

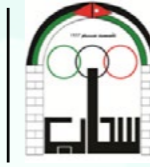
SAHAB CITY-WIDE PUBLIC SPACE ASSESSMENT

RETHINKING SAHAB PROJECT

Volume 1 April, 2026



Kanton Basel-Stadt



Kanton Basel-Stadt

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RETHINKING SAHAB PROJECT: Urban Greening for a Resilient and Sustainable Future

SAHAB CITY-WIDE PUBLIC SPACE ASSESSMENT

United Nations Human Settlements Programme

FOREWORD

from Head of UN-Habitat Jordan Office

Urban greening stands out as a comprehensive pathway to building resilient and sustainable cities in Jordan. UN-Habitat supports local governments in strengthening policies, plans, and designs that promote greener, more inclusive, and more equitable urban environments—thereby advancing initiatives that foster resilient communities.

Under the RISE UP Programme, and with funding from the Spanish Agency for International Development Cooperation (AECID), UN-Habitat and the Sahab Municipality developed a Multi-layered Vulnerability Profile (MVA) for the city of Sahab. This profile laid the groundwork for collaborative efforts to manage rapid urban growth while addressing environmental degradation, a challenge increasingly evident in Jordanian cities.

The MVA revealed that Sahab's rapid industrialization and population expansion have intensified environmental and health risks. Air quality is severely compromised by industrial emissions, heavy traffic, and dust from stone-cutting sites, with pollutant levels exceeding WHO guidelines by a significant margin. These conditions pose serious risks of respiratory and cardiovascular diseases for residents. At the same time, the city suffers from a severe shortage of accessible green spaces.

The MVA recommended expanding green areas, strengthening ecological connectivity, establishing buffer zones around industrial sites, and advancing air quality management, flood resilience, and public health interventions. Building on these findings, the Sahab Urban Resilience Action Plan was developed, identifying 51 priority actions, 10 of which were deemed urgent. Foremost among these was the promotion of urban greening to mitigate pollution, reduce heat stress, and enhance overall livability in Sahab.

In response, UN-Habitat Jordan, Sahab Municipality, and the Canton of Basel-Stadt launched the project "Rethinking Sahab: Urban Greening for a Resilient and Sustainable Future." The project's overarching goal is to create a resilient, sustainable, and healthy urban environment in Sahab, particularly in vulnerable areas with high concentrations of refugees. It does so by embedding greening strategies into city planning,

strengthening institutional and community capacities, and developing inclusive public spaces that improve quality of life while reducing environmental pressures.

This Public Space City-Wide Assessment for Sahab examines the current state of public spaces across three key dimensions: Environmental Quality; Inclusivity; and Connectivity and Accessibility. Using a multilayered, multidimensional approach, it identifies priority areas for urban greening and provides an evidence-based foundation to guide the development of the forthcoming Green Public Space Plan for the city.

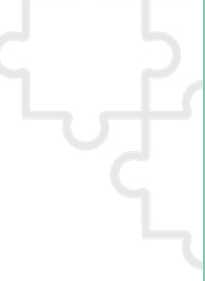
We call upon international organizations, donors, and the private sector to leverage this report as a framework for future initiatives. By working collectively, we can re-imagine Sahab as a green, resilient, inclusive, and sustainable city, one that can serve as a model for urban resilience and green transformation in Jordan and beyond.

We extend our sincere gratitude to the Canton of Basel-Stadt and to our governmental partners in Jordan for their invaluable support in making this initiative possible.



Eng. Deema Abu Thiab

Head of Programme
UN-Habitat Jordan Office



Abbreviations

AECID	Agency for International Development Cooperation
AI	Aerosol Index
AIE	Abdullah II Ibn Al-Hussein Industrial Estate
DLS	Department of Lands and Survey
DoS	Department of Statistics
GAM	Greater Amman Municipality
GIS	Geographic Information System
GOJ	Government of Jordan
GPSP	Green Public Space Plan
JOHUD	Jordanian Hashemite Fund for Human Development
JNUP	Jordan National Urban Policy
MVA	Multi-layered Vulnerability Assessment
PV	Photovoltaic
RISE-UP	Resilient Settlements for the Urban Poor
SADC	Swiss Agency for Development and Cooperation
SDG	Sustainable Development Goal
SEAP	Sahab Environmental Action Plan
SM	Sahab Municipality
SUDS	Sustainable Urban Drainage System
UHI	Urban heat island
UNFCCC	United Nations Framework Convention on Climate Change
UN-HABITAT	United Nations Human Settlements Programme
WHO	World Health Organization

Definition of Terminologies

Liwa: refers to the Ministry of Interior's first division after the governorate.

Qada: refers to the Ministry of Interior's second division after the liwa.



01

INTRODUCTION

17

- 1. 1. Overview 18
- 1. 2. Methodology 20
- 1. 3. Sahab at a Glance 22
- 1. 4. City Governance and Administration Structure 24
- 1. 5. Demographic Profile and Population Density 26
- 1. 6. Landuse 28

02

PUBLIC SPACE IN CONTEXT

31

- 2. 1. Sahab's Urban Footprint: Built-Up vs. Open Areas 32
- 2. 2. Typologies of Public Spaces in Sahab 34
 - 2. 2. 1. Streets Typology 36
 - 2. 2. 2. Open Spaces Typology 38
 - 2. 2. 3. Public Facilities Typology 40
- 2. 3. Quality and Performance of the Public Space Network 42
- 2. 4. Management and Institutional Framework for Public Spaces 44

03

PUBLIC SPACES ASSESSMENT

47

- 3. 1. Introduction 48
- 3. 2. Dimension 1: Environmental Quality 50
 - 3. 2. 1. Comfort 52
 - 3. 2. 2. Green 62
 - 3. 2. 3. Safety 96
 - 3. 2. 4. Overall Assessment of Environmental Quality Dimension 104
- 3. 3. Dimension 2: Inclusivity 106
 - 3. 3. 1. Vibrancy 108
 - 3. 3. 2. Users 118
 - 3. 3. 3. Amenities 120
 - 3. 3. 4. Overall Assessment of Inclusivity Dimension 128
- 3. 4. Dimension 3: Connectivity and Accessibility 130
 - 3. 4. 1. Connectivity 132
 - 3. 4. 2. Infrastructure 140
 - 3. 4. 3. Overall Assessment of Connectivity and Accessibility Dimension 148
- 3. 5. Conclusion: Multi-Dimension Assessment of Sahab's Public Space Network 150

04

STAKEHOLDER ENGAGEMENT

153

- 4. 1. Validation Workshop 154

05

CITY TO CITY KNOWLEDGE EXCHANGE

159

- 5. 1. Introduction 160
- 5. 2. Lessons from Basel-Stadt: Inspiring a Greener Future for Sahab 162
- 5. 3. Transferable Ideas from Basel to Sahab 164
- 5. 4. Learning from Freiburg: Pathways to a Green Sahab 174

06

STRATEGIC RECOMMENDATIONS

179

- 6. 1. From Evidence to Action: Innovative Pathways for a Green, Inclusive, and Resilient Sahab 180
- 6. 2. Integrated Strategic Recommendation Matrix 182

ANNEX

185

ENDNOTES

199

07'S 08 CONTENTS



01

INTRODUCTION

Fig. 1: Rethinking Sahab Project Approach and Phases.....	19
Fig. 2: Images showing Monuments on Roundabouts in Sahab City.....	22
Fig. 3: Main Landmarks in Sahab City.....	23
Fig. 4: Sahab Municipality's Organisational Chart.....	24
Fig. 5: Administrative Boundaries in Sahab City.....	25
Fig. 6: Population Growth over Three Decades in Sahab Liwa (SM, 2024).....	26
Fig. 7: Population Distribution by Nationality in Sahab Liwa (SM, 2024).....	26
Fig. 8: The Population Pyramid of Sahab Liwa (DoS, 2017).....	26
Fig. 9: Population Density in Sahab City.....	27
Fig. 10: Land use of regulated area within Sahab Municipality Administrative Boundary.....	28
Fig. 11: Sahab City Landuse.....	29

02

PUBLIC SPACE IN CONTEXT

Fig. 12: Built-up Versus Open Spaces in Sahab City.....	32
Fig. 13: Open Spaces Area Percentage within Each Neighbourhood.....	32
Fig. 14: Solid-Void Map in Sahab City.....	33
Fig. 15: Share of Public Spaces in Sahab City.....	34
Fig. 16: Area Percentage of Public Spaces within Each Neighbourhood.....	34
Fig. 17: Recreational Facilities in Sahab City.....	35
Fig. 18: One-Way and Two-Way Distribution of Streets in Sahab.....	36
Fig. 19: Street Network Classification in Sahab.....	37
Fig. 20: Share of Open Spaces in Sahab City.....	38
Fig. 21: Public Owned Vacant Land in Sahab.....	38
Fig. 22: Open Public Spaces in Sahab.....	39
Fig. 23: Public Facilities in Sahab.....	41
Fig. 24: Area Percentage of Public Space Typologies in Each Neighbourhood.....	42
Fig. 25: Public Space Network in Sahab.....	43
Fig. 26: Percentage of Public Owned Lands in Sahab.....	44

03

PUBLIC SPACES ASSESSMENT

Fig. 27: Public Space Assessment Methodology.....	49
Fig. 28: Environmental Quality Sub Dimensions and Indicators.....	51
Fig. 29: Air Quality and Odours Assessment - Day time.....	52
Fig. 30: Air Quality and Odours Assessment - Night time.....	52
Fig. 31: Distribution of Noise Levels across Streets.....	53
Fig. 32: Noise Assessment.....	53
Fig. 33: View Assessment.....	53
Fig. 34: Image of a street rated as high discomfort in the central area of Sahab, near the public transportation hub. © Sahab Municipality Team.....	54
Fig. 35: Assessment of Comfort Levels across Streets.....	55
Fig. 36: Assessment of Comfort Levels across Open Spaces.....	57

Fig. 37: Assessment of Comfort Levels across Public Facilities.....	59
Fig. 38: Visual Disturbances Categories.....	60
Fig. 39: Percentages of Indicators Influencing Overall Comfort within the Public Space Network.....	60
Fig. 40: Unpleasant Odours Causes Categories.....	60
Fig. 41: Overall Assessment of Comfort Levels in All Public Space Typologies.....	61
Fig. 42: Satellite-Based Assessment of Green Coverage in Sahab City.....	63
Fig. 43: Percentage of Streets with Moderate to High Green Elements Presence (Scores 2 & 3) by Neighborhood.....	64
Fig. 44: Images of Flora Observed along Sahab's Streets. © Sahab Municipality Team.....	64
Fig. 45: Field Assessment of Green Elements Presence in Streets.....	65
Fig. 46: Images of Flora Observed along Sahab's Open Spaces © Sahab Municipality Team.....	74
Fig. 47: Assessment of Green Elements Presence across Open Spaces.....	75
Fig. 48: Images of Flora Observed along Sahab's Public Facilities.....	82
Fig. 49: Number/Type of Public Facilities that lack any green elements.....	82
Fig. 50: Assessment of Green Elements Presence in Public Facilities.....	83
Fig. 51: Overall Assessment of Green Elements Presence in Sahab's Public Space Network.....	95
Fig. 52: Examples of streets in Sahab lacking basic safety measures for walking and cycling © Sahab Municipality Team.....	96
Fig. 53: Percentage of unlit streets in Sahab City.....	96
Fig. 54: Assessment of Safety Features Presence across Streets.....	97
Fig. 55: Number of open spaces lacking basic safety features, including lighting, security cameras, and/or on-site security personnel.....	98
Fig. 56: Assessment of Safety Features Presence across Open Spaces.....	99
Fig. 57: Number of public facilities lacking basic safety features, including lighting, security cameras, and/or on-site security personnel.....	100
Fig. 58: Number of public facilities having only one safety feature.....	100
Fig. 59: Assessment of Safety Features Presence across Public Facilities.....	101
Fig. 60: Distribution of the public space network by safety classification.....	102
Fig. 61: Overall Assessment of Safety Features Presence in All Public Space Typologies.....	103
Fig. 62: Environmental Quality Performance Categories of Public Spaces by Area per Neighborhood.....	104
Fig. 63: Overall Assessment of Environmental Quality in All Public Space Typologies.....	105
Fig. 64: Inclusivity Sub Dimensions and Indicators.....	107
Fig. 65: Sahab's Vibrancy Assessment - Day time.....	108
Fig. 66: Sahab's Vibrancy Assessment - Night time.....	108
Fig. 67: Dominant Nature of Streets.....	109
Fig. 68: Streets used by Heavy Industrial Vehicles.....	109
Fig. 69: Presence of Informal Activities Along Sidewalks.....	110
Fig. 70: Assessment of Vibrancy Levels across Streets.....	111
Fig. 71: Factors Contributing to the Vibrancy in Open Spaces.....	112
Fig. 72: Open Spaces Vibrancy Assessment- Day time.....	112
Fig. 73: Open Spaces Vibrancy Assessment - Night time.....	112
Fig. 74: Assessment of Vibrancy Levels across Open Spaces.....	113
Fig. 75: Number/Type of Public Facilities that have low and very low vibrancy levels (score 0 and 1).....	114
Fig. 76: Assessment of Vibrancy Levels across Public Facilities.....	115
Fig. 77: Factors Contributing to the Overall Vibrancy within the Public Space Network.....	116
Fig. 78: Overall Assessment of Vibrancy Levels in All Public Space Typologies.....	117
Fig. 79: Users Assessment per Typology.....	118
Fig. 80: Overall Assessment of Users in All Public Space Typologies.....	119



Fig. 81: Presence of Essential Amenities in Streets..... 120

Fig. 82: Assessment of Amenities Provision Adequacy across Streets..... 121

Fig. 83: Presence of Essential Amenities in Open Spaces..... 122

Fig. 84: Assessment of Amenities Provision Adequacy across Open Spaces..... 123

Fig. 85: Number/Type of Public Facilities with Low or No Adequacy of Amenity Provision (Scores 0 and 1)..... 124

Fig. 86: Presence of Essential Amenities in Public Facilities..... 124

Fig. 87: Assessment of Amenities Provision Adequacy across Public Facilities..... 125

Fig. 88: Percentage of Public Space Elements Equipped with Key Amenities (Lighting, Shading, Garbage Bins, and Benches)..... 126

Fig. 89: Overall Assessment of Amenities Provision Adequacy in All Public Space Typologies..... 127

Fig. 90: Inclusivity Performance Categories of Public Spaces by Area per Neighborhood..... 128

Fig. 91: Overall Assessment of Inclusivity in All Public Space Typologies..... 129

Fig. 92: Accessibility Sub Dimensions and Indicators..... 131

Fig. 93: Degree of Street Connectivity Across Sahab Based on Hexagon Analysis..... 132

Fig. 94: Assessment of Connectivity across Streets..... 133

Fig. 95: Proximity Coverage across Open Spaces per Type..... 134

Fig. 96: Assessment of Connectivity across Open Spaces..... 135

Fig. 97: Proximity Coverage across Public Facilities per Type..... 136

Fig. 98: Assessment of Connectivity across Public Facilities..... 137

Fig. 99: Connectivity Performance Categories of Public Spaces by Area per Neighborhood..... 138

Fig. 100: Assessment of Connectivity in All Public Space Typologies..... 139

Fig. 101: Example of a main street that lacks efficient walkability infrastructure in Sahab..... 140

Fig. 102: Assessment of Infrastructure across Streets..... 141

Fig. 103: Image of the walkability infrastructure in Sahab's playground..... 142

Fig. 104: Assessment of Infrastructure across Open Spaces..... 143

Fig. 105: Number/Type of Public Facilities that lack inclusive walkability infrastructure (score 0)..... 144

Fig. 106: Assessment of Infrastructure across Public Facilities..... 145

Fig. 107: Assessment of Infrastructure in All Public Space Typologies..... 147

Fig. 108: Connectivity and Accessibility Performance Categories of Public Spaces by Area per Neighborhood..... 148

Fig. 109: Overall Assessment of Connectivity and Accessibility in All Public Space Typologies..... 149

Fig. 110: Conclusion Map: Multi-dimension Assessment of Sahab's Public Space Network..... 151

04

STAKEHOLDER ENGAGEMENT..... 153

Fig. 111: Images from the workshop..... 155

Fig. 112: Recurring recommended intervention roundabout location..... 156

Fig. 113: Mentimeter Pilot Project Site Selection Voting Results..... 156

Fig. 114: Selected Pilot Project Site based on Key Stakeholders..... 157

CITY TO CITY KNOWLEDGE EXCHANGE

Fig. 115: Images from the Knowledge Exchange Mission in the Canton of Basel-Stadt..... 161

Fig. 116: Innovative ideas from the Knowledge Exchange Mission in the Canton of Basel-Stadt..... 163

Fig. 117: Green Smart Pot in Pedestrian Market Street – Basel..... 164

Fig. 119: Prince Hassan Street in Sahab..... 164

Fig. 118: Green Pot in a Plaza – Basel..... 164

Fig. 120: Street Greening in Basel..... 165

Fig. 121: A Street in Sahab..... 165

Fig. 122: Example of a Green Shade Structure in the Canton of Basel-Stadt..... 166

Fig. 123: Example of a Green Shade Structure in the Canton of Basel-Stadt..... 166

Fig. 124: Vertical Greening of Elevations in the Canton of Basel-Stadt..... 167

Fig. 125: Children participating in hands-on gardening education..... 168

Fig. 126: Image for leisure gardens in the Canton of Basel-Stadt..... 168

Fig. 127: Image for the Storage Room at "Kraut & Rüben" Community Garden..... 168

Fig. 128: Image from the "Kraut & Rüben" Community Garden in the Canton of Basel-Stadt..... 169

Fig. 129: Image showing the Composting Practices at "Kraut & Rüben" Community Garden..... 170

Fig. 130: Water harvesting techniques in community gardens in Basel..... 171

Fig. 131: Checklist used to engage children in identifying their needs and preferences for public park design..... 172

Fig. 132: Image for the under ground water tank in Margarethenparkin Basel..... 172

Fig. 133: Informational signage displayed alongside plants in public spaces..... 172

Fig. 134: Play furniture in Kleinbasel park in Basel..... 172

Fig. 135: Play furniture in Kleinbasel park in Basel..... 173

Fig. 136: Play Area in Margarethenpark in Basel..... 173

Fig. 137: Dedicated bike racks integrated into the pavement..... 174

Fig. 138: Image showing dedicated lane for bikers in Freiburg..... 174

Fig. 139: Image comparing the use of a parking lot for cars versus bicycles..... 175

Fig. 140: Image illustrating different modes of transport in Freiburg..... 175

Fig. 141: The new town hall in Freiburg showing the use of PV Cells..... 176

Fig. 142: Images of green shade structures in Freiburg..... 176

Fig. 143: Image of a movable green stage at a plaza in Freiburg..... 176

Fig. 144: Image illustrating vertical greening of facades in Freiburg..... 177

STRATEGIC RECOMMENDATIONS

Fig. 145: Spatial Prioritization of Sahab's Public Space Network..... 181

06



Executive Summary

This document presents a comprehensive overview of the results of the City-Wide Public Space Assessment in Sahab. Developed by the UN-Habitat Global Public Space Programme, the [City Wide Public Space Assessment toolkit](#) is designed to assist local governments in gathering data on the condition of their public spaces, identifying priority areas for creating new spaces or improving existing ones. The assessment is part of the "Rethinking Sahab" project implemented in partnership with the Canton of Basel-Stadt and Sahab Municipality, that aims to transform Sahab into a resilient, sustainable, and healthy city by integrating urban greening and inclusive public spaces into its development framework.

Methodology

To capture the diversity of the urban fabric throughout the assessment, existing public spaces were classified into three typologies, streets: open spaces and public facilities. Each typology was assessed across three key dimensions, Environmental Quality, Inclusivity, and Connectivity and Accessibility, supported by detailed subdimensions. These analyses were synthesized into citywide maps capturing overall environmental performance, inclusivity, and accessibility/connectivity across all typologies.

Typologies

Findings show Sahab's public realm remains highly fragmented and unevenly distributed, lacking the integration needed to function as a cohesive network. Streets are designed primarily for vehicles rather than people, limiting walkability and public use. Recreational spaces are scarce and concentrated almost entirely in the Salboud neighbourhood, leaving much of the city under-served. Public facilities also lack accessible, community-oriented open areas. This fragmented approach reflects a broader gap in strategic planning, where public spaces are treated as isolated sites rather than an interconnected system. While this limits accessibility, inclusion, and environmental performance, it also presents a major opportunity: by reimagining streets and open areas as linked, people-centred spaces, Sahab can expand greenery, improve mobility, strengthen climate resilience, and create a healthier, more vibrant urban environment.

Dimensions

Environmental Quality was assessed across three subdimensions; comfort, greenery, and safety; each measured through specific indicators. Comfort was evaluated using survey data on noise, air quality, odours, and visual disturbances. Greenery was assessed through satellite analysis of tree canopy coverage and field observations documenting the presence and types of vegetation. Safety was analysed using indicators such as night-time lighting, security cameras, and on-site security personnel.

The combined assessment of comfort, greenery, and safety reveals clear spatial clusters of low environmental quality across Sahab, particularly in the industrial and stone-cutting zones, downtown, and the central corridor of the Southern Neighbourhood. These areas experience poor air quality, high dust and noise levels, limited greenery, and inadequate lighting, with Downtown and the Southern Neighbourhood showing the lowest performance overall. Major mobility corridors, including Al-Azraq Road and the roads adjacent to the industrial estate, also emerge as critical stress zones. These findings highlight priority areas for intervention; especially downtown, key corridors, and transitional zones; where targeted greening, traffic management, and safety enhancements would deliver the greatest improvement to environmental quality and urban resilience.

Inclusivity was assessed through three subdimensions, vibrancy, users, and amenities, each supported by specific indicators. Vibrancy measured activity levels and diversity through field observations of user flow, types of activities, and day/night use. Users examined the presence and inclusion of different community groups, Jordanians, refugees, migrants, women, youth, and the elderly, based on survey data. Amenities evaluated the availability and condition of essential features such as seating, lighting, and waste bins through field observations. Together, these indicators reveal how well Sahab's public spaces support equitable use and social interaction.

Findings show that Sahab's public spaces are highly fragmented, with no area achieving high inclusivity due to insufficient amenities, uneven activity levels,

and limited use by diverse community groups. The most inclusive spaces are concentrated downtown, around the transport hub, and along major commercial corridors, while residential neighbourhoods exhibit low vibrancy and minimal amenities. To strengthen inclusivity, actions should enhance comfort and basic amenities; especially seating and shade; in high-traffic areas, while activating underused spaces in residential neighbourhoods through community-oriented improvements and greening. Together, these steps can expand equitable access and create a more welcoming and socially connected public space network across the city.

The Connectivity and Accessibility dimension includes two sub-dimensions, connectivity and infrastructure, each with two indicators. Connectivity is measured through degree of connectivity of the street and public space network, and proximity coverage within a 15-minute walk. Infrastructure is assessed through presence of physical accessibility features and their condition, evaluating how well the city supports safe, inclusive pedestrian movement.

The assessment shows that only a small portion of Sahab's public space network achieves high connectivity and accessibility, with strong performance concentrated in the compact, mixed-use Downtown area. Most peripheral neighborhoods; especially Eastern, Salboud, and Western; exhibit low or no connectivity due to fragmented street layouts, long blocks, and limited pedestrian infrastructure. Despite these weaknesses, the city's spatial structure provides opportunities for improvement through targeted enhancements that strengthen continuity, safety, and inclusivity. Proposed actions prioritize creating a continuous, safe pedestrian system by upgrading main and secondary streets with sidewalks, crossings, and shading, and by transforming underused nodes; such as roundabouts and civic forecourts; into small, universally accessible green spaces.

Stakeholder Engagement and Validation

Under the patronage of Her Royal Highness Princess Basma bint Ali, a validation workshop was held on 8 December 2025. The workshop marked the official launch of the Urban Resilience Action Plan

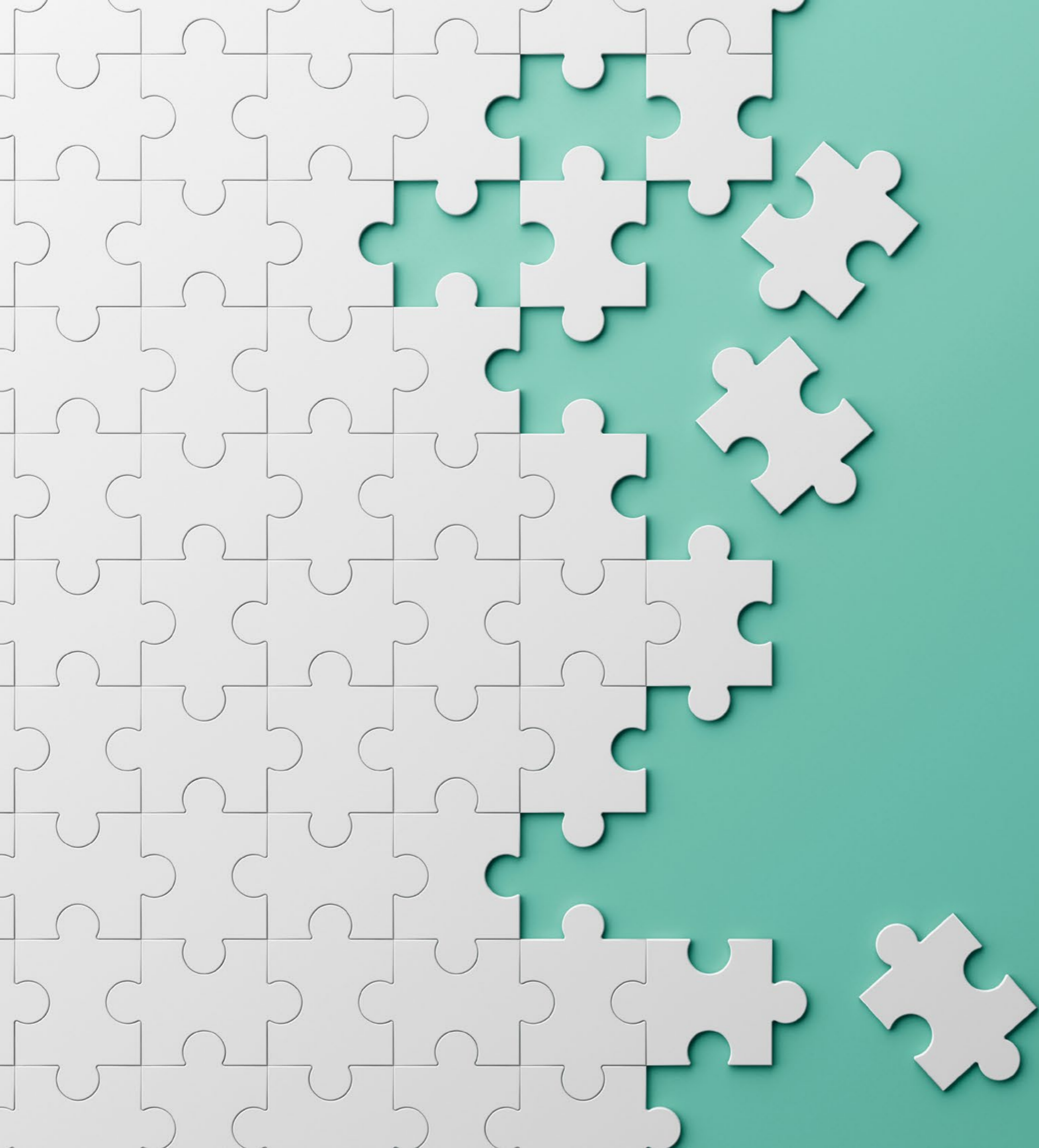
(URAP) for Sahab City, which served as the strategic framework upon which this project was developed. The workshop brought together 41 participants, including representatives from governmental entities, NGOs, and the local community.

During the workshop, the project team presented the final results of the citywide public space assessment in detail. Through interactive group work, participants validated the findings and jointly developed recommendations. The stakeholders largely confirmed the assessment results and provided recommendations that closely align with those already identified throughout the assessment. These recurring recommendations will form the basis for the preparation of Sahab's Urban Green Public Space Plan in the next step.

Finally, a Mentimeter poll was conducted to enable participants to identify the preferred site for implementing the pilot project within the scope of the "Rethinking Sahab" project. Thirty-one out of thirty-three respondents voted in favour of implementing the pilot intervention within Sahab's downtown area.

Strategic Recommendations

The Strategic Recommendations translate the findings of the Citywide Public Space Assessment into an integrated framework to guide future public space development in Sahab. The recommendations address Environmental Quality, Inclusivity, Connectivity and Accessibility through three interconnected action lenses; Enabling Systems, the Public Space Network, and Places on the Ground; to ensure that governance frameworks, spatial systems, and site-level interventions work together to deliver a coherent and inclusive public space network. Aligned with Sahab's city vision, the Jordan National Urban Policy, and the Economic Modernization Vision, the recommendations provide a clear pathway for transforming public spaces into a connected, climate-responsive, and people-centered network, and form the foundation for the forthcoming Green Public Space Plan.



01

INTRODUCTION



1. INTRODUCTION

1.1. OVERVIEW

Jordan's rapid population growth, urbanization, and refugee influx have placed intense pressure on cities to provide equitable access to infrastructure and public space. Sahab, an industrial hub with a population exceeding 128,936 residents, including Jordanians, refugees, and labour migrants, reflects these pressures. Despite its aspiration to become the Middle East's first "Green City," Sahab faces major barriers caused by rapid industrialization, including air pollution, urban heat islands, and shrinking green cover. The city's limited per capita green space of 0.275 m² leaves most residents without access to safe recreational areas, undermining community well-being, limiting social cohesion, and intensifying environmental degradation.

According to research conducted in 2021¹, around the integration of industrial areas into the urban setting of Sahab, looking specifically at the opportunity of utilizing a spatial strategy of "Smart Gradation between Industrial and Residential Uses", proposed a transect model that considers the gradual integration of industrial uses within residential areas based on their characteristics, impact on the urban context, and potential benefits for the public interest. It relies on the creation of green buffers to mitigate impact. This is especially important in the case of Sahab when considering that residential areas account for the highest percentage of landuse, at approximately 64%, followed by industrial uses at 13%, with parks covering only 0.1% of the city.

IMPORTANCE OF PUBLIC SPACE

According to the Global Public Space tool-kit published by UN-Habitat, "Public spaces; including streets; are, and must be seen as, multi-functional areas for social interaction, economic exchange, and cultural expression among a wide diversity of people." In contexts such as Sahab, where environmental degradation and social fragmentation intersect, public spaces can play a transformative role. They provide platforms for interaction between host and refugee communities, foster economic activity, and strengthen cultural ties. Urban design and planning are therefore not merely technical exercises but key instruments to nurture community ownership, civic pride, and sustainable growth.

GLOBAL PUBLIC SPACE PROGRAMME

UN-Habitat's Global Public Space Programme, launched in 2012, promotes safe, inclusive, and accessible public spaces as vital elements for achieving sustainable urban development. It assists national and local governments in designing, implementing, and managing public spaces, operating through partnerships with municipalities,

civil society, and communities to ensure participatory approaches and knowledge exchange.

CITY-WIDE PUBLIC SPACE ASSESSMENT

UN-Habitat's [City-Wide Public Space Assessment Tool-kit](#) offers a structured and participatory approach to help cities evaluate and improve their public spaces by identifying gaps, inequities, and opportunities.

Under the Rethinking Sahab Project, this report serves as the main output of Phase 1-A. This phase aims to map and evaluate existing public spaces, identify deficiencies, and propose targeted improvements. The assessment is structured around three key dimensions; Environmental Quality; Inclusivity, and Connectivity and Accessibility, which guides the mapping and analytical processes. The findings culminates in a comprehensive evaluation of Sahab's public space network, identifying actionable recommendations and potential sites for urban greening interventions. The results will inform the development of the Green Public Space Plan (Phase 1-B), that guides future interventions and supports Sahab's ambition to evolve into a more connected, sustainable, and resilient Green City.

PROJECT RATIONALE AND OBJECTIVES

The Rethinking Sahab initiative implemented in partnership with the Canton of Basel-Stadt and Sahab Municipality, arises from the urgent need to address Sahab's environmental vulnerabilities and social disparities. The [2024 Multilayered Vulnerability Assessment \(MVA\)](#) revealed acute challenges, including severe air pollution, limited green cover, flood risks, and biodiversity loss, all compounded by rapid industrialization and population growth.

The project aims to transform Sahab into a resilient, sustainable, and healthy city by integrating urban greening and inclusive public spaces into its development framework. It focuses on three main outcomes: strengthening municipal governance for green urban development; enhancing community resilience, social cohesion, and well-being through safe and inclusive green spaces, waste recycling, and urban gardening; and increasing public awareness of urban greening, resource efficiency, and their role in improving health, safety, and climate resilience.

By integrating these objectives, the project not only supports Sahab's local vision of becoming the Middle East's first Green City, but also contributes to Jordan's broader commitments under the National Urban Policy, Green Growth Plan, and the Sustainable Development Goals.

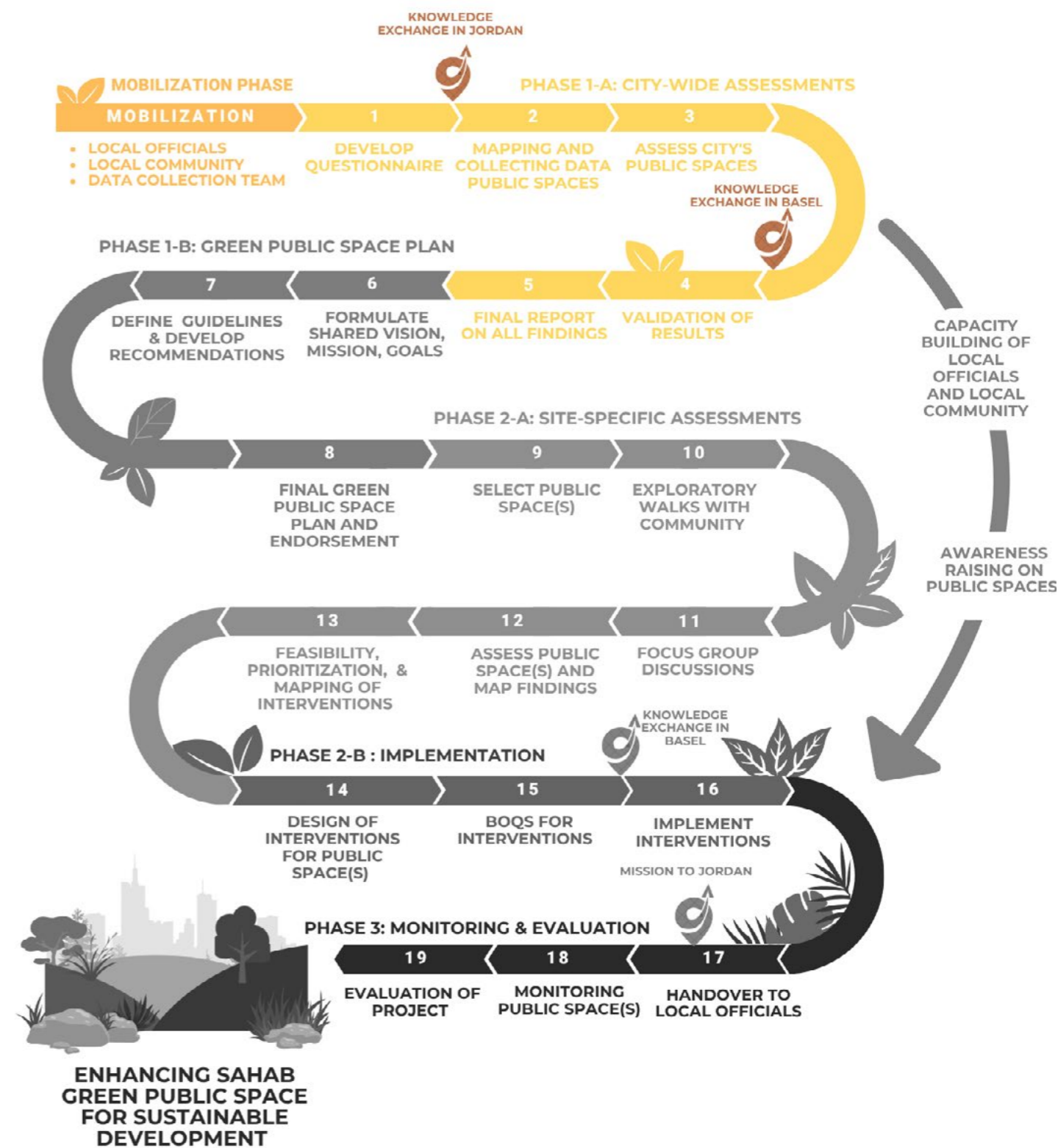


Fig. 1: Rethinking Sahab Project Approach and Phases.



1. 2.METHODOLOGY



DEVELOPMENT OF THE SURVEY INSTRUMENT

A tailored KoboTool Box survey tool was designed to capture comprehensive field-level information. The questionnaire integrated spatial, social, and physical indicators of public spaces, and included structured observations and community-level insights.



CAPACITY-BUILDING OF DATA COLLECTORS

Data collection was implemented jointly by the UN-Habitat team and the Sahab Municipality team. Prior to fieldwork, enumerators and municipal staff were trained on KoboTool Box and technical procedures to ensure data consistency and reliability.



COLLECTION OF FIELD DATA

Comprehensive on-ground data was collected across all the seven zones. This included surveys of public spaces, photographic documentation, geolocation of facilities, and observations of usage patterns.



CLEANING AND VALIDATION OF DATA

Collected data was carefully reviewed, cleaned, and cross-checked for completeness. Missing data was re-collected where necessary to ensure the robustness and integrity of the dataset. As part of this process, a comprehensive inventory (database) of public spaces was developed, consolidating spatial, functional, and qualitative information to support analysis, mapping, and future planning.



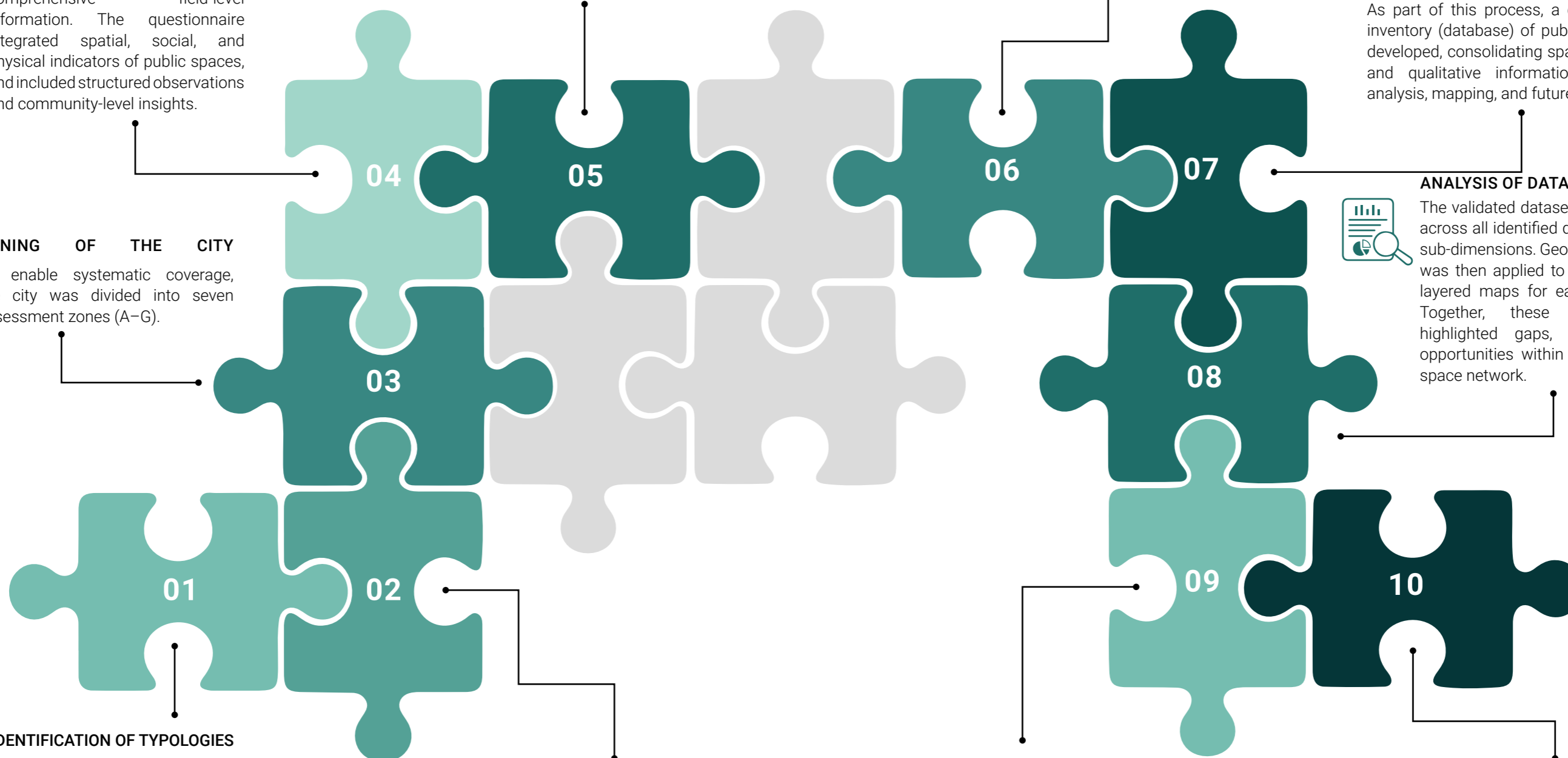
ZONING OF THE CITY

To enable systematic coverage, the city was divided into seven assessment zones (A–G).



ANALYSIS OF DATA

The validated dataset was analysed across all identified dimensions and sub-dimensions. Geospatial analysis was then applied to produce multi-layered maps for each dimension. Together, these visual tools highlighted gaps, overlaps, and opportunities within Sahab's public space network.



IDENTIFICATION OF TYPOLOGIES

The assessment began with a classification of the existing various public space typologies across Sahab, including:

- Streets
- Open Spaces
- Public Facilities.

This step provided the analytical foundation for evaluating the role, accessibility, and condition of different categories of public spaces.



SELECTION OF ANALYTICAL DIMENSIONS

Key dimensions and sub-dimensions were selected and defined to guide the data collection and analysis process. These dimensions included:

- Environmental quality: Comfort, Green, and Safety.
- Inclusivity: Vibrancy, Users, and Amenities.
- Connectivity and Accessibility: Connectivity, and Infrastructure



EVALUATION OF PUBLIC SPACE NETWORK

The study aims to assess public spaces in Sahab as an interconnected network rather than isolated elements. Data was first analysed by typology—streets, open spaces, and public facilities—and then evaluated collectively to capture the spatial and functional relationships between components and their proximity within the urban fabric. The analysis culminates in an integrated multi-dimensional findings map that illustrates the overall public space network across all typologies.



FORMULATION OF STRATEGIC RECOMMENDATIONS

Based on the analysis, evidence-based recommendations were developed to guide future interventions and provide a coherent framework for decision-making.



1. 3. SAHAB AT A GLANCE

The City of Sahab is located in the central region of Jordan, just 16 km southeast of Amman, within the Amman Governorate. It falls under the Liwa of Sahab, where it serves as the centre of governance, services, and economic activity. Sahab is the only municipality within the Liwa and is classified as a B-category municipality, covering 13.7 km²; about 2.8% of the Liwa's total area (482.7 km²).

Sahab City is recognized as one of Jordan's most important industrial hubs, home to the country's largest industrial estate; the King Abdullah II Industrial Estate (AIE); as well as numerous manufacturing and stone-cutting facilities.

Thanks to its strategic location near Amman, Sahab functions as a key commuter hub. Many residents travel daily to the capital for services, while workers from Amman and surrounding areas commute into Sahab for employment in its thriving industrial sector. This industrial base has shaped the city's economic role at both national and regional levels, while also presenting major environmental challenges, including air pollution, noise, and solid waste management.

The map on the next page highlights Sahab's key landmarks, including:

- The Grand Mosque of Sahab, a central religious and cultural landmark.
- King Abdullah II Industrial Estate (AIE), Jordan's largest and most significant industrial cluster.
- The Al Hashemite Public Park, the only formal public park in the city.
- The Playground, a community recreational space that includes a pedestrian walkway designed for families.
- The Commercial Boulevard (Prince Hassan Street), the city's main commercial axis.
- Iconic roundabouts, featuring large monuments such as the Airplane Roundabout, the Books Roundabout, and the Martyr Roundabout.
- Various monuments at major street junctions, such as the Incense Burner and the Lantern.



Fig. 2: Images showing Monuments on Roundabouts in Sahab City

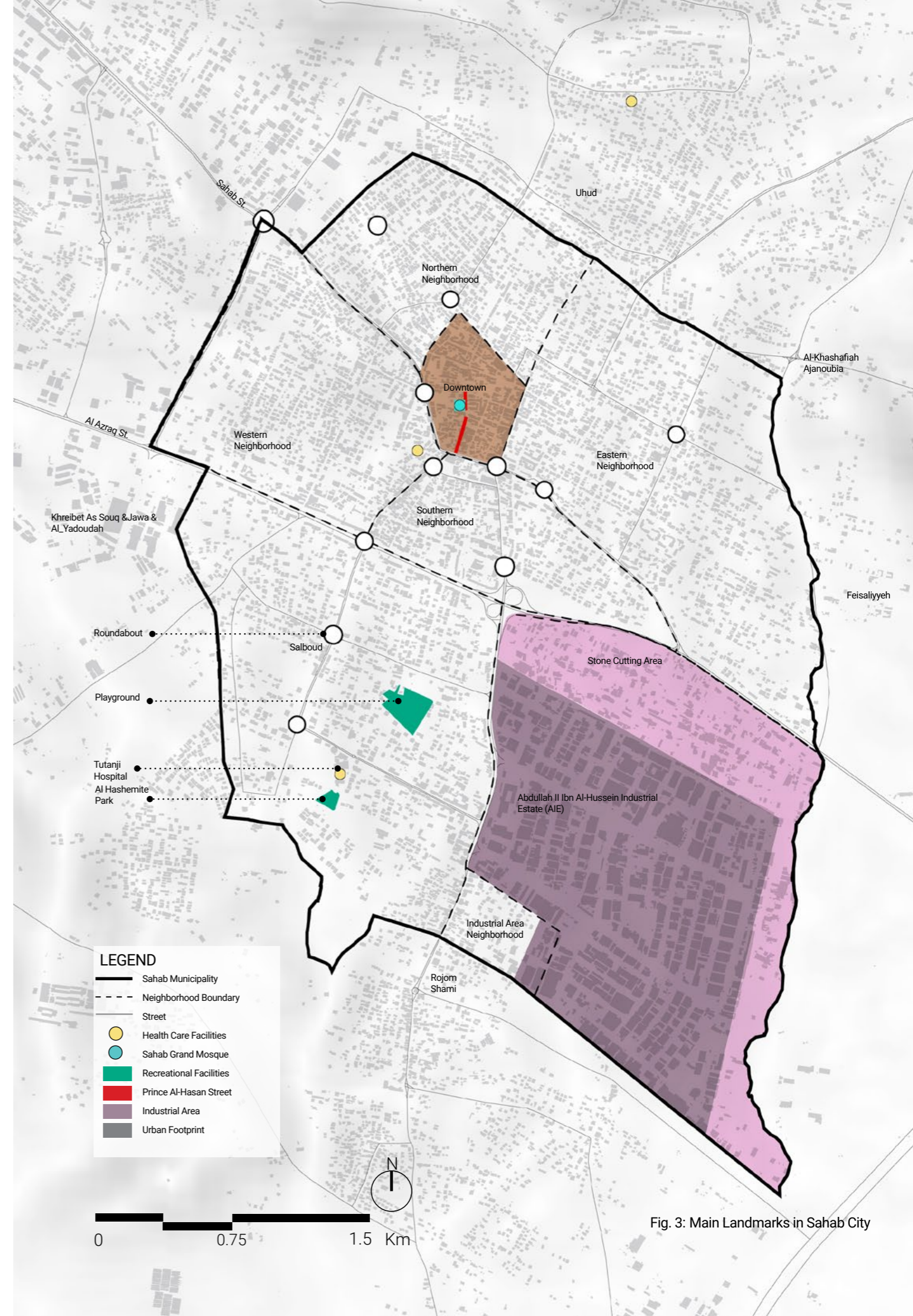


Fig. 3: Main Landmarks in Sahab City



1. 4. CITY GOVERNANCE AND ADMINISTRATION STRUCTURE

Sahab City is divided into eight main Neighbourhoods: Eastern Neighbourhood, Northern Neighbourhood, Western Neighbourhood, Southern Neighbourhood, Salboud, Industrial Neighbourhood, the downtown and the Hirafyeh Area. Seven human settlements: Sahab, Al-Abdaliyya, Zumlat Al-Ulya, Al-Khashafiyah Al-Janoubiyah, Al-Khashafiyah Al-Shamaliyah, Al-Manakhir, Qa'foor. On the other hand Sahab Municipality is divided into 12 districts: Hanu Raba, Hanu Riya, Abu Rasoom, Bir Al-Adas, Abu Sawan, Abu Sawan Raqim, Muwaris Al-Dar, Muwaris Al-Kibar, Jidar Al-Balad, Hanu Raba Raqim, Salboud, and Sarsakiyah.

Based on available GIS data, the administrative boundaries of Sahab Municipality encompass 13.7 km², with the regulated area covering almost the entire municipality. Sahab Municipality is bordered to the north by Greater Amman Municipality and to the south by Rujm Alshami and Muaqqar Municipality.

One of the major administrative and governance challenges within Sahab Municipality is the organizational separation of the Abdullah II Ibn Al-Hussein Industrial Estate (AIE). The AIE is under the control of the Jordan Industrial Estates Company, not the municipality. The fragmented management structure complicates long-term urban planning and

development strategies. The municipality's efforts to create a cohesive urban environment are undermined by the need to work around an independently managed industrial estate. This can hinder initiatives aimed at promoting sustainable development, improving transportation networks, and enhancing the overall quality of life for residents.

The Sahab Municipality Council is headed by the Mayor and composed of 10 elected members, including two women. Members are elected by residents for a four-year term, and the council serves as the principal decision-making body, responsible for approving and co-formulating municipal plans and policies.

On 6 July 2025, the Government of Jordan announced the dissolution of all municipal and governorate councils, effective the following day. In their place, interim committees were appointed to manage municipal affairs during the transition period until a new law is enacted and local elections are held.

It is important to note that this report was prepared during this interim governance phase, when municipal decision-making was being overseen by these temporary committees.

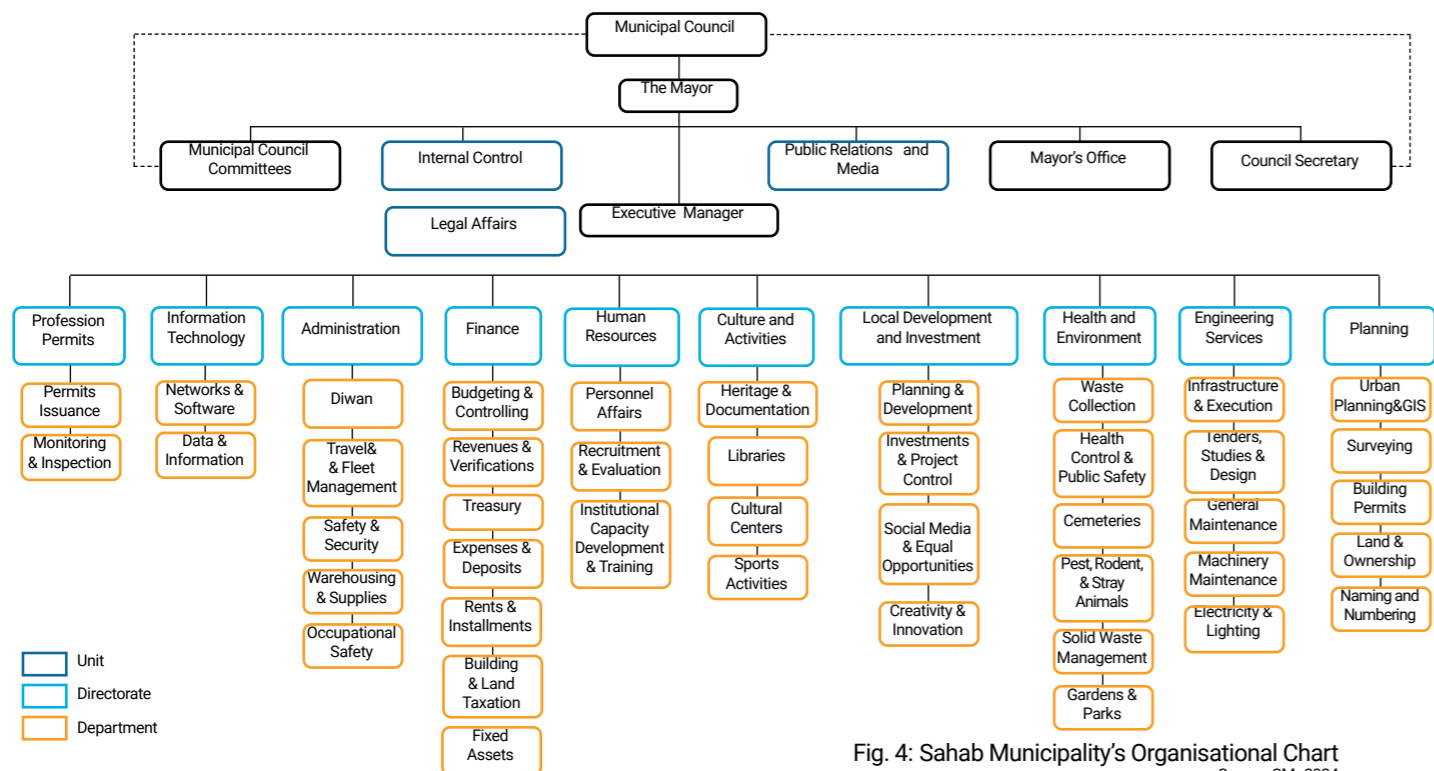


Fig. 4: Sahab Municipality's Organisational Chart
Source: SM, 2024

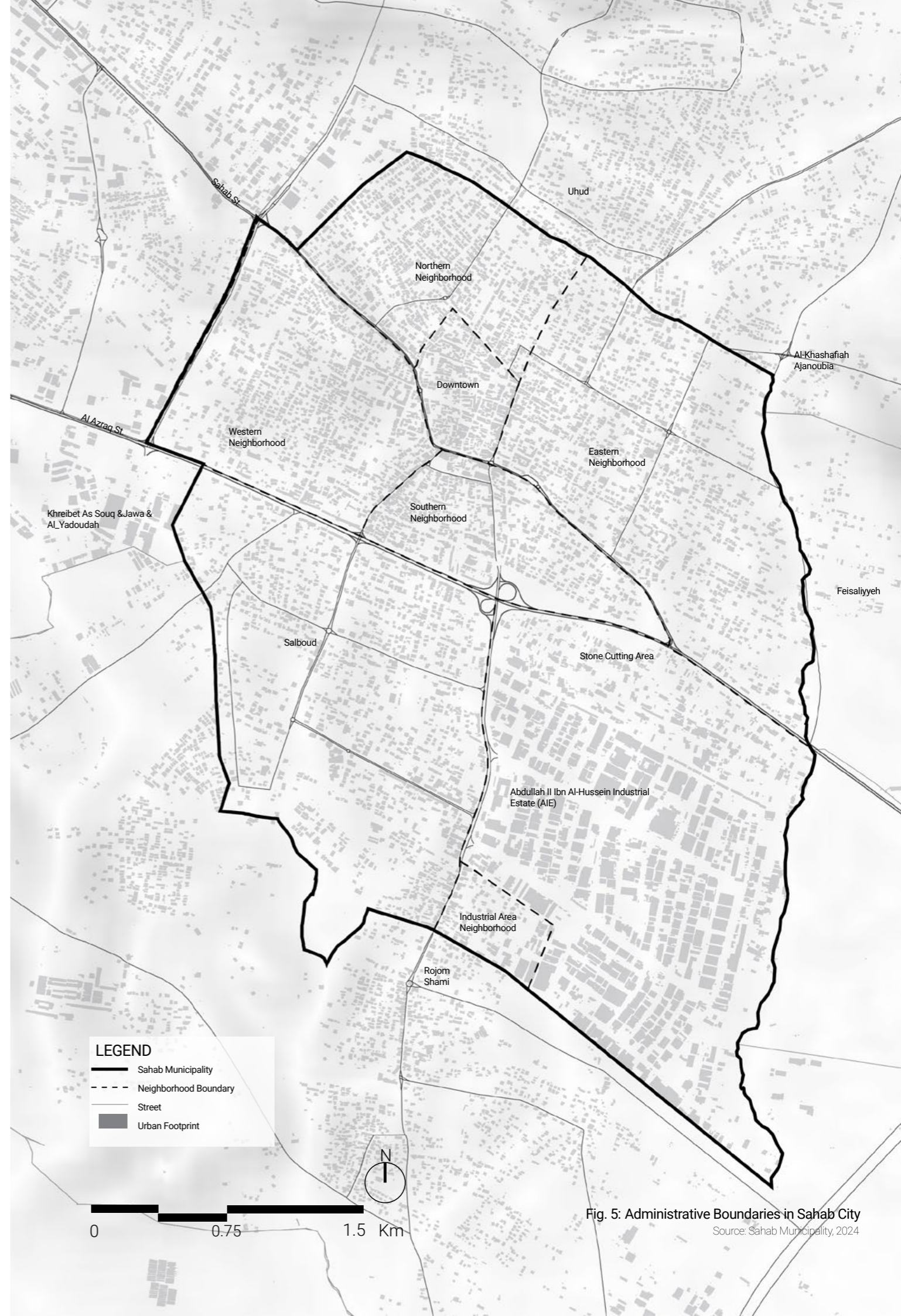


Fig. 5: Administrative Boundaries in Sahab City
Source: Sahab Municipality, 2024



1. 5. DEMOGRAPHIC PROFILE AND POPULATION DENSITY

Sahab's Liwa demographic profile is shaped by a diverse mix of populations, reflecting its role as an industrial hub. The city is home to native Jordanians, Syrian refugees, labour migrants from Southeast Asia, as well as Yemeni, Iraqi, and Egyptian expatriate communities. According to the 2015 census, the city had a population of 128,936 residents, of which 51,404 were female and 77,532 were male. This growth has been driven by both natural increase and migration, with an annual population growth rate of 2.2% (DOS, 2023) and an average household size of five persons.

The presence of Syrian refugees, who make up nearly 17% of the total population, has significantly influenced Sahab's social fabric—bringing cultural diversity while also creating challenges for social integration and resource allocation. In addition, labour migrants represent nearly 29% of the population, most of whom are employed in the industrial sector, adding another layer of demographic and socio-economic complexity.

Sahab also faces unique pressures due to its population density. While the national average is 71.9 individuals/km², and the Amman governorate records 598 individuals/km², the Sahab municipality is dramatically higher at 9,411.4 individuals/km²; making it one of the most densely populated areas in the country. The demographic dependency ratio in Sahab stands at 57.8%, slightly lower than the national average of 61.4%, reflecting a relatively larger share of the working-age population.

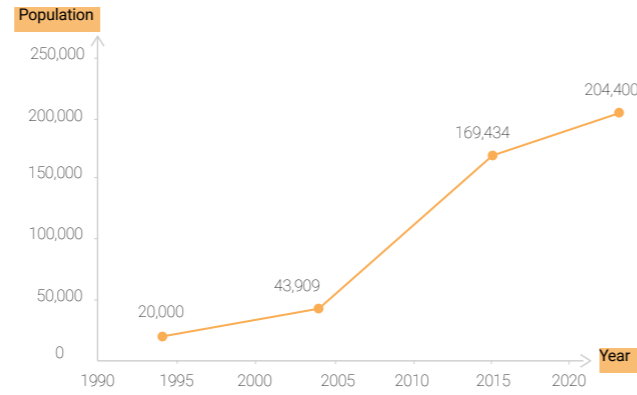


Fig. 6: Population Growth over Three Decades in Sahab Liwa (SM, 2024)

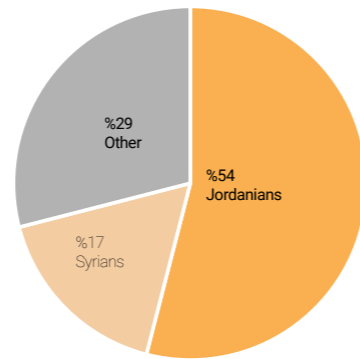


Fig. 7: Population Distribution by Nationality in Sahab Liwa (SM, 2024)

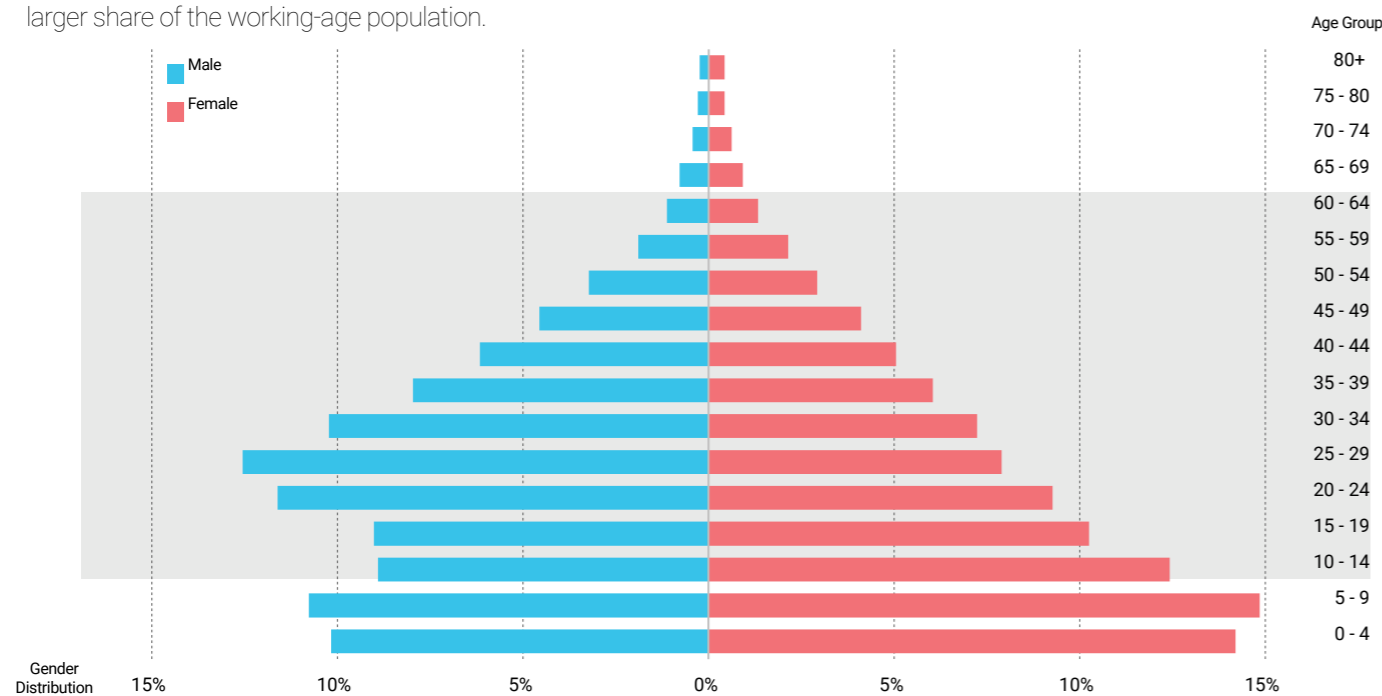


Fig. 8: The Population Pyramid of Sahab Liwa (DoS, 2017)

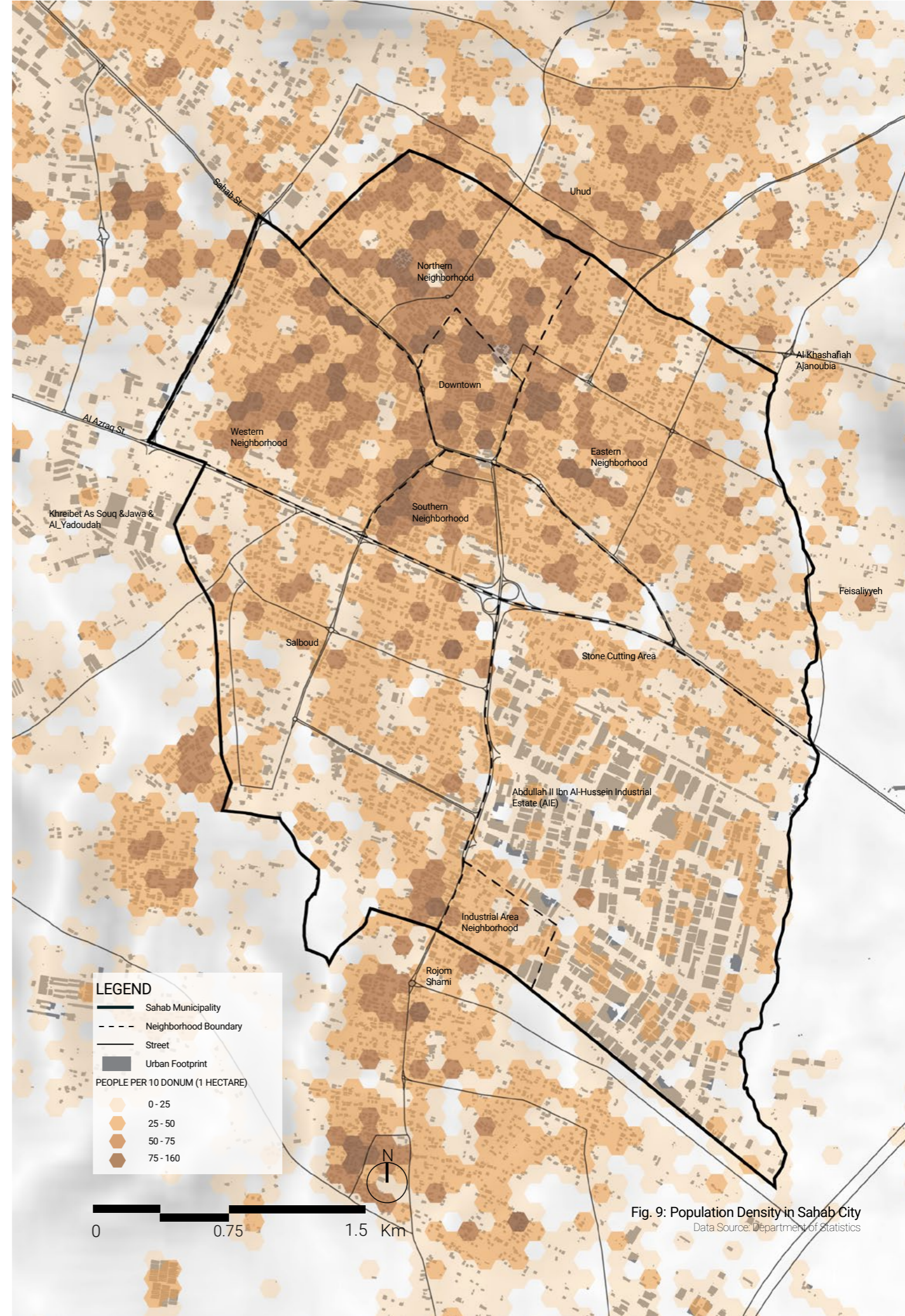


Fig. 9: Population Density in Sahab City
Data Source: Department of Statistics



1. 6. LANDUSE

Sahab City's land use distribution reveals an urban structure heavily influenced by residential dominance, concentrated industrial activities, and a pronounced lack of green spaces. Residential areas account for 64.1% of the total land as shown in the map on the next page, reflecting the city's focus on housing development to accommodate its growing population. In the Jordanian context, residential zones are categorised into seven main types: Residential types A, B, C, and D, as well as agriculture residential, rural residential, and residential with special regulation. Residential type A category represents the least affordable typology while residential type D is the most affordable one. Types A, B, and C residential zones typically allocate larger areas for setbacks compared to Type D zones, as mandated by building regulations.

