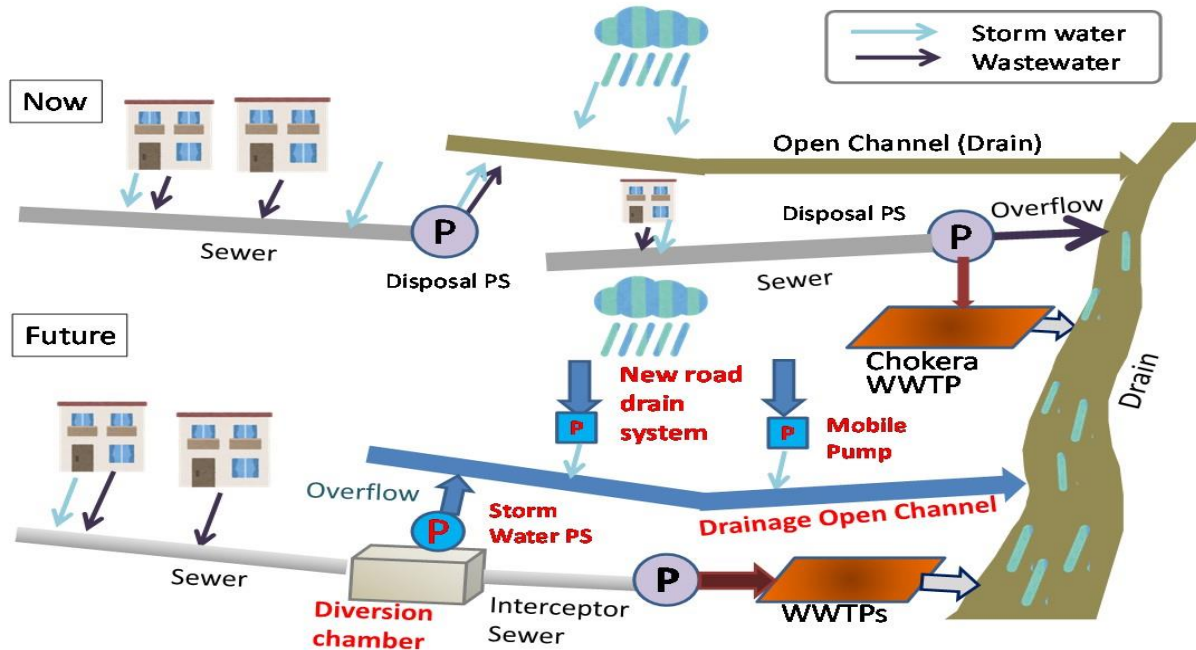


Figure 12-11: Proposed Drainage System Using the Existing Sewer System and New Drain System

The locations of the stormwater pumping stations are shown in **Figures 12.12**.

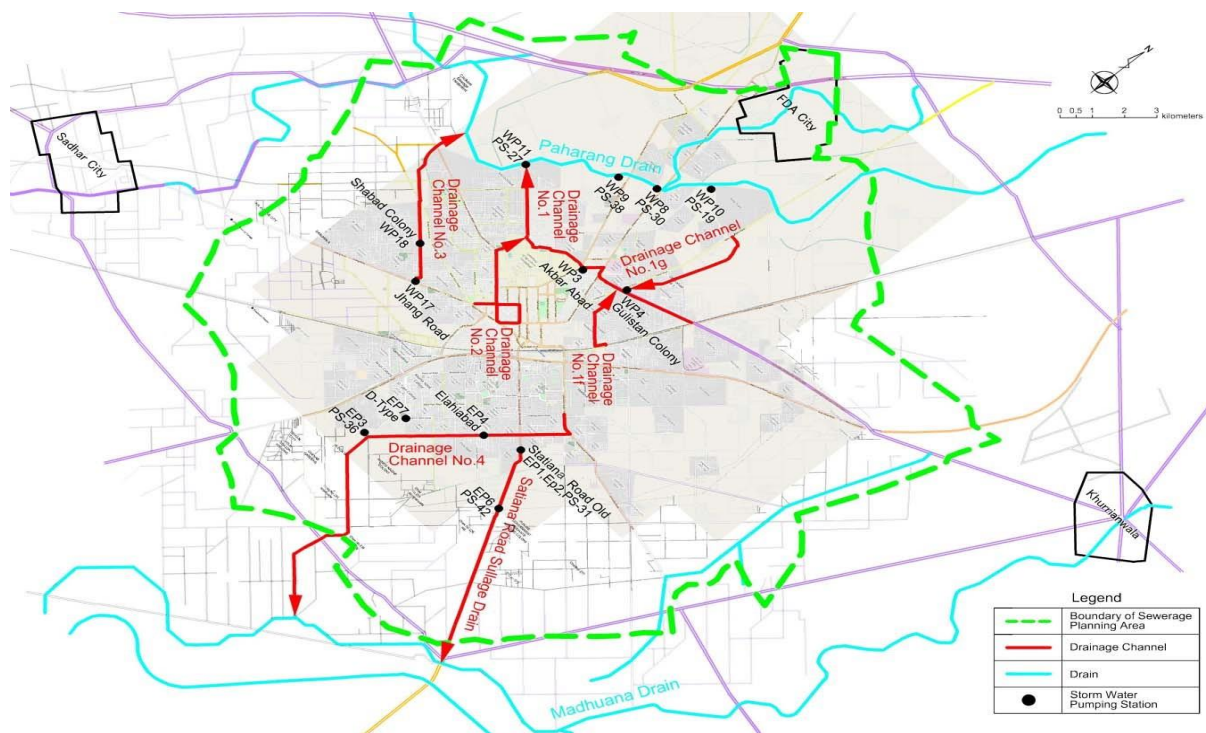


Figure 12-12: Locations of the Stormwater Pumping Stations To be Converted from Disposal Pumping Stations

Street Drain Plan for Areas Near the Drainage Channels:

The schematic in **Figure 12.13** below shows the proposed street drain system for the areas near the drainage channels. This proposed drain system consists of curbs, an inlet, a standard manhole, a manhole for a mobile pump, and flap gates. The curb is installed at the centre or on both sides of the street. The inlet is constructed at a cross-section of the street or at the point where the dimensions of the curb expand. The flap gate is equipped at the outlet of the curb to prevent the backward flow of stormwater. If the water level of the open drainage channels rises above that at the outlet of the curve, two manholes are needed. The first manhole is to divert the stormwater flow to another manhole through a simple gate. The second manhole is equipped with a mobile pump system (submersible pump) to discharge the stormwater to the open drainage channels.

The details for this proposal shall be studied further in the F/S and D/D stages based on actual geotechnical investigation data at the installation sites to expect infiltration to the sub-surface at a depth of at least 3 to 5 m underground.

Figure 12.14 below shows the proposed locations of the street drain systems planned for flood control in the areas: 14 locations in the Western SWD and 3 locations in the Eastern SWD.

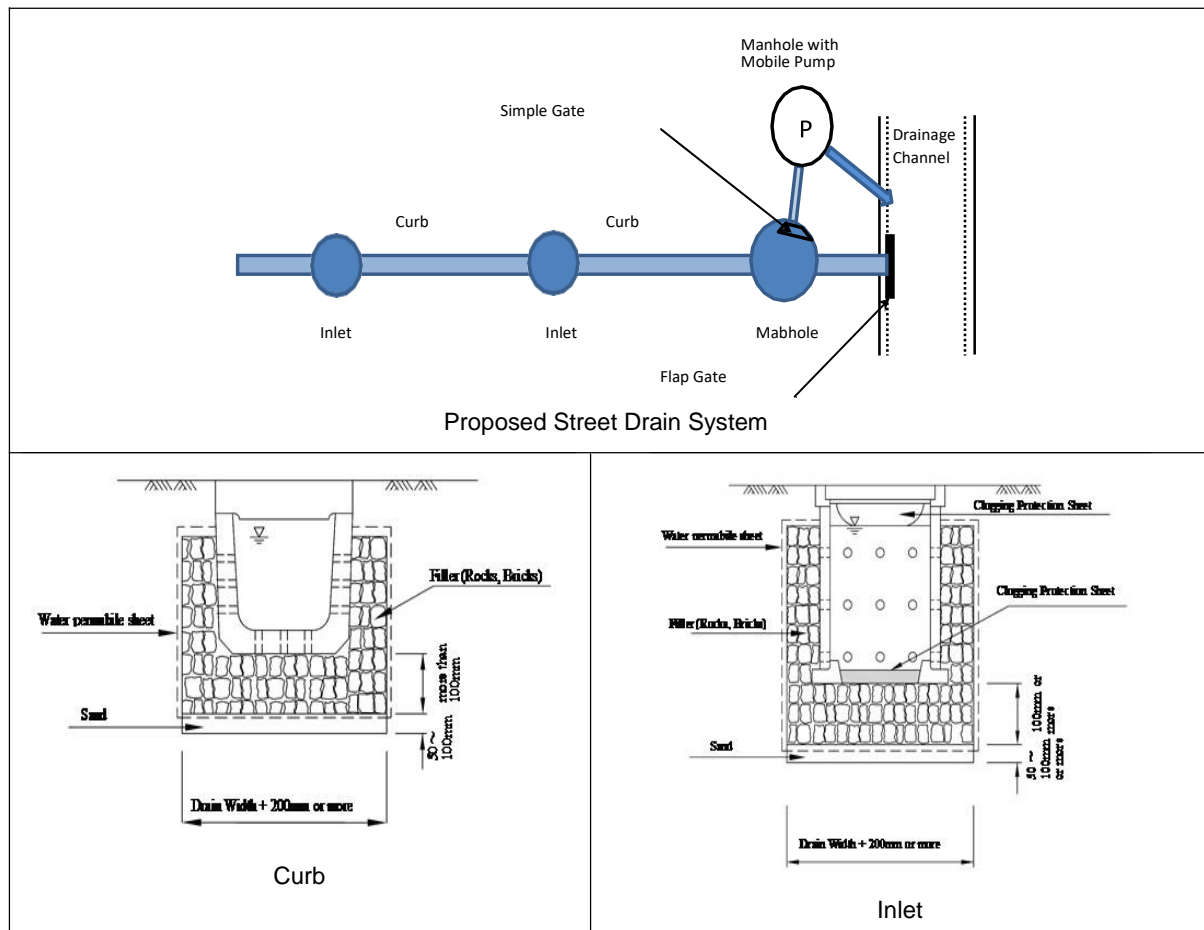


Figure 12-13: Proposed Drain System for the Areas Near The Drainage Channels

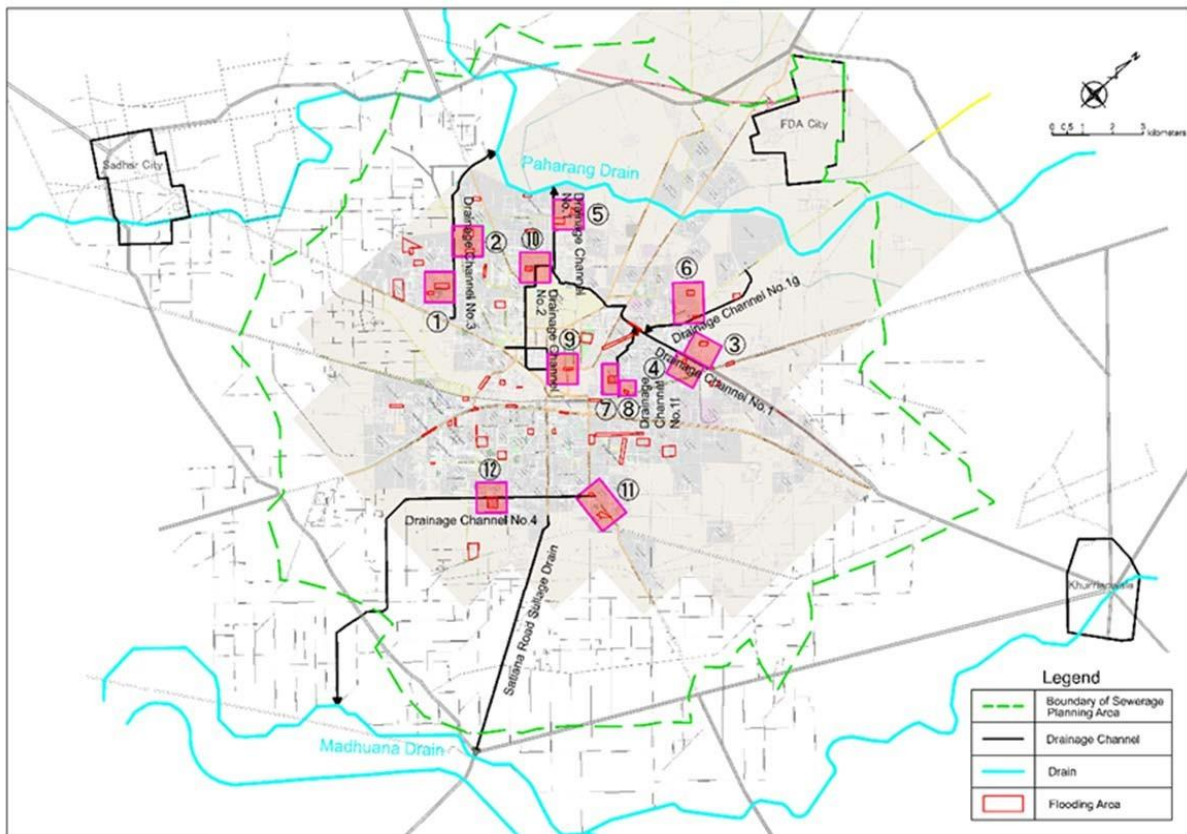


Figure 12-14: Target Areas of the Proposed Street Drain System

13. HERITAGE AND TOURISM PLAN

13.1 INTRODUCTION

Built heritage is one of our most important cultural assets. It represents the historical layers of our built environment in places made of brick, plaster, wood, metal and stone. Built heritage includes cathedrals and cemeteries, factories and fences, houses and hotels, museums and markets. Cultural and Heritage Tourism is a tool of economic development that achieves economic growth through attracting visitors from outside a host community, who are motivated wholly or in part by interest in the historical, artistic, scientific or lifestyle/heritage offerings of a community, region, group or institution. One city's principal economic development objective is to attract a broad array of out of town and out of country visitors and to provide activities that encourage visitors to come and to extend their stay additional days. The array of visitors should include individuals attending professional and business development meetings and seminars who will be interested in "add-on" tourist opportunities and days, as well as tourists looking for opportunities for adults and families to be entertained and educated. By focusing on the development of cultural and heritage tourism, and analyzing your city's potential carefully, you can use a tool successfully employed by many other communities.

Cultural heritage tourism is important for various reasons; it has a positive economic and social impact, it establishes and reinforces identity, it helps preserve the cultural heritage, with culture as an instrument it facilitates harmony and understanding among people, it supports culture and helps renew tourism.

Tourism can capture the economic characteristics of heritage and harness these for conservation by generating funding, educating the community and influencing policy. It is an essential part of many national and regional economies and can be an important factor in the development when managed successfully.

13.2 HISTORY

Faisalabad district began as Lyallpur district in 1904 and before that, was a tehsil of Jhang district. During the British Raj, the city Lyallpur was named in honour of the then Lieutenant-Governor of Punjab, Sir James Broadwood Lyall, for his services in the colonization of the lower Chenab Valley. His surname Lyall was joined with "pur" which in the old Sanskrit language means city. In 1979, the Government of Pakistan changed the name of the city from Lyallpur to Faisalabad (meaning City of Faisal), in honour of King Faisal of Saudi Arabia, who made several financial contributions to Pakistan.⁶¹

13.2.1 Early Settlements

According to the University of Faisalabad, the city of Faisalabad traces its origins to the 18th century when the land was inhabited by some forest-dwelling tribes. It is believed these early settlements belonged to the ancient districts of Jhang to Sandalbar, which included the area between Shahdara to Shorekot and Sangla Hill to Toba Tek Singh.⁶²

13.2.2 Colonial Rule

By the mid-18th century, the economic and administrative collapse of provinces within the Mughal Empire, from Punjab to Bengal, led to its dissolution.⁶³ Internal unrest resulted in multiple battles for independence and further deterioration of the region, which then led to formal colonisation as established by the Government of India Act 1858, with direct control under the British Raj from 1858 to 1947.⁶⁴ In 1880, Poham Young CIE, a British colonial officer,

⁶¹ "A History of Faisalabad City". The Faisalabad Chamber of Commerce & Industry.

⁶² "City of Faisalabad". The University of Faisalabad.

⁶³ Gordon, Leonard A.; Walsh, Judith (2009). "Central Themes for a Unit on South Asia". Asia for Educators. Columbia University

⁶⁴ Lowe, Lisa (2015). The Intimacies of Four Continents. Duke University Press. p. 71. ISBN 978-0-8223-7564-7

proposed the construction of a new strategic town within the area. His proposal was supported by Sir James Broadwood Lyall and the city of Lyall was developed. Historically, Faisalabad, (Lyallpur until 1979), became one of the first planned cities within British India. Figure 13.1 shows the map of Punjab before partition, 1909

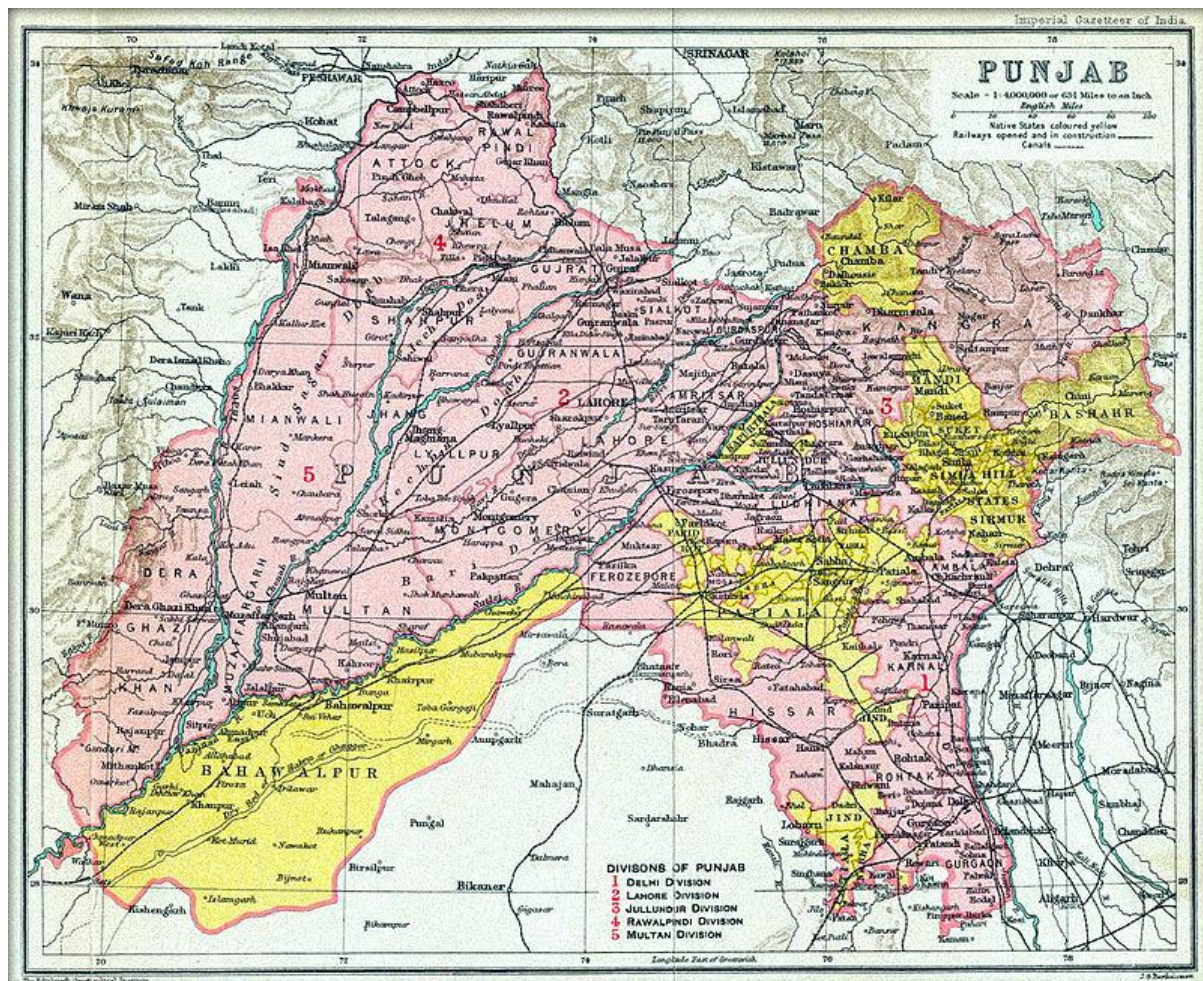


Figure 13-1: Punjab before Partition, 1909

Young designed the city centre to replicate the design in the Union Jack with eight roads extending from a large Clock Tower. The eight roads developed into eight separate bazaars (markets) leading to different regions of Punjab. In 1892, the newly constructed town with its growing agricultural surplus was added to the British rail network. Construction of the rail link between Wazirabad and Lyallpur was completed in 1895.⁶⁵ In 1896, Gujranwala, Jhang and Sahiwal comprising the Tehsils of Lyallpur were under the administrative control of the Jhang District.

In 1904, the new district of Lyallpur was formed to include the tehsils of Samundri and Toba Tek Singh with a sub-tehsil at Jaranwala, which later became a full tehsil in itself.⁶⁶ The University of Agriculture, originally the Punjab Agricultural College and Research Institute, Lyallpur, was established in 1906. The Town Committee was upgraded to a Municipal Committee in 1909. Lyallpur grew into an established agricultural tool and grain centre. The 1930s brought industrial growth and market expansion to the textile industry as well as to food processing, grain crushing and chemicals.

⁶⁵ "Brief History of Faisalabad". District Court Faisalabad.

⁶⁶ "Imperial Gazetteer of India". Superintendent of Government Printing. 1908: 220–223.

13.3 INDEPENDENCE

Lady Mountbatten, Vicereine of India, among the Hindu evacuees at the Punjab Scouts Camp, Lyallpur during the partition of British India. In August 1947, following three decades of nationalist struggles, India and Pakistan achieved independence. The British agreed to partition colonial India into two sovereign states – Pakistan with a Muslim majority, and India with a Hindu majority; however, more Muslims remained in India than what governing authorities believed would assimilate into Pakistan.⁶⁷ The partitioning led to a mass migration of an estimated 10 million people which made it the largest mass migration in human history. India's Bengals province was divided into East Pakistan and West Bengal (India), and the Punjab Province were divided into Punjab (West Pakistan) and Punjab, India (refer Figure 13.2). There were also respective divisions of the British Indian Army, the Indian Civil Service, various administrative services, the central treasury, and the railways.⁶⁸ Riots and local fighting followed the expeditious withdrawal of the British, resulting in an estimated one million civilian deaths, particularly in the western region of Punjab. Lyallpur, which was located in the region of the Punjab Province that became West Pakistan, was populated by some Hindus and Sikhs who migrated to India, while Muslim refugees from India settled in the district.

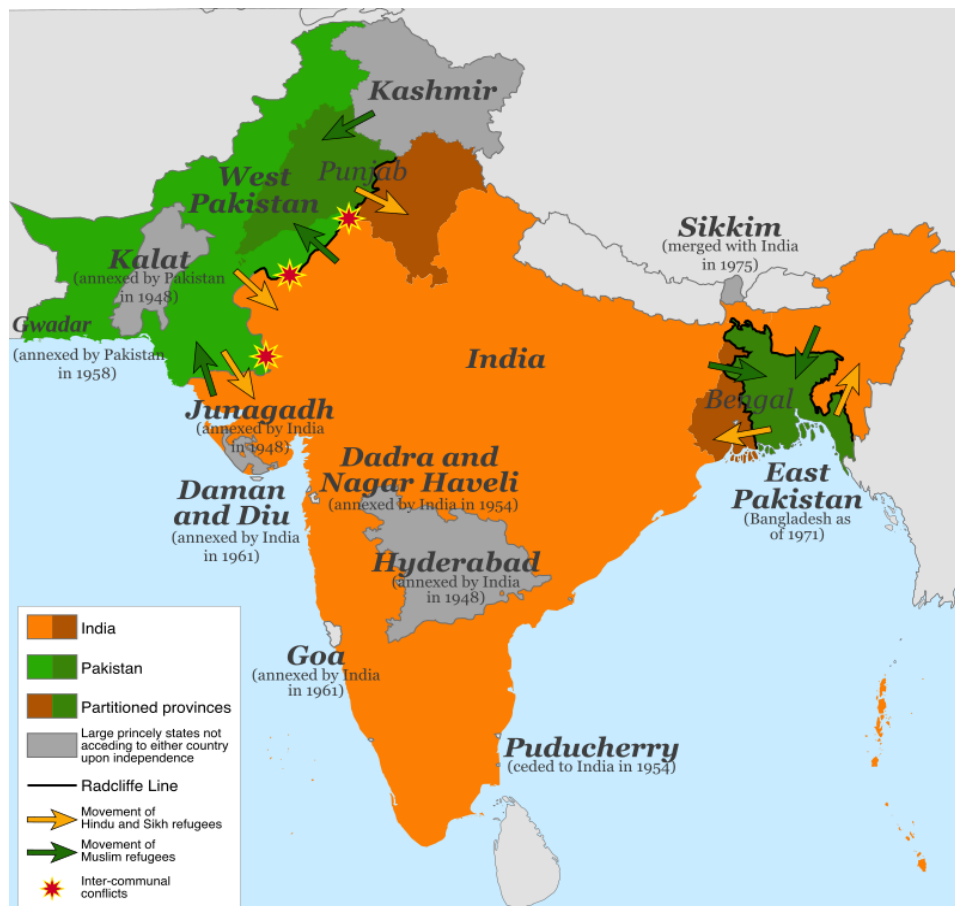


Figure 13-2: Pakistan & India Map after Seperation

In 1977, Pakistani authorities changed the name of the city to "Faisalabad" to honour the close relationship of King Faisal of Saudi Arabia with Pakistan. During the eighties, the city realized an increase in foreign investment. More Faisalabadi's began working abroad as bilateral ties improved within the new dominion. This led to more monetary funds' return to the city that aided the development of the region. In 1985, the city was upgraded as a division with the districts of Faisalabad, Jhang and Toba Tek Singh.

⁶⁷ Crispin Bates, PhD (3 March 2011). "The Hidden Story of Partition and its Legacies". *British History*. BBC

⁶⁸ Yasmin Khan (2007). *The Great Partition: The making of India and Pakistan*. Yale University Press, ISBN 978-0-300-12078-3

13.4 HERITAGE VALUES

Heritage values are much more than the “bricks and boards” of attractive buildings of a certain era. They go beyond associations with famous or notorious people and events. In Faisalabad, the definition of heritage values includes the aesthetic, historic, scientific, cultural, social or spiritual importance or significance of a place for past, present or future generations. Identifying community heritage values is a very important early step in developing heritage conservation in a community. The process of identifying values helps to bring local government, citizens and historic places together in a common understanding of why and how a community values its historic places. Understanding heritage values can allow tourism providers opportunities to maximize the unique character and identity of the community to attract visitors.

When we describe historic places in Faisalabad, we refer to structures, buildings, districts, landscapes, archaeological sites or other places that have been formally recognized by a local government for their heritage value. A property may include these features (such as a structure or a building) or maybe an important component of a larger historic place (such as a historic district or a cultural landscape).

13.5 OUR HERITAGE

Lyallpur Heritage Foundation was established in 2014. Since the time of its establishment, Lyallpur Heritage Foundation is working to revive the heritage, culture and traditions of Lyallpur. Lyallpur Heritage Foundation is working to make a positive impact in the District of Faisalabad with following objectives:

1. To take steps towards preservation and restoration of the old town of Lyallpur.
2. To take steps towards preservation and restoration of heritage buildings and sites located in the revenue limits of Faisalabad District.
3. To take steps towards the beautification of the city of Lyallpur.
4. To take steps towards the protection of the environment.
5. To arrange seminars/ lectures discussions etc, to explore the history of Faisalabad District.
6. To organize campaigns towards community / civic education.
7. To publish annual District gazetteer, books, brochures and maps on heritage environment.
8. To arrange awareness programs/ promotional campaigns through a community TV Channel.
9. To preserve the books of Allama Iqbal Library.

Keeping in view the heritage of National and International repute, the following structures, buildings and towns located in the District of Faisalabad, are hereby declared as heritage structures, buildings and towns for conservation and restoration by Mr. Noor-ul-Amin Mengal District Coordination Officer Faisalabad / Chairman Lyallpur Heritage Foundation. Below i

13.6 DECLARED HERITAGE BUILDINGS AND TOWNS

Keeping in view the importance of the local historical heritage of National and International repute, I, Noor-ul-Amin Mengal, DC Faisalabad, in the exercise of powers conferred upon me under sub-section 4 of the section 179-A Punjab Local Government Ordinance 2001 read with section 40 (A) PLGO 2001, and Section 195 Schedule 6th paragraph 41 (f) of PLGO 2001, in its first phase, the following buildings and towns located in the revenue district of Faisalabad are hereby declared as heritage buildings and towns for preservation and restoration and to save the heritage.

List of Declared Heritage Building for Preservation:

1. Lyallpur House in DC House
2. Clock Tower
3. Qaisari Gate
4. Gumti
5. Coronation (Allama Iqbal) Library
6. Fountains and Monuments at Bagh-e-Jinnah
7. Agriculture College and other Old Blocks
8. APWA Center
9. Old Block G.C University, Faisalabad
10. Govt Sabriya Sirajia High School
11. Mandar Opposite Jhang Bazar
12. Gurdwara (Pakistan Model High School) Katchery Bazaar
13. Masjid Katchery Bazaar
14. Catholic Church Opposite Gumti
15. Arya Samaj Temple
16. ST. Peter Church Opposite Chenab Club
17. Snatan Dharam Library
18. Health Office
19. Dar-ul-uloom Abdullahpur
20. Tomb of Noor Shah Wali
21. Killa Gift Building
22. District Jail, Faisalabad
23. Muslim High School, Faisalabad
24. Railway Station, Faisalabad
25. Railway Hospital
26. Old Circuit House, Agriculture University Faisalabad
27. Residence of AC Lyallpur
28. Tuberculosis Hospital
29. Women Hospital
30. District Courts Building
31. Old Block Chenab Club
32. Old Telegraph Office, Irrigation Department
33. Sandal bar Police Station
34. Gora Graveyard
35. Khalisa (Municipal Degree College)
36. Grain Elevator
37. Old Offices of Irrigation Department
38. CPO Office
39. Zila Council

The list of mosques, shrines, churches, gurdwaras, temples, hotels and restaurants and historic towns is given in **Annex E.1**.

List of Historic Towns for Preservation:

1. Bangay
2. Ganga Pur
3. Danabad
4. Jhamara
5. Khushpur (Cultural Village)

Some pictures of historic buildings are attached in **Figures 13.3 to 13.22**.



Figure 13-3: Lyallpur House in DC House



Figure 13-4: Clock Tower, Faisalabad



Figure 13-5: Qaisari Gate



Figure 13-6: Gumti



Figure 13-7: Coronation (Allama Iqbal) Library



Figure 13-8: Sir James Lyall Monument in Jinnah Park



Figure 13-9: Mandar Opposite Jhang Bazar (Sita Ram Mandar)



Figure 13-10: Gurdawar (Pakistan Model High School) Katchery Bazaar



Figure 13-11: Masjid Katchery Bazaar



Figure 13-12: Catholic Church Opposite Gumti



Figure 13-13: ST. Peter Church Opposite Chenab Club



Figure 13-14: Dar-ul-Uloom Abdullahpur



Figure 13-15: Tomb of Noor Shah Wali



Figure 13-16: Killa Gift Building



Figure 13-17: Muslim High School, Faisalabad



Figure 13-18: Railway Station Faisalabad



Figure 13-19: District Courts Building



Figure 13-20: Sandal bar Police Station



Figure 13-21: Gora Graveyard



Figure 13-22: Zila Council

Bangay:

Not many people would know that barely thirteen miles southeast of Faisalabad in Punjab lies the village where the revolutionary hero Bhagat Singh was born and raised in the early years of the twentieth century.

That he was an icon of the struggle against foreign imperialism and a revolutionary who fought for justice, equality, and rights of the downtrodden is kind of a contested narrative in the part that came to be called Pakistan after the partition. There are very few people who know of and understand his role in the freedom movement. He is not acknowledged as part of the collective heritage of our anti-colonial struggle because he was a 'Sikh'.

In the early part of the twentieth century, after he was hanged in 1931 at the age of 24 in Lahore, it was still possible to call him Shaheed Bhagat Singh. The village Bangay formally called Chak 105 GB, is in the news again. Apart from being Singh's birthplace, a significant record of his early years is lying in a small dilapidated room in his house. Recently, the district administration of Faisalabad, in a plan to preserve the history of the region, announced to preserve the buildings that have a historical significance. The District Coordination Officer (DC) of Faisalabad, Noorul Amin Mengal, who visited the house of Bhagat Singh, declared the preservation plans and his intention to pool in resources for the development of the entire village. Figure 13.23 shows Bhagat Singh residence and school.



Figure 13-23: Bhagat Singh Residence and School

Gangapur:

Ghangha Pur or Gangapur is a village in Jaranwala Tehsil in Faisalabad District. Gangapur, one of the biggest and the most modern village of its time is grappling with several problems due to the constant negligence of the authorities.

The village is located at Jaranwala Nankana Road, about 60 kilometres away from Faisalabad city. Sir Ganga Ram was born in April 1851 at Mangtanwala (a town of Nankana Sahib) about 66 kilometres from Lahore and 14 kilometres from Nankana Sahib. Sir Ganga Ram passed matriculation from the Government High School and joined the Government College Lahore in 1869. He won a scholarship from Thompson Engineering College Roorkee in 1873. He was appointed Assistant Engineer and called to Delhi to help in the construction of the Imperial Assemblage. He died in London on July 10, 1927.

Gangapur village is known for portraying the vision of Sir Ganga Ram, an engineer by profession, who established this village on the land granted by the then Britain government. Initially, it was just an agriculture-oriented project which was established by him during 1880-1900 and was named Gangapur. The project was developed on most modern and scientific lines with the provision of modern machinery, including steam and electric power devices. The entire system for development and making the village suitable for rehabilitation in a systematic manner was also devised by him.

About Gangapur agricultural project, Sir Edward Douglas McLagan, the then Punjab governor, specially visited the farm in 1920 and termed it “a miracle and skillfully developed village of the subcontinent by an individual”.

Gangapur was the first farm to introduce a mechanical reaper, riggers, harrows, scythes, sprays and a new type of gardening instruments were among the many modern designed and improved tools used. Ganga Ram also invented a historical horse trolley which is locally known as Anokhi Sawari (strange transportation) which was launched by him in 1903 from Buchyana to Gangapur village. This is a two-feet wide narrow rail track and three kilometres long where passengers are being carried in a trolley with the help of a horse that pulls it on the track. Figure 13.24 shows the Gangapur Clock Tower and Horse Train.



Figure 13-24: Gangapur Clock Tower and Horse Train

Danabad:

Dana Abad (Danabad) is a village in Jaranwala Tehsil in Faisalabad District. It is featured in the Punjabi folklore of Mirza Sahiban. Mirza, the hero of this folklore, was born in this village. The Mirza Sahiban Mausoleum is located in the village. Dana Abad is located 30 kilometers from Nankana Sahib and 50 kilometers from Shahkot. Figure 13.25 shows the Mirza Sahiban mausoleum.



Figure 13-25: Mirza Sahiban Mausoleum

Jhamara:

A colonial-era building with circular verandah arches and pale-yellow limestone paint greeted me. This was the place that had housed the Administrative Headquarters and District Courts back in 1857. The building had a commemorative plaque announcing that the complex was renamed to honour Rai Ahmed Nawaz Kharral, the war hero from the War of Independence. The profile of the fort (which is reported to be a couple of centuries-old, though without any supporting evidence) presented a square building having corner turrets with round bastions of which only two on the eastern corners survived. The structure was presently inhabited by an “allottee” family. At the main gate of the giant proportions which was “sufistically” painted in dark green and stood beside a guard post. Rai Ahmed Nawaz Kharal, who formidably stood against the British back in 1857. The tomb of the war hero was across the waters of Ravi towards the side of Faisalabad. Figure 13.26 shows the Rai Ahmad Khan Kharal house in Jhamara.

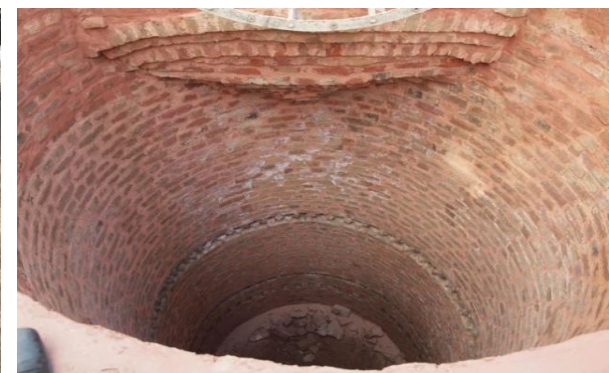


Figure 13-26: Rai Ahmad Khan Kharal House in Jhamara

Khushpur:

Khushpur is a village in Samundri Tehsil of Faisalabad District. It is one of the major and important villages of the Christian community in Pakistan and is sometimes referred to as the "Rome of Pakistan". The village is renowned for its seminaries, religious facilities and the annual religious ritual is known as "Maa Mariam ka Jalous" (literally translates as the rally for Mother Mary).

The name 'Khushpur' has two root words: 'khush' meaning 'happiness' and 'pur' meaning land. Father Felix, a European missionary founded this village in 1901. (Fr. Felix also founded other villages like Mariamabad in Shekhupura district, Francisabad in Shorkot, Jhang district in Pakistan.) "Felix" is the Latin word for "happy". The village was thus given the name of "Khushpur" in Urdu, the "land of Fr. Felix" or "land of Happiness".

Many important Pakistani Christian leaders and Catholic public figures come from the village; people like Bishop Jhon Joseph, Bishop Rufin Anthony, Ilama Paul Ernest, Shahbaz Bhatti, Paul Bhatti and Simon Jacob MNA all belong to this village. Figure 13.27 shows the Khushpur village.

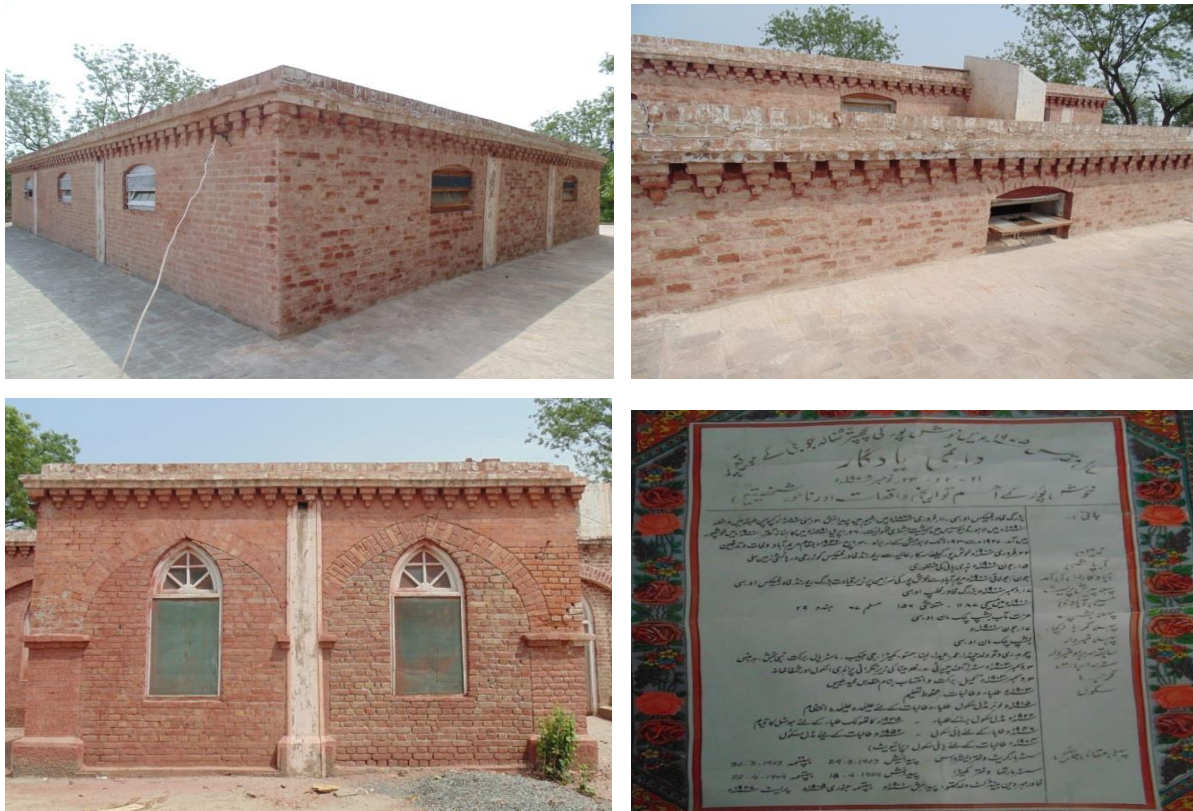


Figure 13-27: Khushpur Village

Other Famous Personalities (Poet/ Writer/ Sportsman):

Concerning knowledge and literature, Faisalabad has produced a large number of precious personalities. The poets and writers who worked for Urdu and Punjabi language in this region are Hazrat Imam Jalvi, Johar Jalandhari, Khaleeq Qureshi, Jameel Ram Puri, Afzal Ahsan Randhawa, Hafiz Ludhianvi, Abeer Abuzar, Shoq Arfani, Adeem Hashmi, Dr. Riaz Majeed, Saleem Betaab, Dr. Ahsan Zaidi, Dr. Anwar Mehmood, Iftikhar Naseem, Prof. Ghulam Rasool Shoq, Dr. Shoukat Ali Qamar, Bari Niazmi, Naaz Khialvi and many others like in supports Lal Shah Bukhari, Zulfiqar Ahmad (Ghanchi), Ijaz Junin, Muhammad Talha, Shahid Nazir, Wasim Haider, Karnal Dara, Manzoor Bajwa, Akhtar Rasool, Khawaja Tariq Aziz, Raja Khalid Mehmood.

Food:

Faisalabad is famous for its food. Faisalabad cuisine to a great extent is Punjabi cuisine, with influences from the realms of the Mughal and Colonial empires. Key elements take account of rice or roti (flatbread) served with a vegetable or non-vegetable curry, a salad consisting of spiced tomatoes and onions, and yogurt. This is usually accompanied by a variety of South Asian sweets such as Gajar ka Halwa, Gulab jamun, and Jalebi. Tandoori barbecue specialities consist of a variety of Naan bread served with tandoori chicken, chicken tikka or lamb seekh kebab served with mint chutney. The map showing the Faisalabad heritage sites are attached in **Figures 13.28 to 13.30** below.

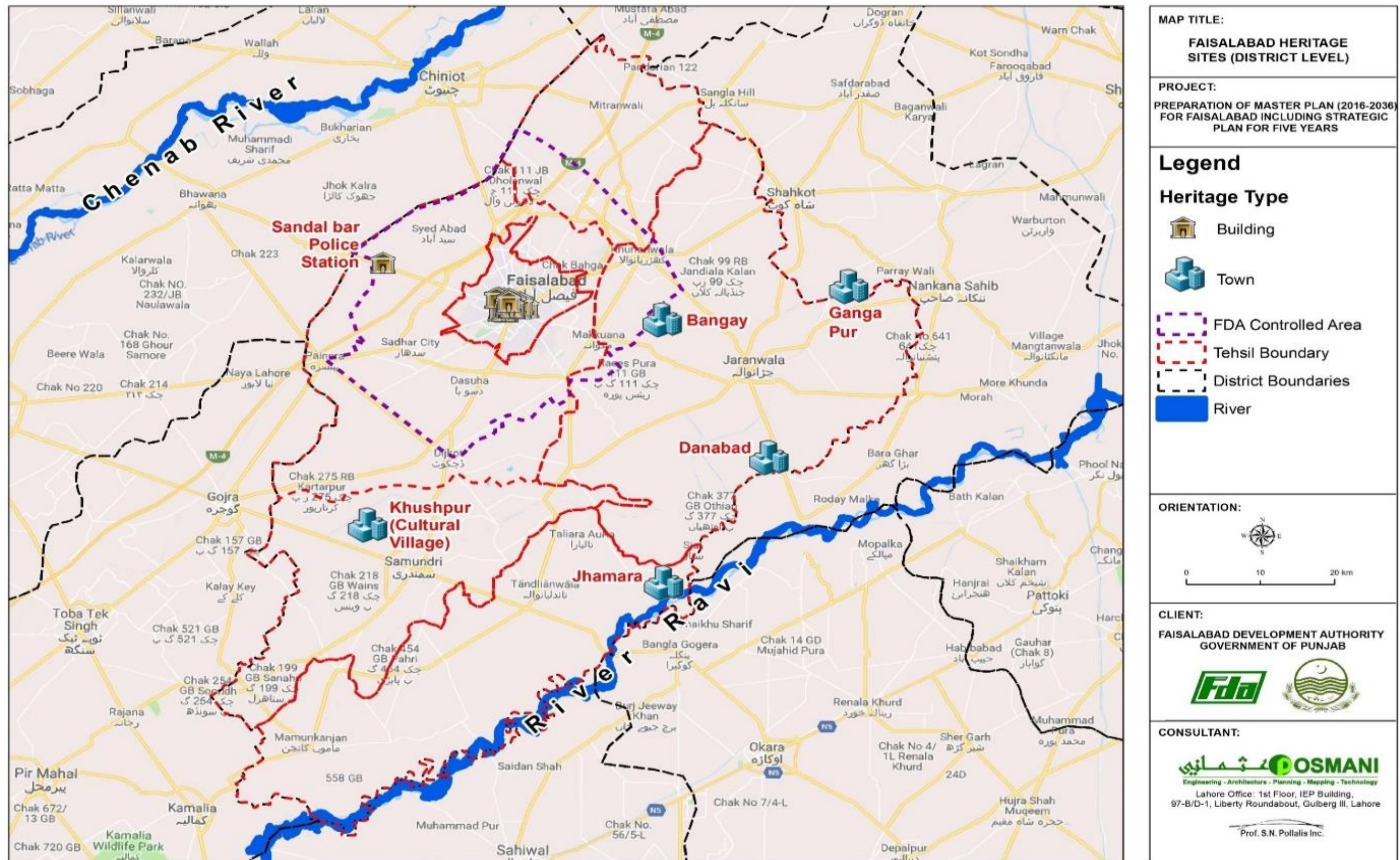


Figure 13-28: Faisalabad Heritage Sites (District Level)

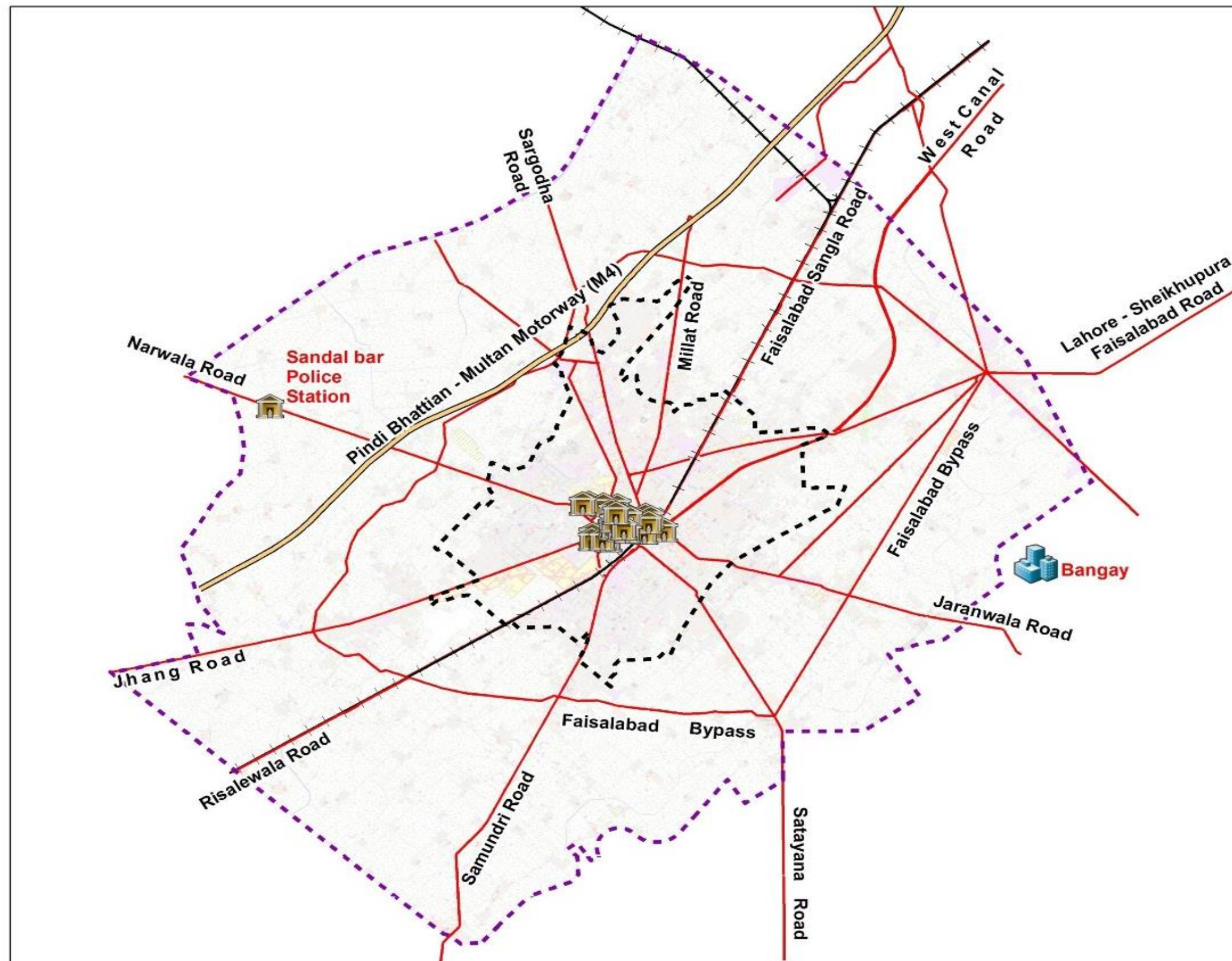




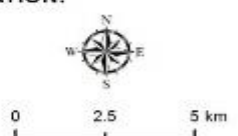




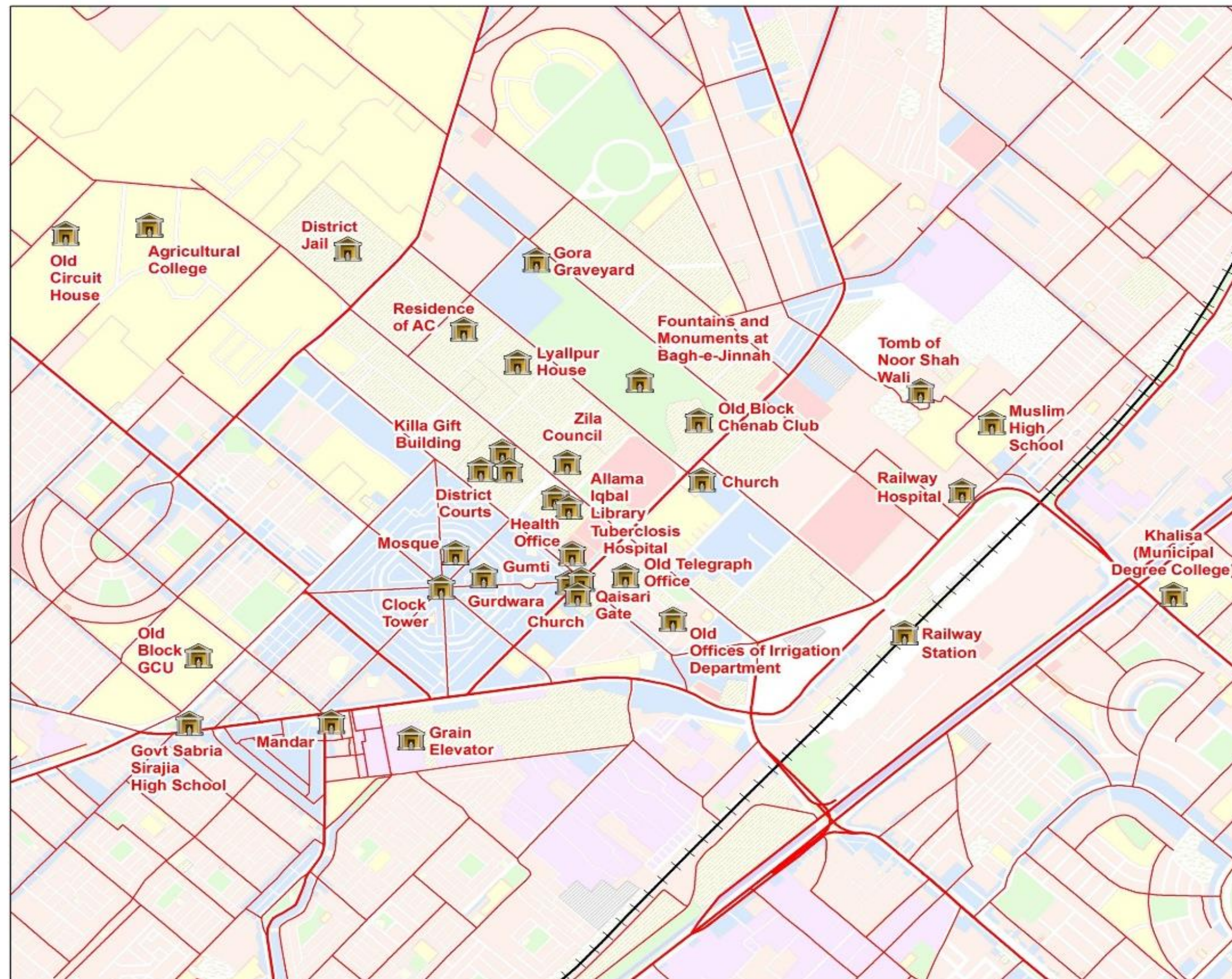


Figure 13-29: Faisalabad Heritage Sites (FDA Limit)




| |
|--|
| <p>MAP TITLE:</p> <p>FAISALABAD HERITAGE SITES (FDA LIMIT)</p> |
| <p>PROJECT:</p> <p>PREPARATION OF MASTER PLAN (2016-2036) FOR FAISALABAD INCLUDING STRATEGIC PLAN FOR FIVE YEARS</p> |
| <p>Legend</p> <p>Heritage Type</p> <ul style="list-style-type: none">  Building  Town  FDA Controlled Area  Faisalabad City Tehsil |
| <p>ORIENTATION:</p>  <p>0 2.5 5 km</p> |
| <p>CLIENT:</p> <p>FAISALABAD DEVELOPMENT AUTHORITY GOVERNMENT OF PUNJAB</p>   |
| <p>CONSULTANT:</p>  <p>Engineering - Architecture - Planning - Mapping - Technology</p> <p>Lahore Office: 1st Floor, IEP Building, 97-B/D-1, Liberty Roundabout, Gulberg III, Lahore</p>  <p>Prof. S.N. Pollalis Inc.</p> |




MAP TITLE:
FAISALABAD HERITAGE SITES (FDA LIMIT)

PROJECT:
PREPARATION OF MASTER PLAN (2016-2036)
FOR FAISALABAD INCLUDING STRATEGIC
PLAN FOR FIVE YEARS

Legend



-  Heritage Building
-  FDA Controlled Area
-  Faisalabad City Tehsil

ORIENTATION:



0 250 500 Meters

CLIENT:
FAISALABAD DEVELOPMENT AUTHORITY
GOVERNMENT OF PUNJAB

CONSULTANT:

OSMANI
Engineering - Architecture - Planning - Mapping - Technology
Lahore Office: 1st Floor, IEP Building,
97-B/D-1, Liberty Roundabout, Gulberg III, Lahore

Prof. S.N. Pollalis Inc.