In Sahab, Type B Residential zones is the most dominant land use, covering 37.9% of the city's land. This indicates a prevalence of low-to-medium density housing, which contributes to urban sprawl and inefficient land use. Type C Residential zones follow, occupying 20.3%, representing higher-density Neighbourhoods. Smaller proportions of land are allocated to Type A (5.1%) and Type D (6.7%) residential areas, reflecting diverse socioeconomic patterns. The extensive residential development is accompanied by significant environmental challenges. Outdoor spaces such as setbacks, front yards, sidewalks, and gardens are often paved by homeowners to meet private needs, such as parking or creating additional usable areas. While this practice addresses immediate household demands, it generates a series of urban challenges. The widespread conversion of permeable, green areas into paved surfaces has produced a high proportion of un-green, impermeable spaces, significantly undermining the city's environmental quality. The loss of vegetation exacerbates the urban heat island effect, elevates temperatures in densely built neighbourhoods, reduces biodiversity, and limits natural cooling. It also restricts opportunities for recreation and social interaction, weakening the social fabric of communities. In addition, impermeable surfaces intensify stormwater runoff, further straining Sahab's already limited drainage systems and heightening flood risks during heavy rainfall events. At the same time, this practice represents a lost opportunity. If preserved and enhanced as green spaces, these residential outdoor areas could play a vital role in improving air quality, providing shade, absorbing stormwater, and restoring ecological balance at the neighbourhood scale. Thus, while current practices degrade environmental and social conditions, **they also point to a critical opportunity: reclaiming residential outdoor spaces as green infrastructure that supports climate resilience while enhancing the everyday quality of life in Sahab.**

Industrial activities are another defining feature of Sahab City, occupying 13% of the total land. Key industrial zones include the King Abdullah II Ibn Al-Hussein Industrial Estate and Hirafyeh Area, located in the south-eastern part of the city. While these zones play a vital role in the country's economy, their proximity to residential Neighbourhoods presents significant challenges. Residents are exposed to air pollution, noise pollution, and potential water contamination, which pose serious public health concerns. The absence of adequate green buffers between industrial and residential areas exacerbates these impacts, further compromising the well-being of nearby communities.

Sahab's allocation of land for green spaces is critically low, with parks accounting for only 0.1% of the city's total area. Although two plots are designated as parks; both located in the eastern neighbourhoods; neither currently functions as a public park. One plot has been developed into a school, while the other is used as agricultural land on the city's periphery. This severe shortage of accessible parks limits opportunities for recreation, social interaction, and physical activity, especially in densely populated neighbourhoods, and reduces overall livability. Environmentally, the absence of greenery intensifies heat, contributes to biodiversity loss, and increases flood risks due to limited natural absorption. Addressing this gap requires reclaiming misused designated park plots, de-paving unnecessary areas, expanding park provision, and introducing permeable surfaces and green infrastructure to improve cooling, enhance air quality, and strengthen community well-being.

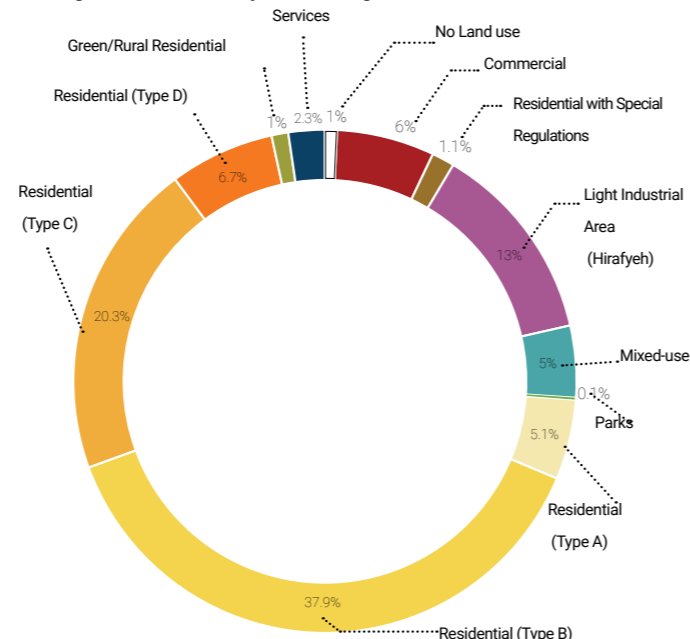


Fig. 10: Land use of regulated area within Sahab Municipality Administrative Boundary
Source: MoLA 2024

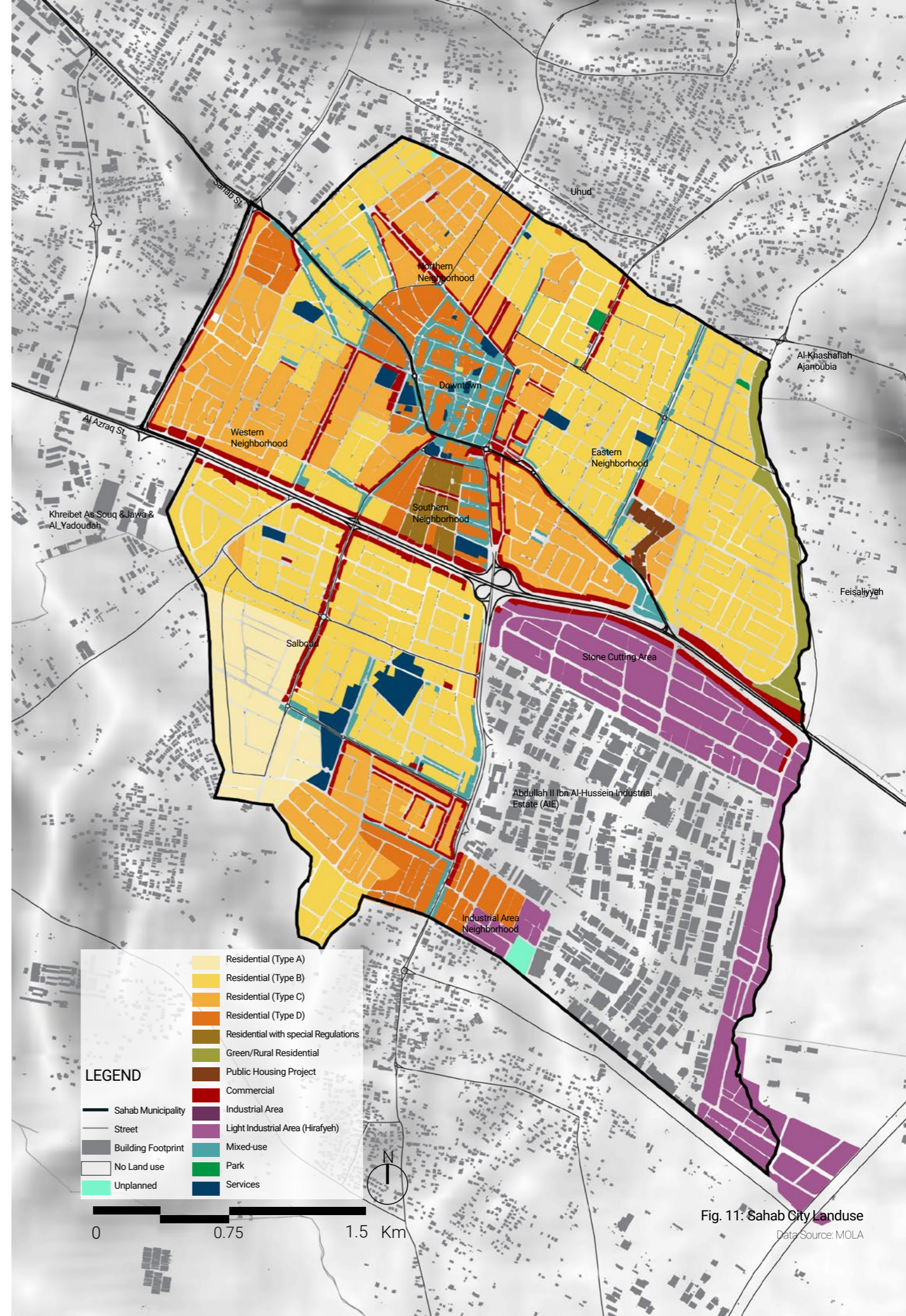
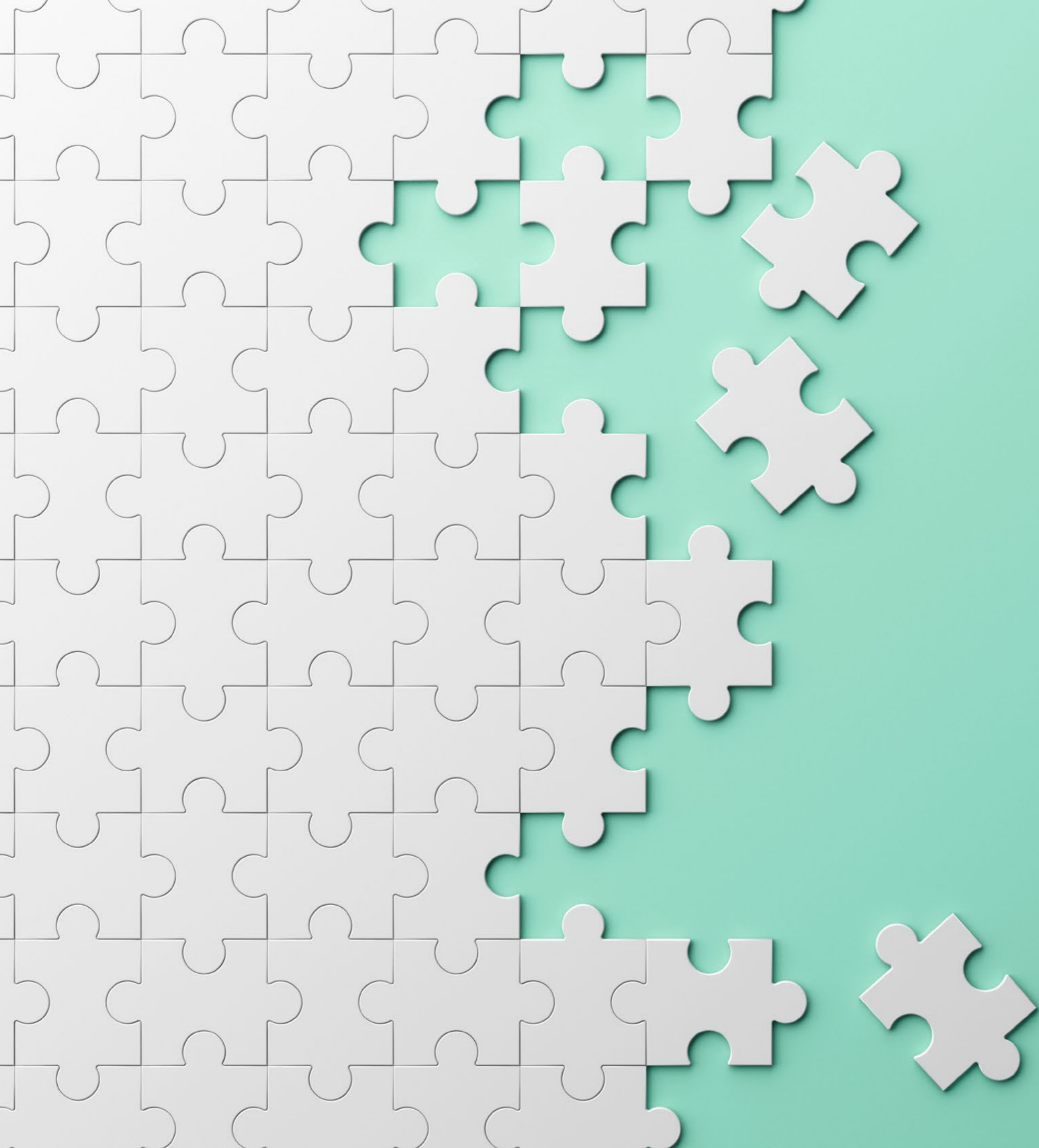


Fig. 11: Sahab City Landuse
Data Source: MOLA



02

**PUBLIC SPACE
IN CONTEXT**



2. 1.SAHAB'S URBAN FOOTPRINT: BUILT-UP VS. OPEN AREAS

Built-up areas in Sahab; including residential, commercial, industrial, and service buildings; cover only 3.26 km², or 24% of the total municipal area. In contrast, the vast majority of land, approximately 10.4 km² (76%); is occupied by streets and open spaces, both public and private. Streets (including the service streets within the industrial and stone cutting areas) alone account for nearly one-third of this share (31%), yet they are predominantly paved, with very limited greenery or shading elements. The remaining open spaces consist largely of privately owned residential plots and vacant lots, many of which are underutilized or converted into paved surfaces for parking and other uses.

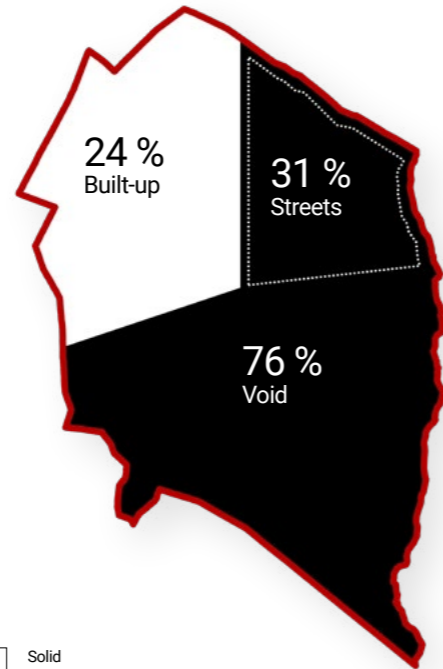
This structure highlights an important paradox: although Sahab is perceived as a dense city due to its compact built form and high population density, **most of its physical footprint is not actually built-up but rather underused open land.** The problem lies not in the absolute scarcity of open space, but in how these spaces are designed, managed, and integrated into the urban fabric.

This reality presents a major opportunity for transformation. If streets and open areas in public facilities are strategically re-imagined and greened, they could play a central role in addressing Sahab's most pressing challenges; improving air quality, mitigating heat stress, enhancing stormwater management, and creating healthier, more inclusive public spaces.

At the same time, incentivizing and raising awareness around the greening of private open lands could further amplify these benefits, strengthening ecological resilience and improving Neighbourhood livability.

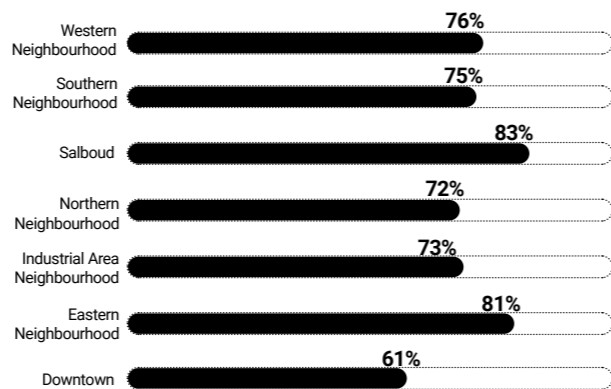
This project is designed to harness that potential by guiding public institutions in greening existing public streets and facilities, while also encouraging community and private-sector participation. Together, these efforts can shift Sahab toward a greener, healthier, and more resilient urban future.

The map on the next page illustrates the distribution of built-up areas, streets, and open spaces, serving as a baseline for understanding land-use pressures and identifying opportunities for rebalancing Sahab's urban footprint through public space planning.



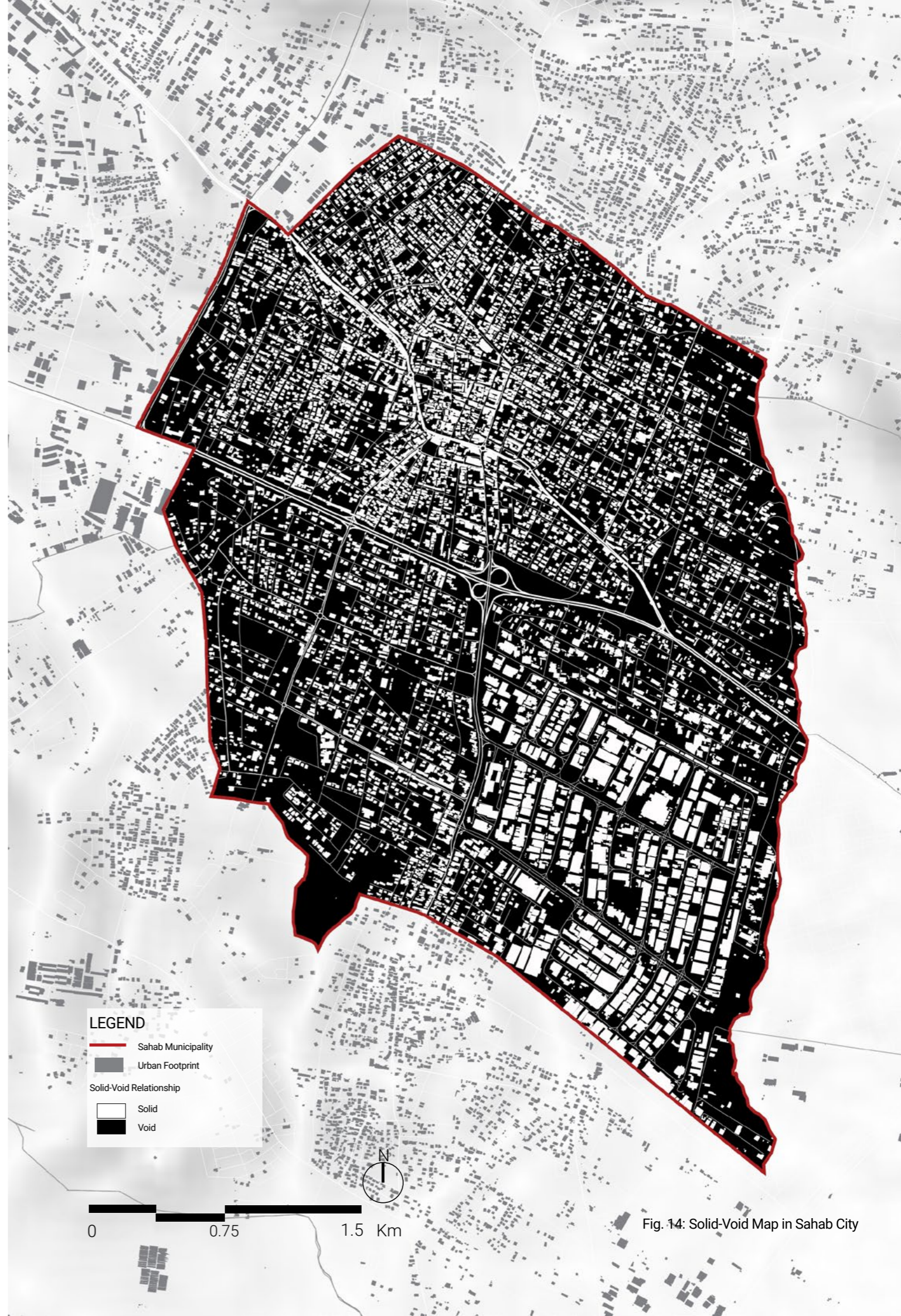
Solid
 Void

Fig. 12: Built-up Versus Open Spaces in Sahab City.



Solid
 Void

Fig. 13: Open Spaces Area Percentage within Each Neighbourhood.



LEGEND

- Sahab Municipality
- Urban Footprint
- Solid-Void Relationship
 - Solid
 - Void



Fig. 14: Solid-Void Map in Sahab City



2. 2. TYPOLOGIES OF PUBLIC SPACES IN SAHAB

Public spaces exist in many forms, ranging from the streets people walk on every day to large parks, community facilities, and even informal vacant lands that residents find appropriate for use. Globally, they are commonly grouped into three broad typologies: streets and mobility corridors, open spaces, and public facilities. Together, these form the public space network of a city, offering different scales, functions, and levels of accessibility. Assessing them provides insight into how inclusive, connected, and resilient the city is.

These typologies, taken together, form the public space network of a city, offering different scales, functions, and levels of accessibility. Assessing them provides insight into how inclusive, connected, and resilient the city is.

For the Sahab public space assessment, existing public spaces were classified into the same three typologies, as outlined below:

- **Streets**: the backbone of Sahab's public realm, covering the city comprehensively and serving as the most widely used form of public space. A total of 686 streets were assessed.
- **Open Spaces**: including the Commercial Boulevard (Prince Hassan Street), the Al Hashemite Public Park, the public playground, the public transportation hub, roundabouts, and vacant lands. Since vacant lands are considered potential opportunities for improvement, this assessment focused on those owned by governmental institutions, with particular emphasis on lands under Sahab Municipality. This approach was adopted as the municipality is a key project partner, making interventions on municipally owned lands more practical and feasible to implement in the upcoming phase of the project.
- **Public Facilities**: comprising commercial buildings, the cultural centre, the health centre and hospital, mosques, municipal buildings, and public schools. The open areas and forecourts associated with these facilities can act as valuable extensions of the city's public space network.

By focusing on these three categories, the assessment captures both the formal and informal dimensions of public space in Sahab, from everyday streets and transport nodes to institutional facilities and potential future spaces.

It should be noted that existing public spaces in Sahab City cover an area of approximately 2.84 km², representing about 21% of the city's total area. However, the only green public spaces currently present are the playground and the Al Hashemite Public Park, as illustrated in the map on the following page. The green area per capita in Sahab Municipality is just 0.275 m², compared to 2.5 m² in Amman, while international standards recommend a minimum of 9 m² per capita. This stark disparity highlights the severe shortage of green spaces in Sahab and the urgent need for targeted interventions to address this gap.

Furthermore, accessibility to recreational areas remains highly constrained: only 9.3% of Sahab's population can access such facilities within a 15-minute walking distance, while 24% can reach them within 30 minutes. These figures underscore the uneven spatial distribution and limited inclusivity of green public spaces across the city.

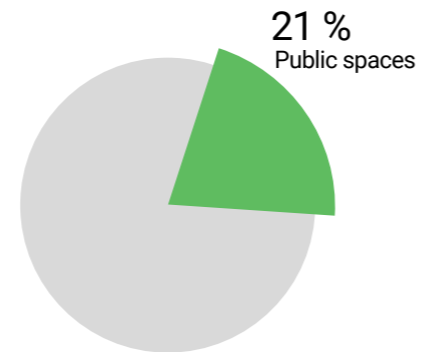


Fig. 15: Share of Public Spaces in Sahab City.

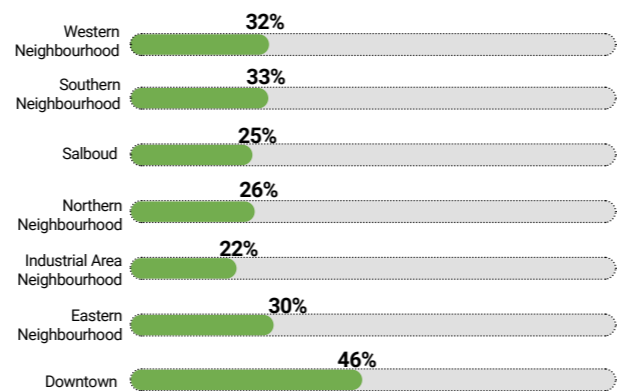


Fig. 16: Area Percentage of Public Spaces within Each Neighbourhood

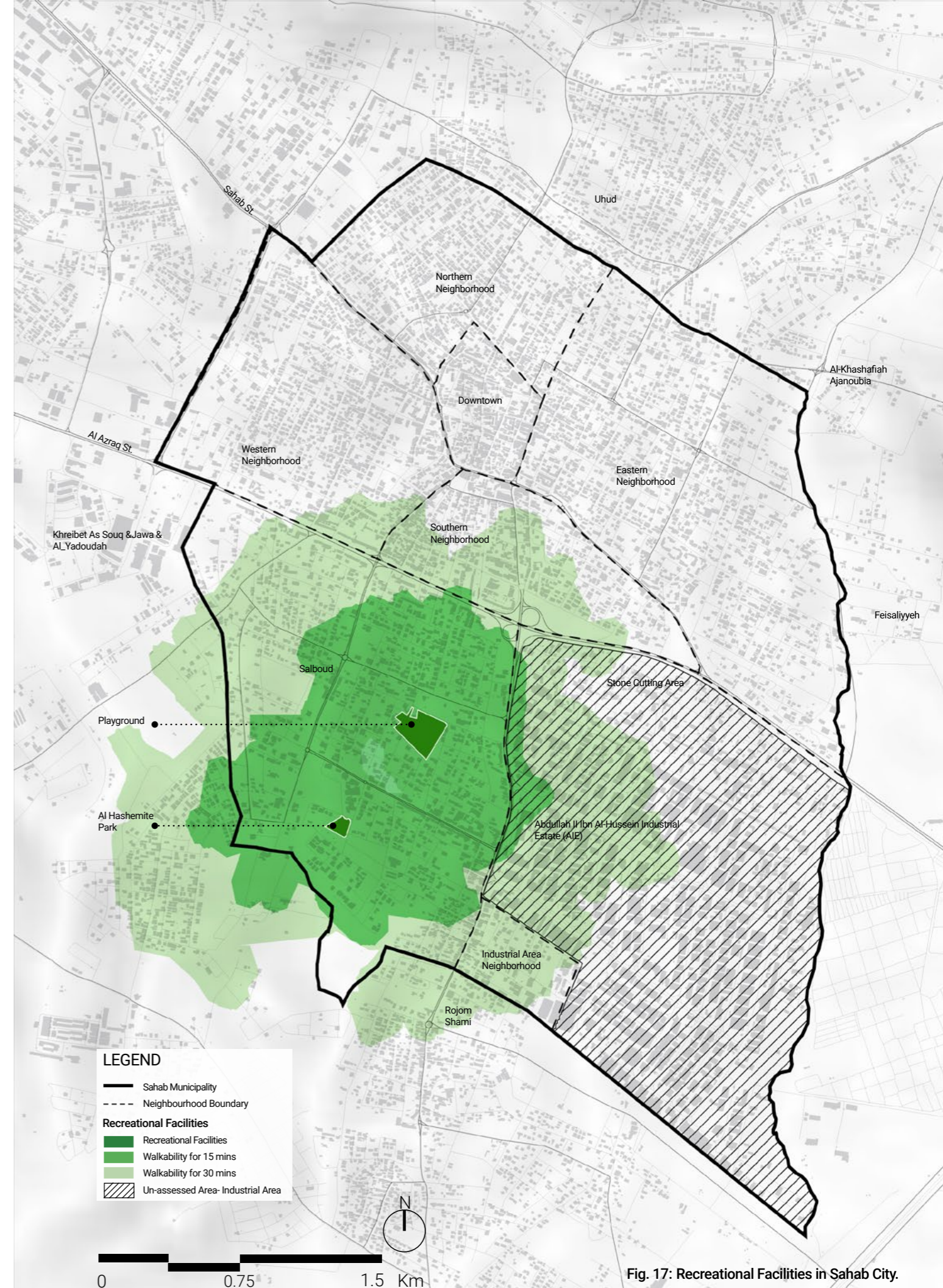


Fig. 17: Recreational Facilities in Sahab City.



2.2.1 STREETS TYPOLOGY

Streets are more than just mobility corridors; they are the most extensive and accessible form of public space within cities. By virtue of being publicly owned and maintained, they are open to all, usually at no cost and at all hours of the day. Beyond their core transport function, streets serve as versatile arenas for social, economic, cultural, and political activities, shaping the character and vitality of urban life. The street-space typically comprises avenues and boulevards, squares and plazas, sidewalks, bicycle paths, traffic islands, tramways, and roundabouts. Excluded from this category are plots (built or vacant), open space blocks, railways, paved parking lots, airports, and individual industrial compounds.²

In Sahab, the street network is the backbone of the city's mobility and connectivity, influencing both urban structure and daily life. Public streets in Sahab are divided into three main categories: primary roads, secondary roads, and local roads, as shown in the map on the following page. It is important to note that service roads within the industrial and stone-cutting zones were excluded from the assessment, as they are not considered fully public. A total of 686 streets, extending approximately 190 km in length, were assessed in this study, the majority of which are two-way streets. One-way streets are concentrated in the downtown core and adjoining commercial areas. Sahab's public street network (excluding the service streets within the industrial and stone cutting areas) cover 2.5 km² (around 19% of the city's area), falling short of the 30–35% benchmark recommended by UN-Habitat. This gap highlights structural limitations in connectivity and accessibility, concentrating traffic on existing roads and reducing equitable access to services and public spaces. In Sahab's context, where industrial traffic dominates, the challenge is not only the quantity of streets but also their quality—safe sidewalks, crossings, and shading are limited. Expanding and upgrading the street network is therefore essential to improve mobility, accessibility, and overall livability.

Two primary roads dominate Sahab's mobility landscape.

- **Sahab Street**, managed by Sahab Municipality, connects the city directly with Amman and functions as a main corridor for residents and businesses.

- **Al-Azraq Highway**, a strategic corridor under the mandate of the Ministry of Public Works and Housing, links with Amman's Development Corridor to Saudi Arabia. Cutting directly across Sahab, it divides the city into two halves.

Both routes carry heavy industrial traffic and truck movements, underscoring Sahab's role as an industrial hub while simultaneously intensifying challenges of congestion, air pollution, noise, and road safety. This dual structure of municipal and national responsibility illustrates the interplay between local and central governance in road management. It also underscores the urgent need for coordinated planning and investment to balance the demands of industrial mobility with the priorities of livability, safety, and environmental quality for Sahab's residents.

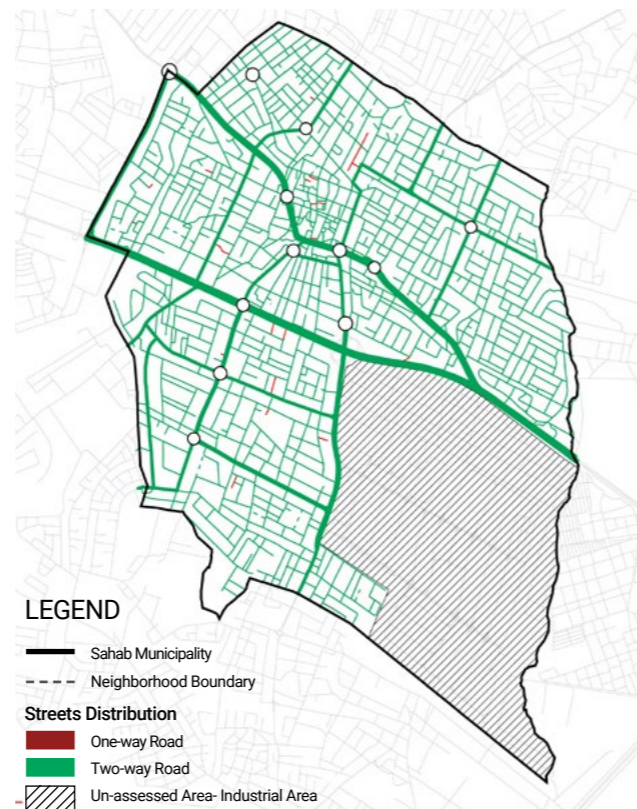


Fig. 18: One-Way and Two-Way Distribution of Streets in Sahab

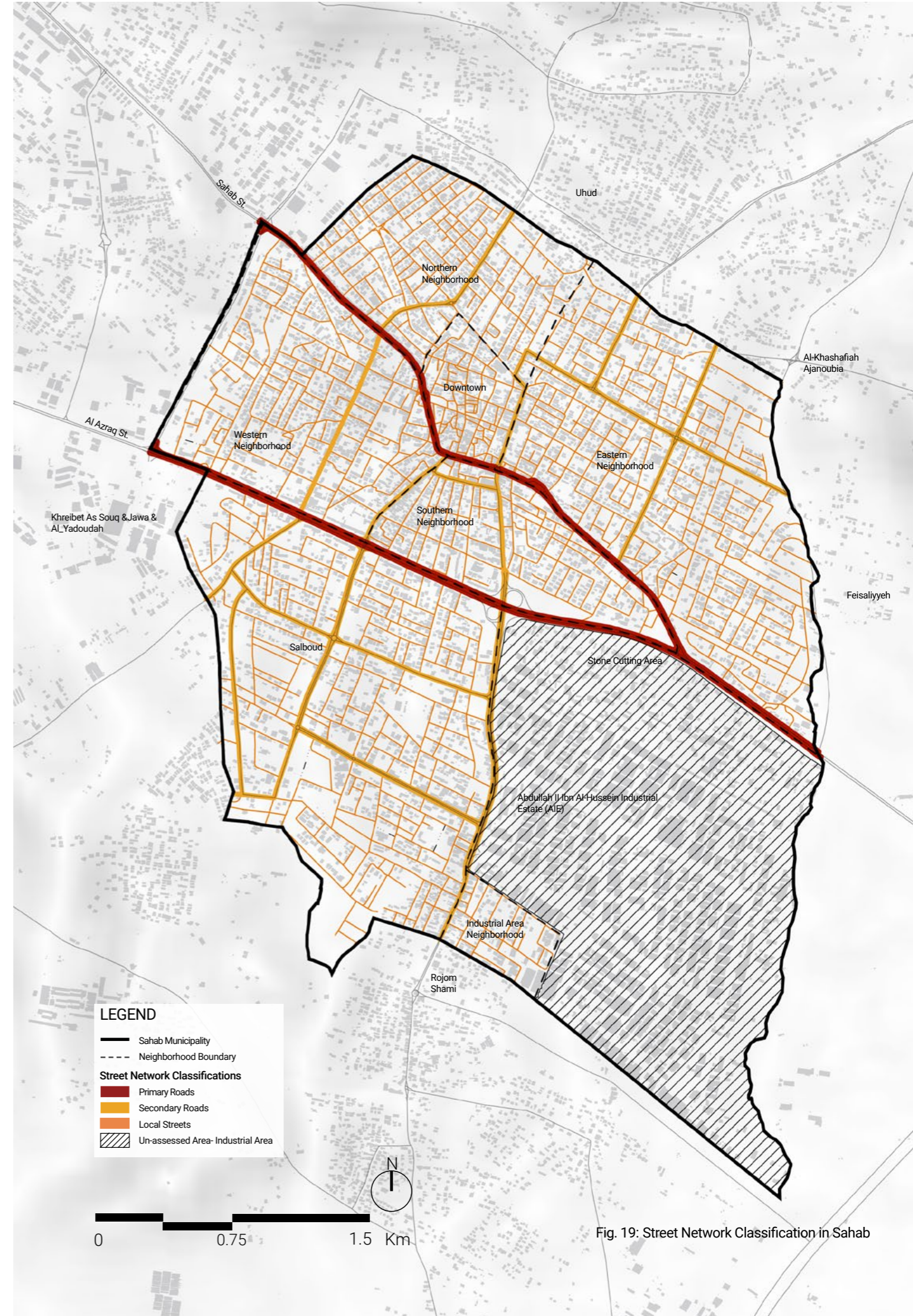


Fig. 19: Street Network Classification in Sahab



2. 2. 2 OPEN SPACES TYPOLOGY

Public open spaces refer to undeveloped land or land without buildings that is accessible to the public, providing areas for recreation while enhancing the beauty and environmental quality of neighbourhoods. Their typologies vary across cities and may include parks, gardens, playgrounds, boulevards, squares and plazas, roundabouts, riverbanks, waterfronts, and public beaches. These spaces are generally publicly owned and maintained, available to all residents without charge, though in many contexts they are restricted to daylight access.³

In Sahab, a total of 16 open space elements were assessed, including 12 roundabouts, 1 public park, 1 playground, 1 commercial boulevard (Prince Hassan Street), and 1 public transportation hub.

According to UN-Habitat standards, a well-functioning and prosperous city should allocate 15–20% of its land area to open public space. In stark contrast, open public spaces in Sahab (excluding vacant lands) cover only 0.06 km², equivalent to just 0.5% of the city's total area. This severe deficiency underscores a critical gap in the city's public realm and highlights the urgent need to expand and enhance open space provision.

Importantly, public owned vacant lands shown in the map here were not included in the current state assessment, as they are not yet functioning public spaces. Instead, they are considered opportunity areas with strong potential for future greening and community use.

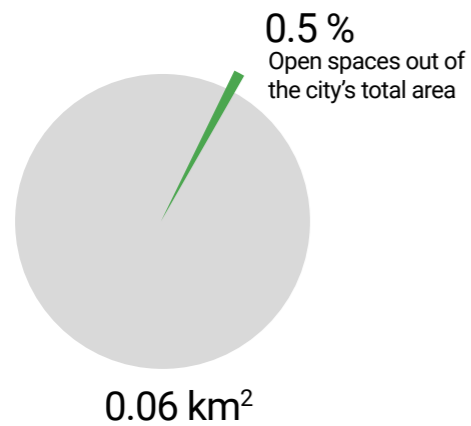


Fig. 20: Share of Open Spaces in Sahab City.

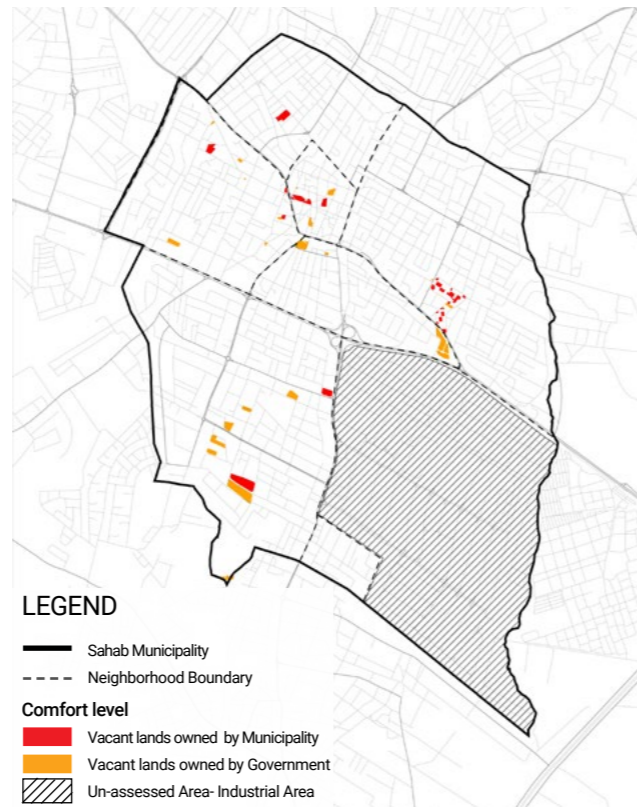


Fig. 21: Public Owned Vacant Land in Sahab

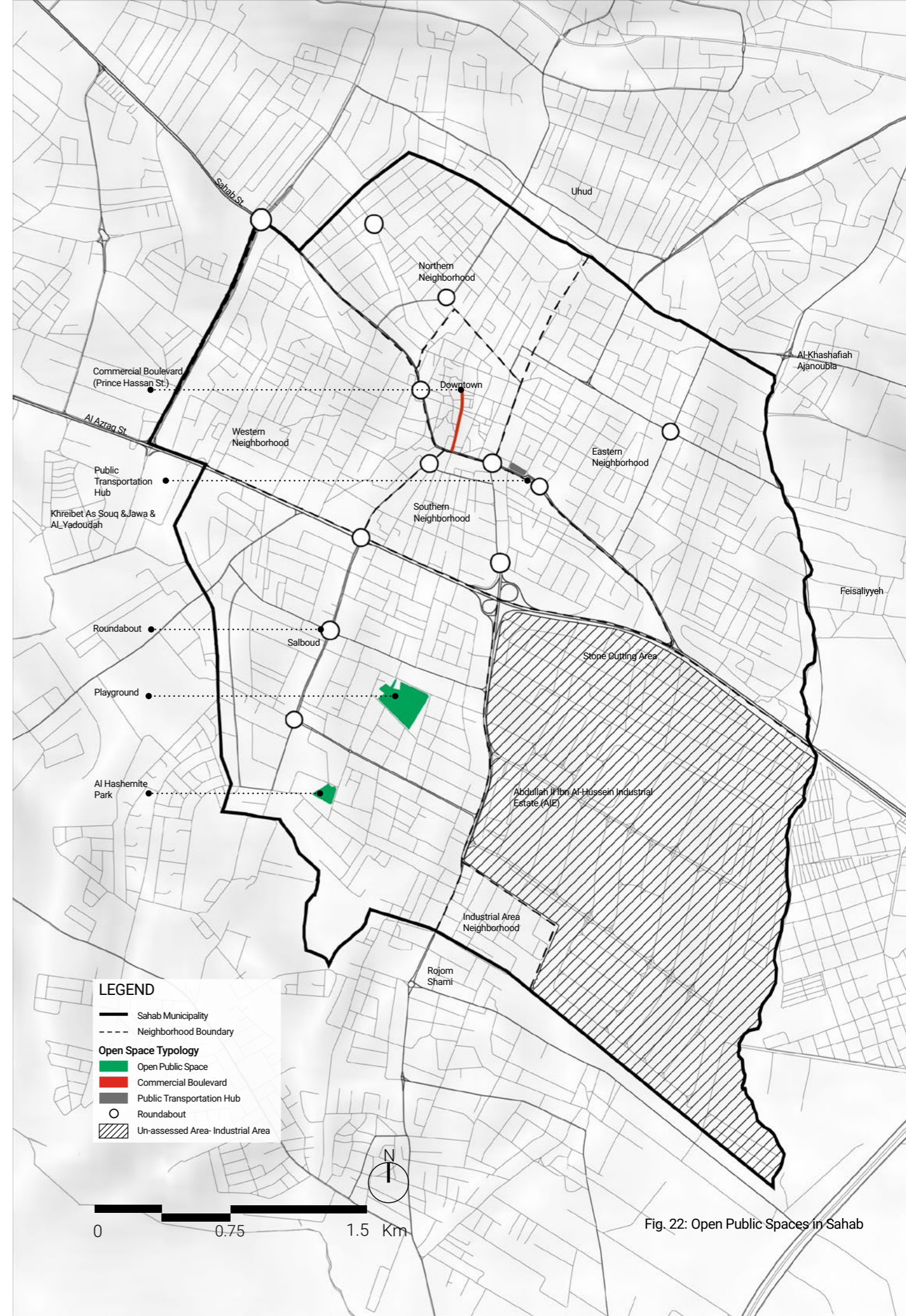


Fig. 22: Open Public Spaces in Sahab



2. 2. 3 PUBLIC FACILITIES TYPOLOGY

Public facilities are publicly owned amenities that provide essential services to residents, and are generally accessible at no cost, though they require continuous maintenance and management. These include civic and community centres, public libraries, municipal markets, and sports facilities. In many contexts, however, access is limited to daylight hours or official operating times. Research conducted by the UN-Habitat Global Public Space Programme across four countries has shown that, while the management of public facilities can be complex; especially where some services involve user fees; the non-built-up portions of these facilities (such as forecourts, courtyards, setbacks, and open grounds) represent valuable open spaces. As such, they should be recognized as part of a city's public space network, given their contribution to accessibility and everyday use.⁴

In Sahab City, public facilities assessed included schools, mosques, health centres, the cultural centre, service buildings owned by the Sahab municipality, and municipal buildings. The city is particularly well known for its large number of mosques, with the Grand Mosque of Sahab serving as a local landmark.

The open areas within these public facilities in Sahab, including courtyards, forecourts, setbacks, gardens, and even rooftops, represent untapped potential for greening. These open spaces cover a total area of 0.13 km². If strategically enhanced, they could serve as micro-scale public spaces, contributing to improved environmental quality, expanded recreational opportunities, and greater resilience in Sahab's urban fabric.

In total, 87 public facilities were assessed as follows:

	47 Mosques
	28 Public Schools
	3 Commercial Buildings: owned by the municipality and leased for use, including Sameh Mall, Okath Souk, and the commercial strip in front of the municipality's main administration building
	1 Commercial Facility: 12 kiosks located within the public transportation hub, all municipally owned and leased for commercial use. As they are situated within the same area, they were assessed collectively as a single facility.
	1 Service Building: owned by the municipality and leased to the Princess Basma Development Centre.
	4 Municipal Administration Buildings: including the main administration building, the library/court building, the meeting hall building (called Mercy Corps Building), and the service building.
	1 Hospital
	1 Health Centre
	1 Cultural Centre: owned and managed by the municipality.

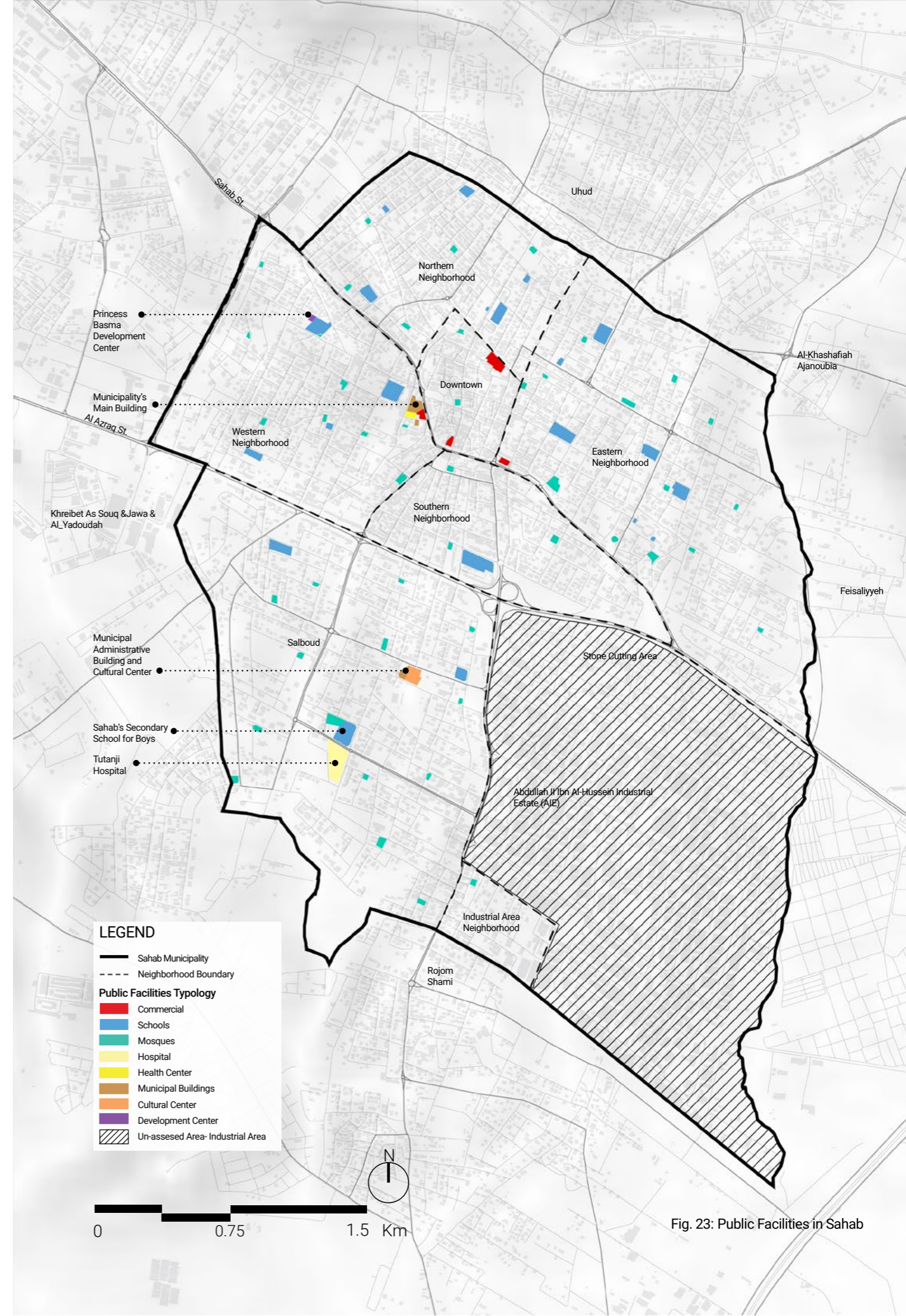


Fig. 23: Public Facilities in Sahab



2. 3. QUALITY AND PERFORMANCE OF THE PUBLIC SPACE NETWORK

While Sahab has streets, open spaces, and public facilities that form the foundation of its public realm, these elements do not yet function as a cohesive network. Instead, they remain highly fragmented and unevenly distributed, with limited physical or functional integration. Streets in particular illustrate this fragmentation: although they cover nearly 19% of the city's area, they are primarily designed for vehicles, with little attention to walkability, cycling, or other people-friendly modes. As a result, they fail to function as true public spaces, despite being the most extensive component of Sahab's urban fabric.

Recreational open spaces are similarly scarce, limited to a single public park and one playground, leaving large segments of the population without accessible recreational areas. The open areas around public facilities are also underutilized, constrained by restricted accessibility and the absence of community-oriented programming. Collectively, this reduces their contribution to neighbourhood well-being and social interaction.

Upon mapping existing open spaces and public facilities across Sahab's neighbourhoods, it became evident that recreational facilities are highly concentrated in one area. Both of the city's formal recreational amenities; a public park and a playground; are located within the Salboud neighbourhood, in the south-western part of the city. This uneven distribution highlights a major spatial gap, as large portions of the population remain under-served.

This situation reflects a broader gap in strategic planning: there is no interconnectivity or cluster-based approach linking parks, playgrounds, vacant lands, public transportation hubs, commercial areas, and streets into a complementary system. **Public spaces are instead treated as isolated plots, missing the opportunity to function collectively as the backbone of community life.**

UN-Habitat's global public space framework stresses that public space should be understood and planned as an interconnected system of networks, not as standalone sites.

In Sahab, the lack of such an integrated approach limits the performance of the public realm and weakens its ability to support accessibility, inclusion, safety, environmental quality, and climate resilience.

At the same time, this fragmentation represents a significant opportunity for transformation. **By re-imagining Sahab's streets; not only as traffic corridors but as inclusive public spaces; alongside other open areas,** the city can:

- Convert its extensive street network into walkable, bike-friendly, and people-centred environments.
- Develop cluster-oriented, complementary spaces that enhance access, social interaction, and neighbourhood identity.
- Unlock the potential of underused areas, particularly vacant lands and facility forecourts.
- Strengthen climate resilience by expanding greenery, reducing heat, and improving air quality.
- Create a healthier and more vibrant urban environment for all residents.

The next pages evaluate Sahab's public space system through three interlinked lenses; walkability, landuse vibrancy, and green coverage; to assess the current state of public spaces in Sahab.

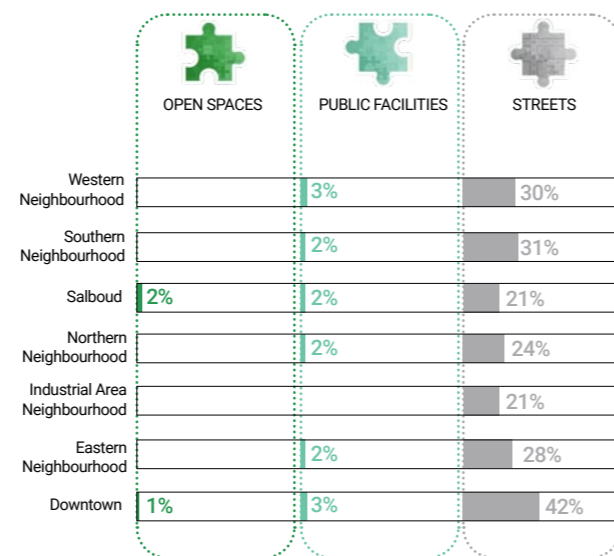


Fig. 24: Area Percentage of Public Space Typologies in Each Neighbourhood

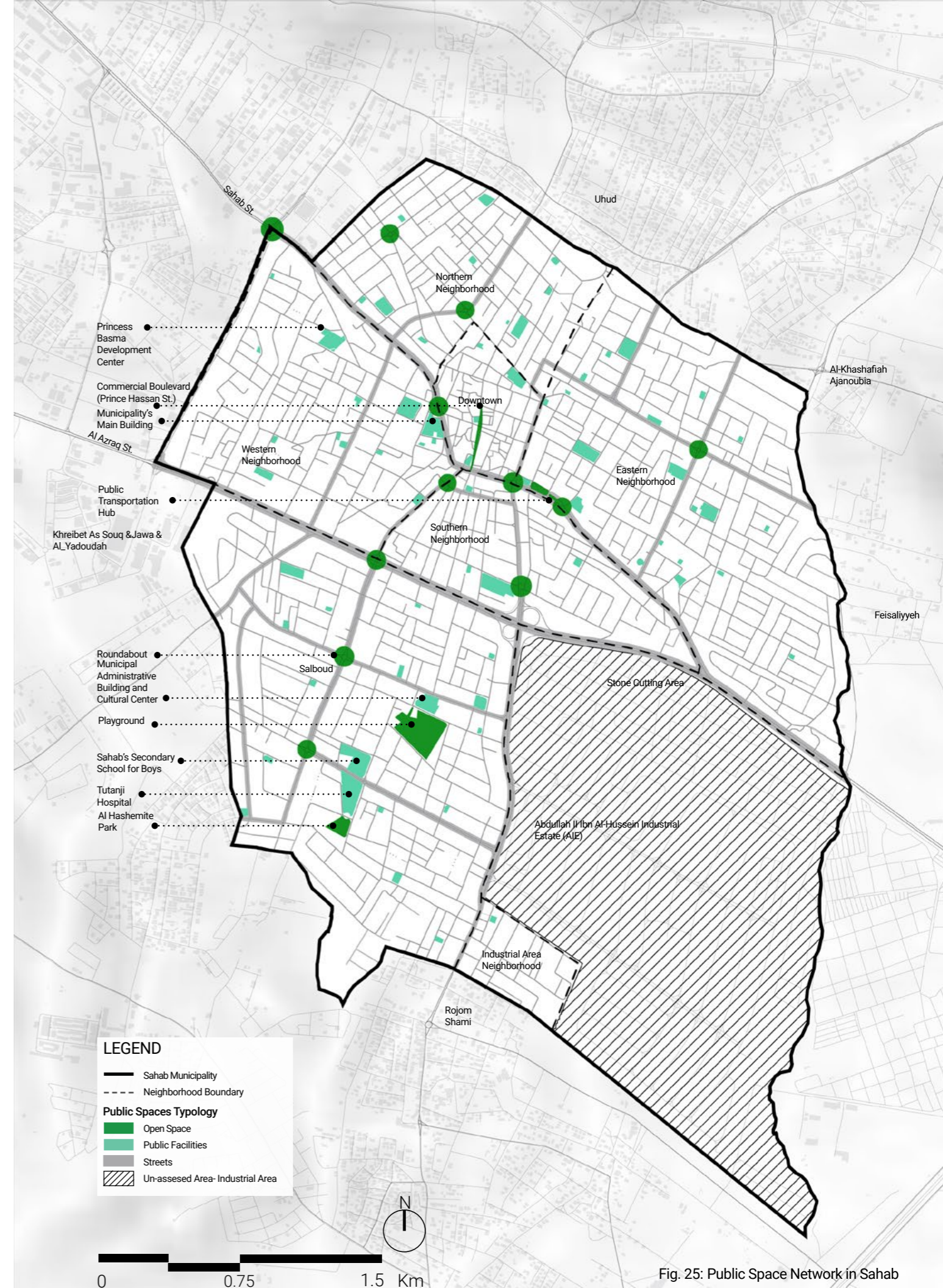


Fig. 25: Public Space Network in Sahab



2. 4.MANAGEMENT AND INSTITUTIONAL FRAMEWORK FOR PUBLIC SPACES

Urban development in Jordan is managed through an institutional framework of policies and organisations that collaborate to tackle the diverse requirements of cities, promote sustainable urban development, optimize resource utilisation and ensure that urban planning aligns with both national and local development goals.

When assessing the three typologies of public spaces; streets, open spaces, and public facilities; it is important to recognize their varying scales, functions, and levels of accessibility, all of which both influence and depend on the institutions responsible for their management.

According to the Department of Lands and Survey (DLS), only 0.4 km² is owned by public institutions out of the total area of 13.7 km² of Sahab Municipality. Based on ownership data provided by the Sahab Municipality, the municipality itself owns 0.15 km² (excluding streets).

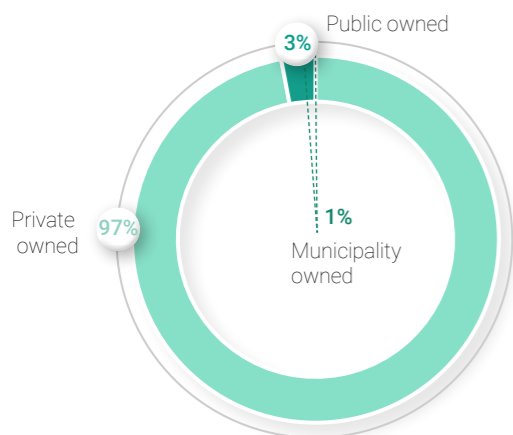


Fig. 26: Percentage of Public Owned Lands in Sahab

MUNICIPAL RESPONSIBILITY

Despite limited land ownership, Sahab Municipality, under the Local Administration Law No. 22 of 2021 (Article 5), plays a central role in shaping the city's built environment. Its duties include city planning, street design and maintenance, and the creation and upkeep of parks, gardens, roundabouts, and public squares. The municipality also oversees accessibility, safety, beautification, and encroachment management across its jurisdiction.

LEGAL AND REGULATORY FRAMEWORK

Public spaces in Sahab are governed by several national

laws that define planning, ownership, and environmental standards:

- **Local Administration Law No. 22 (2021):** Defines municipal powers over planning, infrastructure, and public services.
- **Cities, Villages and Building Planning Law No. 79 (1966):** Regulates zoning, land use, master plan approvals and ensures land allocation for parks and public areas.
- **By-law of Building and Organization No. 1 (2022, amended 2025):** Guides land use, plot subdivision, and open-space ratios in site design while promoting sustainable building practices.
- **Jordan National Building Law No. 7 (1993):** Ensures building quality, safety, and accessibility standards. Municipalities enforce these standards through inspections.
- **Environmental Protection Law No. 6 (2017):** Sets environmental standards for urban development processes, requiring environmental impact assessments, protection of water, air and soil quality and promotes sustainable design of public spaces.
- **Expropriation Law No. 12 (1987):** Enables municipalities to acquire private land for public benefit with fair compensation. While effective; the process can be resource intensive and time consuming.

Together, these laws establish a multilayered governance framework for creating and protecting public spaces.

TYPOLOGIES MANAGEMENT

STREETS

Sahab's street network (excluding the streets within the stone cutting and the AIE areas) covers 19% of the city's total area but is characterized by poor quality, limited sidewalks, and minimal shading. While most streets fall under municipal jurisdiction, the Al-Azraq Highway, which connects Sahab to Saudi Arabia, is managed by the Ministry of Public Works and Housing, illustrating the shared responsibilities between local and national authorities.

Since 2021, the municipality's largest expenditures have focused on road paving, with significant allocations for

sidewalks, lighting, and maintenance, reflecting Sahab's commitment to improving mobility, walkability, and accessibility.

OPEN SPACE

The city of Sahab contains only 16 open spaces, comprising 12 roundabouts, one public park, one playground, one commercial boulevard, and one public transportation hub; all under municipal jurisdiction. Excluding vacant land, these spaces occupy just 0.5% of the city's total area, far below UN-Habitat's recommended 15–20% standard. Expanding open space coverage remains a major challenge, as only 0.03 km² of municipally owned land is vacant and available for development.

PUBLIC FACILITIES

Sahab has a total of 87 public facilities, most managed by national institutions rather than the municipality. Under municipal ownership and management falls four administrative buildings, one cultural centre, and the commercial strip in front of the main municipal administration office. The municipality also leases out several properties it owns, including three commercial buildings, one service building (leased to the Princess Basma Development Centre), and one commercial facility comprising 12 kiosks at the public transportation hub.

Other key facilities fall under the jurisdiction of various ministries:

- 47 mosques – Ministry of Awqaf and Islamic Affairs
- 28 public schools – Ministry of Education and Sahab Directorate of Education
- 1 hospital and 1 health centre – Ministry of Health

Because most facilities are owned and managed by external public entities, the municipality's ability to integrate green elements or expand green coverage across these sites is limited. This underscores the need for strong collaboration to enhance the shared use and greening of public facilities in support of Sahab's broader sustainable urban development goals.

ECONOMIC AND FINANCIAL CONTEXT

Based on the data received from the Sahab Municipality, Sahab operates with a limited annual budget of around

5 million JOD, more than half of which is dedicated to staff salaries. Only 1–3% is typically allocated to parks and green areas, significantly constraining the municipality's capacity to expand or maintain public spaces. While municipal spending on park and open-space maintenance fluctuated between 2021 and 2023, it rose sharply in 2024, when park maintenance ranked second only to road paving, followed closely by investments in parks and recreational facilities.

The marked increase in recreational projects—particularly the new playground completed in 2024—reflects growing efficiency and commitment. The continued rise in the 2025 budget further signals a shift toward a more proactive infrastructure and public space agenda. These growing investments indicate a clear movement toward a more resilient, functional, and inclusive urban environment—one that improves quality of life and enhances access to safe, inviting public spaces.

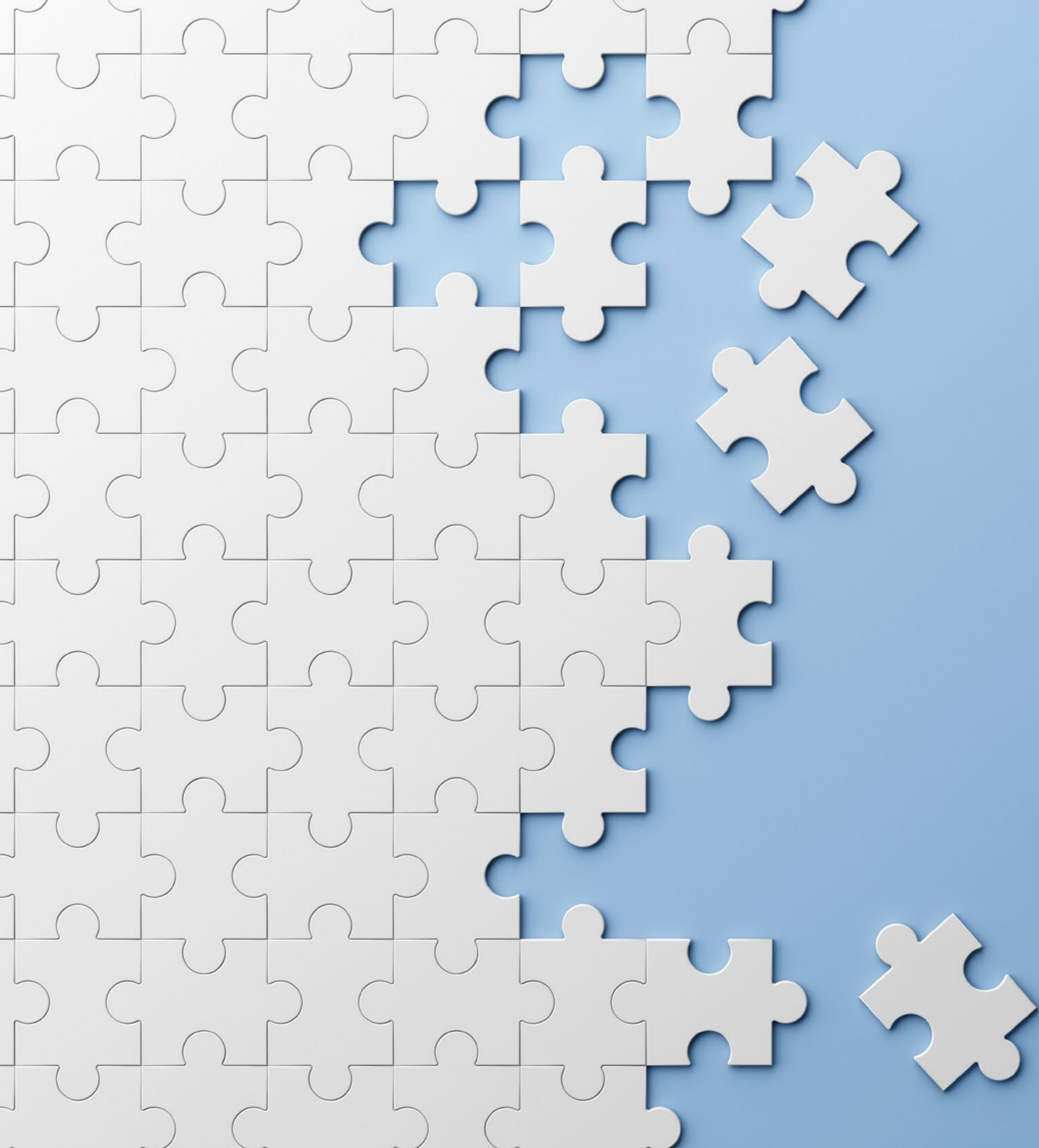
Nevertheless, given the limited municipal budget, Sahab continues to rely on external partnerships to support large-scale greening and public space initiatives. Despite these fiscal constraints, investments in public spaces have demonstrated tangible economic returns, with nearby property values increasing by 10–25%, strengthening the case for sustained and strategic investment in urban greening.

PLANNING AND STRATEGIC FRAMEWORK

To overcome land and budget limitations, Sahab employs several planning tools:

- Municipal allocation of its own vacant land for public use.
- State land transfers from national authorities.
- Land expropriation for public interest when no public land is available.
- Development agreements with private investors to integrate public spaces into major projects.
- Land readjustment, though not formally legislated, is occasionally applied to support urban renewal.

Strategically, the municipality prioritizes increasing public and green space to enhance livability, equity, and environmental resilience; objectives reinforced by national frameworks and Sahab's vision of becoming a "Green City".



03

PUBLIC SPACES ASSESSMENT



3. PUBLIC SPACES ASSESSMENT

3.1. INTRODUCTION

While the Municipality of Sahab and local authorities recognize the importance of public space and have made notable efforts to transform several areas through site-based interventions, these initiatives remain fragmented. Although they demonstrate the potential of public space to improve local conditions, they do not provide a strategic, city-wide approach to distribution, connectivity, accessibility, or programmatic diversity.

To counter these challenges, national and local governments must recognize the value of a well-connected, good-quality network of public spaces as a driver of equity, prosperity, and resilience. Public space is not only an enabler of social inclusion and community well-being; it also provides an effective framework to manage urban growth, support economic development, and safeguard the environment. However, these benefits can only be realized if cities actively address the imbalances in supply, distribution, and quality of public spaces across different Neighbourhoods.

Accordingly, this assessment was conducted to support Sahab in its greening efforts and in improving the overall health and well-being of its residents. Using [UN-Habitat's City-Wide Public Space Assessment Tool-kit](#), the study analyses the current state of public spaces in Sahab by examining their network, distribution, accessibility, quantity, and quality. The tool provides the "hooks" that will guide the development of a comprehensive, evidence-based "Green Public Space Plan" tailored to the city's needs.

To capture the diversity of the urban fabric, the assessment covers the three identified typologies of public space in Sahab City:

- Streets
- Open spaces
- Public facilities

Each typology was evaluated through three interrelated dimensions:

- Environmental Quality
- Inclusivity
- Connectivity and Accessibility

Each dimension was further broken down into sub-dimensions, enabling a detailed and consistent analysis across all typologies:

- **Environmental quality:** assessed through the sub-dimensions of comfort, green coverage, and safety conditions. These factors were studied for each typology, and the findings were consolidated into a multi-typology environmental quality and safety assessment map.
- **Inclusivity:** analysed through the sub-dimensions of amenities, vibrancy levels, and current users. The outcomes were synthesized into an overall inclusivity assessment map covering all typologies.
- **Connectivity and Accessibility:** evaluated through connectivity networks and walkability conditions, leading to the development of an overall connectivity and accessibility assessment map.

Following the completion of each dimension's assessment, the results were integrated into a multi-layered, multi-dimensional analysis that brings together all typologies and dimensions. This synthesis produced a comprehensive multidimensional map, providing a city-wide picture of Sahab's public space network. The map serves as a key decision-making tool, guiding the identification of priority actions to enhance environmental quality, inclusivity, and connectivity; the delineation of clusters for targeted interventions; and the development of strategic recommendations to inform a city-wide Green Public Space Plan.

It should be noted here that the assessment was conducted during both daytime and night time, in order to better reflect how patterns of use and exposure vary over the course of the day. Data collection also covered both weekdays and weekends. However, since the assessment took place during the summer vacation period when schools were closed, no significant differences were observed between weekdays and weekends, and therefore the results were not disaggregated on that basis.

This section presents the findings under the three dimensions, supported by thematic mapping and multi-layered analysis.

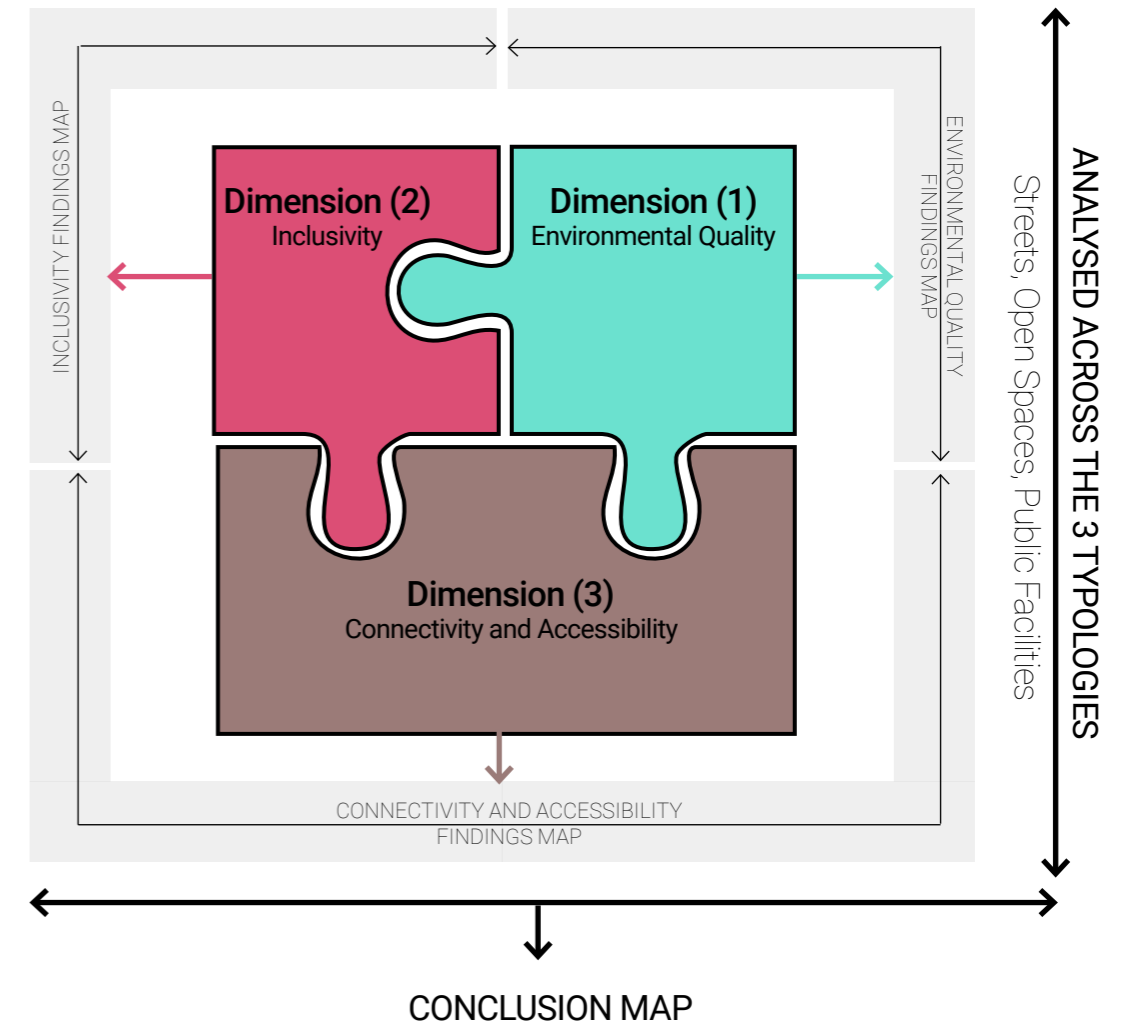


Fig. 27: Public Space Assessment Methodology



3. 2. DIMENSION 1: ENVIRONMENTAL QUALITY

In Sahab's context, environmental quality represents one of the most pressing urban challenges. As an industrial hub, the city experiences air pollution levels that significantly exceed international standards, with aerosol (PM2.5 and PM10) and NO2 concentrations reported at nearly three times higher than World Health Organization (WHO) thresholds, as highlighted in [Sahab's Multilayered Vulnerability Profile](#). These conditions not only undermine the comfort of public spaces but also pose serious public health risks, reflected in Sahab's elevated rates of lung cancer and respiratory illnesses. Combined with limited green cover and inadequate safety measures, these environmental pressures reduce the attractiveness and functionality of public spaces and constrain their potential to promote community well-being.

The assessment therefore places special emphasis on evaluating environmental comfort, greenery distribution, and safety conditions across Sahab's open spaces, streets, and public facilities. Together, these three sub-dimensions provide a comprehensive picture of how environmental quality influences the usability and long-term sustainability of public spaces in the city.

Comfort: Comfort reflects the ability of residents to enjoy public spaces without being exposed to stressors such as noise, air pollution, or unpleasant odours and views. Data for this sub-dimension was collected through survey questions assessing noise levels, air quality, odours, and visual disturbances.

Green: Greenery is a critical factor in mitigating heat, improving air quality, and enhancing overall environmental performance. Assessment was done over two steps: one using the satellite imagery showing the overall green coverage of the city (mainly tree canopies) and two through the field assessment using questions targeting the exploration of the presence and type of existing greenery (tall trees and short trees/shrubs).

Safety: Safety was analysed through both physical infrastructure and perceptions of security. Indicators, including the provision of lighting at night, the presence of security cameras, and the availability of on-site security personnel during night time hours; were examined based on data collected through the survey.

The following pages present the findings of each sub-dimension, analysed across the three typologies of public space; streets, open spaces, and public facilities. The section concludes with a multilayered map that integrates all findings to provide a city-wide overview of the Environmental Quality Dimension.

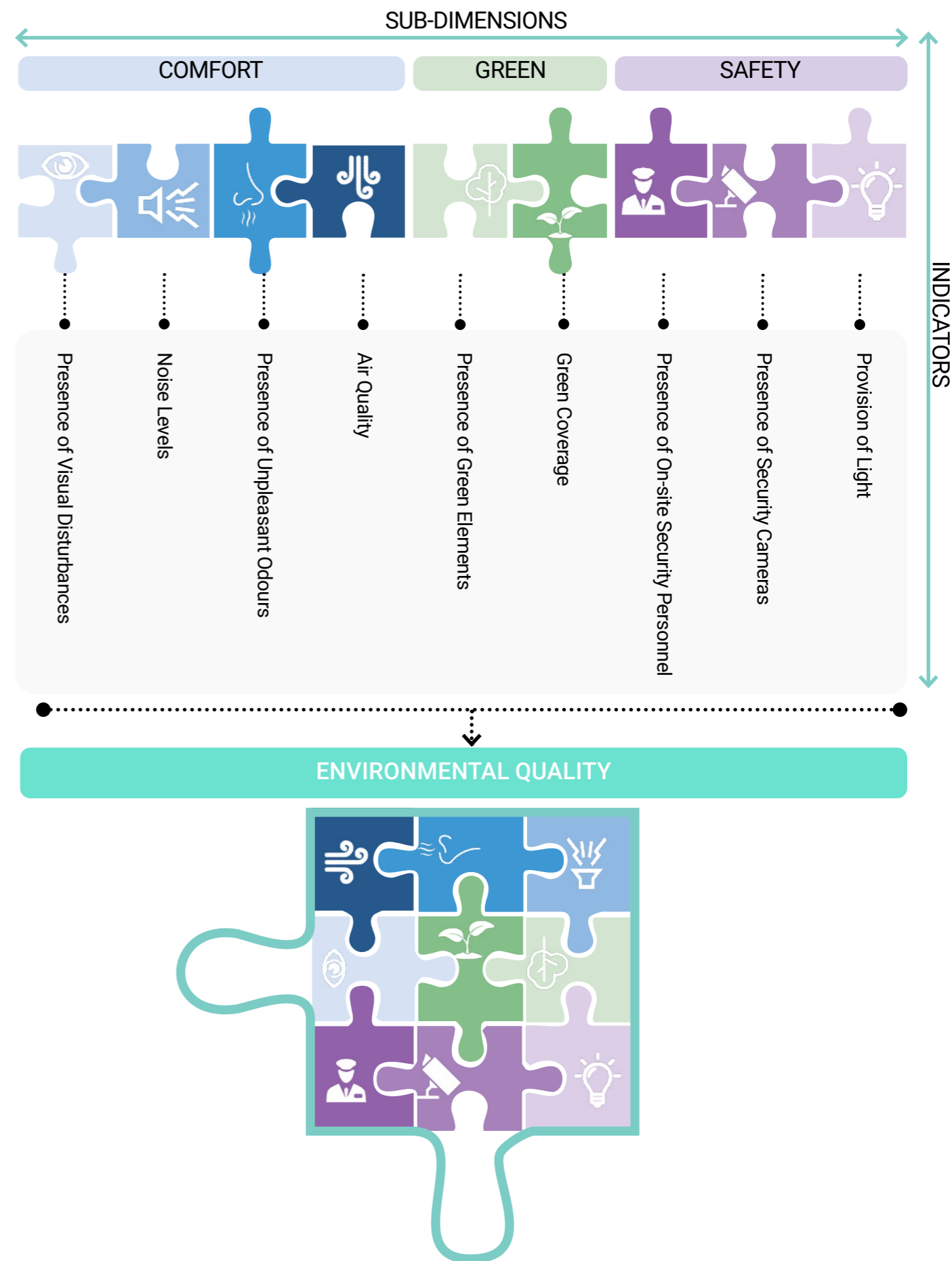


Fig. 28: Environmental Quality Sub Dimensions and Indicators



3.2.1 COMFORT

COMFORT IN STREETS

Streets in Sahab are the most widely used form of public space, functioning not only as mobility corridors but also as places of daily interaction. Their comfort level directly shapes how safe, inclusive, and attractive they are for pedestrians, cyclists, and residents. Because streets extend across the entire urban fabric, they offer a unique lens for assessing comfort city-wide. The indicators of comfort; noise, smell, perceived air pollution, and visual experience; are not confined to individual streets but reflect broader environmental and sensory conditions across Sahab. **By using detailed field data collected through on-the-ground assessments, these indicators capture the lived experience of the city as a whole. For this reason, the visualizations on this page present the results of comfort assessment at the street level as a proxy for city-wide analysis.** This level of detail is not repeated for other typologies, which are assessed through the same framework but presented more concisely.

(1) AIR QUALITY

Sahab's role as an industrial hub has left a pronounced impact on air quality. Based on the data collectors' observations, **34% of the streets were reported as having unclean air.** The issue is far more pronounced during the daytime compared to the night time, reflecting reduced emissions once factories and stone-cutting activities cease operations. **In nearly half of the reported cases, respondents noted that poor air quality directly affected breathing and respiratory comfort.** The problem is especially severe along the Al-Azraq Highway, where heavy truck traffic converges with industrial emissions. While the map presents the air quality assessment as a gradient, it is important to note that this visualization reflects where poor air quality was most strongly perceived by field data collectors. Scientifically, however, evidence confirms that the entire city is exposed to elevated concentrations of aerosols and NO₂, with only minimal spatial variation.⁵

(2) ODOURS

Unpleasant odours were reported on 8% of the streets across Sahab. **Dust was the most frequently cited source of discomfort,** often compounded by car exhaust, fires, and industrial emissions. Persistent odours from factories, workshops, and petroleum were also recorded, extending their impact into surrounding neighbourhoods. Garbage-related smells added to the problem, linked to inadequate collection systems, open dumping, and waste accumulation in various areas.

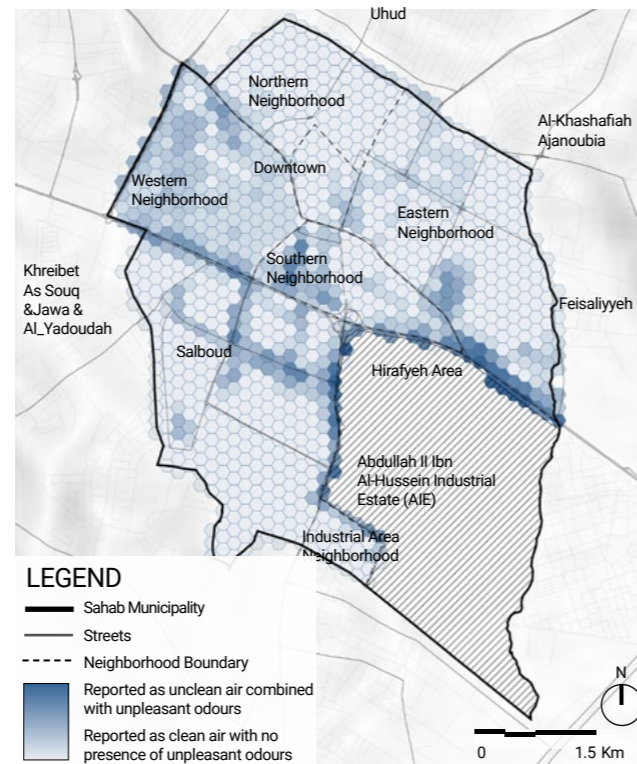


Fig. 29: Air Quality and Odours Assessment - Day time

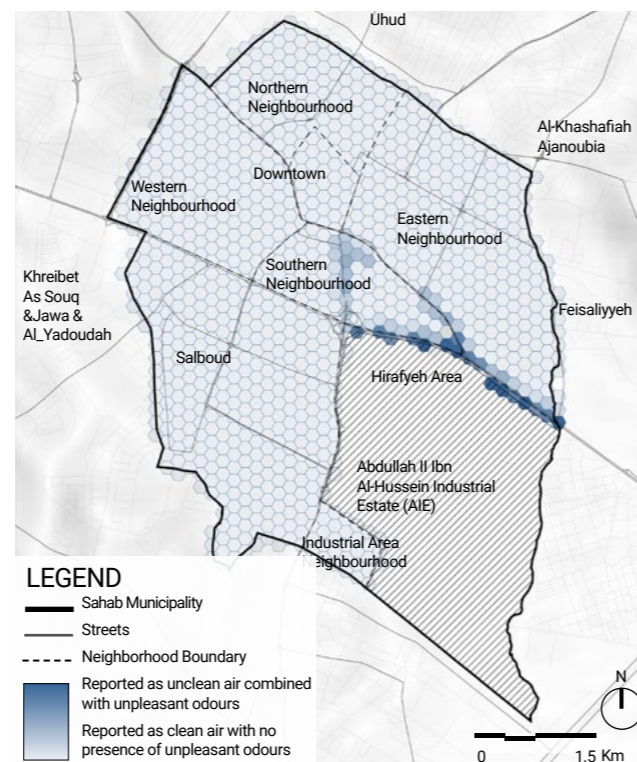


Fig. 30: Air Quality and Odours Assessment - Night time

(3) NOISE

Noise pollution is another dominant factor undermining comfort in the City. The prevalence of heavy trucks, industrial traffic, and the absence of traffic-calming measures has created consistently high noise levels across Sahab's main streets. Field observations confirmed that noise frequently exceeds tolerable thresholds, making sidewalks, crossings, and bus stops uncomfortable for pedestrians. **Of the streets assessed, 61% were classified as noisy, with 52 streets identified as very noisy, highlighting the widespread scale of the problem.** The map shows that the noisiest streets are concentrated along the city's main roads and truck routes to and from the industrial area, where intense traffic and heavy vehicle use significantly amplify noise exposure.

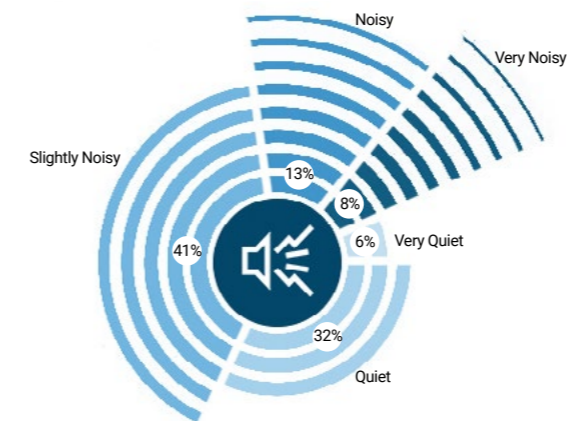


Fig. 31: Distribution of Noise Levels across Streets

(4) VISUAL EXPERIENCE

Visual quality strongly influences how welcoming public spaces feel. **The assessment revealed that 27% of the streets were reported to have unpleasant views.** The most significant source was garbage, observed in the majority of cases, followed by industrial and stone-cutting activities, which generate dust and visual clutter. Heavy trucks further obstruct views and add to congestion. Additional issues included construction debris, deteriorating façades, and informal activities, all of which contribute to a fragmented and degraded streetscape. The least visually pleasant areas, shown in darker shades on the map, are those where multiple negative elements; such as waste accumulation, industrial activity, and heavy traffic; converge, creating the most degraded visual environments.

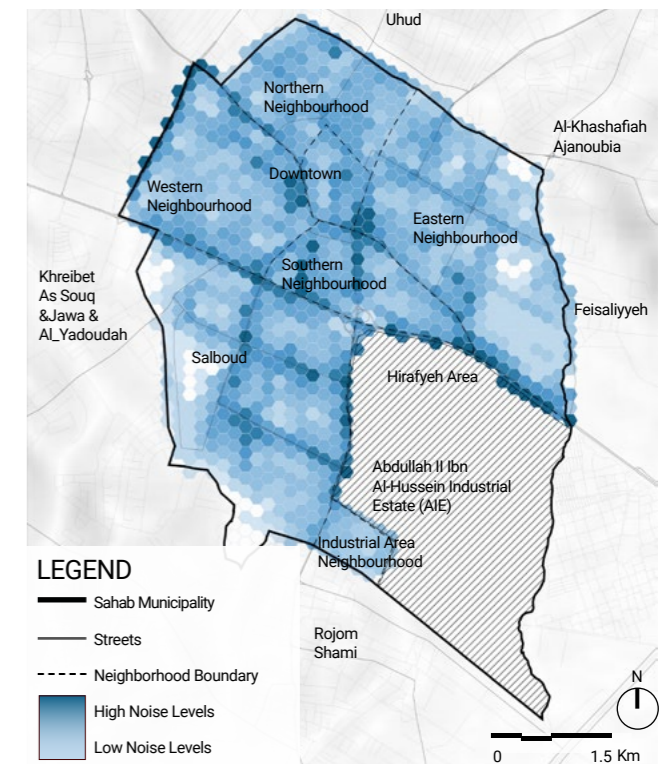


Fig. 32: Noise Assessment

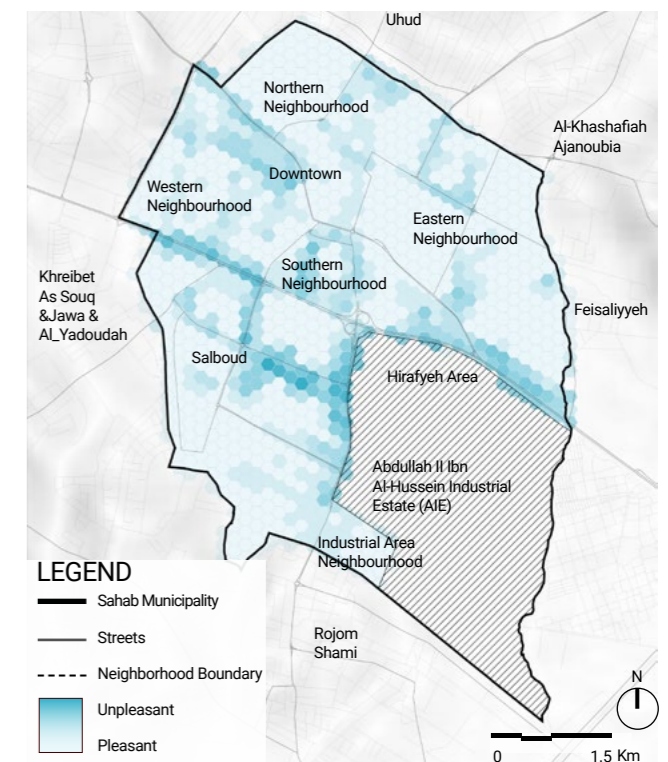


Fig. 33: View Assessment



COMFORT IN STREETS

The comfort of Sahab's streets is significantly compromised by overlapping environmental stressors. Taken together, the four sub-dimensions outlined on the previous page reveal a public realm shaped by the city's industrial character, inadequate infrastructure management, and traffic dominance. Air pollution stands out as one of the most critical challenges, with more than a third of streets affected by unclean air, particularly during daytime when industrial and stone-cutting activities are at their peak. Unpleasant smells, though less widespread, reinforce the discomfort in specific areas, especially where waste mismanagement, car exhaust, and industrial emissions converge. Noise pollution is by far the most pervasive issue, with nearly two-thirds of streets affected, underscoring how traffic and industrial flows undermine pedestrian comfort. Meanwhile, visual degradation; reported in over a quarter of streets; further reduces the quality of the streetscape through garbage accumulation, industrial clutter, and poorly maintained urban fabric.

When these factors overlap, streets become hostile environments for walking, cycling, and social interaction. Rather than functioning as inclusive and vibrant public spaces, they are often perceived as polluted, noisy, and unsafe; greatly limiting their potential to support community well-being and urban vitality. This is clearly reflected in the overall street comfort assessment map on the following page.

A scoring system was applied to evaluate comfort levels in streets, as follows:

- **Score 0: (None):** Poor conditions with unclean air, strong odours, visual blight, and excessive noise
- **Score 1: (Low):** Frequent unpleasant smells, noise, or clutter.
- **Score 2: (Moderate):** Some air, smell, noise, or visual discomfort.
- **Score 3: (High):** Generally good conditions with minor disturbances.
- **Score 4: (Very High):** Clean air, no unpleasant smells, no visual blight, minimal noise.

Dark red areas represent the un-comfortable streets of the city (score: 0); those reported as having unclean air, unpleasant smells, visual blight, and excessive noise. These zones are concentrated around the King Abdullah

II Industrial Estate, the stone-cutting area in southern Sahab, along the two main primary roads, and within the Southern Neighbourhood near the public transportation hub. By contrast, comfort levels gradually improve toward the city's periphery. Residential neighbourhoods and smaller local roads, less affected by heavy traffic and industrial activity, were reported to have fewer odours, better views, lower noise levels, and cleaner air. This contrast underscores the sharp divide between Sahab's central industrial corridors and its outer residential areas, and highlights the urgent need for targeted interventions in the city's most affected zones.



Improving street comfort in Sahab will therefore require integrated interventions: reducing industrial and vehicular emissions, strengthening waste management, introducing greenery and shading, and upgrading the visual and physical quality of the streetscape. Reducing emissions could be achieved through measures such as incentivizing the use of electric vehicles, introducing car-free zones in selected areas, and limiting the movement of heavy industrial trucks to certain hours of the day or diverting them onto alternative routes outside the city.



Fig. 34: Image of a street rated as high discomfort in the central area of Sahab, near the public transportation hub. © Sahab Municipality Team

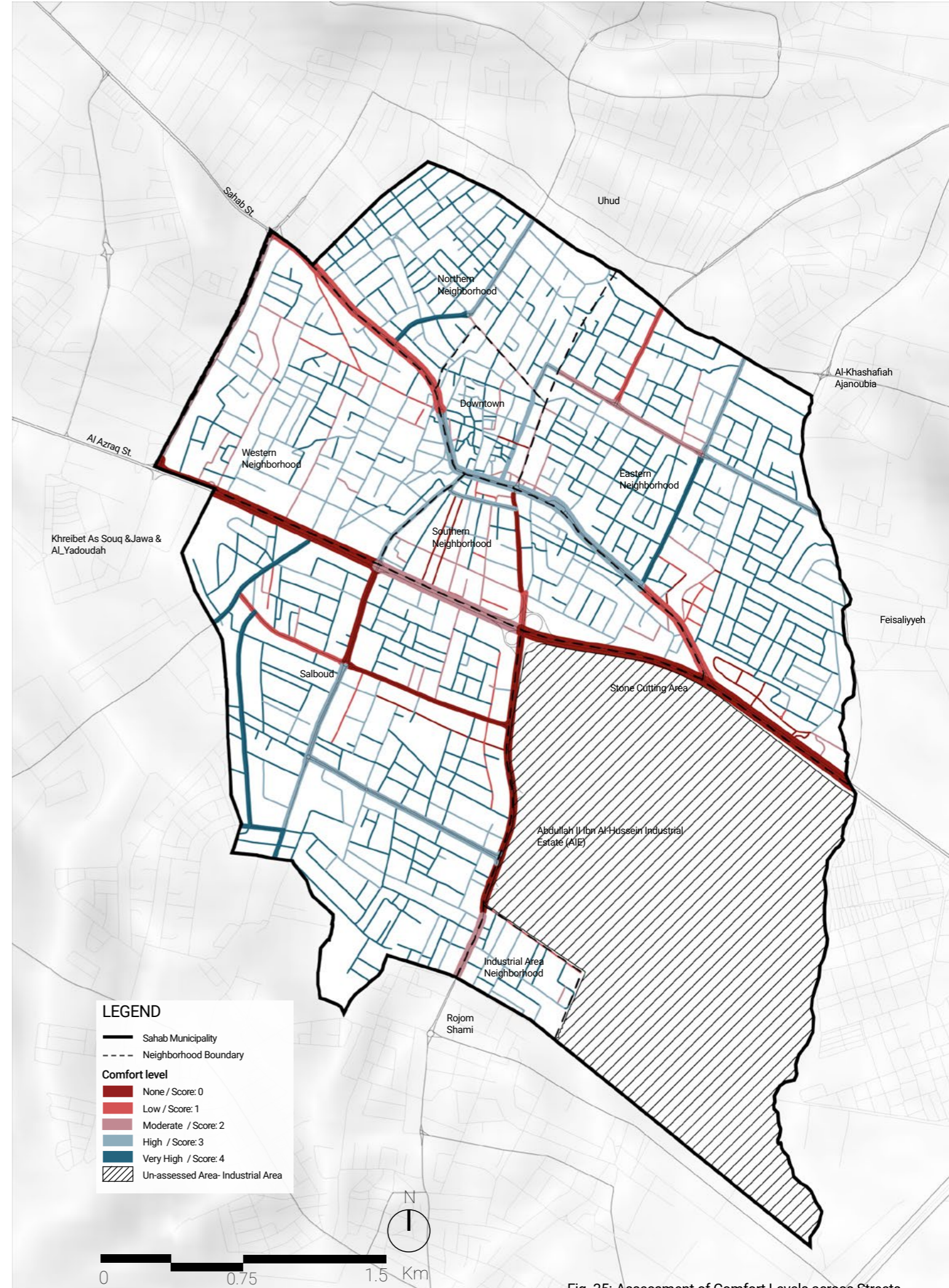


Fig. 35: Assessment of Comfort Levels across Streets.



COMFORT IN OPEN SPACES

Open spaces in Sahab encompass the Commercial Boulevard (Prince Hassan Street), the Al Hashemite Public Park, the public playground, the public transportation hub, and 12 roundabouts. While vacant lands are considered under the broader definition of open spaces, they were excluded from the current comfort assessment. This is because they do not yet function as active public spaces; however, if strategically planned and utilized, these lands could play a critical role in enhancing comfort levels and expanding the city's network of inclusive and accessible open spaces.

A total of 16 open space elements were evaluated for comfort following the same scoring rationale used for streets, focusing on the identified four sub-dimensions: noise, air quality, smell, and visual experience.

The results show that open spaces around the public transportation hub were rated as the least comfortable, reflecting high exposure to noise, air pollution, and unpleasant smells associated with heavy traffic and bus operations.

Discomfort was also reported around roundabouts located along the main roads, where vehicular dominance and poor pedestrian infrastructure undermine usability.

The Al Hashemite Park and the playground performed relatively better.

ACTION **Improving open spaces comfort in Sahab**
 will therefore require redesigning roundabouts as functional public spaces, and introducing greenery and shading, particularly in transport-related areas where environmental stressors are highest.

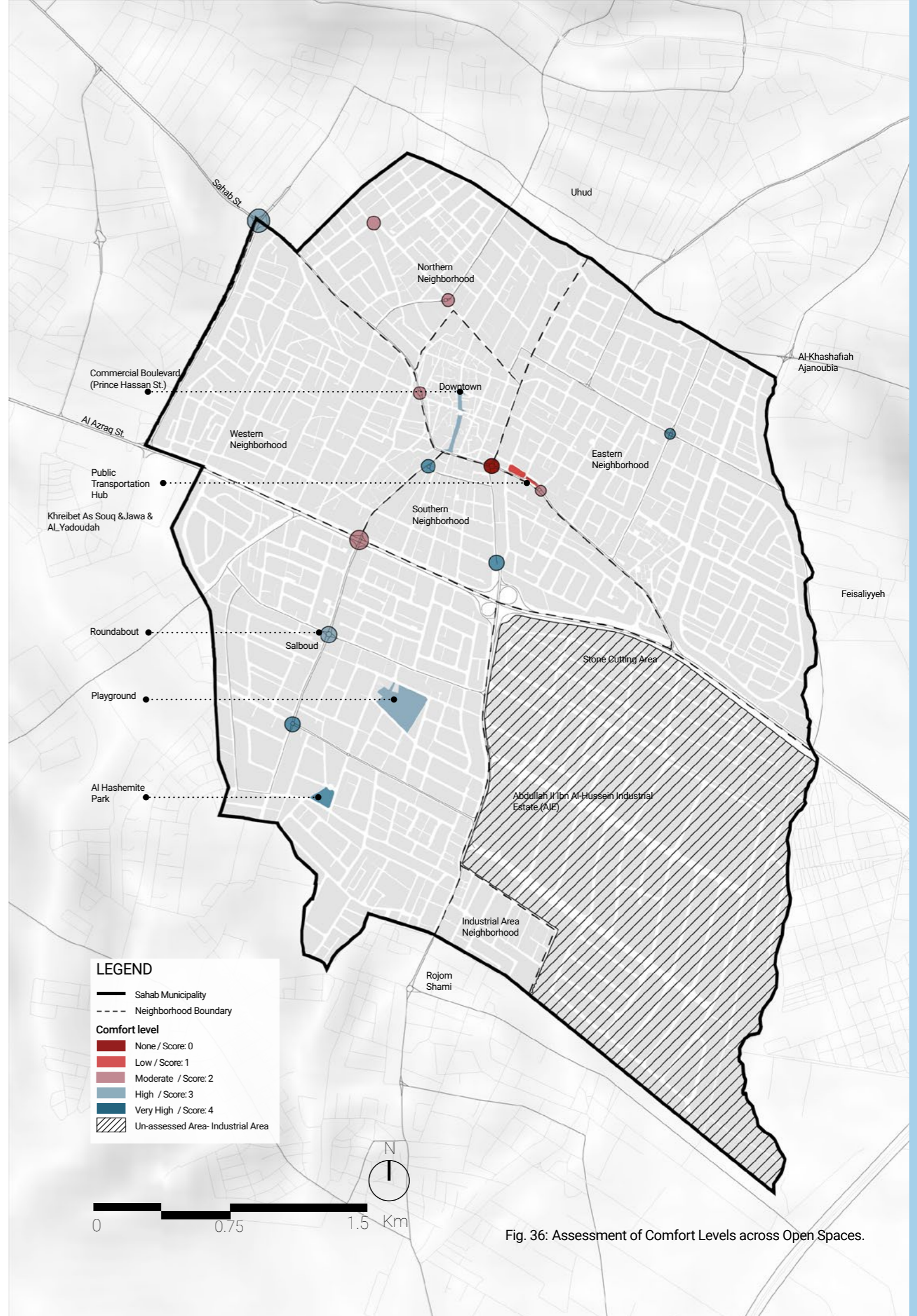


Fig. 36: Assessment of Comfort Levels across Open Spaces.



COMFORT IN PUBLIC FACILITIES

Public facilities in Sahab represent an important typology of public space, as their forecourts, courtyards, and surrounding open areas have the potential to function as informal gathering places that extend beyond the facilities' primary purposes. A total of 87 facilities were assessed, including mosques, public schools, commercial buildings, municipal administration buildings, the health centre, the hospital, Princess Basma Development Centre, and the cultural centre.

Although these facilities are not traditionally designed or managed as public spaces, they nonetheless constitute a significant untapped asset in the city's public space network. Many of them are centrally located within neighbourhoods and are regularly visited by residents, making them well-positioned to support community interaction, accessibility to green spaces, and improved environmental comfort.

The comfort assessment of public facilities applied the same scoring system and four sub-dimensions used for other typologies: noise, air quality, smell, and visual experience.

The map revealed that facilities located near the King Abdullah II Industrial Estate (AIE) and the stone-cutting area are among the least comfortable. In contrast, facilities situated farther from these hotspots, particularly toward the periphery of the city, were generally reported as more comfortable.

In terms of governance, public facilities in Sahab are managed by a combination of national and local authorities. Schools are administered by the Ministry of Education, while mosques fall under the Ministry of Awqaf and Islamic Affairs. The health centre and hospital are managed by the Ministry of Health. At the local level, the assessed commercial buildings, the cultural centre, and the municipal buildings are owned and managed by the municipality. The Princess Basma Development Centre is operated by the Jordanian Hashemite Fund for Human Development (JOHUD), while the open space linked to it remains under municipal ownership and management. This diversity of ownership and management underscores the need for strong institutional coordination to ensure that the open areas surrounding these facilities are integrated into the city's broader public

space and greening strategies. Through collaboration, each institution can actively contribute to greening efforts and the improvement of environmental quality across Sahab, ultimately enhancing the well-being and quality of life of its residents.

ACTION **Improving comfort in public facilities** will require planting trees along building façades and within open areas, adding shaded seating, and integrating small-scale green infrastructure within schools, mosques, and municipal buildings. These measures would help transform underutilized outdoor areas into vibrant micro public spaces that improve environmental comfort and promote community well-being.

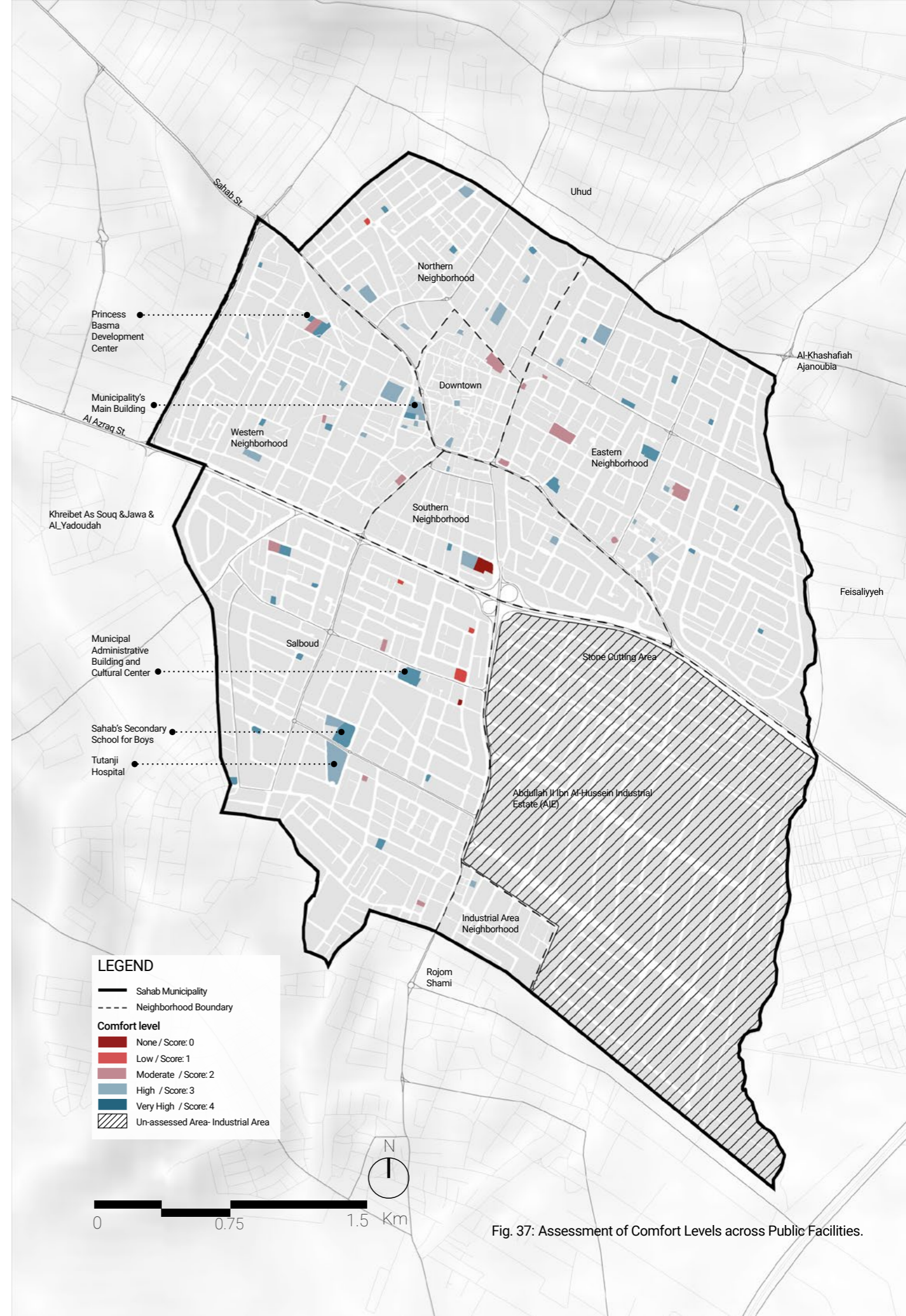


Fig. 37: Assessment of Comfort Levels across Public Facilities.



OVERALL COMFORT ASSESSMENT IN SAHAB'S PUBLIC SPACE NETWORK

When assessed as a connected network, Sahab's public spaces reveal distinct contrasts in overall comfort. The map on the following page synthesizes findings from the four sub-dimensions: air quality, noise, smell, and visual experience, to illustrate citywide patterns of environmental comfort across streets, open spaces, and public facilities.

The analysis shows that noise is the most dominant source of discomfort across the public space network, reported in 70% of all assessed locations. This is followed by the perception of unclean air (37%), mainly attributed to dust and industrial activities (46%) and vehicle emissions (33%). In comparison, discomfort related to visual conditions was lower (6%) due to unattractive views and 54% caused by the accumulation of garbage, as shown in the figures.

High discomfort levels are concentrated along the main mobility corridors, particularly around Al-Azraq Street, where intense industrial vehicle movement, air pollution, and noise create harsh environmental conditions. The central area within the southern neighbourhood, linking the downtown core and Sahab Street to Al-Azraq Street, also records low to moderate comfort levels, reflecting the combined effects of traffic congestion, mixed land uses, and limited greenery. In contrast, comfort levels increase progressively toward peripheral residential areas, where public spaces are more shielded from industrial activity and benefit from calmer, cleaner, and more pleasant surroundings. The most comfortable cluster within the public space network is located in Salboud, in the south-western part of the city, particularly around Al Hashemite Park and the public playground. Overall, while comfort is relatively higher in peripheral and residential areas, the central and industrial corridors remain heavily compromised.

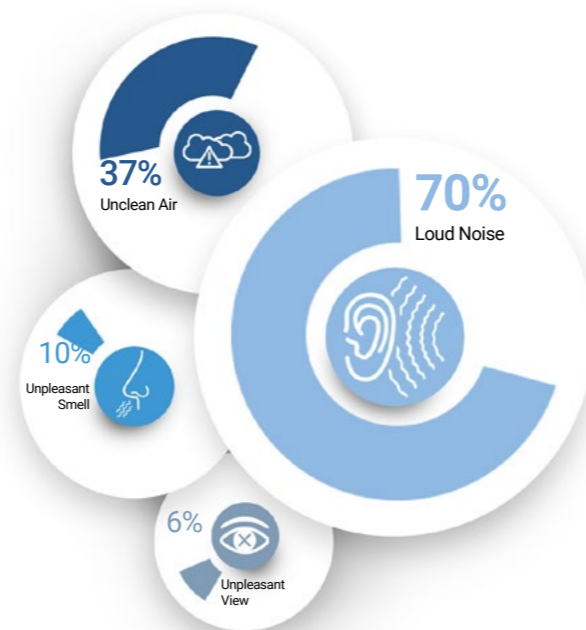


Fig. 39: Percentages of Indicators Influencing Overall Comfort within the Public Space Network

ACTION **Interventions to Improve comfort in the public space network**

The findings underscore the need for targeted interventions; particularly those that reduce noise and vehicle emissions, such as restricting heavy vehicle movement to specific hours, establishing low-emission or car-restricted zones, and enhancing green buffers along major mobility corridors; to create a safer, healthier, and more comfortable urban environment for all residents.

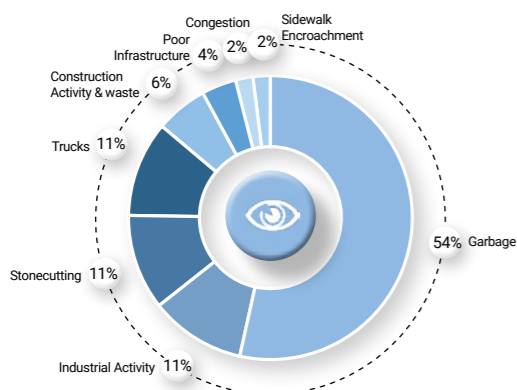


Fig. 38: Visual Disturbances Categories

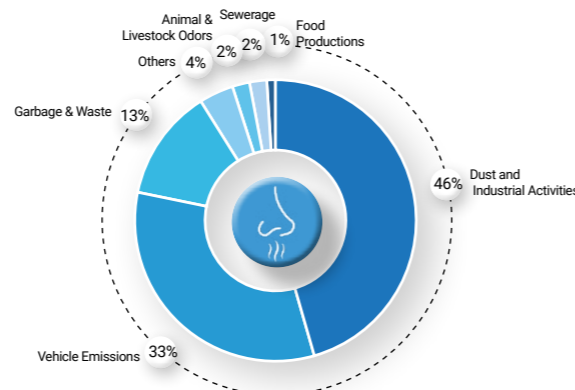


Fig. 40: Unpleasant Odours Causes Categories

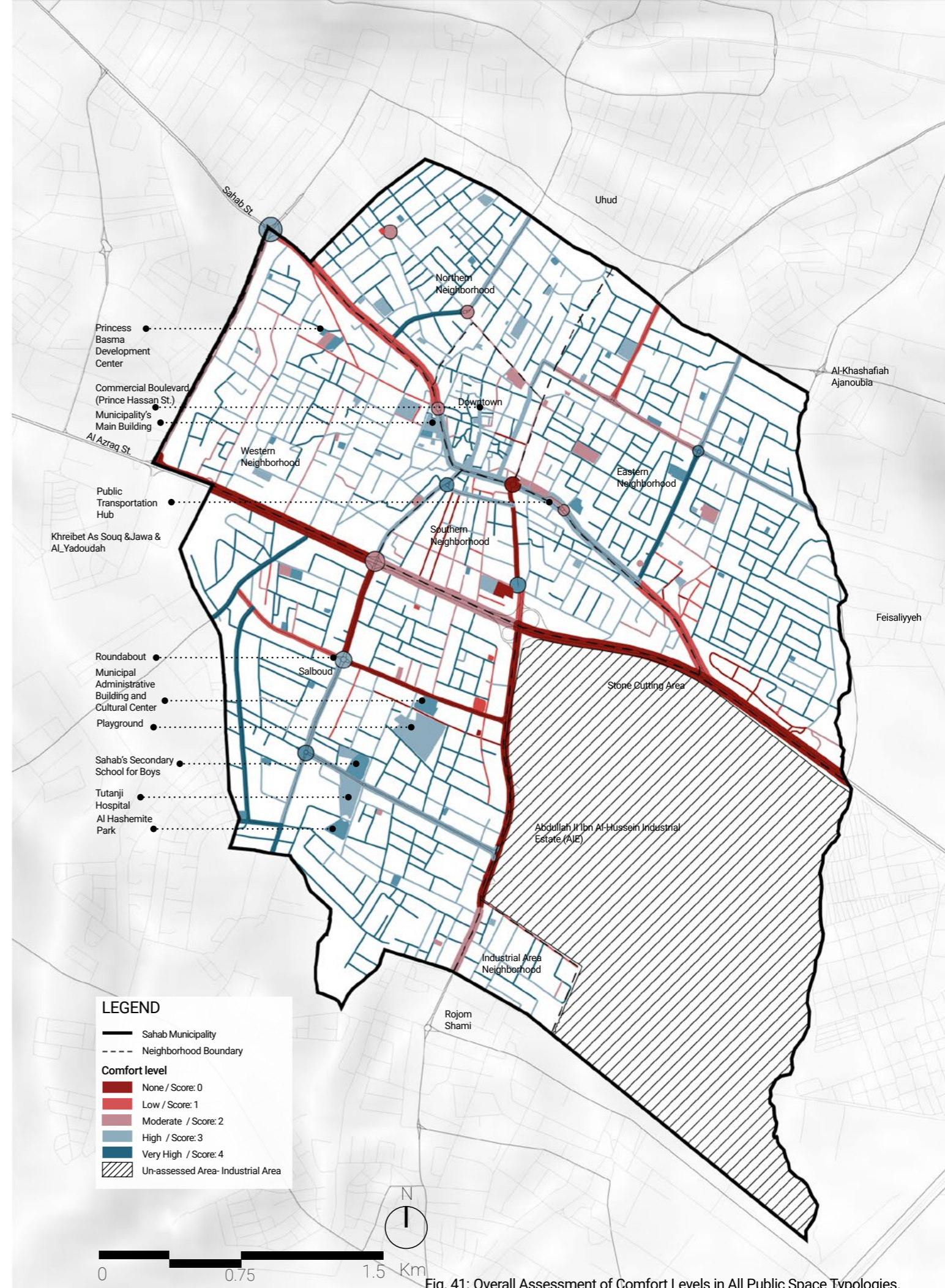


Fig. 41: Overall Assessment of Comfort Levels in All Public Space Typologies.



3. 2. 2 GREEN

GREEN COVERAGE

Green coverage is a cornerstone of urban livability, essential for improving air quality, mitigating the urban heat island effect, supporting biodiversity, and enhancing community well-being. Yet in Sahab, greenery is critically scarce and unevenly distributed. The city's industrial character, combined with rapid urban growth and limited investment in public realm greening, has left most neighbourhoods with little or no tree canopy or vegetative buffers. This deficit undermines environmental quality and restricts opportunities for recreation and comfort in public spaces.

Sahab's environmental conditions further complicate this challenge. The municipality lies at the intersection of two major biogeographical zones in Jordan: the Saharo-Arabian and Irano-Turanian. This creates a bioclimatic profile defined by semi-arid warm and arid cool zones, with limited rainfall, poor soil quality, and sharp seasonal temperature variations. Vegetation in this environment is naturally sparse and adapted to drought, consisting primarily of Mediterranean non-forest vegetation and steppe vegetation. Typical species include drought-tolerant shrubs, grasses, and herbs such as *Artemisia herba-alba* and *Anabasis syriaca*, which have evolved to survive in conditions of scarce water and extreme heat.

This ecological background highlights the importance of careful plant selection and context-sensitive greening strategies in Sahab. Greening efforts must work with the city's natural resilience, prioritizing drought-tolerant and locally adapted species that can withstand harsh urban and climatic conditions.

To understand the current state of greenery in Sahab, the assessment applied a two-step methodology designed to capture both the broader environmental picture and the on-the-ground realities:

- **Satellite Analysis (Baseline Coverage):** Satellite imagery captured at a 30 square meter resolution in 2021 was used to identify visible greenery across the city, as shown in the map on the next page. At this scale, only substantial vegetation, primarily tree canopies; appears. This level of greenery is most relevant for environmental benefits such as cooling, air quality improvement, and stormwater absorption. The analysis revealed

that the majority of Sahab lacks such vegetation, with dark green areas showing visible canopy and light green areas indicating its absence. Importantly, white areas do not necessarily lack all forms of greenery (e.g., shrubs or flowers) but do lack significant tree cover detectable at this scale.

- **Field Assessment (Presence of Green Elements):** To complement the satellite analysis, field surveys documented the presence of greenery within each public space typology, including tall trees and short trees/shrubs. Unlike the satellite data, this approach did not quantify canopy coverage but instead recorded whether greenery was present and its type. Spaces with both tall and short trees/shrubs were rated as having high greening value, while those without any greenery were classified as lacking altogether.

Overall and based on the satellite-image analysis, green-covered areas amount to approximately 1.6 km², representing only 12% of Sahab's total land area; a strikingly limited percentage. This underscores both the ecological challenges of the city's bioclimatic setting and the urgent need for strategic greening interventions to expand coverage, improve environmental quality, and strengthen community well-being.

By combining the satellite and field assessments, the analysis offers both a macro- and micro-scale view of greenery in the city. While the satellite imagery confirmed that most of Sahab lacks tree canopy sufficient to influence environmental quality, the field data provided a critical guiding layer, identifying where greening already exists and where it is entirely absent. Together, these findings provide the foundation for the upcoming phased Greening Public Space Plan, offering clear guidance on where interventions should start and how Sahab's green public space network can be expanded in a context-appropriate, strategic, and impactful way.

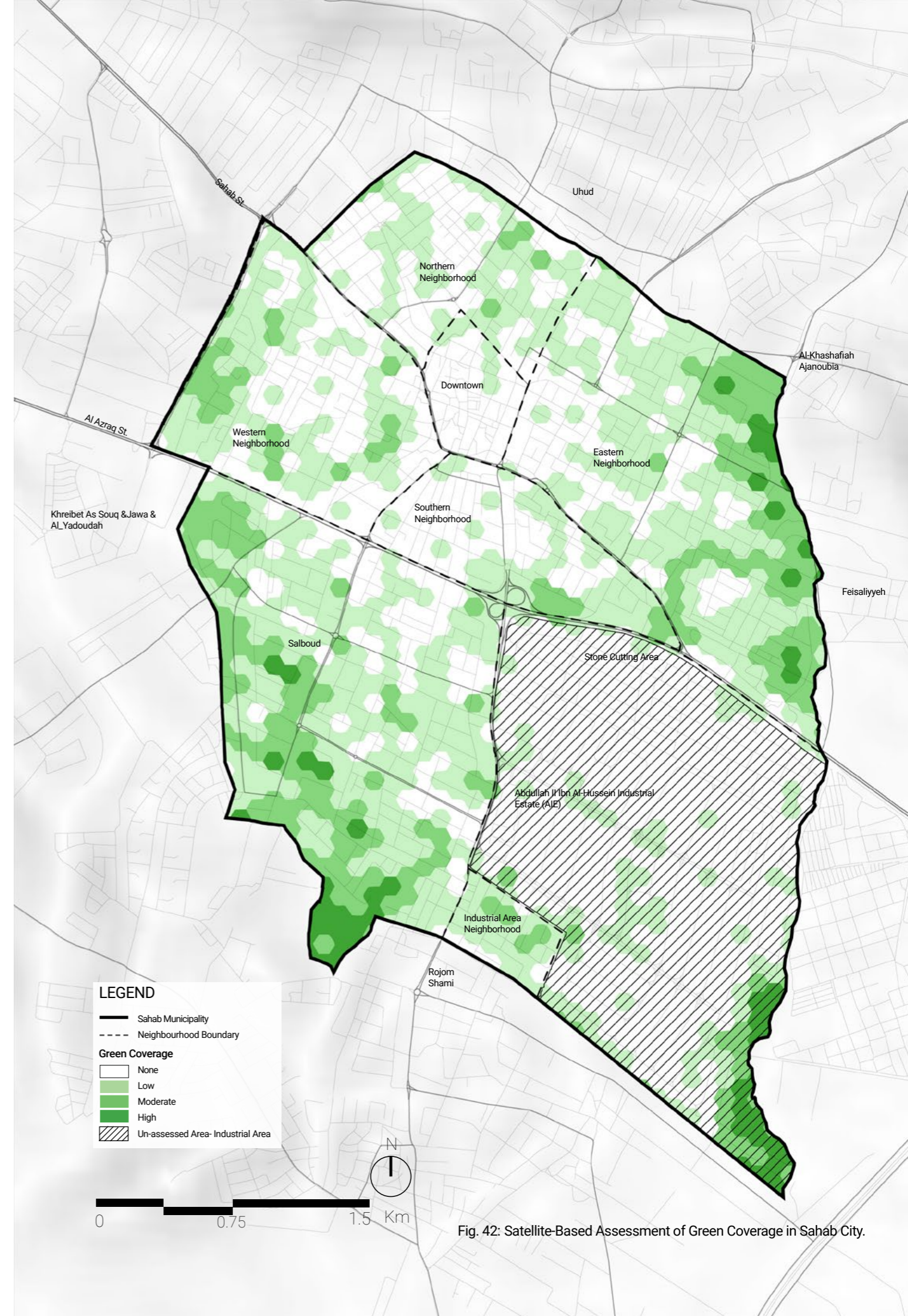


Fig. 42: Satellite-Based Assessment of Green Coverage in Sahab City.



PRESENCE OF GREEN ELEMENTS IN STREETS

The field assessment provided a detailed overview of the presence and types of green elements across Sahab's streets, revealing clear spatial variations as shown in the map on the next page. A scoring system was applied to evaluate greenery in streets, as follows:

- **Score 0 (None):** No greenery elements present.
- **Score 1 (Low):** Presence of short trees/shrubs only
- **Score 2 (Moderate):** Presence of tall trees only.
- **Score 3 (High):** Presence of both tall trees and short trees/shrubs.

Streets with no greenery elements at all are concentrated in the downtown core, along central stretches of Al-Azraq Road near the stone-cutting zone, and across scattered local roads throughout the city. By contrast, green elements are more commonly observed in residential areas, though coverage remains inconsistent and often limited to small plantings rather than continuous or shaded tree canopies. At the neighbourhood level, the Downtown area recorded the lowest share, with only 3% of its streets containing green elements. By contrast, the Industrial Neighbourhood had the highest share at 78%, as illustrated in the diagram below.

The existing vegetation in Sahab's streets include chinaberry (*Melia azedarach*), palms (*Washingtonia filifera*), and evergreens as shown in the images. In general the exiting vegetation is characterized by high tolerance to air pollution, dust, poor soils, and irregular irrigation, while requiring minimal maintenance and maintaining clear visibility for traffic. This indicates that the existing vegetation is well-suited to Sahab's environmental context and urban conditions.

Overall, Sahab's street network lacks consistent and connected green coverage. This deficiency exacerbates heat stress, worsens air quality, and reduces pedestrian

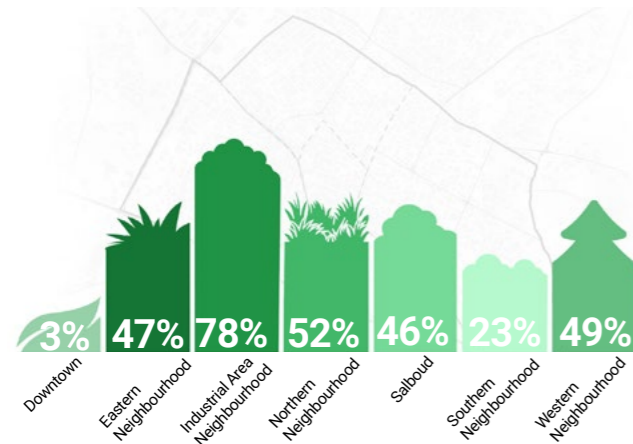


Fig. 43: Percentage of Streets with Moderate to High Green Elements Presence (Scores 2 & 3) by Neighborhood

comfort, particularly along major roads and in central areas. At the same time, the existing vegetation offers a valuable foundation for future greening. Their proven adaptability provides a reliable reference for expanding greenery in a way that is both context-appropriate and sustainable, enabling the city to gradually transform its streets into healthier, more comfortable, and climate-responsive public spaces.

ACTION Expand and connect greenery across Sahab's street network, giving priority to major roads and downtown neighbourhoods, by establishing continuous tree-lined corridors, introducing shaded pedestrian routes, and using locally adapted plant species to ensure sustainability.



Fig. 44: Images of Flora Observed along Sahab's Streets. © Sahab Municipality Team

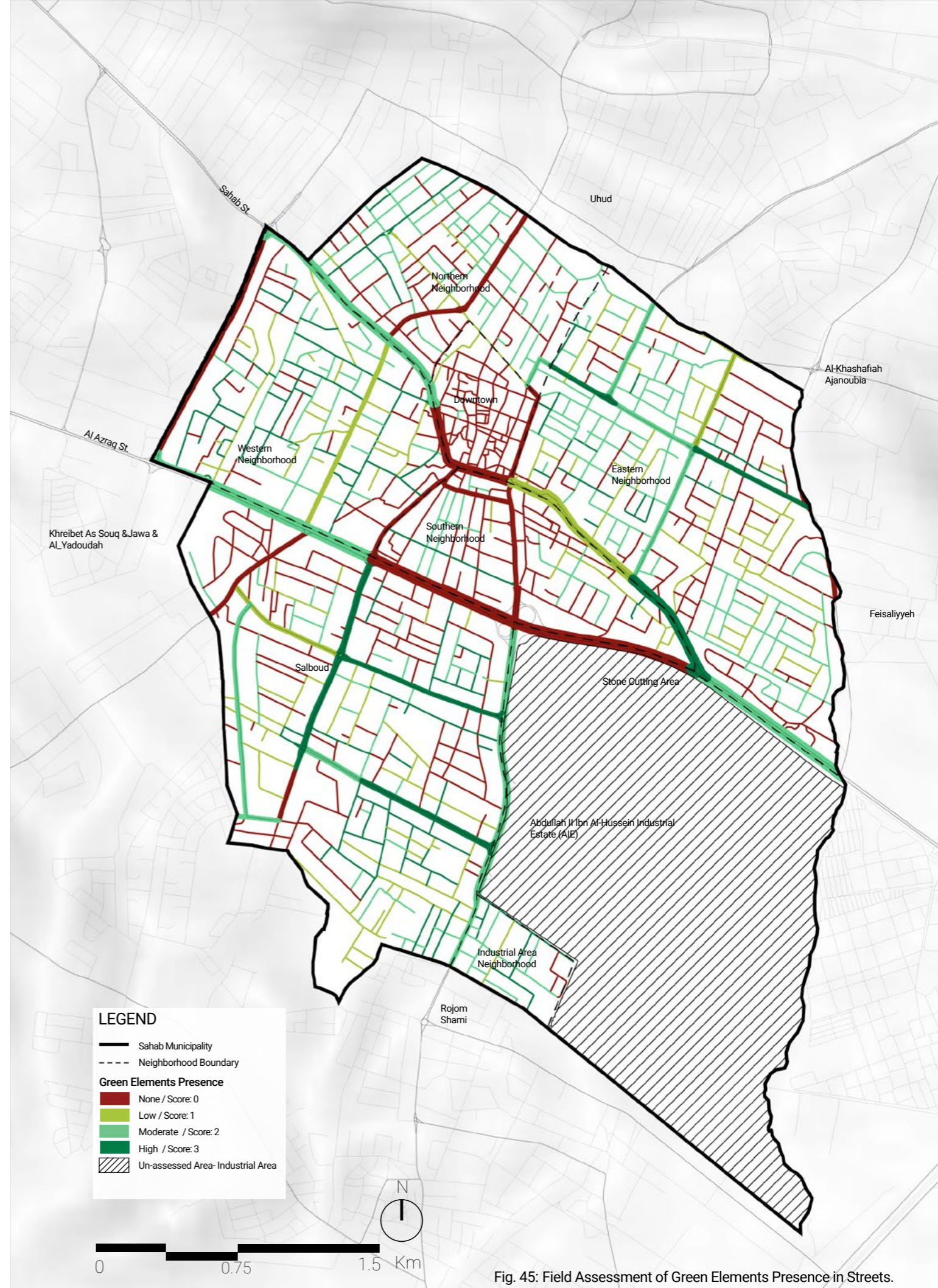


Fig. 45: Field Assessment of Green Elements Presence in Streets.



VEGETATION SPECIES IN STREETS

No.	Type Icon	Taxon	Type	Native	Exotic
01		<i>Achillea aleppica</i>	Chamaephyte	X	
02		<i>Achillea falcata</i>	Chamaephyte	X	
03		<i>Achillea santolina</i>	Hemicryptophyte	X	
04		<i>Aegilops kotschy</i>	Annual	X	
05		<i>Alcea setosa</i>	Hemicryptophyte	X	
06		<i>Alcea striata</i>	Hemicryptophyte	X	
07		<i>Alkanna strigosa</i>	Chamaephyte	X	
08		<i>Alkanna tinctoria</i>	Chamaephyte	X	
09		<i>Ailanthus altissima</i>	Tree		X
10		<i>Alopecurus arundinaceus</i>	Hemicryptophyte	X	
11		<i>Ammi majus</i>	Annual	X	
12		<i>Atriplex halimus</i>	Phanerophyte shrub	X	
13		<i>Ballota undulata</i>	Chamaephyte	X	
14		<i>Brachychiton acerifolius</i>	Tree		X
15		<i>Bougainvillea spectabilis</i>	Phanerophyte shrub		X
16		<i>Brassica nigra</i>	Annual	X	
17		<i>Bromus alopecuros</i>	Annual	X	
18		<i>Bromus haussknechtii</i>	Annual	X	
19		<i>Bromus japonicus</i>	Annual	X	
20		<i>Bromus scoparius</i>	Annual	X	
21		<i>Bromus tectorum</i>	Annual	X	
22		<i>Bromus tomentellus</i>	Hemicryptophyte	X	

Type Icon: Herbaceous Shrub Tree

Low Moderate High

Full sun Partial shade Full shade

Low Moderate High

Water Requirement	Shading Requirement	Invasion Risk	Detailed Description / Ecological Notes
			Native medicinal/forage value; supports pollinators on rocky slopes and steppe.
			Native medicinal/forage value; supports pollinators on rocky slopes and steppe.
			Native medicinal/forage value; supports pollinators on rocky slopes and steppe.
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			Native medicinal/forage value; supports pollinators on rocky slopes and steppe.
			Native medicinal/forage value; supports pollinators on rocky slopes and steppe.
			Very fast-growing urban-tolerant tree; allelopathic; invades disturbed sites.
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			Halophytic/ xerophytic; tolerates saline, sandy soils and drought. Management: use in controlled plantings; watch for self-seeding.
			Native medicinal/forage value; supports pollinators on rocky slopes and steppe.
			Woody species used in shelterbelts or landscaping; suited to regional climate.
			Woody species used in shelterbelts or landscaping; suited to regional climate.
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			Widespread in disturbed or grazed habitats; contributes to early-season ground cover.
			Widespread in disturbed or grazed habitats; contributes to early-season ground cover.
			Widespread in disturbed or grazed habitats; contributes to early-season ground cover.
			Widespread in disturbed or grazed habitats; contributes to early-season ground cover. Management: monitor spread and remove seedlings near natural habitats.
			Widespread in disturbed or grazed habitats; early-season ground cover.