Figure 13-30: Faisalabad Heritage Buildings (Near City Center)

13.7 BENEFITS OF TOURISM

Tourism creates jobs, new business opportunities and strengthens local economies. It protects natural and cultural resources, which improve the quality of life for residents and travellers who participate in the services and attractions.

Tourism can provide jobs and improve the wealth of an area. Many developing countries are keen to develop tourism to become richer and to improve the quality of life for their people. However, when large numbers of visitors go to one place it is called mass tourism. This can have both positive and negative impacts on the area. Faisalabad is an industrial area people travel here from around the globe concerning this Faisalabad can be made as a good tourist spot. The money spent by tourists adds to the wealth of countries (economic growth).

The citizens of Faisalabad celebrate a variety of cultural and religious festivals throughout the year, such as arts and crafts, music, local events, and religious celebrations. On the arrival of spring "Rang-e-Bahar" festival is celebrated, where the Parks & Horticulture Authority organize a flower exhibition at Jinnah Gardens. The University of Agriculture organizes a similar event at their main campus which is known as the "Kissan Mela". The provincial government introduced the "Canal Mela" which involves five days of festivities including the main canal in the city being decorated with national floats and lights ending with a musical concert to conclude the festival. These festivals can affect both positive and negative perspectives. Positive and negative effects of tourism are summarized in **Table 13.1** below.

Table 13-1: Positive and Negative effects of Tourism

| Positive | Negative |
|---|--|
| Jobs created | Jobs are often seasonal (based on the time of year) and are poorly paid |
| More money for the country | Most money goes out of the area to big companies, not locals |
| Local traditions and customs are kept alive because tourists enjoy traditional shows. E.g. Cultural shows | Culture and traditions change as outsiders arrive |
| Money from tourists can be used to protect the natural landscape | Damage to the natural environment, e.g. footpath erosion (the wearing away of footpaths), litter, habitats destroyed to build hotels |
| New facilities for the tourists also benefit locals, e.g. new roads | Overcrowding and traffic jams |
| Greater demand for local food and crafts | Prices increase in local shops as tourists are often more wealthy than the local population |

13.8 CULTURAL AND HERITAGE TOURISM

Cultural and Heritage Tourism is a tool of economic development that achieves economic growth through attracting visitors from outside a host community, who are motivated wholly or in part by interest in the historical, artistic, scientific or lifestyle/heritage offerings of a community, region, group or institution. Such travel is focused upon experiencing cultural environments, including landscapes, the visual and performing arts and special lifestyles, values, traditions and events. Tourism is widely recognized for its tangible outcomes (job creation, tax revenues) as well as its less tangible outcomes (quality of life). It may be built upon a wide variety of attractions, including agri-tourism, arts tourism, cultural and heritage tourism, destination tourism, fairs, events and conferences, sports teams, recreation and more. International tourism is the world's largest export earner and an important factor in the balance of payments in most nations (United Nations World Tourism Organization 2007). The primary focus of this tool to attract visitors is "cultural and heritage tourism."

The concepts of cultural and heritage tourism may include a wide variety of strategies and services.

Place promotion refers to the use of heritage tourism as an approach to place promotion. This is typically focused upon a historic town such as **Bangay, Ganga Pur, Danabad, Jhamara, Khushpur (Cultural Village)**. In each case, the “community” is known for some particular set of historic events, common heritage, historic buildings and/or special events. In each case the objective is to attract groups of tourists both from the common heritage and others, to visit a community to observe or participate in activities, museums, festivals, etc., that celebrate the community’s lineage and historic significance. Place promotion is an additional vehicle for motivating travellers.

The concept of a cultural district within a community is designed to create a physical space in which individuals may easily recognize a concentration of both institutional and indigenous tourist opportunities focusing upon art markets, performing arts, museums and cultural heritage. Similar to the idea of an industrial district, the cultural district is intended to create economic growth through the development of small and medium-sized firms which are integrated within the area and the local community.

While heritage tourism is important, its boundaries are not at all clear. Heritage may include connections to history, art, science, lifestyles, architecture and scenery. It may be a part of a collective history and thus have broad appeal, but there is a subset referred to as “legacy tourism” where travel is linked to genealogical interests and a search for information or a desire to feel connected to ancestors and ancestral roots. In this case, the tourist motivations need to be understood for marketing purposes, and local resources must be developed accordingly.

Culture represents the integrated pattern of society that embraces traditions, beliefs, behaviour, social forms, and material traits of racial, religious or social groups. These norms and rituals are exclusive to a particular society, which differs one society from another. Therefore, people hold these traditions and values dear to their hearts as these depict who they are and where their roots belong. Here we take into account the culture of Faisalabad, the second biggest metropolitan city of Pakistan. The culture of Faisalabad is quite diverse because it is an industrial city.

13.9 CONDITIONS NECESSARY FOR SUCCESSFUL TOURISM

Cultural and heritage tourism has become a major source of revenue for many communities and states across the globe. Not only does it create jobs, but it has the potential of bringing in needed revenue from outside the community and stimulating the local economy beyond the capacity of its residents. Many conditions and resources are needed for success. Here we will highlight the most essential components.

Authentic Cultural and Heritage Venues and Programs:

Each community needs to realize that cultural and heritage tourism is a competitive venture. Tourists have many options and can be selective. A primary draw is the substantive nature of the venue and program – its link to historic events/periods, people and cultures. There is a need to tell a story, to capture the audience, and to leave them with a sense of enjoyment, appreciation and understanding. The sites need to be developed or restored. Signage needs to be appropriate to tell the story. Staff needs to be trained.

Tourist Agencies:

Transparent visitor’s bureau with information on hotels, restaurants and transportation services as well as key attractions for individuals and families. Tourists need to be able to easily discover all the needed information for a trip to be enjoyable. This means Internet websites update with all events and local offices centrally and visibly located at transportation points and near venues. These local offices need to be designed for their customers and staffed with individuals who are knowledgeable and trained in customer service. They need to have information on all aspects of travel – inter-city transportation, intra-city transportation,

lodging, food, shopping, and healthcare, as well as the substantive cultural and heritage sites and programs.

Coordination of Stakeholders:

Successful cultural and heritage tourism requires the coordination of all aspects of travel and development. Before a site can reach its maximum potential, a community needs to develop all of the infrastructure requirements, ranging from water and sewer systems, roads, bus and train terminals and airports, to hotels, restaurants, shopping districts and the cultural and heritage sites themselves. Starting from scratch, this is a long-term enterprise requiring careful planning and widespread involvement of key stakeholders. But even a community that has made some or substantial progress still needs to assess where it is and how much additional potential there may be for growth. In all cases this requires bringing together public and private officials, those directly involved in tourism (hotels, restaurants, transportation officials and private tourism agencies) and those directly involved in economic development (public officials, banks, private developers), those directly involved in infrastructure (local and state officials), and those directly involved in the cultural and heritage tourism sites (public, nonprofit, and private organizations). Bringing these individuals together should result in a master plan, a strategic plan and buy-in from each sector.

Marketing:

Product development and support, targeting of clients, identification and development of the market. A key aspect of a successful cultural and heritage tourism program has to be the development and implementation of a sophisticated marketing plan. This effort should be based on a reasonable amount of research into potential client interests and the link to local opportunities. Each community needs to develop its own “brand” and to sell that brand on its websites, advertisements and all marketing tools.

Development of Necessary Infrastructure:

Success ultimately means more tourists travelling to a community, staying longer, and spending more money. It means developing a reputation among tourists that a community, a site, a program, and the overall experience are worthwhile. This requires that all aspects of a visit be enjoyable.

Thus, programs necessary for stimulating the development of hotels, restaurants and shopping and programs necessary for financing public works and targeting such activities on the needs of the tourists are essential. Support for the cultural and tourism site or program may be needed as well. Government officials may need to identify funds and programs to redevelop cultural and historic sites, train staff, and provide seed money for private, nonprofit and government-owned and operated programs.

13.10 IDENTIFY STAKEHOLDERS

Identifying legitimate stakeholders in the development and management of a cultural and heritage tourism project can be challenging. There are a vast number of players in the tourism industry with different goals and interests. When bringing “interested parties” together to create a shared vision, it is important to realize there will be those who will gain income and other benefits directly from the initiative and those who are affected by the initiative but will not gain financially. However, to ensure an equitable process, it is important to include both of these groups when bringing stakeholders to the table.

The following **Table 13.2** adapted offers a quick overview of some of the main considerations for the inclusion and management issues of key stakeholders.

Table 13-2: Main Considerations For the Inclusion and Management Issues of Key Stakeholders

| Theme | Common Considerations | Cultural Heritage Considerations | Tourism Considerations |
|--|--|---|---|
| Stakeholder Identification and Consultation | Identify all relevant stakeholders as early as possible in the process. Invite their participation throughout the process. Be aware there are dominant stakeholders with controlling interests in the asset. Understand their different involvement, expectations and capabilities. Note any history of conflict or collaboration. | Listen to stakeholders concerns and incorporate feedback into day-to-day management once the asset has been fully developed as an attraction. Understand the perspective and agenda of the tourism sector and associated stakeholders | Listen to stakeholders concerns and incorporate feedback into product development, marketing and business strategies. Understand the perspective and agenda of the cultural/heritage manager and conservation sector, as well as associated stakeholders. |
| Types of Stakeholders | | Educational and research institutions, conservation and heritage non-government organizations (NGOs), government agencies, museums, indigenous groups, ethnic minorities, religious groups, others. | Local, national and provincial governments, tourism organizations, tour operators, local guides. |
| Key Stakeholder issues | Power and power relationships between stakeholders. Agreement by key stakeholders to allow the asset to be presented to visitors. Awareness of impacts of tourism. Ownership and copyright issues are addressed. Commitment to ongoing conservation. | Key stakeholders and owners agree to visitation and conservation measures. Designating interpretation that is culturally appropriate and suits visitors' needs. The cultural heritage manager understands and takes into account the role of volunteers and sponsors. Resilience and carrying capacity of the asset. | Key stakeholders and owners support visitation and development. Design and marketing of a viable product that is culturally appropriate and sustainable. Ongoing costs of stakeholder consultation. Potential of a long lead time for approvals given by other stakeholders to tourism ventures. |

Other stakeholders that should be considered when developing cultural and heritage tourism initiatives include the following:

- Representatives from the Local Government
- Representatives from three levels of Government
- Local Residents
- Tourists / Visitors
- Lyallpur Heritage foundation
- Arts Council

- Non-government organizations (NGOs)
- Accreditation Bodies
- Tour Operators and Guides
- Local Travel Trade Sector
- Industrial Groups
- Others that could share the infrastructure (social, technological, physical)
- Community Tourism Organization

13.11 URBAN REGENERATION

Urban regeneration is the redevelopment of dilapidated areas marked with poor environmental conditions, high population density, congestion, and related urban problems. It includes improving physical infrastructure through demolition and construction, renovation, and exciting start-ups to reverse the economic downturn and pump-up private investments. Most importantly, regeneration does not include relocation or resettlement under any condition. It is also known as a 'retrofitting' or 'revitalization' program.

Urban renewals target congested areas, introduce new land uses, improve linkages to business centers of the city, increase municipal services and amenities, add an aesthetical value, and drive rental and property matters upward. The imminent surge in property values motivates private investors to invest in the region's regeneration. As a result, congestion, crime rates, and intolerance decrease. A new life and revived community activism emerge to save the region from urban decay.

Ways to Regenerate Urban Areas

1. Upgrade transportation networks to improve connectivity and elevate ease of doing business.
2. Mending the dilapidated building and improving the street structure.
3. The government should offer housing subsidies that incentivize and target the inner-city population to buy property in the region.
4. Work with private partners to regenerate the area and add economic stimuli.
5. Support small start-ups to kickstart the economy.
6. Incorporate mixed land-use to attract more population.
7. Support commercial areas, local schools, water plants, waste management, and affordable housing in the region.
8. Tree plantation to increase greenery in the area and boost air quality.
9. Support small vendors (vegetable sellers, stationery shops, restaurants, etc.).

Challenges within the city urban center

1. Heavy Encroachments:

Heavy encroachments have been observed on the roads within the city center of Faisalabad. The city center of Faisalabad has a mixed type of traffic composed of all modes of traffic from hand carts to 3-4 axle trailers. The traffic volume high within the central areas of city. Essentially, the problem lies in the management of existing infrastructure. The existing road network is in poor condition. The metaled portion of ROW is broken and is poorly maintained. The ROW is further squeezed by the encroachments made by shopkeepers and vendors moving along the road. The ROW is narrowed by parking of auto-rickshaws, motorcycle rickshaws and taxis along the road.



Figure 13-31: Encroachment near Clock Tower in Faisalabad

2. Poor Municipal services:

Municipal services or city services refer to basic services that residents of a city expect to the city government to provide in exchange for the taxes which citizens pay. The services within urban city center needs to improved

3. Poor Building facades:

Building facades of most of the building needs to be improved to enhance the overall view of the urban center of Faisalabad.



Figure 13-32: Building Facade of Building in Between Katcheri Bazar and Rail Bazar

Strategies to be taken into account e.g. Mixed-Use Development Approach

A combination of factors, including changing demographics, real estate market, and slow economic recovery from the Great Recession are driving demand for high-quality, compact and walkable communities. Local government need to plan for a diverse range of land uses and development to sustain a diverse economy

Mixed-use development, which can be defined as integrated development that incorporates two or more types of land uses (e.g., housing, offices, retail, entertainment, institutions, services, restaurants). Mixed-use development can help local government's better respond to

a growing market demand for walkable, vibrant communities with convenient transit linkages, proximity to jobs, and access to nearby public services and spaces and activity-oriented destinations. Further explains that while there are many forms of mixed-use development, it can be categorized three ways:

1. Vertical Mixed-Use Development
 - combines different uses within the same building
 - Provides for more public uses on the lower floor such as retail shops, restaurants, of commercial businesses
 - Provides for more private uses on the upper floors such as residential units, hotel rooms, or office space.
2. Horizontal Mixed-Use Development
 - Consists of single-use buildings within a mixed-use zoning district parcel, which allows for a range of land uses in a single development project
 - Provides for a variety of complementary and integrated uses that are walkable and within a given neighborhood, tract or land, or development project.

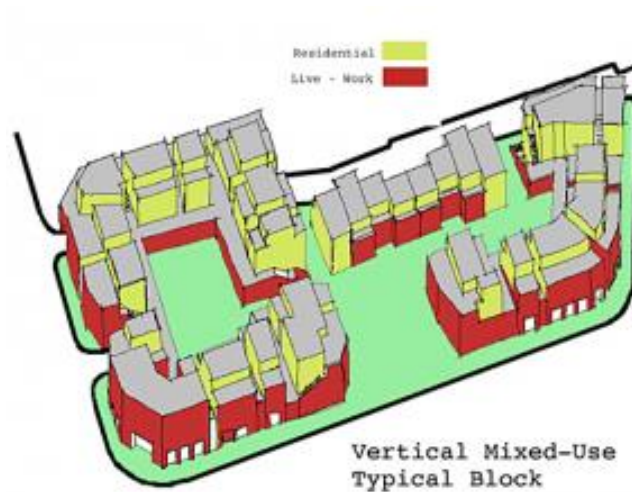


Figure 13-33: Vertical Mixed-Use Development



Figure 13-34: Horizontal Mixed-Use Development

The need for the following key strategies has been identified:

- Sustenance of High Merit Historic Buildings.

- Interventions which would mitigate external metropolitan pressures, redefine land uses, contain/deflect vehicular traffic, reclaiming public open space for enjoyment by residents and visitors, and reinforcing remaining residential use through building rehabilitation,
- Stresses the need to upgrade and enhance the municipal services in the congested areas of city center.
- Making environment healthier and sustainable.

To meet the above-mentioned challenges, there is a dire need to carry out several projects that will immediately enhance the historic city center through urban regeneration using latest techniques used in urban design for urban regeneration.

13.12 VISION

The vision, mission and principles will guide Faisalabad's plan and provide benchmarks for identifying challenges and accomplishments.

Vision:

Heritage Tourism is essential to the economic well-being of Faisalabad as travellers and residents visit Faisalabad's heritage sites and towns to enjoy authentic, valued and engaging experiences, that: Enhance the image of Faisalabad as a desirable destination with a rich history that played an important role in our nation's growth, improve the country's economy through visitor spending, and contribute to the stewardship and sustainability of Faisalabad unique historic, cultural and natural assets.

Mission:

Faisalabad's heritage sites and places provide quality educational programming, activities and experiences that attract residents and visitors of all ages to spend time and money in the state. In partnership with the tourism industry, government agencies, civic groups and the private sector, heritage sites offer compelling experiences that tell the stories of Faisalabad's past, demonstrate the relevance and importance of the city's heritage today, and provide a foundation for future generations.

Basic principles for Faisalabad's Heritage Tourism Program include

- Collaborate with partners (Stockholders, NGOs etc.)
- Make Sites Come Alive
- Find the Fit between Your Community and Tourism
- Focus on Authenticity and Quality
- Preserve and Protect Irreplaceable Resources

The heritage tourism plan was directed to include, but not be limited to:

- Improving heritage signage on the City's highways
- Establishing a local historic marker program to raise awareness of Faisalabad's historical resources
- Improving efforts of city and municipal government agencies to focus more significantly on heritage tourism
- Promoting coordination between historic sites throughout the Country
- Identifying potential sources of stable funding for the improvement and maintenance of historic sites available for heritage tourism in Faisalabad
- Establishing criteria for grants to be made from the Historic Preservation Fund

13.13 STRATEGIES

By implementing the plan, Faisalabad's heritage sites and places will:

- Provide quality educational programming, activities and experiences that attract residents and visitors of all ages to spend time and money in the Country.
- In partnership with the tourism industry, government agencies, civic groups and the private sector, heritage sites offer compelling experiences that tell the stories of Faisalabad's past, demonstrate the relevance and importance of the city's heritage today, and provide a foundation for future generations.

This plan includes four key strategies that were developed to achieve the vision and mission of heritage tourism in Faisalabad, building partnerships, preserving and interpreting historic resources, attracting visitors and generating economic impact. **Table 13.3** shows the Faisalabad heritage tourism master plan strategies.

Table 13-3: Faisalabad Heritage Tourism Master Plan Strategies

| Develop a management and partnership system to support and advocate for Faisalabad's heritage tourism industry. | Develop heritage products and infrastructure. |
|--|--|
| <p>Develop an advocacy network. Do strong Faisalabad Heritage Foundation. Coordinate support between city, county and municipal agencies. Expand and leverage resources for Faisalabad's Heritage Tourism Program through key partnerships. Increase revenues Implement a performance evaluation system. Invest in visitor amenities, interpretation and education programs. Revisit hotel/motel tax formulas to increase funding for tourism, history and arts.</p> | <p>Provide guidance and technical assistance to heritage sites. Build a strong network of historic sites. Help sites get ready for visitors. Support implementation of Faisalabad's Wayfinding Master Plan. Develop a region-wide historical marker program.</p> |
| Enhance the state-owned heritage sites as centerpiece for heritage tourism | Build a strong marketing network |
| <p>Survey and assess region-owned sites for visitor readiness. Improve heritage tourism marketing with increased funding. Increase historic sites staffing and provide additional training. Develop new interpretive programs. Build and sustain meaningful partnerships.</p> | <p>Build community pride and encourage local involvement and engagement. Encourage communities. Create a statewide Doors Open program. Encourage and support heritage education programs. Develop a Community Heritage Tourism Toolkit</p> |

- Faisalabad has the potential to be promoted as a tourism destination. (Big D Ground Park, Clock Tower, Jinnah Gardens, Kashmir Park, Lyallpur Museum, Qaiser Gate, Sindbad Wonderland, Ghora train)
- Tourism should be encouraged through awareness and consciousness of protection and conservation of natural resources and heritage sites.
- Tourist facilities require more attention (picnic shades, public toilets, first aid, car parking, boarding and lodging, solid waste management, seasonal market, security risk, public transport facilities, road network)
- Guiding principles for understanding and experience of tourism among the local and government.
- It is very essential to collect data for future planning. There is no data available on tourism trends and growth.

- Visitors' centres are very useful for enhancing the interest of visitors. (Faisalabad tourism information Centre)
- Information counter should be staffed who competently answer (in Urdu and English) and have area knowledge. The counter could also sell and issue permits.
- Shops should sell various souvenirs, such as brochures, guide maps, pictures postcards, posters, T-shirts and P-caps etc.
- Improvement of existing and developing new accommodation facilities.
- The picnic sites should be easily approachable. Each site should have a caretaker.
- Tourists are fascinated by the local market (eight bazars) so there is the possibility to promote local culture and generate income. The Faisalabad clock tower and its eight bazaars (markets) remain a major trading zone in the city. Each of the eight bazaars has a special name and is known for selling certain goods.
- To get publicity in print and electronic media, familiarization tours of journalists, travel writers and nature photographers should also be organized.
- The security, safety and health issues of tourists are an issue of growing importance. Guidelines are required for the safety and security of tourism sites.
- Law for maintaining peace.
- The airport infrastructure needs to be upgraded there must be a souvenir shop, food court and bus shuttle service.
- Cab services for passengers at Airports and Railway stations.
- There should be investment done for tourism not by fashion, but by effectiveness.
- Tourism infrastructure is a key factor for the success of tourism.
- Pro-poor tourism techniques can be made.
- Water recreation activities should be promoted.
- Theme parks or amusement parks should be made.
- Tourism sites should have handicapped accessibility

14. ECONOMIC DEVELOPMENT PLAN

14.1 CURRENT SITUATION

Faisalabad is the third-largest city of Pakistan in terms of population after Karachi and Lahore. It is located in the Punjab province having a resident population of more than 3.2 million. The Faisalabad district includes the following six sub-divisions (*tehsils*), viz., Chak Jhumra, Samundri, Jaranwala, Tandlianwala, Faisalabad City and Faisalabad Saddar, out of these Faisalabad City and Faisalabad Saddar tehsils are the most densely populated. Most of the area of both these tehsils falls under the administration of the Faisalabad Development Authority FDA. As per the census 2017, the population of FDA controlled areas is 4.7 million including 3.24 million urban and 1.46 million rural residents. The boundaries of Faisalabad district are surrounded by the districts of Chinot, Sheikupura, Sargodha, Jhang, Gojra, Sahiwal, Samundri, Nankana Sahib, Tandlianwala and Okara. The relative advantage in production and agglomeration of textile industries and allied economic activities are tightly linked to the popularity of Faisalabad and to be known as the '*Manchester of Pakistan*'.

Proximity to River Chenab and River Ravi makes the land of Faisalabad more fertile and cultivable for agricultural activities. In addition to that, the city is well connected with other cities through railways, airways, highways and motorways due to it being the principal industrial hub in the country. These factor advantages led to attracting greater investments in diversified economic activities as well as in-migration of labour force in this city. To keep the attraction sustainable, it requires effective planning and viable policies to harness new opportunities using contemporary advanced techniques and tools. Any slackness in the required infrastructure and human resources and size of the appropriate investment may cause higher operational costs and hindrance in the sustenance of economic development.

In the wake of urbanization and other economic prospects, like China Pakistan Economic Corridor (CPEC), this Master Plan aims to guide Faisalabad District Government to facilitate economic and regional development for the next 20 years. In this pursuit, the current economic situation and analysis of development prospects are of critical importance. Hence, the Economic development plan is aligned with the strategic objectives of the Punjab Spatial Strategy (2017-2047) which focuses on enhancing the quality of life for all segments of society and developing regions based on their competitive advantage. All the statistics and information used in the analysis is taken from the most relevant, reliable and latest available data from

- Household Integrated Economic Survey,
- Pakistan Social and Living Standard Measurement Survey,
- Labor Force Survey,
- Provincial budget documents,
- Various issues of Punjab Development Statistics,
- Yearbooks of Federal Board of Revenue (FBR),
- Economic Survey of Pakistan,
- Population statistics,
- World Health Organization and United Nations etc.

Based on these critical and noteworthy findings, the urban development plan has been devised that lead towards the integrated economic development plan.

14.1.1 Population

The city of Faisalabad has been a centre of attraction for domestic investors and the labour force hailing from neighbouring districts partly due to its improved industrialized base and agglomeration of economic activities and regional connectivity. Table below shows that though Faisalabad city population has been increasing briskly during the last seven decades, from around 0.2 million in 1951 to 3.2 million in 2017 its rate of growth depicted a declining trend

over time, it has fallen from over 8% per annum to around 2.49% per annum during the same period. Additionally, the estimated population for the area administered by FDA was 4.7 million in 2017 that depicted a growth of 2.3%, whereas the population growth of the overall district was 2.0%. The fact that Faisalabad city reflects a more densely populated area with an average of over 19,000 persons living in one km² indicates the potential of urban development in the Faisalabad Saddar tehsils. Hence, among the six tehsils of Faisalabad district including Faisalabad city, Faisalabad Saddar, Summandri, Jaranwala, Chak Jhumra, and Tandlian Wala tehsils, Faisalabad Saddar tehsil is critically important for future urban planning and development. **Table 14.1** shows the Faisalabad historical population statistic.

Table 14-1: Historical Population Statistics

| Year | Population | | Population Growth | |
|------|------------|-----------------|-------------------|-----------------|
| | FDA | Faisalabad City | FDA | Faisalabad City |
| 1951 | 583,503 | 209,787 | - | - |
| 1961 | 892,232 | 456,728 | 4.3% | 8.1% |
| 1972 | 1,503,210 | 877,357 | 4.9% | 6.1% |
| 1981 | 1,847,585 | 1,181,562 | 2.3% | 3.4% |
| 1998 | 3,064,456 | 2,140,346 | 3.0% | 3.6% |
| 2017 | 4,704,252 | 3,238,841 | 2.3% | 2.49% |

Source: PBS – Census statistics

It is also worth noting that the population growth of Faisalabad district during the inter census period 1998-2017 has been lower than the overall Punjab province. It is due to the presence of higher population growth in other districts of Punjab including Lahore, Rawalpindi, Rahim Yar Khan, Multan, and Gujranwala. Given their higher population growth compared to the Faisalabad district and the FDA area is reflective of the fact that these districts are the epicentre of the migration from other districts before Faisalabad.

14.1.2 Household Size

The average number of persons per household (HH) in Faisalabad city is 6.32 whereas, in the FDA area, it is marginally higher at 6.39 people. Historically, the average HH size has been decreasing and pointing towards relative improvement in housing density over time. The average urban household size has declined from 7.33 to 6.31 persons. It has resulted in expected rapid growth in the housing sector due to the increased formation of smaller and/or nuclear households. **Table 14.2** highlights the facts about household size and other housing characteristics.

Table 14-2: Population and Housing Characteristics of the year 2017

| Parameters | Area under FDA | Faisalabad City |
|---|----------------|-----------------|
| Population (in numbers) | 4,704,252 | 3,238,841 |
| Population growth | 2.28% | 2.20% |
| Area (in km ²) | 1,354 | 168 |
| Population density (persons per km ²) | 3,474 | 19,279 |
| Housing units | 736,744 | 512,284 |
| Household size | 6.39 | 6.32 |
| Owned housing units | 79.8% | 75.6% |
| Rented housing units | 15.9% | 20.4% |
| Rent-free housing units | 4.3% | 4.0% |

Source: PBS – Census 2017

14.1.3 Population Distribution

Higher population growth in the FDA area as compared to the overall districts indicates that the Faisalabad district has over 55% of its population below 25 years of age. These facts point

towards the existing growth potential due to the presence of young human resources as well as the increasing need for employment opportunities.

14.2 INFRASTRUCTURE

Faisalabad had long been a centre of attraction for the business community primarily due to the concentration of the textile and associated high value-added industries coupled with its significantly improved and greater regional connectivity through provincial highways and road networks. However, conditions of internal roads and other associated road infrastructure are more or less the same in the Faisalabad district as well as in other districts of the Faisalabad division. Even though the area of Faisalabad district is about 33% of the entire Faisalabad division, its road network comprises around 38% of the roads in the Faisalabad division. It indicates that higher mobility and greater connectivity are the most vital aspects of business activities to flourish.

The traffic volume on roads of Faisalabad district is significantly higher that have caused huge traffic congestion as compared to other districts of this division. Motor cars, jeeps, motorcycles and scooters, along with Station Wagons on roads have caused a rapid increase in motorized traffic and resulting congestion. In particular, the rapid increase in traffic congestion is due to an almost two-fold increase in motorcycles and scooters on roads from 0.61 million in 2013 to 1.11 million in 2017 in a short span of four years. As a whole number of vehicles on road in district Faisalabad are nearly 1.3 million. More than 40% of these vehicles are on roads of Faisalabad city only, whereas on roads of FDA area these vehicles account for 60%. This highlights the provision of much improved and rapid transport infrastructure in Faisalabad, especially inside FDA boundaries. Currently, the Faisalabad Urban Transport System Service (FUTS) are the main bus operators providing bus service to the public, whereas some public-private bus services are also operating here alongside FUTS like Brothers Metro. This suggests the need for proper urban transport infrastructure, which in turn demands further development of roads and public transport infrastructure.

14.2.1 Public Utility Services

The major sources of drinking water in the Faisalabad district are tap water, electric and hand pumps. Interestingly, a larger share of households in Faisalabad district has a source of drinking water inside the house as compared to the FDA area and Faisalabad city. Nearly 28% of households have to go outside to fetch drinking water in Faisalabad district, whereas this percentage is 34% in Faisalabad city. It signifies the water supply need inside the houses and the water reservoir for residents of the FDA area. Statistics about public utility services for the FDA area and Faisalabad city are shown in **Table 14.3**.

The situation of sewerage is poor in the overall Faisalabad district. Around 44% of the housing units are connected to sewerage in Faisalabad district, 58% in FDA area and 78% in Faisalabad city. Besides, almost 24% of the housing units are connected with open drains in the Faisalabad district. It is 19% in the FDA area and 12% in Faisalabad city as well.

**Table 14-3: Situation of Public Utility Service in the Year 2017
(As Percentage of Total Housing Unit)**

| | FDA area | Faisalabad City |
|----------------------------------|----------|-----------------|
| Sources of Drinking Water | | |
| Inside | 69.8% | 66.0% |
| Tap | 14.1% | 14.6% |
| Electric / hand pump | 50.4% | 45.1% |
| Others | 5.3% | 6.3% |
| Outside | 30.2% | 34.0% |
| Tap | 4.7% | 3.8% |
| Electric / hand pump | 8.8% | 8.4% |
| Others | 16.7% | 21.8% |

| | FDA area | Faisalabad City |
|----------------------------|----------|-----------------|
| Toilet facilities | | |
| Connected with sewerage | 57.6% | 77.8% |
| Connected with septic tank | 4.3% | 2.1% |
| Connected with open drain | 18.9% | 12.0% |
| Pit with slab | 13.8% | 6.9% |
| Other | 0.7% | 0.5% |
| None | 4.8% | 0.8% |
| Cooking fuel | | |
| Wood | 31.1% | 13.5% |
| Gas | 65.3% | 82.6% |
| Other | 3.6% | 3.9% |
| Source of lighting | | |
| Electricity | 98.2% | 99.0% |
| Others | 1.8% | 1.0% |

Source: Consultant's estimates based on Census 2017, PBS

Most of the households (over 83%) have access to gas service in Faisalabad city whereas 65% of households in the FDA area and 54% in the overall Faisalabad district use gas as the cooking fuel. Wood is the other major cooking fuel in the district. It indicates significant demand for new gas connections in the FDA area.

Access to electricity for lighting is available to about 99% of the households in Faisalabad city and 98% of the households in the entire Faisalabad district have electricity connections.

The overall analysis suggests the need to improve the sewerage system, water supply, and gas supply in the district. New localities must be established in consideration of these utilities to improve the overall living condition of the Faisalabad district.

14.2.2 Water Supply

Existing Water Sources:

In the Faisalabad district, both groundwater and surface water are available but hardly sufficient for the residents. However, groundwater is comparatively saline than surface water. The surface water sources of Faisalabad district are linked with river Chenab from Chiniot Canal, Jhang Branch Canal, and Rakh Branch Canal.

Water Demand:

Considering 40 gallons per capita per day as being existing water demand, its consumption estimates turn out to be 315 MGD for Faisalabad district, 188 MGD for the FDA area, and 130 MGD for the Faisalabad city. Contrary, the level of current water supply by the Faisalabad Water and Sanitation Agency (WASA) to the residents of the FDA area stands at 88.5 Million Gallons Per Day (MGD). It shows large water supply deficit and under-consumption of water exists in the Faisalabad district.

Existing Water Supply:

Water and Sanitation Agency (WASA) Faisalabad is solely responsible for water supply in the area falling under its jurisdiction. From the existing sources of surface water, WASA supplies 56 Million Gallons Per Day (MGD) water from Chiniot Well-Field Area located near Chenab River through 29 tube wells, 20 MGD from Jhang Branch Canal through 25 tube wells installed at Jhang branch Well-Field area, and 8 MGD through 8 tube wells installed at Rakh Branch Canal which passes through the city. Around 4.5 MGD water is also provided through the surface water treatment at "Jhal Khanuana Water Works" and "Millat Town Water Works". Hence, altogether WASA supplies 88.5 MGD water from all available sources.⁶⁹ It requires

⁶⁹ WASA Faisalabad

other water sources or new reservoirs in bridging the gap in existing water supply and demand to the FDA area, which demands more than double the existing supply.

Sewerage and Drainage:

Faisalabad has a sewerage and drainage system with a capacity to treat 20 MGD wastewater and almost over 78% of the households are connected with the disposal stations. However, the actual sewerage water generated by Faisalabad is approximately 280 MGD.⁷⁰ It suggests significantly higher slackness in sewerage water treatment capacity exists in WASA's system.

Solid Waste Management:

Faisalabad Solid Waste Management Company was established by the City District Government Faisalabad and was given the task of collecting solid waste and its dumping into allocated and requisite locations.

Electricity:

Faisalabad Electric Supply Company (FESCO) is responsible to supply electricity to the entire Faisalabad district to operate under the license from NEPRA (National Electric Power Regulatory Authority).

14.3 ECONOMIC ENGINES OF THE CITY

14.3.1 Agriculture

Pakistan is still predominantly an agriculture-based economy given the sizable labour force associated with this sector. A similar trend one may also observe in Punjab where 40% of its labour force earns its livelihood from the agriculture sector. Contrary, due to greater urbanization in Faisalabad, a lesser proportion of the labour force is engaged with the agriculture sector. The estimated shares of labour force affiliated with the agriculture sector are Faisalabad district (28%), FDA area (19%) and Faisalabad city area (4.5%) only.

Agricultural activities in Punjab are vital for the whole country. Punjab province geographical area comprises 26% of the national geographical area whereas, its cultivated area under various crops accounts for 57% of the total national cultivated area. A similar pattern is observed in the Faisalabad district and in the FDA area that respectively consists of 0.7% and 0.2% of the national area contrary to its 2.2% and 0.4% share in the national cultivated area. This reflects a little but relatively higher contribution in the agricultural activities as compared to its area.

Unfortunately, the agriculture sector contribution in national value-added is much less as compared to other sectors including industries and services. It can be demonstrated by comparing sectoral shares of the labour force with its estimated gross domestic product (or gross regional product (GRP), National statistics shows that 39% of the agriculture labour force contributes only 19% in national GDP. A nearly alike pattern is observed in Punjab and Faisalabad as well. In Punjab, 40% of the labour force engaged in agriculture contributes 20% in GRP, in Faisalabad district agriculture contributes 13% in its GRP, in FDA area agriculture contributes 8% in its GRP and Faisalabad city merely 1.8% of the city's GRP. A large majority of the agriculture labour force sector are either illiterate or have lower education levels, matric or below. This is perhaps the most critical reason for lower agriculture productivity.

The cropping pattern of major crops at the national, provincial and district Faisalabad level is more or less similar. The major crops include wheat, rice, cotton, and sugarcane. Development statistics of Punjab shows that 70% of the area sown both at national and in Punjab is attributed to these four crops including 67% in Faisalabad district. Punjab has cotton, and 64% of sugarcane. In Faisalabad district where 3.8% of the country's population lives, contributes

⁷⁰ WASA Faisalabad

3.7% in the country's wheat production, 0.8% in rice, 0.6% in cotton, and over 8% in sugarcane output. Interestingly, Faisalabad's agriculture production is tilted towards sugarcane followed by wheat. It does not produce more cotton despite the greater concentration of the large textile industry. The apparent reason behind this pattern perhaps is the lower yield per hectare of cotton, and rice in Faisalabad. The other crops sown in Faisalabad include linseed, canola, and guava.

14.3.2 Industries

The contribution of the industrial sector in the national, provincial and local GDP / GRP and provision of employment is considerably large. Its estimated sectoral share in the national and provincial GDP / GRP has been hovering between 21% - 22% for the last several years. Moreover, the share of the labour force engaged with industries relative to its contribution in national, provincial and area-specific GDP / GRP including FDA and Faisalabad city area is also worked out and that vary by area.

The contribution of industries in the provincial GRP of Punjab is estimated to be at 22% as compared to its share of 25% in the labour force. Moreover, Industrial contribution in district and FDA area GRP is 28% each, and in Faisalabad city, its share is 29%. The contrary share of the associated industrial labour force is about 35% in Faisalabad district, 38% in the FDA area, and 43% in Faisalabad city. The critical point to note is the generation of lower industrial value-added relative to the labour force engaged in the FDA area and Faisalabad city as compared to overall Punjab. As 25% of the labour force contribute 22% in the provincial GRP and 43% of the labour force contributes 29% in the GRP of Faisalabad. This suggests that the industrial sector of Punjab is producing higher value-added products as compared to Faisalabad. The lower industrial share of GRP in Faisalabad city may signify either the lower productivity per employee or the use of comparatively old and outdated plant and machinery due to lower investment in BMR in Faisalabad.

The city of Faisalabad falls under the Regional Economic Hub in the system of cities and growth infrastructure strategy designed for Punjab where a major concentration of industrial units of textile and clothing, chemicals, transport and basic manufacturing is located. The statistics related to the number of factories located in the Faisalabad division clearly show a predominance of Faisalabad district among all the six districts of this division. As per development statistics, over 82% of the total factories of the Faisalabad division are located in the Faisalabad district, accommodating over 86% of the employees of the entire Faisalabad division. It shows that a higher concentration of factories and workers led to increased employment opportunities. Consequently, the average employment per factory located in the Faisalabad district is significantly higher than that observed in other districts.

The city industrial growth commences with the establishment of numerous small scale cottage units by the local entrepreneurs and within a short period graduated to many established SME's and further to large scale units. This fast pace industrial development in SME's primarily attributable to local entrepreneurial acumen that had utilised the power loom boom for setting up of several units in small spaces all over the city. The presence of a large yarn market as a source of raw material for finished textile goods and its forward linkages to domestic and international markets helped accelerated the production and sales volume further. This fast pace industrial growth in Faisalabad city poses many challenges including the unplanned spread of SME's all over the city including centre city residential areas causing congestion, environmental hazards besides adding inefficiencies. The below maps provide the location of industrial spread in the Faisalabad city.

The industrial landscape of Punjab establishes the importance of Faisalabad given its predominant role in industrial sector activities. The available statistics suggest that a total of 46,357 (75%) active industrial units are located in the four major concentrations of Punjab with the highest number of industries 12,985 (28%) are situated in Faisalabad, followed by 27.3% in Golden Triangle, 14.6% in Lahore and 4.3% in Multan.

The industrial clustering of Faisalabad shows a dominating role of small and medium scale industries in the provision of employment to the city residents. The available statistics show that from a total of 12,985 industrial units in Faisalabad, 12,492 (96.2%) consists of small-scale units having employment size of 1-50 workers, followed by 372 (15.1%) medium scale units with an employment level between 51 to 250 and about 121 (0.9%) large scale industrial units having employment levels of 251+ workers. These industries are occupying nearly 267,314 workers with the highest 137,018 (51.3%) workers are absorbed in small scale units followed by 90,027 (33.7%) highly skilled and professional workforce is attached with the large-scale industrial units and 40,269 (15.1%) workers are dependent to the medium size industries for their livelihood Altogether small and medium-size units (SME) is the mainstay of city industries. Ranking by industry and employment concentration in Faisalabad is shown in **Table 14.4**.

Table 14-4: Ranking by Industry and Employment Concentration in Faisalabad

| Rank | Sectors | Firms in No. | % | Sectors | Employees in No. | % |
|------|-------------------------------------|------------------------|---------------|---------------------------------|--------------------------|---------------|
| 1 | Textiles | 7,353 | 56.6% | Textiles | 167,214 | 62.5% |
| 2 | Other Manufacturing | 1,189 | 9.2% | Wearing Apparel | 35,358 | 13.2% |
| 3 | Food Products | 942 | 7.3% | Food Products | 18,728 | 7.0% |
| 4 | Printing and Reproduction | 582 | 4.5% | Other Non Metallic Mineral | 7,097 | 2.7% |
| 5 | Wearing Apparel | 555 | 4.3% | Printing and Reproduction | 6,602 | 2.5% |
| 6 | Machinery and Equipment N.E.C | 414 | 3.2% | Chemicals and Chemical Products | 5,445 | 2.0% |
| 7 | Other Non-Metallic Mineral Products | 385 | 3.0% | Machinery and Equipment N.E.C | 4,545 | 1.7% |
| 8 | Rubber and Plastic Products | 315 | 2.4% | Rubber and Plastic Products | 4,298 | 1.6% |
| 9 | Paper and Paper Products | 268 | 2.1% | Paper and Paper Products | 4,158 | 1.6% |
| 10 | Furniture | 246 | 1.9% | Other Manufacturing | 3,346 | 1.3% |
| 11 | Fabricated Metal Products | 188 | 1.4% | Beverages | 2,287 | 0.9% |
| 12 | Chemical and Chemical Products | 186 | 1.4% | Furniture | 1,805 | 0.7% |
| 13 | Motor Vehicle, Trailors etc | 79 | 0.6% | Fabricated Metal Products | 1,547 | 0.6% |
| 14 | Wood and Wood Products | 69 | 0.5% | Basic Pharmaceuticals | 1,074 | 0.4% |
| 15 | Basic Metals | 64 | 0.5% | Coke and Refined Petroleum | 809 | 0.3% |
| 16 | Miscellaneous | 150 | 1.2% | Miscellaneous | 3,028 | 1.1% |
| | Total | 12,985 | 100.0% | Total | 267,341 | 100.0% |
| | | (28% of Punjab) | | | (24.2% of Punjab) | |

Source: The Urban Unit, Punjab

However, the pattern of industrial concentration and its share in city employment reflect the predominance of the textile sector given its 60% share in total industrial units of Faisalabad followed by 9.2 % units of other manufacturing and 7.3% units of the food sector. Other sectors in order of importance include printing and reproduction, machinery and equipment N.E.C, non-metallic mineral products, rubber and plastic products and so on.

The importance of textile in Faisalabad is also evident given its high share in the total employment of Faisalabad. The textile sector absorbed 202,572 (75.7%) workers in the total industrial workforce of Faisalabad. The role of all 15 industrial sectors in employment is given in Table 6. In the context of the textile sector, this workforce is productively employed in various textile sector units and facilities as given in **Table 14.5**.

Table 14-5: Number of Textile Units by Classification

| Type of textile industrial units | Quantity |
|------------------------------------|----------|
| Spinning & Composite Mills | 73 |
| Power Looms (Standard & Auto) | >300,000 |
| Shuttle-less Looms / Air Jet Looms | >9000 |
| Sizing Units | >100 |

| | |
|--|-------|
| Textile Processing, Printing & Finishing Units | >250 |
| Hosiery & Knitwear Units | >1500 |

Source: The Urban Unit, Punjab

Table 14.6 provides statistics on the sectoral share of employment. According to the table, 39% of the city labour force is attached to the manufacturing sector followed by 27% workers are engaged with the wholesale and retail trade services for earning their livelihoods. These two sectors combined contributes two-thirds of the city employment. The share of other important sectors in the city employment generation are construction (5.9%), transport (5.6%), other services (4.6%), education (4.3%), agriculture (1.4%) healthcare (1.3%) and so on.

High value-added textile product from Faisalabad is exported to many countries including USA, U.K and other European and Middle Eastern countries. Estimated \$ 5.5 billion annual earnings are being derived from textile exports which are about 45% of the country exports. Key textile groups of Faisalabad include Nishat, Sitara, Interloop, Crescent, and many others. Apart from textiles various other important industries are also located here and play an important role in the provision of employment to the local population. These industries include chemicals, food, foundry, agro-processing and pharmaceuticals sectors. The following table provides the city economic structure and the role of various sectors in the generation of city employment.

Table 14-6: Sectoral Share in Employment- Faisalabad

| Sr. No. | Sectors | Percent |
|---------|-------------------------------|---------|
| 1 | Manufacturing | 39.10% |
| 2 | Wholesale & Retail | 26.90% |
| 3 | Construction | 5.90% |
| 4 | Transport | 5.60% |
| 5 | Other Services | 4.60% |
| 6 | Education | 4.30% |
| 7 | Accommodation | 3.00% |
| 8 | Activities of Home | 2.50% |
| 9 | Agriculture | 1.40% |
| 10 | Healthcare | 1.30% |
| 11 | Public Administration | 1.00% |
| 12 | Financial and Insurance | 1.00% |
| 13 | Water Supply and Sewerage | 0.90% |
| 14 | Professional | 0.60% |
| 15 | Real Estate | 0.50% |
| 16 | Administrative | 0.50% |
| 17 | Electricity, Gas | 0.30% |
| 18 | Information and Communication | 0.30% |
| 19 | Arts, Entertainment | 0.20% |

Source: The Urban Unit

14.3.3 Services

The services sector comprises wholesale and retail trade sector, banking and insurance, communication and transportation sector including air, sea and road transport, education and health services etc. The services sector contributes much higher and enhance livability globally and particularly in urban economies. Faisalabad current economic structure is suitable and supportive to enhance the share of the services sector particularly by investing in IT and communication and other allied services. Given the large domestic market of high value-added textile and clothing, the use of IT and its connectivity will provide large market access. The further potential of IT and IT-enabled services including software exports and E-Commerce

has a greater scope and need to be explored by promoting the private sector through facilitation and incentives.

It is important to point out that the contribution of the services sector in the national GDP appears to be the highest at 60% with its workforce share of 37% in the national labour force. This pattern is, even more, overwhelming in urbanized areas. In Punjab, 35% of the services labour force contributes 58% in its GRP, whereas respective labour force and GRP shares for FDA area are 44% and 64%, and in Faisalabad city, these shares are 53% and 70%. Despite hosting a large textile industry, the major share of the employed labour force is in the services sector in Punjab.

This pattern is partly evident from the distribution of labour force by occupation in Faisalabad city. A thin 22% of the labour force work in industries either as plant and machine operators or as assemblers and/or as technicians and associate professionals and the majority of them are males.

In 2017-18, the total GRP of Punjab is 18.4 trillion about 53% of the country's GDP, which roughly equals its provincial population share. Given that 60% of the national labour force are working in Punjab, producing 53% of the national GDP, it's per employee total productivity seems to be somewhat lower. To examine relative performance sectoral/total productivity shares are also worked out for Faisalabad district, FDA area, and Faisalabad city alongside Punjab and the country. The comparative figures show that Faisalabad city produces a higher per capita GRP of Rs. 176,837 in comparison to Punjab per capita GRP of Rs 166,886. Moreover, Faisalabad district and FDA area per capita contribution in their GRP is relatively less than the average per capita provincial GRP. Similarly, Faisalabad city is performing better while comparing its per-capita GRP with somewhat lower national per capita GDP figures. Moreover, Faisalabad city comprises 1.56% of the country's population and 1.37% of the country's labour force but produces 1.65% of Pakistan's output. As a whole, this situation reveals lower per capita GRP in Faisalabad district and FDA area and higher in Faisalabad city in comparison to national and Punjab province per capita GDP / GRP.

Figure 14.1 depicts the commercial areas in Faisalabad city and FDA controlled areas. It suggests that the commercial areas are spread across Faisalabad city and the expansion can be observed along with the major roads going out of Faisalabad into FDA controlled areas. The expansion is likely to evolve in a similar direction and likely to concentrate in the entire FDA controlled area later.

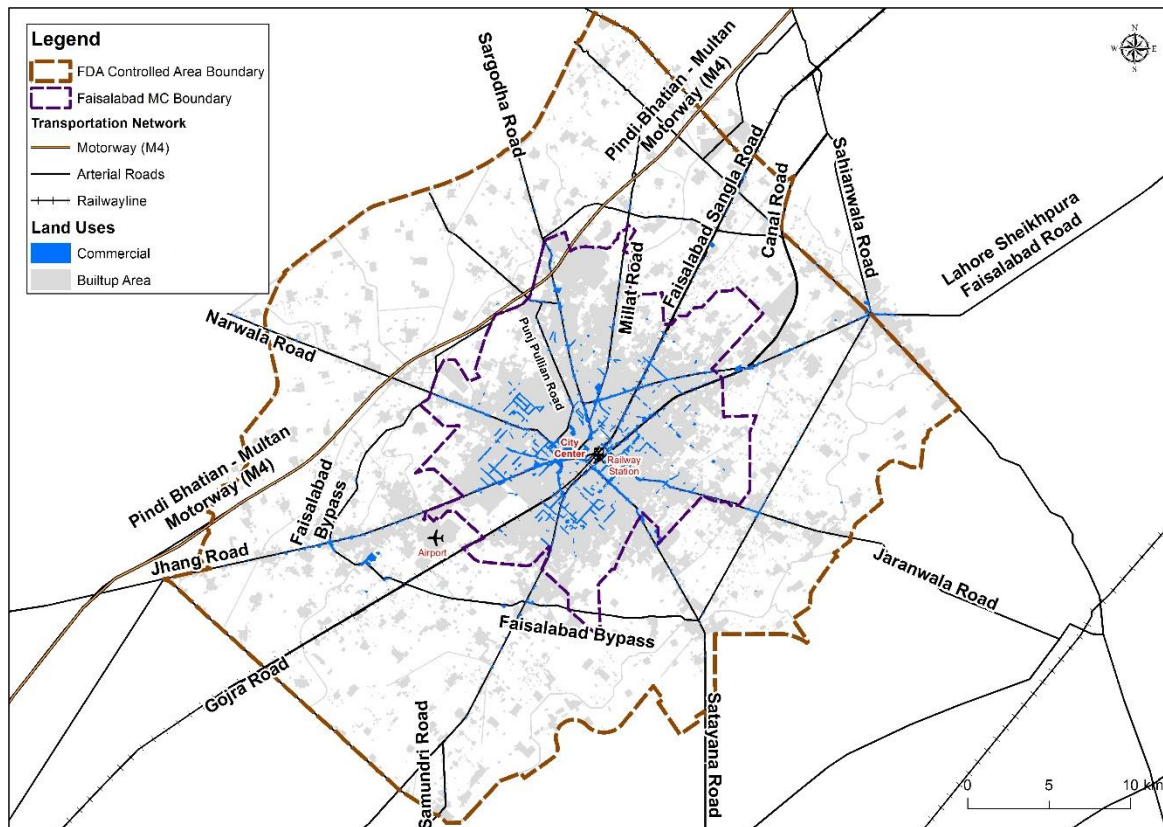


Figure 14-1: Commercial Areas in Faisalabad

14.3.4 Labour Force Participation by Occupation, Education and Gender in Faisalabad

The employment conditions in Faisalabad are reviewed given its overall labour force participation rate (10 years and above) which stand at 41%. This somewhat lower labour force participation is due to lower female labour force (17%) participation in comparison to their male counterparts whose share is about 65%. It is worth noting that despite attainment of higher and even to some extent professional qualification by women at large, their participation rate in economic activities finds significantly lower. It is more pronounced in urban areas with their 9% participation and somewhat higher at 26% amongst rural area females. Contrarily the female unemployment rate is significantly higher in the urban areas (11.2%) as compared to rural areas (2.8%) whole unemployment rate had been 4.3% in 2014-15.

Apart from rural-urban labour force disparity as enunciated above, the overall labour force participation in the FDA area is estimated at 40% whereas it is 37% in the Faisalabad city. The unemployment rates in these areas are higher as compared to the overall Faisalabad district due to the higher female unemployment rate and lack of employment opportunities for urban females.

The pattern of employment in Faisalabad city as depicted by employee's occupation category indicate that most of the male labour force has occupied jobs like service and sales workers, craftsmanship and related trades, besides plant and machine operators, and elementary occupations. Contrary, the female labour force finds more attraction in crafts and related trades, professional jobs, and elementary occupations. Moreover, Faisalabad district-level figures by occupation distribution show some deviation due to the larger absorption of its workers engaged with skilled agricultural, forestry, and fishery work. It is due to the higher proportion of the rural population in the Faisalabad district as compared to the city.

Quantification of population and labour force participation (10 years and above) by their levels of education is worked out by gender. It shows that the composition of male and female population is respectively about 51% and 49 % in all the three areas of Faisalabad including

Faisalabad district, FDA area, and Faisalabad city. Amongst males, labour force participation somewhat varies by location as it is 78% in Faisalabad district, 82% in FDA area, and highest at 87% in Faisalabad city. The overall distribution of labour force and population by educational attainment is almost similar in all respective areas. However, there exist differences in population and labour force by their levels of education and gender. It is clear that labour force participation increases with the levels of educational attainment amongst both males and females as reflected by the higher share of more qualified i.e; either attained intermediate / graduation degree and/or having a master's degree. It is more pronounced amongst female residents in a more urbanized area of Faisalabad city. In the FDA area, 2.7% of the females having attained master's degree or above their labour force share is 3.5% (see Table 14.7). In Faisalabad city, the respective percentage shares are 3.3% in population and 6.3% in the labour force.

Table 14-7: Distribution of Occupation by Gender in FDA Area

| Occupation | Male | Female | Total |
|---|---------------|---------------|----------------|
| Service & sales workers | 18.50% | 1.30% | 19.90% |
| Craft and related trade workers | 13.20% | 4.00% | 17.20% |
| Skilled agricultural, forestry, and fishery workers | 10.00% | 6.40% | 16.40% |
| Plant and machine operators, and assemblers | 15.40% | 0.60% | 15.90% |
| Elementary occupations | 9.60% | 3.30% | 12.90% |
| Technicians and associate professionals | 5.30% | 0.10% | 5.40% |
| Managers | 4.90% | 0.10% | 5.00% |
| Professionals | 2.80% | 2.20% | 5.00% |
| Clerical support workers | 2.20% | 0.10% | 2.30% |
| Total | 81.90% | 18.10% | 100.00% |

Source: Consultant's Estimates based on LFS 2014-15

This analysis directs us to adopt a three-pronged strategy for employment and labour force. First increased focus is required to enhance female labour force participation in urbanized Faisalabad i.e FDA area and Faisalabad city. Second, it demands higher investment to generate more employment opportunities with the simultaneous curbing of the high prevailing unemployment rate in urbanized areas. These opportunities are more likely to exist in the manufacturing and services sectors. And third, targeted efforts are needed to develop a labour force in professional technical, managerial and highly skilled categories and more training opportunities are warranted to accelerate the pace of economic development in Faisalabad city and district.

14.4 GROWTH POTENTIAL

The Punjab Business Plan 2047 developed by Urban Unit aims at developing economic prosperity for the large population of Punjab. This plan identifies existing and potential economic growth sectors and clusters to achieve high growth and derive synergies for the economic development of the province and various urban/rural areas including Faisalabad. As per the business plan, Faisalabad falls in the 17-economic regions of Punjab. It has identified priority industrial growth sectors and clusters for Faisalabad in which it has a comparative advantage and competitive edge. These focus sectors are textile and clothing, chemicals, transport, basic manufacturing and maize. It prioritizes clusters for Faisalabad and includes 1) agro and food processing, 2) textile and clothing, 3) mixed / hybrid, 4) light engineering, 5) high-tech (technologies), 6) auto and parts, 7) chemicals and minerals, 8) logistics and cargo, 9) financial and support services. Moreover, further diversification in the industry and services using both conventional sectors and hi-technology sectors based on competitiveness for urban cities and Faisalabad are recommended to move towards high and fast pace economic development. It is possible in the forthcoming industrial estates with improved infrastructure facilities at these sites will also provide a competitive edge to the Faisalabad businessman and entrepreneur along with other potential investors. At present, the share of the industrial sector in the provincial GDP is 17.5% and the target is to take this

up to 23% of the GDP by 2030. This will be achieved through a reduction in the share of the agriculture sector.

To achieve high growth provincial target business plan also lists existing and future top 10 export sectors. At present textile and clothing are the two top export sectors and a major part of this export come from Faisalabad. Government future business plan also lists high value-added clothing and textile products on the top followed by in order of priority manufacturing of electronic components, processed food, IT and consumer electronics, textile, transport equipment, chemicals, non-electronic equipment, leather products and fresh food.

Besides, Faisalabad is the third largest and one of the most densely populated cities of Pakistan, well connected with the national highway and motorway with rest of the region and country, having international airport and railway network has significant tourism potential. It has many historical and recreational tourist sites. These include the historical Clock Tower, Qaisery Gate, Lyallpur Museum, Gumti Fountain. Moreover, Jinnah Garden, Hockey Stadium and Gatwala Wildlife Park also attracted many visitors and tourists. These tourist sites need to be properly maintained and wherever required facilitation services are to be provided to generate public attraction. An appropriate fee and charges may be imposed on visitors to maintain these places. Few of these sites may be handover to the private sector on a contract basis.

The scope of development and the use of Information and Communication Technology (ICT) along with soft and hardware development in promoting business and thereby earnings are enormous. Faisalabad possesses an adequate number of working professionals and IT trained human resources and they require an appropriate window for further growth. According to the report the city has about 160-IT companies with over 5000 employees. There are more than 2,000 freelancers as well. These companies' freelancers are generating about \$ 200 million. Given the huge global market of about \$ 550 billion the share of Pakistan is very low. To enhance the share of Pakistan in the global market, Technology parks, co-sharing and virtual infrastructure is required in this sector in bringing efficiency and reducing the cost of doing business. Moreover, an adequate number of quality IT professionals and qualified trained individuals are needed in this field with IT education and training from high learning institutes training centres and Universities.

14.5 GOVERNANCE

The major authorities in the governance hierarchy are provincial and local governments. The provincial government of Punjab finances major development projects through the Faisalabad Development Authority (FDA), whereas WASA Faisalabad is responsible for the provision of water supply at local levels, maintaining sanitation and drainage systems, and local government look after local and municipal roads and streets. The revenue assignment and capacity of local councils are not very significant, and accordingly, the provision of financing and revenues stands at quite lower levels.

The most important point is the involvement of multiple governments, authorities, agencies, departments in the urban management of Faisalabad. The government of Punjab, Department of Communication and Works, Housing Urban Development and Public Health Engineering Department, Provincial Highway Punjab, Environment Protection Department, Punjab Housing and Town Planning Agency, Urban Unit Punjab, Forests Department of Punjab Parks, and Horticulture Agency Faisalabad are involved at the provincial level. City District Government Faisalabad, Traffic Police, Rescue 1122, and Town Municipal Administration (TMAs) are working at district and local government level and Faisalabad Development Authority (FDA) taking part in the development of Faisalabad city and its surrounding areas falling under its control.

Another important aspect is the governance of the FDA which is working under the Punjab Development of Cities Act, 1976 has several members including Chief Minister as its

Chairman and Mayor, and other members from provincial government departments and technical experts etc. The authority has the power to 'initiate and maintain a continuous process of comprehensive development planning for the area to prepare a development plan'. The mayor as representative of local government is a member of the FDA has limited authority in the presence of the Chief Minister as Chairman and other members who are also from the provincial government. This confines the role of local government in the planning and development of the Faisalabad city. Punjab Local Government Act 2013 restructured the local government and its functions contrary to the earlier Local Government Act 2001. Besides this, separate District Education and Health Authorities are having their Chief Executive Officers appointed by the provincial government. This multiplicity of institutions/authorities / working bodies makes the system for public service provisions more complex and looming. This warrants reforms in the overall governance structure, more likely, under one unified command of the Mayor of Local Government. Also, high powered Steering Committee is proposed where a representative of multiple agencies and authorities at all levels of government are members to resolve issues and matters about local government development, operation and maintenance of services; through its resolution by critical decision making and effective coordination. Steering Committee also proposed to be chaired by the elected Mayor of the local government.

14.5.1 Provincial and Local Finances

The allocated budget for the Local Government & Community Development Department (LG&CD) in Faisalabad is very low and barely reaches Rs.1,002 million including allocations for Annual Development Programme (ADP). The provincial budgetary allocations and transfer receipts to the local government department of Punjab were Rs.368 billion in the year 2017-18 and that was later revised down to Rs.349.5 billion. The budgetary figure stood at Rs.444.9 billion in 2018-19 which had also revised downward to Rs. 434.7 billion, also in 2019-20 the budgetary transfer figure was at Rs.442.4 billion. These transfer figures to the LG&CD department as reported in relevant year's White Paper of Punjab are not detailed and clear as only part of it is to be transferred to Local Governments of Punjab under the PFC Award. This is essential for meeting local tiers recurring expenditure requirements. Besides health and education agencies budget financing. If transfers to local governments are based using population criteria, then Faisalabad district would get around Rs.25 billion in 2017-18 and Rs.32 billion in 2018-19 and 2019-20 whereas it has received only about Rs. 2.6 billion (see table 21) to all the 9 local councils in Faisalabad including FMC has received Rs.1.07 billion in the year 2017-18. The total number of union councils in urban areas of Faisalabad District is 157, whereas in rural areas the corresponding figure stands at 189. It is thus clear that various layers of local councils receive limited funds from the PFC award. The current magnitude of provincial transfer receipts barely meets the local council's current expenditure and a limited amount left for development. However, these provincial transfers to local councils need to be enhanced to adequately finance both recurring and development functions.

14.5.2 Levels of Local Finances and Tax Collection

Local councils in Punjab so as in all other provinces derive their fiscal powers and authority according to their local government acts. These fiscal powers including both revenue and expenditure functions vary by type of urban and rural local councils. As per the Local government Act, 2013 Faisalabad city enjoys the status of Municipal Corporation besides Faisalabad district has four TMA Corporations including Layalpur town, Iqbal Town, Chak Jhumra town and Tandianwala Town. It is clear that local councils, in general, have limited fiscal powers and occupy less buoyant sources of revenues. Property tax is the major local tax besides other minor taxes. Property tax is highly under-exploited partly in the presence of various concessions and exemptions and partly due to lack of fiscal efforts confines its revenue base to its true potential. This phenomenon limits the local finances from its source revenue basis resulting in lower overall local tax collection in Faisalabad.

The main source of income for Faisalabad Municipal Corporation (FMC) is the provincial transfer receipts in the account of the Provincial Finance Commission (PFC) Award for meeting their expenditure requirements. FMC has received Rs. 1.07 billion from PFC transfer receipts that include non-development grants of Rs 834 million and development grants of Rs. 232 million. All other local councils due to their smaller size have received much lesser amounts in the account of PFC transfers.

14.5.3 Existing Problems with Taxation, User Charge Structure and Related Improvement

Following the Local Government Act 2013, the powers of Local government have been limited with fewer expenditure assignments. Their development largely hinges upon provincial financial allocations in the account of the Annual Development Plan (ADP) and transfer receipts from Provincial Finance Commission (PFC).

FBR yearbook publishes a collection of federal tax revenues from income and corporate tax (direct tax), general sales tax (GST), import duties and federal excise duties for various taxation zones including the Faisalabad Division. This reflects the potential of the Fiscal and economic base of various taxation zones in the country. The magnitude of net federal tax collection from its taxes in the Faisalabad division hovered around Rs. 22 to Rs 44 billion during the periods 2013—2018. The major tax collected pertains to the direct tax, followed by sales tax on imports and domestic goods. The direct taxes and sales tax on imports have a consistent upward trend, while sales tax on domestic goods has been somewhat volatile. The numbers of income and sales tax filers from Faisalabad according to FBR are 198,113 and 14,650 respectively. Tax collection by FBR from Faisalabad division is shown in **Table 14.8**.

Table 14-8: Tax Collection by FBR from Faisalabad Division (Amount in million Rs)

| Taxes | | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 |
|-----------------------------------|--------|----------|----------|----------|----------|----------|
| Sales Tax | Gross | 6,696.3 | 7,725.2 | 8,320.1 | 11,811.5 | 7,370.0 |
| | Refund | 3,684.9 | 5,530.9 | 6,886.7 | 1,949.2 | 5,605.0 |
| | Net | 3,011.4 | 2,194.3 | 1,433.4 | 9,862.3 | 1,765.0 |
| Direct taxes | Gross | 15,837.5 | 18,767.8 | 20,622.5 | 21,170.0 | 27,153.0 |
| | Refund | 202.0 | 325.4 | 535.8 | 257.0 | 398.5 |
| | Net | 15,635.5 | 18,442.5 | 20,086.7 | 20,913.0 | 26,754.5 |
| Federal Excise Duties | Gross | 265.1 | 392.2 | 375.2 | 150.6 | 147.6 |
| | Refund | - | - | 92.9 | - | - |
| | Net | 265.1 | 392.2 | 282.3 | 150.6 | 147.6 |
| Sales Tax on Imports | Total | 3,433.0 | 4,091.0 | 11,002.0 | 13,011.0 | 15,104.0 |
| Total Tax collection by FBR (Net) | | 22,345.0 | 22,345.0 | 25,120.0 | 32,804.4 | 43,936.9 |

Source: FBR Yearbook 2017-18

The Provincial sales tax collected by Punjab Revenue Authority (PRA) between the period from 2012-13 to 2017-18 stood between Rs.90 and Rs.130 billion. According to per capita provincial tax, the size of the overall sales tax on services from Faisalabad roughly comes to around Rs.12 billion to Rs.17 billion. Hence, tax collection had been roughly between Rs.34 billion in 2013-14 to around Rs.61 billion in 2017-18. The estimated GRP of the Faisalabad division in 2017-18 is 1,761 billion. The roughly estimated Tax-to-GDP ratio of Faisalabad is around 3.4%, which is significantly lower than the comparable national figure of Tax-to-GDP.

14.5.4 Annual Development Programme (ADP)

The provincial ADP allocations to Faisalabad and other districts in Punjab are financed primarily by the provincial government given their available resources that may vary over time. In the case of Faisalabad ADP allocations, they had not been very consistent in terms of budget size and sectoral priorities. The provincial ADP budgetary figures for Faisalabad were Rs.20.2 billion in 2017-18 that had dropped to merely Rs.7.3 billion in 2018-19, followed by

Rs.8.8 billion in 2019-20. In the fiscal years, 2017-18 and 2018-19 under special initiatives textile industry has been provided relatively higher priority in the ADP allocations. Besides this, priorities have also been emphasized for other important sectors including urban development, roads, water, and sanitation followed by health and education sectors in the years 2017-18, 2018-19, and 2019-20. Despite this, the size of development allocations to Faisalabad has been extremely volatile reflecting a lack of consistency and prioritization in short to medium run periods. Total sector-wise allocations under the development program and the relative share are given in **Table 14.9** below.

Table 14-9: Allocations under development Plan to Faisalabad (Amount in million Rs.)

| Sector | Provision for 2019-20 | | Provision for 2018-19 | | Provision for 2017-18 | |
|---|-----------------------|---------------|-----------------------|---------------|-----------------------|---------------|
| | Total | % | Total | % | Total | % |
| Urban Development | 3,547 | 40.1% | 808 | 11.1% | 1,538 | 7.6% |
| Industries, Commerce & Investment | 1,500 | 17.0% | 4,000 | 54.9% | 10 | 0.0% |
| Roads | 913 | 10.3% | 456 | 6.3% | 3,025 | 15.0% |
| Specialized Health Care & Medical Education | 837 | 9.5% | 211 | 2.9% | 488 | 2.4% |
| Agriculture | 575 | 6.5% | 256 | 3.5% | 765 | 3.8% |
| Water Supply & Sanitation | 449 | 5.1% | 175 | 2.4% | 1,255 | 6.2% |
| Sports & Youth Affairs | 217 | 2.4% | 87 | 1.2% | 409 | 2.0% |
| Higher Education | 206 | 2.3% | 273 | 3.7% | 514 | 2.5% |
| Primary & Secondary Healthcare | 190 | 2.2% | 435 | 6.0% | 1,022 | 5.1% |
| Public Buildings | 174 | 2.0% | 83 | 1.1% | 268 | 1.3% |
| LG&CD | 97 | 1.1% | 49 | 0.7% | 198 | 1.0% |
| Energy | 40 | 0.5% | 40 | 0.5% | 105 | 0.5% |
| Social Welfare | 39 | 0.4% | 126 | 1.7% | 166 | 0.8% |
| Population Welfare | 35 | 0.4% | 23 | 0.3% | - | 0.0% |
| Emergency Service (1122) | 15 | 0.2% | - | 0.0% | - | 0.0% |
| Irrigation | 5 | 0.1% | - | 0.0% | - | 0.0% |
| Forestry | 3 | 0.0% | 10 | 0.1% | 14 | 0.1% |
| Governance & Information Technology | 1 | 0.0% | 1 | 0.0% | - | 0.0% |
| School Education | - | 0.0% | 258 | 3.5% | 1,108 | 5.5% |
| Livestock & Dairy Development | - | 0.0% | 0 | 0.0% | 5 | 0.0% |
| Special program / initiatives | - | 0.0% | - | 0.0% | 9,150 | 45.3% |
| Special education | - | 0.0% | - | 0.0% | 51 | 0.3% |
| Wildlife | - | 0.0% | - | 0.0% | 42 | 0.2% |
| Population planning | - | 0.0% | - | 0.0% | 40 | 0.2% |
| Fisheries | - | 0.0% | - | 0.0% | 32 | 0.2% |
| Total | 8,842 | 100.0% | 7,291 | 100.0% | 20,204 | 100.0% |

Source: Multiple Provincial Budgets of Punjab

14.6 ANALYSIS

14.6.1 Strengths, Weaknesses, Opportunities and Threats for Urban Development

Where does Faisalabad (FDA area) stand? We can identify strengths, weaknesses, opportunities, and threats in the physical, social and economic characteristics, infrastructure, and governance in the wake of upcoming developments, like CPEC. From this section onwards, Faisalabad represents the FDA area, unless specified for district or city.

Covering 60% of the population in the second largest district in Punjab by population FDA area certainly has a significant potential of the large labour force and consumer market. Younger and comparatively literate population and labour force capable of producing high value-added goods and services. Female literacy is also an indicative factor of future higher literacy in the region. Over 80% of its labour force is absorbed in the industrial and services sectors thus reflecting its comparative advantage in comparison to several other districts of Punjab where nearly 60% of their labour force is engaged with industrial and services sectors.

The concentration of industrial and services sector has its benefits eminent from its lower per-unit cost of production, ability and high potential to avail benefit from new development, and bright prospects for new investments. Its physical, social, and economic characteristics are the strengths of Faisalabad, but the quantity and quality of its infrastructure, governance, and some other characteristics seem clear hindrances and come up as threats. These aspects are discussed below.

In Faisalabad, an estimated 0.22 million children between the age of 5 and 14 are out of school at present. This fact points towards an important challenge in meeting Goal-4 of the Sustainable Development Goal (SDG), which state 'ensure inclusive and equitable quality education and promote lifelong learning opportunities for all'. Its first target is 'by 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes.' It requires 100% enrolment of the school-going age children. Moreover, besides school education, higher education including college, university education and professional education, females are enrolled more than males. This results in 14% of the males and 15% of females in Faisalabad having intermediate and higher education.

Despite slightly higher female enrollments in higher education, their labour force participation appears low reflecting by their significantly lesser share at 18% compared to 82% males in this category. Another weakness of urbanized Faisalabad (FDA Area) is their lower overall labour force participation at 30% as opposed to 35% in overall Punjab. It is due to the higher labour force participation among rural area residents as compared to urban. Moreover, larger proportion of the labour force is engaged with the industrial and service sector in the FDA area in comparison to national and provincial figures but their average productivity per employee in the FDA area is found significantly lower suggesting relatively lesser value addition in Faisalabad. This may attribute to the fact that somewhat inefficient production processes may be exercised or lack of use of modern technology in production.

The healthcare infrastructure and utility services are also appeared somewhat lacking in Faisalabad. Healthcare infrastructure services are further pressurized due to their extensive use by residents of adjoining districts/localities where the quality of services is either poor, low or non-prevalent. SDG-3 also emphasises: 'Ensuring healthy lives and promoting well-being for all at all ages' requires access to healthcare facilities. One of the healthcare indicators is the number of beds per 10,000 residents and eighteen (18) beds per 10,000 is the threshold defined by World Health Organization (WHO). Faisalabad at present is at a level of less than half of the required facility. Similarly, a significant lack of water supply inside housing units, gas connections, and limited access to sewerage facilities reflects area away from being a better service infrastructure region.

One of the most attractive opportunities for Faisalabad is likely development under CPEC and the SEZs. It has the potential to raise the quality of life of residents and offer an estimated 300,000 new jobs in the next 5 to 10 years. The details of which are further discussed in the next section.

Some of the more likely threats and risks that may cause hindrance and unwarranted delays in Faisalabad development include: First, the presence of multiple institutions, authorities and working bodies with overlapping and unclear functional jurisdictions at all three tiers of governments (Federal, Provincial and Local). This may cause a major hindrance and more likely delay the implementation of any development plan for Faisalabad enabling it to fully reap the benefits from most important projects like CPEC and SEZs. The presence of this phenomenon makes the system more complex and the provision of public services and associated development cumbersome. Appropriate redresser of these weaknesses requires one centralized control ideally under one umbrella leadership (say; Elected Mayor of Municipal Corporation) being head/ Chair of the Steering Committee where representation from all tiers of government institutions and agencies are present in those development and other project aspects where policy level decision with consent can be sorted out to expedite the decision.

The second issue that can cause implementation delays is the lack of timely financing arrangements. As the development budget of Faisalabad has reflected volatility in its quantum and priorities as well. There require a transparent and quick process of project approval and time-bound and roll over financing arrangements has to be prescribed. The third critical risk is the adequate availability of product markets in which Faisalabad had a comparative advantage and products may be consumed/exported out quickly. If the products that are developed and manufactured do not find adequate markets, it will discourage investors. For new markets for products, the international and national exhibition will be useful to promote products and motivate/guide investors.

14.6.2 China Pakistan Economic Corridor

As mentioned earlier Faisalabad district has vast and larger regional connectivity through roads, being well connected to Lahore and Islamabad by the M-3 motorway, whereas the M-4 motorway links Faisalabad to Multan and from there onwards to Sukkur and Karachi, through the Karachi-Lahore motorway. Since a major part of the M-4 motorway is already operational in connecting many important cities. Via M-4 motorway Faisalabad is linked with Multan, through Gojra, Shorkot, and Khanewal. There is no doubt that the M-4 motorway project is extremely beneficial and of vital importance for the economic development of Faisalabad in future. It provides closer links among various industries and prolific businesses in Faisalabad to connect with the China-Pakistan Economic Corridor (CPEC) routes. Two special economic zones in Faisalabad are of vital importance in this regard. The first, **M-3 industrial city** of Faisalabad approved in the year 2016 is expected to be the major beneficiary from CPEC. Another special economic zone, the **Allama Iqbal Special Economic Zone (SEZ)**, is also expanded under CPEC besides the M-3 industrial city. The area of the M-3 industrial city is over 4,300 acres having 607 developed plots of varying sizes ranging from 1 to 12 acres. These plots are completely sold out about 115 units are already under production and nearly 160 more are at the construction stage. The extent of colonization of plots in M-3 industrial cities is about 45% to 50%. Moreover, Value Addition City sloped spread over an area of 225 acres having 128 completely developed and soldout plots with 3/4th of its plots already colonised. The Allama Iqbal SEZ approximately covers 3,000 acres of land. The feasibility report of the Allama Iqbal Industrial City in Faisalabad, adjacent to the existing industrial city of Faisalabad is under the planning and development stages. Out of these two SEZs, the core area used for industrial and commercial activities is expected to be over 5,000 acres.

Under the Special Economic Zone Act 2012, these SEZs provide several benefits to the investors and businesses including the fiscal incentives containing one-time exemption from custom duties and taxes on import of plant and machinery and tax exemptions on income for five to ten years. These benefits will encourage investors to reap out benefits and the jobseekers to gain employment opportunities. It will also result in higher national income which is expected to boost the government revenues from indirect taxes, even in the period of tax holidays.

Major focus industries in the SEZs include Textiles, Engineering, Construction, Automobile, Pharmaceutical, Packaging, FMCG (Fast-moving-consumer-goods), Food processing, Chemicals, Warehouse, and Transportation. Besides it will also give a boost to the support services, like Banking, Insurance, Telecommunication, Training and development, Logistics, Education, Public services etc. The potential development of diversified industrial and services sector activities under CPEC will lead to generating significant backward and forward linkages in the form of increased raw material use/absorption and output consumption in domestic and surrounding localities including exported out to other areas countries. Continued economic activities and the creation of new employment generation may benefit regions and improve the quality of life of the resident population through income generation.

Given the existing FDA area and Faisalabad city land utilization statistics and the sectoral share of employment, it is expected that the SEZs will significantly increase the employment opportunities in the industrial and services sectors. Roughly, from 180,000 to 300,000 new

jobs can be expected from this development in the next 10 years. These SEZs will certainly attract the population of closer districts of Faisalabad. However, this opportunity will turn into reality only when proper planning is undertaken. It requires education, professional training and skill development, rational gender-neutral policies to develop and implement.

Given SWOT for economic development in the context of the existing situation and the expected development through SEZs, the following sections provide analyses for Education, Healthcare, Housing, Water supply and sanitation, Industry and occupational mix, Professional training and research.

14.6.3 Faisalabad's Outlook

The current population (the year 2021) is expected to be passed 5 million. Keeping the growth rates of the urban and rural population, the population of Faisalabad will be around 8.2 million. The share of the urban population will be around 70% (see Table 12). This population would require more housing, utility services, healthcare, education and employment. The outlook of these factors is provided in **Table 14.10** below.

Table 14-10: Proposals of Social and Economic Characteristics & Infrastructure for 2021-2041

| | 2021 | 2025 | 2030 | 2035 | 2041 |
|----------------------------|-----------|-----------|-----------|-----------|-----------|
| Expected population | | | | | |
| FDA area | 5,052,773 | 5,697,393 | 6,429,384 | 7,259,040 | 8,198,321 |
| Rural | 1,558,142 | 1,742,571 | 1,953,750 | 2,193,983 | 2,466,188 |
| Urban | 3,494,631 | 3,954,822 | 4,475,634 | 5,065,057 | 5,732,133 |
| Faisalabad City | 3,478,669 | 3,923,902 | 4,431,218 | 5,007,699 | 5,661,682 |
| Rural | 27,529 | 19,255 | 13,468 | 9,420 | 6,589 |
| Urban | 3,451,139 | 3,904,647 | 4,417,750 | 4,998,279 | 5,655,094 |

Source: Consultant's Estimates

There are nearly 0.8 million housing units in Faisalabad, at present. The demand for new housing units is expected to increase by 24,000 to 36,000 units annually in the next twenty years. Altogether, 0.6 million new housing units are required in the next twenty years. The federal government's plan for the provision of low-cost housing to the poorer segments of society may likely meet only part of the housing needs. The federal government targeted national housing programme is to build 5 million low-cost housing units by 2023 which at present seems highly unlikely. However, its successful implementation if it follows population criteria, Faisalabad will get over 0.11 million new housing units to be constructed and that can serve nearly 17% of the housing demand/units in the next twenty (20) years (see **Table 14.11**).

Table 14-11: Expected Demand for Housing

| Total new housing units required | | | | |
|---|---------|---------|---------|---------|
| | 2021-25 | 2025-30 | 2030-35 | 2035-41 |
| FDA area | 117,689 | 135,402 | 155,831 | 179,405 |
| Rural | 33,966 | 38,919 | 44,607 | 51,144 |
| Urban | 83,724 | 96,483 | 111,224 | 128,261 |
| Faisalabad City | 82,571 | 95,130 | 109,636 | 126,396 |
| Rural | - | - | - | - |
| Urban | 82,571 | 95,130 | 109,636 | 126,396 |

Source: Consultant's Estimates

The standardized services provision of all utilities in the existing and all new housing units, including its access to all commercial and industrial concerns is warranted in Faisalabad to make it a progressive and developed region. Due to the significant lack of water supply sources and major reliance on inside electric and hand pumps in the present housing stock requires raising the water supply by more than double its existing supply. It requires new sources, reservoirs, and new connections as shown in Table 14. It is expected that nearly

50,000 new water supply connections inside housing units in existing as well as in new housing units in the area would be required. In the case of an average of two households (units) per dwelling unit, the requirement of new connections will become half. This can be further adjusted by average dwelling storeys. After 2030, the existing backlog of inside connections provision of water supply will be met. **Table 14.12** provides details about the annual demand for utility services in the next twenty years.

Table 14-12: Annual Demand for Public Utility Services for 2021-2041

| | FDA Area | Faisalabad City |
|---|----------|-----------------|
| Annual Water Supply Connections (inside house) | | |
| For 2021 – 2030 | 49,448 | 36,692 |
| For 2030 – 2041 | 33,524 | 23,603 |
| Annual Sewerage connections | | |
| For 2021 – 2030 | 55,762 | 28,938 |
| For 2030 – 2041 | 33,524 | 23,603 |
| Annual Gas connections | | |
| For 2021 – 2030 | 53,006 | 27,436 |
| For 2030 – 2041 | 33,524 | 23,603 |
| Annual Electricity connections | | |
| For 2021 – 2030 | 26,763 | 18,327 |
| For 2030 – 2041 | 33,524 | 23,603 |

Source: Consultant's Estimates

The existing situations of sewerage connections are even worse in Faisalabad. There will be a requirement of about 56,000 new connections annually for the first ten years and over 33,000 afterwards. As for the water supply, the backlog connection requirement will be finished in the first ten years. They can also be adjusted as per the dwelling storeys.

The significant number of residents of Faisalabad largely relies on wood and other types of fuel for cooking purposes, aside from natural gas. Therefore, it would require the provision of around 53,000 new gas connections annually up to the first 10 years to bridge the gas connectivity gap to the existing household using other than gas as a fuel as well as connection to new housing units built in this period. After 10 years, there will be a requirement of 33,000 new gas connections per annum.

Unlike water supply, sewerage, and gas, the majority of households in Faisalabad have access to electricity. However, there will be a requirement for electricity connections in new housing units. It is projected that over 26,000 new electricity connections will be required annually during the period 2021 – 2030 and over 33,000 for the remaining planning period.

The net enrolment rate of schools (primary, middle, and matric) in Faisalabad is estimated to be 80%, including public and private sector schools' enrolment. The remaining students who belong to the age between 5 and 14 years are estimated at 0.24 million in the year 2021. If government schools enrolled all these students, then government schools as a percentage of the total would be over 58%. If this enrolment rate continues, government schools will be required to enroll around 17,500 to over 25,000 students every year for the next 20 years. The enrolment will increase over time with the rise in population. It requires development/improvement in related infrastructure, in terms of upgrading the existing schools and additional new schools' construction, and onboarding human resource in terms of teaching staff. **Table 14.13** shows the expected demand for education infrastructure.

Table 14-13: Expected Demand for Education Infrastructure

| | 2021-25 | 2025-30 | 2030-35 | 2035-41 |
|--|---------|---------|---------|---------|
| Required schools (capacity of new and existing schools to 500 students) | | | | |
| FDA area | 37 | 134 | 226 | 256 |
| Faisalabad City | 37 | 134 | 152 | 172 |
| Required teachers | | | | |

| | 2021-25 | 2025-30 | 2030-35 | 2035-41 |
|------------------------------------|---------|---------|---------|---------|
| FDA area | 4,062 | 5,826 | 2,831 | 5,444 |
| Faisalabad City | 2,800 | 3,503 | 1,897 | 3,695 |
| Expected net enrolment rate | 90% | 100% | 100% | 100% |
| Pupil-teacher ratio | 40:1 | 40:1 | 40:1 | 40:1 |
| Annual Employment Demand | | | | |
| FDA area | 49,827 | 53,893 | 58,352 | 63,254 |
| Faisalabad City | 34,100 | 37,041 | 40,269 | 43,822 |

Source: Consultant's Estimates

Demand for healthcare facilities in Faisalabad is much higher than that of its current access representing in terms of the number of beds available per 10,000 inhabitants, as per WHO standards in the wake of SDG. It shows that, currently, Faisalabad stands at merely 41% of its required healthcare infrastructure. This requirement will increase further by more than 60% in the next twenty years, reaching over 14,500 hospital beds in the Faisalabad area. **Table 14.14** below shows the expected demand for healthcare infrastructure.

Table 14-14: Expected Demand for Healthcare Infrastructure

| | 2021-25 | 2025-30 | 2030-35 | 2035-41 |
|---|---------|---------|---------|---------|
| Required hospitals (with 200 beds per hospital) | | | | |
| FDA area | 22 | 15 | 7 | 8 |
| Faisalabad City | 10 | 10 | 5 | 6 |
| Number of required hospital beds (Existing hospital's capacity to 200 beds per hospital) | | | | |
| FDA area | 4,961 | 3,027 | 1,493 | 1,691 |
| Faisalabad City | 2,354 | 2,090 | 1,038 | 1,177 |
| Expected beds / 10,000 persons | 15 | 18 | 18 | 18 |

Source: Consultant's Estimates

Industry, Occupation and Employment:

As highlighted earlier, Textile, Engineering, Construction, Automobile, Pharmaceutical, Packaging, FMCG (Fast-moving-consumer-goods), Food processing, Chemicals, Warehouse, Transportation, Banking, Insurance, Telecommunication, Training and development, Logistics, Education, Public services are the major industries that are expected to play a critical role in the development of Faisalabad. In the wake of this development, there are expectations of changing the distribution of occupation in the area. To reap the true benefit from CPEC and SEZs Faisalabad will require more Professionals, Managers, and Technicians, compared to Craft and related trader workers, Plant and machine operators, assemblers, and Elementary occupations. Increased industrialization is expected to enlarge the labour force share in industry and services from existing 82% to around 90% by 2030. Increasing employment opportunities combined with a higher literacy rate will more likely increase the labour force participation rate in Faisalabad. If it increases by 2% in females and 1% in males every five years in urban areas and about half in rural areas, the overall labour force participation in Faisalabad will increase from an existing 41% to 45% in the next 20 years. With this participation rate, the expected demand for employment is anticipated to be between 50,000 and 63,000 and above annually in the next twenty years.

In the last twenty years, Pakistan has been facing almost 8% of inflation and 4.4% of GDP growth. Due to CPEC, the economic growth may add up to 2% while the inflation may be subdued. Hence with additional 2% GDP growth from the year 2025 and 5% of inflation, the per capita income (at the current price) of the country is expected to increase from Rs.0.89 million to Rs.0.92 million in the year 2041. In terms of dollars, it will be close to \$4,900.

The current per capita income of Faisalabad is lower than the country's income but due to the industrialization, the sectoral share, labour force, and productivity in Faisalabad are expected

to change more rapidly, which may add up to 1% more in the economic growth of the region. With this assumption, the per capita income will increase from Rs.0.17 million in 2021 to Rs.0.96 million in 2041 or above \$5,000. **Table 14.15** below shows the expected economic output.

Table 14-15: Expected Economic Output (GDP)

| | 2021 | 2025 | 2030 | 2035 | 2041 |
|--|---------|---------|---------|---------|---------|
| GRP-Current prices (in billion Rs.) | 878 | 1,373 | 2,459 | 4,403 | 7,886 |
| Per capita GRP (Rs.) | 173,710 | 240,976 | 382,422 | 606,590 | 961,859 |
| Per capita GRP (\$) | 1,121 | 1,479 | 2,232 | 3,368 | 5,079 |

Source: Consultant's Estimates

Tax Collection:

The current tax-to-GRP ratio is estimated to be about 3.2% which is significantly lower than the national ratio. Due to direct tax exemptions to the industries in SEZ's, it is expected to remain at the same levels for the next 5 years but subsequently, its share is expected to increase by 1% after every five years. If the tax collection performance of taxation authority improves due to better and improve tax administration, it may likely to collect more taxes from businesses and allied industries, then the tax-to-GRP ratio is likely to accelerate and the expected tax collection may likely reach from a present Rs.28 billion to about Rs.490 billion by the year 2041. Table 14.16 below shows the revenue generation from FDA area.

Table 14-16: Revenue Generation from FDA Area

| | 2021 | 2025 | 2030 | 2035 | 2041 |
|--|-------|-------|--------|--------|--------|
| Total tax collection (in billion Rs.) | 28.03 | 43.85 | 103.11 | 228.69 | 488.40 |
| Tax to GRP | 3.2% | 3.2% | 4.2% | 5.2% | 6.2% |

Source: Consultant's Estimates

14.7 URBAN DEVELOPMENT STRATEGY

The basic objective of the Faisalabad Master Plan is to provide a framework for a viable and sustainable socio-economic strategy and infrastructure development format of the Faisalabad (FDA area). It aims to provide a framework for socio-economic and infrastructure development of the area to bring inclusive development aiming towards enhanced quality of life. It also intends to utilize the existing and upcoming potential to harvest the maximum benefit from regional and local economic development in terms of employment opportunities, increasing per capita income, and tax revenues for the government. The goal is to make Faisalabad a prosperous and welfare region.

The proposals cover housing, school education, higher education, professional training, healthcare, industry, employment, labour force participation, public utility services, tax collection and revenue generation.

1. Develop the special economic zones (SEZs) for the provision of housing, education, healthcare, public services, and other economic infrastructure. Their details are added below in the development of the overall Faisalabad.
2. Construct new low-cost housing units for ten thousand (10,000) households annually for the next five years and five thousand (5,000) households every year afterwards. Give preference to those who don't own residential property and belong to the lowest quartile of income.
3. Launch phase-wise housing scheme for residential and commercial purposes. Make it better planned by giving pre-specified structures of housing units with permission of up to three stories in residential construction. Allocate a separate space for commercial and

residential high-rise buildings. The area should preferably be in the close outskirts of the city or the SEZs to utilize resources efficiently and at a minimum cost of public service provision.

4. Gradual increase in school enrolments and capacity enhancement / up-gradation of existing schools to an average of 500 students. The primary schools may be upgraded to middle or matric standards as per their building capacity and structure. If the majority of existing school buildings are smaller in size to accommodate more students, they may be operated in twin shifts (morning and afternoon). Make a plan for the new construction of government school buildings in the new housing colonies with the capacity of at least 500 student enrollments. This will require 37 additional schools by 2025, 134 more by 2030, 226 by 2035, and 256 additional schools by 2041. Altogether over 650 new schools are required to achieve 100% school enrollments by 2030. Similarly, more than 18,000 new teachers need to be recruited to meet the additional enrolments/literacy requirements and maintain the student/teacher ratio. The teachers need to be recruited periodically over 20 years.
5. For healthcare infrastructure, existing hospitals capacity to be enhanced to 200 beds on average. To achieve the SDGs target of 18 beds per 10,000 persons, Faisalabad requires 44 new hospitals in twenty years, out of which 30 are required in the next 10 years with the capacity of 200 beds per hospital. Combining up-gradation of existing hospitals to 200 capacities with plan provision of new hospital beds, the total requirement reaches over 7,500 beds by 2030 to reach the SDG target.
6. A significantly large number of new labour force entrants will emerge in future. To adequately address this requires a three-pronged strategy, increase female labour force participation; explore investment and employment opportunities, impart professional and technical qualifications and training.
 - a. For increasing labour force participation two steps are warranted, reduce females working time to six hours per day and make the provision of daycare facilities in all the industrial and commercial locations/areas mandatory.
 - b. Make it mandatory for all families to enroll their children. The additional incentive needs to be an offer to parents/guardians on mandatory enrollment of / her school-going children. The incentives to parents/guardians may include additional social security benefits healthcare benefits etc. Keep a complete computerized database of these enrolments.
 - c. Make it mandatory for all females and males who acquire intermediate and graduate degrees from arts and science disciplines to take at least six-month professional training from the recognized institutes. Large colleges/universities may offer this training at their institutions with the consultation of industry experts.
 - d. Make it mandatory for all professional institutions to establish working forums for new ideas and entrepreneurship. Encourage graduates to present their ideas and help to commercialize them. Increase the IT proficiency in all the professional degree students.
7. Regularize all the small, medium, and large businesses in Faisalabad. Carry out census enumeration of all the businesses by type etc., and its regular up-dating of records.
8. Provide all utilities to entire housing and commercial units. Rather than encouraging the use of gas, residents and businesses should be encouraged to electrify vehicles, cooking etc. Encourage them to off-grid electricity generation. Give incentives to businesses and residential units, which go off-grid.
9. Establish Faisalabad dry port with modern technology and computerized record-keeping to provide efficient supply chain solutions to businesses.

10. Develop large areas for warehouses and cold storage with modern technology and computerized record keeping. Provide the facilities of these warehouses to all the businesses on a rental basis.
11. Facilitate the banking and insurance services to encourage consumer financing and financing of other projects.
12. Make logistics an efficient industry. Provide parking spaces with large and modern workshop facilities. Keep a record of all the logistic activities in Faisalabad.
13. Impose development and maintenance charges at the local level on all residential, business, and commercial units. Set user charges for warehouse services, cold storage and parking lots. Charge and penalize businesses that do not keep proper records and undertake a lesser number of banking transactions. To incentivize the responsible businesses, charge higher rents of warehouses and cold storage.
14. Establish Faisalabad Expo Centre at a location situated within close vicinity of the main city.
15. Develop auto parts market
16. Develop separate space for slaughterhouse
17. Establish professional and vocational training and research institutes for each major sector like textile, agriculture, IT, electronics, and telecommunication. Engage experts from existing professional institutes and universities.
18. Establish separate computer, laptop, and accessories markets. Encourage domestically produced and low-price equipment and accessories.
19. Develop a computerized data and research centre for record-keeping of all social, economic, and physical characteristics and infrastructure in Faisalabad. Make the best use of technology in the form of data collection, formation, and statistics. Professional institutes or universities can help in this regard.

14.8 IMPLEMENTATION PLAN

The proposals cannot be effectively implemented without a well-coordinated and smoothly functioning responsible authority, which has the capacity and authority to undertake every piece of the proposal. The implementation plan is given with the existing institutional, legal and regulatory framework, financing plan, and monitoring and evaluation.

It is more likely that this plan faces several impediments in its implementation due to the involvement of multiple governments, authorities, agencies, bodies in functional assignments and overlapping governance jurisdictions as highlighted earlier. Therefore, a separate 'Faisalabad Development Unit (FDU)' is proposed to implement the Faisalabad Master Plan.

Ideally, the whole area of the Master plan should fall under the Faisalabad Municipal Corporation (FMC) having a board with representatives from FMC, other rural and urban local councils falling in the study area, FDA, District Education and Health authorities, Planning and Development Department of Punjab, Urban Unit Punjab, Faisalabad Chamber of Commerce and Industry (FCCI). In the current institutional and legal framework, it can technically fall under FDA. Its office will be established in the FDA. It will have a board with the representatives from FDA, FMC, other rural and urban local councils falling in the study area, District Education and Health authorities, Planning and Development Department of Punjab, Urban Unit Punjab, Faisalabad Chamber of Commerce and Industry (FCCI). The mayor of FMC will serve as the Chairperson of the FDU. The unit comprises an organizational structure in which dedicated staff will be transferred/hired from FMC, other urban and rural councils, and FDA. It is more likely that adequate human resources capable to undertake the mandated tasks would not be available. This gap can be bridged by organising on the job training programmes for this workforce through the hiring of services of capable professional and

academic training institutes and universities. Additionally, if capable manpower is not available, they may be hired from the market offering them market-based salaries. The unit will comprise five major departments including planning, finance, procurement, IT, human resource and coordination, and law department. The planning department will be responsible to prepare operational level plans for all the projects and proposals. The finance department will take care of and assesses all the financing needs through the preferred modes. The procurement department will procure all the goods and services required to implement the projects and plan for the PPP projects. The human resource and coordination department will mandate facilitation in the hiring, development of project tasks and description and records of all departments and staff. It will also coordinate with all the departments for the smooth functioning of their mandated tasks. IT department will help set up data and research centre and assist in the related work in different proposals. It will ensure maximum efficiency in all the processes and developments through the best use of information technology. **Figure 14.2** below shows the proposed institutional framework for Faisalabad master plan.

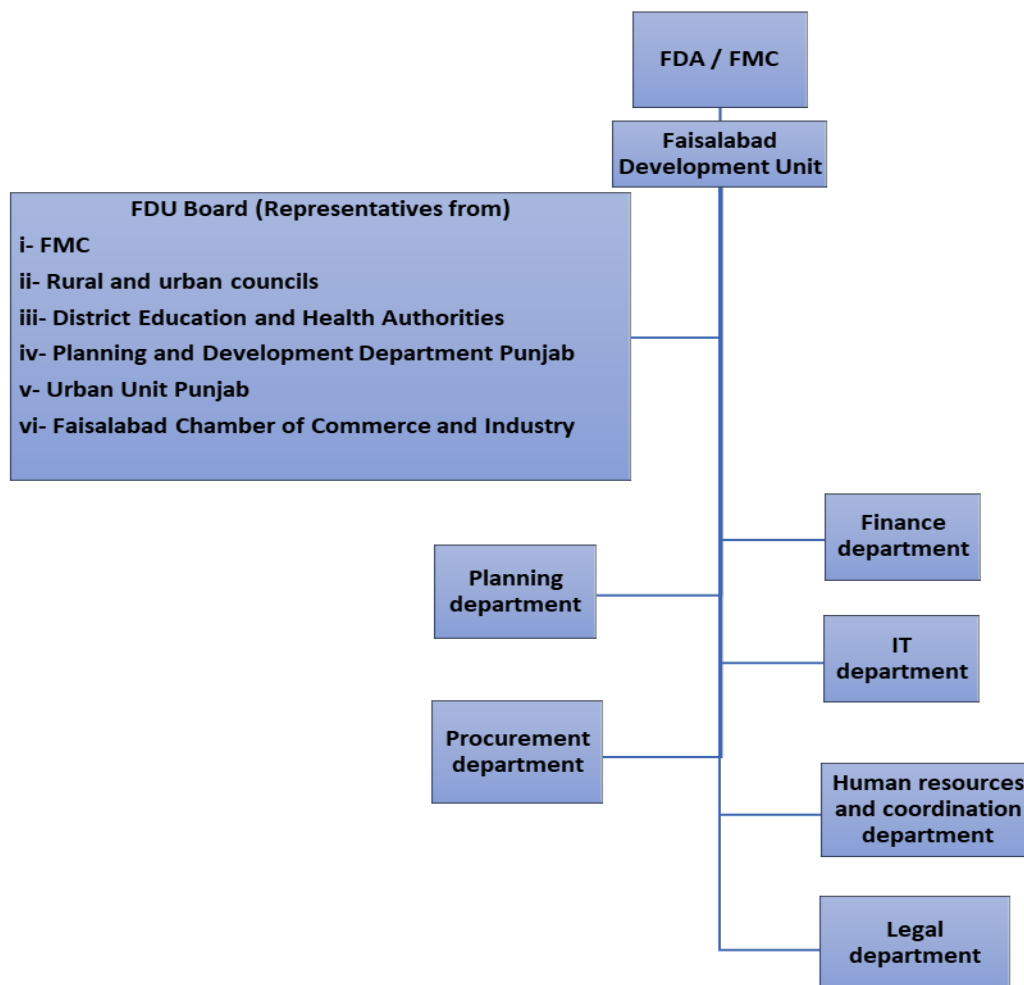


Figure 14-2: Proposed Institutional Framework for Faisalabad Master Plan

The Law department will take care of all the legal and regulatory issues. This is very necessary as the study area falls under the jurisdiction of several urban and rural local councils. The development and functioning of SEZs are undertaken under the SEZ Act, which specifies the role of local development authorities, provincial government, and federal government. Significant assistance from this department will be required to carry out the development process in line with the act, existing local government structure, the other existing laws and regulations. It will set up a policy for user charges, development cess, and tariff rates for different services and infrastructure. It will draft a legal document for the reduced working

hours of female workers, day-care centres in the industries, incentives for the parents and guardians for enrolment of school-going age children, and professional and IT training to the enrolled students at intermediate and higher levels.

In the medium to the long run with the rising level of development in FMC jurisdiction, its further extension in area limits is more likely to be warranted to cover the whole study area where a single authority may look after area development work. Given the efficiency principle in terms of lower cost of service delivery, functional assignments of school and district education and health authorities should be devolved/transferred to the local government. The FDA should be a part of the larger local government-mandated to serve as the development arm of FMC.