VEGETATION SPECIES IN STREETS

Type Icon: Herbaceous Low Full sun Low

Shrub Moderate Partial shade Moderate

Tree High Full shade High

No.	Type Icon	Taxon	Type	Native	Exotic
23		<i>Calendula arvensis</i>	Annual	X	
24		<i>Calendula palaestina</i>	Annual	X	
25		<i>Callistemon salignus</i>	Tree		X
26		<i>Casuarina equisetifolia</i>	Tree		X
27		<i>Celtis australis</i>	Tree	X	
28		<i>Centaurea damascena</i>	Chamaephyte	X	
29		<i>Centaurea iberica</i>	Annual	X	
30		<i>Ceratonia siliqua</i>	Tree	X	
31		<i>Cercis siliquastrum</i>	Tree	X	
32		<i>Convolvulus althaeoides</i>	Climber	X	
33		<i>Convolvulus arvensis</i>	Climber	X	
34		<i>Convolvulus dorycnium</i>	Hemicryptophyte	X	
35		<i>Conyza stricta</i>	Chamaephyte	X	
36		<i>Cupressus arizonica</i>	Tree	X	
37		<i>Cupressus macrocarpa</i>	Tree	X	
38		<i>Cupressus sempervirens</i>	Tree	X	
39		<i>Cynodon dactylon</i>	Chamaephyte	X	
40		<i>Dactylis glomerata</i>	Hemicryptophyte	X	
41		<i>Dittrichia viscosa</i>	Chamaephyte	X	
42		<i>Dodonaea viscosa</i>	Phanerophyte shrub		X
43		<i>Eucalyptus camaldulensis</i>	Tree		X

Water Requirement	Shading Requirement	Invasion Risk	Detailed Description / Ecological Notes
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			Nectar-rich flowers; attracts pollinators; tolerates heat with periodic irrigation. Management: use in controlled plantings; watch for self-seeding.
			Coastal windbreak; tolerates salinity and wind; may outcompete natives. Management: monitor spread and remove seedlings near natural habitats.
			Hardy street tree; edible drupes for birds; moderate water needs.
			Widespread in disturbed or grazed habitats; early-season ground cover.
			Widespread in disturbed or grazed habitats; early-season ground cover.
			Mediterranean agroforestry tree; drought-tolerant; pods for fodder and food uses.
			Deciduous ornamental; spring blossoms for pollinators; moderate drought tolerance.
			Woody species used in shelterbelts or landscaping; suited to regional climate.
			Woody species used in shelterbelts or landscaping; suited to regional climate.
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			Common in disturbed or grazed sites, providing early ground cover; requires monitoring to prevent unwanted spread.
			Evergreen windbreak; moderate drought tolerance; potential to naturalize. Management: monitor spread and remove seedlings near natural habitats.
			Evergreen windbreak; moderate drought tolerance; potential to naturalize. Management: monitor spread and remove seedlings near natural habitats.
			Evergreen windbreak; moderate drought tolerance; potential to naturalize.
			A rhizomatous grass that spreads aggressively by stolons. Good for erosion control but can be invasive; manage its spread.
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			Common in disturbed areas, provides early ground cover, supports pollinators; useful in controlled plantings but may self-seed.
			Woody species used in shelterbelts or landscaping; suited to regional climate. Management: use in controlled plantings; watch for self-seeding.
			Fast-growing windbreak that can spread aggressively; needs regular control.



VEGETATION SPECIES IN STREETS

No.	Type Icon	Taxon	Type	Native	Exotic
44	‡	<i>Filago contracta</i>	Annual	X	
45	‡	<i>Filago pyramidata</i>	Annual	X	
46	‡	<i>Lactuca orientalis</i>	Hemicryptophyte	X	
47	‡	<i>Lactuca serriola</i>	Annual	X	
48	‡	<i>Lactuca tuberosa</i>	Hemicryptophyte	X	
49	‡	<i>Launaea mucronata</i>	Annual	X	
50	‡	<i>Leontodon tuberosus</i>	Annual	X	
51	‡	<i>Leopoldia comosa</i>	Annual	X	
52	‡	<i>Leopoldia eburenea</i>	Annual	X	
53	🌳	<i>Melia azedarach</i>	Tree		X
54	🌿	<i>Nerium oleander</i>	Phanerophyte shrub	X	
55	🌿	<i>Pennisetum divisum</i>	Chamaephyte	X	
56	🌿	<i>Pennisetum orientale</i>	Chamaephyte	X	
57	🌿	<i>Phagnalon rupestre</i>	Chamaephyte	X	
58	🌳	<i>Phoenix dactylifera</i>	Tree	X	
59	🌳	<i>Pistacia atlantica</i>	Tree	X	
60	🌿	<i>Plantago albicans</i>	Hemicryptophyte	X	
61	🌳	<i>Platanus orientalis</i>	Tree	X	
62	🌿	<i>Pluchea dioscoridis</i>	Phanerophyte shrub		X
63	🌿	<i>Poa bulbosa</i>	Hemicryptophyte	X	
64	🌿	<i>Podonosma orientalis</i>	Chamaephyte	X	
65	🌳	<i>Populus alba</i>	Tree	X	

Type Icon: Herbaceous Low Full sun Low

Shrub Moderate Partial shade Moderate

Tree High Full shade High

Water Requirement	Shading Requirement	Invasion Risk	Detailed Description / Ecological Notes
			Widespread in disturbed or grazed habitats; early-season ground cover.
			Widespread in disturbed or grazed habitats; early-season ground cover.
			Widespread in disturbed or grazed habitats; early-season ground cover.
			Widespread in disturbed or grazed habitats; early-season ground cover.
			Widespread in disturbed or grazed habitats; early-season ground cover.
			Widespread in disturbed or grazed habitats; early-season ground cover.
			Widespread in disturbed or grazed habitats; early-season ground cover.
			Widespread in disturbed or grazed habitats; early-season ground cover.
			Widespread in disturbed or grazed habitats; early-season ground cover.
			Widespread in disturbed or grazed habitats; early-season ground cover.
			Urban shade tree; prolific seeder; weedy near watercourses.
			Riparian shrub; toxic foliage; ornamental; requires seedling control.
			Native steppe herb; drought-tolerant and seasonal; manage seedling spread.
			Native steppe herb; drought-tolerant and seasonal; manage seedling spread.
			Medicinal/forage value; supports pollinators on rocky slopes and steppe.
			Traditional oasis species; tolerates salinity with regular irrigation.
			Native dryland tree; deep-rooted, drought-tolerant; supports biodiversity.
			Widespread in disturbed or grazed habitats; early-season ground cover.
			Prefers high moisture along wadis/valleys; fast-growing shade tree.
			Woody species used in shelterbelts /landscaping; suited to regional climate.
			Widespread in disturbed or grazed habitats; early-season ground cover..
			Medicinal/forage value; supports pollinators on rocky slopes and steppe.
			Prefers high moisture along wadis/valleys; fast-growing shade tree.



VEGETATION SPECIES IN STREETS

No.	Type Icon	Taxon	Type	Native	Exotic
66		<i>Prosopis farcta</i>	Chamaephyte	X	
67		<i>Retama raetam</i>	Phanerophyte shrub	X	
68		<i>Ricinus communis</i>	Tree	X	
69		<i>Salix alba</i>	Tree	X	
70		<i>Sambucus nigra</i>	Phanerophyte shrub	X	
71		<i>Schinus molle</i>	Tree		X
72		<i>Scrophularia xanthoglossa</i>	Chamaephyte	X	
73		<i>Tamarix aphylla</i>	Tree	X	
74		<i>Washingtonia filifera</i>	Tree		X

Type Icon:

	Herbaceous		Low		Full sun		Low
	Shrub		Moderate		Partial shade		Moderate
	Tree		High		Full shade		High

Water Requirement	Shading Requirement	Invasion Risk	Detailed Description / Ecological Notes
			Nitrogen-fixing shrub; thicket-forming in sandy areas; control spread.
			Halophytic/xerophytic; tolerates saline, sandy soils; manage self-seeding.
			Escapes along wadis; toxic seeds; remove volunteers; manage spread.
			Prefers high moisture along wadis/valleys; fast-growing shade tree.
			Moist microsites; nectar and bird food; moderate water demand.
			Drought-tolerant ornamental; may self-seed; manage spread.
			Medicinal/forage value; supports pollinators on rocky slopes and steppe.
			Halophytic/ xerophytic; tolerates saline, sandy soils and drought.
			Hardy palm; seeds disperse by birds and water; remove volunteers to prevent spread.

Table 1: Existing Flora Species Observed along Sahab's Streets and its Characteristics.



PRESENCE OF GREEN ELEMENTS IN OPEN SPACES

Following the same scoring rationale used for streets, the assessment of open spaces in Sahab revealed significant disparities in the presence of greenery.

Al Hashemite Park and the public playground demonstrated the highest ecological value, with the richest diversity of greenery including tall trees, and short trees/shrubs, in addition to flowers. These spaces not only offer shade and visual relief but also provide meaningful recreational potential for the community.

By comparison, the Commercial Boulevard (Prince Hassan Street) was rated as moderate, with greenery limited mainly to tall trees.

In contrast, the public transportation hub and several roundabouts were characterized by low levels of greenery diversity, where only sparse or fragmented short trees/shrubs were present, contributing little to comfort or environmental quality. Out of the 12 roundabouts assessed, 7 were found to lack any green elements entirely, functioning only as paved or barren areas. At the opposite end of the spectrum, only one roundabout, the entrance roundabout from Sahab Street, stood out for its relatively diverse greenery, featuring a mix of tall trees and short trees/shrubs.

Where greenery does exist, it is shaped by practicality and ease of maintenance, with species such as flowering shrubs (*Argyranthemum frutescens*) providing seasonal color, and evergreens (*Thuja orientalis*) ensuring year-round structure. These resilient species tolerate shallow soils, high solar exposure, and limited irrigation while requiring minimal upkeep. Although modest in scale, they offer important micro-climatic benefits and aesthetic relief, underscoring the potential for Sahab to expand such approaches across its underutilized and barren open spaces to create more inviting, comfortable, and environmentally responsive public areas.

Overall, aside from the park, playground, and a few isolated examples, most of Sahab's open spaces fall at the lowest end of the greenery spectrum, reflecting minimal investment in greening and underscoring the urgent need for targeted interventions.



Fig. 46: Images of Flora Observed along Sahab's Open Spaces © Sahab Municipality Team.

ACTION **Strengthening greenery in public open spaces**, particularly roundabouts and transport nodes; represents a critical opportunity to improve both environmental performance and the visual quality of the city's public realm.

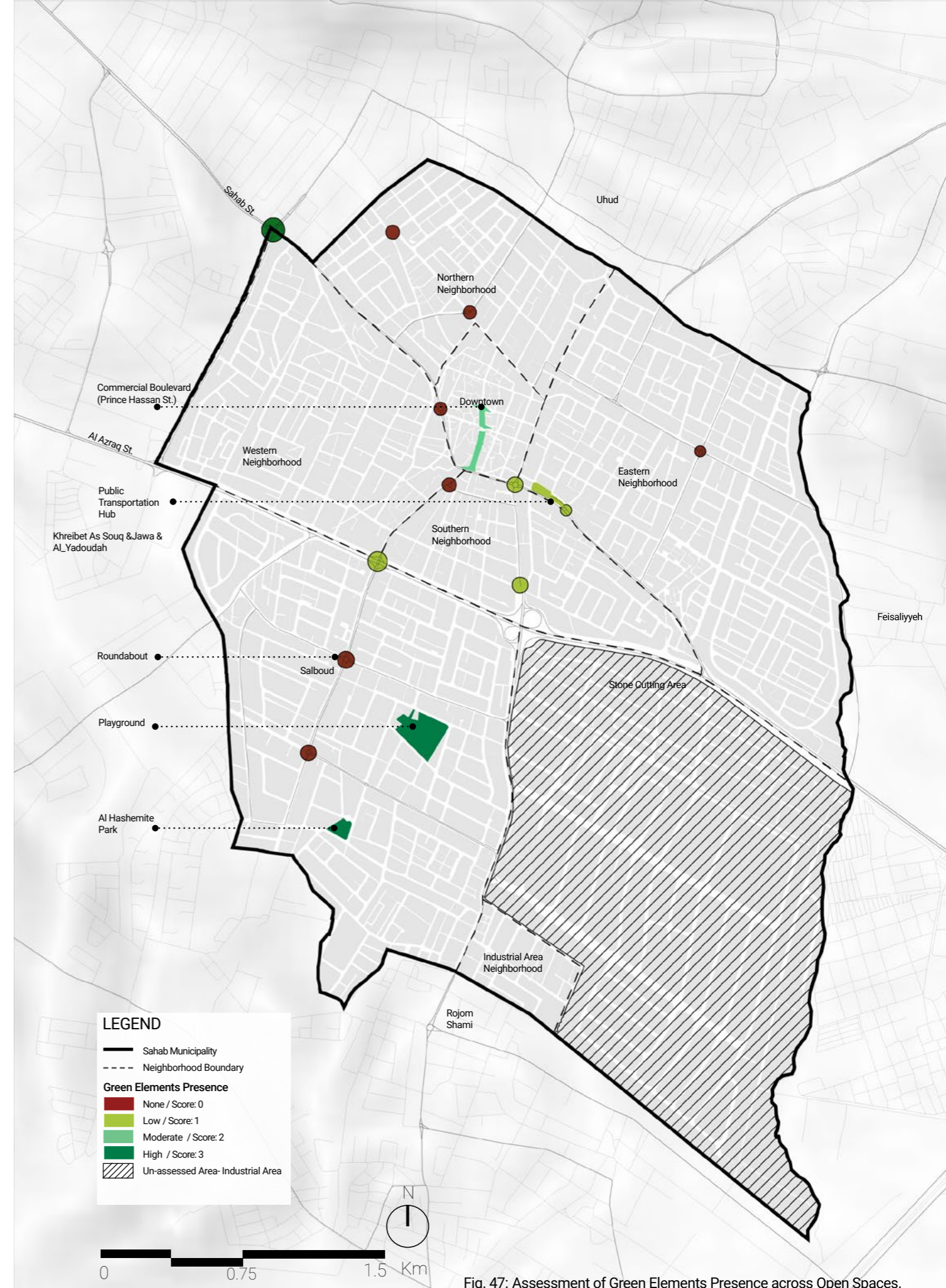


Fig. 47: Assessment of Green Elements Presence across Open Spaces.



VEGETATION SPECIES IN OPEN SPACES

No.	Type Icon	Taxon	Type	Native	Exotic
01		<i>Achillea fragrantissima</i>	Chamaephyte	X	
02		<i>Achillea santolina</i>	Hemicryptophyte	X	
03		<i>Aegilops kotschy</i>	Annual	X	
04		<i>Alcea setosa</i>	Hemicryptophyte	X	
05		<i>Alcea striata</i>	Hemicryptophyte	X	
06		<i>Alopecurus arundinaceus</i>	Hemicryptophyte	X	
07		<i>Althaea hirsuta</i>	Annual	X	
08		<i>Amygdalus communis</i>	Tree	X	
09		<i>Arundo donax</i>	Phanerophyte shrub	X	
10		<i>Asparagus aphyllus</i>	Geophyte	X	
11		<i>Argyranthemum frutescens</i>	Annual		X
12		<i>Brachychiton acerifolius</i>	Tree		X
13		<i>Bougainvillea spectabilis</i>	Phanerophyte shrub		X
14		<i>Bromus scoparius</i>	Annual	X	
15		<i>Bromus tectorum</i>	Annual	X	
16		<i>Bromus tomentellus</i>	Hemicryptophyte	X	
17		<i>Callistemon salignus</i>	Tree		X
18		<i>Centaurea iberica</i>	Annual	X	
19		<i>Ceratonia siliqua</i>	Tree	X	
20		<i>Chiladenus iphionoides</i>	Hemicryptophyte	X	
21		<i>Chrysanthemum segetum</i>	Annual	X	
22		<i>Citrus limon</i>	Tree		X
23		<i>Cupressus arizonica</i>	Tree		X

Type Icon: Herbaceous Low Full sun Low

Shrub Moderate Partial shade Moderate

Tree High Full shade High

Water Requirement	Shading Requirement	Invasion Risk	Detailed Description / Ecological Notes
			Native medicinal/forage value; supports pollinators on rocky slopes and steppe.
			Native medicinal/forage value; supports pollinators on rocky slopes and steppe.
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			Woody species used in shelterbelts or landscaping; suited to regional climate.
			Prefers moist soils, riverbanks, wadis, irrigation canals, wetlands, and disturbed water edges.
			A perennial, woody, leafless shrub with erect or arching stems.
			A perennial or subshrub often grown as an ornamental plant.
			Woody species used in shelterbelts or landscaping
			Woody species used in shelterbelts or landscaping
			Widespread in disturbed or grazed habitats; early-season ground cover.
			Common in disturbed or grazed areas, providing early cover; requires monitoring to prevent spread.
			Widespread in disturbed or grazed habitats; early-season ground cover.
			Nectar-rich flowers; attracts pollinators; tolerates heat with periodic irrigation. watch for self-seeding.
			Widespread in disturbed or grazed habitats; early-season ground cover.
			Widespread in disturbed or grazed habitats; early-season ground cover.
			Native herb of rocky slopes/steppe; aromatic; supports pollinators.
			Drought-tolerant annual
			Evergreen tree reaching 3–6 meters in height, sometimes taller
			Evergreen windbreak; moderate drought tolerance; potential to naturalize. Management: monitor spread and remove seedlings near natural habitats.



VEGETATION SPECIES IN OPEN SPACES

No.	Type Icon	Taxon	Type	Native	Exotic
24		<i>Cupressus macrocarpa</i>	Tree		X
25		<i>Cupressus sempervirens</i>	Tree	X	
26		<i>Cynodon dactylon</i>	Chamaephyte	X	
27		<i>Dactylis glomerata</i>	Hemicryptophyte	X	
28		<i>Dodonaea viscosa</i>	Phanerophyte shrub		X
29		<i>Eucalyptus camaldulensis</i>	Tree		X
30		<i>Euphorbia hierosolymitana</i>	Annual	X	
31		<i>Ficus carica</i>	Tree	X	
32		<i>Foeniculum vulgare</i>	Hemicryptophyte	X	
33		<i>Geranium albanum</i>	Hemicryptophyte		X
34		<i>Hordeum bulbosum</i>	Hemicryptophyte	X	
35		<i>Hordeum marinum</i>	Annual	X	
36		<i>Hordeum spontaneum</i>	Annual	X	
37		<i>Hyparrhenia hirta</i>	Geophyte	X	
38		<i>Malva parviflora</i>	Annual	X	
39		<i>Marrubium alysson</i>	Chamaephyte	X	
40		<i>Medicago minima</i>	Annual	X	
41		<i>Medicago orbicularis</i>	Annual	X	
42		<i>Medicago polymorpha</i>	Annual	X	
43		<i>Melilotus indicus</i>	Annual	X	
44		<i>Melia azedarach</i>	Tree		X
45		<i>Morus nigra</i>	Tree		X
46		<i>Nicotiana glauca</i>	Phanerophyte shrub		X

Water Requirement	Shading Requirement	Invasion Risk	Detailed Description / Ecological Notes
			Evergreen windbreak; moderate drought tolerance; potential to naturalize. Management: monitor spread and remove seedlings near natural habitats.
			Evergreen windbreak; moderate drought tolerance; potential to naturalize.
			Rhizomatous turf grass that spreads fast; good for erosion control but needs monitoring to limit spread.
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			Woody species used in shelterbelts or landscaping; watch for self-seeding.
			Fast-growing windbreak that can spread along waterways; requires regular monitoring and seedling removal.
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			A deciduous small tree or large shrub, typically 3–7 meters tall.
			Perennial or biennial herb reaching 1–2.5 meters in height.
			Perennial or hemicryptophytic herb, typically 20–50 cm tall.
			Widespread in disturbed or grazed habitats; early-season ground cover.
			Widespread in disturbed or grazed habitats; early-season ground cover.
			Widespread in disturbed or grazed habitats; early-season ground cover.
			Perennial tussock-forming grass, usually 0.5–1.2 m tall.
			Growth form is tufted to spreading, often forming a rosette at the base.
			Native medicinal/forage value; supports pollinators on rocky slopes and steppe.
			Low, prostrate to ascending
			Forms small mats or scattered clumps in open ground
			Prostrate to ascending, often forming loose mats
			Widespread in disturbed areas; nitrogen-fixing annual.
			Urban shade tree; prolific seeder; may become weedy near watercourses. Management: monitor spread and remove seedlings near natural habitats.
			Deciduous tree, typically 8–12 meters tall, though often maintained smaller under cultivation.
			Urban shade tree; prolific seeder; may become weedy near watercourses. Management: monitor spread and remove seedlings near natural habitats.



VEGETATION SPECIES IN OPEN SPACES

No.	Type Icon	Taxon	Type	Native	Exotic
47		<i>Nerium oleander</i>	Phanerophyte shrub	X	
48		<i>Olea europaea</i>	Tree	X	
49		<i>Pennisetum divisum</i>	Chamaephyte	X	
50		<i>Pennisetum orientale</i>	Chamaephyte	X	
51		<i>Phoenix dactylifera</i>	Tree	X	
52		<i>Poa bulbosa</i>	Hemicryptophyte	X	
53		<i>Populus alba</i>	Tree	X	
54		<i>Sambucus nigra</i>	Phanerophyte shrub	X	
55		<i>Scrophularia xanthoglossa</i>	Chamaephyte	X	
56		<i>Tamarix aphylla</i>	Tree	X	
57		<i>Washingtonia filifera</i>	Tree		X

Type Icon: Herbaceous Low Full sun Low

Shrub Moderate Partial shade Moderate

Tree High Full shade High

Water Requirement	Shading Requirement	Invasion Risk	Detailed Description / Ecological Notes
			A long-lived evergreen tree, typically 4–10 meters tall, sometimes taller in old groves.
			A long-lived evergreen tree, typically 4–10 meters tall, sometimes taller in old groves.
			Native tussock grass of sandy habitats; drought-tolerant. Management: monitor spread where irrigated.
			Native ornamental grass; drought-tolerant. Management: monitor spread where irrigated.
			Traditional oasis species; tolerates salinity with regular irrigation.
			Widespread in disturbed or grazed habitats; contributes to early-season ground cover.
			Prefers high moisture along wadis/valleys; fast-growing shade tree. Management: low invasive concern under normal conditions.
			Moist microsites; nectar and bird food; moderate water demand.
			Native medicinal/forage value; supports pollinators on rocky slopes and steppe.
			Halophytic/xerophytic tree; tolerates saline, sandy soils and drought.
			Hardy palm; seeds disperse by birds and water; remove volunteers to prevent spread. Management: monitor spread and remove seedlings near natural habitats.

Table 2: Existing Flora Species Observed along Sahab's Open Spaces and its Characteristics.



PRESENCE OF GREEN ELEMENTS IN PUBLIC FACILITIES

Applying the same scoring rationale, out of the 87 facilities assessed, only 16 facilities achieved the highest score of 3, indicating the presence of both tall and short trees. The majority of these were mosques (10), followed by 5 schools and the Princess Basma Development Centre.

A further 31 facilities scored 2, reflecting the presence of tall trees only, with most belonging to the categories of mosques and schools. By contrast, only 4 mosques were rated 1, where greenery was limited to short trees or shrubs. Alarmingly, 36 facilities; nearly half of the total; were recorded as having no green elements at all (score 0). These were predominantly mosques and schools, highlighting the absence of even basic greenery in spaces that serve as everyday community anchors.

This distribution illustrates both the potential and gaps within Sahab's public facilities. While some sites demonstrate successful greening, especially where both tall and short trees coexist, the absence of greenery in a large share of schools and mosques underscores a missed opportunity to improve comfort, environmental quality, and the usability of these facilities. Expanding greenery in such locations could deliver significant benefits for community well-being and resilience.

Where greenery does exist, it is typically selected for durability, shade provision, and the ability to withstand drought, compacted soils, and high sun exposure. Common species include olives (*Olea europaea*) and cypress (*Cupressus sempervirens* var. *horizontalis* and *pyramidalis*). Olive trees provide permanence and shaded gathering spaces, while cypress trees, with their dense vertical forms, act as screens, boundary markers, and windbreaks. Together, they help buffer noise, enhance privacy, and reduce disturbances from surrounding urban activity, thereby improving the usability and quality of facilities. While these examples demonstrate the feasibility and benefits of integrating greenery into public facilities, current efforts remain fragmented and insufficient, underscoring the need for a more systematic approach.

ACTION **Scaling up greening across the city's network of public facilities** will play a transformative role in enhancing comfort and mitigating environmental pressures.



Fig. 48: Images of Flora Observed along Sahab's Public Facilities.

42% of all public facilities lack green facilities



Fig. 49: Number/Type of Public Facilities that lack any green elements.

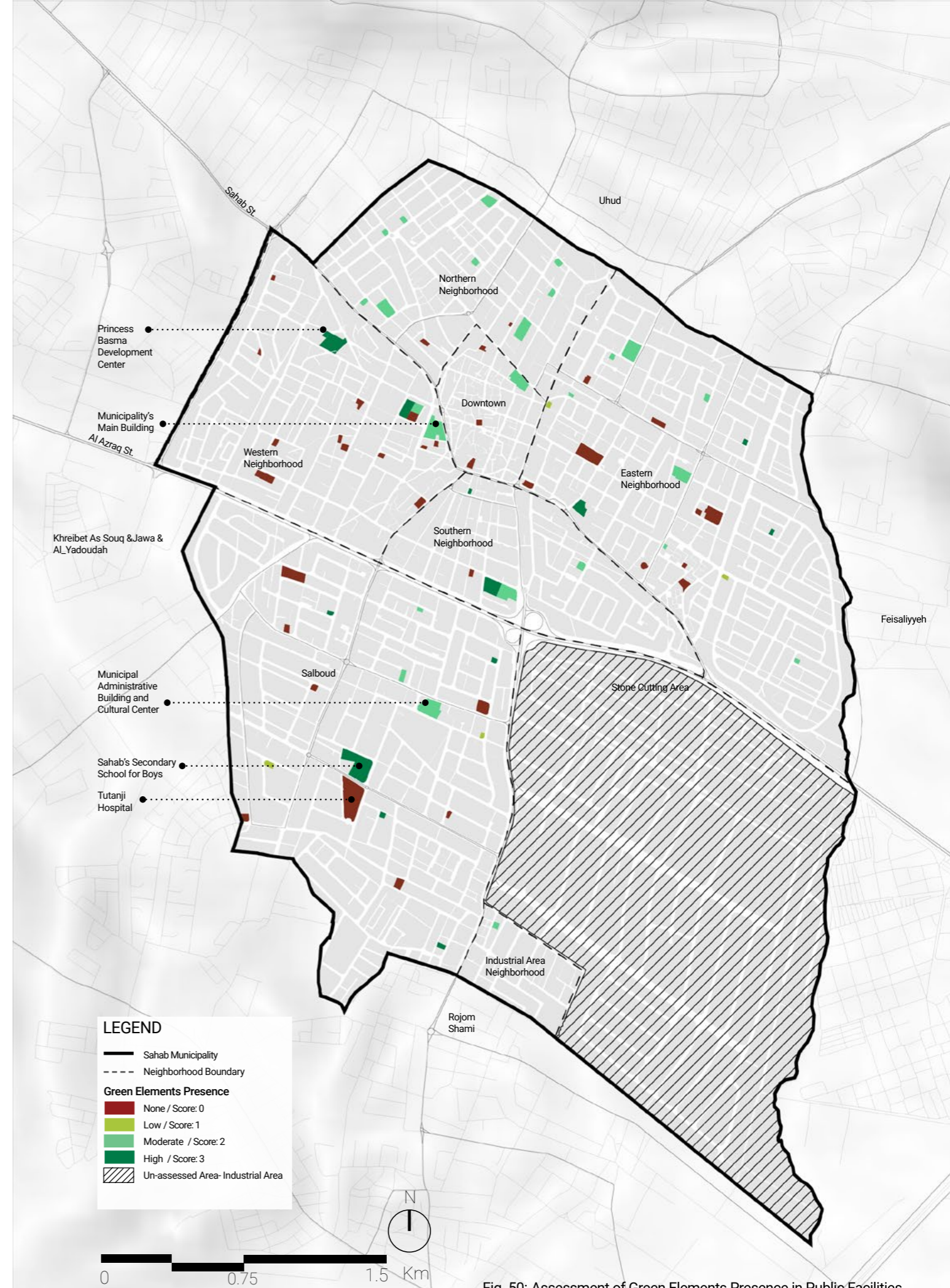


Fig. 50: Assessment of Green Elements Presence in Public Facilities.



ASSESSMENT OF VEGETATION IN PUBLIC FACILITIES

No.	Type Icon	Taxon	Type	Native	Exotic
01		<i>Achillea fragrantissima</i>	Chamaephyte	X	
02		<i>Achillea santolina</i>	Hemicryptophyte	X	
03		<i>Aegilops kotschy</i>	Annual	X	
04		<i>Alhagi graecorum</i>	Hemicryptophyte	X	
05		<i>Alkanna strigosa</i>	Chamaephyte	X	
06		<i>Alkanna tinctoria</i>	Chamaephyte	X	
07		<i>Ailanthus altissima</i>	Tree		X
08		<i>Amaranthus albus</i>	Annual	X	
09		<i>Amaranthus viridis</i>	Annual	X	
10		<i>Anabasis syriaca</i>	Chamaephyte	X	
11		<i>Anchusa strigosa</i>	Hemicryptophyte	X	
12		<i>Astragalus hamosus</i>	Annual	X	
13		<i>Astragalus spinosus</i>	Chamaephyte	X	
14		<i>Astragalus tribuloides</i>	Annual	X	
15		<i>Atriplex halimus</i>	Phanerophyte shrub	X	
16		<i>Ballota undulata</i>	Chamaephyte	X	
17		<i>Brachychiton acerifolius</i>	Tree		X
18		<i>Bromus japonicus</i>	Annual	X	
19		<i>Bromus scoparius</i>	Annual	X	
20		<i>Bromus tectorum</i>	Annual	X	
21		<i>Bromus tomentellus</i>	Hemicryptophyte	X	
22		<i>Calendula arvensis</i>	Annual	X	
23		<i>Calendula palaestina</i>	Annual	X	
24		<i>Callistemon salignus</i>	Tree		X

Type Icon: Herbaceous Low Full sun Low

Shrub Moderate Partial shade Moderate

Tree High Full shade High

Water Requirement	Shading Requirement	Invasion Risk	Detailed Description / Ecological Notes
			Native medicinal/forage value; supports pollinators on rocky slopes and steppe.
			Native medicinal/forage value; supports pollinators on rocky slopes and steppe.
			Native herb of open steppe and field margins; drought-tolerant and seasonal.
			Deep-rooted spinescent shrub; stabilises sandy/loamy soils.
			Medicinal value; supports pollinators.
			Dye/medicinal plant; pollinator resource.
			Very fast-growing, allelopathic invasive tree; remove seedlings near natural habitats.
			Common annual of disturbed ground.
			Prefers moist soils, riverbanks, wadis, irrigation canals, wetlands, and disturbed water edges.
			Native chamaephyte of saline/gypsiferous flats.
			Rough herb; spring flowering; supports insects.
			Annual legume; nitrogen fixer in open fields.
			Spinescent dwarf shrub; soil stabiliser; forage in low intensity grazing.
			Annual legume of open steppe.
			Halophyte; tolerates salinity and drought; browse value.
			Aromatic subshrub; medicinal/nectar resource.
			Ornamental street tree; drought-tolerant once established.
			Cool-season annual grass in disturbed ground.
			Early-season annual grass; ground cover.
			Highly invasive; promotes fine-fuel fire cycles; monitor spread.
			Perennial/hemicryptophyte grass; early-season cover.
			Annual composite; spring cover; pollinator resource.
			Spring annual of fields and road verges.
			Nectar-rich shrub/tree; urban hardy; needs periodic irrigation.



Type Icon: Herbaceous Low Full sun Low
 Shrub Moderate Partial shade Moderate
 Tree High Full shade High

No.	Type Icon	Taxon	Type	Native	Exotic
25		<i>Casuarina equisetifolia</i>	Tree		X
26		<i>Capparis spinosa</i>	Hemicryptophyte	X	
27		<i>Caroxylon vermiculata</i>	Chamaephyte	X	
28		<i>Chiliadenus iphionoides</i>	Hemicryptophyte	X	
29		<i>Convolvulus althaeoides</i>	Climber	X	
30		<i>Convolvulus arvensis</i>	Climber	X	
31		<i>Convolvulus dorycnium</i>	Hemicryptophyte	X	
32		<i>Conyza stricta</i>	Chamaephyte	X	
33		<i>Crepis hierosolymitana</i>	Hemicryptophyte	X	
34		<i>Crepis sancta</i>	Annual	X	
35		<i>Crupina crupinastrum</i>	Annual	X	
36		<i>Cynodon dactylon</i>	Chamaephyte	X	
37		<i>Dactylis glomerata</i>	Hemicryptophyte	X	
38		<i>Daucus carota</i>	Hemicryptophyte	X	
39		<i>Diplotaxis acres</i>	Chamaephyte	X	
40		<i>Dodonaea viscosa</i>	Phanerophyte shrub		X
41		<i>Drimia maritima</i>	Geophyte	X	
42		<i>Ecballium elaterium</i>	Hemicryptophyte	X	
43		<i>Echinops philistaeus</i>	Chamaephyte	X	
44		<i>Echinops polyceras</i>	Hemicryptophyte	X	
45		<i>Echium judaeum</i>	Annual	X	
46		<i>Emex spinosa</i>	Annual	X	
47		<i>Ephedra aphylla</i>	Climber	X	

Water Requirement	Shading Requirement	Invasion Risk	Detailed Description / Ecological Notes
			Coastal wind-break; salt-tolerant; may naturalize—monitor seed-lings.
			Rocky slope shrub; edible flower buds; drought specialist.
			Chenopod shrub of saline flats; soil stabilizer.
			Aromatic subshrub of rocky steppe; nectar source.
			Climbing bindweed with showy pink flowers.
			Rhizomatous; can be weedy in crops.
			Small bindweed of open stony soils.
			Weedy composite; prolific seeder in disturbed sites.
			Spring annual; open stony ground.
			Annual of disturbed sandy soils.
			Small annual composite of light soils.
			Aggressive stoloniferous turf; strong spreader; erosion control.
			Perennial grass; early-season bi-omass; forage.
			Umbellifer of fields and verges; pollinator resource.
			Annual mustard of open soils.
			Woody hedging shrub; drought/heat tolerant; may self-seed.
			Large geophyte; bulbous; toxic; blooms post-summer.
			Exploding cucumber; toxic; coastal/valley margins.
			Spiny thistle; pollinator resource.
			Spiny thistle of rocky slopes.
			Annual borage with blue flowers; insect resource.
			Annual with spiny achenes; can be weedy.
			Jointed gymnosperm shrub; desert wadis/dunes.



Type Icon: Herbaceous Low Full sun Low
 Shrub Moderate Partial shade Moderate
 Tree High Full shade High

No.	Type Icon	Taxon	Type	Native	Exotic
48		<i>Eragrostis palmeri</i>	Annual	X	
49		<i>Erodium acaule</i>	Hemicryptophyte	X	
50		<i>Erodium gruinum</i>	Annual	X	
51		<i>Erodium laciniatum</i>	Annual	X	
52		<i>Euphorbia retusa</i>	Annual	X	
53		<i>Ferula communis</i>	Hemicryptophyte	X	
54		<i>Filago pyramidata</i>	Annual	X	
55		<i>Galium aparine</i>	Annual	X	
56		<i>Geranium tuberosum</i>	Geophyte	X	
57		<i>Geranium albanum</i>	Hemicryptophyte		X
58		<i>Gypsophila arabica</i>	Chamaephyte	X	
59		<i>Haloxylon salicornicum</i>	Chamaephyte	X	
60		<i>Helianthemum lippii</i>	Chamaephyte	X	
61		<i>Herniaria hemistemon</i>	Hemicryptophyte	X	
62		<i>Hordeum bulbosum</i>	Hemicryptophyte	X	
63		<i>Hordeum marinum</i>	Annual	X	
64		<i>Hordeum spontaneum</i>	Annual	X	
65		<i>Hyparrhenia hirta</i>	Geophyte	X	
66		<i>Lactuca serriola</i>	Annual	X	
67		<i>Lactuca tuberosa</i>	Hemicryptophyte	X	
68		<i>Launaea mucronata</i>	Annual	X	
69		<i>Leontodon tuberosus</i>	Annual	X	

Water Requirement	Shading Requirement	Invasion Risk	Detailed Description / Ecological Notes
			Fine-leaf annual grass of sandy soils.
			Annual rosette; sandy/loamy soils.
			Annual geranium; open fields.
			Annual geranium; disturbed ground.
			Annual euphorb of sandy flats; latex-bearing.
			Tall umbellifer; toxic to livestock in high intake.
			Small woolly annual; early cover.
			Clinging annual in shaded/mesic edges.
			Geophyte; tuberous; spring flowering.
			Hemicryptophyte; open steppe; scarce.
			Chalk/gypsum-tolerant annual/subshrub
			Desert chenopod shrub; grazing resource.
			Dwarf cistaceae shrub; sandy/rocky areas.
			Mat-forming annual of light soils.
			Bulbous barley; early-season grass.
			Halophytic annual barley.
			Wild barley; an-cestor of cultivat-ed barley.
			Perennial tussock grass; dry slopes.
			Spiny lettuce; common ruderal.
			Perennial/hemicryptophyte lettuce; rocky slopes.
			Desert composite; sandy flats.
			Annual composite of steppe.



Type Icon: Herbaceous Low Full sun Low
 Shrub Moderate Partial shade Moderate
 Tree High Full shade High

No.	Type Icon	Taxon	Type	Native	Exotic
70		<i>Leopoldia comosa</i>	Annual	X	
71		<i>Leopoldia eburenea</i>	Annual	X	
72		<i>Linum pubescens</i>	Annual	X	
73		<i>Malva parviflora</i>	Annual	X	
74		<i>Marrubium alysson</i>	Chamaephyte	X	
75		<i>Medicago minima</i>	Annual	X	
76		<i>Medicago orbicularis</i>	Annual	X	
77		<i>Medicago polymorpha</i>	Annual	X	
78		<i>Melia azedarach</i>	Tree		X
79		<i>Nicotiana glauca</i>	Phanerophyte shrub	X	
80		<i>Noaea mucronata</i>	Chamaephyte	X	
81		<i>Ochradenus baccatus</i>	Phanerophyte shrub	X	
82		<i>Onobrychis ptolemaica</i>	Chamaephyte	X	
83		<i>Ononis natrix</i>	Chamaephyte	X	
84		<i>Ononis viscosa</i>	Chamaephyte	X	
85		<i>Onopordum palaestinum</i>	Hemicryptophye	X	
86		<i>Pallenis spinosa</i>	Hemicryptophye	X	
87		<i>Paronychia argentea</i>	Hemicryptophye	X	
88		<i>Peganum harmala</i>	Hemicryptophye	X	
89		<i>Pinus halepensis</i>	Tree	X	
90		<i>Piptatherum miliaceum</i>	Chamaephyte	X	
91		<i>Piptatherum thomasii</i>	Chamaephyte	X	
92		<i>Poa bulbosa</i>	Hemicryptophye	X	
93		<i>Podonosma orientalis</i>	Chamaephyte	X	

Water Requirement	Shading Requirement	Invasion Risk	Detailed Description / Ecological Notes
			Bulbous geophyte; spring inflorescences.
			Bulbous geophyte; sandy/rocky ground.
			Spring annual flax.
			Common mallow; edible leaves; ruderal.
			Aromatic subshrub; pollinator resource.
			Annual legume; nitrogen fixer.
			Annual legume; orbicular pods.
			Annual legume; spiny pods; ground cover.
			Urban tree; prolific seeder; may become weedy near watercourses.
			Invasive woody tobacco; bird-dispersed; riparian/roadside.
			Chenopod dwarf shrub of steppe.
			Fructiferous shrub; bird-dispersed; wadis and slopes.
			Annual/suffrutescent legume of drylands.
			Sticky restharrow; aromatic; sandy soils.
			Sticky annual restharrow; disturbed ground.
			Large thistle; nectar source.
			Spiny composite; open dry ground.
			Mat-forming herb of sandy soils.
			Alkaloid-rich shrublet; medicinal/ritual uses; toxic to livestock.
			Mediterranean pine; drought tolerant; cone-serotinous traits.
			Rock oat; rocky slopes and terraces.
			Perennial rock oat; stony hillsides.
			Bulbous grass; early growth in spring.
			Honey-scented shrublet; pollinator rich.



Type Icon:
 Herbaceous
 Shrub
 Tree
 Low
 Moderate
 High
 Full sun
 Partial shade
 Full shade
 Low
 Moderate
 High

No.	Type Icon	Taxon	Type	Native	Exotic
94		<i>Polygonum palaestinum</i>	Hemicryptophyte		
95		<i>Populus alba</i>	Tree	X	
96		<i>Prosopis farcta</i>	Chamaephyte	X	
97		<i>Ranunculus damascenus</i>	Geophyte	X	
98		<i>Reseda alba</i>	Annual	X	
99		<i>Retama raetam</i>	Phanerophyte shrub	X	
100		<i>Solanum sinaicum</i>	Chamaephyte	X	
101		<i>Sonchus suberosus</i>	Chamaephyte	X	
102		<i>Stipagrostis plumosa</i>	Hemicryptophyte	X	
103		<i>Tamarix nilotica</i>	Tree	X	
104		<i>Urtica pilulifera</i>	Chamaephyte	X	
105		<i>Verbascum fruticosum</i>	Chamaephyte	X	
106		<i>Washingtonia filifera</i>	Tree		X
107		<i>Xanthium spinosum</i>	Chamaephyte	X	
108		<i>Xanthium strumarium</i>	Chamaephyte	X	

Water Requirement	Shading Requirement	Invasion Risk	Detailed Description / Ecological Notes
			Knotweed of wadi margins and fields.
			Moist sites along wadis; fast-growing shade tree.
			Nitrogen-fixing shrub; forms thickets in overgrazed sandy habitats.
			Spring annual buttercup of fields.
			Annual of disturbed/cultivated soils.
			Xerophytic/halophytic shrub; dune/wadi stabiliser, bee forage.
			Spiny nightshade; desert margins.
			Perennial/annual sow-thistle of sandy soils.
			Desert grass; dune stabiliser.
			Halophyte tree of saline wadis; stabilises banks.
			Nettle; moist microsites; stinging hairs.
			Shrubby mullein; dry slopes; pollinator value.
			Hardy palm; seeds dispersed by birds/water; remove volunteers.
			Spiny cocklebur; invasive in disturbed sandy habitats.
			Common cocklebur; invasive along wadis and fields.

Table 3: Existing Flora Species Observed along Sahab's Public Facilities and its Characteristics.



OVERALL PRESENCE OF GREEN ELEMENTS ASSESSMENT IN SAHAB'S PUBLIC SPACE NETWORK

When assessed as a connected network, Sahab's public spaces reveal a striking discontinuity of green elements.

As the map shows, greenery; whether in streets, open spaces, or public facilities; is largely scattered and fragmented, rarely forming continuous clusters. Across much of the city, small green patches are separated by long stretches of streets and facilities with little or no vegetation.

This lack of connectivity means residents seldom experience a seamless green environment as they move through the city. Instead, greenery is confined to isolated points; for example Al Hashemite Park, the public playground, and some institutional sites; without extending into adjoining streets or linking to nearby open spaces. The downtown core, the industrial corridors, and major mobility routes are especially barren, reinforcing this disconnection.

In practical terms, the pattern underscores the absence of an integrated green public space network. Stand-alone sites may carry ecological or social value, but their isolation prevents them from functioning collectively as a citywide system that supports comfortable walking and cycling, improves microclimate, and builds resilience. Creating continuity, by linking parks, facilities, and greener streets into cohesive corridors and clusters, is therefore a priority for Sahab's greening strategy.

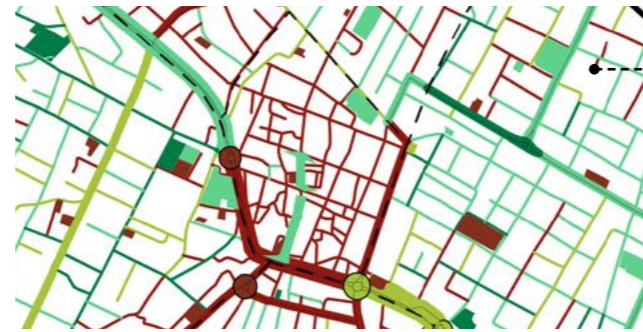


By strategically linking existing green spots and prioritizing the most barren corridors, Sahab can begin transforming its fragmented public spaces into a coherent, resilient, and climate-responsive green network; one that delivers shade, cleaner air, safer walking, and a visibly greener public realm.

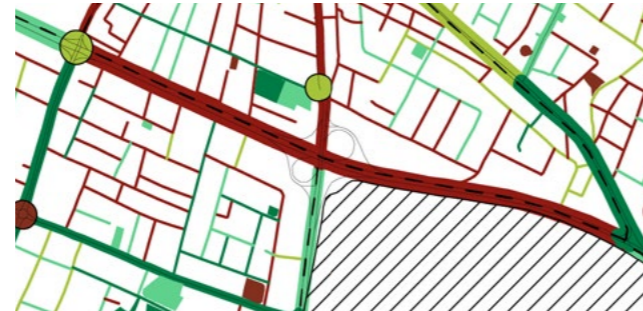


Interventions to Improve Green Network Continuity

(1) Downtown Connectors: Target bare local streets that bridge the Commercial Boulevard (Prince Hassan Street) to nearby facilities and small open spaces, turning short gaps into green links that stitch together existing assets.



(2) Northern Neighbourhood Buffer: Introduce continuous planting along the central segment of Al-Azraq Road and its parallel residential streets to form a green buffer against the stone-cutting area. This would mitigate dust, reduce heat, and upgrade the pedestrian environment on key connectors.



(3) Salboud Cluster: Green local roads to connect the public playground with the secondary road near the AIE, and enhance planting within the hospital's open areas. Together these links would create a continuous cluster at the edge of the industrial zone, improving shade, comfort, and air quality along daily walking routes.

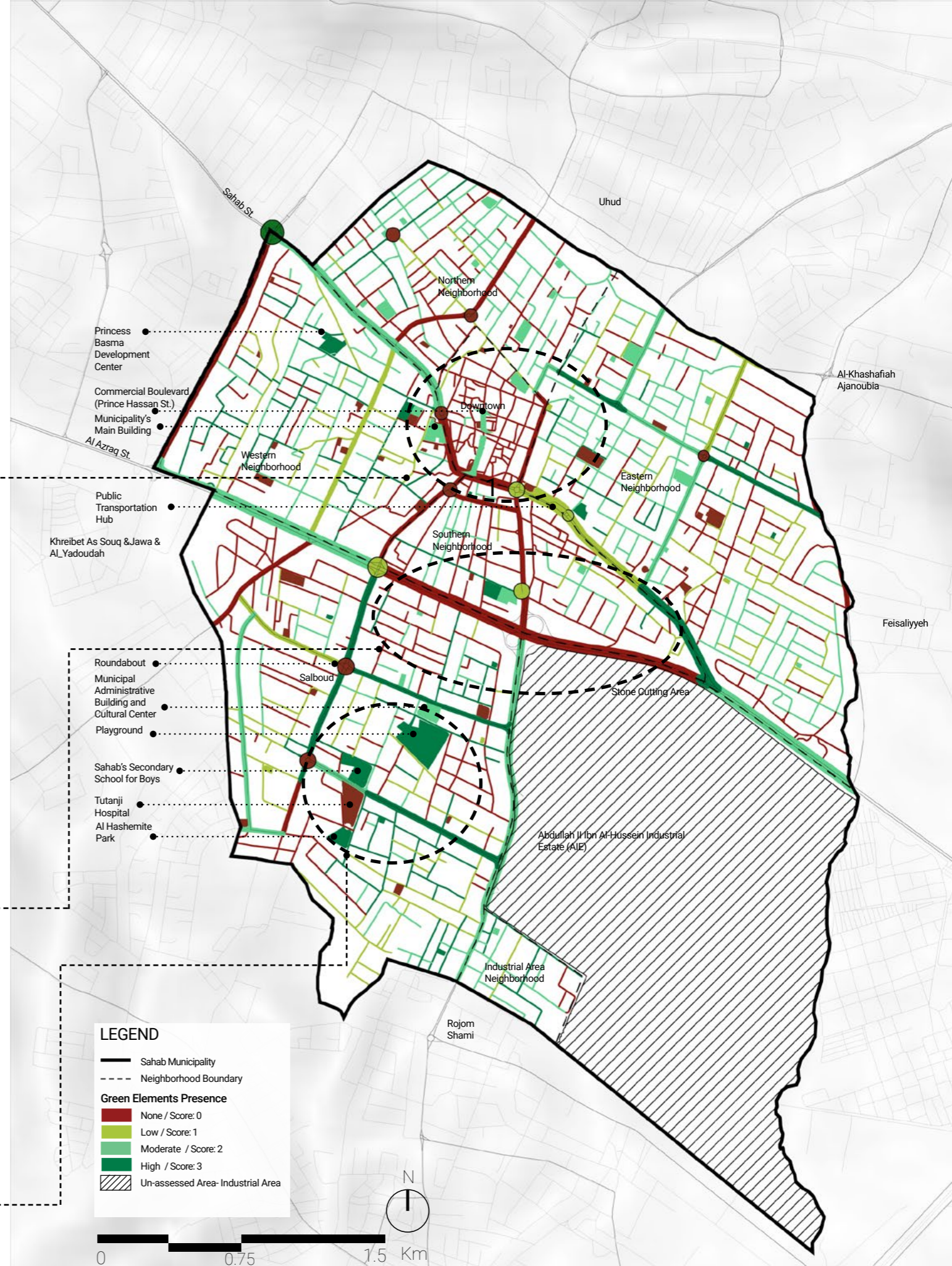
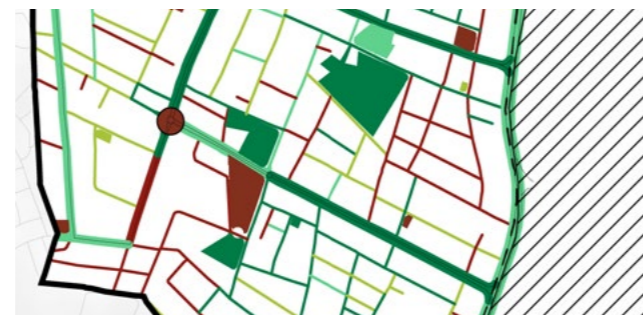


Fig. 51: Overall Assessment of Green Elements Presence in Sahab's Public Space Network.



3. 2. 3 SAFETY

SAFETY IN STREETS

Street safety in Sahab is fundamentally constrained by the absence of basic pedestrian-oriented infrastructure. Cross-walks, sidewalks, cycling paths, and traffic-calming measures are largely missing, rendering the city's streets unsafe for walking and cycling. In reality, **the entire street network requires a comprehensive reconsideration from a pedestrian and cyclist safety perspective.**

To evaluate existing safety conditions, a scoring system was applied to assess the presence of key safety features:

- **Score 0 (None):** No safety features present.
- **Score 1 (Low):** Presence of only one safety feature
- **Score 2 (Moderate):** Presence of two out of the three safety features.
- **Score 3 (High):** Provision of lighting at night, presence of security cameras, and availability of on-site security personnel during night time hours.

Since no on-site security personnel were observed across Sahab's street network, the variations in safety levels are determined based on two measurable indicators captured during the field assessment: provision of



Fig. 52: Examples of streets in Sahab lacking basic safety measures for walking and cycling © Sahab Municipality Team

lighting at night time and presence of security cameras. As illustrated in the map on the next page, the safest streets were those equipped with both lighting and cameras (score 2). Overall, 77% of streets were scored 1, largely due to the presence of lighting.

17% of streets (114 in total) were reported as unlit, all of which are local residential streets. Nearly all of these streets also lacked security cameras, with only six exceptions. These unlit and unsecured roads correspond to the 12.5% of streets rated as "not safe at all," where the absence of basic infrastructure creates the highest risks for pedestrians after dark.

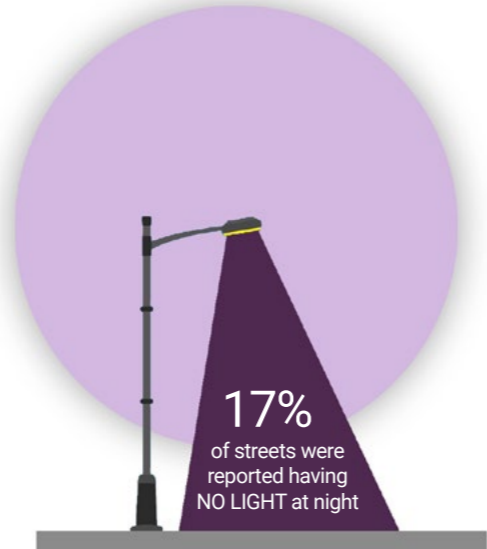
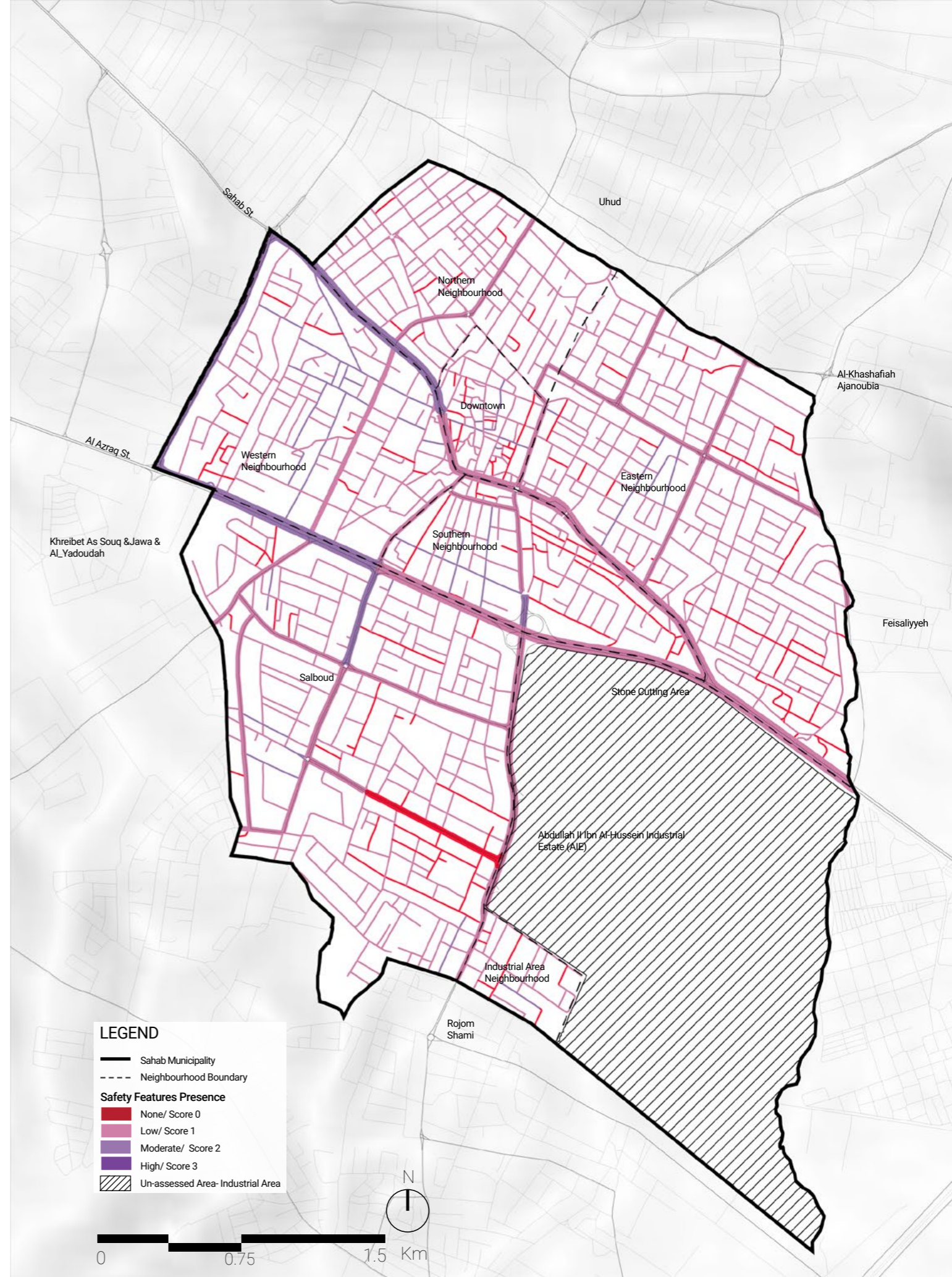


Fig. 53: Percentage of unlit streets in Sahab City.

The assessment makes clear that lighting provision is the most influential factor shaping safety in Sahab's streets, far outweighing the role of security cameras would therefore deliver the most immediate and tangible improvements in perceived safety after dark across the city.

ACTION Addressing safety gaps requires an integrated approach: upgrading pedestrian infrastructure (e.g wide sidewalks, curb ramps) ensuring safe crossings on primary roads, introducing traffic-calming measures (e.g: speed bumps, raised cross walks) in neighbourhoods and around schools, and prioritizing the illumination of unlit residential roads. By targeting unlit hotspots while systematically mainstreaming pedestrian and cyclist safety, Sahab can begin to transform its streets into safer, more inclusive, and people-friendly public spaces.



LEGEND

- Sahab Municipality
- Neighbourhood Boundary

Safety Features Presence

- None/ Score 0
- Low/ Score 1
- Moderate/ Score 2
- High/ Score 3
- Un-assessed Area- Industrial Area



Fig. 54: Assessment of Safety Features Presence across Streets.



SAFETY IN OPEN SPACES

Following the same assessment scoring rationale used for streets. The assessment of open spaces in Sahab revealed significant variation in safety provision.

Out of the 16 open spaces assessed, only three; the public playground, Al Hashemite Park, and the public transportation hub; were rated high in safety (score 3), as they combined lighting, security personnel, and security cameras.

The Commercial Boulevard (Prince Hassan Street) was rated moderate (score 2), equipped with both lighting and security staff but lacking cameras. Two of the 12 roundabouts scored low (score 1), reflecting the presence of security cameras only, while the remaining roundabouts and open spaces lacked all three features and were rated score 0.

Overall, the assessment found that most of Sahab's key open spaces are rated moderate to high in safety, supported by the provision of lighting, cameras, or security personnel. The only spaces rated as not safe were the roundabouts, which lack dedicated safety measures. However, since these are typically surrounded by lit streets, they do not pose significant safety risks.

ACTION

No major safety interventions are required for open spaces, and future safety efforts should instead focus on addressing the more critical gaps identified within the public space network.

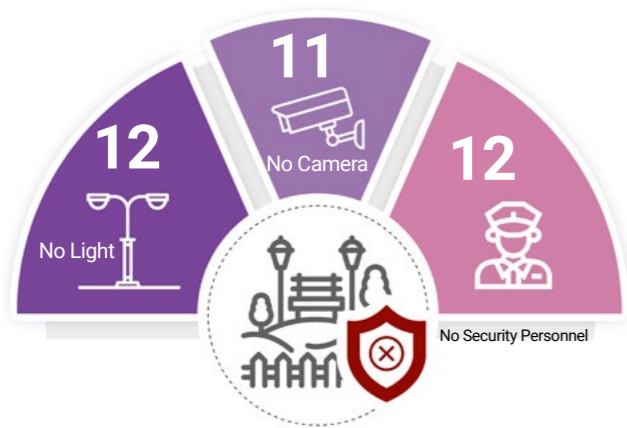
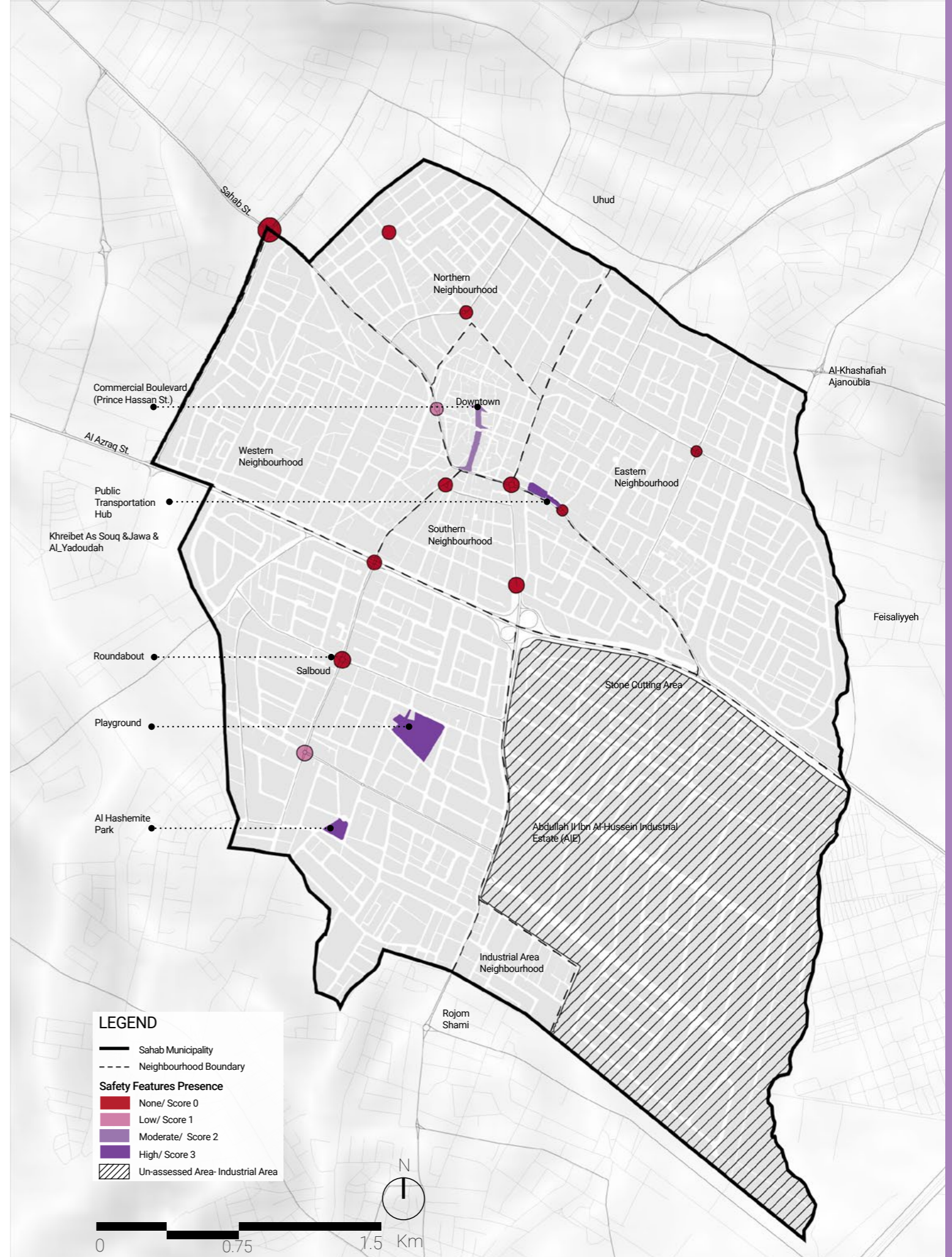


Fig. 55: Number of open spaces lacking basic safety features, including lighting, security cameras, and/or on-site security personnel.



LEGEND

- Sahab Municipality
- Neighbourhood Boundary

Safety Features Presence

- None/ Score 0
- Low/ Score 1
- Moderate/ Score 2
- High/ Score 3
- Un-assessed Area- Industrial Area

Fig. 56: Assessment of Safety Features Presence across Open Spaces.



SAFETY IN PUBLIC FACILITIES

Most public facilities in Sahab, with the exception of the hospital, do not operate at night and therefore are not lit after dark. This significantly restricts their role as safe evening community assets, even where some safety measures are in place.

Applying the same scoring rationale, out of the 87 public facilities assessed, only 2 commercial buildings scored 0, reflecting a complete absence of basic safety features. A further 48 facilities scored 1, meaning they had only one safety measure in place; typically the presence of security personnel. The majority of these were mosques (30) and schools (15). 35 facilities achieved a score of 2, indicating the presence of two out of three safety features; most commonly cameras and security personnel. Again, mosques (17) and schools (13) accounted for most of the facilities in this category. At the top of the spectrum, only 2 facilities; the hospital and one municipal administration building; scored 3, reflecting the full provision of lighting, cameras, and security personnel, and representing the highest level of safety infrastructure in the network.