Different financing options, discussed below, may be used to implement the plan, but they should be channelled through local government. The local government should own and be responsible for the development of Faisalabad with the funding resources of higher levels of governments, donor support program and public-private partnership mechanism. Subject to development and approval of appropriate laws for debt acquisition policy by higher tiers of Governments (primarily Federal Government) local government should possess the right to issue long term bonds and acquire loans up to specified limits from banks and multilateral/bilateral donor agencies.

The possible sources of financing may include funding from federal and provincial government sources, public-private partnerships, local own sources from taxes and non-taxes/user charges and donor funding for development and improvements. For the projects not related to the provision of basic/necessary services like housing services, professional training, and data centre, higher tariff rates/user charges can be charged and consequently financing options, like public-private partnership and loans from commercial banking channels etc. may feasibly be utilised. On the other hand, projects of basic/necessary services like health, education, etc., higher tariff rates to cover the whole capital expenditures do not seem viable due to the increased cost of these public services to the masses, as such there is a need to exploit other financing options like projects inclusion in Faisalabad Annual Development Plan (ADP), financing from own source revenues etc. Following are a few indicative sources of financing that may be considered important in financing capital as well as operations and maintenance costs of the proposed projects.

Provincial Government Funding (ADP):

The capital cost requirement of the education, health infrastructure and development of economic zones may be placed at high priority in provincial Annual Development Programme (ADP) schemes for Faisalabad as the provision of basic social and other important economic services to the resident population as the prime responsibility of the government given its high associated benefits.

Donor Funding (Df):

Donor agencies (World Bank, Asian Development Bank, DFID etc.) funding may also be an option to be exercised for plan projects of social and economic infrastructure. It however requires approval of federal and provincial governments under the present rules of business. As such, FDA can seek donor funding for its plan projects in the form of loans or grant financing. Provision of funding in social and economic infrastructure development projects is also an area of donor interest and loans at lower interest rates as well as grants provision may usually be offered by donors for these projects and also projects related to water supply, sewerage, and drainage system and other social sectors. These sectors are also critical in achieving Sustainable Development Goals.

Loan (LN):

FDA may approach domestic financial institutions for acquisition of loans for meeting capital cost requirements of projects subject to the devising of acquisition of loan rules which are

currently lacking. Sovereign guarantees of higher-level governments (Federal and Provincial) should be required to enter into a long-term loan agreement with the commercial bank for project financing of economic and allied infrastructure development. These projects are more likely to fetch high financial returns and can ideally be repaid through the imposition of levy and/or user charges/tolls and taxes.

Long-Term Bonds (LTB):

Project financing through long term municipal bonds have been exercised in many countries for financing local development. This option is used for economic infrastructure projects which usually bring high financial returns. FDA and/or FMC may be able to exercise this option subject to the approval of higher tier government. Similarly, if these bonds are guaranteed by the Government of Punjab, then the authority can get several investors to finance these projects even at a lower rate of return. This source can be used to cover plan/projects costs either entirely or a major part of the planned development. The maturity period of these long-term bonds is usually about 20-years and more.

Public-Private Partnership (PPP):

Public-Private Partnerships (PPP) may also be executed for financing projects development and its subsequent maintenance. It is one of the most feasible options successfully exercised in project financing in many countries, in particular at places where the public sector like to involve the private sector in various projects due to either financial/technological constraints or lack of efficient management after development. It is more appropriately used in case of plans and/or projects having higher economic/ social returns like roads, bus terminals, schools, colleges, and vocational and commercial institutes besides some really big infrastructure projects like development of airports etc. many arrangements under PPP are available and successfully practised at many places including Pakistan. These options under the PPP arrangements usually between the government and private sector are as follows.

- Build – Operate – Transfer (BOT) ...
- Build – Own – Operate (BOO) ...
- Build – Own – Operate – Transfer (BOOT) ...
- Design-Build. ...
- Design-Build – Finance. ...
- Design-Build – Finance – Operate (DBFO) ...
- Design – Construct – Maintain – Finance (DCMF) ...
- O & M (Operation & Maintenance)

However, it requires comprehensive policy and rules under the PPP arrangements for clarity of all issues and avoidance of any confusion under the agreement between the parties. Under PPP projects both parties choose the financing arrangements according to their interest and suitability for example in some cases FDA can cover part of the capital cost (may provide land for the project) and the private sector can further invest in its construction and subsequent maintenance and other arrangements under their mutual agreement. A list of prioritized projects and their feasible financing options are given at the end in section 5, Table 1.

Own Source Revenues (OSR):

According to the Punjab Development of Cities Act, 1976 authorities can impose fees and other charges for service provision to cover operating expenses, including taxes and interest for the provision of service maintenance, repayment of loans, and for financing the further extension of schemes and for future major expansion in such schemes and financing. Therefore, FDA and/or FMC may raise financing for the proposed project by imposing appropriate tariff/user charges. However, setting rates of tariff/user charges/tax rate for project financing ability and willingness to pay by households/businesses must be considered.

14.9 MONITORING AND EVALUATION

The systems of 'Monitoring' and 'Evaluation' are often considered effective tools to oversee and review the implementation of projects, policies, and investment in any sector. Its effective design and implementation provide answers regarding the extent of achievement of objectives of projects and policies, whereas the objectives of monitoring and evaluation are to make a standardized format for analyzing the performance of any relevant sector, concern project, or planned policy. Unfortunately, In Pakistan and almost all provinces the major proportion of the allocated development budget observed to be spent in the last couple of months of each fiscal year and thus misappropriated, due to the absence and slackness of any effective monitoring and evaluation system, the efficiency of utilization of these funds are subject to severe criticism.

As a parent authority and key financing source of local government and FDA recurring and development budget, it is the responsibility of the provincial government to monitor the performance of Faisalabad local government and development projects including the master plan. Moreover, monitoring options through third-party validation may be exercised for the implementation of the master plan that may adequately review and report the physical structure of the projects, their quality and quantity. It will make the Faisalabad local government responsible for the implementation of the Master Plan. Further, the monitoring and evaluation should strictly consider the efficiency aspect, i.e. output as well as the input of all concerned. If the best performing sector or department is well rewarded, it will be a source of encouragement to further improve their performance and efforts. To begin with, it is recommended that on projects beyond say certain ballpark Rs 50 million and above at-least, 1% to 2% of the project cost should be mandatory earmarked for monitoring and evaluation of projects for effective utilization of public funds.

14.10 PRIORITIZED PLAN AND PREFERRED MODES OF FINANCING THE PROPOSAL

The prioritized plan concisely sets the timeline and priority for the proposed projects in detail. List of these economic development projects is shown in **Table 14.17** below. The possible modes and preferred source(s) of financing are also mentioned with the detailed list of projects in the **Appendix**.

Table 14-17: List of Economic Development Project

| Sr. No. | Project | Timeline Ranking | | | Priority Ranking | | | Estimated Cost |
|---------|---|------------------|-----------|------|------------------|--------|-----|----------------|
| | | Short Term | Long Term | Both | High | Medium | Low | Rs. in million |
| 1 | Development of Allama Iqbal Industrial City (AIIC) | | ✓ | | | ✓ | | 5,000 |
| 2 | Extension of Punjab Small Industries Corporation Industrial Estate | | ✓ | | | ✓ | | 500 |
| 3 | Establishment of Khurrianwala Industrial Estate | | ✓ | | | ✓ | | 500 |
| 4 | Regularization of Four Industrial clusters in city area into Industrial Estates | ✓ | | | ✓ | | | 5 |
| 5 | Establishment of Apparel and Garments Stitching Zone, Narwala and Jhang Road | ✓ | | | ✓ | | | 5 |
| 6 | Expansion of Faisalabad Dry Port | | ✓ | | | ✓ | | 20 |
| 7 | Development of Warehouses and Cold Storages | ✓ | | | ✓ | | | 20 |

| Sr. No. | Project | Timeline Ranking | | | Priority Ranking | | | Estimated Cost |
|---------|---|------------------|-----------|------|------------------|--------|-----|----------------|
| | | Short Term | Long Term | Both | High | Medium | Low | Rs. in million |
| 8 | Establishment of Auto Spare Parts Markets | ✓ | | | ✓ | | | 50 |
| 9 | Establishment of Slaughterhouse | | ✓ | | | ✓ | | 50 |
| 10 | Establishment of Tecno park | | ✓ | | | ✓ | | 2,700 |
| | Total | | | | | | | 8,850 |

Computations for Sub-Areas of the District:

The study area comprises of the area falling under the jurisdiction of FDA. It becomes the combined area of two out of the six tehsils in the Faisalabad district, including Faisalabad City tehsil and Faisalabad Saddar tehsil. Most of the data, for the social, economic, and other characteristics and infrastructure, is available at district level. We find the population data at tehsil level and by urban / rural distinction and the data for healthcare infrastructure. When searched for the relevant indicator that can serve as basis for disintegration of data at sub-areas, urban / rural share and population are found to be the better proxies. Hence all the computation of statistics for FDA and Faisalabad City is carried out based on their population and the share of urban population. The Gross Regional Product is computed based on the income share of HIES-2015-16, population, and share of urban population. The sectoral shares of GRP are based on the per employee productivity in each sector and the number of employees in the sector. These estimates reflect the true picture and have been cross checked through their logical association with other relevant indicators. Detailed list of priority projects attached as **Annex F.1**.

15. RECOMMENDATIONS OF EARLIER MASTER PLANS AND THEIR IMPLEMENTATION

15.1 EVALUATION OF PREVIOUS MASTER PLANS

Like other big cities of Pakistan, the concept of Master Planning is not new for Faisalabad. Before partitioned originally the Lyallpur was planned as a mandi town and it was designed in the pattern of Union Jack containing 08 bazars in the center. After independence in 1947, the first Master Plan of Lyallpur was prepared by the Town Planning Department of West Pakistan Government in 1968, but it adorned the shelves of the Department rather than being implemented. Lyallpur was renamed as Faisalabad in September 1977 after the name of late King Faisal of Saudi Arabia.

In order to manage the urban development in the area, Faisalabad Development Authority (FDA) was established in 1976, which took up preparation of a Master Plan, for which a Project Directorate was set up in FDA. After preliminary studies and surveys, the work on the Master Plan, called the Structure Plan was suspended until 1984 because the Planning and Development (P & D) Department of the Punjab Government insisted on hiring consultants. The controversy was finally resolved in January 1985 and services of a Professor from the University of Engineering and Technology, Lahore were acquired as a consultant and the plan was finalized under his supervision in 1985. That plan has also been gathering dust while Faisalabad continued to grow uncontrolled.

The former Prime Minister Mohtarma Benazir Bhutto while visiting Faisalabad on 18.11.1993, on the basis of the demand of the public, directed the Commissioner Faisalabad Division Mr. Tasneem M. Noorani to prepare a new and practical Master Plan, so that resources could be diverted and utilized in an effective manner to improve the basic infrastructure of the city and make it liveable and it was prepared in 1994.

In total, following four Master Plans of Faisalabad have been prepared since 1968:

- Master Plan for Greater Lyallpur (1971-1985)
- Structure Plan of Faisalabad (1985-2000)
- Faisalabad Master Plan (1995-2006)
- Faisalabad Peri Urban Structure Plan 2015-2035

Brief of these Master Plans along with the then existing land use plans and proposed Land use plans is given below one by one in chronological order:

15.2 MASTER PLAN FOR GREATER LYALLPUR (1971-1985)

This Master Plan was prepared during 1962-68 by Directorate of Town Planning, Communication and Works Department of West Pakistan Government. Following guided and assisted the Master Plan Committee headed by Mr. Shamsul Haq, in preparation of plan:

- a. Mr. Shafqat Hussain Qureshi, Adviser on Housing and Town Planning
- b. Mr. Anis-ur-Rehman, Director Town Planning
- c. Mrs. Bergeas A. Khalid
- d. Mr. Inayat Mumtaz
- e. Mr. S. A. Rashid

The main objective of this Master plan was to provide a basis for integrated and coordinated programs for the development of city in future by covering the following aspects.

- 1) Public services
- 2) Social Services
- 3) Industries & Industrial Employments
- 4) Commerce

- 5) Housing
- 6) Planning standards for housing, commercial and industrial development

The Master Plan basically proposed a model of an envisioned future situation of Lyallpur, covering all key aspects such as economic condition of the area, social structure of Lyallpur, and geographic location to provide a plan to channelize the future growth. The Master Plan provides basic data about Lyallpur, population, housing, industry, education, health, road network, etc. It covered almost all areas, population, land uses; residential, industrial, commercial, health, education, roads network, water supply, sewerage, etc. However, it lacks traffic surveys and recommendations for traffic improvement, etc. It also lacks recommendations for public transport. The plan provides a broad basis on which city should be developed or allowed to grow. It was in principle a physical plan which had tried to integrate urban elements of Lyallpur.

The objective of this Master plan was partially achieved, because of the excessive delays in plan preparation and approval process and weak institutional set up. The plan preparation was also interrupted due to 1965 War with India. The Master Plan prepared but could not be notified in the official Gazette of Pakistan to give it a legal status. Also, lack of coordination, inadequate financial resources, lack of dissemination of the plan, weak political will, were also some factors for the partial implementation of this Master plan. Political disturbance in the country, in 1971 and 1977 also are factors responsible for non-implementation of the Master Plan. **Figure 15.1 & Figure 15.2** shows the existing land use plan and master plan of 1968.

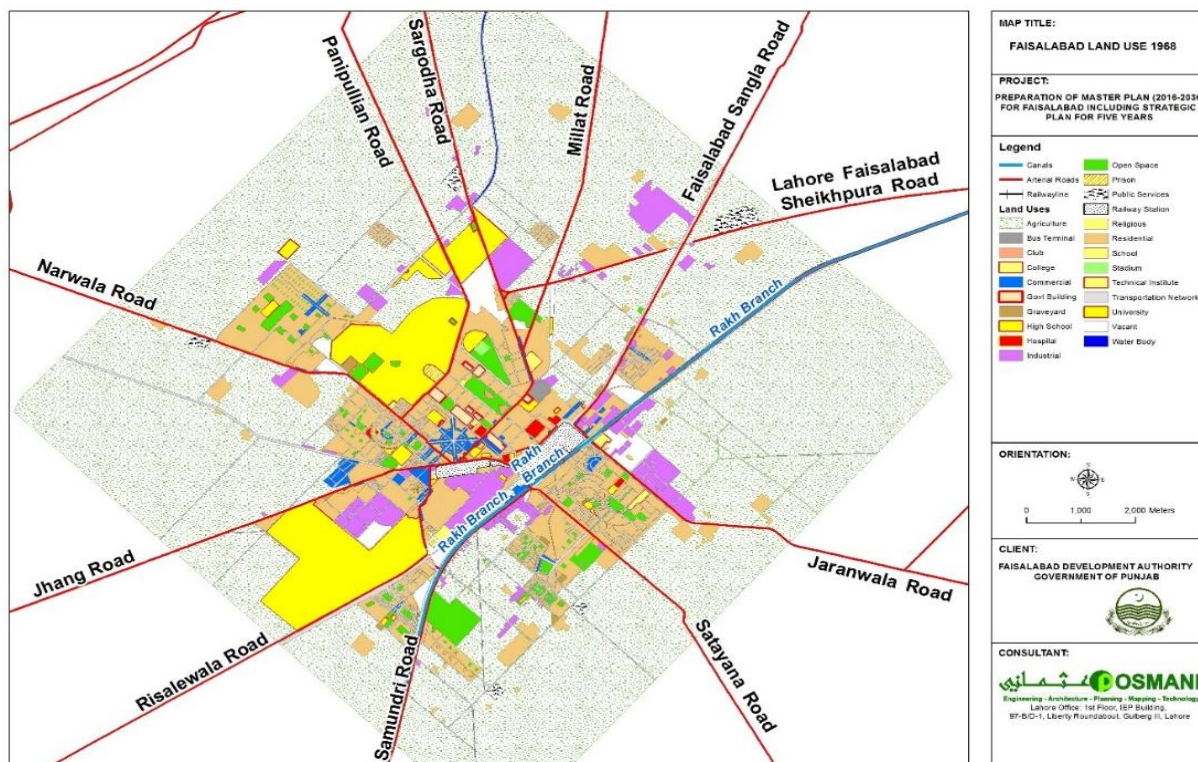


Figure 15-1: Existing Land Use Plan 1968

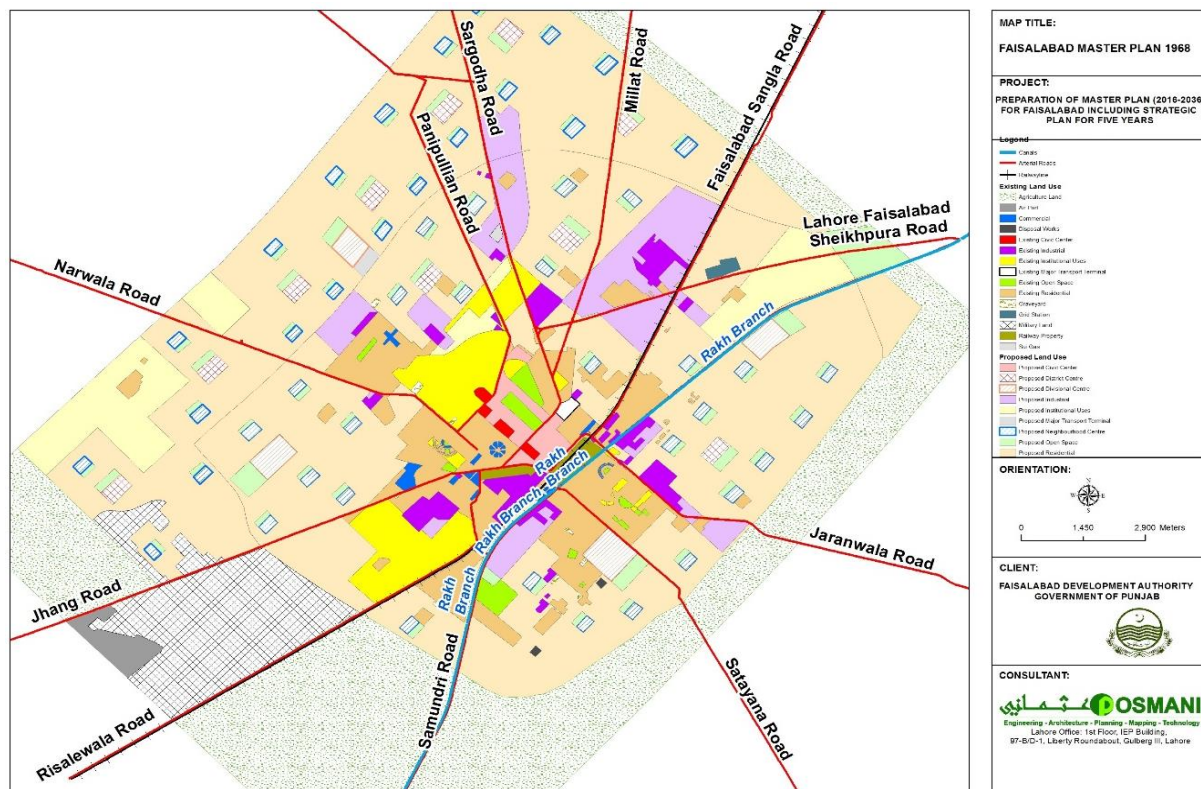


Figure 15-2: Master Plan 1968

15.3 STRUCTURE PLAN OF FAISALABAD (1985 - 2000)

Faisalabad Development Authority (FDA) was established in 1976. After establishment a Project Directorate was created for preparation of Structure Plan after approval of the Punjab Government. No consultant was hired for the preparation of Structure Plan. This directorate started work on Structure Plan but after preliminary studies and surveys work was suspended till the end of 1984, as P&D Department Government of Punjab stressed upon to engage some Experts for the evaluation of proposals, whereas FDA was requesting for the permission of engagement of consultants. The work on Structure Plan was resumed in January 1985 and all the surveys and studies were updated.

Plan was completed in 1986, after hiring of services of Professor A. Sattar Sikander, Dean Faculty of Architecture and Town Planning, University of Engineering and Technology, Lahore, as an Expert. The Plan was finalized under his supervision and guidance by Mr. S. M. Shafiq, Director Environmental Control, and his team comprising of:

- Mr. Haq Nawaz Anwar, Deputy Director (EC),
- Mr. Muhammad Siddique, Assistant Director (EC)
- Mr. Sajjad Ahmed (Former Deputy Director (EC),

Meetings were held with all the Central & Provincial Departments, their proposals, future programs and policies were incorporated in the Plan. The Plan was presented before the Structure Plan Committee on 28-04-1986. The Plan was presented before the Commissioner Faisalabad on 02-07-1986. The Plan and proposals were also presented before the Mayor and Deputy Mayor of Faisalabad Municipal Corporation on 6-8-1986.

The Structure Plan remained in field for fifteen years till 2000, mainly the civic agencies in Faisalabad tried to implement the Structure Plan. However, the plan could not be implemented due to poor coordination among departments / stakeholders of Faisalabad. Even the proposals

of the Master Plan which fall in the domain of FDA could not be implemented due to lack of capacity, weak institutional and legal framework.

In fact, the document contains mostly broad guidelines regarding planning and development of Faisalabad. Very few specific and concrete proposals for planning and development of Faisalabad are available in the document. This plan was initiated in 1978-79 and was completed in 1986, almost it took eight years to compete. It took longer period to prepare the Master Plan, the implementation remained unaccomplished thus diminishing the effectiveness of proposals.

In the Structure Plan the land uses of Faisalabad has been categorized as residential 37.20% and agriculture & vacant land as 18.04%. The proposed areas of various uses for future were also worked out but the logic behind the projection of land use area has not been clear. Even the plan does not mention the basis for the estimation of future proposed area, whereas no focus was shown on industrial promotion, rather than shown decreasing trend of industrial growth from existing 6.53% to the proposed 5.01%.

The spatial strategy was based on current trends of land uses and development through infill development in the existing built-up areas. Linear development was allowed along the major corridors and development of secondary and tertiary centers beyond the inner metropolitan was proposed. In order to reduce the traffic in center two ring roads were proposed, where an external ring road was recommended all around the city. Thus, the overall emphasis of the plan was planning and development of expanded area and only shifting of a few non-conforming uses. The master plan is more descriptive and contains mostly qualitative statements and guidelines.

FDA could not get the Structure plan approved from the secretary, HPPD. Consequently, the plan could not be enforced properly. Therefore, an attempt to adopt the new style of planning instead of the old master plan approach had failed in practice in case Faisalabad. The main reasons behind the failure in the implementation of this plan were; the long duration of plan preparation process, which caused the continuation of the haphazard and uncontrolled growth. Secondly, its enforcement was weak due to its unclear approval procedure. Thirdly, the former Municipal Corporation did not implement the proposals in their jurisdiction. Also, the plan was not reviewed periodically due to lack of resources. Figure 15.3 and Figure 15.4 shows the existing land use plan and master plan of 1986.

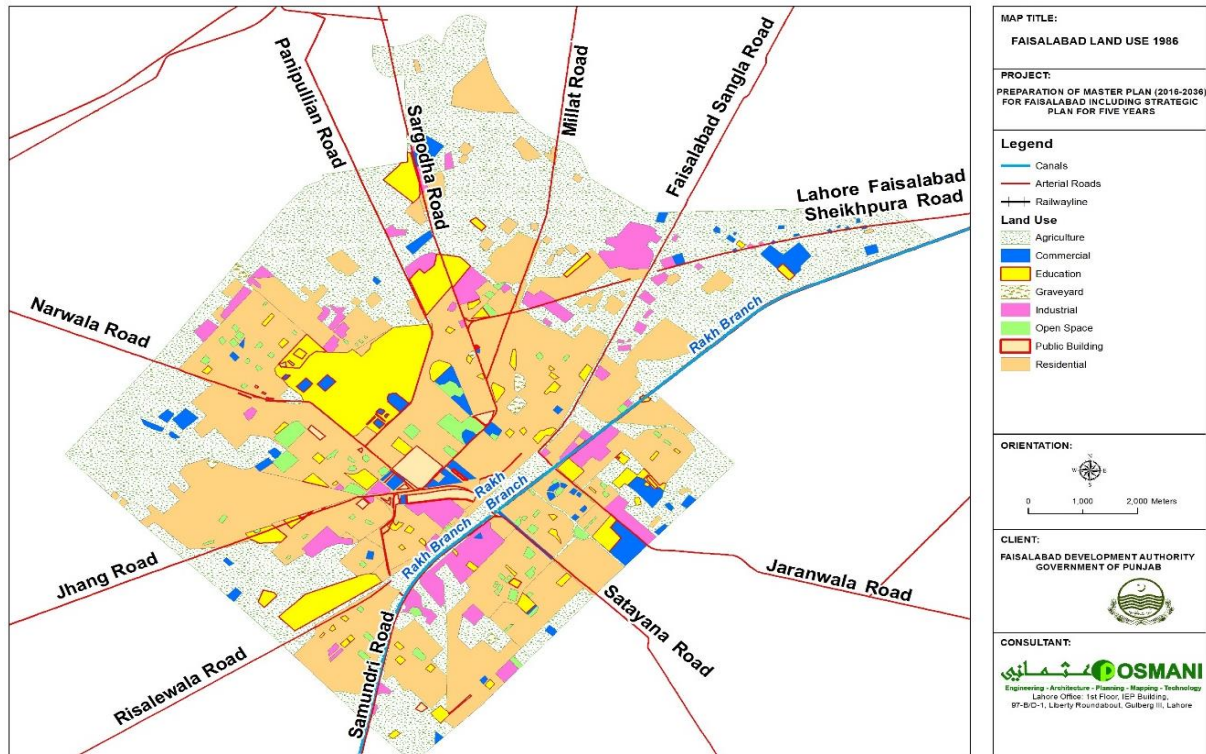


Figure 15-3: Existing Land Use Plan 1986



Figure 15-4: Master Plan 1986

15.4 FAISALABAD MASTER PLAN (1995 - 2006)

1. On the first visit of the Prime Minister Mohtarma Benazir Bhutto on 18th November 1993 to Faisalabad, the public made unanimous demand to her to do something for

the improvement of the city. She directed the then Chief Commissioner Faisalabad Mr. Tasneem M. Noorani to prepare a comprehensive plan for the uplifting of the city.

2. The Chief Commissioner using his influence on all the allied departments invited proposal for doable development projects. Based on these proposed projects a plan was prepared of the projects which can be undertaken within a reasonable timeframe to meet the needs of the city for at least next 25 years. The plan was much in line with the proposals of Structure Plan 1986. The plan covered four different sectors of development i.e., roads, social sector, environment improvement and water supply and sanitation. Majority of the proposed projects in the plan were completed successfully.
3. No funds were available to hire consultants for the task therefore, no consultant was hired for preparation of the Master Plan.
4. Plan prepared through co-ordination and mobilization of local talent.
5. People from all walks of life were consulted formally and informally and encouraged to give their suggestions.
6. Experts available in the local development agencies were assigned the task of working upon sectors of their specialization.
7. Full scale meetings were held with public representatives (MNA/MPA), journalists, respected members of the community and the public before finalizing the plan.
8. The plan does not claim to be couched in professional jargon nor does it follow the pattern of a plan prepared by consultants.
9. It is claimed that the plan reflects the wishes of the public and the requirements on the ground.
10. Following officers assisted in the preparation of the plan:
 - Mian Muhammad Amin Managing Director, WASA, Faisalabad
 - Hassan Iqbal Director LG &RD., Faisalabad
 - Abdul Haleem Chaudhry Deputy Managing Director, WASA, Faisalabad
 - Liaqat Ali Randhawa Director, Environment Control, FDA, Faisalabad
 - Ataullah Khan Director Town Planning, Faisalabad
 - Chaudhry Shahbaz Khan Assistant to Commissioner (Dev), Faisalabad
11. Project base recommendations, no land use plan, no Zoning plan, etc.
12. Lacks field data about Population, Housing, Industry and Commerce, Transport, Education, Health, open spaces, etc. as no primary or secondary data was collected.
13. Planning and development departments were requested by the Commissioner's office Faisalabad to forward their priority projects.
14. Four sectors that is Roads and Transport, Environment Improvement Plan, Social Sector and Water and Sanitation were included in the plan.
15. Projects which require urgent implementation were also identified and this was termed as Short-Term Plan.
16. A rough cost estimate for all proposals was also made.
17. The plan was prepared for the next 25 years.
18. In the road sector, following inter-city roads were recommended to be improved in two stages (1995 - 2003 and 2003 - 2006)

Improvement of Inter-City Roads:

The improvement of intra-city roads is shown in **Table 15.1** below.

Table 15-1: Improvement of City Roads

| | |
|------------------|-------------|
| Samundari Road | Implemented |
| Narwala Road | Implemented |
| Canal Road | Implemented |
| Sargodha Road | Implemented |
| Sheikhupura Road | Implemented |
| Jhang Road | Implemented |
| Satayana Road | Implemented |
| Jaranwala Road | Implemented |

Intra-City Roads Recommended to Be Constructed:

The following intra-city roads were recommended to be constructed (refer **Table 15.2**).

Table 15-2: Roads were Recommended to be constructed

| | |
|--------------------------------|--|
| Susan Road | Implemented |
| College Road to Samanabad Road | Implemented |
| Road in front of Circuit House | Implemented |
| Sarwala Road | Implemented |
| Ring Road | (not implemented (37 km and cost Rs. 338 million)) |

Overhead Passes:

The status of overhead passes is shown in **Table 15.3** below.

Table 15-3: Status of Overhead Passses

| | |
|---|-----------------|
| Abdullahpur Chowk | Implemented |
| Jhal Khanuana Chowk | Implemented |
| Millat road – Sargodha Road Intersection | Not implemented |
| Allama Iqbal Road- Narwala Road | Not implemented |
| Railway Road – University Road Intersection | Not implemented |
| Circular Road – Kachari Bazar Road Intersection | Not implemented |

Pedestrian Underpasses:

The status of pedestrian and underpasses is shown in **Table 15.4** below.

Table 15-4: Status of Pedistrian and Underpasses

| | |
|------------------------|-----------------|
| Narwala Junction | Implemented |
| Aminpur Bazar Junction | Not Implemented |
| Kachari Bazar | Not Implemented |
| Rail Bazar Junction | Not Implemented |
| Jhang Bazar Junction | Not Implemented |

Improvement of Traffic Junctions:

The status of improvement of traffic junctions is shown in **Table 15.5** below.

Table 15-5: Status of Traffic Junctions

| | |
|---------------|-------------|
| Station Chowk | Implemented |
| GTS Chowk | Implemented |
| Jhall Chowk | Implemented |
| Abdullahpur | Implemented |

Environment Improvement Plan:

The status of environmental activities is shown in Table 15.6 below.

Table 15-6: Status of Environmental Activities

| Sr. No. | Name of the Proposed Project | Status |
|---------|---|--|
| 1 | Shifting and development of Hide and Skin Market / Slaughterhouse | Slaughterhouse Shifted |
| 2 | Shifting of Fruit & Vegetation Market and Grain Market | Implemented |
| 3 | Shifting of General Bus Stand | Not Implemented |
| 4 | Shifting of Truck Workshops | Implemented |
| 5 | Development of Park and Open Spaces / Gatwala Park | (One out of 5 Parks Developed) (Gatwala Partially) |
| 6 | Establishment of Industrial Estate | Not Implemented |
| 7 | Export Processing Zone | Not Implemented |
| 8 | Solid Waste Management | Not Implemented |
| 9 | Milch Cattle Farms | Not Implemented |
| 10 | Commercial Plazas | Not Implemented |
| 11 | Parking Plazas | Partially Implemented |
| 12 | Flatted Factories | Not Implemented |
| 13 | Warehouses | Not Implemented |
| 14 | Public Latrines | Partially Implemented |
| 15 | Utility Services Complex | Not Implemented |
| 16 | Shifting of District Jail | Not Implemented |
| 17 | Oil Depot Shifting | Partially Implemented |
| 18 | Army Welfare Food Industries | Not Implemented |
| 19 | Structural Plan of Faisalabad | Partially Implemented |

Social Sector:

The status of social sector is shown in Table 15.7 below.

Table 15-7: Status of Social Sector

| Sr. No. | Name of the Proposed Project | Status |
|---------|------------------------------|--|
| 1 | High Court | Not Implemented |
| 2 | University of Faisalabad | Implemented |
| 3 | Radio/ TV | Not Implemented |
| 4 | Cultural Complex | Implemented |
| 5 | Export Display Center | Not Implemented |
| 6 | Sport Complexes | Most of the Sports Complexes have been Developed |
| 7 | Civic Centers | Not Implemented |
| 8 | Children Complex | Not Implemented |
| 9 | Science City | Not Implemented |

| | | |
|----|--|-----------------|
| 10 | Faisalabad Urban Transport System (FUTS) | Implemented |
| 11 | Defense Housing Society | Not Implemented |
| 12 | Additional Playgrounds | Not Implemented |
| 13 | Sandal Public School | Implemented |
| 14 | Quaid Memorial | Not Implemented |

15.5 FAISALABAD `PERI URBAN STRUCTURE PLAN 2015-2035

Peri-urban area refers to area that are rapidly transforming from rural to urban areas, where urban and rural activities are juxtaposed, and landscape features are subject to rapid modification, induced by human activities. Areas subject to urban expansion on the edge of the city often called “rural-urban” areas or “peri-urban” areas. The bulk of urban growth is taking place in peri-urban areas. Every year a sizable arable land is being converted to urban uses accommodating the expansion of the city depending upon the rate of urbanization of the city.

Faisalabad Peri-Urban Structure Plan (2015 - 2035) was prepared by ‘The Urban Unit, Punjab’ in the year 2014 under the ‘Punjab Cities Governance Improvement Project (PCGIP)’ and it was funded by The World Bank. It is a detailed GIS based study and following tools were used to execute this project:

1. Spatial Decision Support System SDSS
2. Land Use Suitability Analysis
3. Image Analysis
4. Land Cover Classification

The **scope of the study** was the identification of City Boundary and preparation of peri-urban structure plan for Faisalabad city. Furthermore, it was intended to propose road network of Peri-Urban area, as well as division of Peri-Urban area into blocks and zones. Moreover, allocation of land uses to blocks and broad development strategies to achieve the development targets in next 20 years were also included. However, the specific objectives of the study were as follow;

1. To suggest measures for the preservation of productive agriculture land and precious environmental resources in the peri urban area
2. To suggest pertinent mix of land uses in the Peri Urban area
3. To identify incompatible land uses such as industries and suggest measures to mitigate the impacts on peri urban development
4. To recommend an efficient circulation network in the peri urban area

The land use profile of existing peri urban area is mainly distinguished by farmlands and relatively smaller rural settlements. Also, a little intrusion of the city’s built-up area into the peri-urban area of Faisalabad, mainly along the major roads connecting the other large and medium settlements specifically Faisalabad-Sheikhupura-Lahore Road, Faisalabad-Jaranwala Road, and Faisalabad-Jhang Road. However, the followings are the main features of peri-urban area of Faisalabad;

1. Cultivated agricultural lands
2. Scattered built-up Areas
3. Industrial clusters along main roads
4. Brick kiln sites
5. Railway bisects
6. Irrigation network
7. Road network

Along Sargodha and Chiniot road there is least urban development beyond Motorway M-4. It seems like Motorway has become psychological barrier for urban development beyond the Motorway.

Critical Evaluation of the Peri-Urban Structure Plan of Faisalabad 2015-2035:

Critical Evaluation of the Peri-Urban Structure Plan 2015-2035 amended in 2018 has revealed following discrepancies and inconsistencies in the plan:

Chak Jhumra Town, which is Tehsil, Headquarter of Jhumra Tehsil and is an emerging town in the suburbs of Faisalabad city along Railway line & Road has not been shown in the Land Use Zoning Plan provided by the Client. Rather it has been proposed as cropland. A 220 ft wide road has been proposed through this crop land connecting canal road with the proposed light industries along Motorway but the area along this road has been shown as cropland. How pressure of development in this area would be controlled is not clear specifically after development of a 220 ft wide road?

Proposed growth of the city has been shown towards north and north-west along Motorway in linear form over about 35 kilometers, against the current growth trends of the city. Town Park has been proposed in the rural periphery, far away from the existing built-up area of the town, while there is a need to provide green areas/parks immediate to the existing built-up area to give relief to the inhabitants of the city. The proposed park in the form of a green belt along proposed high density residential development is far away from the city across Motorway which is not desirable from planning point of view.

A large area throughout the length of the Motorway M-4 has been Zoned in a linear form for different urban and regional uses like High-density, Medium density and low-density residential areas, Mixed Use Business Commercial, Business and Technology Park, Hotel and Tourism, Expo and Exhibition Center, Warehousing and Freight Zone, etc. have been proposed as if Motorway would function as Mall of Faisalabad city. Another large area i.e., more than 50,000 acres across Motorway on the north side of the town has been earmarked for "Post 2033 Development". In fact, existing expansion of the town is almost in all directions, pace of urbanization varies on all directions of the city, it is comparatively higher on eastern side than on the western side, but the Peri-urban plan proposed all the major activities along Motorway without regard to the prevailing development trends. This would not bring the desired results. It seems an attempt has been made to shift the core of the city and transform it into linear form by just zoning land into different urban land uses stretching over about 35 kilometers, which seems contrary to the existing growth pattern of the town. The 350 ft wide proposed road has been shown in the proposed road plan, but it has not been shown in the Land Use Zoning plan.

Urbanization in Faisalabad:

Expansion of Peri Urban area shown more than required without considering the pace of conversion of rural areas/settlements into urban areas, i.e., rate of urbanization. As per a research on spatial expansion of Faisalabad rate of urbanization from 1980 to 2010 was 315 acres/year. It was 105 acres per year during 1980-92. It was about 600 acres/year during 2005-2010 (Bhalli, M. N. 2012). Peri-urban area has been proposed in the Structure Plan as 6000 acres/year which is beyond imagination. The basis for recommending such a large area is not clear. Earmarking of huge area across Motorway M-4 as peri-urban area is without any relation with rate of urbanization and without assessing the direction of growth of the city. More than 80,000 acres have been proposed including the urban landuse activities beyond Motorway which would be more than sufficient for next 150 years while they have proposed this area upto 2035 for 20 years.

Proposed Zoning Along Motorway M-4:

In peri-urban structure plan most of the development has been proposed along Motorway M-4 which is not advisable from planning point of view. Motorway is not a commercial corridor rather it is an Economic Corridor as is clear from its name China-Pakistan Economic Corridor (CPEC). Special Economic Zones, industrial cities can be developed along the Economic Corridor at selected locations not all along the corridor in a linear form. Thus, the residential, commercial and recreational development along the Motorway M-4 is not advisable. In fact, Motorway M-4 is a national link and national importance land use i.e., Special Economic Zone (SEZs) can be earmarked at selected locations not all along the Motorway in linear form. This is also against the prevailing practice of the CPEC Authority.

Existing Growth Trends:

Existing development trends or expansion trends have not been considered while earmarking land for peri-urban expansion of Faisalabad City. They have only focused on Motorway M-4 and all the residential, commercial and recreational development has been proposed along the Motorway ignoring the growth trends of Faisalabad city, which is towards northeast and southeast in addition to the north along Sargodha Road. More development is taking place along the arterial roads, like Lahore-Sheikhupura-Faisalabad Road, Jaranwala Road, Chak Jhumra Road, Canal Road, etc.

Division of City into Six Towns:

This administrative division of Faisalabad City into six towns is not valid now i.e., Jinnah Town, Lyallpur Town, Chak Jhumra Town, Jaranwala Town, Madina Town and Iqbal Town. A large area measuring about 12500 acres has been proposed as Cropland just immediate to the built-up area along Railway line to Sangla Hill. Proposed road of about 40-kilometer length and 350 ft wide parallel to Motorway M-4 across the Motorway in the peri-urban area, at about 1 kilometer from M-4, from Sahianwala to beyond Airport interchange is not desirable from planning point of view rather it would be wastage of funds. Motorway M-4 is already catering the fast moving national and intercity traffic development of another road with so much width seems overprovision and surplus. This proposed road starts from Sahianwala interchange but ends abruptly in the rural area beyond Airport interchange on M-4.

Three Roads with 150 Ft Wide Right-Of-Way Parallel to Motorway M-4:

Three roads of 150 ft width have been proposed parallel to Motorway M-4 without assessing their feasibility of construction. Already there is built-up area on north and south of the Motorway M-4 it would be difficult to achieve through road along M-4 on both sides. The third road parallel to Motorway seems to be proposed without assessing the traffic requirements of the area.

Road Density Along Motorway M-4:

Due to four proposed roads along the Motorway M-4 the road density in this area has become higher as compared to the rest of the town.

Ring Road Project:

Ring Road which is an important proposed link facilitating the traffic in Faisalabad city has not been shown in the Proposed Roads plan. It has been shown in the proposed Land Use Zoning Plan and in that plan the Ring Road has been shown passing through the Gatwala Park dividing the park into two parts.

Alignment of Faisalabad Bypass:

The alignment of Faisalabad Bypass from Khurrianwala to Canal Road has not been indicated correctly.

Site of New Airport:

The present Faisalabad Airport is old Airport which has been developed over the time since 1942. First domestic flight was operated in 1958. In 1998 Hajj flights were started directing to Jeddah. A lot of investment has been made in extension of terminal building and construction of Cargo Terminal. Most probably new site has been proposed keeping in view FIEDMC industrial area. As per OCL consultation with Civil Aviation Authority (CAA) through FDA there is no plan of development of a new Airport in the near future. However, may be in next 30-40 years air traffic increase demands a new airport then the proposed site may be considered for the new Airport, if available at that time.

Proposed Mass Rail Transit line is a good proposal, it would solve the commuting problems to a large extent. Moreover, the pressure of traffic on city Roads would also be reduced.

The location of Intercity Bus Terminal on Sargodha Road proposed across M-4 is not suitable. Its location may be earmarked on southern side of the Motorway on city side where complete city road network exist. 2nd Intercity Bus Terminal near the Gatwala Park is also not suitable at it would block the extension of the park. Moreover, may affect the peaceful environment of the park due to its environmental and noise pollution. The third site of the Bus terminal on Jhang road is not suitable. It may be located on Resalewala Road near to Airport and Railway Station so that the interchange of Mode of Transport is easy for the commuters.

Disjointed Road Network Proposals:

An integrated Road Network should have been proposed which is lacking in the Peri-urban Structure Plan. 350 feet wide road has been proposed parallel to M-4, but it is not connected to the existing road network rather it ends in the open peri-urban area.

Canal Road:

Canal Road beyond Abdullahpur towards Samundri has been proposed on both sides of Canal does not match the ground reality. There already exist six lane road on the southern side of the canal which is catering the traffic requirements and would also cater the future requirements of the area. This road on eastern side of the canal is enough and development of another road on the western side of the canal is not advisable. It would be wastage of funds and would disturb the environment on western side of the Canal. Green area, parks developed on the western side of the canal would be disturbed.

The proposed land use zoning map is shown in Figure 15.5. Figure 15.6 shows the proposed road network.

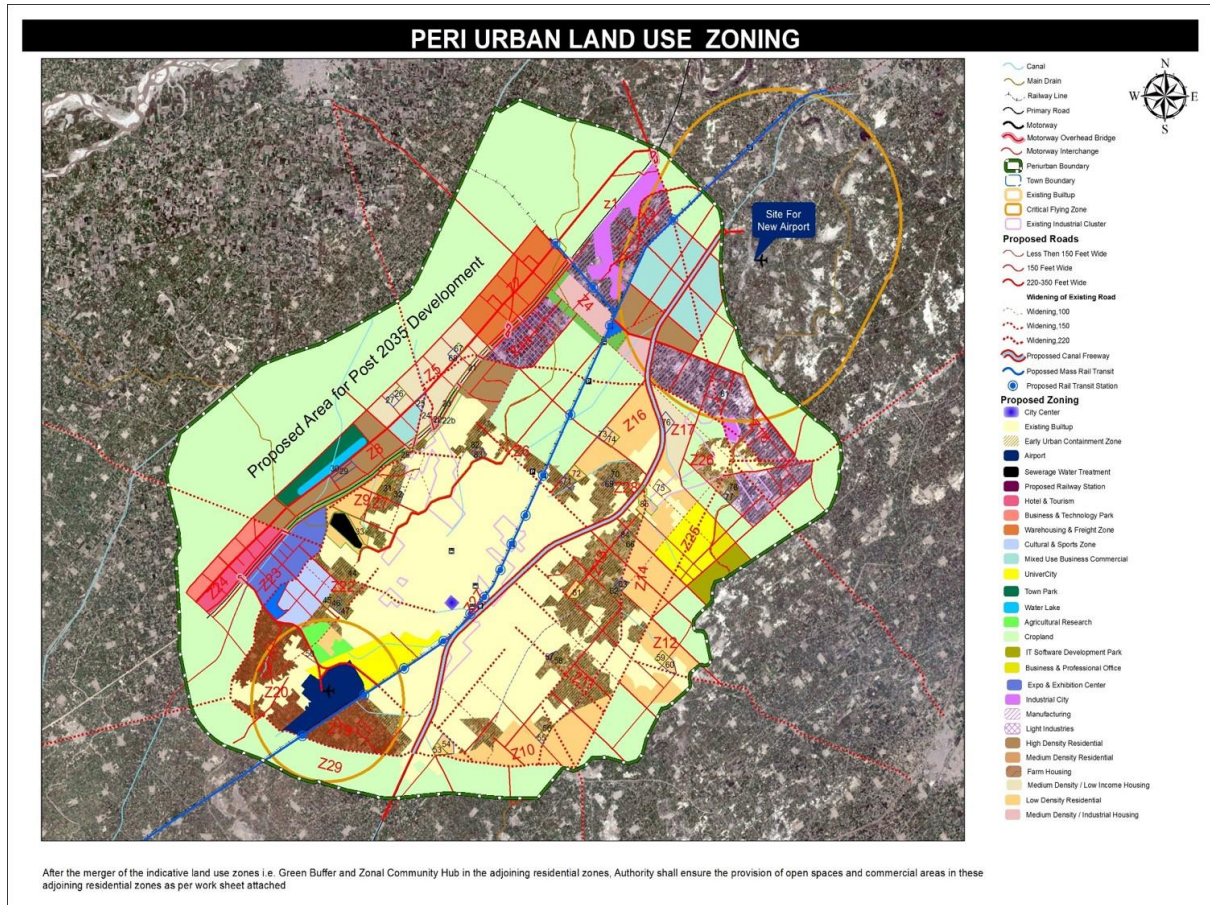


Figure 15-5: Proposed Land use Zoning Plan (2015-2035)

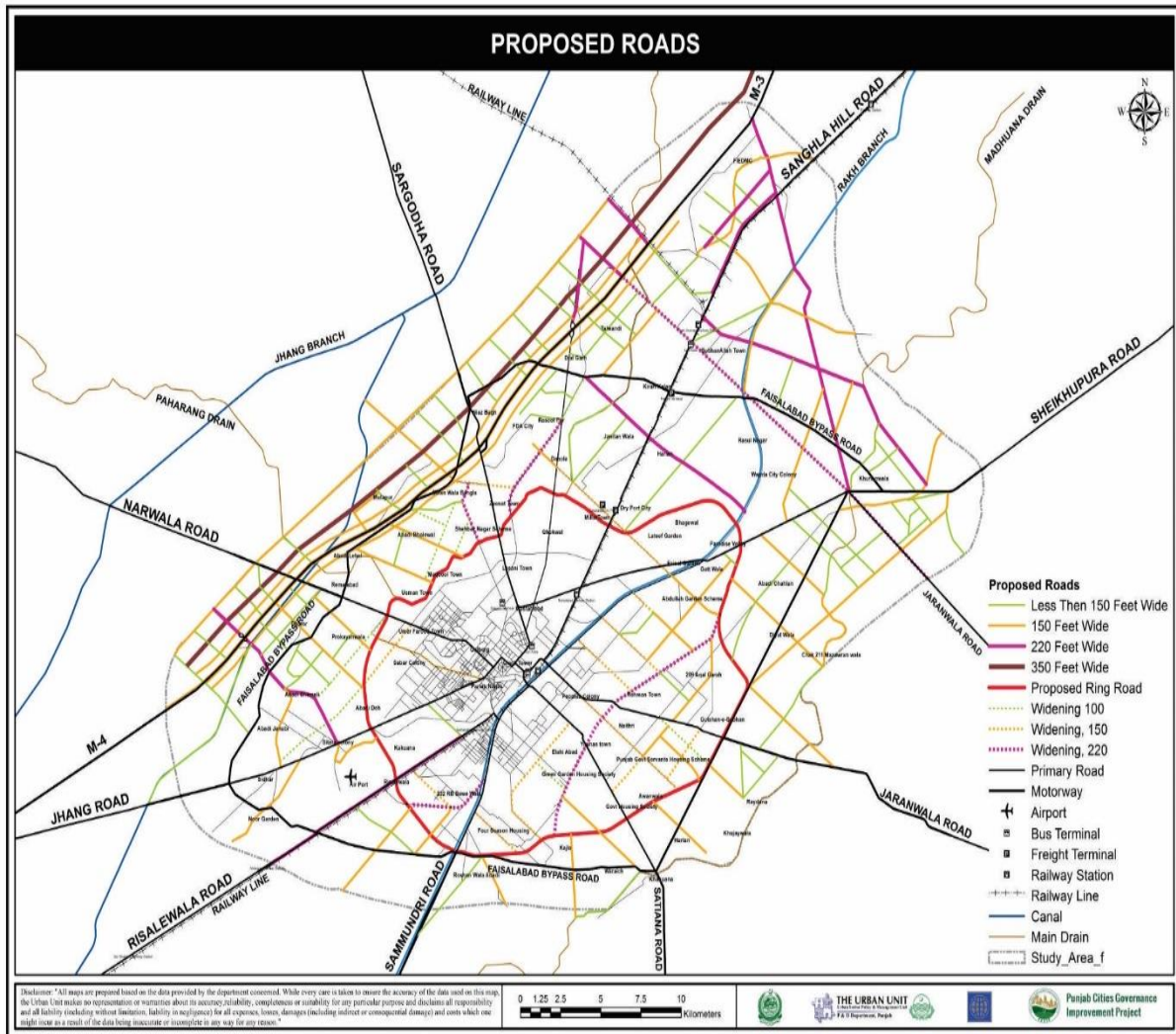


Figure 15-6: Proposed Roads (2015-2035)

16. URBAN GOVERNANCE

Understanding the overall urban and regional management setting of Faisalabad is very essential as it provides a link between the Central Government and the lower levels of Local Government Administration. As these institutions play a crucial role in governing the urban areas, as well as groups of people and utilization of resources to stimulate development. Also, they regulate, coordinate, and organize tasks and functions such as mobilization of residents to participate in environmental protection, roads and drains rehabilitation and tax / levy collection from different sources. Figure 16.1 below shows the locations of Faisalabad tehsils.

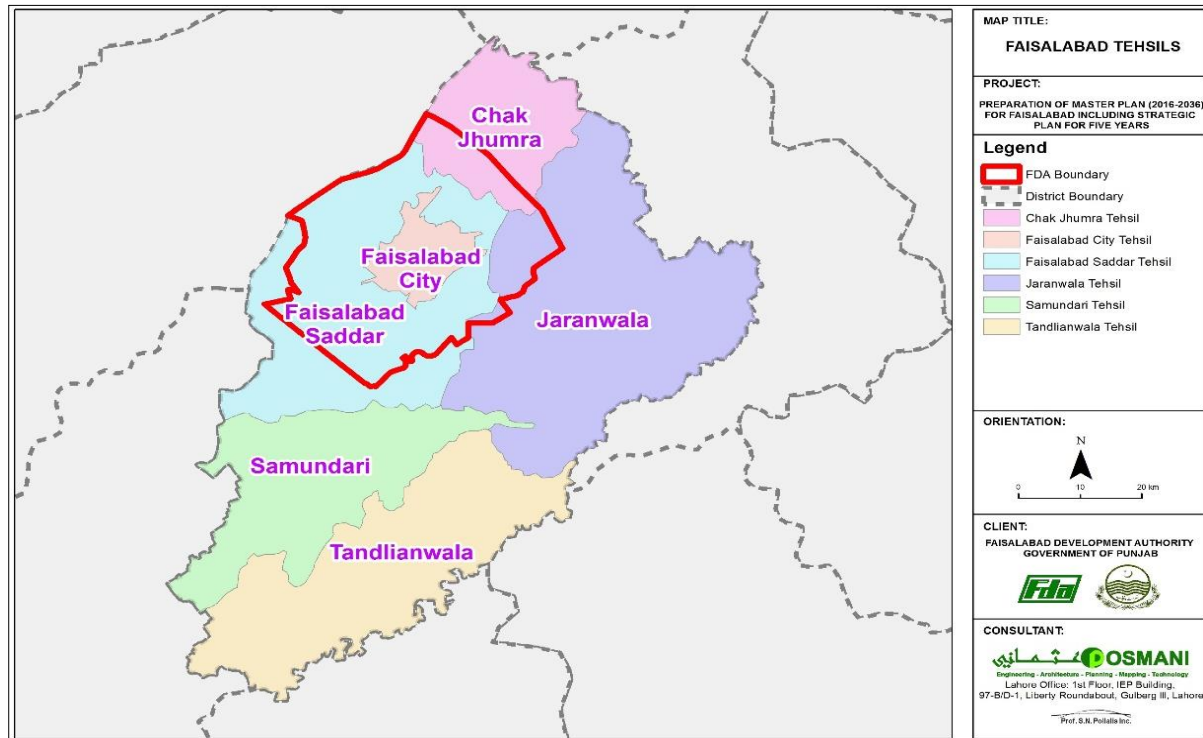


Figure 16-1: Locations of Faisalabad Tehsils

Further, in 2016 the administrative status was changed to Tehsils and now Faisalabad has 06 tehsils: Faisalabad City, Faisalabad Sadar, Chuk Jhumra, Jaranwala, Samundri and Tandlianwala. These are administrative organs with full mandates within their areas of jurisdiction. The overall administrative division of Faisalabad is shown in the following **Table 16.1** below.

Table 16-1: Administrative Divisions/ Units of Faisalabad District

| Administrative Units | | Number |
|----------------------|-----------------------|--------|
| 1. | Tehsils | 06 |
| 2. | Union Councils | 287 |
| 3. | Mauzas | 820 |
| 4. | Municipal Corporation | 01 |
| 5. | Municipal Committees | 03 |
| 6. | Town Committees | 04 |

16.1 KEY STAKEHOLDERS IN URBAN DEVELOPMENT AND ENVIRONMENTAL MANAGEMENT

A stakeholder is defined as “someone who has interests in a particular decision, either as an individual or as a representative of a group”. With respect to action related to Faisalabad district, those who are decision-makers, those who can influence decisions and those who are

affected by such decisions are potential stakeholders. These individuals (some of whom represent the interests of organized bodies) -or groups possess the necessary resources, in the form of knowledge, practical experience, social capital and willingness to engage, required to respond to the issues of development in the region.

The objectives and interests of the people, social groups or institutions participating in or affected by the project should always be included in planning, through a stakeholder identification and analysis. In this section of the EP document, we will discuss those stakeholders who have significant roles to play in relation to urban development and urban environmental management of Faisalabad.

Development can never be achieved in isolation of people. In actual sense, it is people who are supposed to effect the necessary change so desired. It is very necessary to identify all the stakeholders relevant to urban environment-development to make planning, implementation, operation and management of development and environmental projects owned by the people right from the begin.

The key stakeholders in the District of Faisalabad, as a whole are drawn from the Public Sector (Central Government, Provincial Government and the Local Government), popular sector (Non-Governmental Organizations, Community Based Organizations), Informal groups, Private sector and the community at large. Therefore, they are classified into four main categories as public sector, community sector, private sector and other relevant stakeholders not grouped in the above three categories.

City planners today have the daunting task of managing ever expanding cities with burgeoning populations that put heavy demands on infrastructure. Stakeholders are impatient as basic civic facilities rarely meet expectations.

Citizens are the major stakeholders. Their needs are very specific. As stated by Aristotle, “A city should be built to give its inhabitants security and happiness.” City planners have tried to achieve this objective by deploying various techniques. Industrialization has put additional pressures on city planners. Several systems have been developed to meet the expectations of citizens.

16.2 MUNICIPAL CORPORATION FAISALABAD

Nazim-e-Faisalabad is the Mayor who heads the Faisalabad Municipal Corporation (FMC) which controls the local government of Faisalabad. Faisalabad local government is led by Faisalabad Municipal Corporation which consists of 157 union councils. Previously, only the provincial headquarters of Lahore enjoyed the status of a metropolitan corporation. The eight other districts added to the list now include Bahawalpur, Dera Ghazi Khan, Faisalabad, Gujranwala, Multan, Rawalpindi, Sahiwal and Sargodha. The minimum population benchmark for a city to be classified as metropolitan or municipality has been set at a quarter million. According to Section 9 (1) of the Local Government Act, an area displaying distinct urban features may either be classified as metropolitan, municipality or a town. Under Section 9 (2) all areas comprising Lahore district and the areas comprising cities of another eight districts will have a metropolitan.

Each local government, under Section 18 of the act, will consist of a directly elected head, a head's cabinet comprising specified number of councillors and experts and a council comprising councillors including a convener. The law explains that an expert means a person who has successfully completed 16 years of education from a recognised institution and has an experience of not less than 10 years in public administration, public finance, education, public health or any other area relating to the functions of a local government.

Metropolitan corporations with more than five million population will have a total of 10 members comprising at the most five councillors. The metropolitan corporations having population over 1.1 million and up to five million will have eight members of the head's cabinet

with the maximum permissible number of councillors standing at four. The metropolitan corporations or municipal corporations with population over 0.8m and up to 1.1m will have seven members of the head's cabinet with the maximum permissible number of councillors coming to three.

The metropolitan corporations or municipal corporations with population between half a million and 0.8m will have six-member cabinet with a maximum of three councillors. The ratio of experts and councillors will substantially change in metropolitan corporations and municipal corporations with a population between a quarter million and a half million. The total strength will be five with a maximum permissible number of councillors in it as low as two. The total strength will be five with a maximum permissible number of councillors in it as low as two.

Municipal committees having population between 0.125m and 0.250m will have four-member head's cabinet with the maximum permissible number of councillors coming to half of the total strength. In municipal committees with a population of over 75,000 and up to 0.125m, the total strength of the cabinet will be three and will have only one councillor.

The town committees will have a minimum population of 25,000 and up to 75,000. These will have a two-member cabinet and one councillor.

16.3 HOUSING, URBAN DEVELOPMENT AND PUBLIC HEALTH ENGINEERING DEPARTMENT (HUD&PHED)

The Housing and Physical Planning Department (H & PP) was created in August 1972 by replacing the West Pakistan Housing and Settlement Agency with a single attached department named the "Directorate General Housing & Physical Planning" at Lahore. Later on, the Improvement Trusts at Faisalabad, Gujranwala, Multan, Rawalpindi, Sargodha and Murree were placed under the administrative control of Housing & Physical Planning Department during 1973. Improvement Trusts ultimately were converted into Development Authorities except for Murree and Sargodha. In 1978 Public Health Engineering Department (PHED) was placed under the administrative control of Housing & Physical Planning Department. The Department was renamed as Housing Physical & Environmental Planning (HP & EP) in 1978 and Environmental Protection Agency (EPA) was created as its attached wing. In 1996 Environmental Protection Agency was detached from Housing Physical & Environmental Planning Department and was made independent provincial Department. Finally, Housing Physical & Environmental Protection Department was given the name as "Housing, Urban Development & Public Health Engineering Department (HUD & PHED)" in 1997 to depict Urban Development Authorities and Public Health Engineering Department as its main organs.

The Directorate General of H&PP Punjab has been revamped as "Punjab Housing and Town Planning Agency (PHATA)" under the PHATA Ordinance, 2002. The said agency has been effectuated w.e.f., 01.04.2004 with the objective of rejuvenating the housing sector in general and provision of shelter to shelter-less low-income groups in particular.

The present Organization of HUD & PHED consists of the following:

1. Punjab Housing and Town Planning Agency (PHATA)
2. Public Health Engineering Department (PHED)
3. Lahore Development Authority (LDA)
4. Rawalpindi Development Authority (RDA)
5. Gujranwala Development Authority (GDA)
6. Faisalabad Development Authority (FDA)
7. Multan Development Authority (MDA)
8. Water and Sanitation Agency, Lahore
9. Water and Sanitation Agency, Rawalpindi
10. Water and Sanitation Agency, Gujranwala

11. Water and Sanitation Agency, Faisalabad
12. Water and Sanitation Agency, Multan
13. Traffic Engineering and Transport Planning Agency (TEPA), Lahore
14. Parks & Horticulture Authority (PHA), Lahore
15. Parks & Horticulture Agency (PHA), Faisalabad
16. Parks & Horticulture Authority (PHA), Multan
17. Improvement Trusts (Murree & Sargodha)

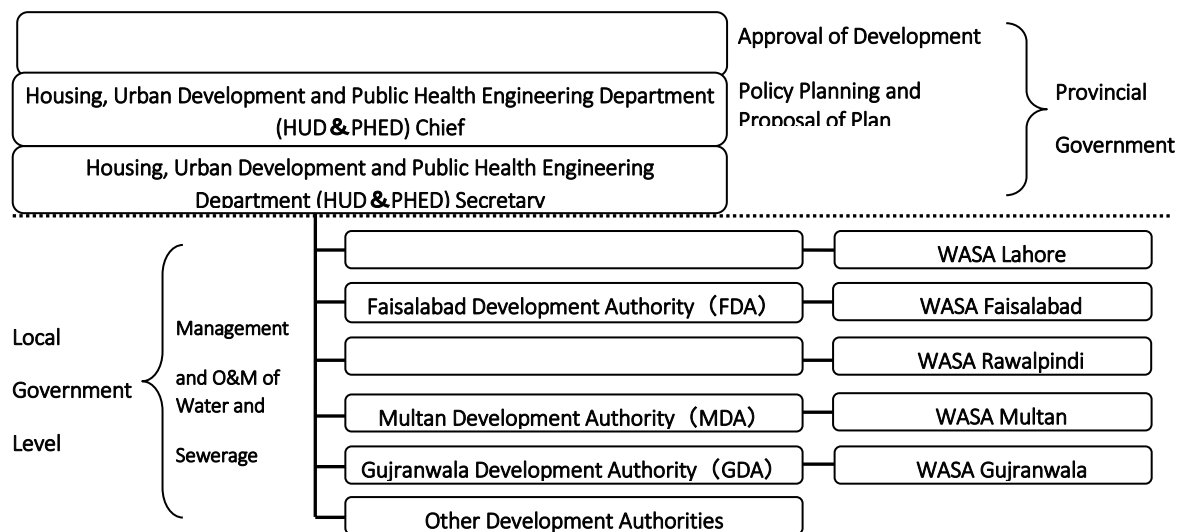
The Housing, Urban Development and Public Health Engineering Department (HUD&PHED) in the provincial government of Punjab is responsible for the following:

- Provision of housing facilities to the population of Punjab
- Promotion of development in big cities and
- Supply of potable water and provision of sanitation

The vision of the department is to harness the inherent potential of cities in order to make them the engines of economic growth in line with the vision of the Government of the Punjab and the provision of low-cost housing, water supply, and sanitation coverage across the province, particularly in brackish and barani (farming) areas.

The Faisalabad Development Authority (FDA) is the statutory body under the HUD&PHED and the WASA is a wing of the FDA for water supply, sewerage and drainage. The organization of the water and sewerage sector in Punjab District is shown in Figure 16.2.

Small community-based rural water supply and sanitation schemes have been planned and constructed by the PHED under an institutional framework with community participation. After construction and pilot testing, the water supply is handed over to the Village Development Association (VDA) for operation.



Source: JICA Mission Team

Figure 16-2: Organization of the Water and Sewerage sector in the Punjab District

16.4 FAISALABAD DEVELOPMENT AUTHORITY (FDA)

Faisalabad Development Authority (FDA) was constituted under Punjab Development of Cities Act 1976 as a successor body to Lyallpur Improvement Trust (1966)

16.4.1 Functions of FDA

- To initiate and maintain a continuous process of comprehensive development planning for the area with the objective of preparing a Development Plan.

- To develop, operate and maintain water supply, sewerage, and drainage system within area.
- To establish, maintain, planning controls and building regulations for the area and take necessary actions to get them implemented.
- To establish an Agency / Agencies and entrust to it such powers and functions as it may deem fit with the approval of the Government.

The Faisalabad Development Authority (FDA) is a body responsible for undertaking and monitoring planned developments in the city of Faisalabad, in Punjab, Pakistan. The body acts as a regulatory authority for overseeing the construction of houses, commercial developments, and residential areas in the city. It has three main wings

Urban Development Wing, Water and Sanitation Agency (WASA), Traffic Engineering Planning Agency (TEPA).

The FDA is responsible for the planning, design, and implementation of various urban development projects. It oversees the following functions:

1. Development of new housing colonies
2. Building Control
3. Water Supply, Sewerage & Drainage
4. Environmental Improvement Schemes
5. Regulation of Industrial Development
6. Reports on Traffic/Transportation

The FDA pursues the vision of turning Faisalabad City into a “liveable city” with combined support of people, the private sector, other local institutions, and the Government. The FDA mission is to establish an integrated environmental and regional development approach and accounting process vis-à-vis the FDA’s planning and development functions. The main three wings of the FDA are the Urban Development Wing, the Water and Sanitation Agency (WASA), and the Traffic Engineering Planning Agency (TEPA).

Organogram of FDA:

The organogram of FDA is attached in **Figure 16.3** underneath.

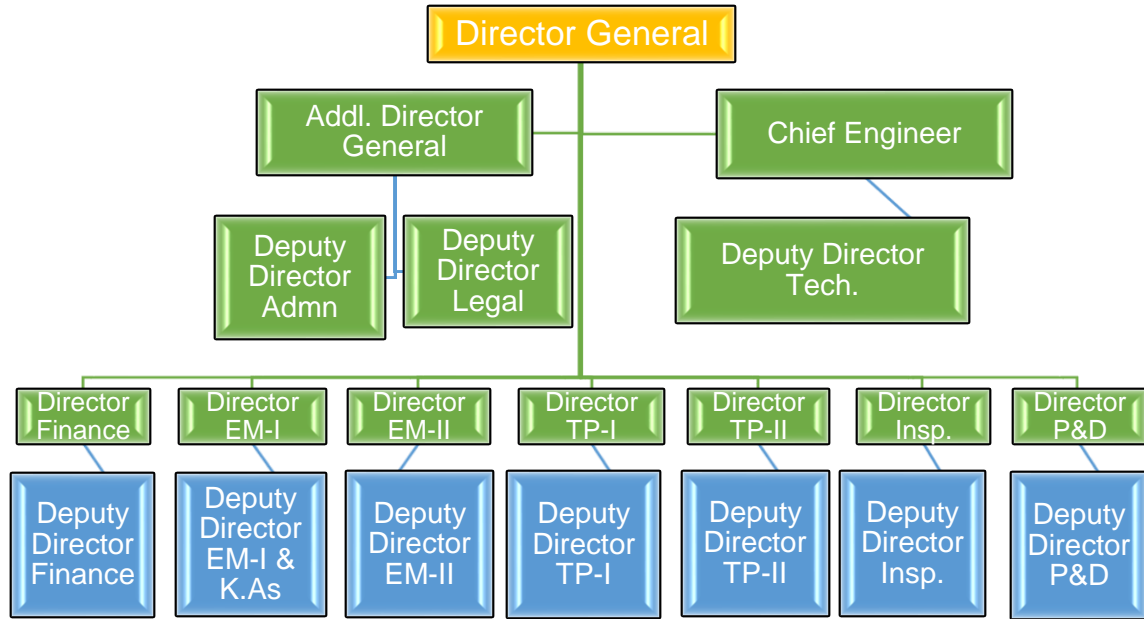


Figure 16-3: Organogram of FDA

Composition of Advisory Board of FDA: (Total 26 No)

1. Urban Unit
2. NESPAK
3. NGO'S
4. FCCI
5. APTMA
6. INDUSTRIALIST
7. EXPORTERS
8. DEVELOPERS

Details of Posts in Urban Design Wing of FDA:

The details of posts in urban wing of FDA are shown in Table 16.2 underneath.

Table 16-2: Post in Urban Wing of FDA

| BPS | Total Posts | In Place | Vacant |
|-----------------|-------------|----------|--------|
| 20/21 | 01 | 01 | - |
| 19/20 | 02 | 01 | 01 |
| 19 | 07 | 01 | 06 |
| 18 | 21 | 08 | 13 |
| 17 | 43 | 19 | 24 |
| 16 | 44 | 23 | 21 |
| 1 to 15 | 553 | 289 | 264 |
| Fixed Pay LA/MO | 08 | 06 | 02 |
| Grand Total | 679 | 348 | 331 |

Development/Non-Development Budget:

The details of development/ non-development budget are summarized in **Table 16.3** below.

Table 16-3: Development/Non-Development Budget

| Sr. No. | Particulars | Proposed Budget Estimates 2018-19 | Revised Budget Estimates 2018-19 | Budget Estimates 2019-20 |
|------------------------|-----------------|-----------------------------------|----------------------------------|--------------------------|
| Receipts | | | | |
| 1. | Opening Balance | 306.427 | 306.427 | 351.150 |
| 2. | Development | 3702.216 | 707.398 | 2422.084 |
| 3. | Non-Development | 555.098 | 425.956 | 601.500 |
| Total | | 4563.741 | 1439.781 | 3374.734 |
| Expenditures | | | | |
| 1. | Development | 3701.385 | 662.796 | 2421.109 |
| 2. | Non-Development | 464.710 | 425.835 | 601.236 |
| Total | | 4166.095 | 1088.631 | 3022.345 |
| Closing Balance (A-B)* | | 397.646 | 351.150 | 352.389 |

Summary of applications received on Khidmat Markaz is shown in **Table 16.4** below.

Table 16-4: Summary for Applications Received on Khidmat Markaz

| Summary for Applications Received on Khidmat Markaz | | | | 10-Nov-20 | | |
|---|------------|------------|------------|------------------------------------|----------------|-----------|
| Application Type | Received | Delivered | In Process | Fee/Penalty/Objections Issued (89) | | |
| | | | | Objection | Processing Fee | Penalty |
| Commercialization | 8 | 0 | 8 | 0 | 0 | 0 |
| Completion Certificate | 187 | 84 | 17 | 23 | 36 | 27 |
| Proposed Plan (Residential) | 73 | 53 | 17 | 3 | 0 | 0 |
| Proposed Plan (Commercial) | 5 | 5 | 0 | 0 | 0 | 0 |
| Private Housing Scheme | 1 | 0 | 1 | 0 | 0 | 0 |
| Total | 274 | 142 | 43 | 26 | 36 | 27 |
| | | | | | | |
| Admin Officer TP-I | | 1 | | Assistant Architect | | 9 |
| Objection Scrutinizer/ADTP-I | | 19 | | Director Architect | | 0 |
| AD TP-I | | 7 | | AD Recovery | | 0 |
| DD TP-I | | 3 | | AD One Window | | 0 |
| Director TP-II | | 1 | | DD TP-II | | 0 |
| Assistant Architect | | 9 | | AD EM-II | | 0 |
| AD TP-II | | 0 | | DD EM | | 3 |
| DD TP-II | | 0 | | Record Keeper | | 0 |

16.4.2 Issues of FDA

Jurisdictional Problems, Duality of Control:

In most of the city areas the planning control and building control is exercised by different organizations i.e. FDA, PHATA and Faisalabad Metropolitan Corporation which has resulted in weak control, un-authorized constructions, violations, and administrative problems.

The layout plan of private housing schemes is examined and approved by FDA but Building Plans of the private housing schemes are approved by Metropolitan Corporation and District Council which is a major cause for unauthorized constructions, and violations. In other big cities like Lahore, Multan and Islamabad the Approval of layout plan of private housing schemes and approval of Building Plans, issuance of completion certificates of the buildings is exercised by one Authority, LDA, MDA and CDA respectively. This discrepancy needs to be rectified immediately and FDA be made responsible for Building Control and Development Control activities and FDA may be equipped with technical man-power and necessary logistics required to perform these important City Planning activities. It is the domain of FDA, Faisalabad Municipal Corporation and District Council neither has powers nor capacity to exercise building control in Faisalabad. Both these departments do not have technical set-up to exercise building control.

Rapid Urbanization:

Due to fast spatial expansion of the city agricultural land is rapidly being converted to urban activities. The built-up area is increasing at a fast pace eating up rich agricultural land. High-rise buildings and high-density development may be encouraged in city areas to save the agricultural land and achieve food security. High land use conversion fee may be imposed on conversion of agriculture land to urban use, and conversion of rich agricultural land may be banned in the city. A policy may be formulated in consultation with the stake holders followed by relevant legal framework to arrest this trend.

Discrepancies in Commercialization Policy:

Due to absence of policy of commercialization in Katchi Abadies haphazard commercial zones have been emerging creating land use control issues. In view of this a commercialization policy be framed specifically for Katchi Abadies to control this menace. There is disparity in commercialization rates of HUD&PHED and Local Government departments. These commercialization rate be made uniform to remove this disparity. There is no provision for charging of fee for temporary conversion of residential building into school/academy/hospital/clinic on non-commercial roads.

Shortage of Funds for Development Projects:

Traffic Engineering and Planning Agency (TEPA) was established in 2014 and has undertaken various projects in Faisalabad related to Traffic and Transport of Faisalabad. But now for the last about four years it has been made non-functional due to shortage of funds. Traffic and Transport is the most important sector of planning and development of the city and its ignorance has created many problems. There is a need to revitalize TEPA immediately to improve the traffic and transport of Faisalabad. Proper professional technical experts be appointed on the sanctioned posts and its working be resumed.

Shortage of Funds for on-going Development Projects cause delay in completion of the development projects and escalation in cost of the projects.

Due to shortage of funds/revenue of the Authority, the Authority is compelled to auction its available assets to meet expenditures, etc. This is very serious issue which needs attention of the higher ups. Revenue generation activities be introduced, fees, charges be rationalized/reviewed, to achieve financial sustainability of the Authority.

Acute Shortage of Staff:

There is acute shortage of technical, professional and ministerial staff in FDA. Due to superannuation of various officers/officials of FDA over the time a large number of posts become vacant. No appointment has been made against these posts for the last many years due to ban on appointment imposed by the Federal Government. Currently 348 officers/officials have been working against the sanctioned strength of 679 officers/officials.

Due to this shortage of staff the performance of the Authority is being suffered. The work burden on the existing staff has been doubled due to which most of the officer's work till late hours and on holidays. There is a need to fill all the sanctioned posts by qualified persons following the prevailing appointment rules and regulations.

Inadequate Logistics:

Due to shortage of logistic facilities technical officers/staff are unable to keep regular monitoring of planning and development activities in the city. This has resulted in unauthorised construction, violations of rules and regulations, encroachments of public land and streets, etc. Action against the violations also could not be initiated due to lack of logistic support. There is a need to provide proper vehicles to field staff so as to maintain regular monitoring of the planning and development activities in the city.

Illegal Housing Schemes:

- No Framework for Regularization of Old Illegal Housing Schemes / Land Sub-divisions
- Stringent Punjab Private Housing Scheme and Land Sub-division Rules, 2010
 - For example: Land locked issue, Access Road issue etc.
- The Private Housing Schemes & Land Subdivision Rules 2014 of LDA are an improvement upon the rules being followed by the other authorities, for uniformity and effectiveness, these should be made applicable for other authorities in Punjab.
- Non-Entrance of Housing Schemes in Revenue Record and lack of implementation of letters forwarded by FDA for ban on mutation etc. by revenue staff
- Advertisement of illegal and unapproved housing schemes by Real Estate Agencies and Marketing/Advertisement Companies
 - For example: Zameen.Com, Star Marketing etc. through print and social media
- Permission of erecting steamers and advertisement boards through PHA billboards prior to the approval of FDA
- Illegal electrification in housing schemes not approved by FDA
- Delay in registration of FIRs against illegal housing schemes developers
- Delay in NOCs and documents verification from line departments such as Revenue, Irrigation etc.
- Blackmailing by Different Media Personnel and prosecution by Anti Corruption, FIA and NAB based on complaints from medial personnel and low budgeted newspaper articles

Delay in Action against Violators:

Withdrawal of police staff after vacation of Madina Town residences, resulting in difficulty in ensuring building control by the Authority.

Lack of Coordination between Line Departments:

Lack of coordination between revenue department, utility service providers, development authorities and Local Government resulting in weaker controls in checking the establishment of illegal housing schemes.

Due to cultural preference, shortage of energy and absence of policy, demand for high rise residential buildings is minimal, keeping the private developers away from this sector, the result is rapid conversion of agriculture land for residential purposes. A policy accompanied by relevant legal framework is the need of the hours to arrest this trend.

16.5 TRAFFIC ENGINEERING AND TRANSPORT PLANNING AGENCY (TEPA), FAISALABAD

Gazette Notification:

Notification of Traffic Engineering and Transportation Planning Agency (TEPA) in the Extraordinary Issue of the Punjab Gazette was published vide registered No. L-7532 dated 24-11-2014.

Introduction:

TEPA is working for the Achievement of Safe, Efficient and Convenient movement of people and goods in Faisalabad city and in other Tehsils.

16.5.1 Functions of TEPA

- To put in place an efficient signage system for Faisalabad city.
- To make the transportation system safe and secure.
- To introduce environment friendly transportation system.
- To improve the performance of existing transport network.
- To conduct traffic surveys and studies of city roads and parking lots.
- Preparation of traffic improvement plan
- An effective system of signage to facilitate the flow of traffic and road users.
- Provision of technical and professional assistance to other relevant development agencies.
- Any other activity to augment traffic and transportation management system in the city.

Role of Local Authorities in the Water and Sewerage Sector:

Thirty-four districts in Punjab Province are handling the actual management and O&M of water and sewerage works. A WASA is established under each Development Authority in the five districts (big cities) of Lahore, Faisalabad, Rawalpindi, Multan, and Gujranwala as the entity implementing water and sewerage works. In districts other than the foregoing five, the water and sewerage works are implemented by lower district organizations known as, Tehsils. An Infrastructure Division under a Municipal Officer in each Tehsil is actually in charge of the O&M of these works.

16.6 WATER AND SANITATION AGENCY (WASA) FAISALABAD

Major Duties of WASA-F:

WASA (Water and Sanitation Agency) Faisalabad, subsidiary of Faisalabad Development Authority (FDA) was created on April 23, 1978, as an Agency of FDA under the Punjab Development of Cities Act 1976. WASA-F has the following functions:

Planning, design, and construction of water supply, sewerage, and drainage facilities for:

1. New construction works
2. Rehabilitation and augmentation of the existing system
3. Operation and maintenance of the water supply, sewerage, and drainage system
4. Billing and collection of revenue for the services provided to consumers.

WASA-F envisions becoming a high-class service provider for the people of Faisalabad City and thereafter becoming the centre of excellence in the water sector of the country. The WASA-F Mission Statement breaks down this vision into the following objectives:

To make our customers feel welcome, appreciated, and worthy of our best efforts in everything we do as a provider of water supply, sewerage, and drainage services.

To achieve sustainable financial self-sufficiency.

To train and motivate employees to adopt a professional approach for quality services.

The project and business of the WASA-F are operated as components of the FDA, so the annual investment plan of the FDA encompasses the annual investment plan of WASA-F. The WASA budget is approved by the Governing Body of the FDA. Each WASA in the province reports its annual achievements to the Punjab Government (Secretary of HUD&PHED, P&D, and Finance). The Governing Body of the FDA authority has also taken over the authority over tariffs, an authority previously held by the Punjab Government/Chief Secretary. Further, the FDA appoints the executive personnel to serve in WASA-F. In short, WASA-F is not an independent institution that makes decisions by itself but an organization under the FDA.

16.6.1 Organization Structure

Figure 16.3 shows an organogram of WASA-F, an organization of about 1,750 personnel made up of both regular and contract staff employed in the budget of the provincial government. WASA-F also engages work-charged staff to perform simple tasks in numbers that vary over time, covering the expense within its own budget. The number of work-charged staff engaged as of September 2016 totaled 1,263, making up just less than half of the total staff of 3,009 in that month. This report focuses mainly on regular and contract staff in its discussions on personnel management.

The organization of WASA-F is formulated under a Managing Director (MD) appointed by the Secretary HUD&PHED. The Chief Secretary/Chief Minister can direct the Secretary HUD&PHED to appoint the MD. The appointment procedure currently adopted is carried out in the following steps: advertisement in newspapers, interviews by a selection board, approval of the selection board's recommendation by the Chief Secretary/Chief Minister, and appointment by the Secretary HUD&PHED. An appointed MD serves a term of three years. The Secretary HUD&PHED has the authority to extend or abolish the appointment.

Generally speaking, three Deputy Managing Directors (DMDs) are appointed under the Managing Director (MD). The Deputy Managing Directors respectively oversee Finance & Revenue, Engineering, and Services. The Finance and Revenue DMD oversees a finance division and revenue & recovery division. The Engineering DMD oversees a construction I (West) division, construction II (East) division, and planning and design division. The Services DMD oversees O&M east and O&M west divisions, both of which manage sewers, a Water Resources division that manages the intake of groundwater and water treatment plants, a Distribution & Management (D&M) division that manages water distribution pipes, and a Drainage and Waste Water Management (WWM) division that manages the pumping stations for sewage and wastewater treatment plants. Apart from those divisions, an Administration division, Implementation & Coordination (I&C) division, and French Funded Project division have been installed directly under the MD in a recent organizational reform of WASA-F.

While WASA-F takes charge of the three sectors of Water Supply, Sewerage, and Drainage, its structure is organized by administrative functions (e.g., engineering and services) rather than the three sectors per se. As a result, the deputy director of services is in charge of the O&M of the sectors.

16.6.2 Personnel Management

The Administration Division is in charge of personnel management. The personnel of WASA-F are ranked according to 20 Basic Pay Scales (BPS 1 to 20). Those ranked between 16 to 20 BPS handle administrative works, and those ranked 1 to 15 BPS handle practical works. For personnel ranked between BPS 1 to 16, advances up the BPS ladder are determined by the period worked. For ranks of up to BPS 17, the Managing Director of WASA-F has the appointment authority. Appointments/promotions of personnel ranked BPS 18 and above are decided by the DG FDA/FDA Governing Body. Personnel shifts within WASA-F are done

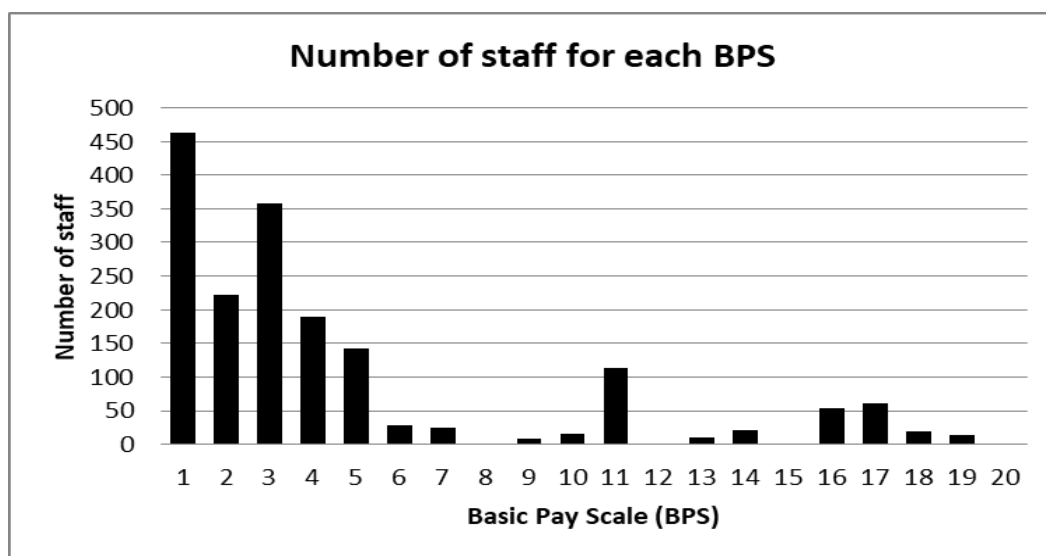
according to the same rules. While the BPS ranking goes up together with the payment amount and number of years of service, the job designation (category) does not change. The designation of a sewer man, for example, ranges mainly from BPS 1 to 4, while that of a pump operator ranges from BPS 2 to 5.

Staff recruitment is carried out by public offers and written/oral examinations and is decided by the provincial government. WASA-F staff members retire upon reaching 60 years of age.

An official set of job descriptions for WASA-F has yet to be approved. An original draft of the job descriptions was created a long while ago and needs revision. Established job descriptions are necessary to strengthen the organizational structure. WASA-F, therefore, is preparing to draft a new set of descriptions adapted to the actual organization. For employee evaluations, WASA-F is using a specified form from the Punjab Government.

Following is a summary of the conditions entailed in the formation of WASA-F staff:

Figure 16.4 shows number of staff assigned to each BPS ranking. Persons ranked higher than BPS 16 account for 5% of all staff, while those ranked below BPS 5 account for about 80%.



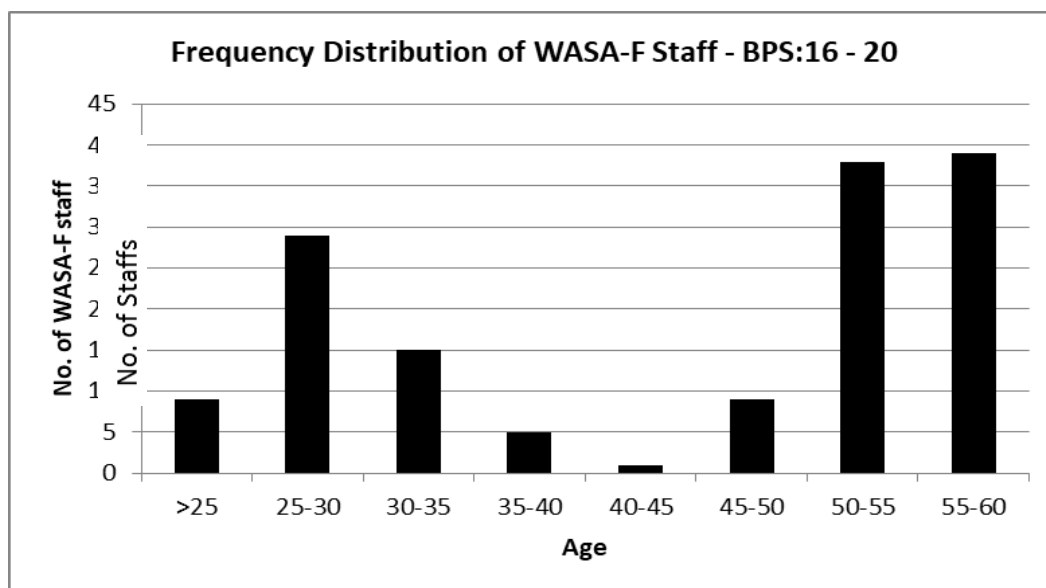
Source: JICA Mission Team

Figure 16-4: Number of Staff for each BPS

Working towards the budgeted number of 2,689 posts, excluding the separate budget for work-charged staff, 1,746 persons have been appointed as staff (1,782 at the time of the detailed planning study). As a result, 943 posts are vacant. Staff persons in administrative positions often serve multiple posts.

The adoption of the staff is concentrated in two periods, namely, for the period after WASA-F's founding and from 2005 onwards. In particular, 53% of the administrative staff ranked at BPS 16 or higher are over 50 years of age and will retire within 10 years. A serious generation gap is observed in the age composition of WASA-F. (See Figure 16.5)

Two factors responsible for the many vacant posts are the number of retiring personnel and the reluctance of the revenue-deprived provincial government to approve the hiring of new people.



Source: JICA Mission Team

Figure 16-5: Frequency Distribution of WASA-F Staff

16.6.3 Human Resource Development

WASA-F lacks a human resource development plan. The only form of human resource development planning taking place at present is the planning for employee attendance of the training courses or workshops. This attendance plans are formulated by the Directorate of Information and Communication (I&C) instead of the Directorate of Administration, the entity in charge of human resource management.

The data on course attendance in 2016 shows that 193 employees attended in total, including 17 employees who attended eight courses held in other countries. Following are descriptions of a number of issues related to course attendance and the characteristics of the attendants.

The domestic training courses include that by Al-Jazari Academy (former WASA Academy).

Thirteen attendants attended 5 training courses in Japan.

Officers ranked BPS 16 or higher, that is, those in the administrative layer, also attended training courses.

The number of attendants per BPS ranking is shown in **Table 16.5**.

Table 16-5: Number of training Course Attendants

| BPS | Number of attendants in total, (A) | Number of staff persons in total, (B) | (A) / (B) |
|--------------|------------------------------------|---------------------------------------|------------|
| 19 | 16 | 14 | 1.1 |
| 18 | 24 | 12 | 2.0 |
| 17 | 142 | 64 | 2.2 |
| 16 | 11 | 56 | 0.2 |
| Total | 193 | 146 | 1.3 |

- In many cases one officer attended a couple of courses.
- Very few administrative officials in the BPS 16 ranking attended courses.
- Attendance of these courses seemed to be a privilege of high-ranked officials.
- Employees ranked lower than BPS 15 had no plans to attend courses for human resource development.

- The following are recommended improvements:
- WASA-F should formulate a comprehensive human resource development plan extending far beyond the scope of a training course attendance plan.
- More administrative officials ranked BPS 16 or more and other employees ranked lower than BPS 15 should attend related training courses.
- Assistant directors or senior engineers should plan out an OJT training scheme for workers with lower BPS rankings.

16.7 FAISALABAD WASTE MANAGEMENT COMPANY (FWMC)

The Faisalabad Waste Management Company (FWMC) has been established by City District Government Faisalabad (CDGF) under section 42 of the Companies Ordinance 1984. The company is limited by guarantee having no share capital and is formed not for profit within the meaning of Section-42 of the Companies Ordinance. The FWMC is governed by a Board of Directors (BODs), headed by a Chairman.

Board of Directors of FWMC:

1. Deputy Commissioner, Faisalabad
2. Managing Director FWMC
3. Women Member Municipal Corporation Faisalabad
4. Two members from FCCI
5. Senior Solid Waste Specialist Urban Unit Lahore
6. Member Finance Department Lahore
7. Member Planning and Development Lahore
8. Member Local Govt. and Community Development Lahore

Services of FWMC:

1. Door to Door & Container Based Collection
2. Placement of Containers & bins
3. Waste drums have been installed along six primary drains of waste to avoid waste disposal inside drains by public
4. Mechanically sweep major roads
5. Mechanically wash major roads
6. Manual sweeping
7. Has deployed 3500 waste workers for manual sweeping

Manual Sweeping is done in morning shift. Workers dressed in uniform are provided with health and safety gadgets along with necessary tools broom and waste pickers.

Complaint Management and Resolution System 1139:

Complaint Management and Resolution System has been devised for registration of complaints lodged by public, escalation of complaints to the field staff and recording of resolution details of the complaints. FWMC has deployed professionals and experienced call agents to handle waste related complaints. FWMC ensures that by error free and prompt escalation daily received complaints and citizen's problems are resolved to satisfactory level.

Vehicle Tracking and Monitoring System (VTMS):

To efficiently manage a fleet of 600 operational vehicles, trackers have been installed on all operational vehicles including contractors' vehicles. FWMC is ensuring optimum utilization of vehicles for cost effective efficiency and satisfactory waste collection. It tracks vehicle routes, the speed of travel, distance covered, points where vehicles stop, get parked etc.

All operational vehicles including contractor's vehicles are being efficiently managed by Vehicle Tracking & Monitoring System (VTMS). Trackers have been installed in almost 600

official vehicles enabling to track location of vehicles round the clock using web application. It has helped keeping fleet movement under strict vigilance.

Vehicle Trip Counting System (VTCS):

Vehicle Trip Counting System (VTCS) is automatically operated without any human involvement. This web-based system is accessible through internet in any part of world. The amount of waste delivered by each vehicle can be seen in real time with a picture of the vehicle. The Turkish contractors have also given access to this system for continuous monitoring.

Amount of waste collected from the city and transferred to dumping areas is kept in record using Vehicle Trip Counting System (VTCS). This web-based system operating without any human involvement is accessible through internet at any place. VTCS has been installed on weighbridges where amount of waste delivered by each vehicle can be seen in real time with a picture of the vehicle.

IRIS Based Attendance:

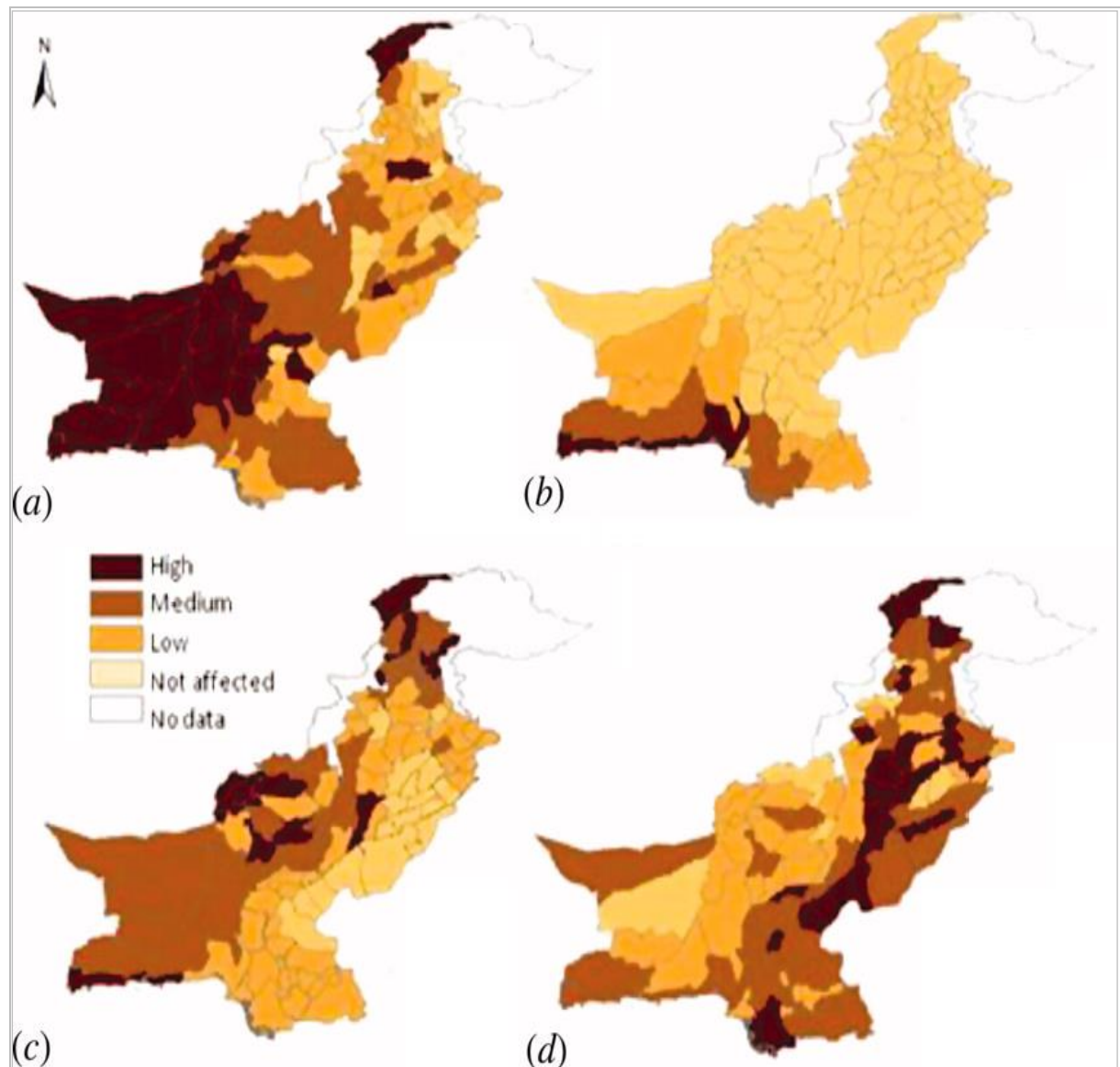
Aiming to effectively monitor the field activities of staff, FWMC has indigenously prepared a state-of-the art Iris Based Digital Attendance System using the latest technologies. Iris device connected with android phone coupled with PHP based web portal has opened a new era of web-based attendance system.

1. Real Time Monitoring
2. Control Room aided with Video Wall Technology for:
3. Operational Monitoring
4. Mid-course Correction
5. Gaps Identification
6. Operation Analysis
7. Monitoring Real Time Tracking of vehicles route
8. Monitoring of vehicles speed limit
9. Real-Time monitoring of Trips & Weight

17. DISASTER MANAGEMENT

17.1 RISK OF NATURAL HAZARDS

During the last 30 years, Pakistan has undergone extreme transformations with respect to population and economic conditions. As a hazard-prone country with more people living in high-risk areas than ever before it is increasingly important to pro-actively address natural and man-made hazards and the cumulative risks that they pose at multiple spatial and temporal scales. Figure 17.1 shows major hazards in Pakistan.



Source: Rafi et al., 2005⁷¹

Figure 17-1: Major Hazards in Pakistan (a) Drought, (b) Cyclone, (c) Earthquake, (d) Flood: Results from the Hazard Assessment by District

In District Faisalabad, the communities are mainly affected from the pollution hazards, industrial hazards and fire incidents. In the past two or three decades there have been a large number of fire incidents occurred in different urban parts of the city, however the same were

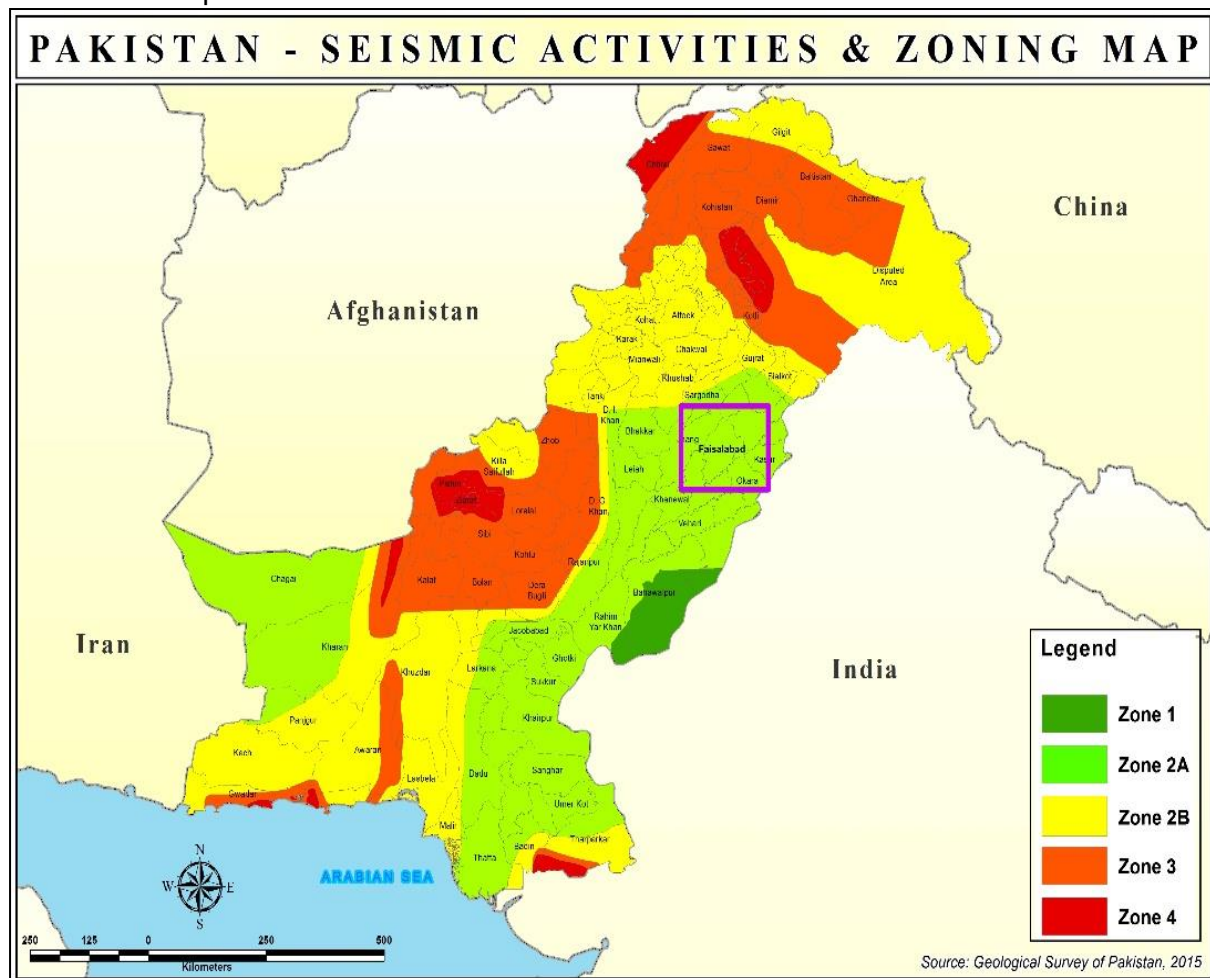
⁷¹ Rafiq, Lubna & Blaschke, Thomas & Zeil, Peter & Feizizadeh, Bakhtiar. (2011). Hazardscapes: Ranking Disaster risk in Pakistan at District Level. <https://doi.org/10.1080/19475705.2011.626083>.

coped up with the specialize rescue agencies. Moreover, no major and minor flood has been seen during the period.

17.1.1 Seismicity

According to the Pakistan Seismic Activity and Zoning Map, Faisalabad accompanied with districts Lahore, Karachi south, Karachi east, Sargodha and Jhelum lies in Zone 2A, which is low seismic risk zone. Zone 2A is the flat area of the country, therefore it is low seismic hazard prone area.

Faisalabad District is well developed and main hub of Pakistan's economic activities. Patterns of Total Risk to Natural Hazard for Pakistan at District level Excluding some anomalies, the risk map naturally divides into four broad risk zones: very low in eastern districts, low risk in the central areas, moderate to high risk in the southern and northern areas. Figure 17.2 shows the seismic map of Pakistan.



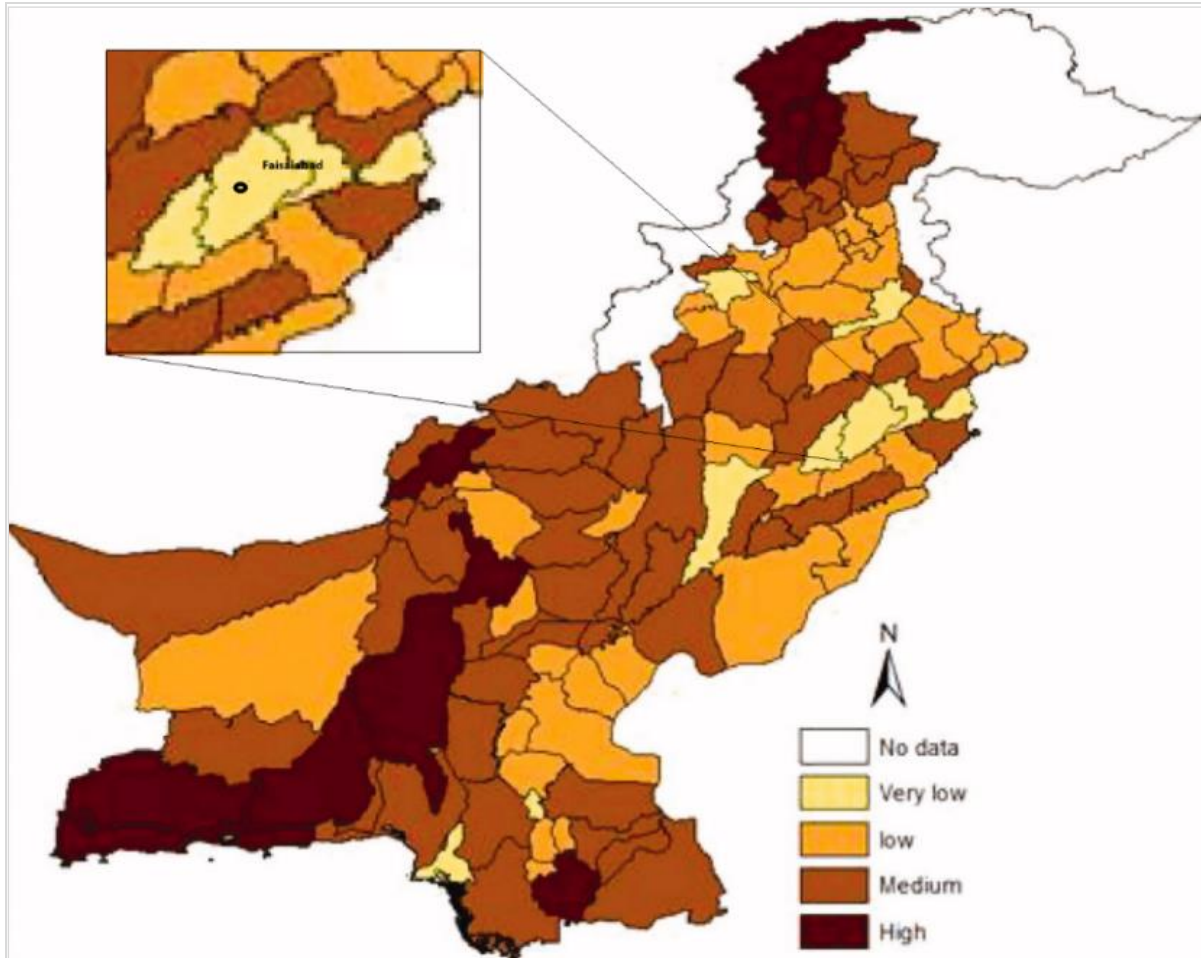
Source: Geological Survey of Pakistan, 2015

Figure 17-2: Seismic Map of Pakistan

Districts with high risk ranking mostly located in southwest, are; Gawadar, Turbat, Khuzdar, Awaran, Bolan, Pashin and few situated in north are; Chitral, Charsada and Dir respectively. The risk map clearly demonstrates the compound problem of high frequency of multi natural hazard incidences and extremely high vulnerability in the above areas, although Peshawar and Rawalpindi districts ranked very low in total vulnerability assessment but due to high frequency of multi hazards (earthquake and flood) grouped both in medium risk level.