This distribution reveals both strengths and gaps. While no public facilities were found to be entirely unsafe, the vast majority fall within the low-to-moderate categories, lacking comprehensive safety infrastructure. The reliance on minimal or partial measures undermines the potential of schools, mosques, and other community facilities to serve as safe and inclusive public spaces, especially during evening hours.

ACTION

To promote the use of public facilities' open spaces as community spaces at night, particularly in mosques and schools, strengthening lighting provision, alongside the already consistent presence of security personnel; would help establish a more reliable baseline of safety across the network. By doing so, Sahab can transform its public facilities into secure, welcoming, and vibrant spaces that better support community interaction and social life after dark.

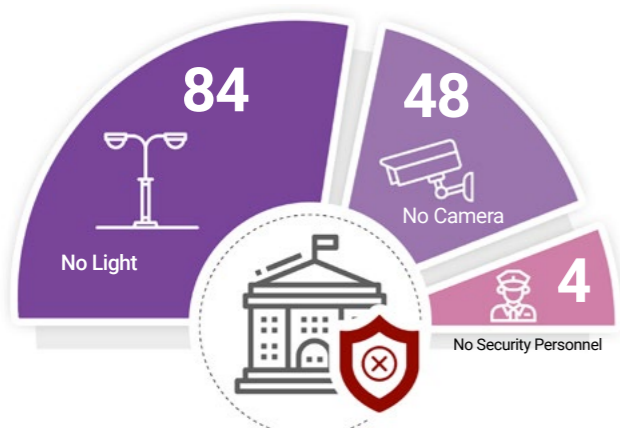


Fig. 57: Number of public facilities lacking basic safety features, including lighting, security cameras, and/or on-site security personnel.



Fig. 58: Number of public facilities having only one safety feature.

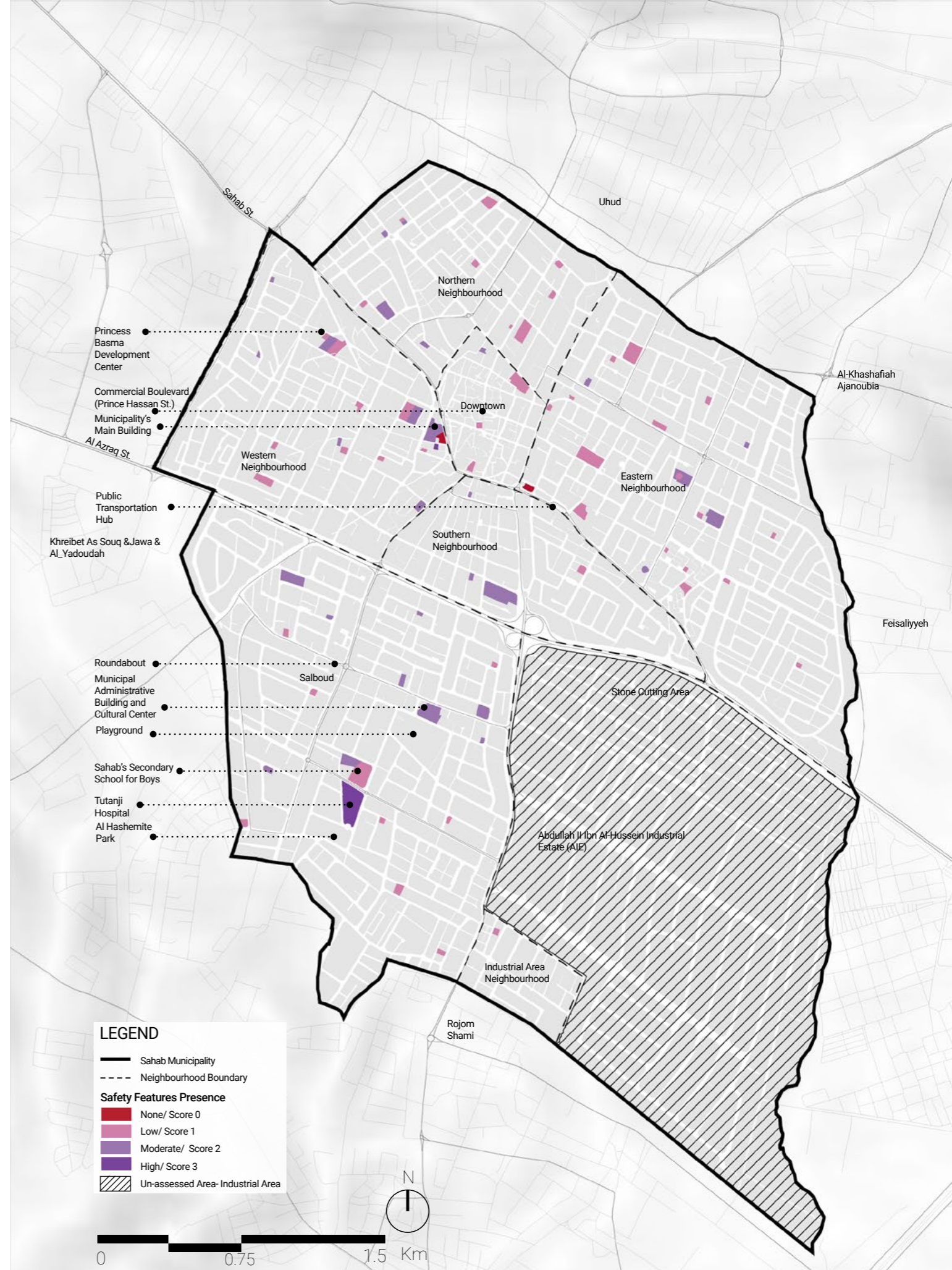


Fig. 59: Assessment of Safety Features Presence across Public Facilities.



OVERALL SAFETY ASSESSMENT IN SAHAB'S PUBLIC SPACE NETWORK

When assessed as a connected network, Sahab's public spaces demonstrate overall moderate-to-high safety conditions, primarily due to the extensive provision of street lighting across the city. As illustrated in the map, the majority of the network; approximately 85%; falls within the "safe" and "moderately safe" categories, having at least one safety feature such as lighting or cameras. Only 15% of the public space network was rated as "not safe at all," reflecting the complete absence of lighting and security.

This pattern shows that while most of Sahab's main and secondary streets are adequately illuminated and thus perceived as safe for evening movement, the city's unlit local streets; particularly concentrated in the southern and eastern neighbourhoods; create pockets of insecurity that fragment the overall sense of safety across the city's public realm. The inconsistency of lighting between major corridors and smaller residential roads undermines the continuity of safety, making it difficult for pedestrians; especially women, children, and the elderly; to move confidently through the city after dark.

Lighting remains the most influential factor shaping both the real and perceived safety of Sahab's public spaces. Expanding illumination to currently unlit streets would not only reduce safety risks but also extend night time activity and social interaction, helping transform Sahab's streets into a cohesive and secure public space network. Beyond streets, public facilities such as mosques and schools also hold strong potential to serve as safe community

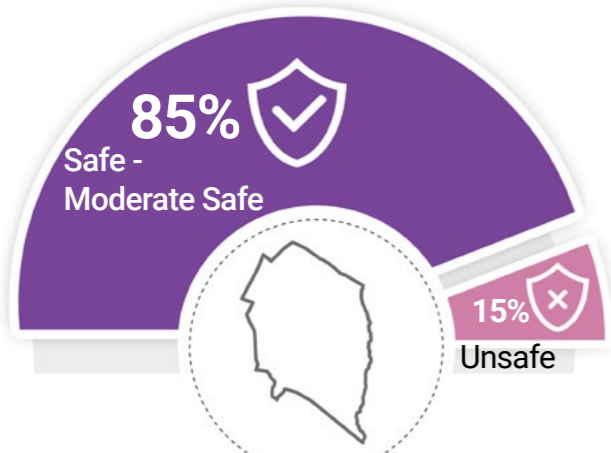


Fig. 60: Distribution of the public space network by safety classification

spaces at night. Strengthening lighting provision in the open spaces surrounding these facilities, coupled with the existing presence of security personnel, would enhance safety and encourage evening community use; particularly in neighbourhoods where recreational opportunities are limited. These spaces could serve as accessible, well-lit gathering points, reinforcing the role of public facilities as active nodes within Sahab's night time public realm.

ACTION **Actions for Immediate Safety Improvement**

To strengthen safety across Sahab's public space network, priority should be given to enhancing lighting in streets currently rated as "not safe at all" and unlit open spaces in public facilities. Efforts should first target areas that remain active during night-time hours, ensuring that key community and mobility corridors are safe, visible, and well-connected. Priority areas include:

(1) Downtown Connectors: Enhance lighting in streets and public facilities surrounding the public transportation hub, which remains one of the city's most active night-time clusters.



(2) Salboud Cluster: Strengthen lighting continuity along local roads connecting the park, hospital, playground, and nearby residential streets to improve night-time safety.

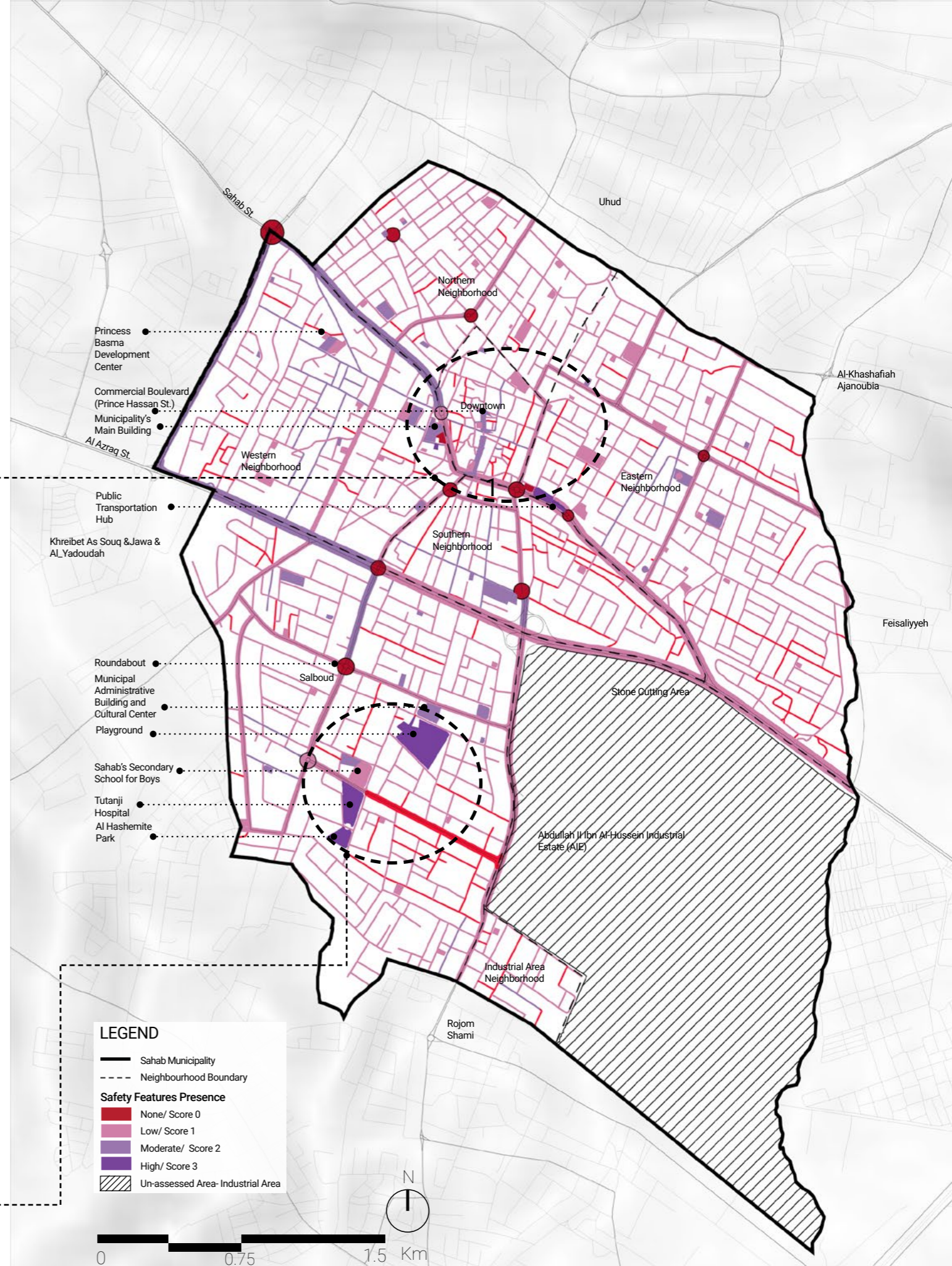
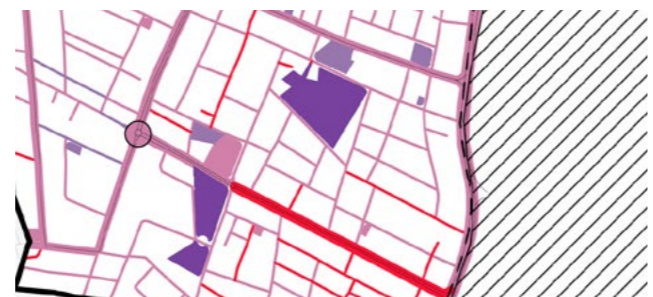


Fig. 61: Overall Assessment of Safety Features Presence in All Public Space Typologies.



3. 2. 4 OVERALL ASSESSMENT OF ENVIRONMENTAL QUALITY DIMENSION

When the results of the comfort, greenery, and safety sub-dimensions are overlaid, the resulting map provides a comprehensive picture of environmental quality across Sahab's public space network. This composite assessment reveals where multiple stressors intersect and where conditions support safer and more comfortable environments. The analysis serves as a strategic tool for the upcoming Green Public Space Action Plan, guiding where to initiate interventions through a phased, cluster-based approach.

Cluster Patterns

When looking at the map as a whole, clear spatial clusters of environmental quality emerge. The lowest-performing areas are concentrated around the industrial and stone-cutting zones in the southern and south-eastern parts of Sahab. These areas are characterized by poor air quality, high dust emissions, excessive noise, and limited greenery. Similarly, the downtown area records low environmental and safety values due to traffic congestion, limited shading, and uneven lighting coverage. Between these two clusters lies a transitional corridor, particularly through the centre of the Southern Neighbourhood, forming a continuous stretch of vulnerable spaces that require priority attention.

At the neighbourhood level and considering the proportion of public space within each area, the Downtown Neighbourhood exhibits the lowest overall performance, with 91% of its public spaces scoring in the least-performing range. The Southern Neighbourhood follows closely, with 85% of its public spaces falling within the same category (as shown in the figure).

In contrast, peripheral areas of the neighbourhoods, demonstrate relatively better environmental conditions. These areas benefit from lighter traffic, reduced industrial exposure, and lighting coverage, leading to higher perceived safety and comfort.

Critical Corridors

The map also highlights a sharp transition between industrial and residential areas. Major mobility corridors; particularly Al-Azraq Road and the secondary road

adjacent to the King Abdullah II Industrial Estate (AIE); emerge as critical environmental stress zones. Along these routes, the combination of heavy vehicular traffic, dust, and emissions severely undermines both safety and livability.

ACTION Environmental Quality Improvement interventions should prioritize the Downtown Neighbourhood, where environmental challenges coincide with high population density and daily activity, followed by the major mobility corridors and the transitional corridor within the central area of the Southern Neighbourhood. Targeting these zones will not only address Sahab's most critical environmental stress points but also will generate the greatest citywide impact by improving daily living conditions and strengthening urban resilience.

In the Downtown area, actions should focus on enhancing greenery, restricting heavy vehicle movement to specific hours, establishing low-emission or car-restricted zones, expanding green coverage, and installing lighting along currently unlit roads.

Along the major mobility and transitional corridors, interventions should prioritize the creation of green buffers to mitigate dust, noise, and heat.

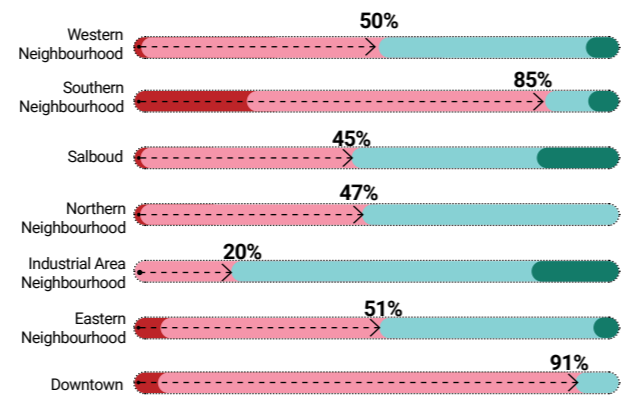


Fig. 62: Environmental Quality Performance Categories of Public Spaces by Area per Neighborhood.

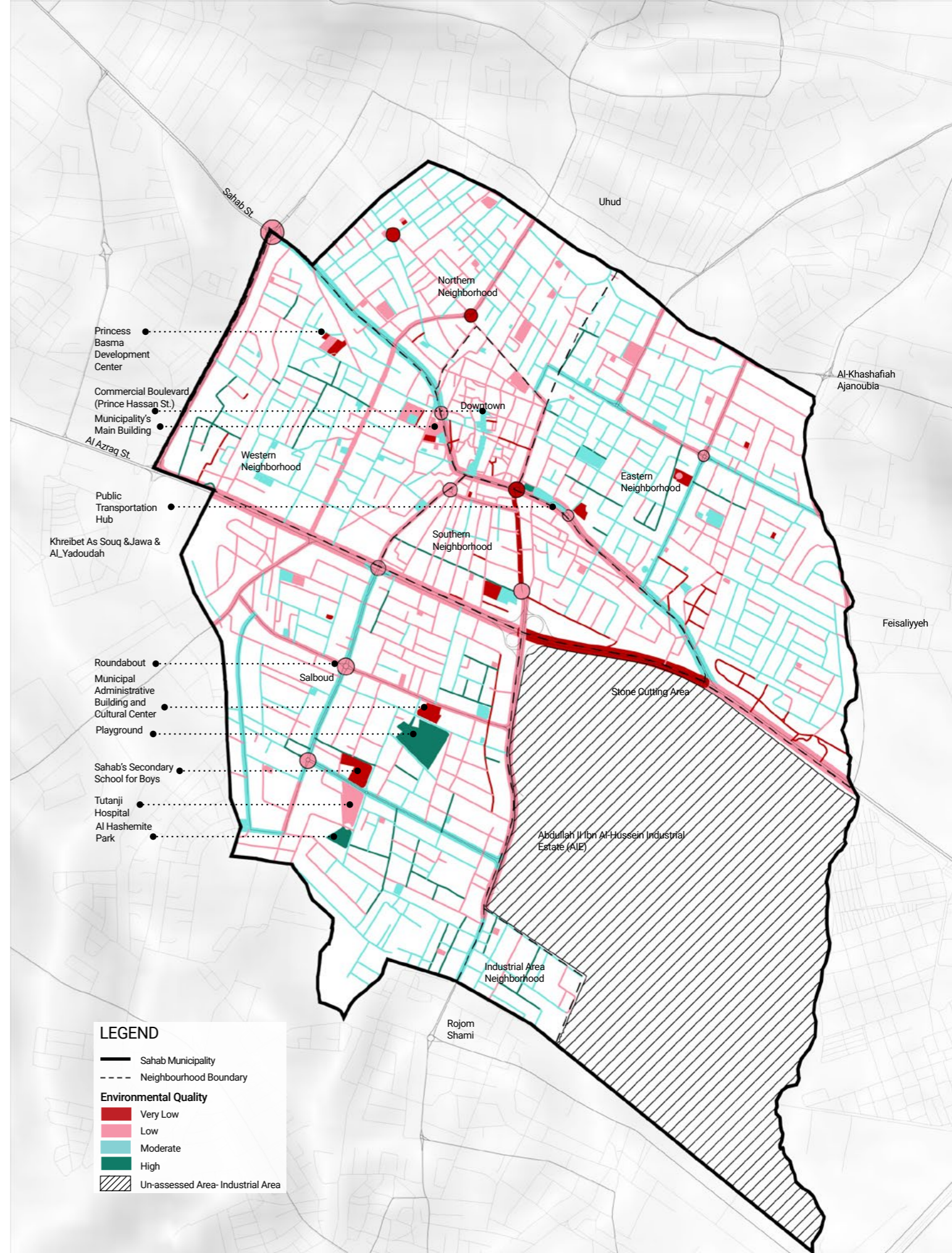


Fig. 63: Overall Assessment of Environmental Quality in All Public Space Typologies.



3. 3. DIMENSION 2: INCLUSIVITY

In Sahab's context, inclusivity was examined due to its central role in understanding how different community groups use public spaces. The city's diverse population; comprising Jordanian citizens, migrant workers, and Syrian refugees; has varying needs, behaviours, and experiences shaped by social, economic, and environmental factors. Examining inclusivity helps uncover how public spaces accommodate this diversity and whether they foster equitable participation and shared belonging.

The assessment therefore focuses on how public spaces are used, by whom, and whether the available amenities support inclusive and equitable use. Through this lens, inclusivity reveals the degree to which public spaces in Sahab enable social interaction and a sense of community among the city's residents.

Vibrancy: Reflects the level of activity and liveliness within public spaces, capturing the diversity and intensity of their use across the day and night time. Data for this sub-dimension were gathered through field observations assessing both the intensity and diversity of use; in other words, how lively and dynamic each public space feels; based on indicators such as the presence and variety of activities, as well as the number and flow of users within the space.

Users: Examines inclusivity from the perspective of users, considering both the types of users and their ability to utilize public spaces during the day and night, without social or cultural restrictions. (Aspects related to physical accessibility are addressed under the Connectivity and Accessibility Dimension.) Data was collected through a survey question designed to assess the presence and inclusion of diverse community groups; including Jordanians, refugees, migrants, women, youth, and the elderly; to assess how equitably Sahab's public spaces serve the needs of different segments of the population.

Amenities: Based on field observations, this sub-dimension evaluates the adequacy of amenities provision through two key indicators: the presence and overall condition of essential amenities across each public space typology within Sahab's network. These indicators reflect the critical role that well-designed and well-maintained amenities play in ensuring that public spaces are inclusive, comfortable, and functional for all users.

The following pages present the findings of each sub-dimension, analysed across the three typologies of public space; streets, open spaces, and public facilities. The section concludes with a multilayered map that integrates all findings to provide a city-wide overview of the Inclusivity Dimension.

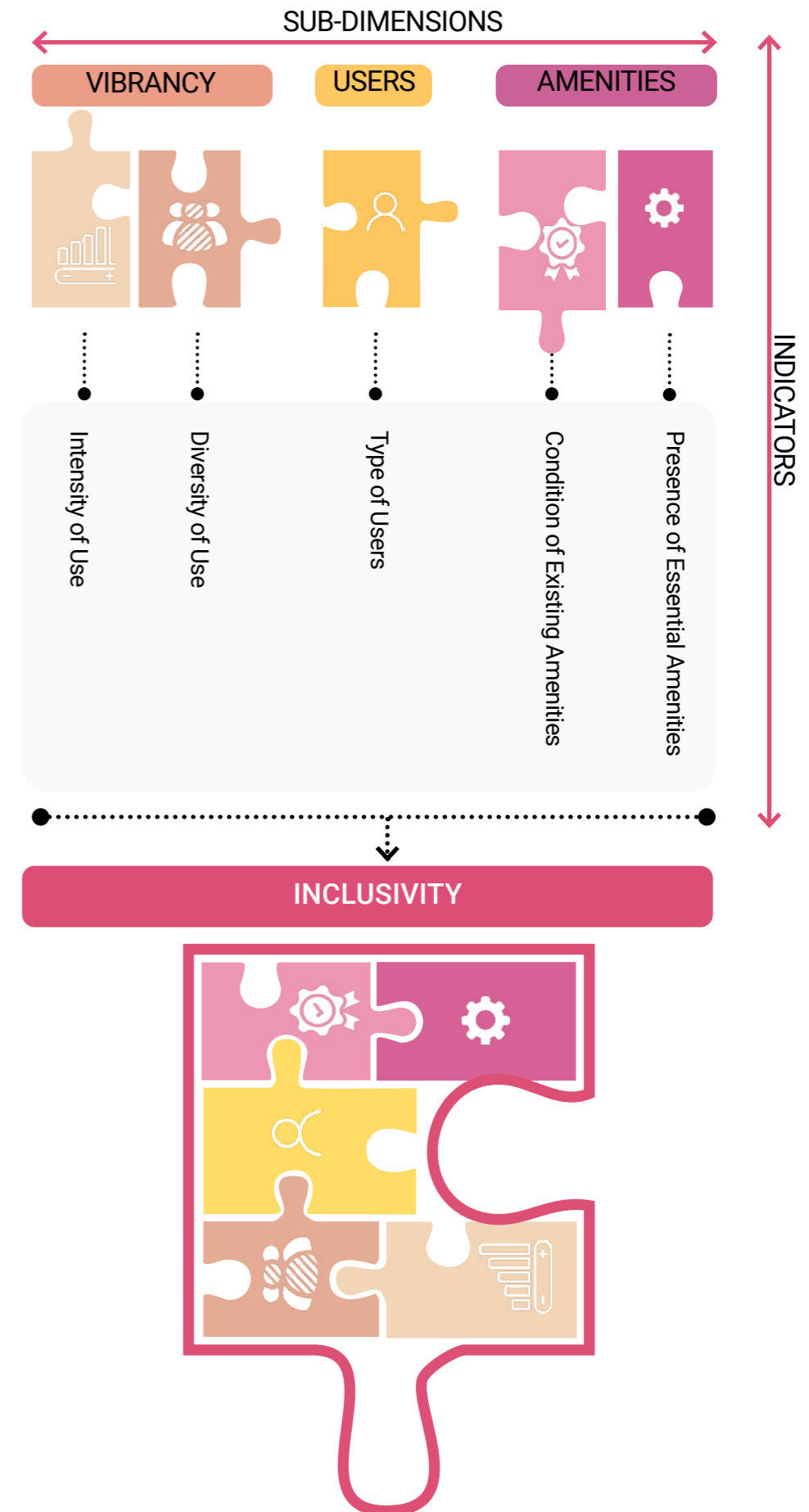


Fig. 64: Inclusivity Sub Dimensions and Indicators



3.3.1 VIBRANCY

VIBRANCY IN STREETS

Streets in Sahab represent the most dynamic component of the city's public realm, serving not only as corridors for movement but also as spaces of economic and social exchange. Their vibrancy reflects how actively and frequently they are used, and by whom, capturing the rhythm of daily life across different parts of the city. Because streets extend across the entire urban fabric of the city; connect neighbourhoods, workplaces, and commercial hubs; they provide an ideal lens for understanding the intensity and diversity of urban activity. **For this reason, the visualizations on this page present the results of the vibrancy assessment at the street level as a proxy for understanding vibrancy levels across Sahab City.**

To assess vibrancy levels, the below scoring system was applied across Sahab:

- **Score 0: (None):** Not vibrant – rarely any activities or people present.
- **Score 1: (Low):** Slightly vibrant – occasional activities and few people.
- **Score 2: (Moderate):** Moderately vibrant – some activities and moderate foot traffic.
- **Score 3: (High):** Very vibrant – lively, full of activities, and frequented by many people.

The daytime and night time vibrancy maps reveal distinct spatial variations in urban activity across Sahab. During the daytime, moderate to high vibrancy levels are concentrated mainly along the primary roads and within Salboud Neighbourhood, particularly in areas connecting the main road to the industrial zone, and around key community nodes such as the park, playground, and hospital. These areas host a variety of economic and social activities, including shops, service facilities, and informal vendors, contributing to their dynamic character. At night, vibrancy patterns shift noticeably. Activity becomes more concentrated around the downtown area, the main and secondary roads, and the corridors adjacent to the industrial and stone-cutting zones, which remain active after working hours due to the presence of shops, restaurants, and evening social gatherings. Moderate levels of night time activity are also evident in Salboud Neighbourhood, particularly near the Al Hashemite Public Park and the playground, where families and youth gather after sunset. In contrast, vibrancy levels decline significantly across most residential neighbourhoods, reflecting limited night time activities.

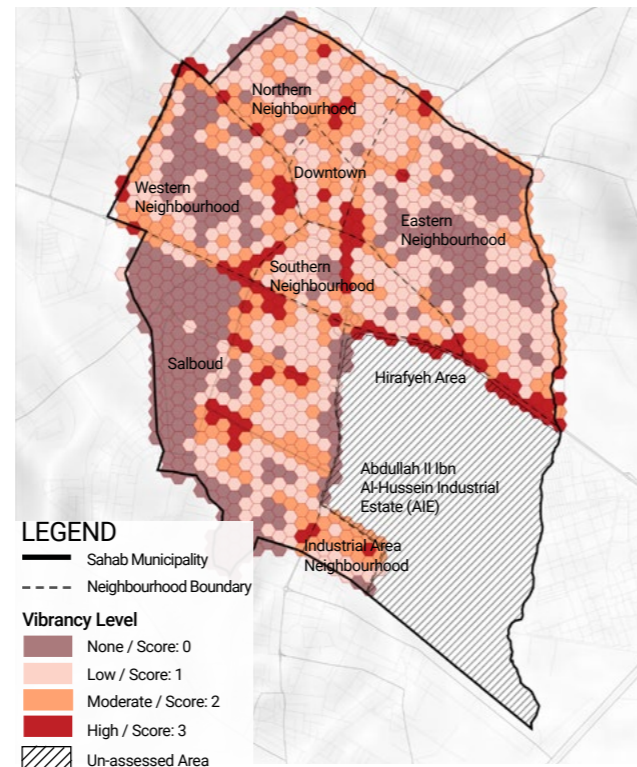


Fig. 65: Sahab's Vibrancy Assessment - Day time

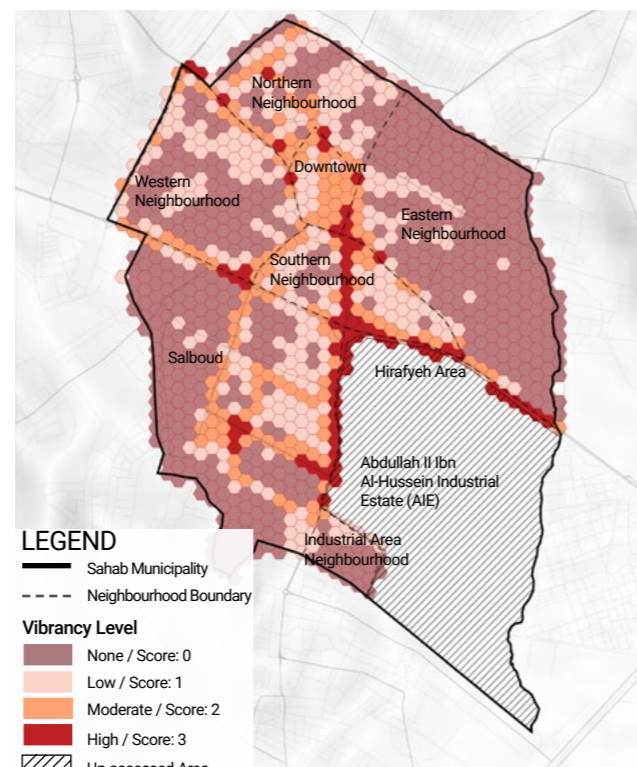


Fig. 66: Sahab's Vibrancy Assessment - Night time

DOMINANT NATURE OF STREETS

Based on the field assessment and the perceptions of data collectors regarding the dominant activities occurring along Sahab's streets, the figure on the right illustrates the spatial distribution of street use types across the city. The findings show that the majority of local streets within residential neighbourhoods are residential in nature. In contrast, the downtown neighbourhood stands out as predominantly mixed-use, combining residential, commercial, and service functions that generate high levels of pedestrian and vehicular activity throughout the day. Additionally, the central part of the Southern Neighbourhood and several scattered streets within Salboud and other neighbourhoods also exhibit mixed-use characteristics, reflecting localized commercial or community hubs. The main and secondary streets across the city are generally mixed-use in nature, accommodating a combination of commercial, service, and mobility functions. It is important to note that the findings closely align with the city's designated land use patterns. Understanding these activity patterns is key for planning interventions that enhance street functionality, pedestrian comfort, and economic vitality, while maintaining the balance between residential livability and urban dynamism.

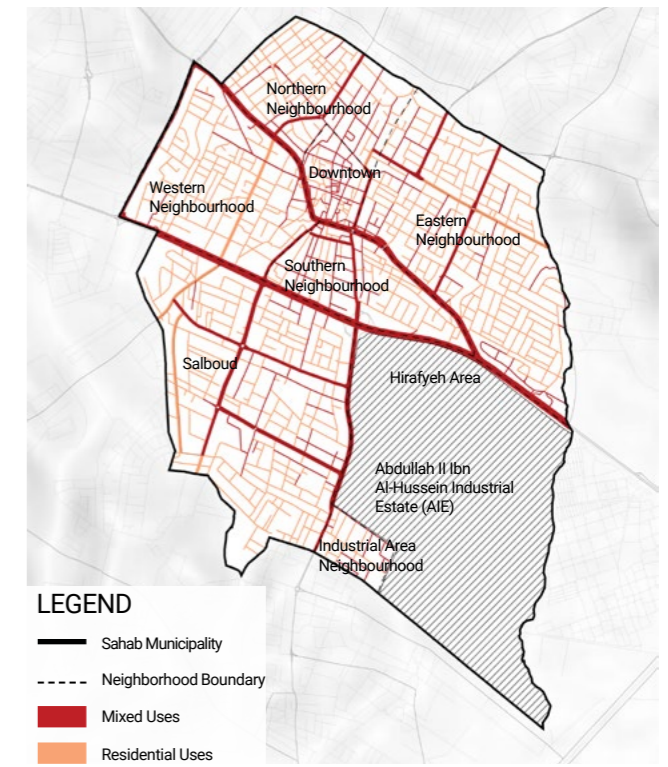


Fig. 67: Dominant Nature of Streets

TYPE OF VEHICLE USING THE STREETS

In Sahab, the street network serves a mix of vehicle types, each reflecting the city's diverse land uses and mobility patterns. The most common vehicles are cars, including both private vehicles and public service taxis. Buses, both public and private, operate mainly along major and secondary routes, connecting Sahab with surrounding cities. Heavy industrial vehicles, such as trucks and construction machinery, are also a defining feature of the city's mobility system due to its strong industrial base. Understanding how these different vehicle types use the street network is essential for identifying where interventions are needed to balance mobility demands, enhance safety, and improve overall street livability. As shown in the figure on the right, 32% of Sahab's street network is used by heavy industrial vehicles. Their presence is particularly concentrated along the main roads, the connector streets in the western and southern neighbourhoods, and the routes linking Salboud to the industrial and stone-cutting areas. This pattern underscores the influence of industrial activity on urban mobility and highlights the need for integrated traffic management and pedestrian safety measures in these heavily utilized corridors.

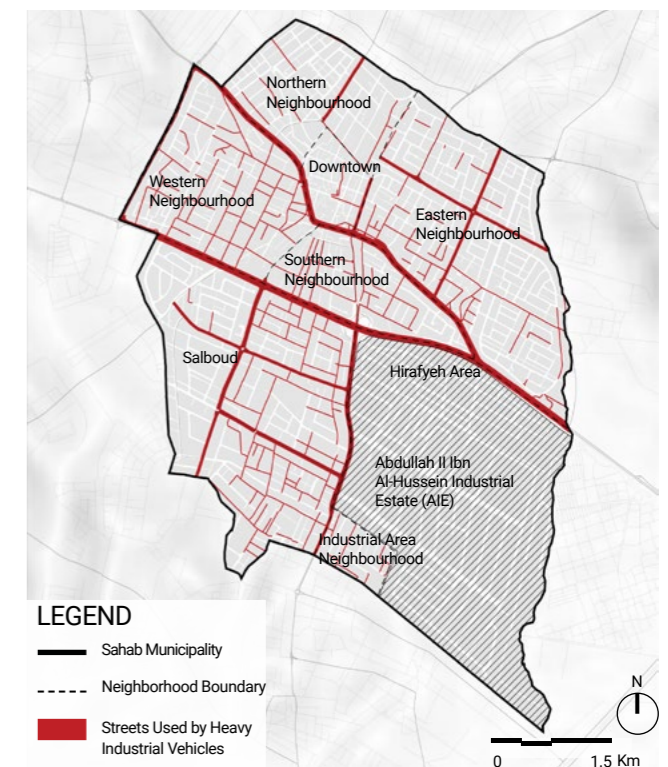


Fig. 68: Streets used by Heavy Industrial Vehicles.



VIBRANCY IN STREETS

Vibrancy in streets reflects a combination of factors, including the dominant nature of activities, the type of vehicles passing through, and other observable elements that influence the diversity and intensity of use. In general, streets characterized by mixed-use and commercial functions tend to be more vibrant by nature, as they attract higher levels of pedestrian movement, social interaction, and economic activity. These areas typically host a greater number of people throughout the day and night, creating a more dynamic and lively urban environment.

Through the field assessment, the mapping of vibrancy across Sahab's streets captured the perceived activity level and number of users for each street, providing valuable insights into how lively and socially dynamic the city's street environment feels. This is clearly reflected in the overall street vibrancy assessment map on the following page.

The map on the next page reveals distinct spatial patterns across Sahab's street network. Dark red streets represent the most vibrant areas of the city (score: 3), characterized as lively, full of activities, and frequently used by pedestrians and vehicles alike. These highly active corridors are primarily concentrated along the two main primary roads and the secondary streets that link them, particularly within the Southern Neighbourhood and along the routes connecting Al Azraq Road to the industrial area within Salboud Neighbourhood.

This concentration of vibrancy along major corridors reflects the influence of commercial and mixed-use functions, which attract both social and economic activities throughout the day. In contrast, as one moves toward the peripheral residential neighbourhoods, the level of vibrancy decreases significantly. Streets in these areas are generally quieter, with fewer activities, limited functional diversity, and lower pedestrian movement, which is consistent with their predominantly residential character.

This assessment identifies the areas where street vibrancy is already well established. These active zones represent the city's most dynamic corridors, supporting mobility, commerce, and daily life. Accordingly, the findings point to priority areas for targeted interventions; locations where improving the quality of public spaces and addressing sidewalk encroachments, as shown in the figure below illustrating the presence of informal activities on sidewalks,

together with enhancements to pedestrian infrastructure, would have the greatest potential to improve the overall quality of life in Sahab. Strengthening these vibrant corridors can further stimulate local economic activity, encourage social interaction, and promote a more inclusive and livable urban environment.

ACTION

Focus improvement efforts on the main streets, the downtown area, and the central part of the Southern Neighbourhood, as these are already vibrant zones where targeted upgrades and public realm enhancements; including the management of sidewalk encroachments and improvements to pedestrian infrastructure; would deliver high-impact results for both residents and visitors. In parallel, heavy industrial vehicle movement should be considered in street design to reduce conflicts with pedestrians and promote a safer, more balanced, and efficient street network.

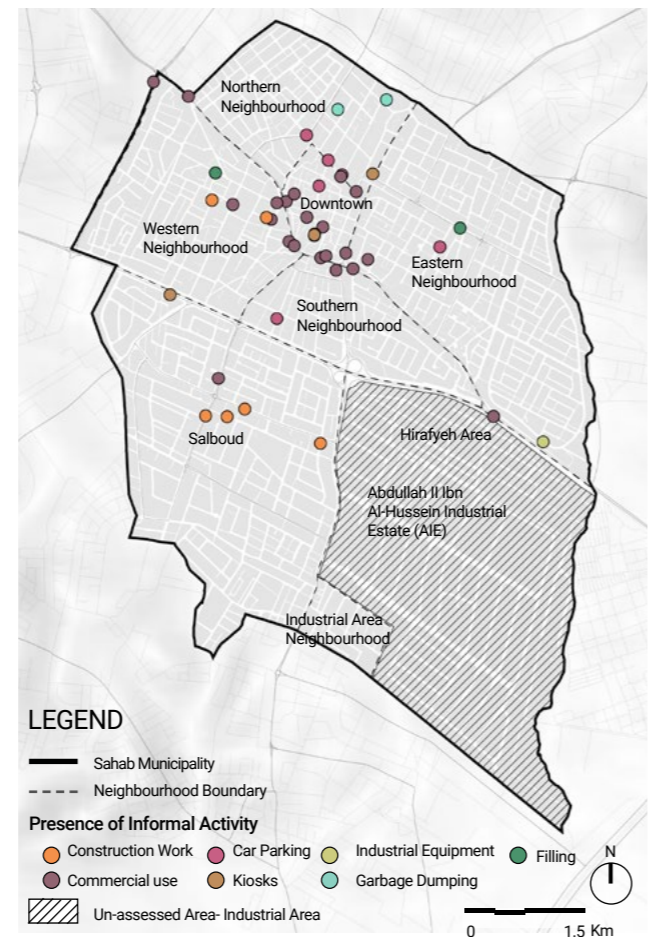


Fig. 69: Presence of Informal Activities Along Sidewalks.

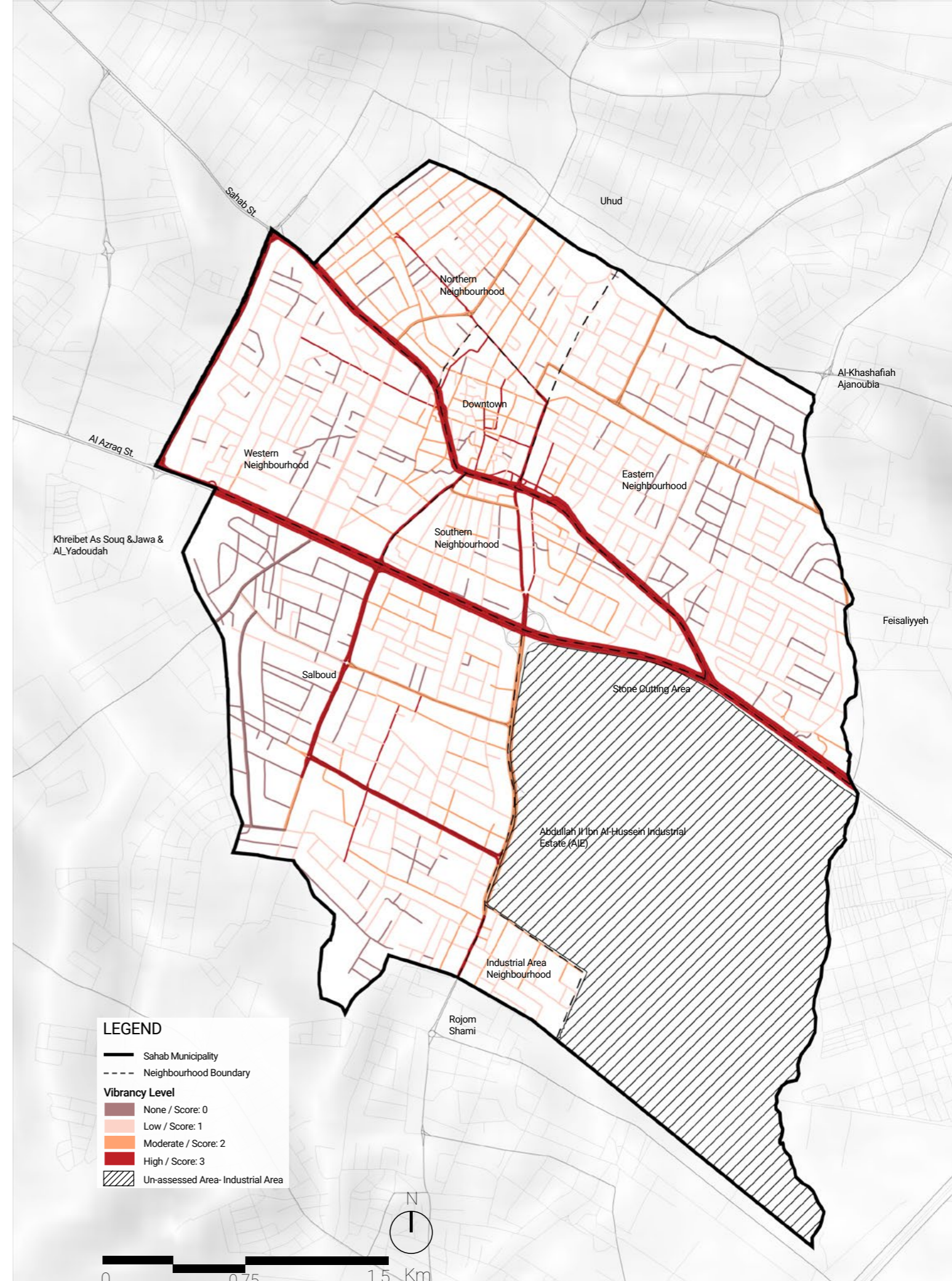


Fig. 70: Assessment of Vibrancy Levels across Streets.



VIBRANCY IN OPEN SPACES

A total of 16 open space elements were evaluated for vibrancy, including the Commercial Boulevard (Prince Hassan Street), Al Hashemite Public Park, the public playground, the public transportation hub, and 12 roundabouts. The assessment followed the same scoring rationale applied to streets, focusing on the two sub-dimensions of intensity and diversity of use. The results show that the open spaces surrounding the public transportation hub, Al Hashemite Public Park, and the Commercial Boulevard (Prince Hassan Street) recorded the highest vibrancy levels during both daytime and night time, reflecting their central location, accessibility, and concentration of social and commercial activities. The playground also ranked among the most vibrant spaces, particularly during the evening hours. This can be attributed to several factors: limited daytime shade, as trees are mainly planted along the perimeter and are still young due to the playground's recent construction and opening in early 2025, combined with the overlap of working hours, which restricts daytime use. In contrast, cooler evening conditions encourage more families to visit, making it one of the most active open spaces at night. For Al Hashemite Public Park, proximity to key public facilities such as the hospital, school, and mosque encourages steady daytime use for socializing, resting, and recreation. The vibrancy levels of roundabouts generally mirror the vibrancy levels of the surrounding streets. Overall, the findings reveal that open spaces in Sahab are active and socially significant.

ACTION Targeted improvement interventions in open spaces in Sahab; such as enhancing shade, amenities, and pedestrian connections; would therefore have a high positive impact on livability and public life in the city.



Fig. 71: Factors Contributing to the Vibrancy in Open Spaces.

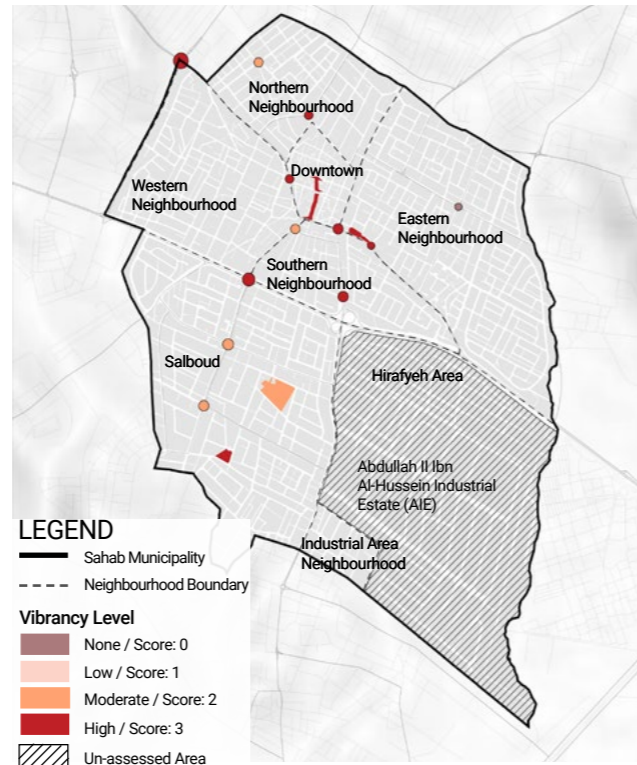


Fig. 72: Open Spaces Vibrancy Assessment- Day time

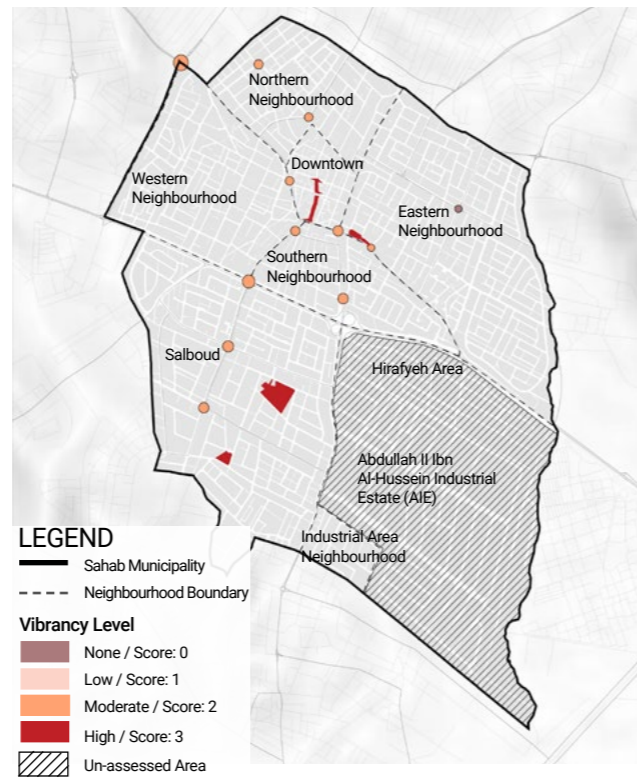


Fig. 73: Open Spaces Vibrancy Assessment - Night time

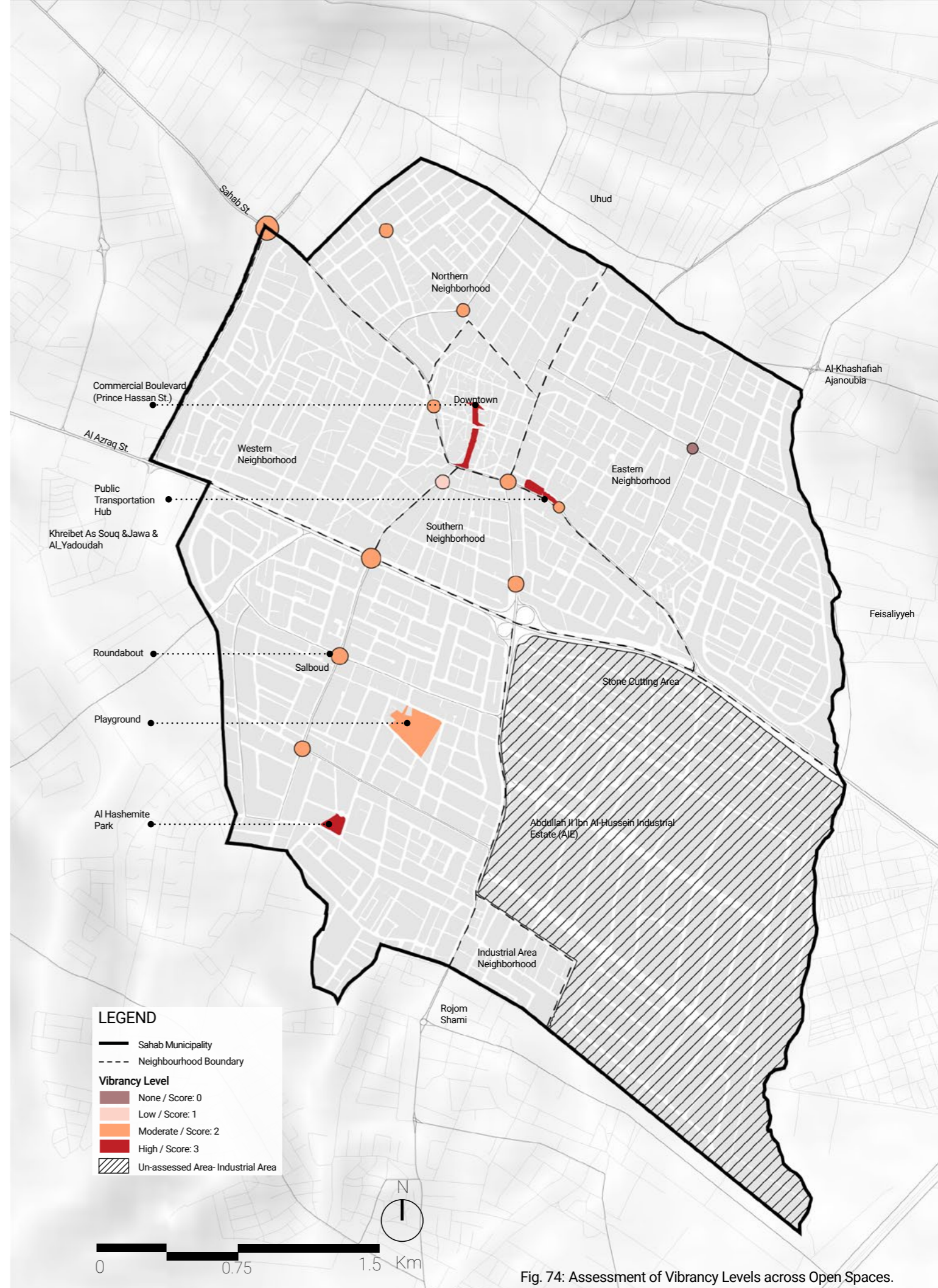


Fig. 74: Assessment of Vibrancy Levels across Open Spaces.



VIBRANCY IN PUBLIC FACILITIES

Public facilities in Sahab represent a key typology of public space, as their forecourts, courtyards, and surrounding open areas have the potential to function as informal gathering and recreational spaces that extend beyond their primary functions. This potential is particularly important given that Sahab currently lacks recreational facilities, which are limited to only one park and a single playground.

A total of 87 facilities were assessed, including mosques, public schools, commercial buildings, municipal administration buildings, the health centre, the hospital, Princess Basma Development Centre, and the cultural centre. Although these facilities are not traditionally designed or managed as public spaces, they constitute a significant untapped asset within the city's public space network. Their central locations within neighbourhoods and their frequent use by residents make them well positioned to foster community interaction and enhance everyday social and recreational life.

The vibrancy levels assessment of these facilities applied the same scoring system and two sub-dimensions used for other typologies: intensity and diversity of use. However, since the hospital is the only public facility operating throughout the night, it recorded the highest vibrancy score of 3. Most other facilities; including schools, administrative buildings, mosques, and commercial shops or kiosks; operate primarily during the day and close in the evening, with mosques typically after the Isha prayer and shops around 10 p.m. This limited period of activity contributed to their moderate vibrancy levels, generally reflected in scores of 2.

Overall, 75% of public facilities scored low vibrancy levels. The resulting map reveals a few high-vibrancy clusters, particularly around the hospital, the municipality's main building, and select commercial facilities, as well as several schools and mosques that achieved scores of 2 and 3. In contrast, facilities located along the city's periphery exhibit lower vibrancy levels, reflecting limited visitor presence and less diverse use.

ACTION To address the shortage of recreational spaces in Sahab, priority should be given to activating open spaces within public facilities, particularly those owned by the municipality and the city's numerous widespread mosques. Repurposing or enhancing these underutilized areas for community use would have a high social impact, providing much-needed recreational and gathering opportunities while strengthening the overall public space network and improving residents' quality of life.

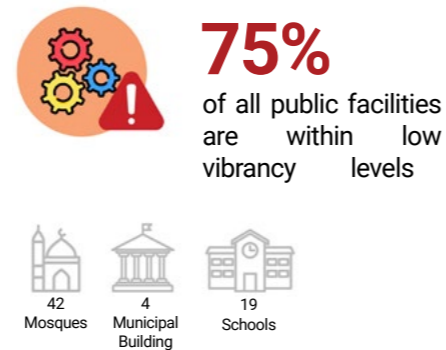


Fig. 75: Number/Type of Public Facilities that have low and very low vibrancy levels (score 0 and 1).

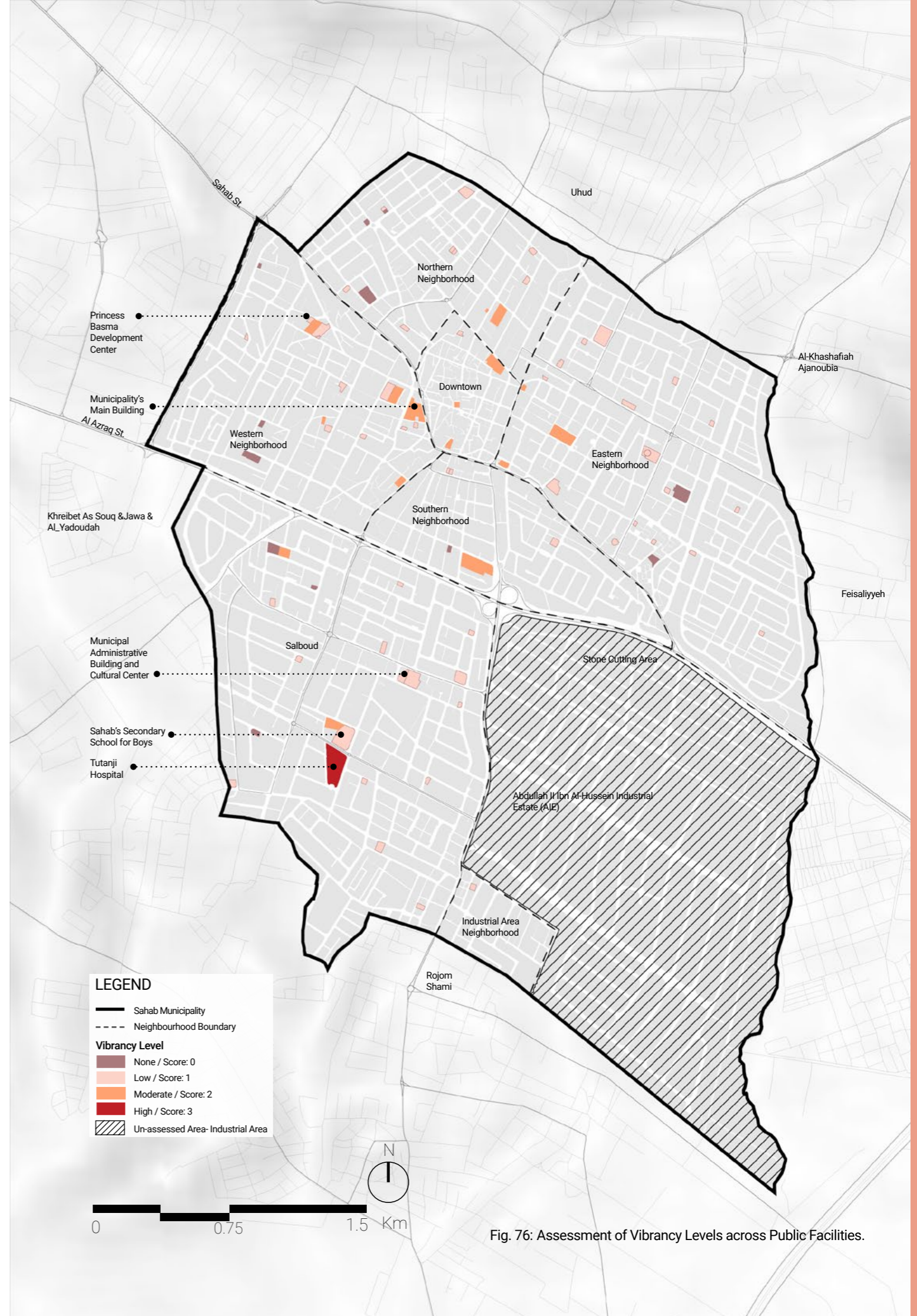


Fig. 76: Assessment of Vibrancy Levels across Public Facilities.



OVERALL VIBRANCY ASSESSMENT IN SAHAB'S PUBLIC SPACE NETWORK

The map on the following page synthesizes the findings from the two sub-dimensions, intensity and diversity of use, to illustrate citywide vibrancy patterns across the public space typologies as a connected network.

The analysis shows that the diversity of activities and events is the most influential factor contributing to vibrancy levels, observed in 93% of all assessed elements. This is followed by the presence of shops (87%), people (45%), and, to a much lesser extent, greenery (14%), which remains the least contributing factor.

High vibrancy levels are concentrated along the main mobility corridors, within the downtown cluster; notably the Commercial Boulevard (Prince Hassan Street) and the public transportation hub; and in Salboud Neighbourhood, particularly around the playground, hospital, and Al Hashemite Public Park. Conversely, vibrancy decreases toward the peripheral residential areas, where activity and land use diversity are limited.

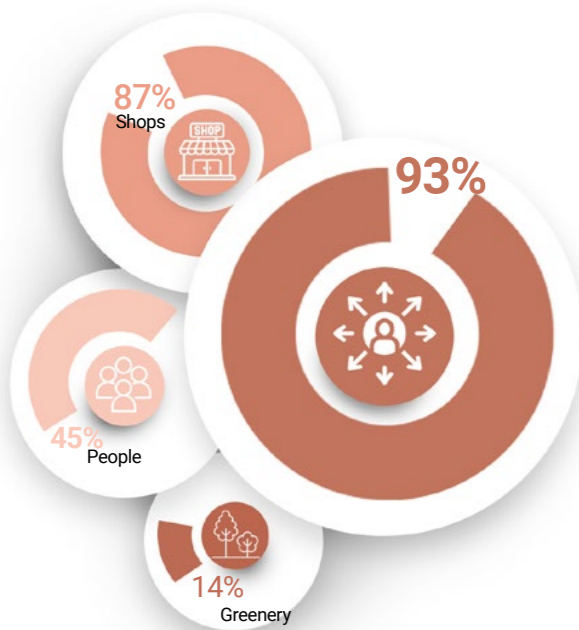


Fig. 77: Factors Contributing to the Overall Vibrancy within the Public Space Network.

Given Sahab's limited recreational facilities and the minimal contribution of greenery to existing vibrancy, targeted interventions should focus on the most vibrant clusters; active during both day and night; that would benefit most from enhancement to maximize overall impact and improve urban livability.

(1) Downtown Cluster: Enhance street greenery and activate open spaces within public facilities, starting with municipality-owned areas and mosque courtyards, to create inviting, multifunctional community spaces. Strengthening these vibrant areas through greening, shading, and pedestrian improvements will not only amplify liveliness but also enhance environmental comfort and improve overall quality of life in the short term.



ACTION Priority should be given to activating open spaces within public facilities located in these vibrant clusters, transforming them into community and recreational areas that serve a wider range of users. In parallel, enhancing greening efforts in these areas would help amplify liveliness, strengthen environmental comfort, and improve the overall quality of life in the short term.

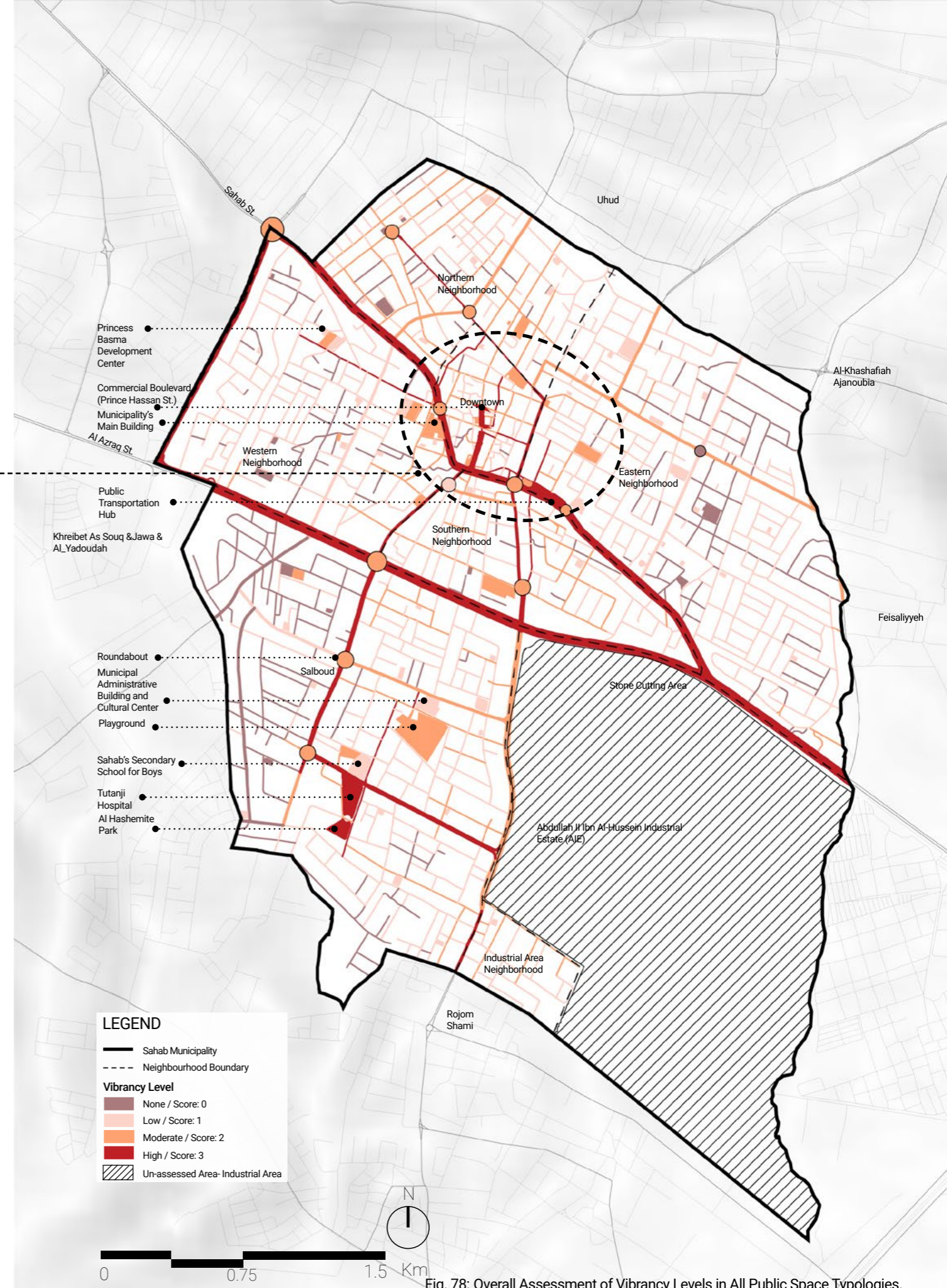


Fig. 78: Overall Assessment of Vibrancy Levels in All Public Space Typologies.