17.1.2 Flood Risk

In all risk separately Faisalabad has categorised as low risk zone for natural disasters. The figure below shows the flood risk map of all districts in Pakistan, in that map also Faisalabad is among very few districts of Pakistan that have low risk of Flooding. Figure 17.3 shows the patterns of total risk from natural hazards for Pakistan by district.



Source: Rafi et al., 2005

Figure 17-3: Patterns of Total Risk from Natural Hazards for Pakistan By District

Tehsil Tandlianwala of District Faisalabad touches with river Ravi at Maripatan and is vulnerable to flood during monsoon season, however, no major flood is being experienced by the said Tehsil in almost last two decades. The emergency teams of District Administration, Faisalabad and allied agencies have adopted a proactive approach for tackling the flood emergency as well as other natural disasters.

17.1.3 Drought Risk

Drought is a worldwide phenomenon that threatens the future of water and food supplies, as well as the global economy. Since 1900, more than eleven million people have died as a consequence of drought and more than two billion have been affected by drought, which is more than any other physical hazard. Drought is generally defined as an extended period—a season, a year, or several years—of deficient precipitation compared with the statistical multi-year average for a region that results in a water shortage for some activity, group, or environmental sector. While research in the early 1980's uncovered more than 150 published definitions of drought, Wilhite & Glantz (1985) classified drought into four types: meteorological, hydrological, agricultural, and socioeconomic. The first three approaches are

more common and deal with ways to measure drought as a physical phenomenon. The last approach associates the supply and demand of some economic good with elements of meteorological, hydrological, and agricultural drought.

Drought can be described by three characteristics (i.e., intensity, duration and spatial coverage), which can be assessed by the usage of drought indices. The Vegetation Health index (VHI) is based on a combination of products extracted from vegetation signals, namely the Normalized Difference Vegetation Index (NDVI) and the Land Surface Temperature (LST), both of which are initially derived from the NOAA Advanced Very High-Resolution Radiometer (AVHRR) sensor. A complete analysis of drought indices is provided by Wilhite (2005).

In general, a Normalized Difference Vegetation Index (NDVI) is calculated using the reflectance of the red and the near infrared bands. While red is the third band for Landsat 4, 5 and 7, it is the fourth band for Landsat 8. The infrared is band number 4 for Landsat 4, 5 and 7, whereas it is band 5 for Landsat 8. As a result, the NDVI was calculated as follows:

$$NDVI = \frac{Red - NIR}{Red + NIR}$$

Where, NDVI values range between -1 and 1.

Thermal bands were used for the determination of the land surface temperature (LST). This is the sixth band for Landsat 4, 5 and 7 and bands 10–11 for Landsat 8. Satellite TIR sensors measure top of the atmosphere (TOA) radiances, from which brightness temperatures can be derived using Plank's law [30]. The formula used for the conversion of the digital number to land surface temperature is:

$$T = TB / [1 + (\lambda * TB / \rho) \ln \epsilon]$$

Where, T is land surface temperature in Kelvin. The drought condition in Faisalabad district varies from extreme to no drought condition.

Maps showing droughts in Faisalabad are attached in **Figures 17.4 to 17.6** below.

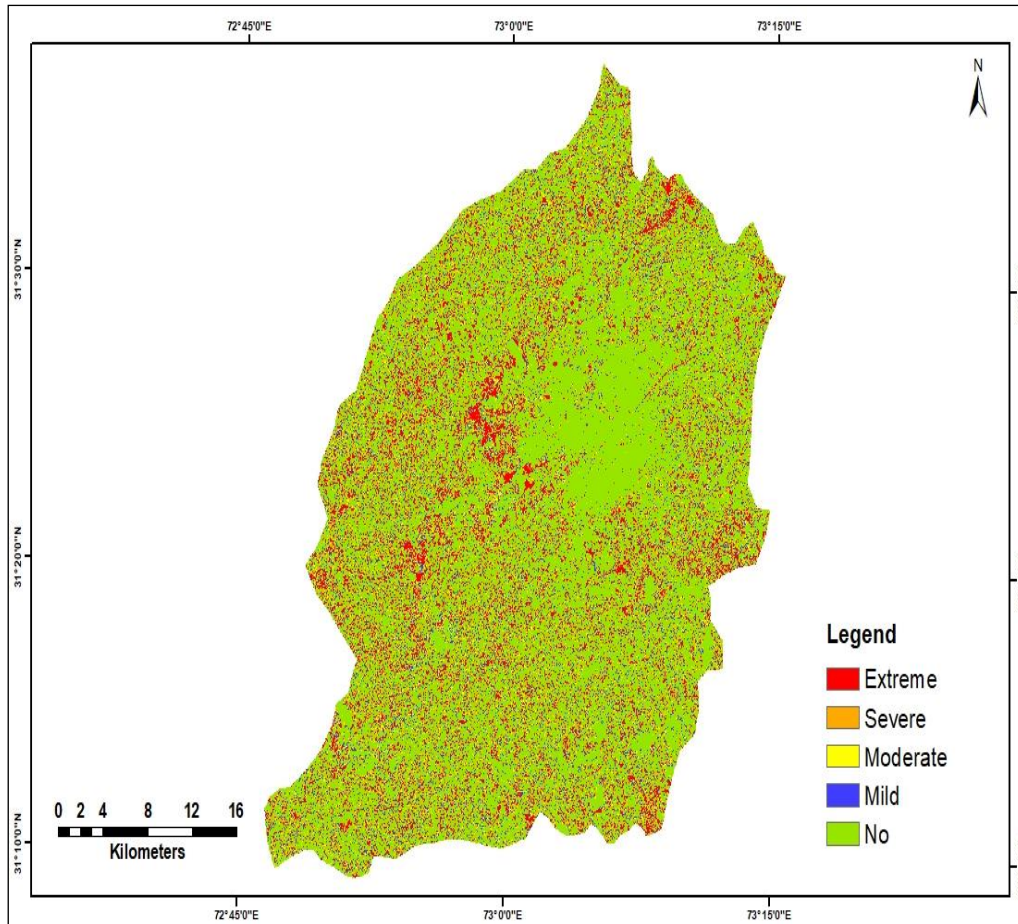


Figure 17-4: Drought in Faisalabad during 1981 to 1990

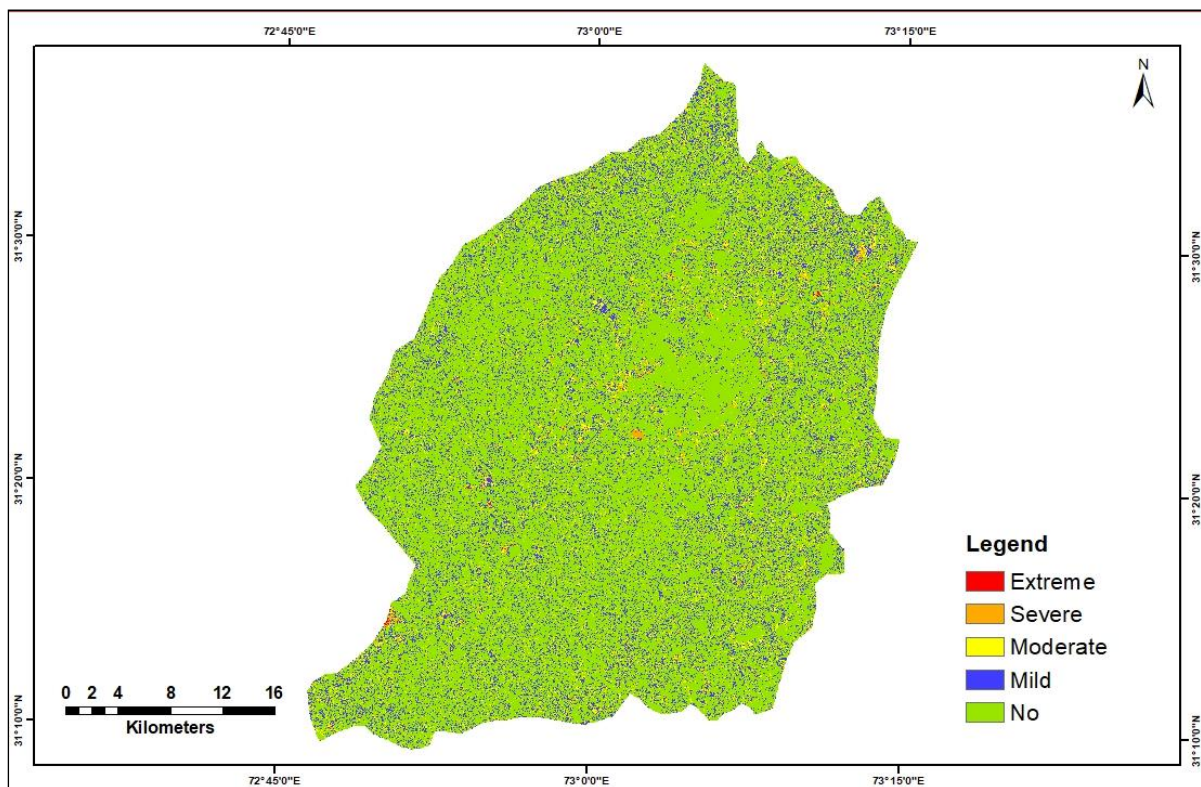


Figure 17-5: Drought in Faisalabad during 1991 to 2000

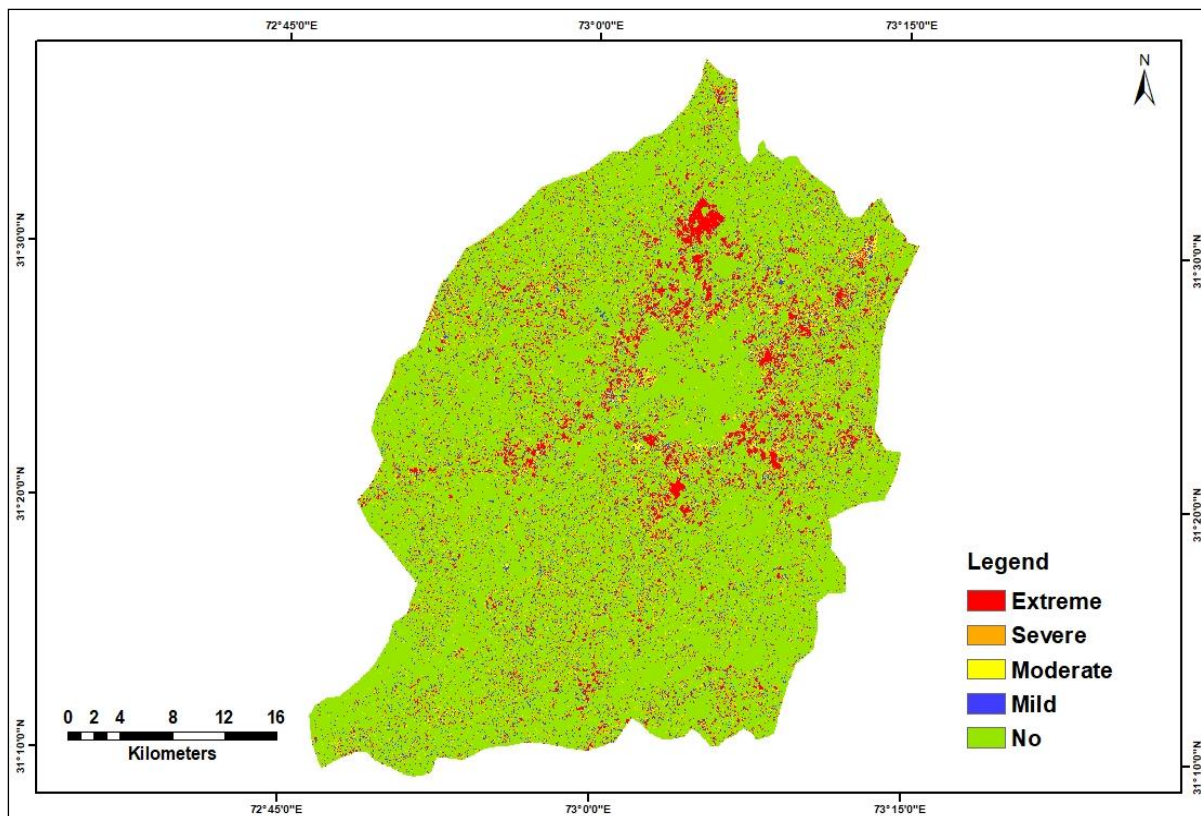


Figure 17-6: Drought in Faisalabad during 2001 to 2010

17.2 EARTHQUAKE RISK REDUCTION

The natural disasters experienced most often, particularly floods, cyclones and earthquakes, affect the same communities over and over again. Those communities are invariably amongst the poorest in their respective countries. This situation can no longer be acceptable. We must find ways and means of breaking this cycle. We must not only meet the immediate needs of disaster victims, but, more importantly, reduce the risk of future disasters. To do this, we must deal with disasters more holistically and more comprehensively.

Rapid urbanization and expansion of settlements in recent times have increased the overall risk from earthquakes as more people are now vulnerable to them. This has given rise to the need for appropriate risk reduction initiatives at both national and regional level.

Among the natural disasters' earthquake is often regarded as the most catastrophic. Natural disasters are unavoidable. However, we can prepare for disasters in advance to minimize the level of damage when they hit us. Efforts for risk reduction and recovery preparedness will ensure sustainable development of cities and towns of Pakistan.

The importance and necessity of earthquake risk reduction and post-disaster recovery preparedness cannot be understated. If we are not adequately prepared when the next big earthquake hits the region, nothing of what we normally do in the country and in the region will matter. Knowledge and experiences of structural and non-structural matters such as building codes, earthquake safe construction methods, capacity building and awareness raising, as well as facilitating cross border mutual assistance such as regional technical assistance, agreement on customs facilitation, use of regional logistics and communication hubs are important preparedness elements at regional level.

In Faisalabad appropriate preparedness and mitigation plans - both urban and rural – are lacking, and institutional and community capacity in terms of awareness, knowledge, facilities,

etc. is low. Guidelines for appropriate construction and supervision by competent authorities are also lacking.

Land Use Planning for Earthquake Risk Reduction:

Urban earthquake vulnerability has increased over the years due to the increasing complexities in urban environments. The main reasons for high vulnerability of urban environments to earthquakes are the location of major cities in hazard prone areas, growth in urbanization and population, and rising wealth measures.

In an urban area each neighborhood may have different patterns of vulnerability depending on the ground condition, Structural, socio-economic and accessibility to critical services, etc. The vulnerability assessment at neighborhood level is required for developing effective disaster risk reduction plans in detail. Geographic Information System (GIS) may be used for preparing urban earthquake risk and vulnerability maps at different scales to facilitate the decision makers.

The vulnerability is determined based on seismic hazard and fragility analysis of the structural elements of the urban area, such as soil response analysis (type of soil, layering and water table), buildings, infrastructure, lifelines, etc. It is also determined on the basis of socio-economic structure and accessibility to critical services. Socio-economic factors include ability to anticipate, resist, cope with and respond to a hazard.

Social vulnerability arises from limited access to resources and political power, social capital, beliefs and customs, physical limitations of the population, and characteristics of the built environment, such as building stock and age, and the type and density of infrastructure and lifelines. Socio-economic vulnerability for different sections of the society may be analyzed based on such characteristics as age, gender, health, welfare and wealth of households, and capability and coping strategies of social groups.

Socio-economic vulnerability is in fact reflection of existing social inequalities in the society. Furthermore, some studies conducted so far suggested that sickness, disability and poverty are all closely associated with vulnerability. Moreover, social disparities determine the living place and the nature of the living place. The vulnerability of the living place (including the dwelling, neighborhood and condition of infrastructures in that neighborhood) is also effective in the determination of the socio-economic vulnerability in close association with the characteristics of the individual. The vulnerability of the living place is further augmented by factors, such as high rate of urbanization, population growth, and density. Consequently, it can be assumed that places where the poor live have poorer infrastructural services. This is the point where the place is interwoven with what is social. All these sociological and spatial features determine the levels at which individuals are affected before, during, and after the hazard and the time required for recovery.

There are 110 Katchi Abadies in Faisalabad over an area of about 600 acres (2.43 sq. km) accommodating 203,470 people in 31,303 dwelling units. The living condition in some of the Katchi Abadies have been improved by FDA but in the rest of the abadies the infrastructure, environment and living condition is very poor thereby increasing their vulnerability. Most of the housing and land subdivision schemes launched by private sector have street width less than 20 feet. They also lack open spaces and other social and community facilities. Condition of infrastructure in these land subdivisions is also very poor. All these factors have increased the vulnerability of these areas.

Earthquake risk is specifically high in urban areas where a high concentration of people, buildings, infrastructure, economic and social activities, etc. can be found. Some parts of the Faisalabad city area are overcrowded and has lots of narrow streets and roads. These narrow streets and roads are vulnerable to blockage due to collapsed buildings in the aftermath of an earthquake. Emergency Transportation Plan (ETP) may be prepared to connect all parts of the city through several routes for emergency transportation.

Old dangerous buildings which have lived their life and are in dilapidated condition may be identified and seismic capacity of the buildings may be evaluated specifically along the Emergency Transportation roads. The Seismic Capacity of buildings may be improved by reinforcing the buildings along these emergency transportation roads to be used for evacuation, emergency transportation, etc. This requires local government to prepare plans for the strengthening of buildings and to provide guidance to owners of buildings around such roads. Furthermore, the local government may provide necessary financial support for seismic capacity evaluation and retrofitting of buildings. Immediate action be taken if the buildings present high risk of collapsing. Non-structural measures or soft measures such as development of guidelines for disaster prevention measures; designation of warning areas regarding such disasters; dissemination of risk to citizens with the help of hazard maps and other means; regulation of structures of buildings, etc.

Out of total owned houses (441,803 housing units) in urban areas of Faisalabad district majority of the houses 58.79% have been constructed during 1967-2006. 39.16% houses have age of less than 10 years while 2.05% of owned houses have age of more than 50 years (District Population Census Report 2017).

Out of total housing stock in urban areas of Faisalabad district (585,669 housing units) only 39.49% houses have walls made of baked bricks/blocks/stones and roofs made of RCC/RBC while majority of the houses i.e., 51.85% have roof made of Garder/T- Iron. 5.32% houses have roofs made of Wood/Bamboo (District Population Census 2017).

In March 2017 in urban areas of Faisalabad district 6480 houses were under construction. In these under construction houses majority of the houses (47.47%) were using Garder/T- Iron for roofs while 44.54% were using RCC/RBC for roofs.

In owned housing units in urban areas of Faisalabad district when Baked Bricks and blocks/Stone is used in walls the trend of roof material over different periods is as under (refer **Table 17.1** below):

Table 17-1: Trend of Roof Material over Different Periods in District Faisalabad

| | RCC/RBC | Cement/Iron Sheet | Garder/T. Iron | Wood/Bamboo | Others | Total %age |
|--------------------|---------|-------------------|----------------|-------------|--------|----------------|
| Under-construction | 44.54 | 3.76 | 47.48 | 3.97 | 0.25 | 1.37 |
| Less than 5 years | 51.62 | 2.69 | 43.58 | 1.88 | 0.23 | 12.99 |
| 5-10 years | 39.91 | 2.43 | 54.50 | 2.88 | 0.28 | 23.81 |
| 11-50 years | 38.54 | 1.99 | 53.20 | 5.76 | 0.51 | 57.70 |
| Over 50 years | 38.89 | 1.63 | 45.62 | 12.86 | 1.00 | 1.97 |
| Overall | 39.82 | 2.46 | 51.86 | 4.99 | 0.86 | 97.84 (2.16) * |

* Walls made of unbaked bricks/Mud/Wood/Bamboo

Source: District Census Report 2017

The above table shows that in overall housing stock majority of the owners i.e., 51.86% have used Garder/T-Iron as roof material followed by RCC/RBC i.e., 39.82%. The above table also shows that there is gradual increase over the time in use of RCC/RBC as roof material and there is gradual decrease in use of Garder/T- Iron as roof material. However, there is significant decrease in use of wood/bamboo as roof material over the time from 12.86% to 3.97%.

The vulnerability of the housing structures depends on age of structures, strength of structures, type of building material used, and building construction techniques and procedures. The planning and development institutions/organizations must launch periodic campaigns for safe designs and construction. Moreover, the building bylaws may be enforced strictly by the concerned departments on all type of construction in their respective jurisdictions to ensure safe and quality construction in Faisalabad district. No construction should be

allowed without approval of Building plans from the respective institution/organization. High penalties be introduced on construction without approval of building plans. Building inspectors be hired to cover the entire area of jurisdiction to have check on the construction without approval of Building plans and to ensure that construction is being undertaken as per the approved building plans.

The seismic capacity of school buildings, private and public, office buildings, apartments, Highrise buildings, masajid, Churches, Gurdwaras, hotels, hospitals, auditoriums, Conference halls, Clubs, Cinemas, Wedding halls, Transport Terminals, etc., may also be evaluated, and dangerous buildings may be demolished or rehabilitated depending on the age and condition of the buildings. Emergency exits may be introduced in all buildings especially multi-storey buildings to provide safe exit from the building in case of emergency. Fire-fighting arrangements, and equipment be installed in these buildings and these should be periodically checked to ensure their effectiveness in case of fire emergency.

Physical accessibility is one of the most vital and important components of natural disaster preparedness. For this reason, emergency accessibility is a paramount factor for a decision-maker, who has to consider accessibility to/from critical services in a disaster situation and in the early stages of preparedness planning.

All encroachments along the Emergency Transportation roads may immediately be removed to ensure accessibility to critical services. Encroachments along Railway line i.e., Faisalabad-Sangla Hill may also be removed to clear the Right-of-way of rail track. Lack of open spaces in the city is another concern which may be addressed by creating more and more open spaces. The planned open spaces and green areas which are encroached by the general public, traders/hawkers, and commercial establishments may immediately be restored in compliance to the orders of the Honorable Supreme Court of Pakistan. The planned open spaces may be protected by construction of fences and may be properly maintained to provide relief to the inhabitants of Faisalabad. These parks, playgrounds and open spaces may be used as relief camps in case of an earthquake or any other emergency in the area.

There are four 1122 Centers in Faisalabad city, three of them fall within Municipal limits while one on Jaranwala road is outside Municipal limits. One more Center may be established on Lahore-Sheikhupura-Faisalabad Road in between Khurrianwala and the Faisalabad city center. There are eight Govt. hospitals all are located on one side of the canal i.e., north and north-west of the canal. No public sector hospital exists on south side of the canal. There are thirteen large hospitals/health facilities by private sectors in Faisalabad city. Fortunately, concentration of public and private health facilities is higher closer to the central area of Faisalabad where the population density is high due to hub of commercial activities.

In addition to the 1122 Centers there are two Edhi Centers in Faisalabad one is located in Medina Town and the other is located near Faisalabad Agriculture University.

Based on age of buildings, apparent condition of buildings, socio-economic condition of the residents, population density, and accessibility to the critical services, etc. a GIS map has been developed and the city has been divided into three broad categories of earthquake vulnerability i.e., light, medium and high. This map may be further refined, if required, by undertaking an earthquake assessment study based on detail field surveys, scientific analysis by applying vulnerability assessment methodologies and models integrating all the components of urban environment such as ground conditions, buildings, infrastructure, social, economic, organizational structures, and accessibility to critical services, etc. On the basis of the assessment risk reduction strategies may be evolved.

Actions for enhancing capacity for rescue and relief, recovery and reconstruction and prevention and mitigation are essential for successful disaster management.

Safe Construction design for Earthquake Risk Reduction:

Lives are lost to earthquake mostly due to the collapse of buildings. Buildings collapse during earthquakes mostly because they are not engineered using earthquake-resistant technology. Such buildings are called 'non-engineered constructions', and unfortunately, such buildings are common in earthquake prone areas. For safety from earthquakes construction material as well as design details of buildings are very important and need to be of good quality. For safer and economical layout plan/design of buildings as per the local Building Byelaws/Regulations it is recommended to higher services of an Architect registered with PCATP and engage a Civil Engineer registered with PEC for preparation of economical structural designs, construction techniques and procedures and supervision of construction.

National Disaster Management Authority (NDMA), Pakistan in collaboration with UNDP has developed "Easily Understandable Guidelines on Earthquake Safer Construction" for confined masonry construction only. These guidelines detail out earthquake resistant techniques and procedures for construction for buildings up to a maximum of two-story height approximately 25 feet high. Therefore, a qualified engineer may be consulted for buildings taller than 25 feet.

Easily Understandable Guidelines for Earthquake safer construction are for non-engineered (self-builder) confined masonry building construction and focus on construction in those areas of Pakistan and AJK which are prone to high intensity earthquakes. However, these guidelines are equally applicable to earthquake resistant building construction in the rest of Pakistan.

These Guidelines for Earthquake safer construction is for use of house owners and supervising engineers for houses, schools, Public Health and Community Congregations. These have been published in English and Urdu languages. These guidelines are also available on NDMA website: www.ndma.gov.pk.

The first part of these guidelines includes properties of construction materials like Cement, Sand, Khaka and Crush, Water, Bricks, Concrete Blocks, Steel, Mortar, Concrete, etc. The second part of these guidelines include General Instructions i.e., Site Selection, Shape, Foundations, Wall construction, Openings, and Special Instructions i.e., Concrete pillars, Concrete Beams, RCC Frame around openings, etc.

Some of the important Special Instructions extracted from these Guidelines are reproduced below:

Concrete pillars:

It has been observed that during the earthquake, the corners of the buildings experience major damage (see Figure 17.7), therefore the building corners should be strengthened.



Figure 17-7: Damaged Corner of Building due to Earthquake

According to the methodology of confined masonry, the corners of the buildings and junctions where two or more than two walls meet, are strengthened by providing concrete columns (refer **Figure 17.8**).

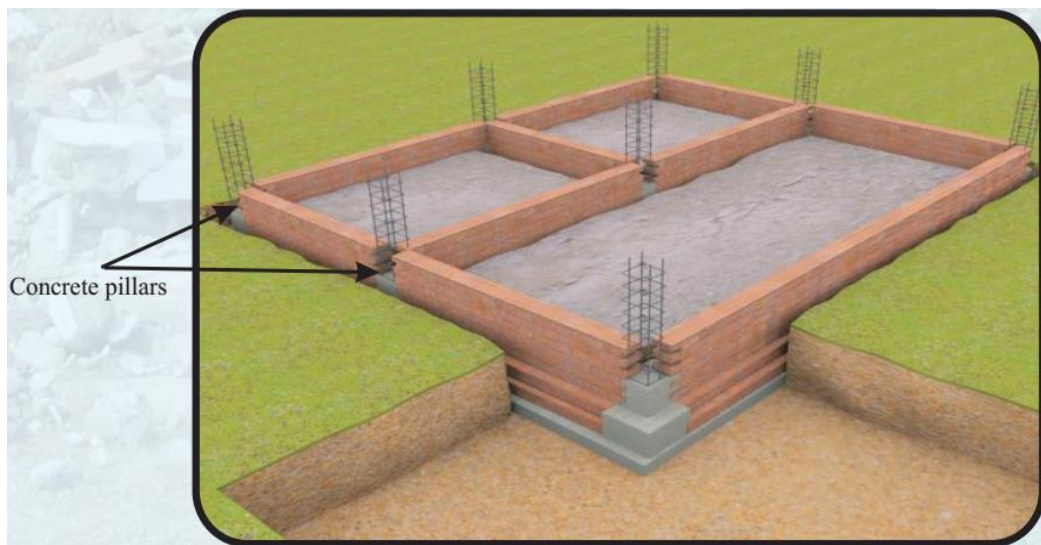


Figure 17-8: Concrete Pillars Provided at Wall Corners

In addition, the distance between the two pillars in any wall should not be more than 20 feet. If a Gable wall is also provided in the building and its height is more than 4 feet, then concrete pillars should be provided in the middle and at sides at every 8 feet distance in the Gable wall (refer **Figure 17.9**).

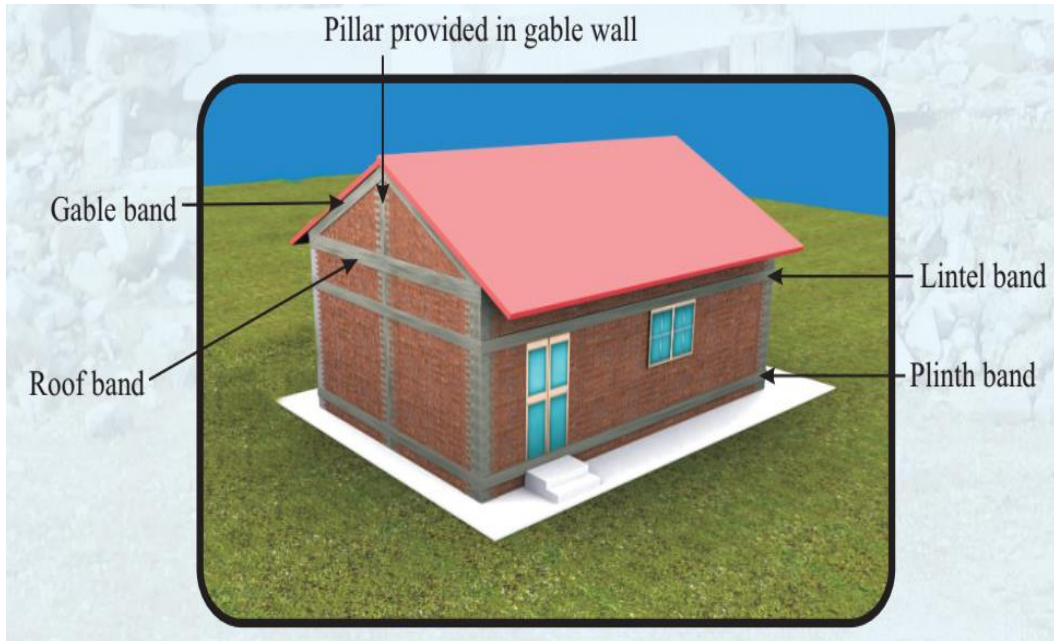


Figure 17-9: Concrete Bands in Case of Gable Roof

The size of each pillar should be at least 9 x 9 inches. In each pillar, 4 longitudinal bars of $\frac{1}{2}$ inch diameter along with rings of $\frac{3}{8}$ inch diameter placed at 6 inches should be provided (refer Figure 17.10).

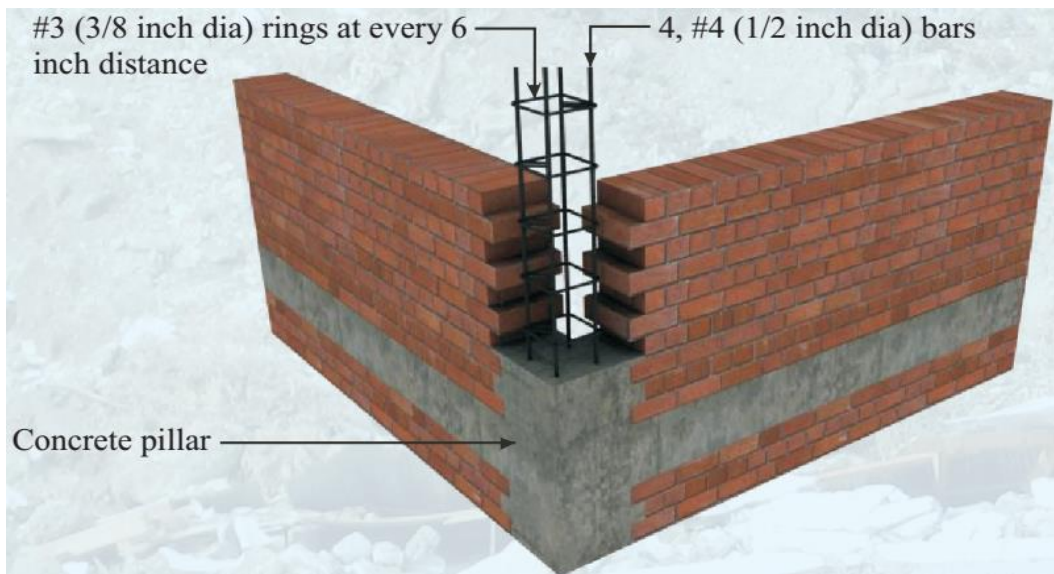


Figure 17-10: Concrete Pillars Provided at Wall Corners

The concrete used in each pillar should be of proportion (1:2:4) which means using one bag of cement, one wheelbarrow of sand (refer **Figure 17.11**) and two wheelbarrows of crush.



Figure 17-11: Sand Filled Wheelbarrow

Use minimum amount of water in concrete. For the construction of concrete pillars, if one bag of cement (50kg) is needed, and there is no moisture in the sand or crush, then the quantity of water should not be more than 25-30 kg. In terms of 5kg oil tin (refer Figure 17.12), the quantity of water should be limited to 5-6 tins with one bag of cement. If sand, crush or both are already wet; the amount of water used for mixing the concrete should further be reduced. It should be remembered that the use of excess water in concrete is very harmful.



Figure 17-12: Five Kg Oil Tin to Measures Water for Mortar and Concrete

The concrete used in the construction of the pillars should be compacted with the help of a vibrator after pouring each one to two feet of concrete. Remember that the strength of compacted concrete is very high as compared to uncompacted concrete. If a vibrator is not available, then the concrete may be compacted by tamping it with a thick steel rod. Each concrete pillar should be properly cured for at least 14 days.

Concrete Beams:

If all the members of the building (walls, pillars act) are not properly interconnected, then the building experiences major damage during an earthquake. According to confined masonry methodology for constructing earthquake resistant buildings, it is vital to provide concrete

beams at specified locations in the walls. This helps in binding all the members of the building together, thus enabling it to resist the earthquake forces.

In Figure 17.13 below, three different types of concrete beams are shown. The concrete beam provided at the floor level is generally known as plinth beam or plinth band. The concrete beam provided above the doors and windows is called lintel beam or lintel band, whereas the concrete beam provided at the roof level is called roof beam or roof band.

In case of a concrete roof slab, it is not necessary to provide a roof beam. In all the other situations, it is necessary to provide all of the aforementioned beams in the building.

When gable walls are provided, it is necessary to provide a gable beam along with the roof beam as shown in Figure 17.9 above.

The width of all aforementioned concrete beams should be equal to the thickness of wall i.e., 9 inches in case of brick walls and 8 inches in case of block masonry walls.

The depths of all the aforementioned concrete beams are shown in Figure 17.14 below. While laying the lintel beams, care must be taken that they not only span the windows and doors, but like plinth beams and roof beams, they also span the entire length of the wall. In addition, these beams should also be provided in walls which do not have windows and doors as shown in figures below.



Figure 17-13: Concrete Bands Provided at Specified Levels

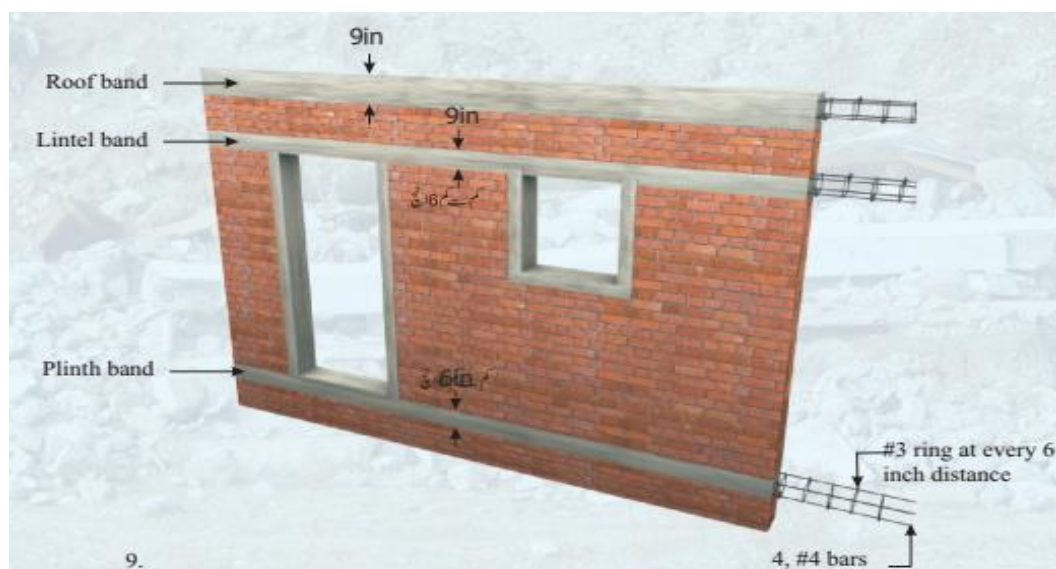


Figure 17-14: Details of Concrete Bands

In all beams described above, 4 steel bars of $\frac{1}{2}$ inch diameter should be provided lengthwise along with rings of steel, having a diameter of $\frac{3}{8}$ inch, placed at a distance of 6 inches along the length of the beam.

If the width of any opening becomes greater than 6 feet, then the depth of lintel beam should be increased from 6 inches to 9 inches and 2 additional steel bars of $\frac{1}{2}$ inch diameter should be provided in the lower part of the beams. This will increase the number of bars in the bottom part of the beam from 2 to 4.

The longitudinal bars of concrete beam should be firmly secured with the steel bars of the column (refer Figure 17.15 and Figure 17.16)

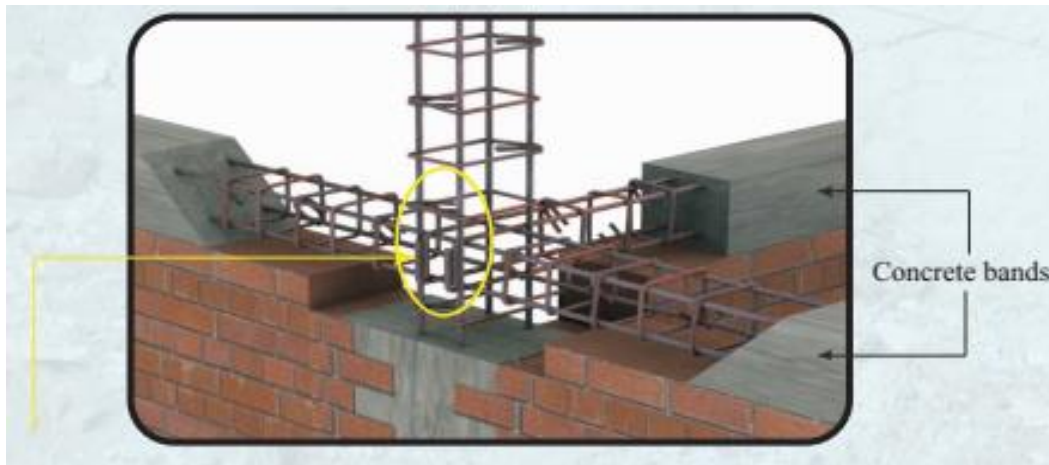


Figure 17-15: Connection of Concrete Band and Pillar

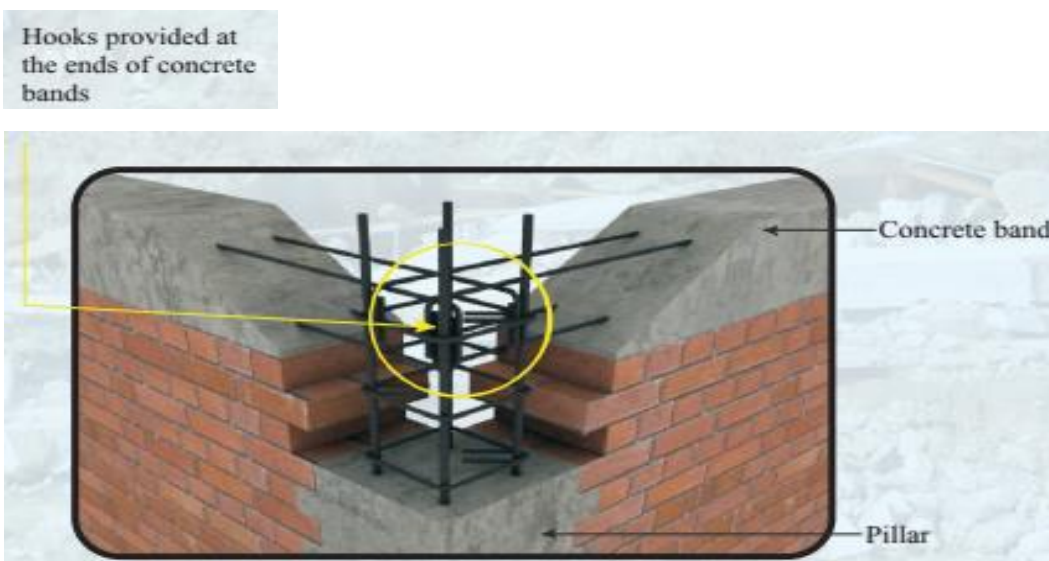


Figure 17-16: Connection of Concrete Bands and Pillar

The concrete used in the concrete bands should be of proportion (1:2:4) which means using one bag of cement, one wheelbarrow of sand (Figure 18-11) and two wheelbarrows of crush.

Use minimum amount of water in concrete. For the construction of concrete beams, if one bag of cement (50kg) is needed, and there is no moisture in the sand or crush, then the quantity of water should not be more than 25-30 kg. In terms of 5kg oil tin (Fig.18-12), the quantity of water should be limited to 5-6 tins with one bag of cement. If sand, crush or both are already wet; the amount of water used for mixing the concrete should further be reduced. It should be remembered that the use of excess water in concrete is very harmful.

Concrete beams should be properly cured for at least 14 days.

RCC Frame around Openings:

All the openings should be enclosed in 4 inches thick RCC frame (refer Figure 17.17).

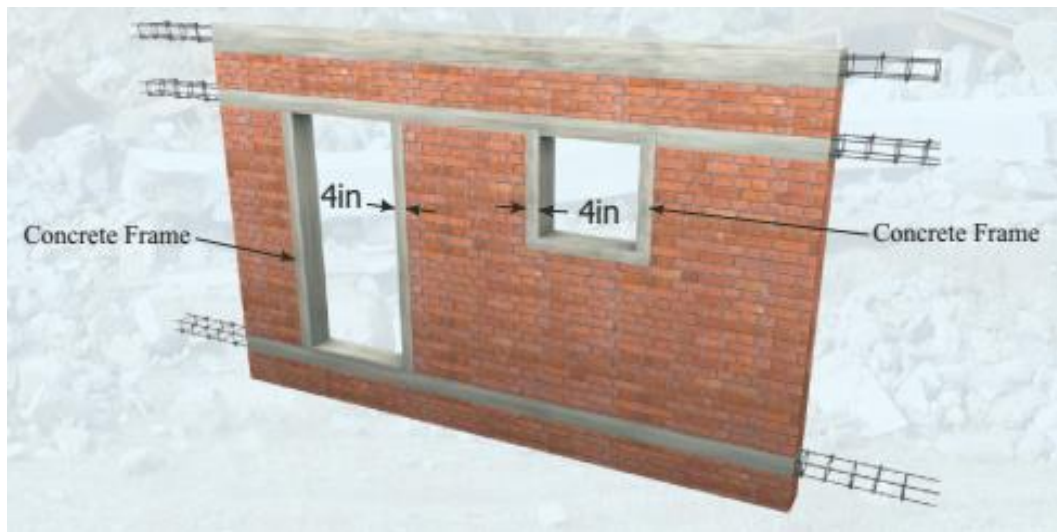


Figure 17-17: RCC Frame Provided around the Openings

In concrete frames, 2 steel bars of $\frac{1}{2}$ inch diameter should be provided longitudinally along with steel rings having a diameter of $\frac{3}{8}$ inch and spaced at 6 inches (refer Figure 17.18).

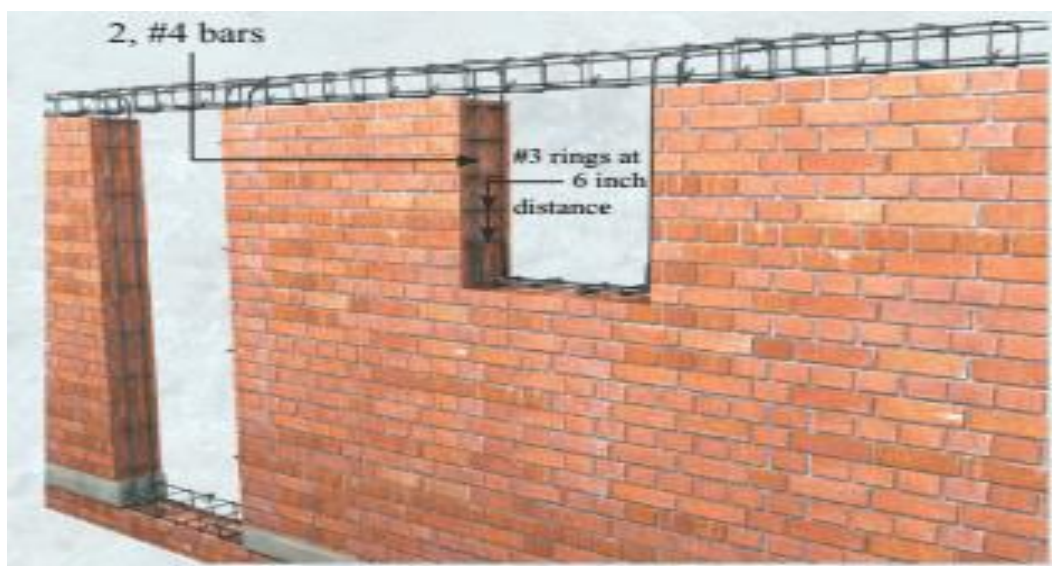


Figure 17-18: Reinforcement Detail of RCC Frame

The steel bars of the RCC frame should be firmly tied to the steel bars of the lintel beam (Figure 17.18 above)

The behavior of buildings during earthquake can be generalized, especially in the case of lack of proper joints at corners and around openings. Several failure patterns similar to the one outlined in the guidelines have been observed in confined masonry structures during actual earthquakes. Formation of in-plane diagonal cracks from openings and out-of-plane damage to walls are the damage suffered by masonry buildings following an earthquake.

17.3 RECOMMENDATIONS:

- Emergency Transportation Network be shared with all the stakeholders, 1122, Edhi Center, Traffic Police, industries
- and Clinics, Ambulance Operators, etc.
- One more 1122 Center be established on Lahore-Sheikhupura-Faisalabad Road
- The seismic capacity of school buildings, private and public, office buildings, apartments, High-rise buildings, masjid, Churches, Gurdwaras, hotels, hospitals, auditoriums, Conference halls, Clubs, Cinemas, Wedding halls, Transport Terminals, etc., may be evaluated.
- Dangerous buildings may be demolished or rehabilitated depending on the age and condition of the buildings.
- Emergency exits may be introduced in all commercial buildings especially multi-story buildings, apartments to provide safe exit from the building in case of emergency.
- Fire-fighting arrangements, and equipment be installed in all commercial and office buildings, and these should be periodically checked to ensure their effectiveness in case of fire emergency.
- Encroachments along Emergency Transportation roads be removed
- More and more open spaces be created
- Encroachments from planned open spaces and parks be removed
- Planned open spaces and parks be maintained
- Open spaces and parks in Private Housing Schemes be maintained
- Propagation and dissemination of “Easily Understandable Guidelines for Earthquake Safer Construction” to the plot owners, contractors, builders, developers, supervising Engineers, etc.
- Training of Masons, Builders, and developers
- Proper maintenance, de-sedimentation, and regular cleaning of Nullahs
- Strict implementation of urban planning regulations to restrict future urban growth in floodplains.

Emergency transportation network map is attached in **Figure 17.19** below.

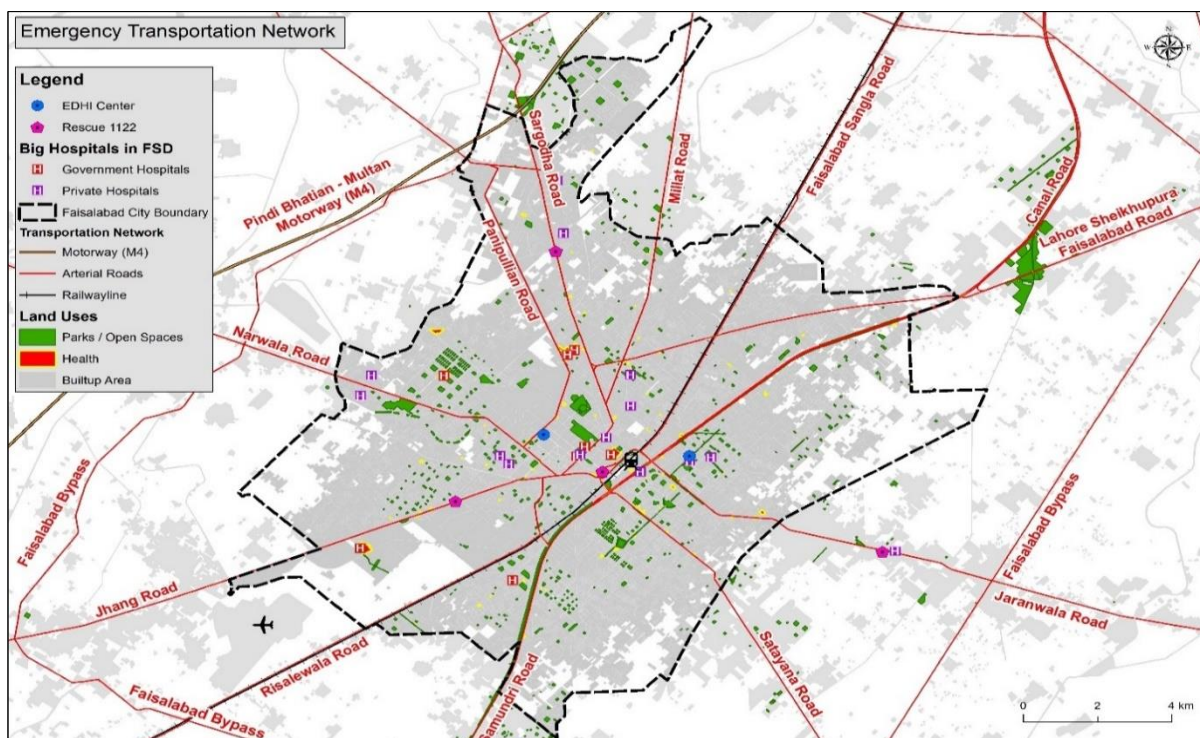


Figure 17-19: Emergency Transportation Network

- Integrated Recovery Approach
- Enforcement of Building Code
- Safe construction design and retrofitting techniques

17.4 POLICY MEASURES

Following policy measures have been carried out including district specific plans, assessments, national and provincial plans and frameworks:

- Pakistan National Disaster Risk Management Framework 2007
- Hyogo Framework for Action (HFA) 2005-15
- The Program for Enhancement of Emergency Response (PEER) is being implemented since 2007. It offers three technical courses to the recipients, including search and rescue, medical first aid and hospital disaster preparedness.
- District disaster management contingency plan 2020-District Faisalabad
- Punjab Disaster Response Plan 2017
- District Disaster Response Plan 2018
- National industrial disaster management contingency plan

Based on a multi-hazard approach, it will assist the government in improving policy frameworks, institutional mechanisms, risk information systems and human resource development through awareness raising, education, training and early warning.

Saving lives by providing emergency shelters and food for people seriously affected by natural and human induced hazards. Nevertheless, the economic impact of these disasters has been tremendous and is further increasing. These hazards are a threat not only to lives and property but also to food and energy security in the region.

Risk reduction is a proactive approach, while recovery preparedness is a reactive response approach. Micro-zoning of urban cities in the active fault zones will further help to identify zones for earthquake risk reduction. Mainstreaming disaster risk reduction (DRR) into development projects, as envisaged under the Framework, is being given foremost priority by the NDMA. District governments have been invited to allocate 1 percent of their annual budgets for DRM.

In spite of these national and regional level initiatives, there are still some concerns regarding these:

- Comprehensive risk reduction measures are not appropriately addressed in national disaster management strategies.
- Lack of emergency management, lack of infrastructure and lack of engineering are some of the major issues currently faced by Faisalabad. These can be tackled by creating more open spaces, effective emergency management, all necessary infrastructure and engineering structures in order to transform the area.
- Hazard vulnerability and risk assessment of the city may be undertaken,
- The city is required to have the know-how, experience and vision for the involvement of the community in consensus building, planning and implementation of the plans.
- Seismic capacity of buildings may be evaluated,
- Emergency Stations be established along major corridors for deployment of emergency toolkits to meet contingencies.
- Hazard mapping of city be done by dividing the city into different hazard zones based on several hazards such as flooding and earthquake. Disaster reduction measures be identified and after approval of the govt. these may be implemented by FDA/MCF. Hazard, vulnerability and risk maps specific to each type of hazard are required.

- Land use planning and urban planning are important components in the implementation of this programme, which includes: (i) development of early warning and evacuation systems; and (ii) relocation of villages, towns or cities based on their level of risk. Emergency transportation roads during earthquake is a major concern.
- Land use planning and urban planning are integral parts of earthquake disaster risk reduction. Disaster management aspect of land use planning and urban planning should be integrated into those of development plans, Long-term vision and strategies are required to achieve the goals of land use planning and urban planning, Participation of citizens during consensus building, planning and implementation stages are crucial for the successful implementation of land use and urban development plans
- Hazard, vulnerability and risk assessment are the first steps in land use and urban planning, and such assessments should be carried out with sound scientific and engineering bases.

17.5 EMERGENCY SERVICES (RESCUE 1122)

The Punjab Emergency Service Act was promulgated in 2006 to provide legal cover to the Emergency Services Reforms initiated in 2004 from Lahore. Start of Rescue 1122 was necessitated after failure of repeated attempts to revitalize and modernize the old organizations mandated for emergency management.

Now as a result of the performance of Rescue 1122 during emergencies and disasters in recent years, it has also been notified as the Disaster Response Force by the Provincial Disaster Management Authority (PDMA) & Government of the Punjab.

The Punjab Emergency Service (Rescue 1122) is the leading emergency humanitarian service of Pakistan with infrastructure in all 36 districts of Punjab and is providing technical assistance to other provinces. Rescue 1122 has rescued million victims of emergencies through its Emergency Ambulance, Rescue & Fire services and Community Emergency Response Teams while maintaining its average response time of 7 minutes and standards in all districts of Punjab province with an estimated population of over 100 million.

The District Emergency Officer is responsible for the day-to-day operational management and administration of the Service in the Districts under the supervision of District Coordination Officer who is also the Chairman of the District Emergency Board. The Board has become an effective organization for improving inter-departmental coordination and prevention of emergencies based on review of emergency data. The Director General who is the Chief Executive Officer of the organization is mainly responsible for overall operations, monitoring to ensure uniformity & quality amongst districts, recruitment & training, research, planning and development.

In Faisalabad City there are three Rescue Stations within Municipal Limits besides one on Jaranwala Road which falls outside Municipal Limits of Faisalabad. The total strength of the four Rescue Stations is 267 persons. Detail of staff and the machinery available in these Rescue Stations and other nearby stations is given in the Table 17.2 below:

Table 17-2: Staff and Vehicles available in the Rescue Stations in Faisalabad City and its Surroundings

| Stations | Staff | Ambulances | Fire Trucks | Rescue Vehicles | Special Vehicles |
|--|-------|------------|-------------|-----------------|------------------|
| RS-11 (Central Station GTS Chowk Faisalabad) | 132 | 6 | 2 | 2 | 8 |
| RS-22 (Jhang Road Station) Main jhang Road | 60 | 3 | 2 | — | — |

| Stations | Staff | Ambulances | Fire Trucks | Rescue Vehicles | Special Vehicles |
|---|-------|------------|-------------|-----------------|------------------|
| RS-33 (Sargodha Road Station) Sargodha Road Near Haji Camp | 47 | 2 | 2 | — | — |
| RS-44 (Khurrianwala Station) Khurrianwala Chowk, Sheikhpura Road | 57 | 3 | 2 | — | — |
| RS-55 (Jaranwala Road Station) Near Sadar Police Station, Jaranwala Road | 28 | 1 | 1 | — | — |
| RS-66 (Tehsil Jaranwala Station) Near Degree College, Faisalabad | 50 | 2 | 1 | 1 | — |
| RS-77 (Tehsil Samundri Station) Larri Adda, Faisalabad Road, Samundri (Non-Operational) | 30 | 2 | 1 | — | — |

The organization structure of the District Emergency Office (DEO) is given in **Figure 17.20** below. The map of rescue stations in Faisalabad is attached in **Figure 17.21** below.

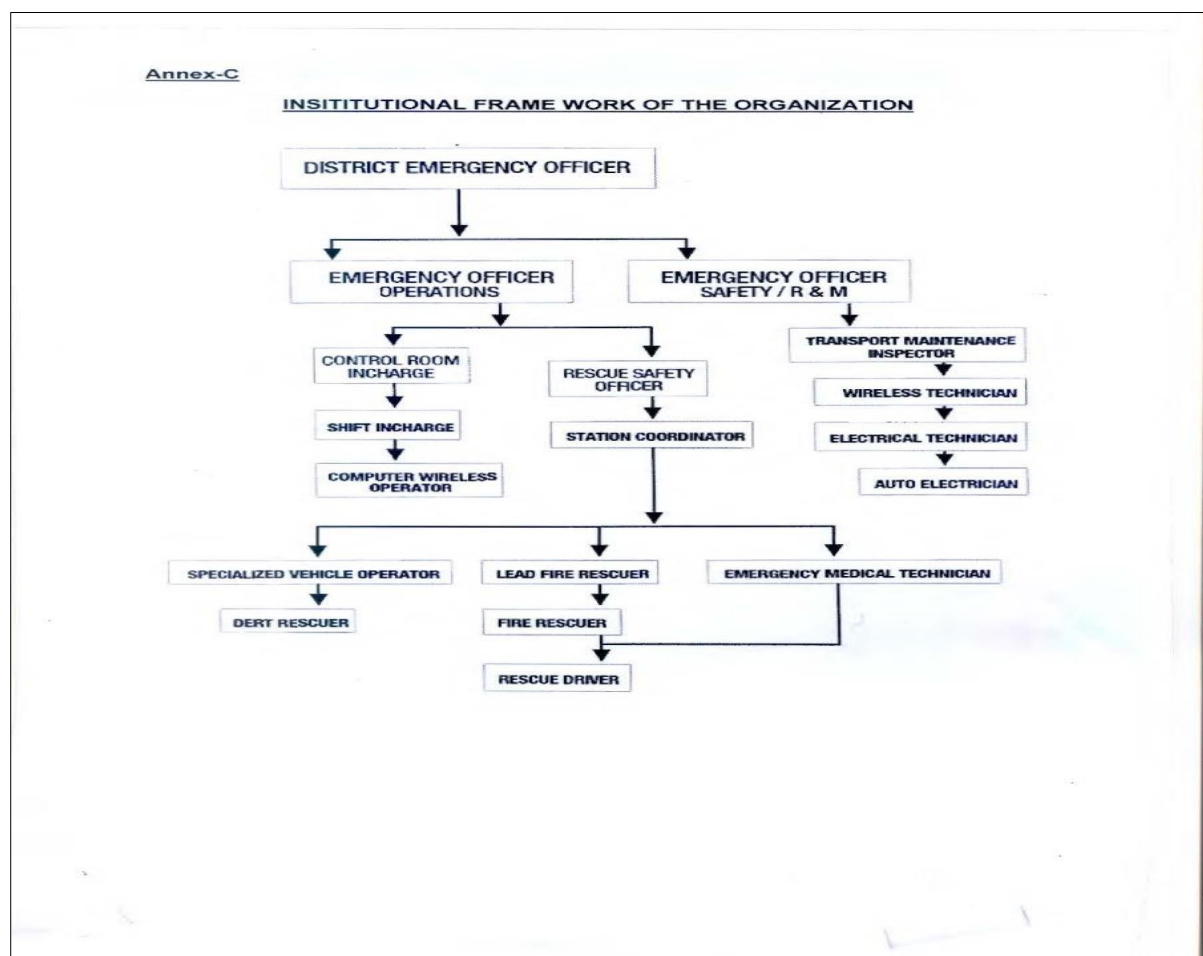


Figure 17-20: Organization Structure of the DEO

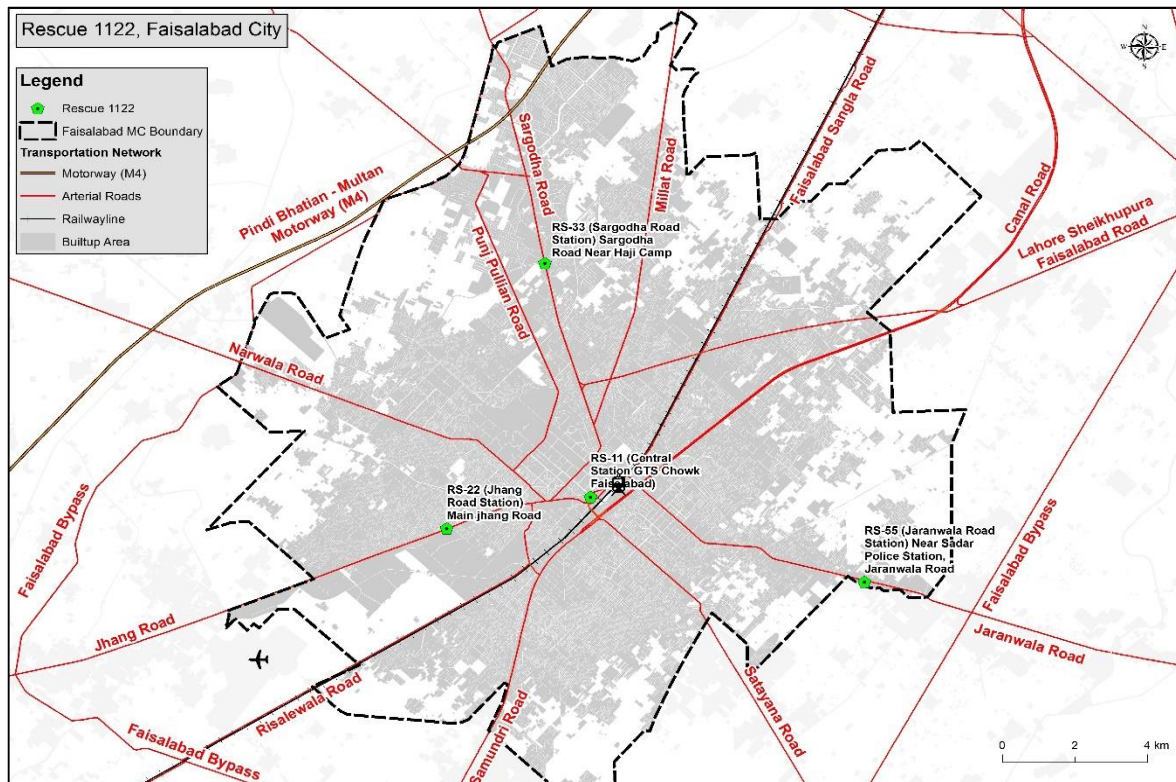


Figure 17-21: Rescue Stations in Faisalabad

17.6 POLICE STATIONS AND POLICE POSTS IN FAISALABAD

Faisalabad district comprised of thirteen Circles. The name of each Circle with Police Stations is given below:

- Batala Colony Circle
 - Batala Colony
 - D-Type Colony
- Jaranwala Circle
 - City Jaranwala
 - Saddar Jaranwala
 - Satiyana
 - Lundianwala
- Peoples Colony Circle
 - Peoples Colony
 - Madina Town
- Tandlianwala Circle
 - City Tandlianwala
 - Saddar Tandlianwala
 - Bahlak
 - Garh
 - Mamukanjan
- Civil Lines Circle
 - Civil Lines
 - Rail Bazar
- Factory Area Circle
 - Factory Area
 - Saman Abad
 - Dijkot
- Gulberg Circle

- Gulberg
- G. M Abad
- Raza Abad
- Khurrianwala Circle
 - Khurrianwala
 - Baluchni
- Kotwali Circle
 - Kotwali
 - Jhang Bazar
 - Women
- Nishat Abad Circle
 - Nishat Abad
 - Millat Town
 - Chak Jhumra
 - Sahianwala
- Saddar Circle
 - Saddar
 - Thikriwala
 - Sandal Bar
- Samundri Circle
 - City Samundri
 - Saddar Samundri
 - Mureedwala
 - Tarkhani
- Sargodha Road Circle
 - Sargodha Road
 - Mansoor Abad

Source: CPO Faisalabad

Number of police stations and police chowkies in Faisalabad district (2009-2018) are shown in **Table 17.3** below.

Table 17-3: No. of Police Stations and Police Chowkies in Faisalabad District 2009-2018

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|-----------------|------|------|------|------|------|------|------|------|------|------|
| Police Stations | 35 | 38 | 40 | 40 | 40 | 40 | 40 | 41 | 41 | 41 |
| Police Chowkies | 9 | 8 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 5 |

Source: PDS 2018

In 1986 total staff strength of 14 Police Stations, both in Faisalabad Municipal Limits and Faisalabad Metropolitan area, was 1900 persons. Out of this 1297 were posted in different Police Stations, 36 were posted in S. P. Office, 197 were posted in Traffic Police and 45 were working in CIA (Master Plan 1986).

No. of Police Stations in the district has increased from 35 in 2009 to 41 in 2018 (PDS 2018). After District Lahore (84) the second highest number of Police Stations are in Faisalabad district in Punjab (refer **Figure 17.22**).

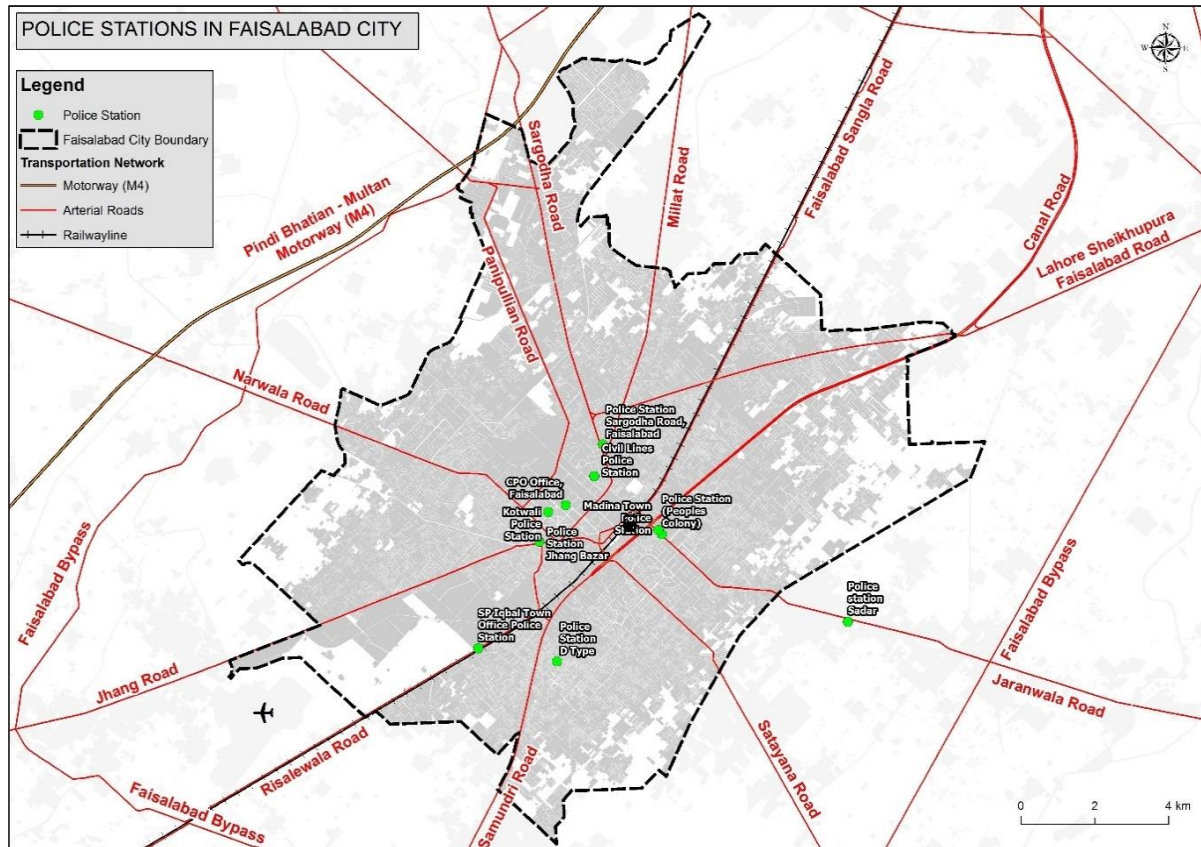


Figure 17-22: Police Stations in Faisalabad City

17.7 CRIMES IN FAISALABAD DISTRICT

The position of Crimes in Faisalabad district is unsatisfactory. There were 31912 all reported crimes in the Faisalabad district, the detail is given Table 17.4 below:

Table 17-4: Position of Crime in Faisalabad District

| Year | All Reported | Murder | Attempted Murder | Hurt | Rioting | Assault on Govt. Servants | Rape |
|------|--------------|--------|------------------|------|---------|---------------------------|------|
| 2016 | 31912 | 359 | 330 | 1371 | - | 138 | 248 |
| 2017 | 33227 | 325 | 305 | 1228 | - | 60 | 221 |

Source: Punjab Development Statistics 2017, 2018

All Reported crimes in Faisalabad are 2nd highest in Punjab after Lahore. Murder cases in Punjab are 2nd highest in Faisalabad (359) after Lahore (439) (PDS 2017). In Punjab Rape cases are highest in district Faisalabad (248), 2nd highest are in district Muzaffargarh.

In view of the serious situation of crimes in Faisalabad district explained above it is recommended that:

1. There must be a Police Post in each neighborhood.
2. Police Staff must be properly trained and extend courtesy to the public.
3. The Police Staff must be equipped with modern electronic instruments of Wireless, Vehicles and other necessary facilities.
4. Emergency Centers be established on all major roads and near important junctions in the city as well as in the Faisalabad Metropolitan Area so that fatal accidents may be quickly and efficiently handled.
5. A Security network be established connecting all the watchmen of Faisalabad city.

6. Dispute Resolution Committees be established in each neighborhood to resolve the disputes.
7. Illicit Arms and Ammunition be seized.
8. Combing Operations be regularly conducted to de-weaponize the community.
9. Security guards be offered refresher short training courses.
10. Emergency Services 1122 be improved by equipping them with modern gadgets and first aid services.
11. Judiciary be given training about our rural living system; types of disputes, nature of disputes, types of rivalries, etc. to understand cast system and rural life.
12. Judiciary may dispose of murder and rape cases expeditiously and criminals be given punishment publicly, without loss of time.

18. IMPLEMENTATION OF THE MASTER PLAN

In order to implement the Master Plan effectively the role and functions of Faisalabad Development Authority needs to be reformed. At present the Authority is not fully equipped to carry out the provisions of the Master Plan. Master Plan entails huge development and detail planning of projects. For effective and efficient implementation of the Master Plan the Authority be equipped with adequate Technical and Professional staff so that the implementation of the Master Plan could be carried out effectively and efficiently.

It is suggested that the structure of the Planning and Development formation be made on the pattern of Lahore Development Authority (LDA). Metropolitan Planning Wing may be established headed by a Chief Metropolitan Planner (CMP). He may be assisted by two Directors i) Director Planning and ii) Director Transportation Planning and Engineering. Each director be assisted by Two Deputy Directors Planning, and each Dy. Director be assisted by Two Assistant Directors Planning. The CMP Wing would be supported by Technical Staff i.e., GIS Expert, Statistical Officer, Surveyors, Patwaris, AutoCAD expert draftsman and Tracers, etc.

The Wing will be responsible for planning and designing of metropolitan area, Water Supply and Sewerage Schemes, Solid Waste Management, approval and monitoring of private housing schemes, Katchi Abadies Rehabilitation Programme, redevelopment and improvement programs, up-dation and review of different land use studies, planning, designing and monitoring of industrial activities/land use, preparation of action area plans, planning of Bus/Truck Terminals, planning and designing of regional linkages, arterial roads, planning and designing of intersections/chowks in the city for smooth flow of traffic in the city area, inter and intra-agency coordination for implementation of the Master Plan, Coordination with regional and local planning and development agencies, Coordination with International Training Agencies for training and capacity building of professional staff working in different formations of the Authority, etc., issuance of planning and development guidelines to the local planning and development agencies for the implementation of the Master Plan.

18.1 DEVELOPMENT CONTROL

The Master Plan of Faisalabad should be approved by the Government of Punjab in pursuance of the provisions contained in Development of Cities Act 1976. Development Control be enforced in the Faisalabad Metropolitan area as per the Master Plan of Faisalabad. All the Planning and Development agencies and organizations, local bodies, Provincial and Federal Government departments, Private Development Agencies should be directed by the competent Authority to follow the Master Plan in future schemes and programmes. No development activity within the Metropolitan area should occur without the prior permission of Faisalabad Development Authority.

Development means “carrying out of building, Engineering, Mining or other operations on, over or under land; and materializing a change in the use of land or building.

All developments shall require the prior approval of the Local Planning Authority and must have regard to the provisions of the Plan. Albeit other considerations may also be taken into account. The Authority may recommend to the Minister/Secretary PHATA, any beneficial proposal which does not accord with the provisions of the Plan. However, such proposals should not involve substantial departure from the plan and should not injuriously affect the amenity of the adjacent land. The Authority while making planning decisions may:

- Accord unconditional permission.
- Accord permission subject to conditions.
- Or refuse

It needs to be stressed that however, there will be a right of appeal to the Secretary, PHATA against the planning decision of the authority in the form of conditional permission or refusal. At the same time all actions of the Authority deemed to be ultra vires are challengeable in the Civil Courts of law. Furthermore, applications which raise important issues such as of political or technical nature can also be referred to the Minister of PHATA for decision.

18.2 ENFORCEMENT PROCEDURE

Development Control shall necessarily involve procedure for enforcement. This is carried on by means of enforcement notices, under which the owners who accomplish development without permission or in breach of the conditions can be compelled to undo the development even if this involves the demolition of a new building structure. A 'Stop' notice can also be used in conjunction with enforcement notice to put a rapid stop to the carrying out or continuation of development work which is in breach of planning control. Undertaking development without permission is not an offence per se but ignoring an enforcement notice is. A fine amounting up to Rs. 25,000/- should be imposed and a penalty should be charged at a rate up to Rs. 1000/- per day during which the requirements of the notice remain unfulfilled.

To ensure proper development control there is an incontrovertible need for establishing an efficient machinery. The functionaries should note all developments carried out without planning permission or in contravention of conditions laid down in the grant of permission. The building Surveyors/Inspectors as key functionaries should visit the controlled area periodically or routine checking and should keep a record of all developments with respect to time. They should immediately report the unauthorized development to the Development Control Section headed by a qualified Town Planner named as Chief Metropolitan Planner in Faisalabad Development Authority who should take immediate action as deemed fit.

18.3 BUILDING CONTROL DIRECTORATE

A Building Control Directorate be established for regulating construction activity in Faisalabad Metropolitan Area. It would be headed by Chief Town Planner assisted by Two (04) Deputy Directors, Four (08) Town Planners and Eight (08) Building Inspectors. They would grant approval of Building Plans on Individual plots, monitor building during construction and issue completion certificate as per the FDA Building Regulations. Table 18.1 & Table 18.2 below shows the human resource and logistics requirements for building control directorate of FDA.

Table 18-1: Human Resource Requirements for Building Control Directorate, FDA

| Sr. No. | Designation | BPS | No. of Posts |
|---------|--------------------|-----|----------------------------------|
| 1 | Director | 19 | 01 |
| 2 | Deputy Director | 18 | 04 (2 each for Zones-2, 4 and 5) |
| 3 | Town Planner | 17 | 08 (2 with each Deputy Director) |
| 4 | Building Inspector | 16 | 08 (2 with each Town Planner) |
| 5 | Admin Officer | 16 | 01 |
| 6 | Stenographer | 14 | 01 |
| 7 | Assistant | 16 | 02 |
| 8 | Steno typist | 11 | 06 |
| 9 | Sub-Assistant | 11 | 04 |
| 10 | Driver | 07 | 07 |
| 11 | Naib Qasid | 04 | 10 |
| | Total | | 52 |

Table 18-2: The Logistics Requirement of Building Control Directorate, FDA

| Sr. No. | Item | Number |
|---------|------------------------|--------|
| 1 | Vehicles | 09 |
| 2 | Telephones (land line) | 06 |
| 3 | Motorcycles | 08 |
| 4 | Laptops | 07 |
| 5 | Computers/Printers | 06 |
| 6 | Photostat Machines | 03 |
| 7 | Cameras | 08 |

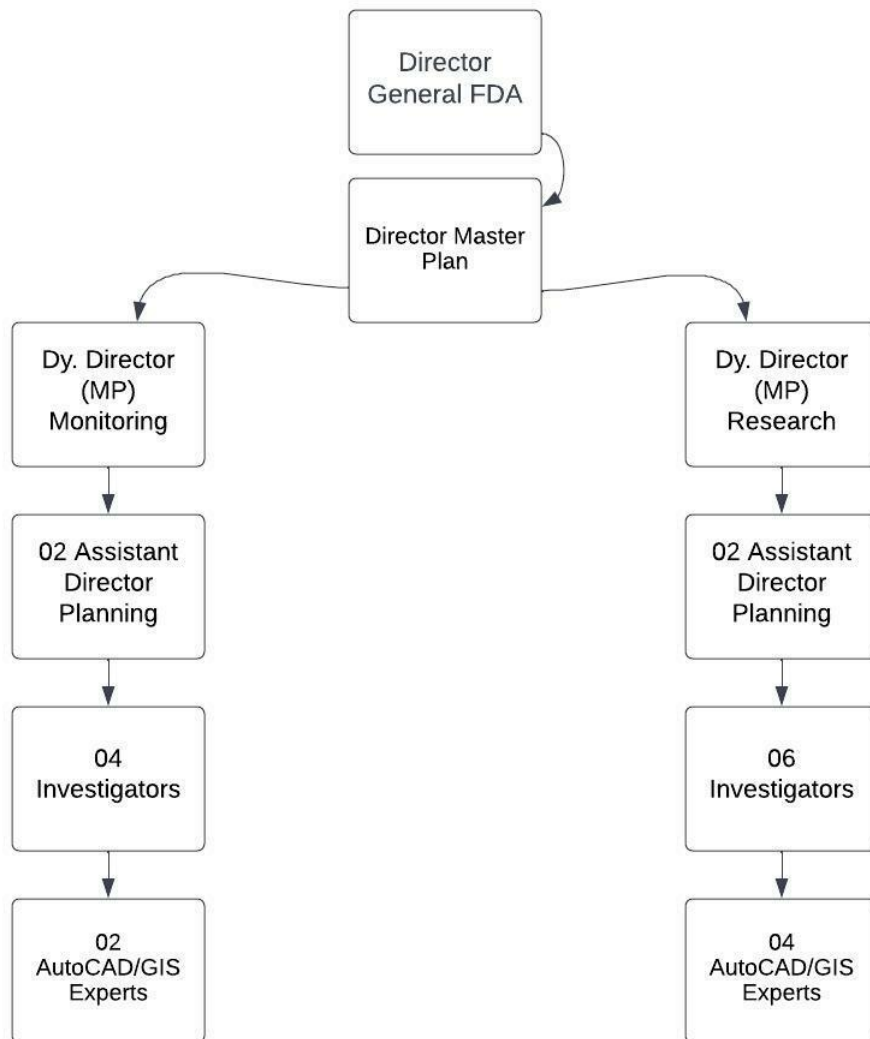
18.4 MASTER PLAN DIRECTORATE

A Master Plan directorate be established headed by a Director Town Planning specifically for the implementation of the Master Plan of Faisalabad. The Director Master Plan would be assisted by two Deputy Directors Master Plan and Four Assistant Director Town Planning, and ten investigators and six AutoCAD/GIS Experts. The function of this directorate would include evaluation of all the planning and development proposals in the context of the Master Plan of Faisalabad.

1. Evaluation of various Planning proposals with reference to Master Plan of Faisalabad.
2. Coordination with local and International Agencies on urban & regional planning issues.
3. Legislation of Planning & Development issues.
4. Automation of the Planning drawings/plans and record.
5. Issuance and renewal of enlistment of Consulting Town Planners in FDA.
6. Arrangement of Seminars, Workshops and meetings of the Panel of Experts on Planning and Development issues of Faisalabad.
7. Procurement of Satellite images of the Faisalabad Metropolitan Area and its various parts from SUPARCO.
8. Digitization of the Master Plan of Faisalabad.
9. Coordination with NIPA Karachi and Pakistan Computer Bureau, Islamabad for Computer Training Facilities.
10. Coordination with University of Engineering and Technology Lahore regarding practical training to the students during the summer vacations.
11. To establish Data Bank for housing, population, households, educational institutions, recreational facilities, parking facilities population & housing densities etc.
12. To facilitate the public and proper future planning and designing.
13. To establish computer lab for digitization of all maps/plans and regular up-dating of the same.
14. To arrange GIS and other computer related training for Planning officers and officials.
15. To review the building bye-laws keeping in view the modern trends.
16. Implementation and monitoring of Master Plan.
17. Interim review of Master Plan.
18. Identification of future projects.
19. Preparation of planning parameters/zoning for effective implementation.
20. Review and updating of land use/disposal policies.
21. Drafting policies regarding transportation, industrial planning and development and housing etc.
22. Coordination with other concerned agencies.
23. Evaluation and monitoring of various projects.
24. Carry out planning research, geo-tech surveys, GIS and maintain data bank.
25. Evaluation of the impact of implementation of the proposals of master plan such as housing, commercial, bye-laws and zoning, road network, green areas, woodlands and parks, identification of resources etc.

Proposed Staff of the Master Plan Directorate:

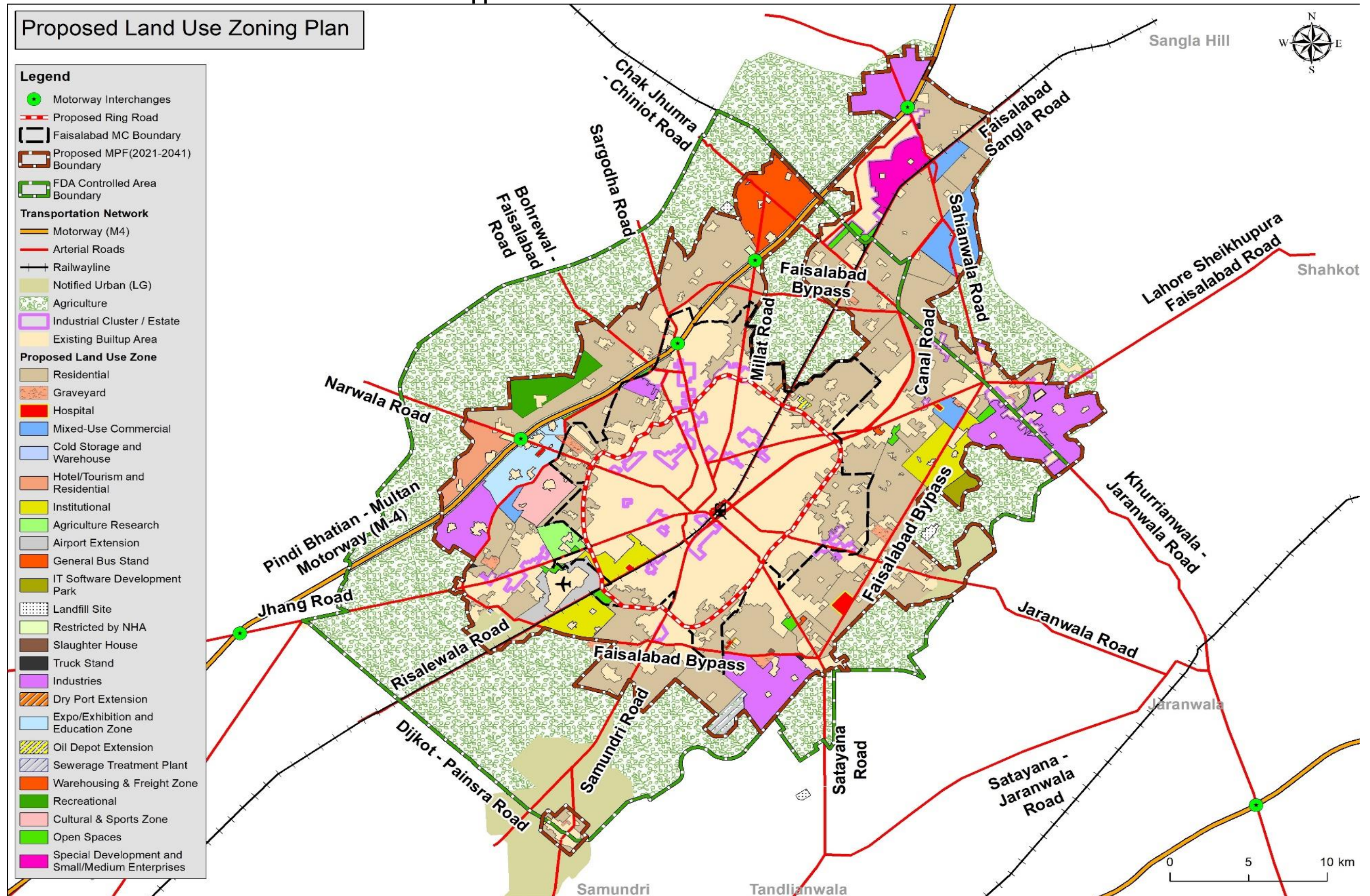
The proposed staff of the master plan directorate is presented below.



Associate logistic facility shall also be required to enable the Directorate to perform its assigned role.

APPENDICES

Appendix A.1: Final Land Use Plan of Faisalabad



Appendix B.1: Major Intersections in Faisalabad

Chapter 6

Table B.1: Major Intersections in Faisalabad

| Sr.# | Name of Intersection | Type | Signal |
|------|---|---|------------|
| 1 | Kashmir Pull | Bridge Crossing on Canal, 4 Leg, Currently Underpass Under-construction | |
| 2 | Pipanwala Pull | Bridge Crossing on Canal | |
| 3 | Tattah Pul | Bridge Crossing on Canal, 4 Leg | |
| 4 | Abdullah Pur | Bridge Crossing on Canal, 4 Leg, Underpass along Canal Road | |
| 5 | Jhal Chowk | Underpasses and Flyovers Exist | |
| 6 | Novelty Chowk (Old name Jawala Nagar Chowk) | 3 Leg | |
| 7 | Abbas Chowk | 3 Leg | |
| 8 | McDonald Chowk | 4 Leg | Signalized |
| 9 | GTS Chowk | 4 Leg, Roundabout | |
| 10 | Hilal-e-Ahmer Chowk | 4 Leg, Roundabout | |
| 11 | Mian Trust Chowk | 3 Leg | Signalized |
| 12 | Chishtia Chowk | 4 Leg | Signalized |
| 13 | Bholay di Jhugi | 3 Leg | |
| 14 | Imam Bargah Chowk | 4 Leg | Signalized |
| 15 | Narwala Chowk | 3 Leg | |
| 16 | Jinnah Colony Chowk | 4 Leg | Signalized |
| 17 | Allied Mor Chowk | 4 Leg | Signalized |
| 18 | Jaranwala D Ground 1st intersection | 3 Leg | Signalized |
| 19 | Jaranwala D Ground 2nd intersection | 3 Leg | Signalized |
| 20 | D type pull | 4 Leg, Small Roundabout | |
| 21 | Minerva Cinema Chowk (Old name Jhang Bazar Chowk) | 5 Leg, Water body exist in Center, U-turns Exist | |
| 22 | Chenab Club Chowk | 3 Leg | Signalized |
| 23 | Gumti Chowk | 4 Leg, Small Roundabout | |
| 24 | Station Chowk | 4 Leg, Roundabout | Signalized |
| 25 | Chiniot Bazar Chowk | 3 Leg | Signalized |
| 26 | Kotwali Chowk | 4 Leg | Signalized |
| 27 | Babar Cinema Chowk (Also Known as Chenab Chowk) | 4 Leg | Signalized |
| 28 | Nadir Chowk | 3 Leg | Signalized |
| 29 | University Chowk | 4 Leg | Signalized |
| 30 | Jail Road T-Junction | 3 Leg | Signalized |
| 31 | Allied Hospital | 3 Leg | Signalized |
| 32 | Millat Chowk | 4 Leg | Signalized |
| 33 | Larri Adda Intersection | 3 Leg | Signalized |
| 34 | Zila Council | 3 Leg | Signalized |
| 35 | Susan Road Intersection | 3 Leg | Signalized |
| 36 | Chen one Intersection | 3 Leg | Signalized |
| 37 | Radio Pakistan | 4 Leg | Signalized |
| 38 | Talib Jalandri Chowk | 3 Leg | Signalized |
| 39 | Kohinoor Chowk | 3 Leg | Signalized |
| 40 | Bilal Chowk | 4 Leg | |

Appendix B.2: Prioritized Plan 2021-2041

Table B.2: Prioritized Plan 2021-2041

| Sr. No. | *Project | Timeline Ranking | | | Priority Ranking | | | Estimated Rough Cost | **Mode of Financing |
|---------|--|--------------------------|--------------------------|----------------------|--------------------------|--------------------------|-----|----------------------|---------------------|
| | | Short Term 2020-2025 | Mid Term 2026-2030 | Long Term 2031- 2040 | High | Medium | Low | Rs. In Million | |
| 1 | Rehabilitation and Improvement of Existing Roads (280 km) | <input type="checkbox"/> | | | <input type="checkbox"/> | | | 14,609 | ADP |
| 2 | Reconstruction of Existing Roads (70 km) | <input type="checkbox"/> | | | <input type="checkbox"/> | | | 8,553 | ADP |
| 3 | Proposed New Road Network (Phase I – 295 km) | <input type="checkbox"/> | | | <input type="checkbox"/> | | | 32,797 | ADP, LN |
| 4 | Improvement of Major Intersection (40 Nos.) | <input type="checkbox"/> | | | <input type="checkbox"/> | | | 1,800 | ADP |
| 5 | Repair of Existing Signals to Make them Operational (25 Nos.) | <input type="checkbox"/> | | | <input type="checkbox"/> | | | 1,125 | ADP |
| 6 | Traffic Signs and Pavement Markings (350 km) | <input type="checkbox"/> | | | | <input type="checkbox"/> | | 1,225 | ADP |
| 7 | Parking and Parking Plazas near Eight Bazaar Area (290,619 sft Floor Area, 5 Nos.) | <input type="checkbox"/> | | | <input type="checkbox"/> | | | 7,405 | PPP / LTB |
| 8 | Pedestrianization of Eight Bazaar Area (464,000 sft) | <input type="checkbox"/> | | | <input type="checkbox"/> | | | 139 | ADP |
| 9 | Pedestrian Bridges in CBD Area (Phase 1 – 10 out of 52) – 10 Nos. | <input type="checkbox"/> | | | | <input type="checkbox"/> | | 650 | ADP |
| 10 | Flyover / Underpasses (6 Nos.) | <input type="checkbox"/> | | | <input type="checkbox"/> | | | 5,400 | ADP |
| 11 | Proposed New Road Network (Phase II – 135 km) | | <input type="checkbox"/> | | | <input type="checkbox"/> | | 14,855 | ADP, LN |
| 12 | Faisalabad Bypass Rehabilitation (95 km) | | <input type="checkbox"/> | | <input type="checkbox"/> | | | 7,182 | ADP |
| 13 | Construction of Faisalabad Ring Road Links (Phase 1 – 26 km) | | <input type="checkbox"/> | | | <input type="checkbox"/> | | 5,352 | PPP |
| 14 | Faisalabad Bypass Link with M3-Industrial Estate (FIEDMC) (4.2 km) | | <input type="checkbox"/> | | | <input type="checkbox"/> | | 597 | Funds by FIEDMC |
| 15 | Khurrianwala Bypass (14.7 km) | | <input type="checkbox"/> | | | <input type="checkbox"/> | | 2,805 | ADP, LN |
| 16 | Khurrianwala Bus Stand (31 Acres) | | <input type="checkbox"/> | | | <input type="checkbox"/> | | 3,410 | PPP |
| 17 | Interchange on M3 at Satyana Road | | <input type="checkbox"/> | | | <input type="checkbox"/> | | 2,500 | Funding by NHA |

| Sr. No. | *Project | Timeline Ranking | | | Priority Ranking | | | Estimated Rough Cost | **Mode of Financing |
|---------|--|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|----------------------|-------------------------|
| | | Short Term 2020-2025 | Mid Term 2026-2030 | Long Term 2031- 2040 | High | Medium | Low | Rs. In Million | |
| 18 | Improvement of Existing Links and Associated Junctions of Science City (14 km) | | <input type="checkbox"/> | | | <input type="checkbox"/> | | 1,842 | ADP, LN |
| 19 | Airport Link between Risalewala and Jhang Roads (4 km) | | <input type="checkbox"/> | | | <input type="checkbox"/> | | 763 | Funding by CAA |
| 20 | Pedestrian Bridges in CBD Area (Phase 2 – 15 out of 52) – 15 Nos. | | <input type="checkbox"/> | | | <input type="checkbox"/> | | 975 | ADP |
| 21 | Proposed New Road Network (Phase III – 320 km) | | | <input type="checkbox"/> | | | <input type="checkbox"/> | 38,737 | ADP, LN |
| 22 | Construction of Expressway Connecting M3 and M4 (54.5 km) | | | <input type="checkbox"/> | <input type="checkbox"/> | | | 11,218 | PPP |
| 23 | Railway Track from Sangla Hill to Gatti Dry Port (Phase 1 – 34 km) | | | <input type="checkbox"/> | | <input type="checkbox"/> | | 2,550 | Funding by Pak Railways |
| 24 | Railway Track from Gatti Dry Port to Abbaspur (Phase 2 – 26 km) | | | <input type="checkbox"/> | | | <input type="checkbox"/> | 1,950 | Funding by Pak Railways |
| 25 | Railway Track on branch line from Chak Jhumra to Chiniot (Phase 3 – 26km) | | | <input type="checkbox"/> | | | <input type="checkbox"/> | 1,950 | Funding by Pak Railways |
| 26 | Construction of Faisalabad Ring Road Remaining Links (Phase 2 – 28 km)) | | | <input type="checkbox"/> | | <input type="checkbox"/> | | 5,764 | PPP |
| 27 | Bus Stand on Millat Road (75.9 Acres) | | | <input type="checkbox"/> | | | <input type="checkbox"/> | 8,349 | PPP |
| 28 | Bus Stand on Lahore - Sheikhpura - Faisalabad Road (84.3 Acres) | | | <input type="checkbox"/> | | | <input type="checkbox"/> | 9,273 | PPP |
| 29 | Extension of Existing Truck Stand on Sargodha Road (37.5 Acres) | | | <input type="checkbox"/> | | <input type="checkbox"/> | | 1,875 | PPP |
| 30 | Truck Stand on Faisalabad Bypass Near Satayana Road (110.8 Acres) | | | <input type="checkbox"/> | | | <input type="checkbox"/> | 5,540 | PPP |
| 31 | Truck Stand on Sahianwala Road near VAC (22 Acres) | | | <input type="checkbox"/> | | <input type="checkbox"/> | | 1,100 | PPP |
| 32 | Truck Stand on Sahianwala Interchange on M4 (21.8 Acres) | | | <input type="checkbox"/> | | <input type="checkbox"/> | | 1,090 | PPP |
| 33 | Extension of Dry Port at Gatti Railway Station (43.1 Acres) | | | <input type="checkbox"/> | | <input type="checkbox"/> | | 2,155 | Funding by Pak Railways |
| 34 | Construction of BRT Corridors (Red Line + Orange Line) (50.44 km) | | | <input type="checkbox"/> | | | <input type="checkbox"/> | 90,550 | DF |

| Sr. No. | *Project | Timeline Ranking | | | Priority Ranking | | | Estimated Rough Cost | **Mode of Financing |
|---------|---|-------------------------|-----------------------|-------------------------|------------------|--------|-----|----------------------|---------------------|
| | | Short Term 2020-2025 | Mid Term 2026-2030 | Long Term 2031- 2040 | High | Medium | Low | Rs. In Million | |
| 35 | Pedestrian Bridges in CBD Area (Phase 3 – 27 out of 52) – 27 Nos. | | | □ | | | □ | 1,755 | ADP |
| 36 | Feasibility Study for Integrated Bus Operations (IBO) | | | □ | | | □ | 100 | ADP, PMA |
| 37 | Feasibility Study for Circular Connectivity of Thirteen (13) Radial Roads | | | □ | □ | | | 100 | ADP |

*The development projects listed above are conceptual only for the Master Plan of Faisalabad. Further refinement through preliminary design and detailed design by appointed Consultants of the executing agency will be required to firm up the rough budget costs and preparation of tender documents for execution of these projects.