3.3.2 USERS

OVERALL USERS ASSESSMENT IN SAHAB'S PUBLIC SPACE NETWORK

This section analyses inclusivity from the perspective of users, examining both the types of users and their ability to utilize public spaces during the day and night, without social or cultural restrictions. It is important to note that physical accessibility aspects are addressed separately under the Accessibility Dimension, discussed in the following section of the report.

In Sahab City, all categories of residents; including host communities, refugees, migrants, women, youth, and the elderly; generally have free and unrestricted access to public spaces. However, the time of use varies according to the type, function, and operating hours of each space. Given the limited variation among public space typologies in terms of user inclusivity, this analysis is presented as a network-level assessment only, rather than disaggregated by typology, to capture how Sahab's public space system functions collectively in serving diverse user groups.

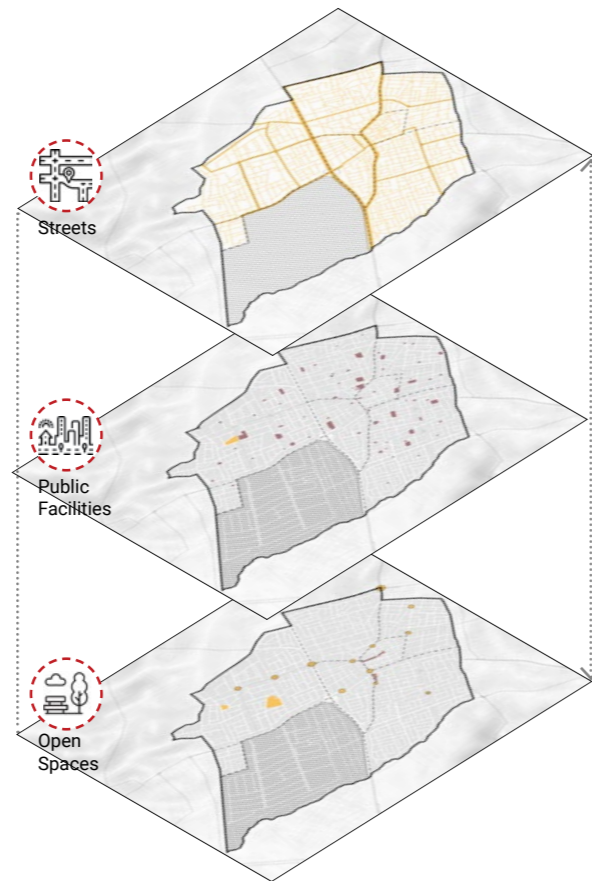
To assess user inclusivity across time, the following scoring system was applied across Sahab's public space network:

- **Score 0:** No users can use the public space during either day or night.
- **Score 1:** All users can use the public space only during the day.
- **Score 2:** All users can use the public space during both day and night.

The map on the following page illustrates the spatial distribution of public spaces accessible to all users at different times. It reveals that streets and open spaces are generally accessible to all user groups throughout the day and night, contributing to Sahab's continuous activity and social interaction. Among public facilities, only the hospital maintains full-time accessibility, operating as a 24-hour facility. In contrast, most other public facilities; such as schools, administrative buildings, commercial buildings, and mosques; are open only during the day and close after working or prayer hours, limiting their use to specific time-frames.

It is worth noting that the public playground occasionally designates certain time slots for specific user groups; such as families, women, or youth; though these restrictions are temporary and limited throughout the week. Overall, Sahab is well recognized for its inclusivity, with no major social or cultural barriers preventing access to public spaces or facilities.

ACTION To further enhance recreational opportunities in the city, activating open spaces within public facilities for community use during evening hours is recommended. Priority should be given to spaces owned by the municipality and mosques, as mosques are the most numerous and geographically widespread public assets in Sahab. Transforming these areas into safe, multifunctional, and welcoming community spaces would broaden equitable access, strengthen the city's public space network, and foster greater social cohesion and livability across all population groups.



LEGEND
 — Sahab Municipality
 - - - Neighbourhood Boundary
Type of Users Versus Time
 ■ All users during day time/ Score: 1
 ■ All users during day and night time / Score: 2
 ▨ Un-assessed Area- Industrial Area

Fig. 79: Users Assessment per Typology.

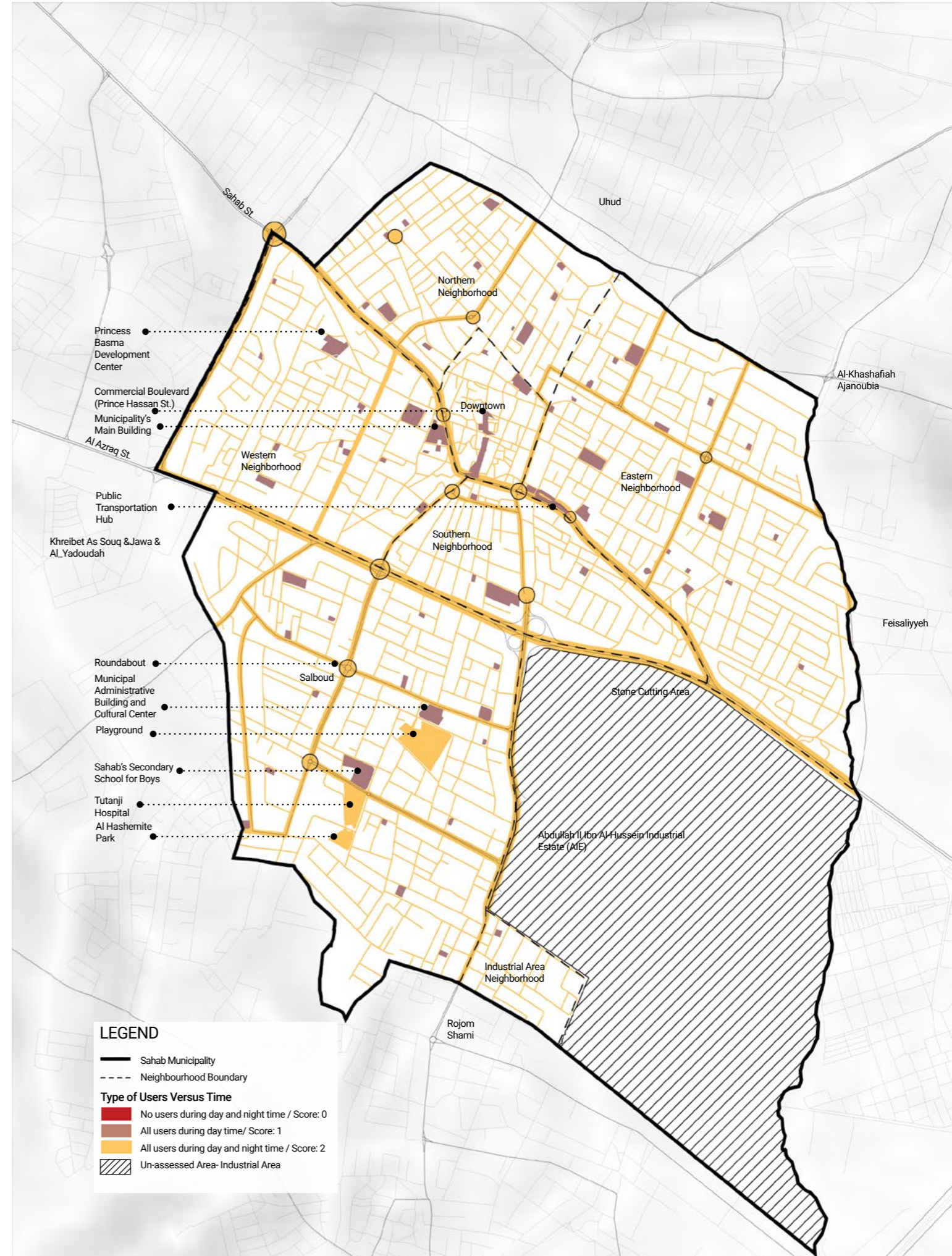


Fig. 80: Overall Assessment of Users in All Public Space Typologies.



3.3.3 AMENITIES

AMENITIES IN STREETS

Streets in Sahab serve not only as mobility corridors but also as vital spaces of daily interaction and social exchange. The adequacy of amenities provision along these streets play a crucial role in determining how comfortable, inclusive, and functional they are for all users. Well-designed and adequately equipped streets can significantly enhance walkability, encourage social activity, and contribute to a more vibrant and livable urban environment. The field assessment evaluated the adequacy of essential amenities provision across Sahab's street network, examining both **their presence and condition**. The key elements considered vital for streets include **lighting, benches, garbage bins, signage, shades, drainage, and kiosks**, as they collectively determine the comfort, safety, and usability of the public realm.

The scoring approach combined two variables; presence and condition, to generate a single composite score that reflects the overall adequacy of amenity provision per street. For each street segment, the number of existing amenities (out of a total of seven) was multiplied by the average condition score of these amenities, rated on a scale from 0 to 3, with 3 indicating good condition. This calculation produced a composite score ranging from 0 to 18, which was then categorized into four levels representing the adequacy of amenity provision across streets:

- **Score 0-3 (None):** No or minimal amenities; very poor condition.
- **Score 4-9 (Low):** Limited amenities and/or uneven quality.
- **Score 10-14 (Moderate):** A balanced provision, either several amenities in fair condition or fewer amenities in excellent condition.
- **Score 15 - 18 (High):** Well-equipped streets with most amenities available and in good condition.

It is important to note that the optimal possible score is 21, which represents streets where all seven amenities are present and in excellent condition (average score of 3).

The analysis of the presence of amenities across Sahab's street network shows a significant shortage of basic elements that support comfort and usability. **The results indicate that all streets lack shading, highlighting the urgent need for greening and tree planting to provide protection from heat and enhance environmental quality.** Among the amenities observed, lighting is the most consistently available element, present in 95% of streets, followed by garbage bins in 47%. Other amenities were rarely recorded, including drainage systems in 11% of streets, signage in 3%, and kiosks in only 2%.

The overall analysis of amenity provision adequacy revealed that 91% of streets scored "None", indicating a complete

lack of essential amenities; or, where they exist, they are in very poor condition; while the remaining 9% scored "Low," reflecting very limited provision across the street network. This highlights the urgent need to enhance the overall provision of amenities throughout Sahab's streets to improve comfort, usability, and inclusivity.

ACTION Improvement efforts should prioritize streets with high pedestrian activity, particularly within the downtown area and along the main commercial corridors, where enhanced amenity provision would have the greatest immediate impact on daily comfort and public life. Interventions should **focus on introducing missing amenities; and upgrading existing elements** to ensure consistent coverage and quality. In parallel, greening efforts should be integrated through street tree planting and shaded walkways, both to improve environmental conditions and to enhance pedestrian comfort.

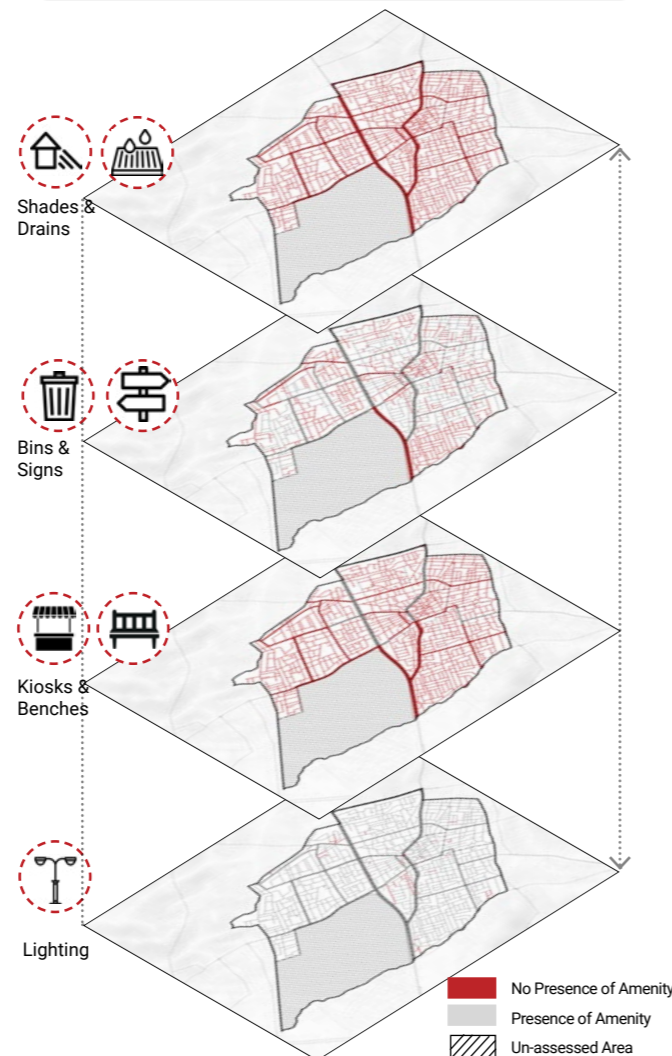


Fig. 81: Presence of Essential Amenities in Streets.

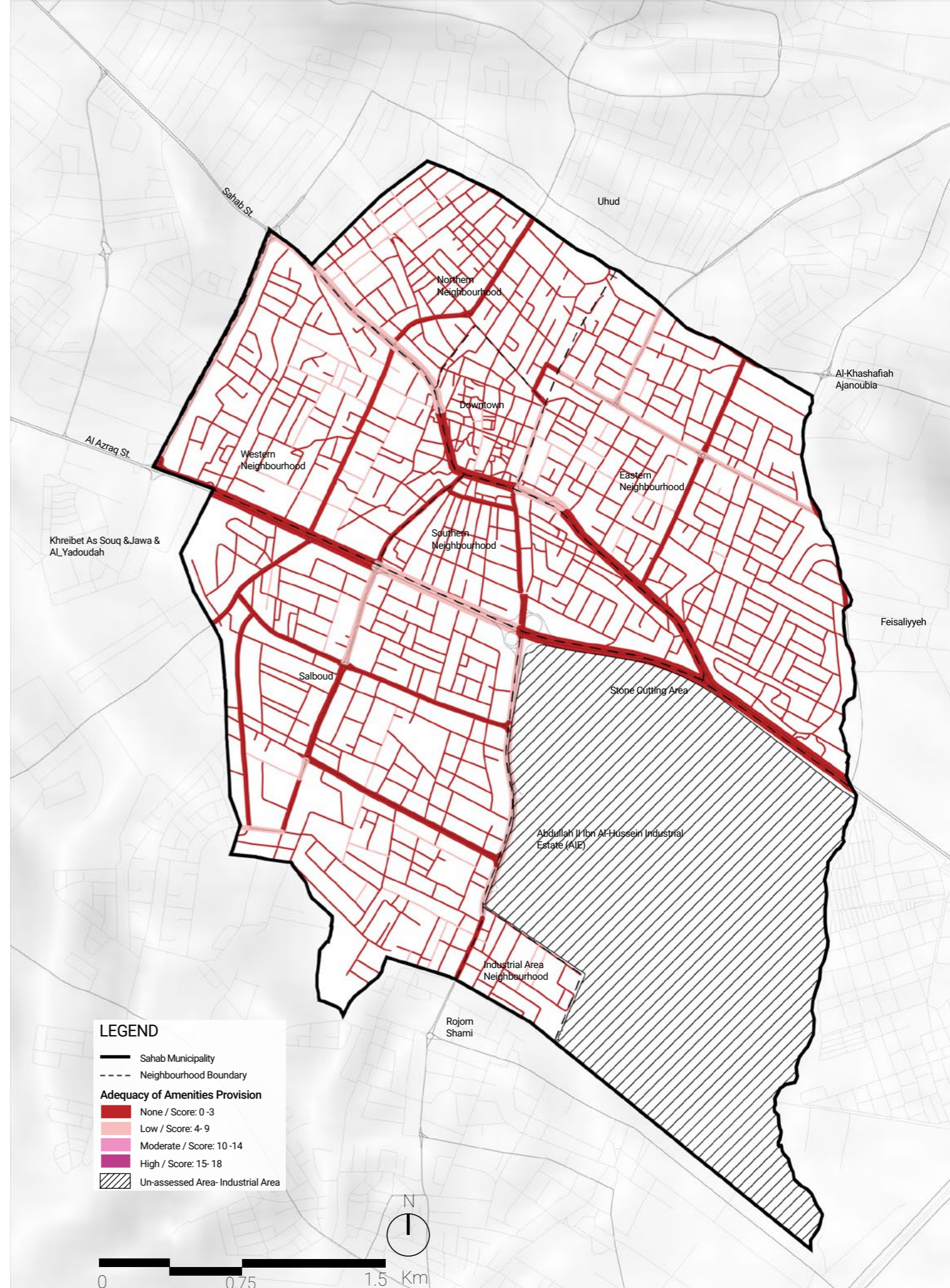


Fig. 82: Assessment of Amenities Provision Adequacy across Streets.



AMENITIES IN OPEN SPACES

The 16 open space elements assessed for the adequacy of amenities provision included the Commercial Boulevard (Prince Hassan Street), Al Hashemite Public Park, the public playground, the public transportation hub, and 12 roundabouts. The assessment followed the same scoring rationale applied to streets, focusing on two sub-dimensions: the presence and condition of amenities.

The amenities that are considered essential in open spaces include **lighting, benches, garbage bins, public toilets, play equipment, shading elements, and kiosks.**

The results highlight significant variations in amenity provision adequacy across different open space typologies. Roundabouts, which primarily function as traffic junctions, generally lacked any amenities, underscoring their limited role as usable public spaces. Al Hashemite Public Park received a low adequacy rating, despite containing five out of the seven essential amenities, due to their poor overall condition. Both the public transportation hub and the commercial boulevard (Prince Hassan Street) recorded moderate adequacy scores. While the transportation hub included all amenities, they were largely in moderate condition. In contrast, the commercial boulevard featured four out of seven amenities but maintained them in good condition. Notably, the public playground recorded the highest score, featuring six out of seven essential amenities in good condition and lacking only shading elements. This strong performance can be attributed to its recent construction and operation, which typically ensures higher standards of quality and maintenance. However, despite its overall adequacy, the absence of shading prevented it from reaching the optimal level of amenity provision.

These findings indicate a broader pattern in which newer, purpose-designed spaces perform significantly better in amenity provision, whereas spaces with primarily functional or traffic-oriented roles remain under-served, thereby limiting their potential as inclusive and vibrant components of the public space network.

ACTION Targeted improvement interventions in open spaces in Sahab should focus on enhancing the adequacy of amenities provision in strategic and frequently used locations. Priority should be given to **upgrading Al Hashemite Public Park** to address gaps in amenity provision and improve user comfort and safety. Similarly, **improving the condition and maintenance of amenities at the public transportation hub** is essential, given its high frequency of use and its role in serving a large number of residents and commuters. Additionally, **repurposing selected roundabouts** to function as small-scale open spaces equipped with feasible and context-appropriate amenities would contribute to expanding the overall accessibility and usability of public spaces across the city.

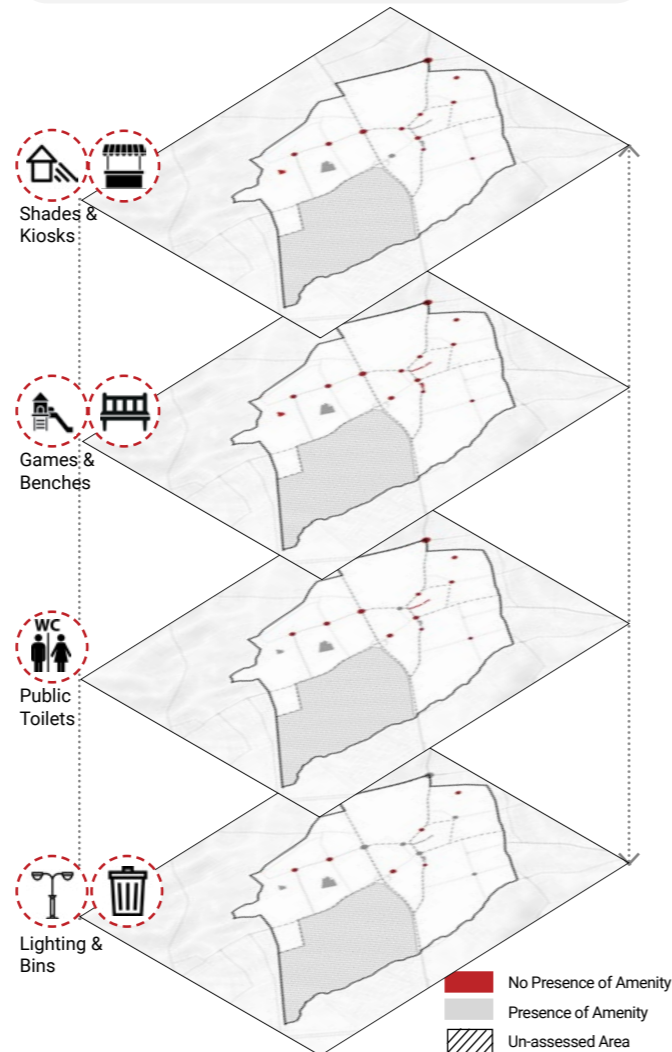


Fig. 83: Presence of Essential Amenities in Open Spaces.

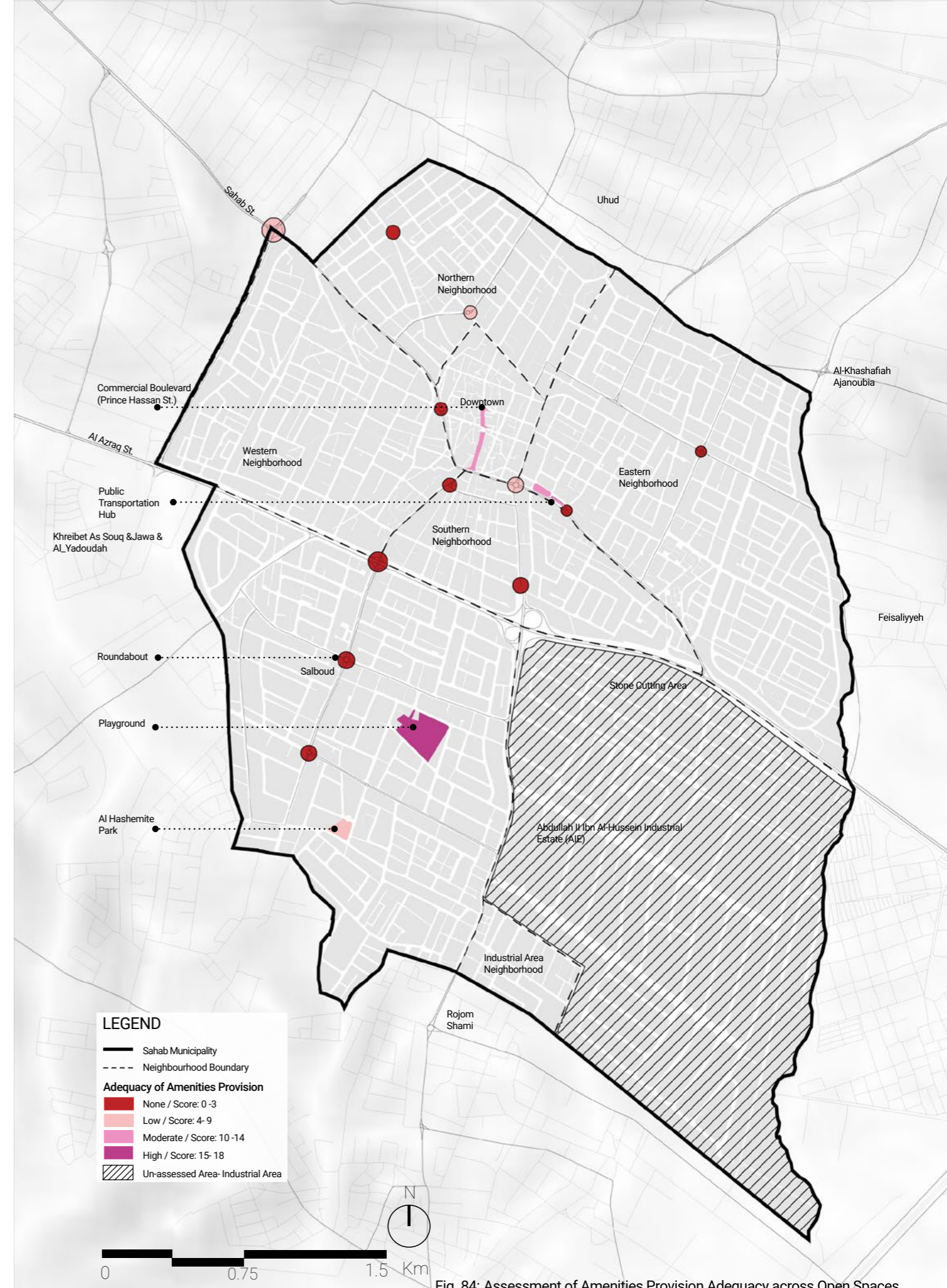


Fig. 84: Assessment of Amenities Provision Adequacy across Open Spaces.



AMENITIES IN PUBLIC FACILITIES

The existing 87 public facilities in Sahab play a dual role: they serve essential service and institutional functions while also providing adjacent open areas; such as forecourts and courtyards; that can operate as informal gathering and social spaces. Although these facilities are not traditionally designed or managed as public spaces, they represent a significant untapped asset within the city's public space network. Their central locations within neighbourhoods and frequent daily use by residents make them well positioned to foster community interaction and enhance everyday social and recreational life; a potential that is particularly important given Sahab's limited number of recreational facilities.

The assessment applied the same scoring rationale used for streets and open spaces, evaluating two sub-dimensions: the presence and condition of amenities. The essential amenities considered for this typology include **lighting, benches, garbage bins, public toilets, play equipment, shading elements, and fire emergency systems.**

The results show that 46 out of 87 facilities scored "None," as their surrounding open spaces are currently not functioning as active public areas. Another 33 facilities scored "Low" (score 1), meaning that a total of 79 out of 87 facilities; representing 91%, are underutilized and poorly equipped with amenities that could support their transformation into accessible open spaces for the community.

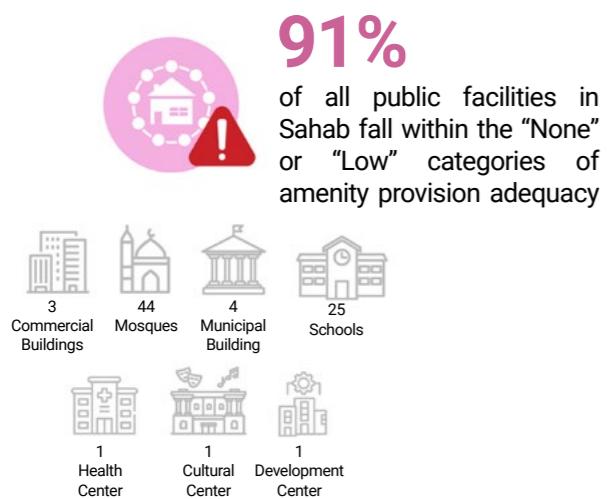


Fig. 85: Number/Type of Public Facilities with Low or No Adequacy of Amenity Provision (Scores 0 and 1).

ACTION Given the large number and wide distribution of mosques across Sahab, and their role as spaces open to all community members without restriction, they present a strategic opportunity for intervention. Many already include basic amenities such as lighting and public toilets. Therefore, **priority should be given to enhancing the adequacy of amenities provision in mosque-associated open spaces**, enabling them to function as inclusive, safe, and multifunctional community spaces that extend beyond their religious use.

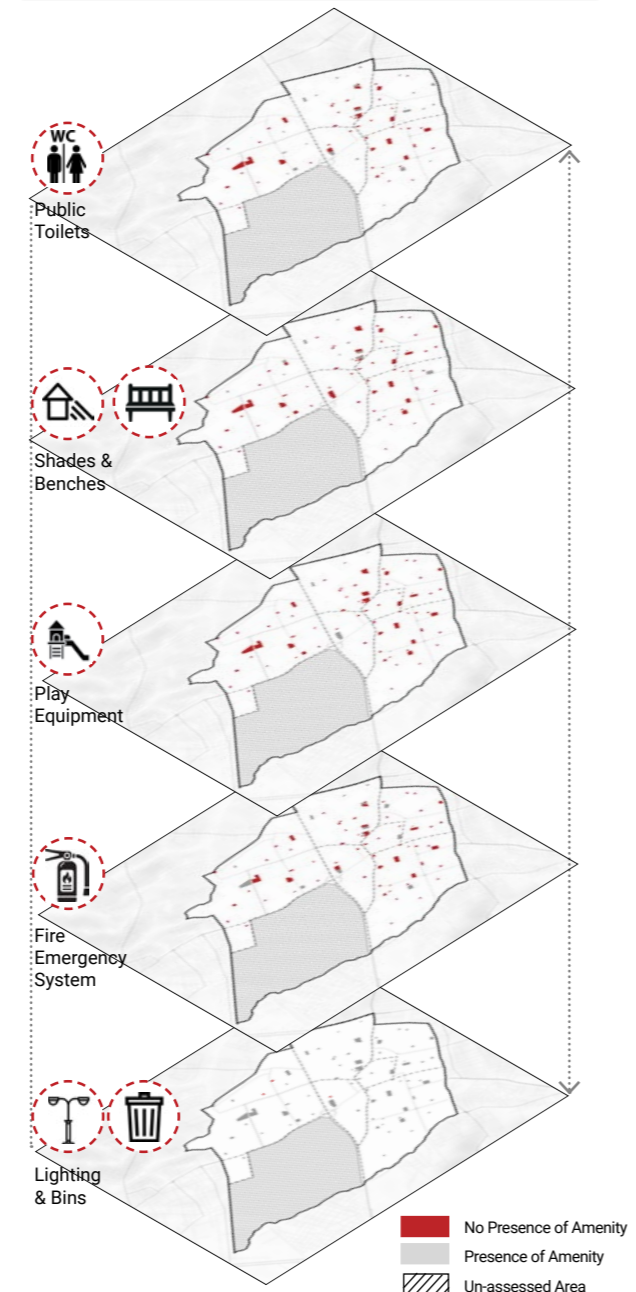


Fig. 86: Presence of Essential Amenities in Public Facilities.

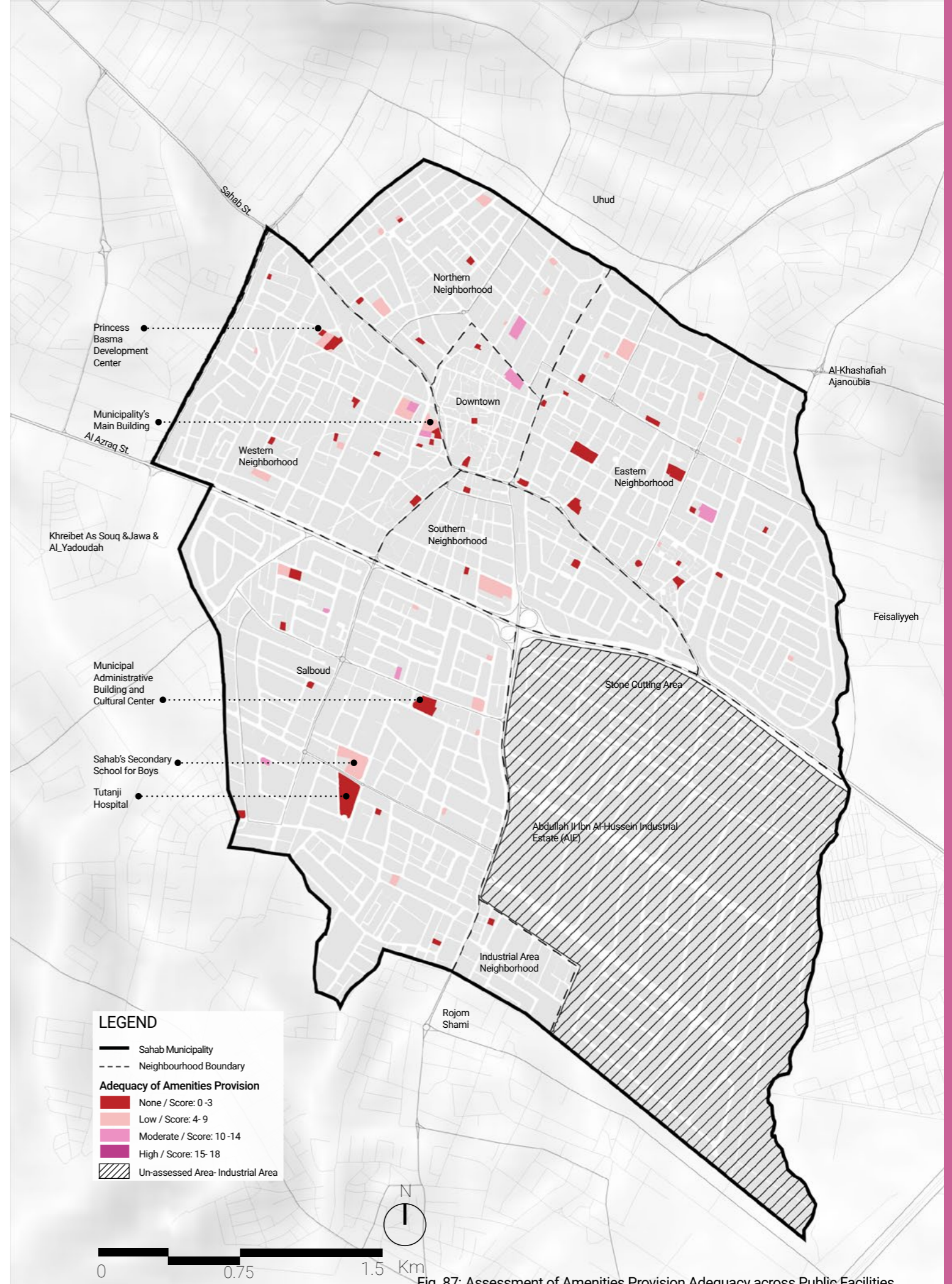


Fig. 87: Assessment of Amenities Provision Adequacy across Public Facilities.



OVERALL AMENITIES ASSESSMENT IN SAHAB'S PUBLIC SPACE NETWORK

The map on the following page synthesizes the findings from the two sub-dimensions; presence and condition of amenities; to illustrate the citywide adequacy of amenity provision across Sahab's public space typologies as a connected network.

The analysis reveals that 86% of public space elements fall within the "None" category of adequacy, indicating an almost complete absence or poor condition of essential amenities. This is followed by 12% categorized as "Low", reflecting limited availability or uneven quality of amenities, and only 1% rated as "Moderate." Less than 1% of assessed elements achieved a "High" adequacy score; represented solely by the public playground, which, despite its recent construction and generally good condition, did not reach the optimal score due to the absence of shading elements.

Since lighting, shading elements, garbage bins, and benches are amenities essential to all public space typologies, their provision directly influences how comfortable and usable the city's spaces are. The assessment showed that lighting is the most consistently available element across the network, followed by garbage bins. Therefore, maintenance of existing lighting and waste management infrastructure should remain a priority, while introducing benches and shading elements across the network is highly recommended. These improvements can be integrated with ongoing greening efforts, ensuring that new trees and landscaping also serve a functional shading purpose to enhance comfort and resilience to heat.

Overall, the assessment underscores a critical need to enhance the provision and quality of essential amenities across Sahab's public space network. Priority should be given to vibrant and high-pedestrian areas, such as the downtown cluster and main streets, where targeted improvements in public furniture, shading, and waste management would yield the greatest impact on livability, inclusivity, and comfort for all users.

ACTION To enhance the adequacy of amenities across Sahab's public space network, improvement efforts should prioritize high-pedestrian and vibrant areas. Maintenance and upgrading of existing lighting and garbage bins should be prioritized to ensure consistent functionality and coverage, while introducing benches and shading elements will significantly enhance user comfort and encourage longer and more inclusive use of public spaces. Moreover, greening and tree planting initiatives should be strategically integrated to serve a dual purpose; providing natural shading and improving overall environmental comfort. Finally, the adoption of a regular maintenance plan is essential to sustain the functionality and long-term impact of improved public space infrastructure.

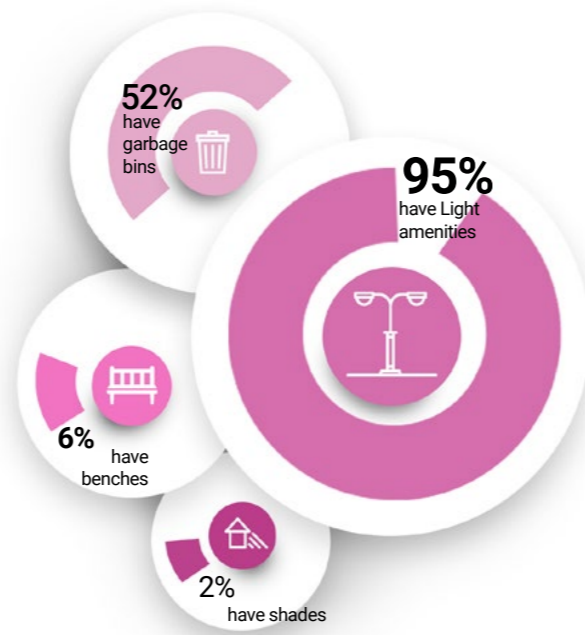


Fig. 88: Percentage of Public Space Elements Equipped with Key Amenities (Lighting, Shading, Garbage Bins, and Benches).

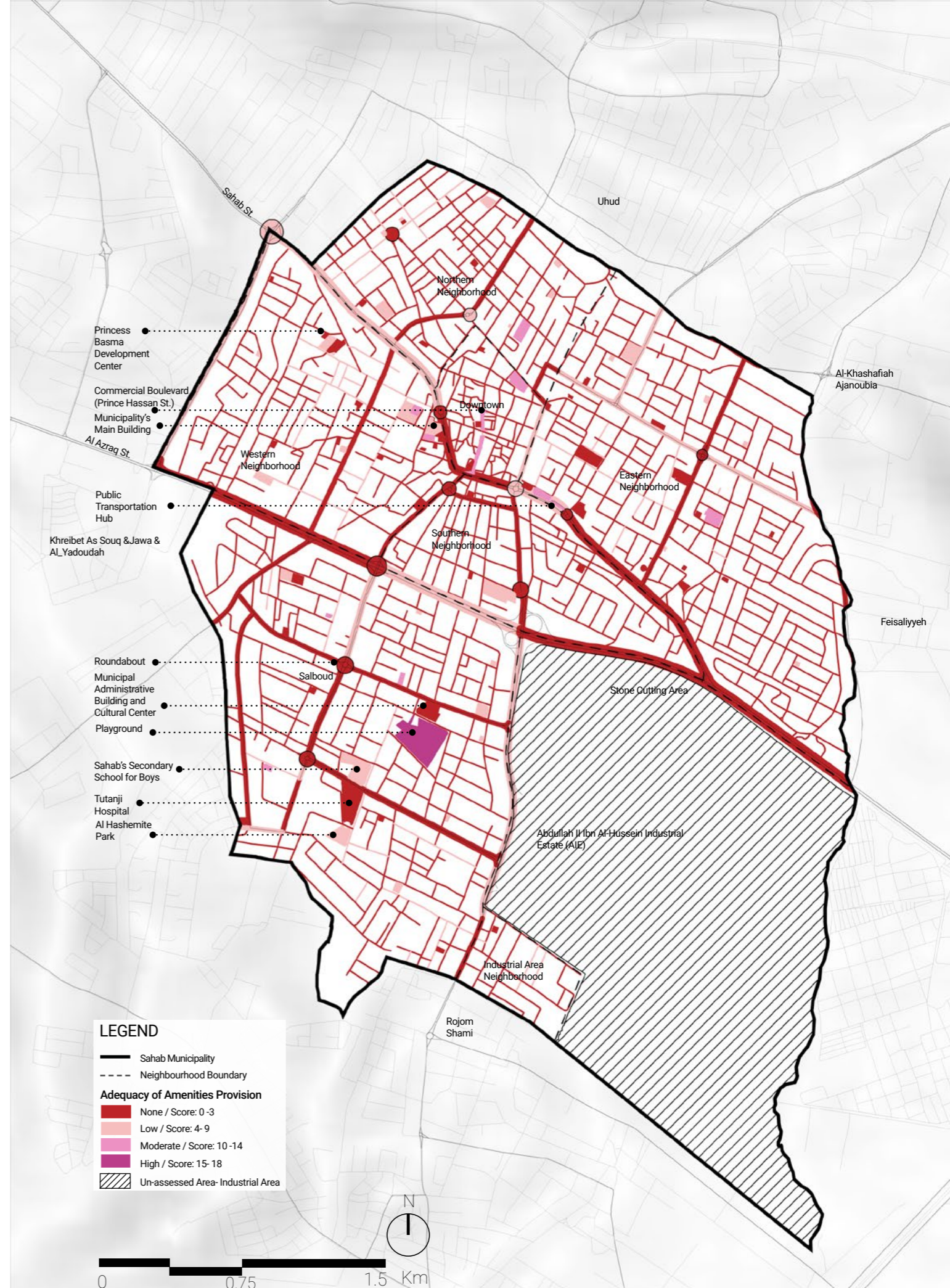


Fig. 89: Overall Assessment of Amenities Provision Adequacy in All Public Space Typologies.



3.3.4 OVERALL ASSESSMENT OF INCLUSIVITY DIMENSION

When the results of the vibrancy, users, and amenities sub-dimensions are overlaid, the resulting map presents a comprehensive picture of inclusivity across Sahab's public space network. This composite assessment reveals where public spaces are most socially active, diverse, and adequately equipped, and where conditions remain limited due to the lack of amenities, restricted use, or poor spatial quality. The analysis functions as a diagnostic tool for understanding how equitably public spaces in Sahab support community interaction and participation, guiding future actions under the Green Public Space Action Plan toward more inclusive and people-centred environments.

The overall assessment classified inclusivity levels into four categories, ranging from very low to high. However, it is important to note that none of the assessed public space elements reached the optimal inclusivity level, largely due to the absence or inadequacy of essential amenities.

At the citywide scale, inclusivity patterns reveal high spatial fragmentation, largely reflecting the existing land-use and functional character of different areas. The most inclusive and vibrant public space elements are concentrated in Downtown Sahab, around the public transportation hub, and along the primary and secondary corridors connecting to the industrial and stone-cutting zones and the Al-Azraq Highway. These central areas naturally exhibit higher activity levels due to their commercial and mixed-use nature, generating continuous movement and interaction throughout the day and evening. The presence of basic amenities such as lighting and waste bins further supports their role as active social and economic corridors.

A second, smaller area of moderate to high inclusivity appears within Salboud Neighbourhood, where the public park, playground, and hospital act as key community anchors, attracting diverse user groups. In contrast, residential neighbourhoods display lower levels of vibrancy and inclusivity, which aligns with their predominantly residential and quieter character. These areas are marked by limited activity, minimal amenities, and restricted use of adjacent public facilities that operate mainly during daytime hours. Despite this, they hold significant potential for improvement through

community-oriented and small-scale interventions that could enhance comfort and encourage greater local use.

ACTION

To strengthen inclusivity across Sahab's public space network, improvement efforts should focus on building upon existing vibrant areas while extending inclusivity to surrounding residential areas. Priority should be given to enhancing amenities (specifically benches and shading elements) and comfort in highly frequented zones; particularly Downtown Sahab, the public transportation hub, and the central corridor of the Southern Neighbourhood; to reinforce their role as socially active and accessible centres.

At the same time, targeted interventions in residential neighbourhoods should aim to activate underutilized open spaces within public facilities, such as mosques, specifically in the Western, Eastern, and Northern Neighbourhoods transforming them into safe and welcoming community areas that remain accessible beyond daytime hours. Integrating greening efforts across these areas will support the provision of shade and further improve comfort, promote equitable use, and strengthen the overall inclusivity and livability of Sahab's public space network.

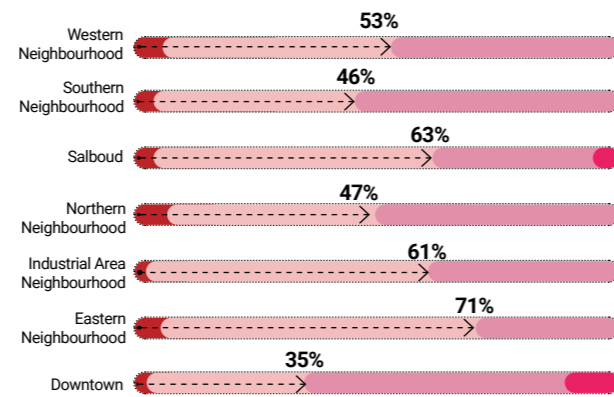


Fig. 90: Inclusivity Performance Categories of Public Spaces by Area per Neighborhood.

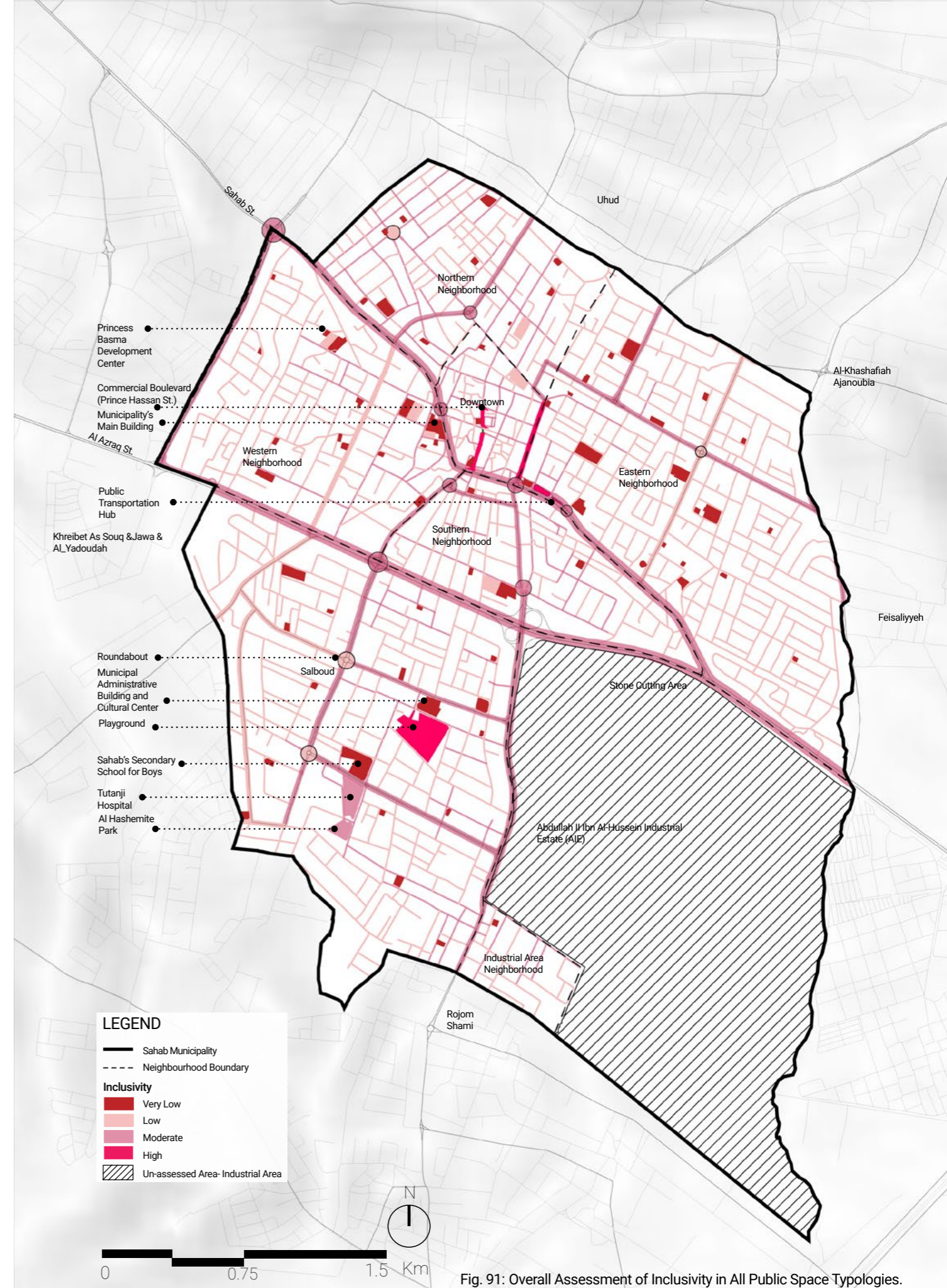


Fig. 91: Overall Assessment of Inclusivity in All Public Space Typologies.



3. 4. DIMENSION 3: CONNECTIVITY AND ACCESSIBILITY

The Connectivity and Accessibility Dimension evaluates the extent to which Sahab's public space network is physically connected and walkable for all users. It assesses how easily people can reach and move through public spaces, taking into account both the quality of supporting pedestrian infrastructure and the spatial configuration of the city's street network. It should be noted that all public space elements included in this study are free of charge to enter during their designated operating hours.

This dimension is divided into two sub-dimensions: Connectivity, which examines spatial integration and proximity, and Infrastructure, which assesses the presence and condition of physical accessibility features that ensure safe and inclusive use.

Connectivity: This sub-dimension assesses the extent to which streets, open spaces, and public facilities are spatially integrated and accessible by walking across the city. Drivability was not included in the analysis, as the entire city is generally reachable by car within 15 minutes at an average speed of 40 km/h, making pedestrian accessibility a more meaningful indicator of equity in access. Likewise, cycling was not considered as a travel mode, given the lack of supporting infrastructure, such as dedicated bike lanes or safe crossings, despite the fact that some residents still rely on bicycles for daily mobility. Accordingly, this sub-dimension focuses on walking accessibility, capturing the spatial coverage and connectivity of Sahab's public space network and assessing how effectively it supports inclusive access for all residents. The analysis considered two main indicators: the degree of connectivity, which measures the structure, permeability, and continuity of the street network, as well as the connectivity between different types of open spaces and various public facilities; and the proximity coverage of open spaces and public facilities, representing the areas surrounding these spaces where residents can access them within a 15-minute walking distance. The assessment was conducted using GIS analytical tools, based on existing spatial data layers of the city's street and public space networks, rather than through field-based observations.

Infrastructure: This sub-dimension evaluates the walkability infrastructure within Sahab's public space network, based on field assessments and survey data examining the availability and condition of physical accessibility features that enable safe and inclusive access for all users; including persons with disabilities, children, the elderly, and mothers with strollers. The analysis focuses on two key indicators: the presence of physical accessibility features, and the condition of those features, to assess how well the city's streets and public spaces support everyday pedestrian movement and universal access.

The following pages present the findings of each sub-dimension, analysed across the three typologies of public space; streets, open spaces, and public facilities. The section concludes with a multilayered map that integrates all findings to provide a city-wide overview of the Connectivity and Accessibility Dimension.

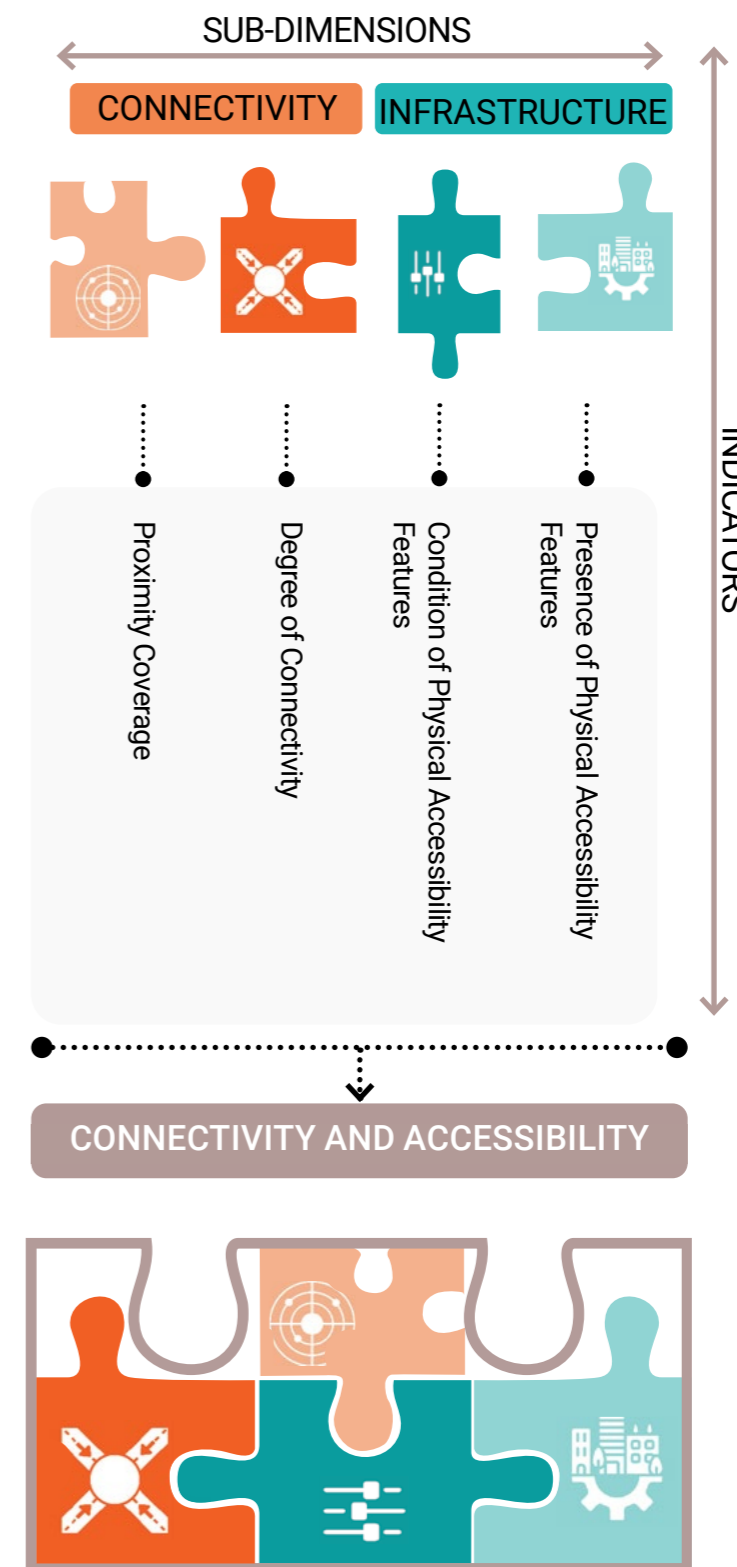


Fig. 92: Accessibility Sub Dimensions and Indicators



3.4.1 CONNECTIVITY

CONNECTIVITY IN STREETS

Street connectivity refers to the degree to which streets are spatially linked and how easily pedestrians can move through the urban fabric. A highly connected street network; characterized by shorter blocks, frequent intersections, and multiple route options; facilitates easier and more direct movement for pedestrians and vehicles alike. In contrast, areas with lower connectivity, marked by long street segments and fewer intersections, tend to limit accessibility, discourage walking, and increase reliance on private transport.

To assess street connectivity in Sahab, a multi-indicator approach was adopted, combining the Beta Index, Reach Index, and Centrality Index to provide a comprehensive understanding of the street network's structural continuity of the grid and its functional efficiency in supporting pedestrian mobility. The Beta Index, derived from graph theory, measures the number of street segments divided by the number of intersections (nodes) within each analysis unit; in this case, hexagons of approximately 10 dunums (1 hectare). The resulting ratio reflects the degree of structural connectivity within each hexagon: higher ratios (1 and above) indicate a denser and more interconnected street structure, while lower ratios denote fragmented or poorly connected areas. To complement this, the Reach Index assesses the extent to which each street node can connect to other nodes within a 15-minute walking distance, providing insight into local accessibility and pedestrian reach. Meanwhile, the Centrality Index identifies streets that act as key connectors or corridors within the citywide network, highlighting their relative importance for movement, circulation, and accessibility.

The analysis shows that approximately 64% of the city's street network hexagons fall within the moderate connectivity category, while only around 7% exhibit high connectivity. Downtown Sahab demonstrates the highest levels of connectivity, with 94% of its hexagons classified as high connectivity. This indicates that the street structure in the downtown area forms a relatively compact grid characterized by multiple intersections and shorter block lengths. These features make the downtown one of the most integrated and accessible parts of the city, supporting ease of pedestrian movement and direct access to surrounding destinations.

From a planning perspective, pedestrian infrastructure improvement efforts should prioritize areas with high street connectivity, where the street structure already supports walkability and can yield immediate benefits through targeted interventions such as sidewalk rehabilitation, shading, and pedestrian crossings. In contrast, areas with low structural connectivity would require more complex, long-term interventions; such as introducing new connecting streets, pathways, or pedestrian shortcuts; to improve permeability and integration with the broader network.

ACTION **Prioritize pedestrian infrastructure upgrades in the downtown area, where the existing street structure already supports walkability and can deliver quick, visible improvements.** Integrating green and shaded corridors along these routes will further enhance comfort, promote walking, and strengthen overall urban connectivity across Sahab. **In low-connectivity areas, pursue long-term interventions where needed to improve permeability through the introduction of new connecting streets, pedestrian pathways, and safe crossings.**

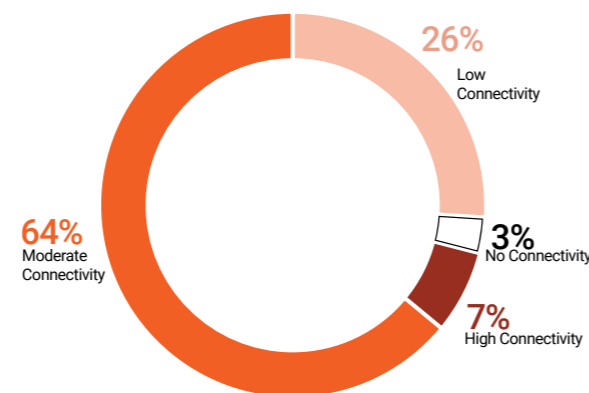


Fig. 93: Degree of Street Connectivity Across Sahab Based on Hexagon Analysis

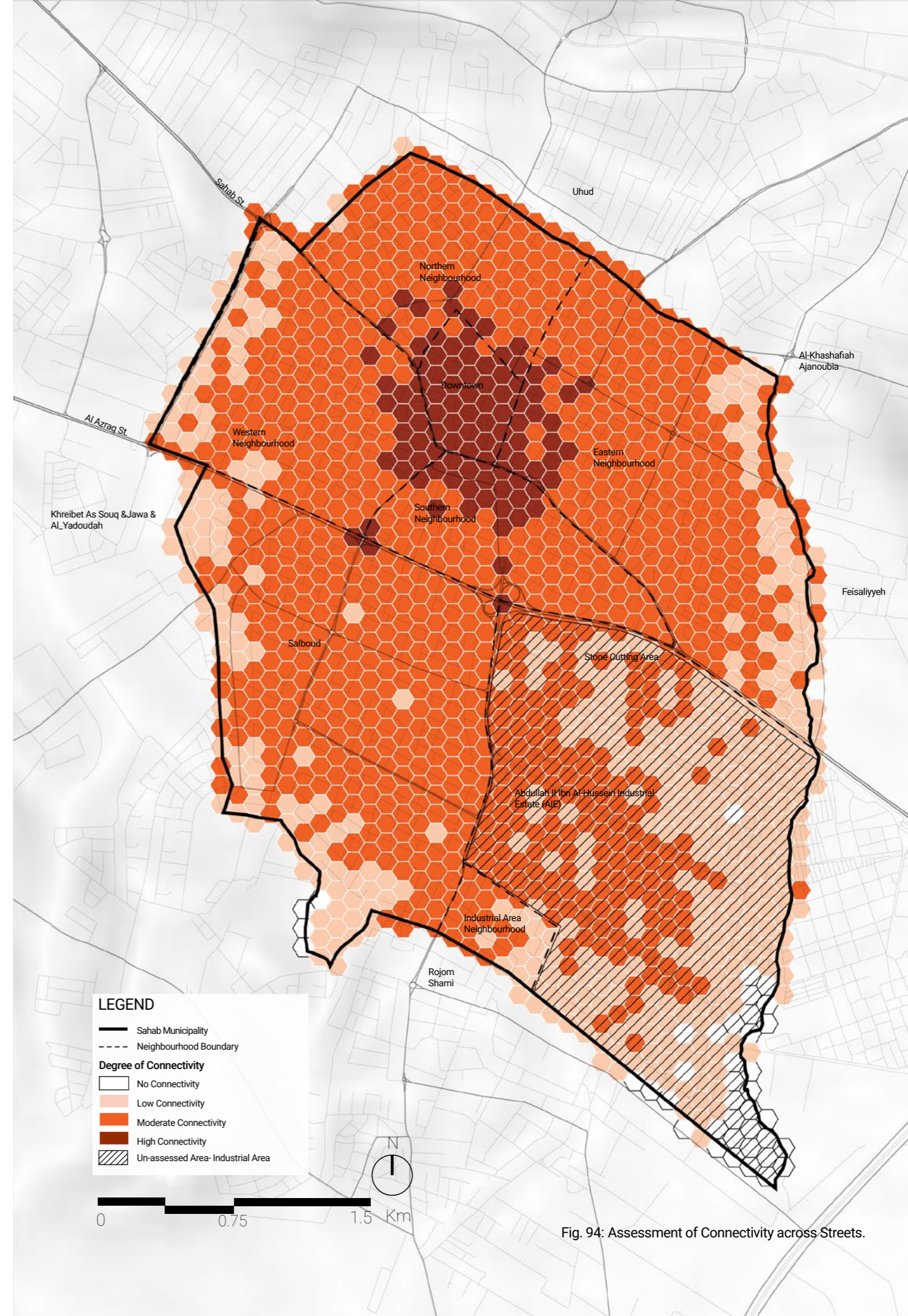


Fig. 94: Assessment of Connectivity across Streets.



CONNECTIVITY IN OPEN SPACES

The city's functioning open spaces are currently limited to the Al-Hashemite Public Park, the playground, the Commercial Boulevard (Prince Hassan Street), and the public transportation hub. Although Sahab has 12 roundabouts distributed across the city, these are not currently functioning as usable open spaces.

The proximity coverage was generated using the GIS street network analysis tool, based on the existing street network configuration. A walking speed of approximately 3 km/h and a coverage radius of around 750 meters; equivalent to an average 15-minute walking distance; were applied. This assumption accounts for the conditions experienced by vulnerable pedestrians, including older adults, parents with strollers, and persons with mobility challenges. Accordingly, the figure on the right provides an estimate of the current spatial reach of open spaces under these walking conditions. Both recreational open spaces; the Al Hashemite Public Park and the playground, are located within the Salboud Neighbourhood, resulting in highly uneven spatial distribution. Consequently, only 9.3% of Sahab's population can access these recreational facilities within a 15-minute walking distance. This highlights a significant accessibility gap, particularly for residents in the peripheral neighbourhoods. 20% of the population can access the Commercial Boulevard (Prince Hassan Street) within a 15-minute walk, serving as a key linear public space that attracts daily activity. Similarly, the public transportation hub is within a 15-minute walking distance for 15% of residents.

The map on the following page illustrates the degree of connectivity between Sahab's functioning open spaces, reflecting their spatial diversity and integration within the city's public space network. As shown, there is strong connectivity between the two recreational facilities; the Al-Hashemite Public Park and the playground; as well as between the Commercial Boulevard and the public transportation hub. However, connectivity diminishes toward the city's periphery, where no other functioning open spaces currently exist.

If roundabouts were to be activated and integrated as public spaces, they would significantly enhance the overall connectivity between open spaces across the city, strengthening the continuity and accessibility of Sahab's public space network. Roundabouts already serve as prominent spatial nodes, often hosting monuments and local landmarks, yet remain an untapped opportunity to expand the city's network of accessible and recreational green spaces. Given their strategic locations, high visibility, and public ownership,

smaller roundabouts within residential neighbourhoods could be redesigned and re-purposed into small-scale pocket parks or community gathering points, improving both urban connectivity and neighbourhood livability.

ACTION To enhance the provision and spatial equity of recreational open spaces, the city should prioritize **redesigning** strategically located roundabouts; particularly those in the northern and eastern neighbourhoods; into small pocket parks that expand access to open and recreational spaces.

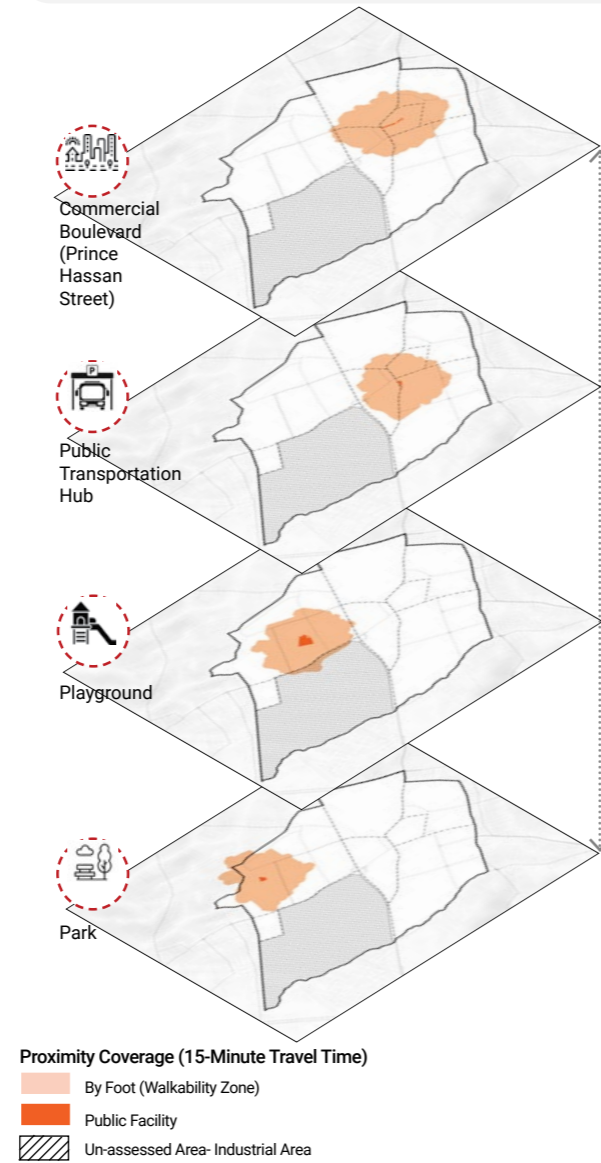


Fig. 95: Proximity Coverage across Open Spaces per Type.

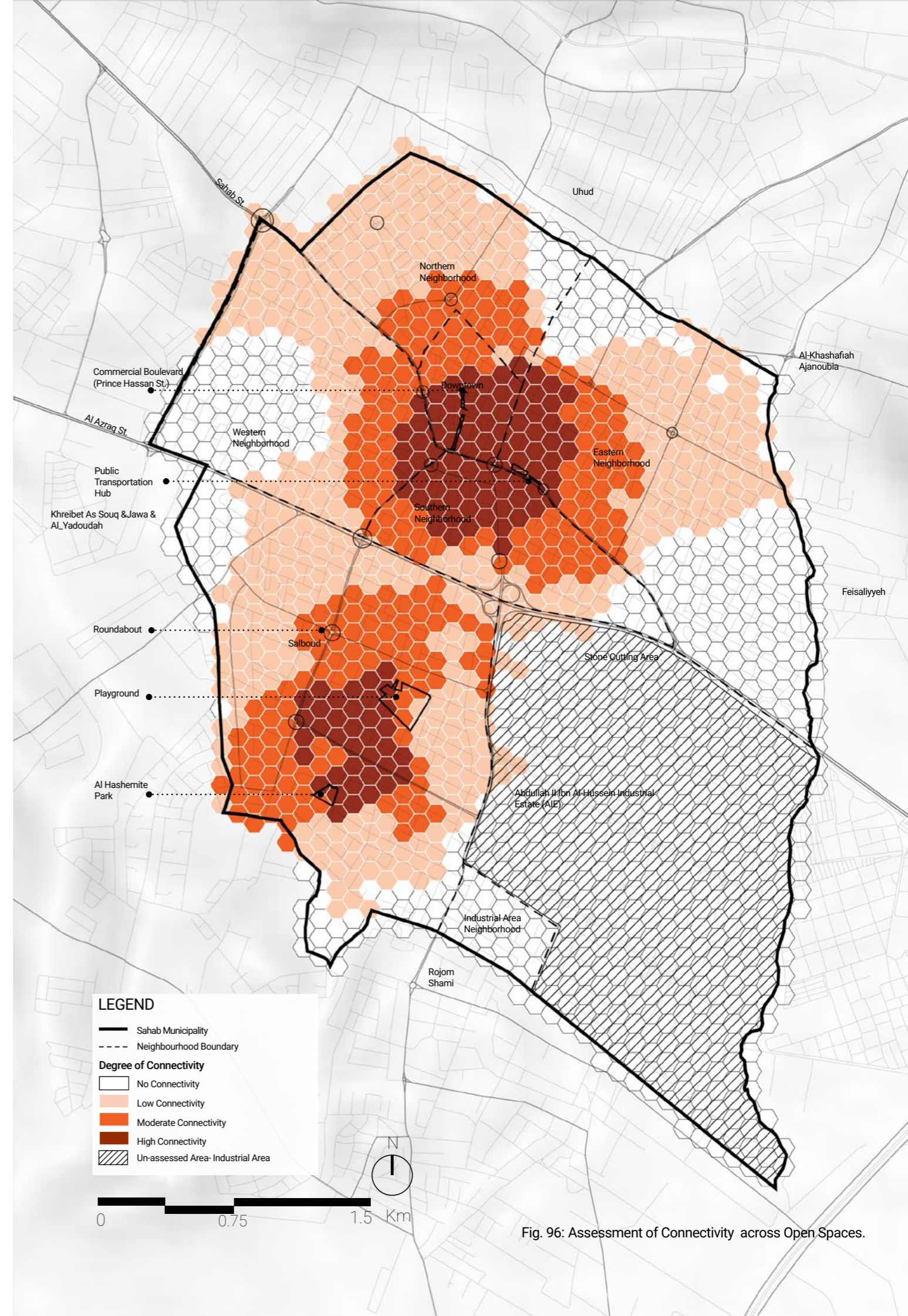


Fig. 96: Assessment of Connectivity across Open Spaces.



CONNECTIVITY IN PUBLIC FACILITIES

Applying the same methodology used for open spaces to measure proximity coverage; the figure on the right illustrates the proximity coverage of Sahab's public facilities. The analysis shows that public facilities are well distributed across the city, and are generally accessible to most residents within a 15-minute walking distance. Mosques and schools are the most spatially accessible public facilities, reachable within a 15-minute walking distance for nearly all residents due to their widespread presence and distribution. However, the forecourts, courtyards, and surrounding open areas of these facilities are not yet utilized to their full potential as public spaces that can support and enrich community life. Their strategic locations and citywide distribution position them to act as multi-functional community anchors within the broader public space system.

The map on the following page illustrates the degree of connectivity between Sahab's public facilities, reflecting their spatial distribution, diversity, and level of integration within the city's public space network. As shown, high connectivity and diversity of public facilities are concentrated in the Downtown area, as well as partially within the Western Neighbourhood and the central area of Salboud Neighbourhood. Connectivity gradually decreases toward the city's peripheries.

Overall, the integration and activation of the public facilities' open spaces can play a pivotal role in expanding Sahab's public space network, particularly by bridging gaps in peripheral areas and linking accessibility improvements with environmental and social co-benefits.

ACTION Investing in the utilization of mosque forecourts and surrounding open areas, where feasible, could substantially enhance recreational space provision, especially in peripheral neighbourhoods outside Salboud, which currently lack accessible open spaces. Given their prevalence, cultural significance, and manageable scale, mosque open spaces present a high-impact, low-cost opportunity to strengthen both recreational access and environmental quality across Sahab. In addition, the Princess Basma Development Centre offers potential for intervention, as it lies within an area that currently lacks open space accessibility within a 15-minute walking distance.

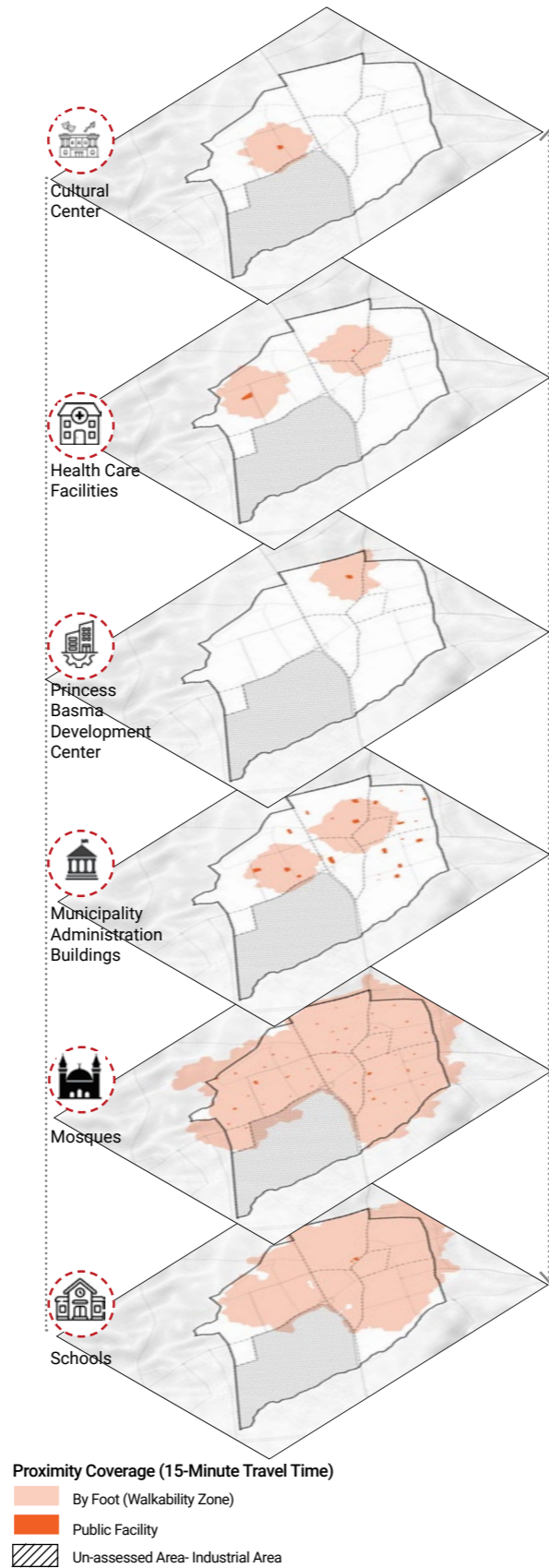


Fig. 97: Proximity Coverage across Public Facilities per Type.

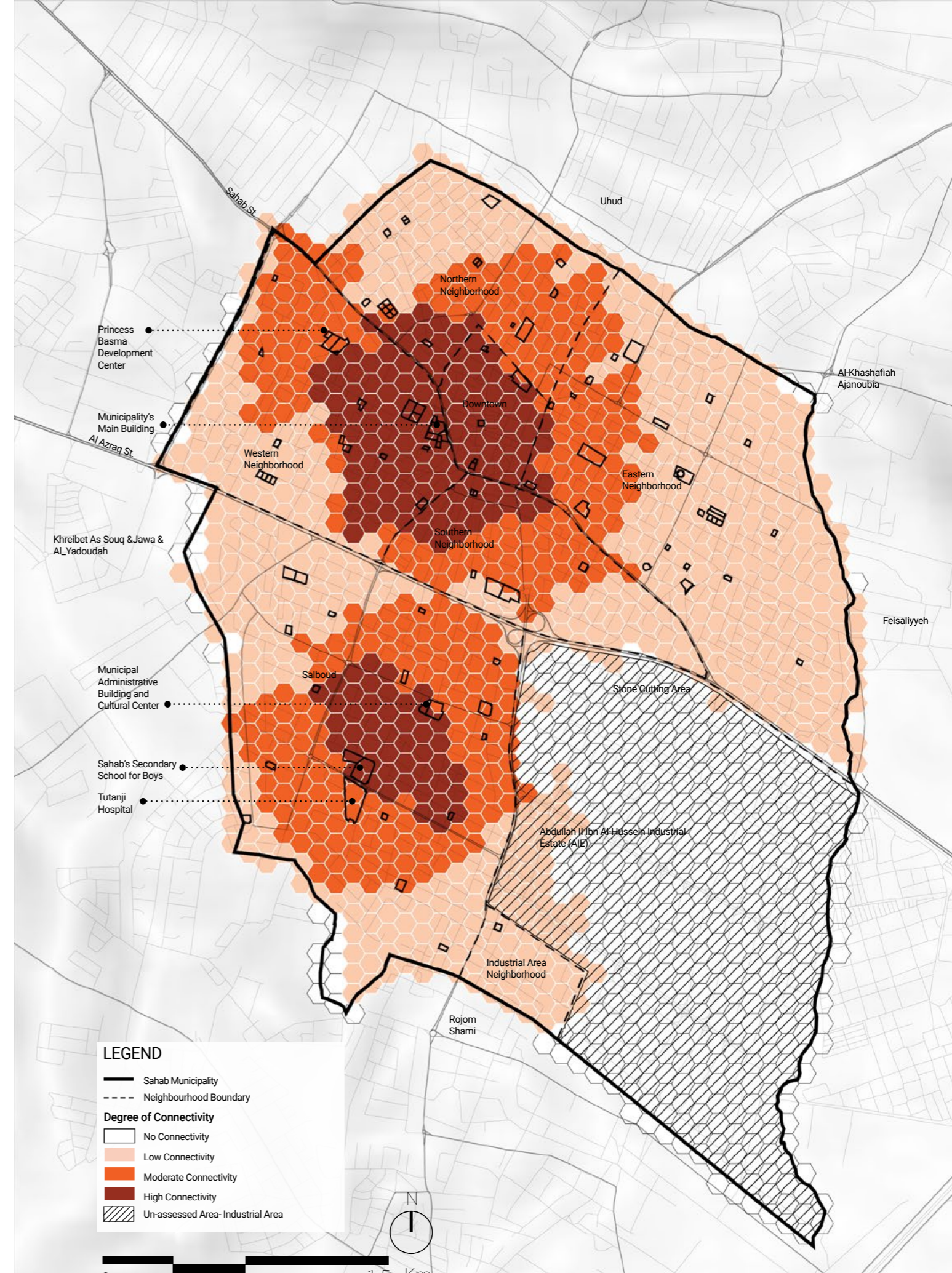


Fig. 98: Assessment of Connectivity across Public Facilities.



OVERALL CONNECTIVITY IN SAHAB'S PUBLIC SPACE NETWORK

The map on the following page illustrates the overall degree of connectivity between Sahab's public space typologies; including streets, open spaces, and public facilities; capturing how these different elements interact and form an integrated public space network. The analysis combines connectivity values across typologies to identify spatial clusters where public spaces are well linked, as well as areas that remain disconnected or under served.

The results reveal that connectivity within Sahab's public space network is spatially uneven, with the highest levels of integration concentrated in the Downtown area, portions of the Western, Eastern, Northern, and Southern Neighbourhoods that surround the city centre, and the central part of the Salboud Neighbourhood. These areas benefit from a compact urban form, a dense street network, and the co-location of key public facilities and open spaces such as the Al-Hashemite Park, the playground, the Commercial Boulevard (Prince Hassan Street), and municipal buildings. This combination creates a strong core of activity and accessibility that supports daily mobility, community interaction, and economic vibrancy.

In contrast, connectivity weakens toward the northern, eastern, and southern peripheries, where public facilities and open spaces are sparse and separated by longer street segments with lower permeability. The Industrial Area and the Stone-Cutting Zone in particular exhibit the lowest levels of connectivity due to their large block sizes, limited intersections, and restricted public access.

Overall, the city's public space network remains fragmented, with clusters of high connectivity surrounded by wide areas of limited access and integration. However, the spatial overlap between well-connected streets and existing public facilities presents a clear opportunity to reinforce Sahab's public realm.

ACTION Targeted interventions; such as improving pedestrian linkages, repurposing roundabouts and forecourts in public facilities; can bridge these gaps, creating a more continuous and inclusive network that enhances accessibility, livability, and environmental performance citywide.

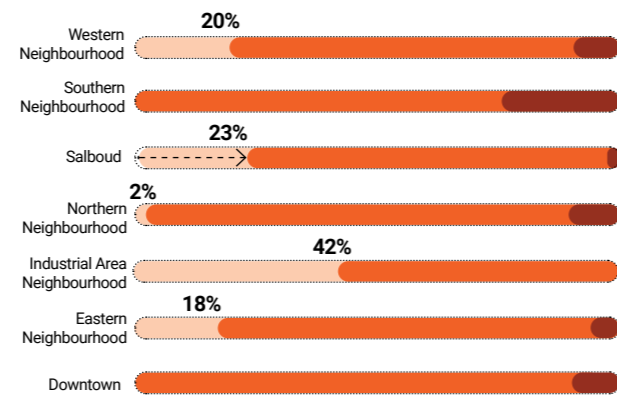


Fig. 99: Connectivity Performance Categories of Public Spaces by Area per Neighborhood.

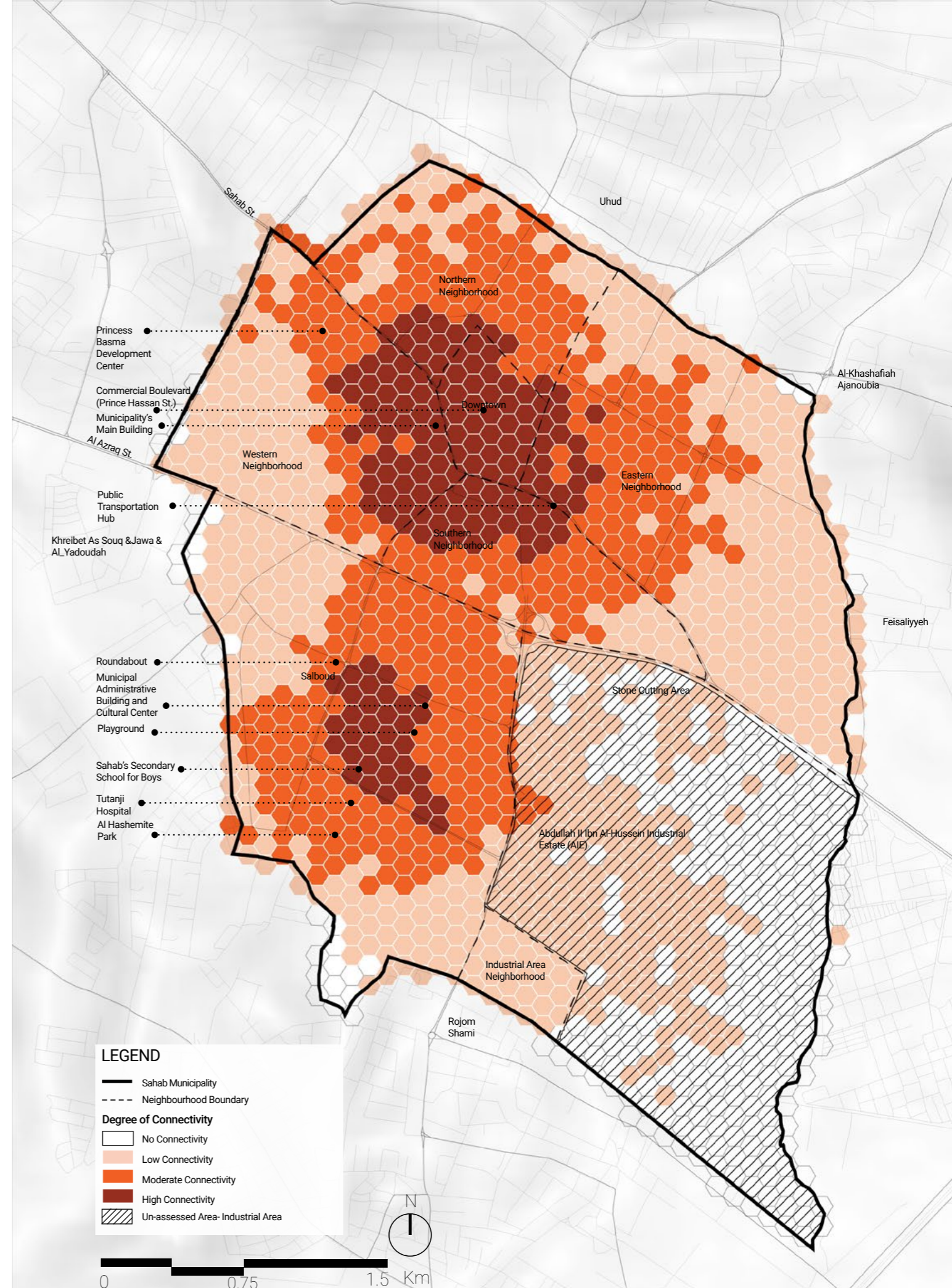


Fig. 100: Assessment of Connectivity in All Public Space Typologies.



3. 4. 2 INFRASTRUCTURE

INFRASTRUCTURE IN STREETS

While the overall street network forms the city's primary mobility structure, the condition of pedestrian infrastructure remains a major constraint to accessibility. Streets in Sahab are generally in poor physical condition, even for vehicular movement, with many requiring maintenance and resurfacing. The assessment for streets therefore focuses specifically on the walkability infrastructure, examining the presence, number, and condition of sidewalks in relation to their usability and inclusivity for all groups of the population, including persons with disabilities, the elderly, mothers with strollers, and children, as well as the existence and quality of pedestrian crossings. The following scoring system was applied across Sahab's public space network to assess the walkability infrastructure:

- **Score 0:** Un-walkable.
- **Score 1:** Low Walkability due to obstructions.
- **Score 2:** Moderate Walkability.
- **Score 3:** High walkability for all users.

Based on this assessment, 88% of Sahab's street network (by total length in kilometres) scored 0, indicating that it is entirely unwalkable for pedestrians, while the remaining 12% scored 1, reflecting very low walkability with frequent obstructions and poor surface conditions. The central section of Al-Azraq Street, owing to its commercial and mixed-use character, falls within the low category, as sidewalks are often discontinuous, obstructed, or uneven. Sahab Street also exhibited low walkability, characterized by weak continuity and limited accessibility across most of its segments. Meanwhile, the street surrounding the public transportation hub scored 0, highlighting poor pedestrian safety and a complete absence of defined walkways or crossings. Almost no streets within Sahab fall within the moderate or high walkability categories.

Field data revealed that sidewalks are largely absent or discontinuous throughout most of Sahab's street network. Where they do exist, sidewalks are often narrow, poorly maintained, and obstructed by parked cars, construction waste, or shop extensions, and lack basic accessibility features such as ramps, tactile paving, or level crossings. Notably, none of the surveyed sidewalks included any universal design elements that would support safe and comfortable movement for persons with disabilities or other mobility limitations. It is also significant that only two formal pedestrian crossings were identified citywide; both located at the initial segments of Sahab Street and Al-

Azraq Street. Beyond these points, no marked pedestrian pathways or safe crossings were observed, further limiting walkability and posing serious safety risks, particularly for children, the elderly, and persons with disabilities.

The overall results indicate that pedestrian infrastructure in Sahab is severely underdeveloped, offering very few safe, continuous, or accessible routes for walking. This lack of walkable streets restricts access to key public spaces and facilities, especially for vulnerable groups, and limits the city's potential to foster sustainable, inclusive, and people-oriented mobility.

ACTION To improve walkability and ensure inclusive access, pedestrian infrastructure upgrades should be prioritized along main corridors, particularly Sahab Street and Al-Azraq Street, by providing continuous sidewalks and safe pedestrian crossings. The introduction of universal accessibility features; such as curb ramps, tactile paving, and crossing pathways; is essential to accommodate persons with disabilities, the elderly, and parents with strollers. Additional formal pedestrian crossings are needed across the street network, especially near public facilities, schools, and transport hubs, to enhance safety. These interventions should be complemented by design and enforcement measures to prevent sidewalk encroachments and implemented in phases, beginning with primary roads and gradually extending to secondary and local streets, to create a safe, inclusive, and connected pedestrian environment throughout Sahab.



Fig. 101: Example of a main street that lacks efficient walkability infrastructure in Sahab

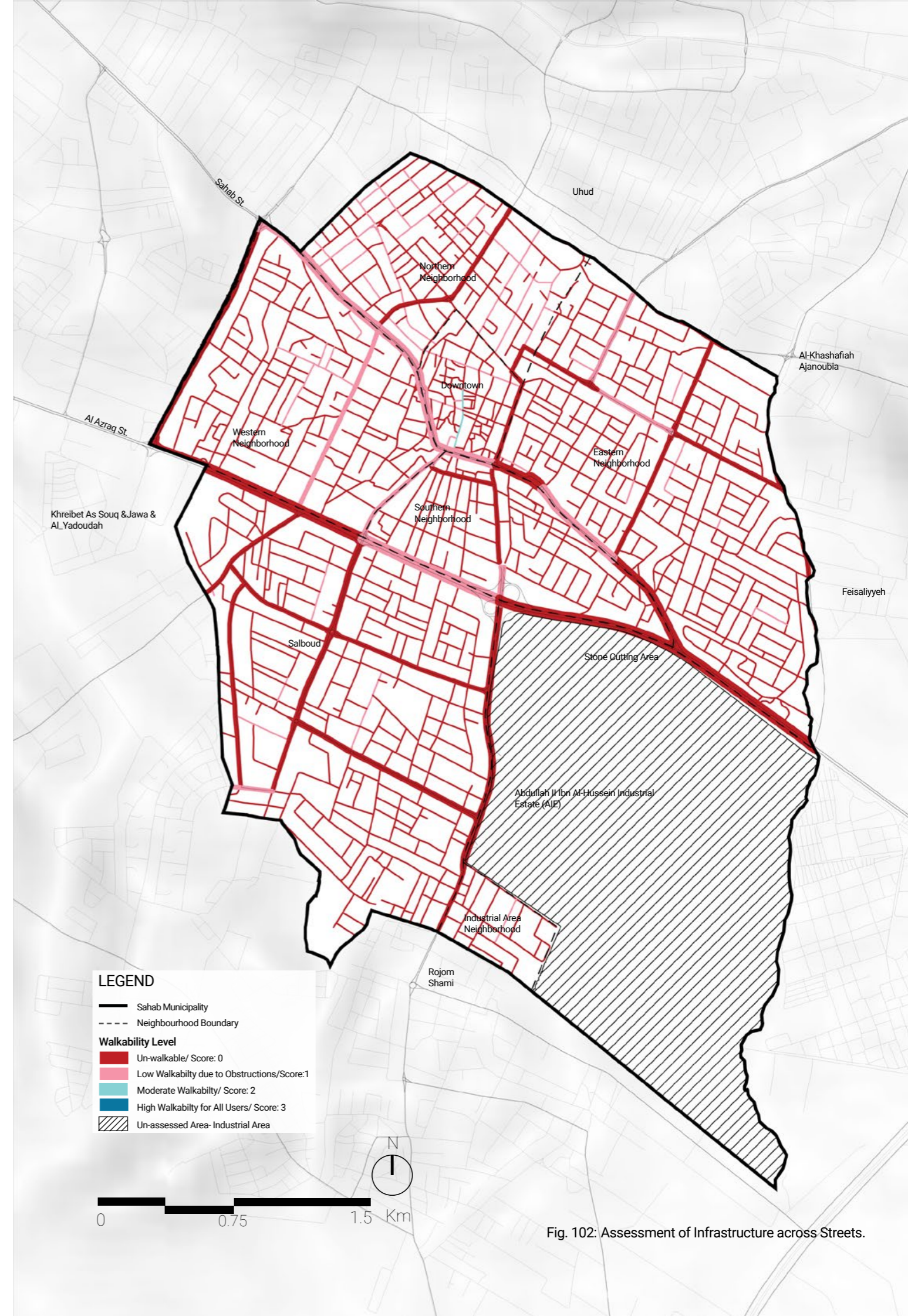


Fig. 102: Assessment of Infrastructure across Streets.



INFRASTRUCTURE IN OPEN SPACES

The map on the following page illustrates the walkability infrastructure assessment of Sahab's functioning open spaces, which include the Al-Hashemite Public Park, the playground, the Commercial Boulevard (Prince Hassan Street), and the public transportation hub. Although Sahab contains 12 roundabouts distributed across the city, these spaces are not currently designed or managed as usable open spaces and therefore lack basic accessibility features such as safe pedestrian access points or ramps. Nevertheless, they represent an important potential for utilization, particularly in residential areas with calmer traffic conditions, where they could be redesigned and re-purposed into small-scale recreational or green spaces incorporating accessibility and safety improvements.

ACTION To strengthen inclusivity and enhance the usability of Sahab's open spaces, it is important to capitalize on the potential of existing roundabouts, particularly those located within residential neighbourhoods, by redesigning and repurposing them into small pocket parks or green nodes that integrate universal access features such as ramps, crossing pathways, and tactile paving.

These interventions would not only expand the city's accessible public space network, but also enhance environmental comfort, pedestrian safety, and overall urban aesthetics across Sahab.



Fig. 103: Image of the walkability infrastructure in Sahab's playground.

The walkability infrastructure assessment for open spaces was conducted through field investigation, evaluating the presence of defined entrances, the ease of access for persons with disabilities, mothers with strollers, children, and the elderly, and the overall condition of physical infrastructure within each open space. The evaluation was based on the direct observations and perceptions of the field data collectors, using a standardized scoring approach to ensure consistency across all sites.

As shown in the map, all functioning open spaces scored 3, indicating that they are accessible and inclusive for all users. This outcome reflects the awareness and efforts of the Sahab Municipality in ensuring that recreational open spaces are designed to accommodate a wide range of users and mobility needs.

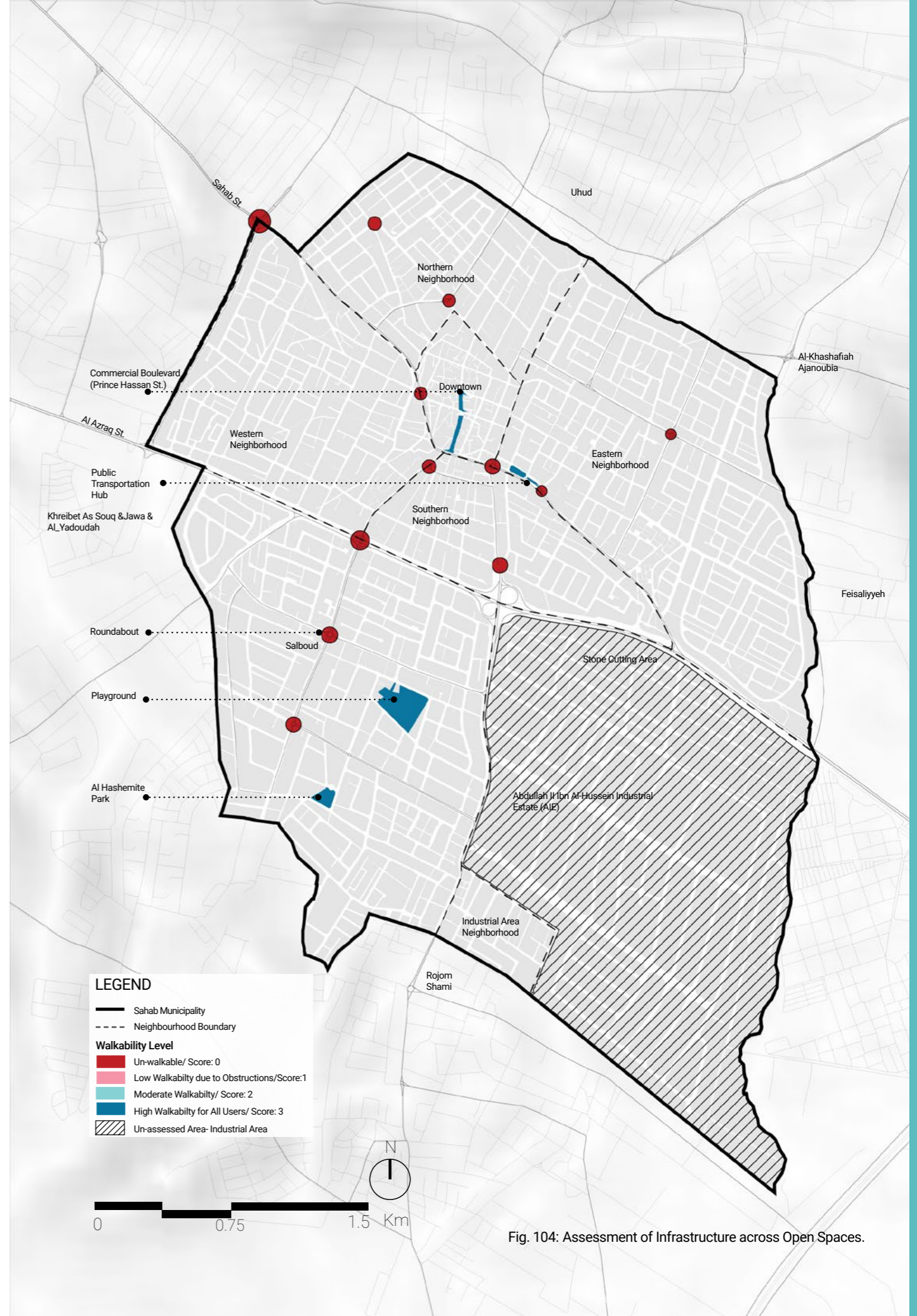


Fig. 104: Assessment of Infrastructure across Open Spaces.



INFRASTRUCTURE IN PUBLIC FACILITIES

The walkability infrastructure assessment for public facilities; including mosques, public schools, commercial buildings, municipal administration buildings, the health centre, the hospital, Princess Basma Development Centre, and the cultural centre; was conducted through field investigation, evaluating the ease of access for persons with disabilities, mothers with strollers, children, and the elderly within each facility. The evaluation was based on direct field observations and the perceptions of data collectors, using a simple binary scoring system (yes/no) to determine whether each facility is accessible or not accessible.

The analysis reveals that 47% of existing public facilities lack inclusive walkability infrastructure, while 53% include inclusive, walkable features such as ramps or leveled entrances. Given that these facilities are well distributed across the city and generally reachable to most residents within a 15-minute walking distance, they represent a significant untapped potential for strengthening Sahab's public space network. The forecourts, courtyards, and surrounding open areas of these facilities could be redesigned and re-purposed as community-oriented spaces, supporting both social interaction and environmental enhancement. When properly utilized, these areas can help improve the city's overall quality of life, functioning as recreational pockets, green buffers, or micro-climate regulators that enhance air quality and thermal comfort.

The analysis also indicates that mosques and schools account for the highest number of facilities lacking inclusive walkability infrastructure. Since both are widely distributed and located within a 15-minute walking distance for nearly all residents, they present the strongest opportunities for pilot interventions aimed at promoting inclusive public use. In the short term, mosque forecourts and surrounding open spaces offer a more practical and feasible starting point for such interventions compared to school grounds, due to their accessibility, openness, and community use patterns.

Overall, the integration and activation of open spaces surrounding public facilities can play a pivotal role in expanding Sahab's accessible and inclusive public space network, especially by bridging gaps in peripheral neighbourhoods and linking spatial accessibility improvements with environmental and social co-benefits.

ACTION To strengthen inclusivity and enhance the usability of Sahab's open spaces, priority should be given to the Western, Northern, and Eastern neighbourhoods, where public facilities could help bridge the current gap in existing recreational public spaces. In these areas, facilities such as the Princess Basma Development Centre and mosques' forecourts and surrounding open spaces could be re-purposed and upgraded to function as multi-functional community and recreational spaces.

Facilities that are already accessible and inclusive should be opened for wider public use through short-term improvements, such as the addition of seating, shading, greenery, and clear signage. Meanwhile, facilities that lack walkability infrastructure should be prioritized for accessibility enhancement interventions, including the installation of ramps, leveled entrances, and safe pedestrian linkages.

Implementing these measures will contribute to a more balanced and equitable distribution of accessible recreational spaces across Sahab, while reinforcing the city's inclusive and connected public space network.

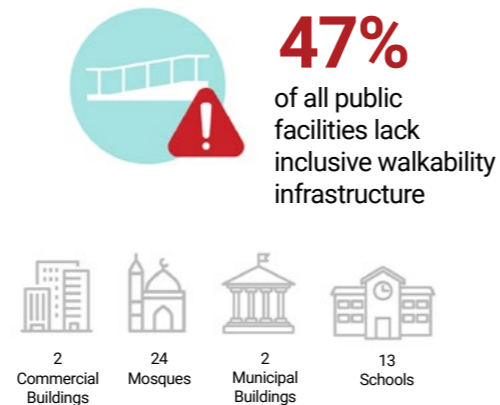


Fig. 105: Number/Type of Public Facilities that lack inclusive walkability infrastructure (score 0).

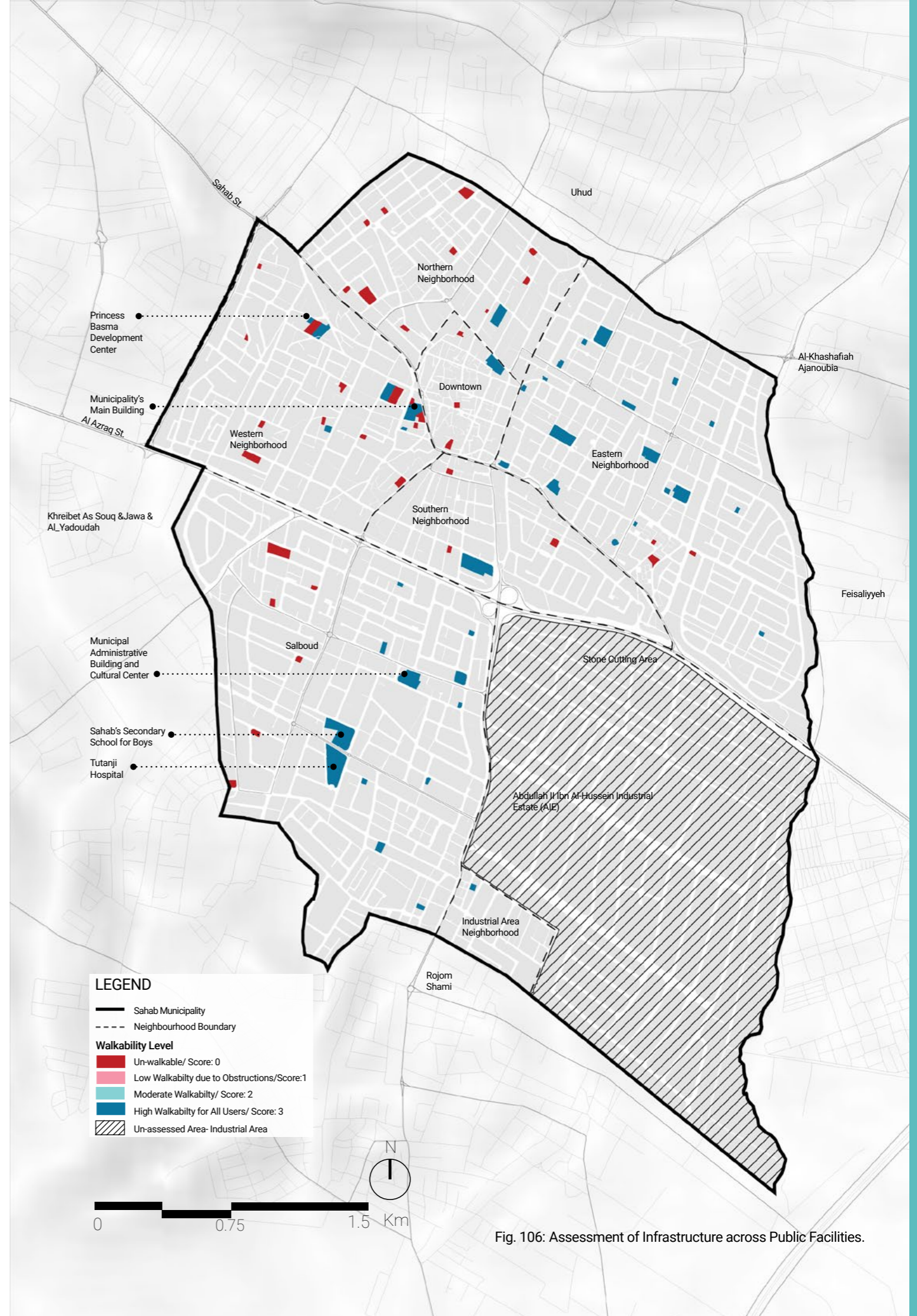


Fig. 106: Assessment of Infrastructure across Public Facilities.



OVERALL INFRASTRUCTURE ASSESSMENT IN PUBLIC TYPOLOGIES

The map on the following page synthesizes the findings from the two sub-dimensions; the presence of physical accessibility features and their condition; to illustrate citywide walkability infrastructure levels across Sahab's public space typologies as an integrated and connected network.

Across Sahab, streets, which form the backbone of the city's mobility system, are in poor physical condition and are largely unwalkable, primarily due to discontinuous, obstructed, or uneven sidewalks. Pedestrian crossings are nearly absent, and where sidewalks exist, they are often too narrow, interrupted by obstructions, and lack basic accessibility elements such as ramps, tactile paving, or leveled crossings. As a result, walking remains unsafe and uncomfortable for most users; particularly for persons with disabilities, the elderly, children, and mothers with strollers. In contrast, open spaces demonstrate notably higher accessibility standards, with all functioning open spaces assessed as walkable and inclusive for all users. However, their limited number and uneven spatial distribution, concentrated mainly in Salboud and Downtown, significantly restrict their overall reach and impact at the city scale. Public facilities occupy an intermediate position between streets and open spaces in terms of accessibility. Given their strategic distribution across Sahab and their proximity to most residents within a 15-minute walk, these facilities represent a substantial untapped potential for expanding the city's public space network and enhancing everyday accessibility.

Overall, Sahab's public space network lacks continuous and inclusive pedestrian infrastructure, particularly within its street system, which limits access to otherwise well-located open spaces and facilities. Yet, the city's compact structure and distribution of public assets offer a strong foundation for transformation.

ACTION Enhancing the walkability of main and secondary streets, upgrading sidewalks and crossings, and activating the open spaces around public facilities would collectively strengthen physical accessibility and foster a more inclusive, comfortable urban environment.

To enhance walkability infrastructure across Sahab, interventions should be prioritized based on pedestrian demand, functional importance, and connectivity potential.

(1) Sahab Street: Begin with Sahab Street, particularly the segment within the Downtown area that connects the public transportation hub, the Commercial Boulevard, and the surrounding commercial cluster. This stretch experiences high pedestrian activity and serves as a core mobility corridor, making it the most critical area for immediate improvement.



(2) Al Azraq Street: Upgrade walkability infrastructure along Al-Azraq Street, introducing safe pedestrian crossings, continuous, well-defined sidewalks, and accessibility features such as ramps and leveled entrances. Given its commercial and mixed-use character, improving this street will significantly enhance pedestrian safety and daily usability.



(3) Secondary Streets: Extend improvements to secondary roads that connect Sahab's two primary corridors, as well as those within the Salboud Neighbourhood, linking the playground, Al-Hashemite Public Park, and the hospital. These routes are frequently used and serve key community destinations; upgrading them will provide safe, direct, and comfortable walking connections across neighbourhoods.

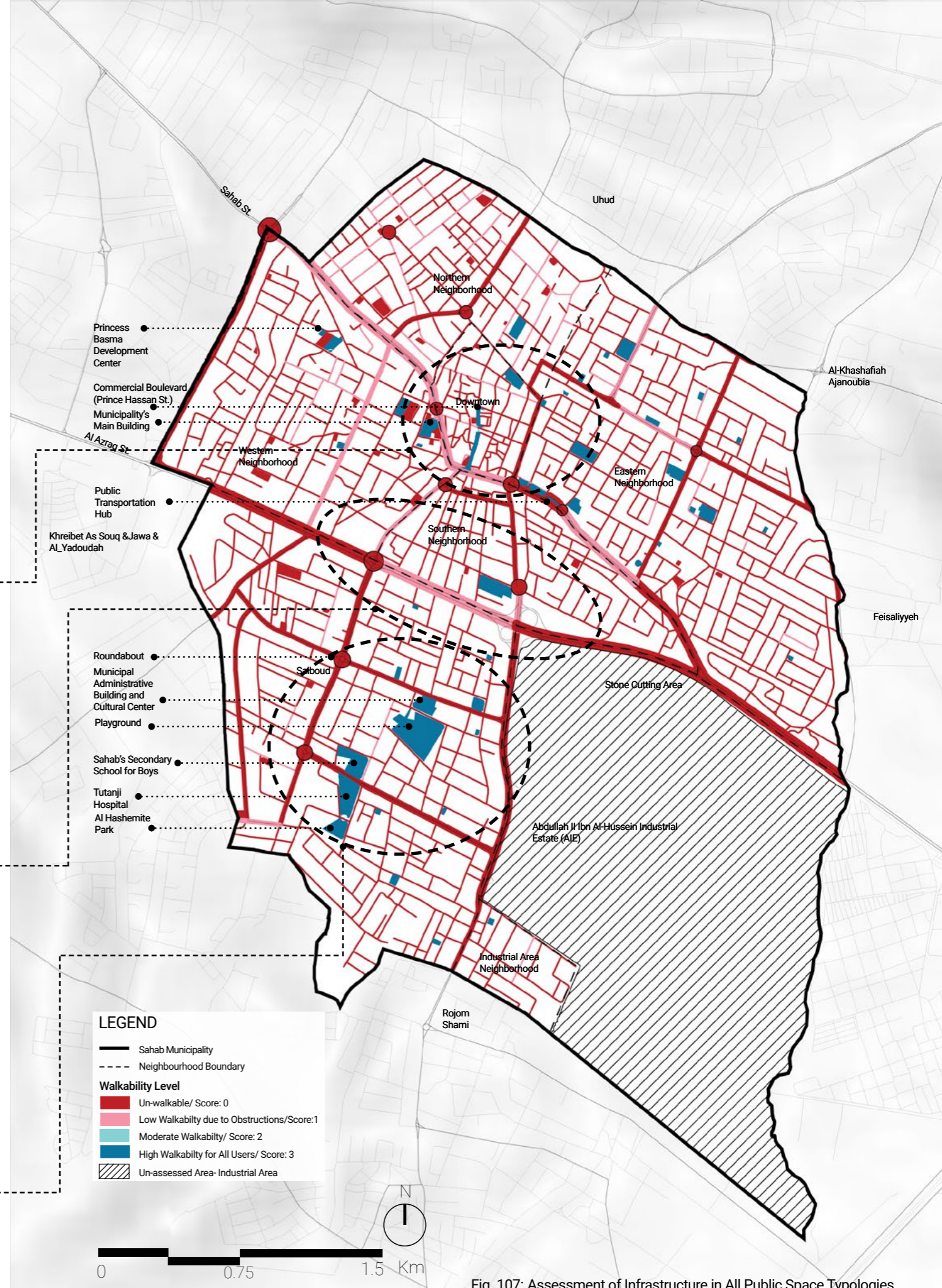


Fig. 107: Assessment of Infrastructure in All Public Space Typologies.



3. 4. 3 OVERALL ASSESSMENT OF CONNECTIVITY AND ACCESSIBILITY DIMENSION

When the results of the connectivity and accessibility sub-dimensions are overlaid, the resulting map presents a comprehensive picture of how well Sahab's public space network functions as an integrated and walkable system. This composite assessment reveals where public spaces are most spatially connected, accessible, and supportive of pedestrian movement, and where accessibility remains limited due to weak street integration, poor infrastructure, or physical barriers. The analysis serves as a diagnostic tool for understanding the structural and functional coherence of Sahab's public realm, guiding future interventions under the Green Public Space Action Plan toward a more connected, walkable, and inclusive city.

The overall assessment classified accessibility and connectivity levels into four categories, ranging from no connectivity and accessibility to high connectivity and accessibility. However, only a limited portion of the network achieved the highest category, reflecting the broader absence of pedestrian infrastructure and the fragmented nature of the city's walkable environment.

At the citywide scale, spatial patterns show clear centralization of connectivity and accessibility, with the Downtown area. It's compact urban form and mixed-use character generate high levels of spatial and pedestrian interaction, establishing it as Sahab's most accessible and connected urban core.

In contrast, the peripheral areas of the neighbourhoods; particularly the Eastern, Salboud, and Western; exhibit low to no connectivity and accessibility. These zones are characterized by sparse intersections, long street segments, and a lack of pedestrian infrastructure, which restrict movement and limit access to key public spaces and facilities.

Despite these gaps, the existing spatial structure of Sahab offers strong potential for improvement. Strategic enhancement of the main and secondary streets, activation of roundabouts and civic forecourts, and incorporation of universal design measures can significantly strengthen the continuity and inclusivity of the network. When combined with greening, shading, and pedestrian safety interventions, these measures would contribute to transforming Sahab's fragmented

public space system into a cohesive, accessible, and climate-responsive network that supports equitable mobility and everyday livability for all residents.

ACTION To strengthen connectivity and accessibility across Sahab's public space network, priority should be given to establishing a continuous, safe, and inclusive pedestrian system that links key destinations and neighbourhoods. Interventions should begin with the main mobility corridors; Sahab Street and Al-Azraq Street; by introducing continuous sidewalks, safe pedestrian crossings, and shading elements to enhance comfort and safety along these highly frequented routes. Secondary streets that connect the main corridors to major destinations such as Al-Hashemite Park, the playground, and the hospital, should also be upgraded to ensure direct and accessible routes between destinations. In parallel, underutilized spatial nodes such as roundabouts, mosque courtyards, and civic forecourts should be redesigned and activated as small green public spaces that incorporate universal access features, including ramps, tactile paving, and seating.

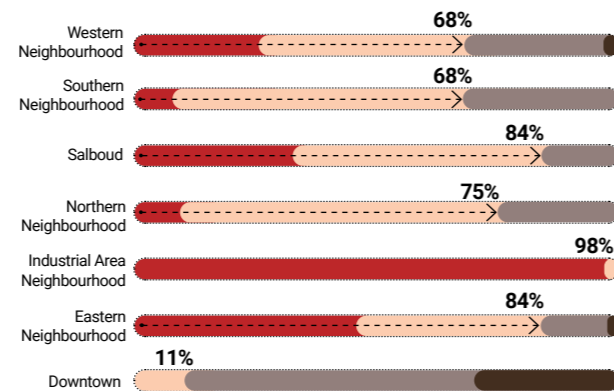


Fig. 108: Connectivity and Accessibility Performance Categories of Public Spaces by Area per Neighbourhood.

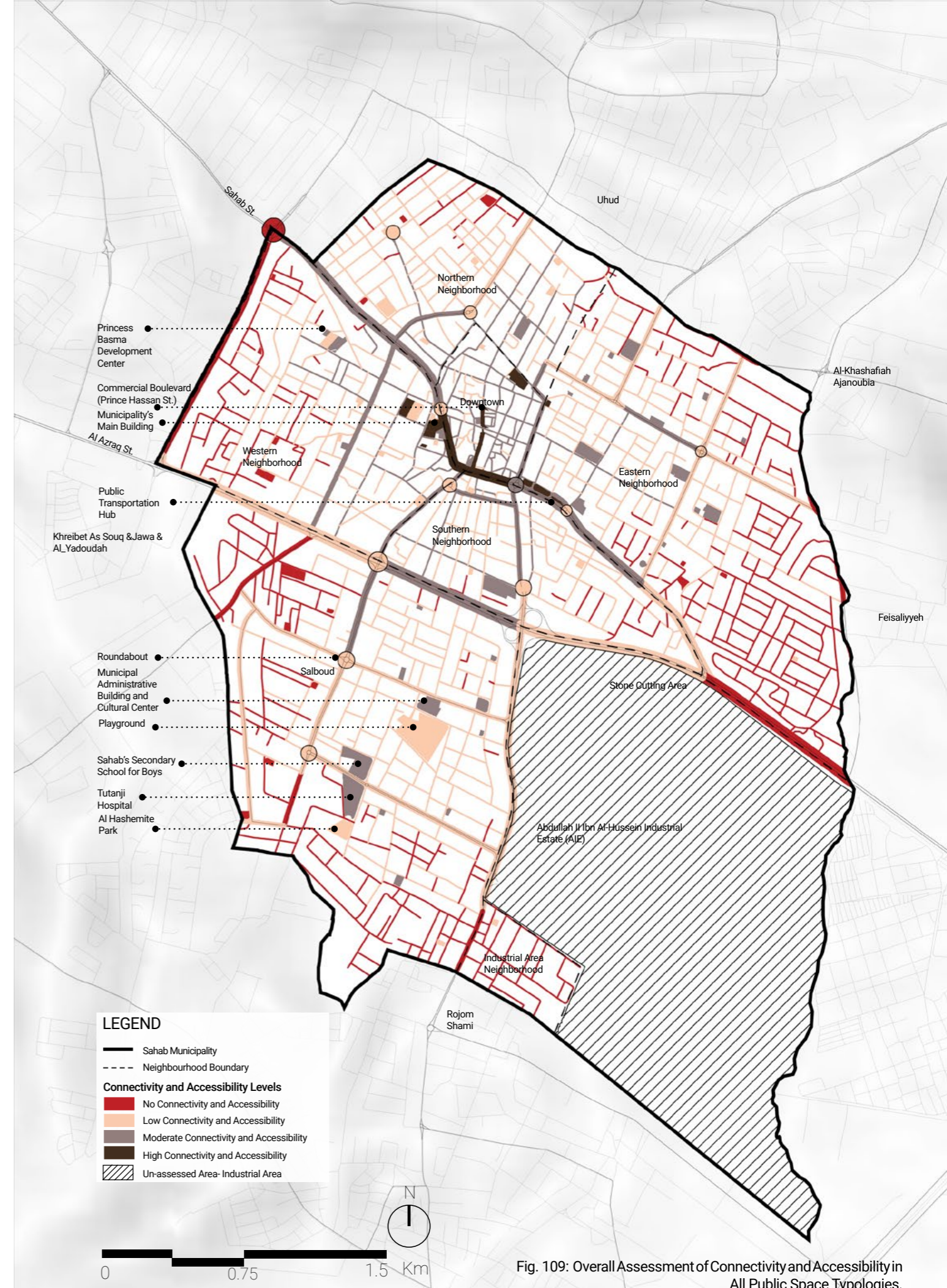


Fig. 109: Overall Assessment of Connectivity and Accessibility in All Public Space Typologies.



3. 5.CONCLUSION: MULTI-DIMENSION ASSESSMENT OF SAHAB'S PUBLIC SPACE NETWORK

To develop a comprehensive understanding of Sahab's public space network, a multi-dimensional assessment was conducted, synthesizing findings from the three dimensions: Environmental Quality, Inclusivity, and Connectivity & Accessibility; using an equal weighting approach. All three dimensions were treated as equally important, reflecting the principle that balanced, high-performing public spaces are essential for enhancing the daily quality of life for Sahab's residents. No single dimension can compensate for the absence of another, therefore, equal weighting ensures a fair and holistic representation of overall performance.

For the purpose of generating a strategic, action-oriented conclusion map that directly informs the Green Public Space Action Plan, the scoring logic was adjusted to highlight where interventions would have the highest immediate impact. In this approach:

- **Areas with low Environmental Quality** were intentionally assigned **higher priority scores**, recognizing that improving environmental comfort—shade, greenery, thermal regulation; has direct, tangible benefits on people's daily lives.
- In contrast, **areas with high Inclusivity and strong Accessibility & Connectivity** were **assigned high scores**, as these spaces already attract diverse users and have the urban capacity to support successful, visible, and well-used greening interventions.

By integrating these dimensions, the composite assessment identifies where greening efforts will generate the greatest social and environmental returns. High Priority areas typically combine strong connectivity and user presence with weak environmental performance, indicating locations where targeted greening interventions can rapidly enhance comfort, usability, and overall urban resilience. Moderate and Low Priority areas represent spaces where improvements remain valuable but are less urgent, either due to fewer users, lower accessibility, or already satisfactory environmental conditions.

Ultimately, this multi-dimensional assessment serves as a strategic tool to guide Sahab in its greening efforts; focusing first on sites where interventions will meaningfully improve residents' quality of life and strengthen the performance of the public space network. This ensures that the subsequent Green Public Space Action Plan is grounded in evidence,

responds to real community needs, and delivers the highest impact in the short term.

According to the composite priority map presented on the following page, the areas that should be prioritized for immediate action are highlighted in red. These include key public spaces within Downtown Sahab, the connecting streets between the two major roads, a roundabout in the Northern Neighbourhood, and the central segment of Al-Azraq Street.

It is also important to note that the Commercial Boulevard, while performing at a moderate level in Environmental Quality, scored very high in Connectivity, Accessibility, and Inclusivity. This means it already functions as a central, highly active public space with strong integration into the urban fabric. With only minimal enhancements; particularly through additional greening and adding missing amenities; the Commercial Boulevard has the potential to become one of Sahab's most effective public spaces, achieving balanced and optimal performance across all three dimensions.

Beyond the areas classified as high priority, the assessment reveals additional spatial opportunities that can significantly enhance Sahab's public space network when approached as coordinated intervention clusters. Activating open spaces within public facilities; particularly around mosques; offers immediate potential to serve daily community needs, especially in neighbourhoods where recreational spaces are limited. Likewise, redesigning key roundabouts in the northern and eastern neighbourhoods into small pocket parks can help distribute green space more equitably across the city and improve environmental comfort in areas that currently lack shaded, walkable environments.

In addition, vacant lands owned by the municipality within the identified hotspot areas provide flexible, high-impact sites for new green interventions that can anchor local improvements and support a more resilient, inclusive, and balanced public space network. The vacant plot adjacent to the Princess Basma Development Centre, for example, holds strong potential to be transformed into a community garden or neighbourhood park, helping address the shortage of accessible recreational facilities within the surrounding area.

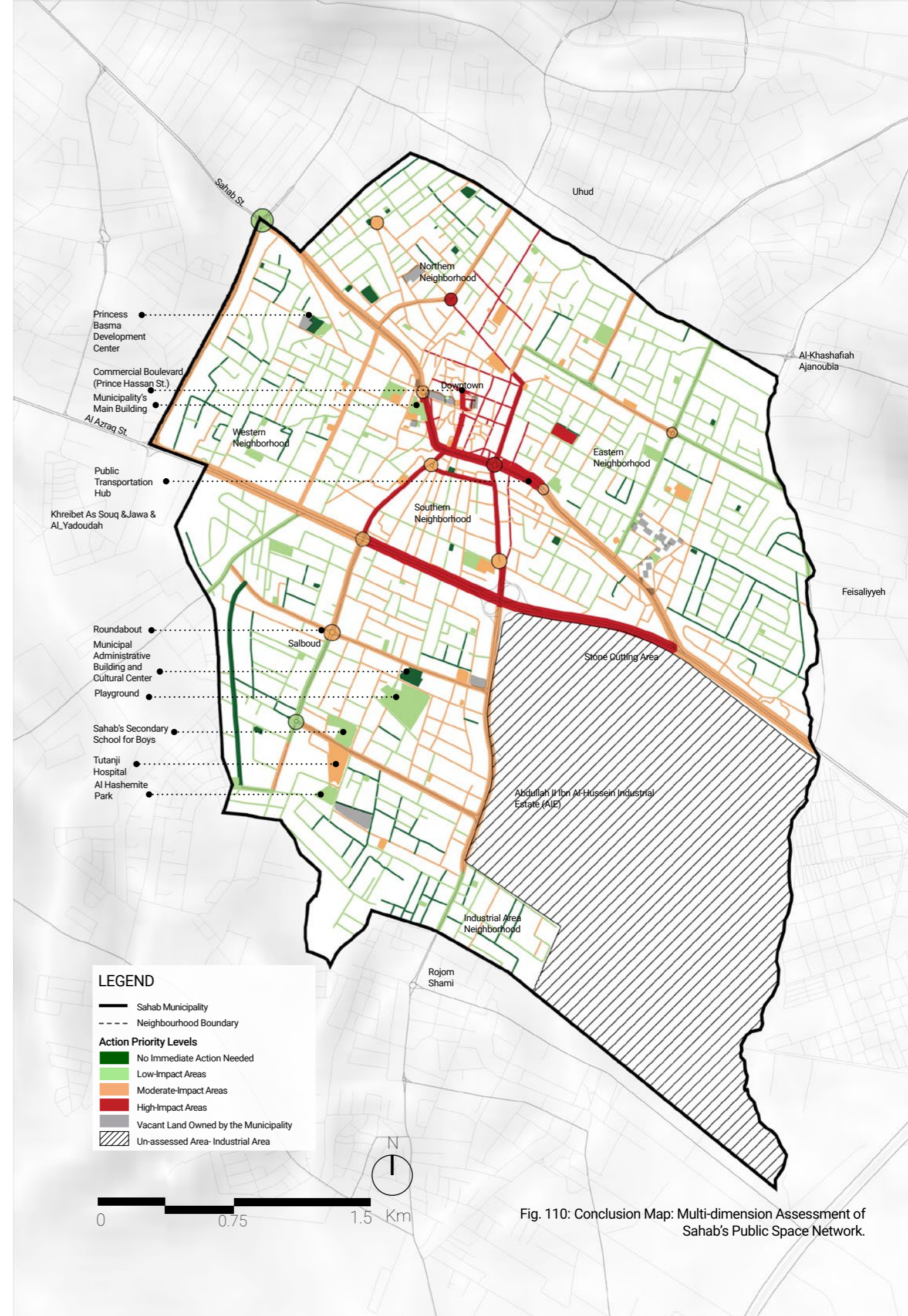


Fig. 110: Conclusion Map: Multi-dimension Assessment of Sahab's Public Space Network.



04

**STAKEHOLDER
ENGAGEMENT**



4. STAKEHOLDER ENGAGEMENT

4.1. VALIDATION WORKSHOP

Under the patronage of Her Royal Highness Princess Basma bint Ali, a validation workshop titled "From Assessment to Greening: Sahab Workshop for Sustainable Public Spaces and the Launch of the Action Plan to Enhance Urban Resilience in Sahab" was held on 8 December 2025.

This workshop started with the official launch of the Urban Resilience Action Plan (URAP) for Sahab City, a strategic framework developed as a crucial subsequent stage to the Multi-layered Vulnerability Assessment (MVA) under UN-Habitat's RISE UP Programme, funded by AECID. This assessment provides an in-depth, evidence-based understanding of Sahab's vulnerabilities across urban, climate change, and biodiversity dimensions, laying the groundwork for targeted interventions and highlighting ten key actions against which this project was developed.

The Urban greening was identified as a top priority to reduce pollution and heat stress and improve quality of life. In response, the City-to-City partnership between the Canton of Basel-Stadt, Sahab Municipality, and UN-Habitat was established, leading to the "Rethinking Sahab" project, which promotes a resilient, healthy, and sustainable urban environment with a focus on vulnerable and high-density refugee areas.

The main objectives of the workshop were to present and discuss the results of the citywide public space assessment, validate the findings, and jointly develop recommendations that will form the basis for preparing Sahab's Urban Greening Plan in the next step. The workshop also provided an opportunity for participants to share their perspectives on the preferred area among the identified priority areas for implementing the pilot intervention within the scope of the "Rethinking Sahab" project.

The 41 participants included representatives from governmental entities including Sahab Municipality, Sahab's Local Council, Ministry of Local Administration, Ministry of Public Works and Housing, Ministry of Education, Ministry of Environment, Ministry of Water and Irrigation, Ministry of Agriculture, Jordan Industrial Estates Company, and Zaha Cultural Centre, as well

as NGOs such as WADI and JOHUD, in addition to representatives from the local community.

It should be noted here that coloured cards were distributed to participants at the workshop entrance based on the entities they represented to be utilized during the interactive group session.



Fig. 111: Images from the workshop.



The workshop was kicked off with welcoming words by Eng. Areej Zuraigat, representative of the Ministry of Local Administration; Eng. Eyadeh Al Husban, Head of the Sahab Municipal Committee; Tandiwe Erlmann, Head of Development and Cooperation for the Canton of Basel-Stadt; and Eng. Deema Abu Thiab, Head of Programme, UN-Habitat Jordan. All speakers highlighted the importance of this study in providing evidence-based recommendations for future interventions across Sahab's public spaces. Her Royal Highness Princess Basma bint Ali then took the floor to express her support for the project and her dedication to helping Sahab become a more sustainable city.

Following the welcoming remarks, Eng. Ayah Hammad delivered a concise overview of the Sahab Urban Resilience Action Plan (URAP). She then presented the "Rethinking Sahab" project and the key findings of the Citywide Public Space Assessment, outlining the analytical framework and its three assessed dimensions: Environmental Quality, Inclusivity, and Accessibility and Connectivity.

Following the presentations, participants were divided into five colour-coded groups, ensuring balanced representation from all entities within each group so that diverse perspectives were effectively reflected in the discussions.

Each group was given three maps presenting the overall assessment for each dimension: Environmental Quality, Inclusivity, and Connectivity and Accessibility. The groups were tasked first with validating the findings and then with adding their recommended actions using three different colours for each typology: green representing actions related to open spaces, red for streets, and blue for public facilities.

All groups validated the findings, with no comments raised by stakeholders.

Proposed actions were aligned with those already identified throughout the assessment. Additional recommendations included:

1. Awareness raising on the importance of greening and maintenance within the local community.

2. Focusing on the Roundabout close to the Municipality's Main Administration Building for the implementation of bio-retention infrastructure (water harvesting)



Fig. 112: Recurring recommended intervention roundabout location

3. Utilizing grey-water in public facilities for irrigation.
4. Encouraging greening through corporate social responsibility (CSR).
5. Providing municipal incentives to encourage the local community to green private open spaces.
6. Introducing a regulated municipal system for maintaining trees.

Finally, Mentimeter was used to create a poll allowing participants to vote for their preferred area for the implementation of the pilot project. There was near-unanimous agreement that the intervention should take place in Sahab's downtown area, with 31 votes out of 33 responses.