** Mode of Financing: ADP - Annual Development Programme;
LN - Loan by FDA;
LTB – Long Term Bonds by FDA / FMC;
DF – Donor Funding (World Bank, Asian Development Bank, DFID);
PPP – Public Private Partnership;
PMA – Punjab Mass Transit Authority

Appendix C.1: Details of Katchi Abadis Fall Under the Jurisdiction of FDA Faisalabad

Chapter – 7

Table C.1: Details Regarding Katchi Abadis Fall Under the Jurisdiction of FDA Faisalabad

| Sr. No. | Name of Katchi Abadi | Location | Total Area | Year of Handing Over to the Authority | Total No. of Dwelling Units |
|---------|--------------------------------------|------------------------|---------------|---------------------------------------|-----------------------------|
| 1. | Sohail Abad | Satiana Road | 8K-18M | 10.06.87 | 42 |
| 2. | Judge Wala | ABC Road | 85K-9M | 10.06.87 | 207 |
| 3. | Bahadar Sing Wala | Susan Road | 17K-11M | 10.06.87 | 97 |
| 4. | Behind Crescent Sugar Mills | Behind Sheikhpura Road | 83K-9M | 10.06.87 | 272 |
| 5. | Basti Essiyan Eid Gah Road | Eid Gah Road | 54K-3M | 10.06.87 | 231 |
| 6. | Marrian | Dijkot Road | 16K-18M | 10.06.87 | 341 |
| 7. | Pertab Nagar | Jhang Road | 90K-6M | 10.06.87 | 638 |
| 8. | Noor Pur-I | Millat Road | 108K-5M | 26.06.85 | 369 |
| 9. | Faiz Abad Grave Yard | Qayim Sain Raod | 10K | 10.06.87 | 79 |
| 10. | Gujjar Basti Eid Gah Raod | Eid Gah road | 35K-2M | 10.06.87 | 187 |
| 11. | Chibban Road | Sargodha Road | 61K-5M | 26.06.85 | 174 |
| 12. | Bawa Chak | Sargodha Road | 82K-10M | 26.06.85 | 108 |
| 13. | Kahimr Road | Narwala Road | 47K-17M | 26.06.85 | 151 |
| 14. | Manawala | Sheiphupura Road | 195K-5M | 26.06.85 | 762 |
| 15. | Old Water Works Ghulam Muhammad Abad | Rajaywala Road | 38K-3M | 26.06.85 | 116 |
| 16. | Malik Pur | Sheikhupura Road | 79K-7M | 26.06.85 | 133 |
| 17. | Qudrat Abad | Narwala Road | 42K-5M | 26.06.85 | 190 |
| 18. | Nasir Abad /Akbar Abad | Jail Road | 36K-8M | 10.06.87 | 266 |
| 19. | Islam Nagar | Behind Jail Road | 310K-2M | 26.06.85 | 2610 |
| 20. | Saeed Abad | Qayim Sain Raod | 209K-6M | 26.06.85 | 827 |
| 21. | Mai Di Jughi | Millat Road | 305K-10M | 26.06.85 | 2129 |
| 22. | Madan Pura Behind Slaughter House | Narwala Road | 30K-14M | 26.06.85 | 141 |
| 23. | Old Central Jail | Dijkot Road | 48K-5M-190Sft | 15.05.85 | 630 |
| 24. | Taj Colony | Millat Road | 16K-14M | 17.12.88 | 117 |
| 25. | Madan Pura St No. 7 | Narwala Road | 15K-6M | 20.01.74/16.06.81 | 152 |
| 26. | Islam Nagar Civil Line/Base Line | Behind Jail Road | 32K | 11.10.88 | 651 |
| 27. | Basti Essihan Jhang Road | Jhang Road | 12K-1M | 10.06.87 | 78 |
| 28. | Mandar Seeta Ram | Dijkot Road | 4K-3M | 10.06.87 | 50 |
| 29. | Chowk Choudhery Flour Mills | Dijkot Road | 4K-15M | 10.06.87 | 56 |
| 30. | Noor Pur-II | Sargodha Road | 54K-6M | 10.06.87 | 112 |
| 31. | New Kausar Abad | Satiana Road | 8A-18K-6M | 23.04.88 | 78 |
| 32. | Usman Abad | Satiana Road | 19K-0M-8S | 23.04.88 | 95 |
| 33. | Ganda Sing | Satiana Road | 16K-9M | 23.04.88 | 108 |
| 34. | Chak No. 279/RB Sq No. 17 | Narwala Road | 220K-1M | 23.04.88 | 600 |
| 35. | Chak No. 279/RB Sq No. 18 | Narwala Road | 71K-12M | 11.10.88 | 287 |
| 36. | Fish Farm | Jail Road | 41K-1M | 19.12.91 | 414 |
| 37. | Fire Bridge | Satana Road | 71K-11M | 06.05.86 | 443 |
| 38. | Nadir Khan Wali | ABC Road | 220K-18M-7S | 29.09.02 | 281 |

| Sr. No. | Name of Katchi Abadi | Location | Total Area | Year of Handing Over to the Authority | Total No. of Dwelling Units |
|---------|--|-------------------------------|---------------|---------------------------------------|-----------------------------|
| 39. | Manawala Sq no. 80 | Sheikhupura Road | 50K-9M | 11.10.88 | 180 |
| 40. | Saad Bela | Satiana Road | 17K-6M | 19.12.91 | 162 |
| 41. | Rasool Nagar | Jaranwala Road | 64K-11M | 29.09.2000 | 258 |
| 42. | Boly Di Jughi | Sargodha Road | 21K-11M-8S | 24.07.07 | 86 |
| 43. | Dhup Seri | Sargodha Road | 15K-11M | 02.05.01 | 96 |
| 44. | Chak No. 7/JB Sq No. 80 84&85 | Sargodha Road | 521K-18M | 02.05.01 | 1194 |
| 45. | Marzi Pura | Narwala Road | 71K-8M | 19.12.91 | 430 |
| 46. | Gakhowal | Millat Road | 129K-0M | 18.09.02 | 286 |
| 47. | Himmat Pura Changer Mohallah | Jaranwala Road | 148K-3M | 02.05.01 | 453 |
| 48. | Choochar Majra with Kona Wali | Narwala Road | 66K-9M | 12.05.01 | 929 |
| 49. | Eisa Nagri | Susan Road | 12K-6M | 11.03.02 | 64 |
| 50. | Shamas Nagar | Susan Road | 17K-12M | 11.03.02 | 63 |
| 51. | Maskeen Abad | Susan Road | 26K-10M | 11.03.02 | 126 |
| 52. | Young Wala | Behind Agriculture University | 34K-2M | 06.02.04 | 146 |
| 53. | Bishan Singh Wala | Susan Road | 7K-14M | 06.02.04 | 40 |
| 54. | Kokian Wala | ABC Road | 21K-14M | 27.01.04 | 42 |
| 55. | Sher Singh Wala Khurd | ABC Road | 12K-13M | 21.09.02 | 59 |
| 56. | Sher Singh Wala Kallan | ABC Road | 25K-12M | 21.09.02 | 114 |
| 57. | Chak No. 204/RB | Canal Road | 18K-7M | 21.09.02 | 50 |
| 58. | Azafi Abad Niamoana | Summandari Road | 53K-8M | 21.10.07 | 106 |
| 59. | Ghousia Colony | Jaranwala Road | 159K | 21.10.07 | 186 |
| 60. | Patha Wala/Babo Wala | Jhang Road | 33K-17M | 21.10.07 | 142 |
| 61. | New Rasool Pura | Jaranwala Road | 100K-10M | 21.10.07 | 110 |
| 62. | New Samana | Sargodha Road | 29K-18M | 21.10.07 | 71 |
| 63. | Mai Di Jughi –II | Millat Road | 10K-15M | 21.10.07 | 59 |
| 64. | Siddique Town | Sargodha Road | 17K-14M | 21.10.07 | 45 |
| 65. | Anwar Colony | Jhumra Road | 14K-6M | 21.10.07 | 44 |
| 66. | Jadeed Korrian | Summandari Road | 26K-17M | 21.10.07 | 152 |
| 67. | Malakhanwala | Satiana Road | 101K-16M | 21.10.07 | 256 |
| 68. | Kausar Abad | Jhang Road | 354K-5M | 21.10.07 | 1486 |
| 69. | Madan Pura | Narwala Road | 15K-6M | 21.10.07 | 78 |
| 70. | Rehman Pura | Narwala Road | 9K-5M-7S | 21.10.07 | 57 |
| 71. | Base Line | Narwala Road | 9K-19M-5S | 21.10.07 | 60 |
| 72. | Ghusan Pura | Narwala Road | 90K | 21.10.07 | 321 |
| 73. | Pannu Chowk | Narwala Road | 10K-2M | 21.10.07 | 46 |
| 74. | Talab Wali | Qayim Sain Raod | 11K-19M | 21.10.07 | 51 |
| 75. | Pul Tariq Abad Near Girja Ghar Chak No. 212/RB | Jaranwala Road | 45K-1M-1/1/2S | 31.12.1985 | 408 |
| 76. | Muslim High School Tariq Abad Chak No. 207/RB | Jaranwala Road | 5M-9M | 31.12.1985 | 58 |
| 77. | Gharib Abad Near Godown Chak No. 212/RB | Summandari Road | 10K-16M | 31.12.1985 | 66 |
| 78. | Farooq Abad Mansoor Abad Chak No. 207/RB | Summandari Road | 14K17M-5S | 31.12.2006 | 111 |
| 79. | Fateh Abad Chak No. 224/RB | Satiana Road | | 31.12.1985 | 1134 |
| 80. | Railway Phatak No.8 Chak No. 212/RB | Summandari Road | 38K-6M | 31.12.1985 | 288 |
| 81. | Railway Phatak No. 2 Chak No. 212/RB | Summandari Road | 109K-8M-8S | 31.12.1985 | 56 |

| Sr. No. | Name of Katchi Abadi | Location | Total Area | Year of Handing Over to the Authority | Total No. of Dwelling Units |
|---------|---|-----------------------|--------------|---------------------------------------|-----------------------------|
| 82. | Faarooq Abad Sultan Town Chak No. 217/RB | Narwala Road | 4K10M | 31.12.2006 | 571 |
| 84. | Rafique Abad Nazim Abad Chak No. 202/RB | Rehmania Road | 16K-14M | 31.12.1985 | 145 |
| 85. | Premier Mills (Rafique Abad) Chak No. 202/RB | Rehmania Road | 23K-09M | 31.12.1985 | 478 |
| 86. | Rasala No. 12 Chak No. 295/RB | Behind Jhang Road | 92K-18M | 31.12.1985 | 435 |
| 87. | Rasala No. 15 Chak No. 221/RB | Behind Jhang Road | 86K-19M | 31.12.2006 | 284 |
| 88. | Ganda Nala Ghulam Muhammad Abad Chak No. 124/RB | Baba Qayyam Sain Road | 29K-9M | 31.12.1985 | 156 |
| 89. | Kakuana Chak No. 221/RB | Jhang Road | 21K-14M | 31.12.2006 | 65 |
| 90. | Klasna Chak No. 221/RB | Jhang Road | 19K-16M | 31.12.2006 | 186 |
| 91. | Kot Ahmad Yar Chak No. 221/RB | Jhang Road | 16M-19M | 31.12.2006 | 50 |
| 92. | Lodhran Chak No. 221/RB | Jhang Road | 11K-2M | 31.12.2006 | 48 |
| 93. | Roshan Wala Chak No. 221/RB | Jhang Road | 10K-4M | 31.12.2006 | 55 |
| 94. | Salbat Wala Chak No. 221/RB | Jhang Road | 17K-18M | 31.12.2006 | 43 |
| 95. | Sultan Wala Chak No. 221/RB | Jhang Road | 37K-8M | 31.12.2006 | 100 |
| 96. | Shaheen Abad No. Chak No. 212/RB | Near Railway Station | 189K-6M | 31.12.1985 | 110 |
| 97. | Railway Quarter Chak No. 212/RB | Near Railway Station | 11K-15M | 31.12.2006 | 79 |
| 98. | Shaheen Abad No. 1 Chak No. 212/RB | Near Railway Station | 54K-9M | 31.12.2006 | 407 |
| 99. | Gharib Abad Gheri Mill Chak No. 212/RB | Summandari Road | 7K-11M | 31.12.2006 | 97 |
| 100. | Head Water Works Bheind Railway Line Rajbah Chak No. 212/RB | Summandari Road | 10K-13M | 31.12.2006 | 97 |
| 101. | Kamal Abad | ABC Road | 3K-18M | 01.02.2013 | 38 |
| 102. | Basti Ariyan | Jhang Road | 19K-14M | 01.02.2013 | 119 |
| 103. | Usman Abad | Satiana Road | 4K-0M | 01.02.2013 | 22 |
| 104. | Sultan Pura | Millat Road | 9K-16M-6Sft | 01.02.2013 | 79 |
| 105. | Mai Di Jughi | Sargodha Raad | 94K-8M-5Sft | 01.02.2013 | 928 |
| 106. | Changer MNohallah | Narwala Road | 4K-14M | 01.02.2013 | 30 |
| 107. | Boly Di Jughi | Sargodha Road | 65K-16M-6Sft | 01.02.2013 | 528 |
| 108. | Azafi Abadi Ali Pura | Sargodha Road | 3K-4M | 01.02.2013 | 23 |
| 109. | Awami Colony | Narwala Road | 3K-10M | 01.02.2013 | 39 |
| 109. | Malikhanwala | Stiana Road | 91K-10M | 01.02.2013 | 356 |
| 110. | Punj Pir | Jhang Road | 260K-4M | 01.02.2013 | 1334 |

Appendix C.2: Faisalabad Development Authority (Sanctioned Schemes)

Table C.2: Faisalabad Development Authority (Sanctioned Schemes)

| Sr. No. | Name of Scheme & Location | Date of Approval | Area (Kanal) |
|---------|--|------------------|--------------|
| 1 | WAPDA Town, Chak No. 192/ RB, Sheikhpura Road, Faisalabad. | 7/5/1996 | 5314.8 |
| 2 | City Housing Scheme, Chak No. 4,5 & 113/ JB, Sargodha Road, Faisalabad. | 9/11/2015 | 2385 |
| 3 | Eden Orchard, Chak No. 121/JB, Faisalabad. | 9/21/2017 | 1285 |
| 4 | Gulshan-e-Iqbal, Chak No. 222/ RB, Rasila Wala Road, Faisalabad. | 1/20/1991 | 954.32 |
| 5 | Amin Town, Chak No. 207/RB, Canal Road, Faisalabad. | 2/28/1982 | 908 |
| 6 | Sitara Sapna City, Chak No. 123/ RB, Daewoo Road, Faisalabad. | 12/8/2005 | 896 |
| 7 | Telecom Engineering Cooperative Housing Society, Chak No. 226/RB, Satyana Road, Faisalabad. | 5/13/2010 | 821.28 |
| 8 | Shahbaz Town, Chak No. 220/ RB, Rehmania Road, Jhang Road, Faisalabad. | 2/3/1990 | 712.16 |
| 9 | The Four Season-I, Chak No. 234/ RB, Samundri Road, Faisalabad. | 4/24/2008 | 662.8 |
| 10 | Vadi e Sitara, Chak No. 200/RB, Lathian wala, Faisalabad. | 12/4/2017 | 661.5 |
| 11 | Govt Employees Cooperative Housing Society Scheme 1, Chak No. 213/ RB, Canal Road, Faisalabad. | 12/21/1987 | 505.76 |
| 12 | Liaqat Town, Chak No. 220/ RB, Rehmania Road, Faisalabad | 12/13/1983 | 484.96 |
| 13 | Sitara Gold City Chak No. 215/RB Jaranwala Road Faisalabad | 12/1/2016 | 478.25 |
| 14 | University Town, Chak No. 196/RB, Millat Road, Faisalabad. | 6/6/2017 | 461.3 |
| 15 | Haider Garden, Chak No. 119/GB, Jaranwala, Faisalabad. | 12/11/2017 | 428.66 |
| 16 | Sitara Valley, Chak No. 197/RB & 198/RB, Faisalabad. | 8/1/2017 | 422.97 |
| 17 | Millat Town 3, Chak No. 196/ RB, Near Same Nala, Sargodha Road, Faisalabad. | 5/18/1984 | 408 |
| 18 | Eden Garden Executive Block, Chak No. 208/RB, Faisalabad | 12/21/2018 | 394.22 |
| 19 | The Four Season Phase -II, Chak No. 234, Samundri Road, Faisalabad. | 1/23/2015 | 391.96 |
| 20 | Eden Life, Chak No. 296/ RB, Samundari Road Bey-pass, Faisalabad. (Not Developed at site) | 9/29/2014 | 388.64 |
| 21 | Gulshan-e-Hayat, Chak No. 220/ RB, Rehmania Road, Faisalabad | 1/31/1988 | 360 |
| 22 | Eden Villas, Chak No. 222/ RB, Rasila Wala Road, Faisalabad. | 6/26/2012 | 336 |
| 23 | Raza Garden, Chak No. 204/ RB, Canal Road, Faisalabad. | 1/9/1998 | 316 |
| 24 | Rehmat Town, Chak No. 124/ JB, Narwala Road, Faisalabad. | 4/11/1981 | 304 |
| 25 | Green View Colony, Chak No. 123/ RB, Daewoo Road, Faisalabad. | 1/27/1980 | 291.44 |
| 26 | Gulberg Valley, Chak No. 215/RB, Faisalabad. | 11/25/2017 | 280.81 |
| 27 | Younas Town, Chak No. 225/ RB, Satyana Road, Faisalabad. | 8/2/1984 | 276 |
| 28 | Al-Raheem Valley, Chak No. 215/RB, Faisalabad. | 1/31/2017 | 274.52 |
| 29 | Eden Garden, Chak No. 208, 8 Chak Road, Faisalabad. | 12/4/2008 | 270.4 |
| 30 | Jameel Town, Chak No. 124/JB, Narwala Road, Faisalabad. | 4/11/1981 | 260 |
| 31 | Niaz Garden/ Canal View, Chak No. 242/RB, Samundari Road Near Bye-Pass, Faisalabad. | 5/12/2007 | 256 |

| Sr. No. | Name of Scheme & Location | Date of Approval | Area (Kanal) |
|---------|--|------------------|--------------|
| 32 | Eden Garden Phase-II, Chak No. 208, 8 Chak Road, Faisalabad. | 4/8/2010 | 240 |
| 33 | Sitara Colony, Chak No. 222/ RB, Rasila Wala Road, Faisalabad. | 8/28/1978 | 228 |
| 34 | Orchard Homes, Chak No. 239/RB, Satyana Road, Faisalabad. | 8/25/2016 | 220.644 |
| 35 | Raja Park, Chak No. 222/ RB, Rasila Wala Road, Faisalabad. | 7/29/1981 | 220 |
| 36 | Sitara Valley, Chak No. 197/RB, Sheikupura Road, Faisalabad. | 3/5/2009 | 218.35 |
| 37 | Koh-e-Noor Town, Chak No. 213/ RB, Jaran Wala Road, Faisalabad. | 12/23/1996 | 209.44 |
| 38 | Shadman Town, Chak No. 120/ JB, Sargodha Road, Faisalabad. | 9/2/1981 | 206 |
| 39 | Manan Town, Chak No. 121 /JB, Millat Road, Faisalabad. | 8/3/2015 | 205.89 |
| 40 | Green Block, Chak No. 204/RB, Faisalabad. | 12/6/2017 | 205.55 |
| 41 | Green Town, Chak No. 122/ JB, Millat Road, Faisalabad. | 11/2/1984 | 205 |
| 42 | New Fareed Town, Chak No. 196/ RB, Sheikupura Road, Faisalabad. | 6/24/1990 | 205 |
| 43 | Govt Employees Co-Operative Housing Society 02, Chak No. 199/ RB, Sheikupura Road, Faisalabad. | 7/19/1990 | 205 |
| 44 | Nazimabad City, Chak No. 220/ RB, Rehmania Road, Faisalabad. | 12/6/2013 | 204.96 |
| 45 | Muhammad Ali Housing Scheme, Off Samundri Road, Near Nisar Colony, Chak No. 222/ RB, Faisalabad. | 5/23/2015 | 204.96 |
| 46 | Heaven Habitat No. 1, Chak No. 204/ RB, Canal Road, Near Garvaish Hotel, Faisalabad. | 7/9/1997 | 204 |
| 47 | Abdullah Farm Housing Scheme, Chak No. 204/RB, Canal Road, Faisalabad. | 8/24/2006 | 200 |
| 48 | Al-hamra Town, Chak No. 199/RB, Canal Road, Faisalabad. | 12/27/1989 | 196 |
| 49 | Saeed Colony, Chak No. 213/ RB, Canal Road, Faisalabad. | 2/3/1978 | 184 |
| 50 | Khalid Town, Chak No. 07 /JB, Daewoo Road, Faisalabad. | 1/3/2013 | 163 |
| 51 | Ghafoor Garden, Chak No. 204/ RB, Canal Road, Faisalabad. | 1/28/2009 | 162.96 |
| 52 | Sultan Town, Chak No. 217/ RB, Narwala Road, Faisalabad | 2/28/1982 | 160 |
| 53 | Defence Fort H/S, Chak No. 223/ RB, Samundri Road, Faisalabad. | 1/27/2011 | 160 |
| 54 | Ibrahim Bajwa Town, Chak No. 217/ RB, Narwala Road, Faisalabad | 1/31/1982 | 142 |
| 55 | Raza Town, Chak No. 204/ RB, Canal Road, Near PC Hotel, Faisalabad. | 12/8/1990 | 140 |
| 56 | Kareem Town, Chak No. 224/ RB, Satyana Road, Faisalabad. | 8/13/1984 | 136 |
| 57 | Lyall Pur Villas, Chak No. 208/RB, Bibi Jan Road, Faisalabad. | 1/31/2017 | 132.815 |
| 58 | Kamal Avenue City, Chak No. 230/RB, Chohla, Faisalabad. | 1/19/2018 | 124.45 |
| 59 | Rahim Town, Chak No. 220/ RB, Rehmania Road, Faisalabad | 11/1/1981 | 120 |
| 60 | Al-Jameel Housing Colony, Chak No. 217/RB, Narwala Road, Faisalabad. | 9/10/2016 | 119.13 |
| 61 | Akbar Housing, Chak No. 204/RB, Faisalabad. | 1/12/2018 | 115 |
| 62 | Umar Garden, Chak No. 204/RB, Faisalabad. | 1/12/2018 | 115 |
| 63 | Shalimar Homes, Chak No. 213/ RB, Canal Road, Faisalabad. | 11/29/1980 | 114.24 |
| 64 | Hamza Homes, Chak No. 204/RB, Canal Road, Faisalabad. | 6/7/2017 | 114.15 |
| 65 | Al-Mehboob Garden, Chak No. 223/RB, Faisalabad. | 10/8/2017 | 109.8 |

| Sr. No. | Name of Scheme & Location | Date of Approval | Area (Kanal) |
|---------|---|------------------|--------------|
| 66 | Sitara Abban Valley, Chak No. 197/ RB & 198/ RB, Sheikhpura Road, Faisalabad. | 8/18/2016 | 108.5 |
| 67 | Muhammad Khan Town, Chak No. 207/RB, Mansora Abad, Faisalabad. | 2/19/1991 | 108 |
| 68 | New Muslim Town, Chak No. 120/ JB, Sargodha Road, Faisalabad. | 7/19/1978 | 104 |
| 69 | Jalal Town, Chak No. 196 RB, Sheikhpura Road, Faisalabad. | 5/21/1990 | 104 |
| 70 | Abdullah Defence, Chak No. 229/RB, Makuana Bye- Pass, Faisalabad. | 5/25/2017 | 102.15 |
| 71 | Fareed Town , Chak No. 214/ RB, Jaran Wala Road, Dhudiwala, Faisalabad. | 9/1/1981 | 96 |
| 72 | Faisal Town, Chak No. 217/ RB, Narwala Road, Faisalabad | 6/1/1982 | 92.24 |
| 73 | Canal Park, Chak No. 204/ RB, Canal Road, Faisalabad. | 4/13/1988 | 91.92 |
| 74 | Executive Block, Chak No. 204/RB, Canal Road, Faisalabad. | 6/5/2017 | 84.8 |
| 75 | Ejaz Town, Chak No. 124/ JB, Narwala Road, Faisalabad. | 4/11/1981 | 84.16 |
| 76 | Bilal City, Chak No. 197/RB, Bhagewal Road, Faisalabad. | 5/10/2017 | 83.3 |
| 77 | Vista Homes, Chak No. 121/JB, Faisalabad. | 10/31/2017 | 82.47 |
| 78 | New Garden Town , Chak No. 214/ RB Faisalabad. | 9/15/1981 | 76 |
| 79 | Meadows Phase-I, Chak No. 234/ RB, Samundri Road, Faisalabad. | 8/23/2016 | 75.25 |
| 80 | Nazimabad Villas, Chak No. 220/ RB, Rehmania Road, Faisalabad. | 12/6/2013 | 46.24 |
| 81 | Nawaz Town, Chak No. 120/ JB, Sargodha Road, Faisalabad. | 3/4/1983 | 44 |
| 82 | Hameed Town, Chak No. 124/ JB, Narwala Road, Faisalabad. | 8/13/1984 | 26 |

Appendix D.1: BHUs, RHCs & THQs Details in Faisalabad

Chapter – 9

Table D.1A: Distribution of Basic Emomc Services Provided by RHCs – District Faisalabad

| RHCs | Manual removal of placenta | Removal of retained product | Newborn resuscitation | Assisted vaginal delivery | Inj Ampicillin | Inj Oxytocin | Inj Magnesium Sulphate | Providing all Basic EmONC services | Normal delivery | FP services (At least 3- FP methods) | Availability of some essential staff (WMO/LHV) | Availability of all essential staff |
|----------------------------|----------------------------|-----------------------------|-----------------------|---------------------------|----------------|--------------|------------------------|------------------------------------|-----------------|--------------------------------------|--|-------------------------------------|
| RHC Chak 30-JB | 1 | 1 | 1 | 1 | 1 | 1 | | | 1 | 1 | 1 | 1 |
| RHC Chak 229-RB | 1 | 1 | 1 | 1 | 1 | 1 | | | 1 | 1 | 1 | |
| RHC Chak 65-GB | 1 | 1 | 1 | 1 | 1 | 1 | | | 1 | 1 | 1 | 1 |
| RHC Dijkot | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| RHC Kanjwani | 1 | | 1 | | 1 | 1 | | | 1 | 1 | 1 | |
| RHC Khurrarianwala | 1 | 1 | 1 | 1 | 1 | 1 | | | 1 | 1 | 1 | 1 |
| RHC Lundian Wala | 1 | | 1 | | 1 | 1 | 1 | | 1 | 1 | 1 | |
| RHC Mamun Kanjan | 1 | | 1 | | | 1 | 1 | | 1 | 1 | 1 | |
| RHC Pindi Sheikh Musa | 1 | | 1 | | 1 | 1 | | | 1 | 1 | 1 | |
| RHC Chak 193-GB Murid Wala | 1 | | 1 | | 1 | 1 | | | 1 | 1 | 1 | |
| RHC Satiyana | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total | 11 | 6 | 11 | 6 | 10 | 11 | 4 | 2 | 11 | 11 | 11 | 5 |

Source: District Health Authority (DHA)

Table D.1B: Distribution of Preventive Mch Services Provided by Districts Facilities – District Faisalabad

| BHU | Antenatal care | Normal delivery | TT vaccination | FP services (at least 3 FP method) | Growth monitoring | Nutrition counseling | Immunization (EPI) | Laboratory services | Availability of essential staff (WMO / LHV) | Facilities providing preventive MNCH services |
|---------------------------|----------------|-----------------|----------------|------------------------------------|-------------------|----------------------|--------------------|---------------------|---|---|
| BHU Chak 156-RB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 293-RB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 157-RB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 49-JB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 275-RB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 6-JB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 27-JB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 38-JB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 78-JB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 85-JB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 111-JB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 189-RB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 249-RB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 32-GB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 55-GB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 100-RB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 104-GB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 105-RB Gibb Wala | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 106-GB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 216-RB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 234-GB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 237-GB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | |

| BHU | Antenatal care | Normal delivery | TT vaccination | FP services (at least 3 FP method) | Growth monitoring | Nutrition counseling | Immunization (EPI) | Laboratory services | Availability of essential staff (WMO / LHV) | Facilities providing preventive MNCH services |
|-----------------|----------------|-----------------|----------------|------------------------------------|-------------------|----------------------|--------------------|---------------------|---|---|
| BHU Chak 648-GB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 143-GB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 170-GB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 200-Gb | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 219-Gb | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 448-GB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 474-Gb | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 545-Gb | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 554-GB | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 506-Gb | | | 1 | | | | 1 | | | |
| BHU Chak 507-Gb | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| BHU Chak 418-Gb | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total | 33 | 33 | 34 | 33 | 33 | 33 | 34 | 32 | 32 | 32 |

Source: District Health Authority (DHA)

Table D.1C: Distribution of Comprehensive Emonc Services Provided by THQhs – District Faisalabad

| THQH | Manual removal of placenta | Removal of retained product | Assisted vaginal delivery | Inj Ampicillin | Inj Oxytocin | Inj Magnesium Sulphate | C- Section | Blood Transfusion | Newborn care (Resuscitation and Incubator) | Providing all comprehensive EmONC services | Normal delivery | Comprehensive FP services (including sterilization) | Availability of some essential staff | Availability of all essential staff |
|-------------------|----------------------------|-----------------------------|---------------------------|----------------|--------------|------------------------|------------|-------------------|--|--|-----------------|---|--------------------------------------|-------------------------------------|
| THQ Jaranwala | 1 | 1 | 1 | 1 | 1 | | | | | | 1 | 1 | 1 | |
| THQ Faisal Abad | 1 | 1 | 1 | 1 | 1 | | | 1 | 1 | | 1 | 1 | 1 | |
| THQ Tandalianwala | 1 | 1 | 1 | 1 | 1 | | | 1 | | | 1 | 1 | 1 | |
| THQ Sumandri | 1 | 1 | 1 | 1 | 1 | 1 | | 1 | | | 1 | 1 | 1 | |
| THQ Chak Jhumra | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | | | 1 | 1 | 1 | |
| Total | 5 | 5 | 5 | 5 | 5 | 1 | 1 | 4 | 1 | 0 | 5 | 5 | 5 | 0 |

Source: District Health Authority (DHA)

Appendix D.2: List of Government Dispensaries City Faisalabad and Mailing Address

Table D.2: List of Government Dispensaries City Faisalabad and Mailing Address

| Sr. | Name of Government Dispensary | Address |
|-----|-------------------------------|--|
| 1 | Satellite Town | Main Road People Town Near Fatima Masjid Satellite Town Faisalabad |
| 2 | Sir Syed Town | Scheme No. 212 D Block Sir Syed Town Faisalabad |
| 3 | Peoples Colony # 1 | B Block Near Govt. Rehmania High School Peoples Colony No . 1 Faisalabad |
| 4 | Peoples Colony # 2 | Fawara Chowk Peoples Colony No. 2 Faisalabad |
| 5 | Factory Area | Oil Depo Road Factory Area Faisalabad |
| 6 | D-Type Colony | Siddiqui Chowk D-Type Colony Faisalabad |
| 7 | Qasim Park | Dongi Ground Hussania Chowk Peoples Colony No. 2 Faisalabad |
| 8 | Allama Iqbal Colony | Tenki Wala Chowk D Block Allama Iqbal Colony Faisalabad |
| 9 | Saeed Colony | Abu bakar Road Saeed Colony No. 1 Faisalabad |
| 10 | Ali Town | Bawa Chak Sargodha Road Ali Town Faisalabad |
| 11 | Mananwala | Chak No. 203 / RB Near NTU Manawala Faisalabad |
| 12 | 80 Mura bba Scheme | Chak No. 203 / RB Manawala 80 Murabba Scheme Faisalabad |
| 13 | Hajji Abad | Street No. 13 Ashraf Abad Faisalabad |
| 14 | Noor Pur | Dogar Chowk Chak No. 122/ JB Faisalabad |
| 15 | Noor Ul Amin Colony | Chak No. 12 1/JB Ghokowal Faisalabad |
| 16 | Bholay De Jhughi | Near Sahil Hospital Sheikhpura Road Faisalabad |
| 17 | Hajvairy Town | Jaffri Chowk Office Union Council 212 Hajweri Town Faisalabad |
| 18 | Islam Nagar | Riaz Shahid Chowk Stadium Road Islam Nagar Faisalabad |
| 19 | Douglas Pura | Near Markzi Imam Bargah Main Bazar Diglus Pura Faisalabad |
| 20 | Gulberg | Block C Gulberg Colony Faisalabad |
| 21 | Sayyed Abad | Main Bazar Sayyed Abad Faisalabad |
| 22 | Amin Town | Near Dar e Arqam School Amin Town Faisalabad |
| 23 | Risala # 12 | Rehmania Road Union Council 262 Ayub Research Faisalabad |
| 24 | Ansari Park | Near Rasheed Chowk Samana bad Ansari Park Faisalabad |
| 25 | Tariq Abad | Near Dak Khana Main Bazar Tariq Abad Faisalabad |
| 26 | Small-D-Ground | Peoples Colony No. 1 A Block Small D Ground Faisalabad |
| 27 | I.D. Hospital | Main Kokian wala Road Chak No. 2 19 / RB Faisalabad |
| 28 | G.B.S | General Bus Stand Faisalabad |
| 29 | H/C Allama Iqbal Colony | Tenki Wala Chowk Main Road Allama Iqbal Colony Faisalabad |
| 30 | H/C Mananwala | Chak No. 2 03/RB Near NTU Manawala Faisalabad |
| 31 | H/C Madina Town | Y Block Near Smart School Madina Town Faisalabad |
| 32 | Mustafai Park | Block X Madina Town Fa isalabad |
| 33 | District Bar Association | District Courts Faisalabad |
| 34 | City Terminal | GTS Chowk City Terminal Faisalabad |
| 35 | Chak No.7 Punjwar | Ghousia Town Chongi Stop Daewoo Road Faisalabad |
| 36 | Malik Pur | Near Muhammadi Park Malik Pur Chak No.03 / RB Faisalabad |
| 37 | Sharif Pura | Street No. 6 Sharif Pura Faisalabad |
| 38 | Jinnah Abad | Street No. 5 Near Masjid Rabbani Fateh Abad Gharbi Faisalabad |
| 39 | Raza Abad | Bazar No. Base Line 3 Raza Abad Faisalabad |
| 40 | Maqbool Road | Haji Chowk Maqbool Road Peoples Colony No.2 Faisalabad |

Appendix D.3: List of Private & Government Hospitals in District Faisalabad

Table D.3A: List of Private Hospitals in District Faisalabad

| Sr. No. | Name of Hospital |
|---------|--|
| 1 | Aziz Fatima Trust Hospital, Faisalabad |
| 2 | Madina Teaching Hospital Faisalabad. |
| 3 | National Hospital, Faisalabad. |
| 4 | Khadija Mahmood Trust Hospital, Faisalabad. |
| 5 | Dar-ui-Sehat Hospital, Faisalabad. |
| 6 | Chiniot Hospital Faisalabad. |
| 7 | Mian Muhammad Trust Hospital, Faisalabad. |
| 8 | Social Security Hospital, Faisalabad. |
| 9 | Faisal Hospital, Faisalabad. |
| 10 | Mujahid Hospital, Faisalabad. |
| 11 | Sughra Shafi Trust Hospital, Faisalabad. |
| 12 | Hilal-e-Ahmer Hospital, Faisalabad. |
| 13 | Al-Shifa Hospital, Faisalabad. |
| 14 | Surayya Majeed Trust Hospital, Faisalabad. |
| 15 | Independent University Hospital, Faisalabad. |

Table D.3B: List of Government Hospitals in District Faisalabad

| Sr. No. | Name of Hospital |
|---------|--|
| 1 | PINUM Cancer Hospital, Faisalabad |
| 2 | Allied Hospital, Faisalabad |
| 3 | District Head Quarter (DHQ), Faisalabad |
| 4 | Faisalabad Institute of Cardiology, Faisalabad |
| 5 | Govt. General Hospital Ghulam Muhammadabad, Faisalabad |
| 6 | Govt. General Hospital Samanabad, Faisalabad |
| 7 | TB Hospital, Faisalabad |
| 8 | Children Hospital, Faisalabad |
| 9 | Tehsil Head Quarter (THQ), Chak Jhumra |
| 10 | Tehsil Head Quarter (THQ), Jaranwala |
| 11 | Tehsil Head Quarter (THQ), Samundri |
| 12 | Tehsil Head Quarter (THQ), Tandlianwala |

Source: OCL Field Survey 2018

Appendix D.4: List of Basic Health Units District Faisalabad

Table D.4: List of Basic Health Units District Faisalabad

| Tehsil Chak Jhumra | |
|--------------------|---------------------------|
| 1 | 131002_BHU CHAK NO. 19/JB |
| 2 | 131003_BHU CHAK NO. 20/JB |
| 3 | 131009_BHU CHAK NO. 44/JB |
| 4 | 131010_BHU CHAK NO. 47/RB |
| 5 | 131025_BHU CHAK NO.102/JB |
| 6 | 131029_BHU CHAK NO.126/RB |
| 7 | 131031_BHU CHAK NO.133/RB |
| 8 | 131032_BHU CHAK NO.134/RB |
| 9 | 131033_BHU CHAK NO.139/RB |
| 10 | 131034_BHU CHAK NO.146/RB |
| 11 | 131036_BHU CHAK NO.157/RB |
| 12 | 131037_BHU CHAK NO.189/RB |
| 13 | 131063_BHU CHAK NO.293/RB |
| 14 | 131227_BHU CHAK NO.156/RB |
| Tehsil Jaranwala | |
| 15 | 131064_BHU CHAK NO. 22/GB |
| 16 | 131065_BHU CHAK NO. 28/GB |
| 17 | 131066_BHU CHAK NO. 32/GB |
| 18 | 131067_BHU CHAK NO. 36/GB |
| 19 | 131068_BHU CHAK NO. 54/RB |
| 20 | 131069_BHU CHAK NO. 55/GB |
| 21 | 131070_BHU CHAK NO. 58/RB |
| 22 | 131072_BHU CHAK NO. 60/GB |
| 23 | 131073_BHU CHAK NO 62/RB |
| 24 | 131075_BHU CHAK NO. 68/RB |
| 25 | 131076_BHU CHAK NO. 73/GB |
| 26 | 131077_BHU CHAK NO.76/RB |
| 27 | 131079_BHU CHAK NO.91/RB |
| 28 | 131080_BHU CHAK NO. 96/GB |
| 29 | 131081_BHU CHAK NO. 96/RB |
| 30 | 131082_BHU CHAK NO. 98/GB |
| 31 | 131083_BHU CHAK NO.100/RB |
| 32 | 131084_BHU CHAK NO.101/GB |
| 33 | 131085_BHU CHAK NO.104/GB |
| 34 | 131086_BHU CHAK NO.105/RB |
| 35 | 131088_BHU CHAK NO.106/GB |
| 36 | 131089_BHU CHAK NO.112/GB |
| 37 | 131090_BHU CHAK NO.115 GB |
| 38 | 131091_BHU CHAK NO.122 GB |
| 39 | 131092_BHU CHAK NO.146/GB |
| 40 | 131093_BHU CHAK NO.151 RB |
| 41 | 131094_BHU CHAK NO.205/RB |
| 42 | 131095_BHU CHAK NO.216/RB |
| 43 | 131096_BHU CHAK NO.234/GB |
| 44 | 131097_BHU CHAK NO.237/GB |

| | |
|----------------------------|---------------------------|
| 45 | 131098_BHU CHAK NO.273/GB |
| 46 | 131099_BHU CHAK NO.282/GB |
| 47 | 131100_BHU CHAK NO.283/GB |
| 48 | 131101_BHU CHAK NO.353/GB |
| 49 | 131102_BHU CHAK NO.366/GB |
| 50 | 131103_BHU CHAK NO.377/GB |
| 51 | 131104_BHU CHAK NO.379/GB |
| 52 | 131106_BHU CHAK NO.433 GB |
| 53 | 131107_BHU CHAK NO.560/GB |
| 54 | 131108_BHU CHAK NO.565/GB |
| 55 | 131109_BHU CHAK NO.566/GB |
| 56 | 131110_BHU CHAK NO.581/GB |
| 57 | 131111_BHU CHAK NO.629/GB |
| 58 | 131112_BHU CHAK NO.633 GB |
| 59 | 131113_BHU CHAK NO.635 GB |
| 60 | 131114_BHU CHAK NO.644 GB |
| 61 | 131115_BHU CHAK NO.648 GB |
| 62 | 131116_BHU CHAK NO.653 GB |
| 63 | 131229_BHU CHAK NO 200/RB |
| 64 | 131248_BHU CHAK NO 40/G.B |
| Tehsil Tandlianwala | |
| 65 | 131105_BHU CHAK NO.426/GB |
| 66 | 131135_BHU CHAK NO.399/GB |
| 67 | 131136_BHU CHAK NO.400/GB |
| 68 | 131137_BHU CHAK NO.404/GB |
| 69 | 131138_BHU CHAK NO.418/GB |
| 70 | 131139_BHU CHAK NO.427/GB |
| 71 | 131144_BHU CHAK NO.449/GB |
| 72 | 131150_BHU CHAK NO.506/GB |
| 73 | 131151_BHU CHAK NO.507/GB |
| 74 | 131153_BHU CHAK NO.545 GB |
| 75 | 131154_BHU CHAK NO.547/GB |
| 76 | 131155_BHU CHAK NO.554/GB |
| 77 | 131156_BHU CHAK NO.558/GB |
| 78 | 131157_BHU CHAK NO.594/GB |
| 79 | 131158_BHU CHAK NO.597/GB |
| 80 | 131159_BHU CHAK NO.603/GB |
| 81 | 131160_BHU CHAK NO.608/GB |
| 82 | 131161_BHU CHAK NO.615 GB |
| 83 | 131162_BHU JALLI FATYANA |
| 84 | 131163_BHU MOUZA JHAMRA |
| 85 | 131164_BHU MOUZA SHERAZA |
| 86 | 131211_BHU 490 GB |
| 87 | 131226_BHU 453/GB |
| Tehsil Samundri | |
| 88 | 131117_BHU CHAK NO. 47/GB |
| 89 | 131118_BHU CHAK NO. 48/GB |
| 90 | 131119_BHU CHAK NO. 50/GB |
| 91 | 131120_BHU CHAK NO.136 GB |

| | |
|--------------------------------|----------------------------|
| 92 | 131121_BHU CHAK NO.143/GB |
| 93 | 131122_BHU CHAK NO.165/GB |
| 94 | 131123_BHU CHAK NO.170/GB |
| 95 | 131124_BHU CHAK NO. 175/GB |
| 96 | 131125_BHU CHAK NO.198 GB |
| 97 | 131126_BHU CHAK NO.200/GB |
| 98 | 131127_BHU CHAK NO.203/GB |
| 99 | 131128_BHU CHAK NO.205/GB |
| 100 | 131129_BHU CHAK NO.214/GB |
| 101 | 131130_BHU CHAK NO.219/GB |
| 102 | 131131_BHU CHAK NO.223/GB |
| 103 | 131132_BHU CHAK NO.228/GB |
| 104 | 131133_BHU CHAK NO.388/GB |
| 105 | 131134_BHU CHAK NO.390/GB |
| 106 | 131140_BHU CHAK NO.437/GB |
| 107 | 131141_BHU CHAK NO.442/GB |
| 108 | 131142_BHU CHAK NO.443/GB |
| 109 | 131143_BHU CHAK NO.448/GB |
| 110 | 131145_BHU CHAK NO.468/GB |
| 111 | 131146_BHU CHAK NO.474 GB |
| 112 | 131147_BHU CHAK NO.479/GB |
| 113 | 131148_BHU CHAK NO.484/GB |
| 114 | 131149_BHU CHAK NO.487 GB |
| 115 | 131152_BHU CHAK NO.530/GB |
| 116 | 131230_BHU CHAK NO.462/GB |
| Tehsil Sadar Faisalabad | |
| 117 | 131001_BHU CHAK NO. 6/JB |
| 118 | 131004_BHU CHAK NO. 27/JB |
| 119 | 131005_BHU CHAK NO. 28/JB |
| 120 | 131006_BHU CHAK NO. 32/JB |
| 121 | 131007_BHU CHAK NO. 38/JB |
| 122 | 131008_BHU CHAK NO. 40/JB |
| 123 | 131011_BHU CHAK NO. 51/JB |
| 124 | 131012_BHU CHAK NO. 52/JB |
| 125 | 131013_BHU CHAK NO. 53/JB |
| 126 | 131014_BHU CHAK NO. 57 JB |
| 127 | 131015_BHU CHAK NO. 64/JB |
| 128 | 131016_BHU CHAK NO. 66/JB |
| 129 | 131017_BHU CHAK NO. 67/JB |
| 130 | 131018_BHU CHAK NO. 71/JB |
| 131 | 131019_BHU CHAK NO. 74/JB |
| 132 | 131020_BHU CHAK NO. 78/JB |
| 133 | 131021_BHU CHAK NO. 82/JB |
| 134 | 131022_BHU CHAK NO. 83/GB |
| 135 | 131023_BHU CHAK NO. 85/JB |
| 136 | 131024_BHU CHAK NO. 92/GB |
| 137 | 131026_BHU CHAK NO.104/JB |
| 138 | 131027_BHU CHAK NO.111/JB |
| 139 | 131028_BHU CHAK NO.116/JB |

| | |
|-------------------------------|---------------------------|
| 140 | 131030_BHU CHAK NO.129/GB |
| 141 | 131038_BHU CHAK NO.192/RB |
| 142 | 131039_BHU CHAK NO.195/RB |
| 143 | 131040_BHU CHAK NO.196/RB |
| 144 | 131041_BHU CHAK NO.198/RB |
| 145 | 131042_BHU CHAK NO.209/RB |
| 146 | 131044_BHU CHAK NO.215/RB |
| 147 | 131047_BHU CHAK NO.226/RB |
| 148 | 131048_BHU CHAK NO.231/RB |
| 149 | 131049_BHU CHAK NO.237/RB |
| 150 | 131050_BHU CHAK NO.239/RB |
| 151 | 131051_BHU CHAK NO.247/RB |
| 152 | 131052_BHU CHAK NO.249/RB |
| 153 | 131053_BHU CHAK NO.251/RB |
| 154 | 131054_BHU CHAK NO.253/RB |
| 155 | 131055_BHU CHAK NO.257/RB |
| 156 | 131056_BHU CHAK NO.258/RB |
| 157 | 131057_BHU CHAK NO.260/RB |
| 158 | 131058_BHU CHAK NO.267/RB |
| 159 | 131059_BHU CHAK NO.268/RB |
| 160 | 131060_BHU CHAK NO.270/RB |
| 161 | 131061_BHU CHAK NO.273/JB |
| 162 | 131062_BHU CHAK NO 275/RB |
| 163 | 131078_BHU CHAK NO. 80/GB |
| 164 | 131228_BHU CHAK NO 49/JB |
| 165 | 131253_BHU CHAK NO.8/JB. |
| Tehsil City Faisalabad | |
| 166 | 131043_BHU CHAK NO.214/RB |
| 167 | 131045_BHU CHAK NO.219/RB |
| 168 | 131046_BHU CHAK NO.222/RB |

Appendix E.1: List of Restaurants, Mosques, Shrines, Churches, Gurudwares, Hindu Temples, Hotels, Transport Facilities

Chapter 13

List of Good Restaurants

1. 14th Street Pizza Co.
2. Almaida Pizza Garden
3. Ambrosia Marriage Hall
4. Apple Nine
5. Baba Tikka Shop
6. Baba Tikka Shop Kohinoor Branch
7. Bahraini Shawarma point & Café
8. Bar B Q Tonight
9. Burger King
10. Bundoo Khan
11. Café Serenity
12. Canteen Hazara Hotel, Faisalabad
13. Chenab BBQ
14. Chenab Tikka Shop
15. Chicken Broast Faisalabad
16. Chiniot Foods Pakwan Faisalabad
17. Chunk N Cheese
18. Cock 'N' Bull
19. Decent BBQ
20. Down Street Faisalabad
21. Dynasty Restaurant
22. El Paso Restaurant
23. Forks and Knives Crisp n Grill
24. Forks N Knives Pizza Kitchen
25. Fri-Chicks
26. German Doner Kebab
27. GODFATHER
28. Golden Flame Restaurant
29. Hafiz Restaurant & Chicken Sajee
30. Hardees
31. Hungry Now
32. Karachi Silver Paratha Roll & BBQ
33. KFC
34. Khayyam Restaurant
35. Khebar Punjab Dera Restaurant
36. Khyber Shinwari
37. Kohinoor Palace Marquee
38. La Cucina Foodies
39. Latte e Te
40. MacDonald's
41. Mehar Juice Corner
42. Muncheez Chinese & bbq Foods
43. Nando's
44. New Namwah Chinese Restaurant
45. New Tabish Biryani and Fast Food
46. Oakley's Bistro
47. OTP Boulevard Mall – Faisalabad

48. Oriental
49. Portobello
50. Quilim Marquee & Chinese Restaurant
51. Rawayat
52. Rayyan B. B. Q & NaN SHOP
53. Roof Top Royal Cuisine
54. ROTI 'n' BOTI Restaurant
55. Salt N Pepper Faisalabad
56. Sam Fried Chicken & Burgers
57. Sariya's Sip N Bites
58. Shahi Mutton Haleem & Chanay
59. Silver Spoon Continental Restaurant
60. Silver Spoon Plus Restaurant
61. Sky Lounge
62. Steak & Shake
63. Subway
64. Ten 11 Lounge
65. The American Pizza
66. The Lounge By Attraction
67. The Munchery
68. The Pizza Kitchen
69. Vegas Grill

Mosques

1. Sunni Rizwi Masjid
2. Faizan e Medina Mosque and Islamic Centre
3. Bilal Masjid
4. Quba Mosque
5. Jhang Bazar Masjid
6. Batala Colony Masjid
7. Khizra Masjid
8. Masjid Technical High School
9. Jamia Masjid Akbar
10. Railway Station Mosque
11. Zainab Masjid
12. Jamia Masjid Aqsa Ahle-Hadith
13. Mohallah Gurunanakpura Masjid
14. Ismail Markaz Masjid
15. Haqqani Masjid
16. Jamia Masjid Hanafia Ghousia
17. Noori Masjid, Ayub Colony, Jhang Road
18. Dildar Masjid, Mansoorabad
19. Gol Masjid (Round Mosque) Ghulam Muhammadabad
20. Jamia Masjid Gulzar-e-Madina 72/GB
21. Usmania masjid

Shrines

1. Baba Noor Shah Wali - Graveyard near Lorry Ada.
2. Baba Lasoori Shah - Reegal Road, Jhang Bazaar.
3. Mohadas-e-Azam - Jhang Bazaar.
4. Baba Qaim Sain - Mohallah Faizabad.
5. Baba Sufi Barkat Ali - Dalowal Road, Samundri.

6. Sabri Darbar.
7. Rehmani Darbar Sharif.
8. Darbar Imam Jalvi
9. Darbar Mahi Shah Sarkar
10. Darbar e Ghousia
11. Baba Shah Saleem Peer Bahwal Haq - Peoples Colony no: 1.
12. Baba Rati Rata Wali Sarkar
13. Darbar Sakhi Baba Malan Shah Qadir Qalandar Mast - Narwala Road

Churches

1. Christ Assemblies Church International Salik Town Faisalabad
2. St. Paul's Presbyterian Church, Dawood Nagar
3. God's Way Love Assembly
4. Alpha Bible Churches - Pakistan
5. The Lahore Church Council of Pakistan
6. Cathedral of Sts. Peter and Paul
7. Evangel House, Mian Colony
8. The Universal Gospel Assembly Church of Pakistan (UGA)
9. The Methodist Church of Pakistan Gojra
10. Philadelphia Pentecostal Church
11. Good news Church, Ellahi Abad
12. The Full Gospel Assemblies Church (FGA)
13. Pakistan Gospel Assemblies Church (PGA)
14. International Gospel Mission Church (IGM)
15. The Salvation Army Church
16. Church of God in Pakistan
17. The Eternal Church of Pakistan
18. Light of the World Ministries (LWM Church Faisalabad)
19. Lovers Of God Ministries Pakistan
20. Apostles of Gospel Ministries International (AGM)
21. Divine Glorious Ministries Pakistan (DGM)

Gurudwaras

1. Gurudwara Panjvin Patshahi Lyallpur
2. Gurdwara Rail Bazar (now Pakistan Model High School)
3. Gurdwara Partap Nagar Lyallpur
4. Gurdwara Bhawana Bazar
5. Gurudwara Sahib, Bandala
6. Gurdwara Kallah
7. Gurdwara Chitti Khurd
8. Khalsa High School (1908, now Govt. Municipal Degree College)

Hindu Temples

1. Mandir Sita-Ram
2. Shiwala Mandir
3. Devi Mandir (now DAV School)
4. Salarwala Sangla Hill Road Mandir
5. Massan Mandir, Chak Jhumra

List of Hotels

1. Al-Javaid Hotel in Katchery Bazar.
2. Avalon Hotel
3. Avari Express Faisalabad
4. Babar House
5. Bright & Stylish 3 B House
6. Circle Club Faisalabad
7. City Vista Apartments
8. Faisalabad Serena Hotel
9. Faizi Furnished Apartments
10. Fawn Lodge-2 Bedroom Private Portion
11. Fine Star Hotel
12. Fully Serviced Holiday Home
13. Grand Regent Hotel and Suites
14. Hotel Grand
15. Hotel One Faisalabad
16. Hotel the One
17. Khayyam Hotel
18. New Gulistan at Railway Road.
19. Pearl Luxury Hotel
20. Prime Hotel,
21. Qamar Hostel
22. Rays Hotel at College Road
23. Royal Hotel in Chiniot Bazar
24. Sabina Hotel.
25. Sandalbar Hotel.
26. Sleep Inn Hotel
27. Sultan Executive Lodges
28. Umer Hotel
29. Wapda City Hotel

List of Transport Facilities**Intercity Transport System of Faisalabad**

1. Al Hilal Travels
2. Baloch Daewoo Service
3. Bandial Bus Service
4. Bilal Travels
5. Daewoo Pakistan Express Bus Service
6. Faisal Movers
7. Khawaja Travels
8. Kohistan Express Bus Service
9. New Khan Daewoo Bus Service
10. New Subhan Bus Service
11. Niazi Express Bus Service, and
12. Skyways Bus Service

Intra City Bus Services

1. B-10
2. B-11
3. W-20

Appendix F.1: Detailed List of Priority Projects

Chapter - 14

Table F.1: Detailed List of Priority Projects

| Sr. No. | Project | Timeline Ranking | | | Priority Ranking | | Mode of Financing |
|---------|---|------------------|-----------|------|------------------|--------|-------------------|
| | | Short Term | Long Term | Both | High | Medium | |
| 1 | Development of SEZs with housing and provision of public utility services | | ✓ | | | ✓ | ADP, PPP |
| 2 | Construction of low-cost housing units | | | ✓ | ✓ | | Loan, PPP |
| 3 | Launch of phase-wise housing scheme for residential and commercial purposes. | | ✓ | | | ✓ | PPP |
| 4-i | Upgradation of existing school capacity to a level of 500 students | ✓ | | | ✓ | | ADP |
| 4-ii | Construction of new government schools and hiring of additional teachers | | ✓ | | | ✓ | ADP |
| 5-i | Upgradation of existing hospitals to the capacity of 200 beds | ✓ | | | ✓ | | ADP |
| 5-ii | Construction of new hospitals with 200 beds capacity | | ✓ | | | ✓ | ADP |
| 6-a | Reduction in female labour force working time to six hours daily and mandatory provision of day care facilities at work place or nearby | ✓ | | | | ✓ | PPP |
| 6-b | Additional social security or healthcare benefits etc. to the parents / guardian of enrolled school-going age children | ✓ | | | | ✓ | ADP, DF |
| 6-c | Six-months professional trainings to all enrolled intermediate or graduation student of arts and science disciplines to increase their productive absorption in local economy | | | ✓ | | ✓ | PPP |
| 6-d | Establish working forums in professional institutions for entrepreneurship and increase IT proficiency among all professional degree students | | | ✓ | ✓ | | PPP |
| 7 | Regularization of all small, medium, and large businesses within Faisalabad and carryout annual industry census | ✓ | | | ✓ | | ADP |

| Sr. No. | Project | Timeline Ranking | | | Priority Ranking | | Mode of Financing |
|---------|--|------------------|-----------|------|------------------|--------|-------------------|
| | | Short Term | Long Term | Both | High | Medium | |
| 8 | Provision of public utilities in all housing, industrial and commercial units | | | ✓ | | ✓ | OSR, LTB |
| 9 | Establish Faisalabad Dry Port with high-tech and modern infrastructure provision and computerized record keeping | | ✓ | | | ✓ | OSR, PPP, LTB |
| 10 | Develop large areas for warehouses and cold storages equipped with modern facilities, and computerized record keeping | | ✓ | | | ✓ | OSR, PPP |
| 11 | Provision of parking spaces with large and modern workshop facilities. | | ✓ | | | ✓ | OSR, PPP |
| 12 | Implementation of development cess and maintenance charges at local level on all the residential, industrial and commercial units. Set user charges for warehouse services, cold storages, parking lots. | | ✓ | | | ✓ | OSR |
| 13 | Establish Faisalabad Expo Centre | | ✓ | | | ✓ | PPP, LTB |
| 14 | Development of auto parts market | | ✓ | | | ✓ | PPP, LTB |
| 15 | Development of slaughterhouse | | ✓ | | | ✓ | ADP, LTB |
| 16 | Establish professional and vocational training and research institutes for each major sector like textile, agriculture, IT, electronics, and telecommunication | ✓ | | | ✓ | | PPP |
| 17 | Establish separate computer, laptop, and accessories market | | ✓ | | | ✓ | PPP, LTB |
| 18 | Develop a data and research center for record keeping of all social, economic, and physical characteristic and infrastructure in Faisalabad with the best use of technology | | ✓ | | ✓ | | OSR, LTB |