Select your preferred area for the pilot project implementation

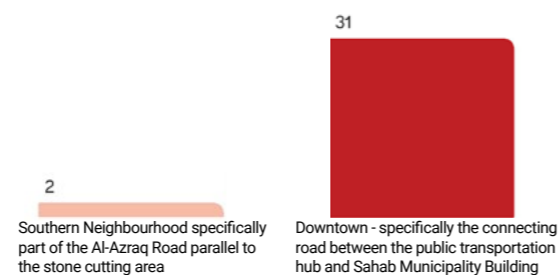


Fig. 113: Mentimeter Pilot Project Site Selection Voting Results

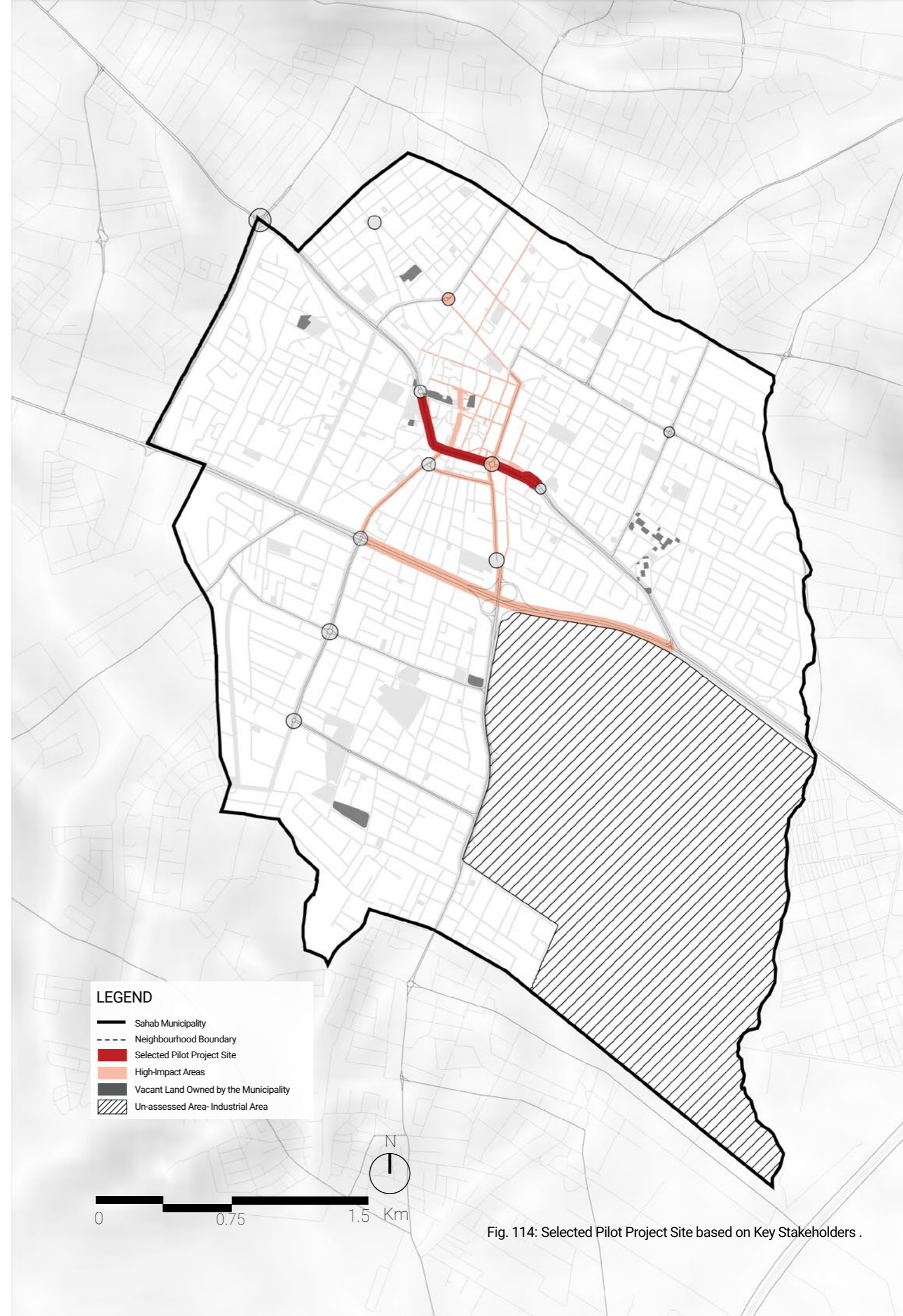
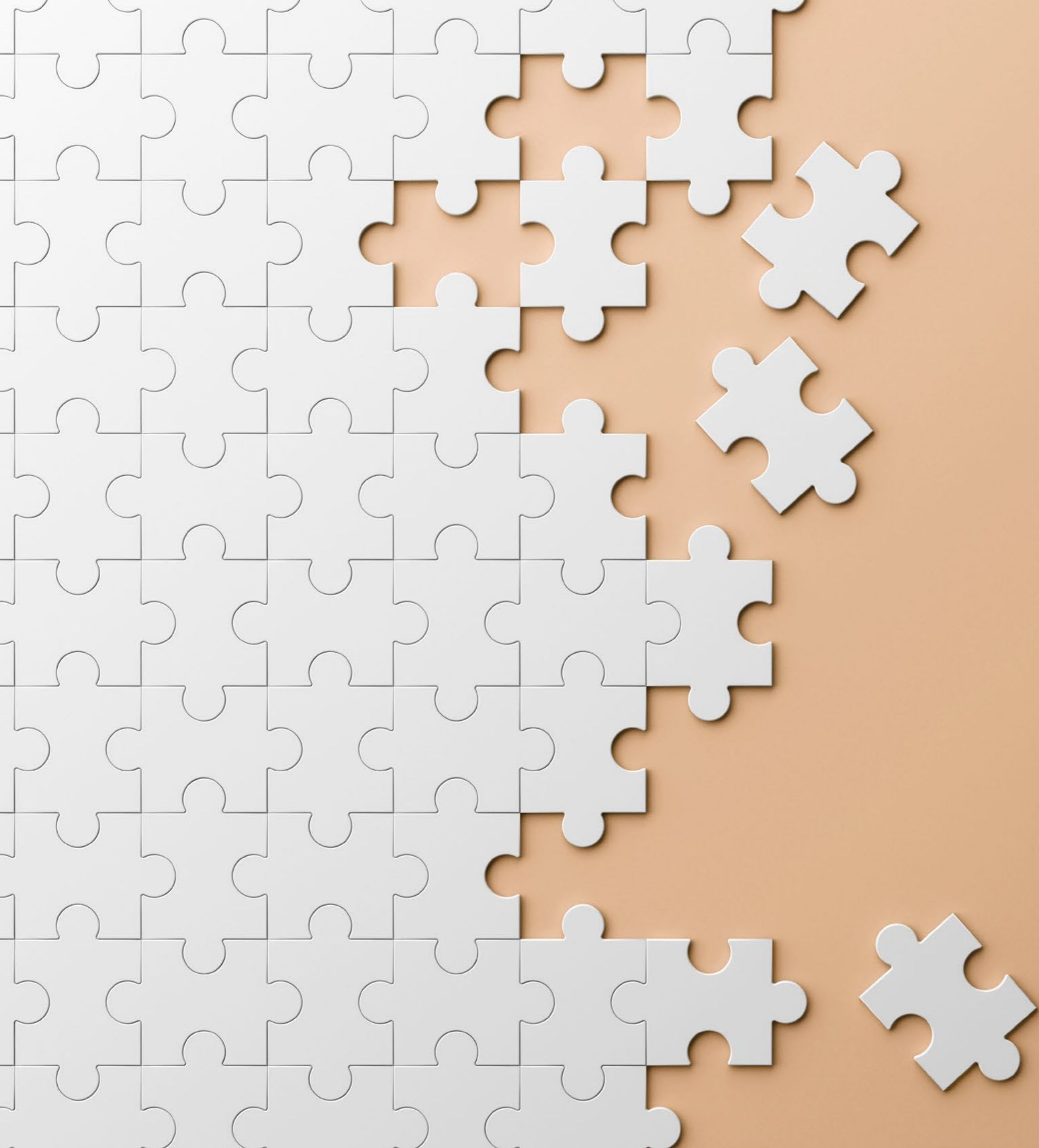


Fig. 114: Selected Pilot Project Site based on Key Stakeholders .



05

**CITY TO CITY
KNOWLEDGE EXCHANGE**



5. CITY TO CITY KNOWLEDGE EXCHANGE

5.1. INTRODUCTION

As part of the city-to-city exchange component under this project, a mission was conducted in July 2025 to the Canton of Basel-Stadt (Switzerland) and Freiburg City (Germany). The mission was attended by a delegation from Sahab Municipality together with the UN-Habitat Jordan team, with the aim of strengthening knowledge transfer between Basel and Sahab by learning from Basel's experiences, methodologies, strategies, and approaches in planning and managing public and green spaces.

Given that Sahab has aspired to become the first "Green City" in Jordan since 2015, the mission also included Freiburg City; one of the first recognized green cities in Europe; to better understand the thinking and methodology that guided Freiburg's transformation.

The knowledge and lessons acquired from both cities will guide the forthcoming development of the **Green Public Space Plan for Sahab City**.

The mission was designed to explore integrated approaches to urban open space planning, sustainable mobility, and climate-resilient city development. Its primary objective was to draw lessons relevant to Sahab by examining innovative strategies for greening public spaces and enhancing urban liveability.

Through engagements with municipal institutions, in-depth presentations on the Basel Open Space Concept, the City Model of Basel, and the Urban Climate Strategy, as well as site visits to community gardens, public parks, rooftop gardens, and multifunctional public spaces, the delegation explored how the Canton of Basel-Stadt integrates ecological, social, and climate objectives into the planning, design, and management of its public spaces.

In Freiburg, the mission focused on the city's advanced cycling infrastructure, sustainable mobility systems, and innovative eco-districts. Well-planned solutions, such as extensive bike lanes, shared spaces, and pedestrian-friendly streets, were observed to not only reduce emissions but also improve public health and expand equitable access to green and multifunctional public spaces, which integrate green infrastructure, community spaces, and climate-sensitive urban design.

Overall, the exchange provided practical insights into policy frameworks, implementation tools, and nature-based solutions that address the dual challenges of climate change and rapid urban growth. These lessons offer valuable inspiration for adaptation within the Jordanian context, particularly in Sahab City.

This section therefore aims to highlight the ideas explored in both Basel and Freiburg cities that can be specifically contextualized in Sahab City throughout this project. This includes approaches related to methodology, strategy, planning, and implementation. In addition, the impact of projects in both cities will be showcased to emphasize the potential long-term benefits of implementing similar actions on the ground in Sahab.

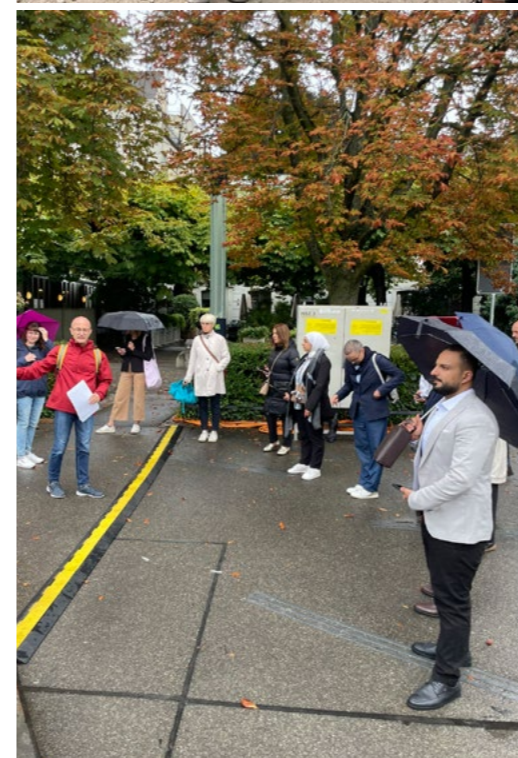


Fig. 115: Images from the Knowledge Exchange Mission in the Canton of Basel-Stadt



5. 2.LESSONS FROM BASEL-STADT: INSPIRING A GREENER FUTURE FOR SAHAB

The mission to the Canton of Basel-Stadt offered valuable insights into innovative approaches to urban greening and public space management that could be adapted to the context of Sahab. Basel's experience demonstrates how integrated planning, multifunctional green spaces, and climate-sensitive design can enhance urban liveability while addressing environmental challenges. Key ideas observed include rooftop gardens, community-managed green spaces, sponge city solutions for stormwater management, and streetscape interventions that combine greenery, shading, and sustainable mobility. Collectively, these strategies provide both methodological and design inspiration for Sahab as it seeks to promote a greener, more resilient city.

Strategic-Level Insights from Basel

At the strategic level, Basel underscores the value of comprehensive, data-driven planning. The city maintains an extensive geospatial database covering every tree, street, and public space. This enables municipal authorities to identify challenges, prioritize interventions, and plan efficiently across different scales of impact. Regular updates ensure that the system is dynamic, supporting proactive responses to emerging environmental and urban issues.

Two key frameworks guide this process: the Basel Open Space Concept and the Urban Climate Strategy. These tools combine structured challenge identification, clear objectives, and quality-of-life improvements into a methodical framework for urban action. Importantly, they emphasize monitoring and adaptation, with continuous feedback loops that allow interventions to be refined over time. For Sahab, this offers a replicable model of structured, evidence-based, and adaptive planning.

Planning and Design-Level Insights from Basel

Complementing its strategic vision, Basel translates its frameworks into innovative, multifunctional, and climate-adaptive designs. Public spaces are conceived not only as recreational areas but also as ecological and climate infrastructures.

- **Multifunctional Public Spaces:** Interventions combine recreation, greenery, stormwater management, and biodiversity enhancement to maximize impact.

- **Rooftop and Vertical Greening:** Rooftops and building façades are leveraged to expand green coverage in dense urban districts.
- **Sponge City Principles:** Permeable surfaces, gravel under pavements in streets, and retention areas help manage stormwater, reduce flooding, and recharge ecosystems.
- **Streetscape Interventions:** Green streets integrate shading, seating, pedestrian-friendly design, and bicycle infrastructure to enhance mobility and urban liveability.
- **Community Engagement:** Community-managed gardens and participatory approaches foster social cohesion, strengthen ownership, and activate public spaces.

These approaches demonstrate how ecological and social objectives can be harmonized to create spaces that are both functional and people-centred.

Innovative Practices from Basel

In addition to its frameworks and design tools, Basel applies creative, context-sensitive practices that enrich urban life and ensure broad community benefits.

- **Awareness and Engagement:** Playful public characters (e.g., rabbits) help engage children and promote awareness about the value of green spaces.
- **Green Cemeteries:** Cemeteries and peripheral areas are re-imagined as ecological landscapes, offering inspiration for similar interventions in Sahab's largest cemetery.
- **People-Centred Public Spaces:** Parks and squares are designed as venues for art, creativity, and social interaction, strengthening cultural life.
- **Water-Sensitive Design:** Measures such as smart irrigation systems, sprinklers in hard-to-green areas, and mobile green pots allow greenery to thrive even in constrained conditions.
- **Policy and Incentives:** Regulatory frameworks mandate adaptation measures, while incentives, such as providing trees, compost boxes, financial support, and maintenance assistance, encourage private greening.

In the following pages, key transferable ideas that can be contextualized and adapted to the specific needs of Sahab are outlined.



Fig. 116: Innovative ideas from the Knowledge Exchange Mission in the Canton of Basel-Stadt



5. 3. TRANSFERABLE IDEAS FROM BASEL TO SAHAB

GREENING STREETS

From Basel

Different immediate green elements can be incorporated into Sahab's streetscape to accelerate greening efforts and improve the city's urban environment. One practical example from the Canton of Basel-Stadt is the use of movable tree pots. One practical example from the Canton of Basel-Stadt is the use of movable smart tree pots. These mobile planters not only add greenery to pedestrian streets but also integrate built-in seating areas, making them multifunctional urban elements. Their flexibility allows them to be relocated depending on seasonal needs, events, or spatial requirements. The figure below illustrates such a movable smart pot placed along a pedestrian market street in Basel, where it enhances both the visual appeal and the comfort of the public realm.



Fig. 117: Green Smart Pot in Pedestrian Market Street – Basel

To Sahab

Introducing a similar intervention along Prince Hassan Street in Sahab; a busy pedestrian market corridor currently lacking green elements; could significantly improve micro-climatic conditions by mitigating heat, and reducing dust. At the same time, the addition of greenery would create a more pleasant and inviting atmosphere for shoppers, vendors, and visitors, supporting the street's social and economic vibrancy. Such immediate, low-cost measures could act as a visible starting point for Sahab's broader greening strategy, demonstrating quick wins while setting the stage for more permanent and large-scale interventions in the future.

In Basel, movable pots are even used innovatively as signage structures, combining way finding with greenery to enliven public spaces, as illustrated in the figure below.



Fig. 118: Green Pot in a Plaza – Basel



Fig. 119: Prince Hassan Street in Sahab



Fig. 120: Street Greening in Basel

From Basel

Another example from the Canton of Basel-Stadt is the way streets are greened by embedding trees directly into pavements with carefully designed soil and surface treatments. Trees are planted in permeable zones within the pavement, where a layer of gravel is placed on top of the soil. This gravel layer serves multiple purposes: it allows rainwater to infiltrate and be stored in the soil, while at the same time protecting the soil from direct sun exposure, thereby minimizing evaporation. As a result, trees are irrigated naturally for longer periods, reducing the need for



Fig. 121: A Street in Sahab

frequent artificial watering and improving their long-term health and resilience.

This intervention goes beyond water efficiency. By integrating more trees into streets-capes, the approach also helps reduce airborne dust, filter pollutants, and improve overall air quality—creating a healthier environment for residents and visitors. The added greenery provides shade, mitigates heat stress, and makes walking more comfortable, further encouraging pedestrian activity.

To Sahab

Such a solution could be particularly relevant for Sahab, where water scarcity and air quality are pressing concerns. Integrating this approach into the renovation and redesign of Sahab's streets during routine maintenance works would provide a cost-effective and climate-sensitive greening measure. By combining pavement-integrated planting with water retention techniques, Sahab could achieve greener streetscape that contribute to cooling, shading, improved pedestrian comfort, dust reduction, and better air quality.



SHADING STRUCTURES

From Basel

In addition to trees and streetscape greening, the Canton of Basel-Stadt has introduced innovative shade structures that integrate greenery directly into their design. These structures combine functional shading with vertical or rooftop planting, creating cooler micro-climates while adding visual and ecological value to public spaces. For example, pergolas and canopy systems are designed to support climbing plants and vines, offering both natural shade and a living green aesthetic that evolves with the seasons.

Importantly, many of these structures incorporate seating areas beneath them, transforming simple shade elements into multifunctional community spaces. By offering both comfort and greenery, they invite people to rest, socialize, and enjoy their surroundings, enhancing the overall usability of streets, plazas, and parks.



Fig. 123: Example of a Green Shade Structure in the Canton of Basel-Stadt

To Sahab

Such solutions are highly transferable to Sahab. Greened shade structures could be implemented in public spaces, parks, market streets, and parking areas, where heat build-up and limited seating are major concerns. By combining shade, greenery, and seating, these interventions enhance comfort and usability while contributing to improved air quality, biodiversity, and micro-climate regulation. In marketplaces, greened shade structures with benches could offer shaded rest areas for shoppers and vendors, creating a more welcoming atmosphere. In parks and playgrounds, they would provide parents and children with comfortable places to gather and relax, encouraging longer stays outdoors. In parking areas, they would simultaneously mitigate the urban heat island effect and offer shaded seating spaces at the edges of lots.

For Sahab, integrating such greened shade structures offers a practical and highly visible intervention that enhances livability while signalling the city's commitment to sustainable, people-centred design.



Fig. 122: Example of a Green Shade Structure in the Canton of Basel-Stadt

From Basel

Another innovative practice observed in Basel is the greening of building elevations, where plants are integrated directly onto façades through vertical greening systems.

By transforming walls into living green surfaces using climbing plants, modular panels, or planter boxes, this approach delivers multiple benefits. It reduces heat exposure and mitigates the urban heat island effect by naturally cooling building surfaces, improves air quality by capturing dust and pollutants, and enhances biodiversity by providing habitats for birds and insects within dense urban areas. Vertical greening also contributes to stormwater management by retaining and filtering rainwater, while simultaneously upgrading the aesthetic and cultural identity of streetscapes by turning plain façades into vibrant, living landmarks. Importantly,

Basel complements these design measures with supportive policies and incentives that encourage private property owners to invest in greening. These include providing free trees and compost boxes, offering financial assistance, and ensuring maintenance support.

To Sahab

Such a model could be adapted in Sahab, where bare façades along commercial corridors and public buildings present significant opportunities for vertical greening.

By pairing design interventions with enabling incentives, Sahab could scale up greening efforts across both public and private spaces, signalling a strong commitment to building a cooler, healthier, and more attractive urban environment.

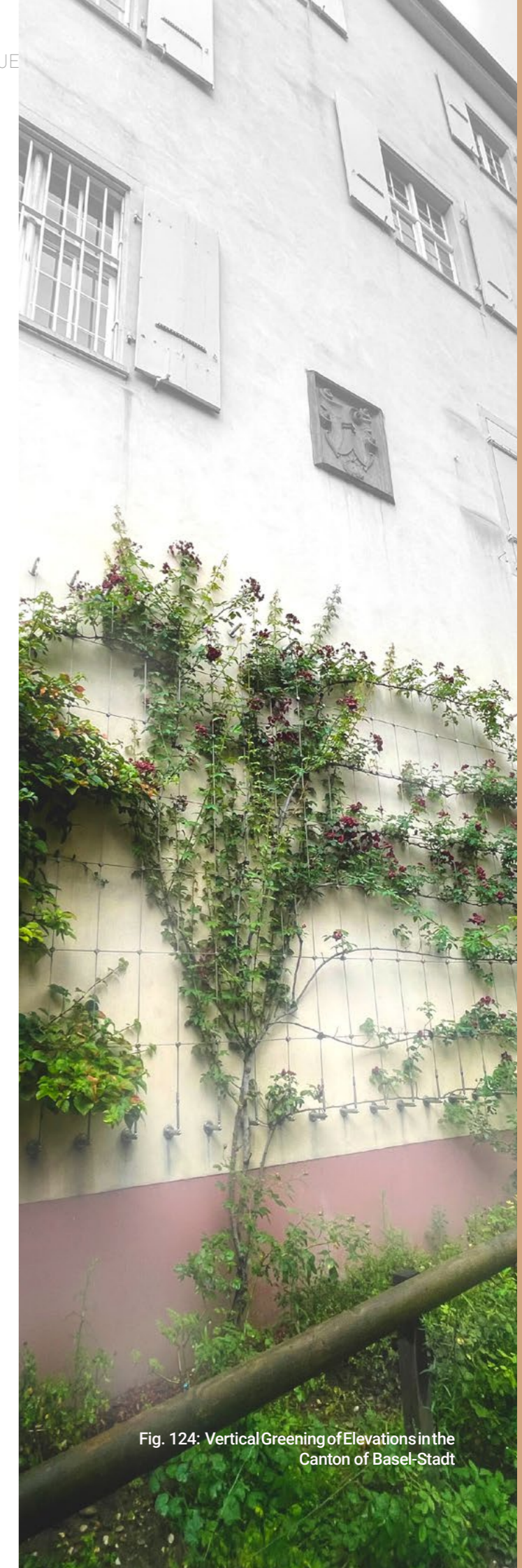


Fig. 124: Vertical Greening of Elevations in the Canton of Basel-Stadt



COMMUNITY GARDENS

From Basel

One of the most innovative and socially impactful greening practices observed in Basel is the development of community and leisure gardens, which showcase a strong culture of community-driven urban greening. These gardens transform public land into shared spaces where residents actively engage in gardening, social interaction, and environmental stewardship.

At the "Kraut & Rüben" Community Garden, land is divided into small allotment plots and allocated to residents through a volunteer association. Members sign a one-year agreement and pay only a minimal fee, receiving a key that allows them unrestricted access to tend their plots. Importantly, the produce from these gardens is intended for personal use rather than commercial sale, ensuring that the focus remains on well-being, learning, and community-building. The garden also features a shared storage area for gardening tools and equipment, supporting efficient maintenance and encouraging collaboration among members.

What makes this model particularly innovative is its multi-functionality. Beyond gardening, these spaces include areas for relaxation and leisure, where neighbours can sit together, enjoy the greenery, and strengthen social ties. They are also considered inter-cultural gardens, bringing together residents from diverse backgrounds and fostering dialogue, exchange, and mutual understanding.

In addition, the gardens serve as living classrooms; schools and youth groups regularly visit for hands-on lessons in planting, sustainability, and environmental awareness, embedding ecological education into everyday community life. This participatory approach demonstrates how urban green spaces can function as more than just ecological interventions; they can also become social infrastructure that nurtures cohesion, health, and cultural vibrancy.

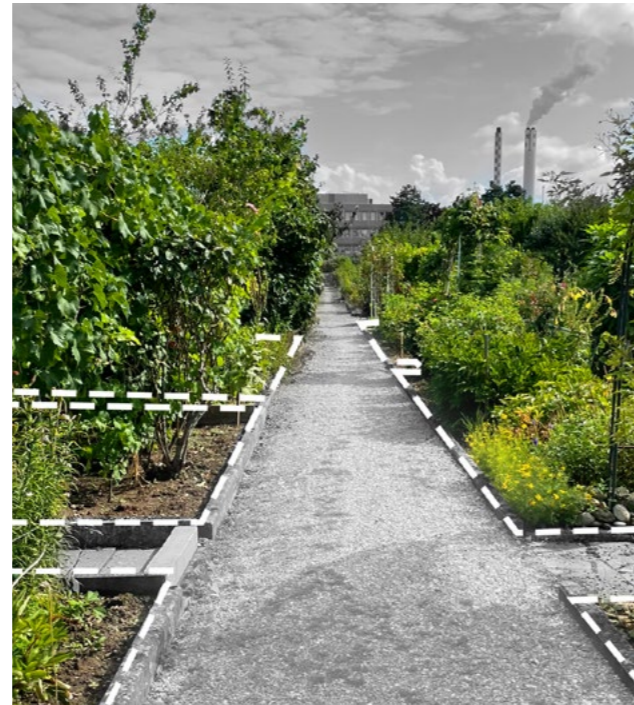


Fig. 126: Image for leisure gardens in the Canton of Basel-Stadt



Fig. 127: Image for the Storage Room at "Kraut & Rüben" Community Garden

To Sahab

For Sahab, introducing community garden initiatives could open up similar opportunities: transforming underutilized public land into shared green spaces, encouraging volunteer associations to manage and sustain them, and integrating educational programs for children and youth. By adopting such a model, Sahab could not only expand its green coverage but also foster stronger community ownership of public space, making greening a collective, inclusive, and sustainable effort.



Fig. 125: Children participating in hands-on gardening education.



Fig. 128: Image from the "Kraut & Rüben" Community Garden in the Canton of Basel-Stadt



COMPOSTING PRACTICES

From Basel

A key environmental feature of Basel's community and leisure gardens is the integration of collective composting practices, which play a central role in maintaining healthy soil and promoting circular resource use. Within the "Kraut & Rüben" Community Garden, residents have access to shared composting units where organic waste—such as plant trimmings, leaves, and biodegradable household scraps—is collected and processed. These compost areas are managed collaboratively by garden members, who take turns ensuring that materials are properly layered, aerated, and maintained. The resulting nutrient-rich compost is then reused within the garden plots, improving soil fertility, reducing dependence on chemical fertilizers, and enhancing overall plant health.

This practice not only supports sustainable gardening but also strengthens environmental awareness among participants. Through hands-on involvement, residents learn about waste reduction, soil regeneration, and climate-friendly cultivation methods. Composting thus becomes both an ecological tool and a community-building activity, fostering shared responsibility and reinforcing the gardens' role as living examples of local sustainability.

To Sahab

Introducing community composting practices in Sahab could greatly enhance the sustainability and productivity of future community gardens or green initiatives across the city. Simple, low-cost compost stations—similar to those used in Basel—could be set up within designated garden areas, public parks, or municipal green spaces. Residents participating in these gardens could collectively manage the compost by contributing plant trimmings, kitchen scraps, and organic waste, transforming them into nutrient-rich soil that supports local planting efforts.

Such an approach would reduce the volume of organic waste sent to landfills while providing a natural alternative to chemical fertilizers, improving soil quality and promoting healthier plant growth. Community composting would also help build environmental awareness and a sense of shared responsibility among participants, especially if integrated with schools, youth groups, and neighbourhood associations. By encouraging residents to actively engage in sustainable practices, Sahab can strengthen its local greening efforts, enhance climate resilience, and foster more environmentally conscious communities.



Fig. 129: Image showing the Composting Practices at "Kraut & Rüben" Community Garden.

WATER HARVESTING

From Basel

In Basel, simple yet innovative rainwater harvesting solutions are commonly integrated into small garden houses and storage sheds. Rooftop rainwater is directed through gutters into compact collection tanks, providing an accessible, low-cost method for storing water that can later be reused for irrigating gardens and green areas. These systems require minimal infrastructure, are easy to install, and significantly reduce reliance on potable water for irrigation. The images shown illustrate how these practical collection units are seamlessly incorporated into everyday garden structures, demonstrating Basel's commitment to resource efficiency and climate-responsive design at the micro scale.

To Sahab

Adopting similar rainwater harvesting solutions in Sahab could offer an immediate, low-cost opportunity to enhance water efficiency across public and semi-public spaces. Small rooftop structures, such as storage units, kiosks, or community garden sheds; could easily be fitted with simple gutter-and-tank systems to collect rainwater during the wet season. This harvested water could then be used for irrigating greenery along streets, pocket parks, or municipal facilities, reducing pressure on the already strained water network.

Implementing such measures would support Sahab's broader climate adaptation and greening goals, demonstrating practical, scalable interventions that optimize local water resources while strengthening the city's resilience.



Fig. 130: Water harvesting techniques in community gardens in Basel.



PUBLIC PARKS

From Basel

In Basel, public parks go beyond recreation; they are designed as inclusive, climate-adaptive spaces where children, families, and communities actively shape and enjoy their environment. A distinctive feature of Basel's model is its child-centred planning process, in which children are directly engaged in shaping the spaces they use. Through surveys and checklists, children share their needs and preferences, and are then involved as jurors in design competitions to select the winning proposals. The same group of children remains engaged throughout the process, and the municipality prioritizes swift implementation, allowing them to see and play in the spaces they helped design. This participatory model not only ensures that parks respond to the real needs of young users but also fosters trust and a sense of ownership between citizens and the municipality.

Alongside this social innovation, Basel incorporates technical solutions that enhance resilience and sustainability. Rainwater is harvested and filtered underground before being reused for irrigation and water features, reducing consumption while helping to create cooler and more comfortable environments.

Parks also serve an educational function. Trees and plants are accompanied by informational signage, turning green spaces into living classrooms where residents can learn about biodiversity and environmental stewardship.



Fig. 131: Checklist used to engage children in identifying their needs and preferences for public park design.



Fig. 132: Image for the underground water tank in Margarethenpark in Basel



Fig. 133: Informational signage displayed alongside plants in public spaces.

At the same time, innovative and low-cost play elements are incorporated to encourage physical activity and social interaction among children, combining fun with functionality in a sustainable way.



Fig. 134: Play furniture in Kleinbasel park in Basel.

To Sahab

For Sahab, these practices offer valuable lessons for enhancing the city's green infrastructure. A child-centred planning approach could be introduced by engaging local schools and youth groups in the design of playgrounds and public parks. Using surveys, checklists, and participatory design exercises, children could share their needs and preferences and even contribute to evaluating proposed designs. This approach would ensure that green spaces reflect the real needs of young users while fostering trust, ownership, and long-term community engagement.

Technical measures observed in Basel, such as underground rainwater harvesting and irrigation systems, could be adapted to Sahab's parks and public spaces to improve resilience to water scarcity and heat. Implementing water-sensitive features in combination with green shading, trees, and low-cost play elements would help create cooler, more comfortable environments for residents while supporting physical activity and social interaction.

Additionally, incorporating educational signage and interactive elements in public parks could turn green spaces into living classrooms, raising awareness about biodiversity, sustainability, and environmental stewardship.



Fig. 135: Play furniture in Kleinbasel park in Basel.



Fig. 136: Play Area in Margarethenpark in Basel.



5. 4.LEARNING FROM FREIBURG: PATHWAYS TO A GREEN SAHAB

The transformation of Freiburg into one of Europe’s greenest cities offers valuable lessons for Sahab as it aspires to become Jordan’s first green city. Freiburg demonstrates that a sustainable urban future requires bold investments in mobility, urban design, and community engagement.

A cornerstone of Freiburg’s success is its **holistic and fully integrated transport and mobility system, which is planned as a complete network rather than isolated components.** The city carefully considers how pedestrians and cyclists move, where they cross safely, how turning movements work, and where bikes can be parked conveniently. Safe, continuous walking and cycling paths, well-designed crossings, traffic-calming measures, and accessible public transport stops work together to create a mobility environment that is coherent, predictable, and user-friendly. This full-system approach prioritizes pedestrians and cyclists over private cars, making active mobility not only safer, but also healthier, quicker, and more efficient than driving.

Dedicated cycling lanes are integrated throughout the city, supported by innovative bike parking

Fig. 137: Dedicated bike racks integrated into the pavement.



Fig. 138: Image showing dedicated lane for bikers in Freiburg.

solutions such as U-shaped racks built into sidewalks. Remarkably, a single car parking space can be converted to accommodate up to twelve bicycles; an approach that communicates the value of urban space and encourages more sustainable mobility choices.

Freiburg’s “15-minute city” model ensures that all essential services can be reached within a short walk or bike ride, while public transport stops are accessible within five minutes. **To drive behavioural change, the city intentionally makes car use less convenient;** restricting access in certain areas and lengthening driving routes; while simultaneously making walking and cycling safer, faster, and more appealing. As a result, residents naturally shift toward more sustainable modes of travel.

Importantly, new changes are often introduced as “**experiments under testing**”. By allowing residents to experience changes first-hand, the city builds trust, reduces resistance, and makes acceptance of sustainable solutions far easier.

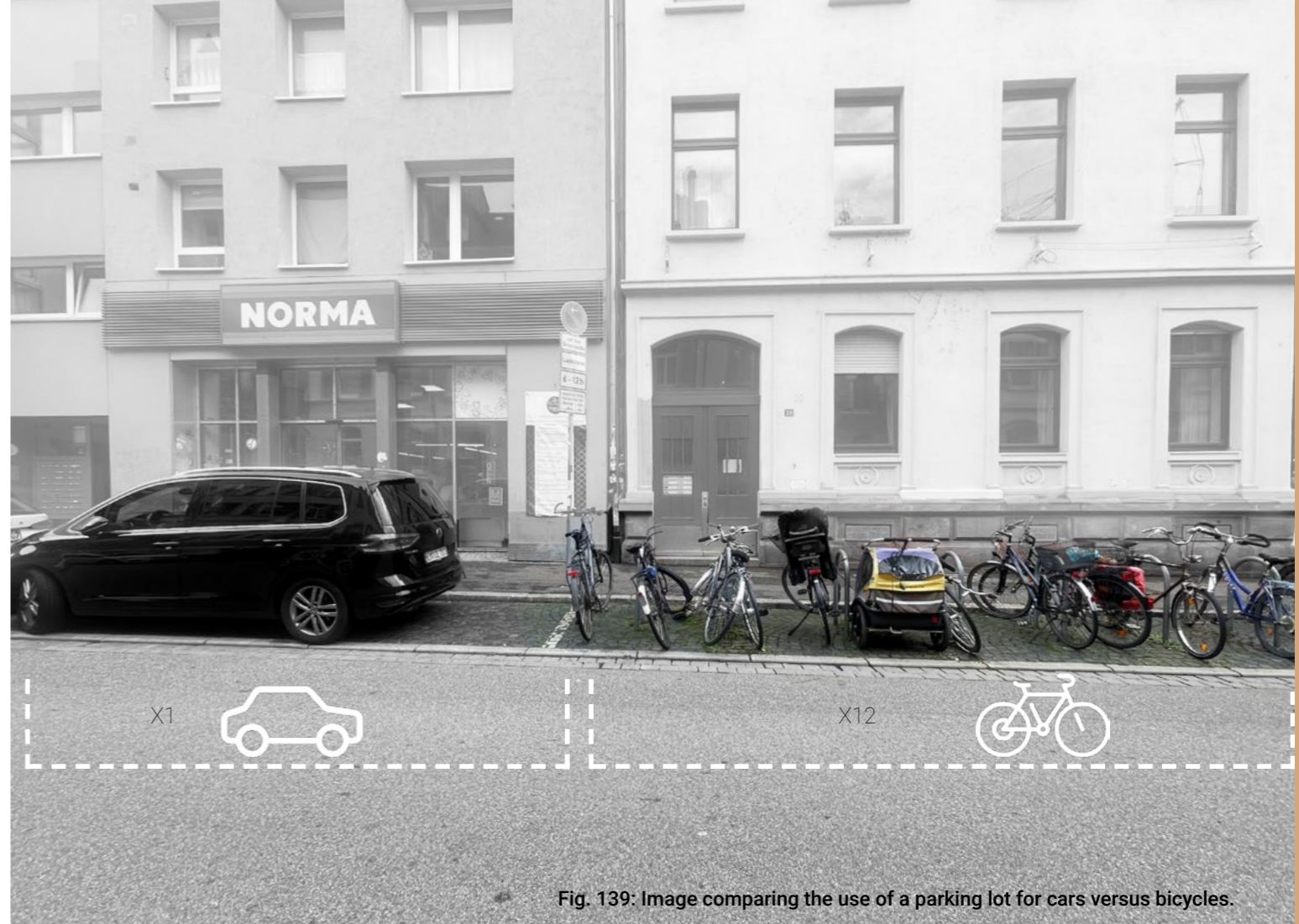


Fig. 139: Image comparing the use of a parking lot for cars versus bicycles.



Fig. 140: Image illustrating different modes of transport in Freiburg.



In parallel, Freiburg has adopted innovative greening strategies that weave nature into the fabric of the city.

Public spaces, transit areas, and even bike parking facilities are shaded with greenery, offering both comfort and climate resilience. Vertical greening on building façades helps reduce heat and improve air quality, while movable green stages in plazas bring flexible vegetation into central squares, adapting to seasonal activities and community events. These interventions ensure that greenery is not confined to parks but is experienced throughout daily urban life, reinforcing a sense of connection to nature.

Furthermore, the New Town Hall integrates photovoltaic (PV) cells across its roof and façades, turning the building into a visible generator of clean energy and a civic exemplar of climate-smart design.

Freiburg's example highlights that achieving a green city is not about isolated projects, but about integrating mobility, climate adaptation, and citizen participation into a coherent vision.

For Sahab, adopting similar principles; prioritizing sustainable mobility, reclaiming space from cars, and embedding greenery in both functional and symbolic ways; can pave the way toward becoming Jordan's first truly green city.



Fig. 142: Images of green shade structures in Freiburg.



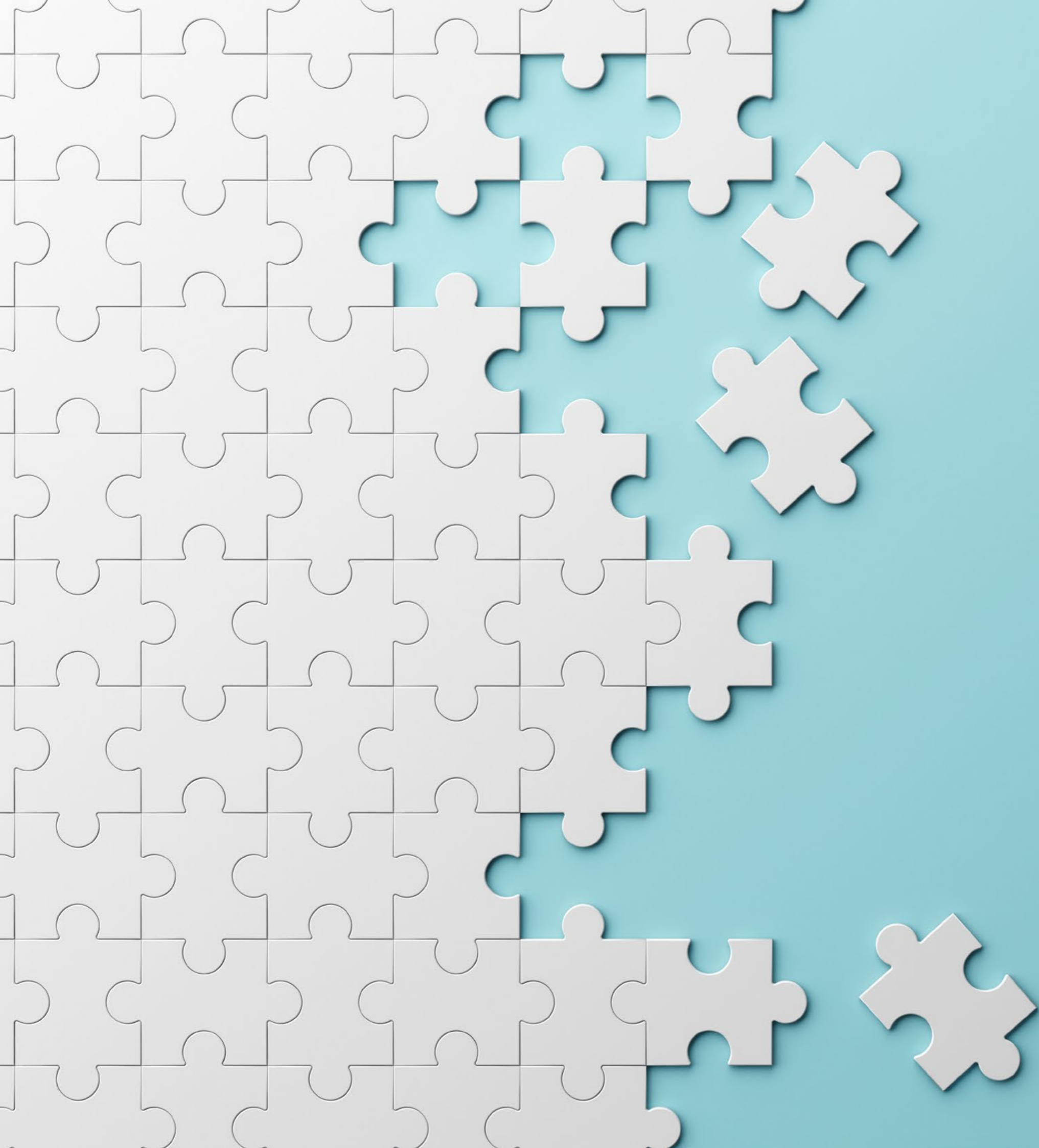
Fig. 143: Image of a movable green stage at a plaza in Freiburg.



Fig. 144: Image illustrating vertical greening of facades in Freiburg.



Fig. 141: The new town hall in Freiburg showing the use of PV Cells.



06

**STRATEGIC
RECOMMENDATIONS**



6. STRATEGIC RECOMMENDATIONS

6.1. FROM EVIDENCE TO ACTION: INNOVATIVE PATHWAYS FOR A GREEN, INCLUSIVE, AND RESILIENT SAHAB

The City-wide Public Space Assessment in Sahab shows that challenges related to environmental quality, inclusivity, connectivity, and accessibility are structurally interconnected across the city's public space network. Streets, open spaces, and public facilities collectively shape daily urban life, mobility, social interaction, and environmental performance, requiring an integrated and multi-scalar approach that moves beyond isolated site-based improvements toward a coherent public space system. Accordingly, environmental quality, inclusivity, connectivity, and accessibility are treated as interdependent outcomes throughout the recommendations. Greening interventions are framed not only as aesthetic enhancements but as climate-responsive measures that mitigate heat, dust, and pollution, while accessibility improvements enhance safety, comfort, and usability for diverse user groups. Connectivity is addressed through pedestrian-first planning that strengthens links between neighbourhoods, public facilities, and open spaces, ensuring that public spaces contribute simultaneously to climate resilience, social cohesion, and equitable access across Sahab.

The recommendations are fully aligned with Sahab's city vision of **"a resilient, green, and inclusive city that advances sustainability and improves air quality,"** and with the Jordan National Urban Policy (JNUP). They support the Livability and Quality of Life pillar, particularly Policy 4.1 on creating healthy and enjoyable places for all and Policy 4.4 on reclaiming streets as spaces for human interaction and activity. The recommendations also align with the JNUP thematic areas of Environment and Water Management, Form of Development, Mobility and Connectivity, and Governance and Management, by promoting climate-responsive greening, pedestrian-first planning, connected public space networks, and coordinated city-level implementation. In addition, they contribute to Jordan's Economic Modernization Vision by enhancing urban livability and supporting sustainable development.

This section translates assessment findings into a consolidated set of action-oriented directions that will guide the development of Sahab's Green Public Space Plan. The recommendations are organized across three interconnected action lenses to ensure that governance frameworks, spatial systems, and site-level interventions work together to deliver a coherent and inclusive public space network:

- At the **enabling systems lens**, recommendations focus on strengthening city-level strategic direction and institutional coordination to prioritize green,

inclusive, and pedestrian-oriented public spaces, while actively engaging residents as partners in shaping and sustaining them. This includes mainstreaming environmental and accessibility considerations into municipal strategies, investment priorities, and inter-departmental coordination mechanisms, alongside promoting inclusive use, community ownership, and social activation through participatory approaches and local stewardship arrangements.

- At the **public space network lens**, the recommendations emphasize treating public spaces as a connected network rather than isolated elements that enhances walkability, mitigates environmental stressors, and links neighbourhoods to key destinations across the city.
- At the **places on the ground lens**, targeted interventions aim to improve comfort, safety, usability, and environmental performance through practical and context-sensitive upgrades. These include greening measures, shading, lighting, seating, traffic calming, and the activation of underutilized spaces, particularly in high-density and high-use areas.

This structure reflects the understanding that physical improvements alone are insufficient unless supported by strategic direction, coordinated planning mechanisms, and sustained community engagement at the city level.

Spatial Prioritization for Maximum Impact

The strategic recommendations are spatially targeted to maximize impact and equity. Priority areas include the Downtown Neighbourhood, major mobility corridors, and transitional corridors, where environmental stress, high population density, and daily activity converge. These locations present the greatest opportunity for improving environmental quality, strengthening social inclusion, and enhancing citywide connectivity. Rather than distributing resources evenly across all areas, this promotes focused interventions in strategic locations that can generate wider network effects, improve daily living conditions, and demonstrate visible change within realistic municipal capacities.

From Strategic Directions to the Green Public Space Plan

The Strategic Recommendations framework establishes the foundation for the Green Public Space Plan, which will operationalize these directions into prioritized projects, implementation phases, cost estimates, and institutional responsibilities. The Action Plan will translate strategic objectives into concrete interventions, enabling Sahab Municipality and its partners to move from assessment and visioning toward implementation and long-term impact.

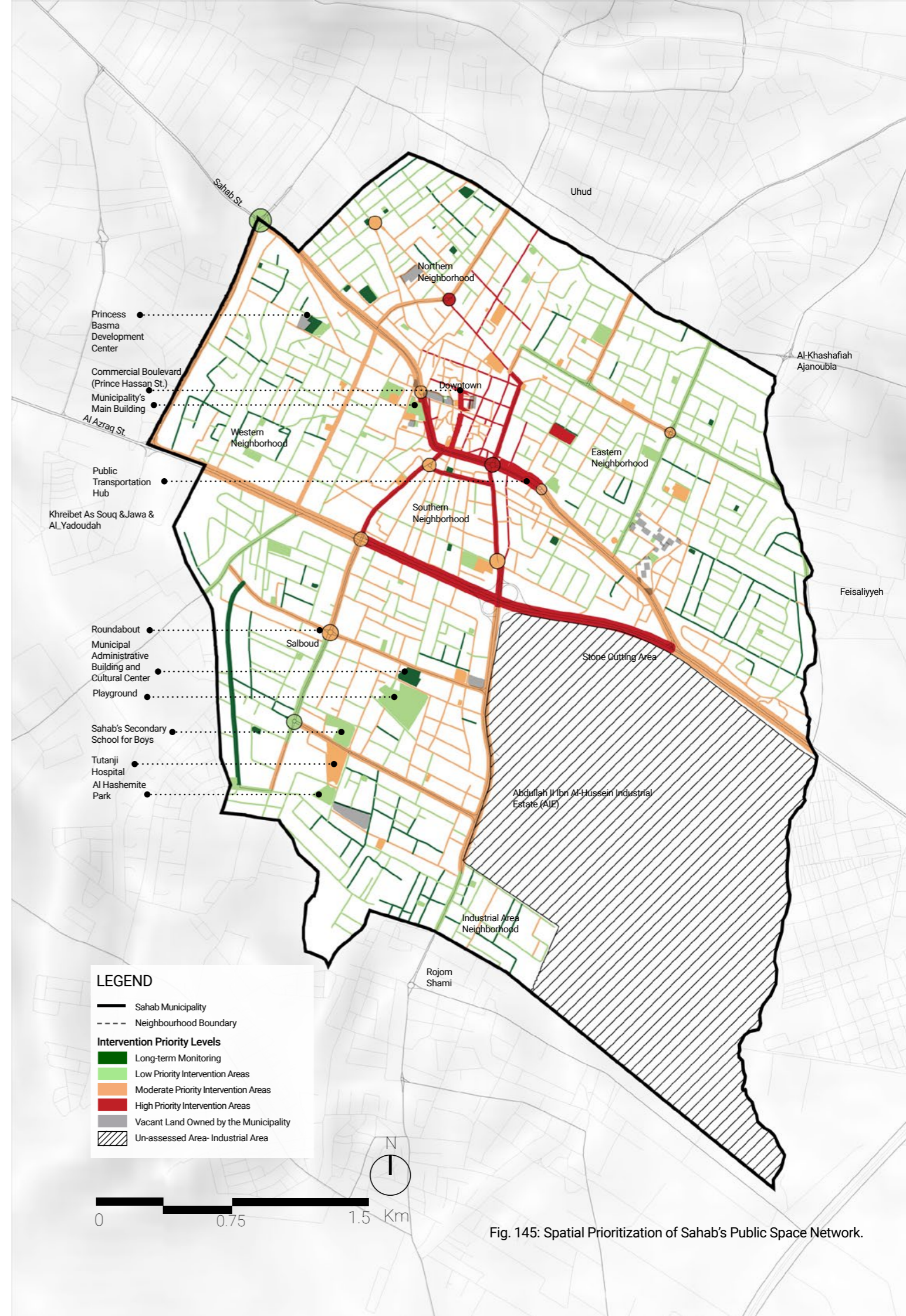



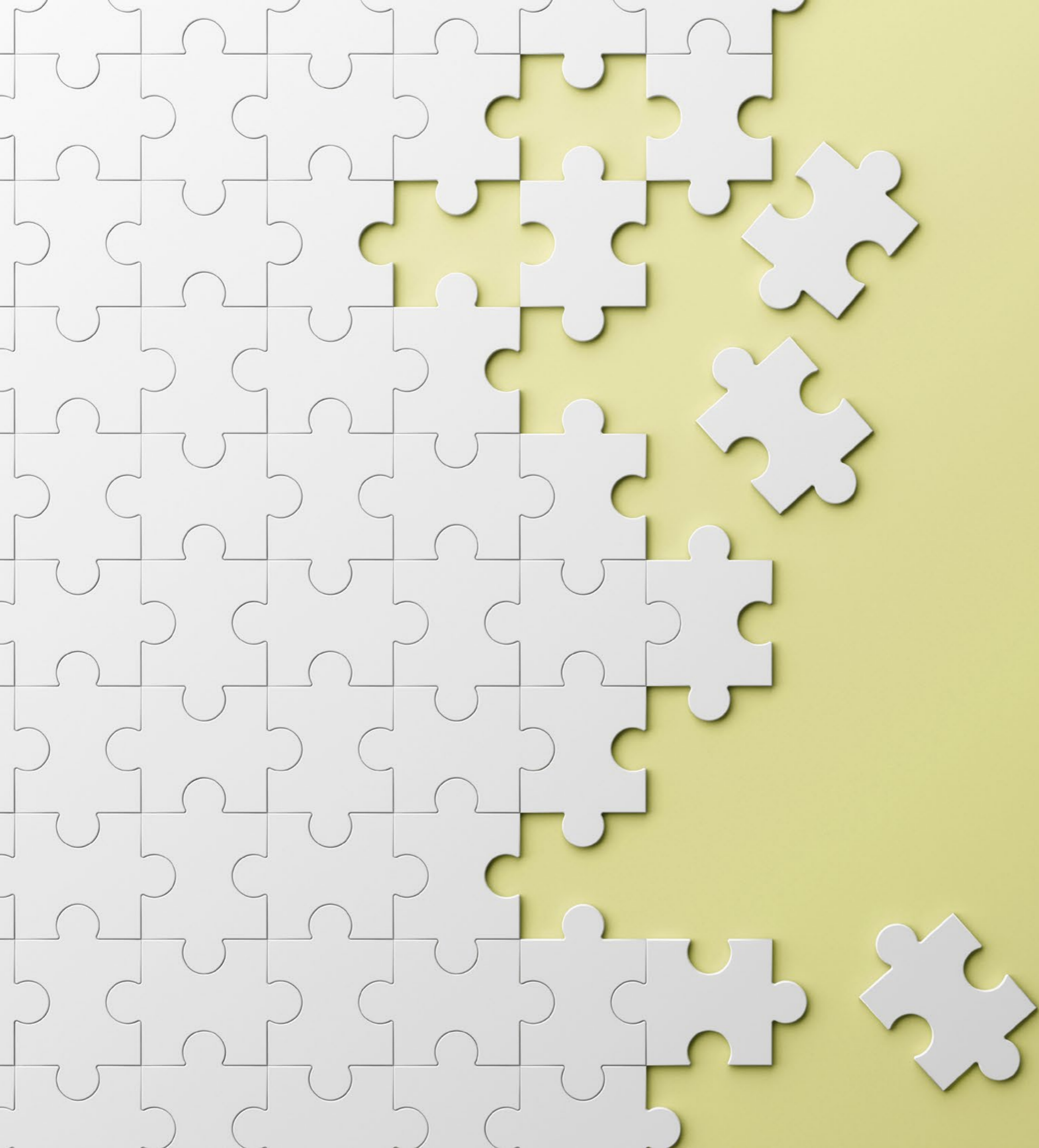


Fig. 145: Spatial Prioritization of Sahab's Public Space Network.



6. 2. INTEGRATED STRATEGIC RECOMMENDATION MATRIX

Action Scale	Strategic Objective	Key Action Directions	Typology	Challenge Addressed	Linkage to Assessment Dimensions
Enabling Systems 	Institutionalize green, inclusive, and pedestrian-oriented public space planning	<ul style="list-style-type: none"> Mainstream green infrastructure, accessibility, and solid waste management considerations within municipal strategies and plans guiding public space development. Incorporate context and climate appropriate planting and water-efficient greening standards into municipal guidelines and public space design criteria. Prioritize streets as multifunctional public spaces. Integrate low-emission, low-noise, and pedestrian and cyclist-first principles into city-level investment programming. Promote coordinated action across the departments under the directorates of Local Development and Investment, Health and Environment, Engineering, and the Culture and Activities within Sahab Municipality. Build the capacity of local municipal team members to manage, activate, maintain, and operate public spaces effectively. 	Streets / Open Spaces	Fragmented planning, car-oriented investment priorities, weak integration of environmental and accessibility considerations	All dimensions
	Enable sustainable financing and implementation	<ul style="list-style-type: none"> Align public space investments; including implementation, operation, and maintenance; with annual municipal budgeting cycles Encourage local stewardship models in partnership with communities, institutions, and private actors to support greening, maintenance, and activation of open spaces. Introduce phased implementation to allow piloting and scaling. 	Streets / Open Spaces	Limited municipal budgets, reliance on adhoc projects, weak long-term maintenance	All dimensions
	Promote community participation and accountability	<ul style="list-style-type: none"> Activate the role of neighbourhood committees in the operation, maintenance, and oversight of public spaces. Engage the community in all stages of planning, designing, and implementation of public spaces. 	Open Spaces	Limited community ownership, under use, and misuse of public spaces	Inclusivity
Public Space Network 	Structure public spaces as a connected and accessible network	<ul style="list-style-type: none"> Treat streets, open spaces, and public facilities as an integrated public space system rather than isolated elements. Enhance public space provision and connectivity in under-served neighbourhoods. Plan continuous pedestrian routes that connect key destinations Define clear sidewalk hierarchies and managing encroachments to ensure safe, continuous, and accessible pedestrian movement. Integrate safe crossings and traffic-calming measures into street hierarchies. Support cycling through context-appropriate bicycle facilities within streets. 	Streets / Open Spaces / Public Facilities	Fragmented public spaces, lack of continuity, poor environmental performance	Environmental Quality, Connectivity and Accessibility
	Green the Public Space Network to Improve Environmental Quality	<ul style="list-style-type: none"> Incorporate green buffers, shading elements, and SUDS into spatial planning and street design. Use public spaces and corridors as continuous green infrastructure that mitigates heat, dust, and pollution. Prioritize the use of native and climate-adapted plant species that require minimal irrigation and maintenance and are resilient to local climatic conditions. Maximize greening opportunities within streets, open spaces, and public facility forecourts to improve environmental performance. 	Streets	Unsafe walking conditions, disconnected sidewalks, dominance of vehicles	Connectivity and Accessibility, Inclusivity
Places on the Ground 	Enhance comfort, safety, and environmental performance	<ul style="list-style-type: none"> Retrofit streets with trees, shading, lighting, and seating. Introduce green buffers along high-traffic corridors. Improve waste collection points and integrate bins into public space design. Upgrade amenities in high-use open spaces. 	Streets / Open Spaces	Heat stress, poor comfort, air and noise pollution, littering and weak solid waste management	Environmental Quality, Safety
	Activate and upgrade underutilized spaces	<ul style="list-style-type: none"> Repurpose roundabouts and residual spaces as green public spaces. Activate forecourts and setbacks of mosques and municipal buildings as multifunctional public spaces. Improve accessibility features such as ramps and leveled entrances. 	Open Spaces / Public Facilities	Lack of accessible public spaces, underused public assets, poor environmental quality in dense areas	All dimensions



07

ANNEXES



7. Data Collection Questionnaire - KoboTool Box

RETHINKING SAHAB_PUBLIC SPACES DATA COLLECTION

General Information

Select the Zone you are assessing ... حدد المنطقة التي تقوم بتقييمها ...

- A
 B
 C
 D
 E
 F
 G

What is the element that you are assessing? ما هو العنصر الذي تقوم بتقييمه؟

- Open Public Space - موقع عام مفتوح -
 Street - شارع -
 Public Facilities - مبنى عام -

What day are you completing this assessment? ما هو اليوم الذي تقوم فيه بتعبئة هذا الاستبيان؟

- Sunday - الاحد -
 Monday - الاثنين -
 Tuesday - الثلاثاء -
 Wednesday - الاربعاء -
 Thursday - الخميس -
 Friday - الجمعة -
 Saturday - السبت -

What time are you completing this assessment? ما هو الوقت الذي تقوم فيه بتعبئة هذا الاستبيان؟

- Day (6:01 am - 6:00pm) - نهارا -
 Night (6:01pm- 6:00am) - ليلا -

What is your current location? حدد احداثيات موقعك

latitude (x,y °)

longitude (x,y °)

altitude (m)

accuracy (m)



Please take a picture of the element you are assessing .. ارجوك خذ صورة للعنصر الذي تقوم بتقييمه ..

Click here to upload file. (< 10MB)

Identify the open public space you are assessing? حدد نوع الموقع العام المفتوح الذي تقوم بتقييمه حاليا؟

- Public Park - حديقة عامة -
 Playground - ملعب -
 Vacant Land - أرض شاعرة (فارغة) -
 Public Transport Parking Lot - موقف نقل عام -
 Open Air Market - سوق تجاري مفتوح -
 Roundabout - دوار -
 Commercial Boulevard - بوليفارد تجاري -
 Square - ساحة عامة -



حدد نوع المبنى العام الذي تقوم بتقييمه حالياً؟ Identify the public facility you are assessing?

- مدرسة حكومية - School
- مركز صحي - Health Center
- مسجد - Mosque
- مبنى تجاري - Commercial Building
- مستشفيات - Hospital
- مكتبة - Library
- مركز ثقافي - Cultural Center
- مبنى البلدية - Municipal Building
- محكمة - Justice Court
- أخرى - Other

ما نوع المبنى العام الذي تقوم بتقييمه حالياً؟ What is the public facility you are assessing?

اضافة رمز الشارع - Add the code of the Street

مثل G97 ، A51

اضافة رمز المبنى العام - Add the code of the Public Facility

اضافة اسم المبنى العام - Add the name of the Public Facility

اضافة رمز الموقع العام المفتوح - Add the code of the Open Public Space

Any notes

» Open Spaces

قيم الموقع العام المفتوح بشكل عام من حيث الجودة - Rate the condition of the open public space in general in terms of quality

- جيد - Good
- مقبول - Fair
- دون المستوى - Substandard
- سيء للغاية - Critical

هل الحديقة العامة تعمل؟ Is the public park operational?

- Yes - نعم
- No - لا

هل يحتاج الموقع العام المفتوح الى تحسين في البنية التحتية بشكل عام؟ Does the open public space need improvement?

- Yes - نعم
- No - لا

صف التحسين اللازم؟ Describe the needed improvement for public space improvement?

» STREETS

هل هناك أرصفة؟ Is there sidewalks on the road?

- Yes
- No

ما عدد الأرصفة؟ How many sidewalks?

- 1
- 2
- 3

صف مقدار قبليية المشي في الأرصفة بشكل عام؟ Describe the level of the sidewalk's walkability?

- Walkable - سهل المشي فيه
- Walkable with obstructions - متوسط الصعوبة في المشي لوجود معيقات
- Unwalkable - غير قابل للمشي

هل يحتاج الريف الى تحسينات في البنية التحتية؟ Do the sidewalk need improvement?

- Yes - نعم
- No - لا

صف التحسينات اللازمة؟ Describe the needed intervention?

Take a picture of the sidewalk

Click here to upload file. (< 10MB)

هل يوجد اي استعمال غير رسمي على الرصيف؟ Is there any informal activity on the sidewalk?

- Yes
- No

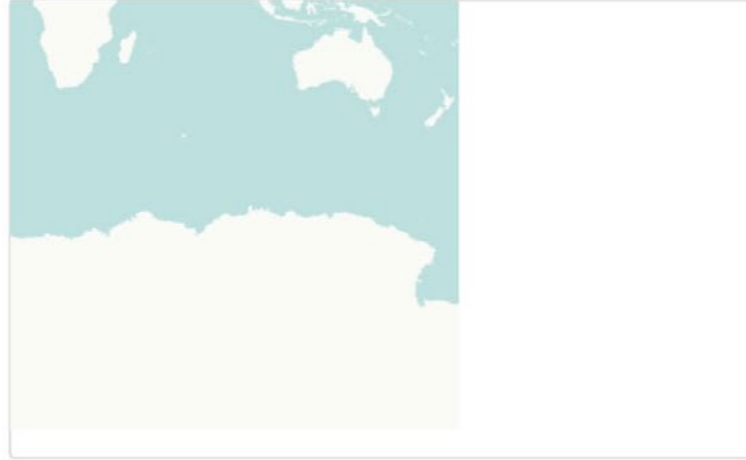
**Specify the Location of the informal activity.. حدد موقع الاستعمال غير الرسمي**

latitude (x.y °)

longitude (x.y °)

altitude (m)

accuracy (m)

**Describe the informal activity? صف الاستعمال غير الرسمي للترصيف؟****Take a picture of the informal activity on the sidewalk- التقط صورة للاستعمال غير الرسمي للترصيف**

مثل بسطات تجارية ، تعدي على رصيف بمقاعد للمطاعم

Click here to upload file. (< 10MB)

Is the street a one-way or two-way street? هل الشارع ذو اتجاه واحد أم ذو اتجاهين؟

- One way - اتجاه واحد
- Two ways - اتجاهين

How many lanes is the street per direction? كم عدد مسارب السيارات في الشارع في الاتجاه الواحد؟

- 1
- 2
- 3
- 4

Is there a dedicated parking lot in the street officially? هل هناك مواقف للسيارات محددة على الشارع بشكل رسمي؟

- Yes - نعم
- No - لا

What is the dominant nature of the activities in the street... ما هي طبيعة الأنشطة على الشارع

- Commercial - تجاري
- Industrial - صناعي
- Mixed use- متنوعة
- Residential - سكني

Describe the nature of the activities in the street ... صف طبيعة الأنشطة على الشارع

مثل مطاعم ، محلات تجارية، فندق ، محلات دواجن .. الخ

What are the types of the transport that passes in the street? ما نوع وسائل النقل التي تمر في الشارع؟

- Cars- سيارات
- Trucks - شاحنات
- Private Buses - باصات خاصة
- Public Buses - باصات نقل عام
- Service Cars - سيارات نقل عام (سيرفيس)

ENVIRONMENTAL QUALITY**» COMFORT****COMFORT: Do you feel the air is clean? هل تشعر ان الهواء نظيف؟**

- Yes - نعم
- No - لا

COMFORT: Evaluate how unclean feels? قيم مدى تلوث الهواء بناءً على إحساسكم؟

- Lightly polluted air (minimal impact on breathing) - هواء خفيف التلوث (تأثير بسيط على التنفس)
- Moderately polluted air (notable impact on breathing) - هواء معتدل التلوث (أثر ملحوظ على التنفس)
- Heavily polluted air (clear impact on health and breathing) - هواء شديد التلوث (تأثير واضح على الصحة والتنفس)
- Very heavily polluted air (dangerous effects on health and breathing) - هواء ملوث جدا (تأثيرات خطيرة على الصحة والتنفس)

COMFORT: How would you rate the noise level in this area? كيف تقيم مستوى الضوضاء في هذه المنطقة؟

- 1 - Very Quiet - هادئ جدا
- 2- Quiet - هادئ
- 3- Moderate - معتدل
- 4- Noisy - مزعج
- 5- Very noisy - مزعج جدا



COMFORT: Are there any unpleasant smells in the area? هل هناك اي رائحة مكروهة في الموقع؟

- Yes - نعم
 No - لا

COMFORT: How would you rate the unpleasant smell level in the area? كيف تقيّم مدى كراهية الرائحة في هذا الموقع؟

- 1- Mild Odor - رائحة خفيفة جدا
 2- Moderate Odor - رائحة خفيفة
 3- Strong Odor - رائحة كريهة
 4- Intense Odor - رائحة كريهة جدا

COMFORT: Can you describe the unpleasant smell in the area? صف الرائحة في هذا الموقع؟

COMFORT: Is there any unpleasant view? هل هناك اي منظر مزعج؟

- Yes - نعم
 No - لا

COMFORT: What is the unpleasant view you are seeing? ما هو المنظر المزعج الذي تراه؟

- Garbage - نفايات
 Industrial Activity - نشاط صناعي
 Stone Cutting Activity - نشاط قص الحجر
 Trucks - شاحنات
 Waste Water Treatment Plant - محطة تنقية المياه العادمة
 Other views - اخرى

COMFORT: Describe the unpleasant view you are seeing? صف المنظر المزعج الذي تراه؟

COMFORT: Take a picture of the unpleasant view you are seeing? التقط صورة للمنظر المزعج الذي تراه؟

Click here to upload file. (< 10MB)

» GREEN

GREEN: Does the public space include greenery? هل هناك نباتات في الفضاء العام؟

- Yes - نعم
 No - لا

GREEN: Describe the greenery in the public space? صف النباتات الموجودة في الفضاء العام؟

- Tall Tree - شجرة طويلة
 Short Tree - شجيرة
 Grass- عشب
 Flower - زهور

GREEN: Is there any energy and/or water saving elements? هل توجد أي عناصر تهدف إلى توفير الطاقة و/أو المياه؟

- Yes - نعم
 No - لا

GREEN: Describe the water/energy saving element... صف العنصر الذي يوفر الطاقة/المياه

GREEN: Take a picture of the water/energy saving element... التقط صورة للعنصر الذي يوفر الطاقة/المياه

Click here to upload file. (< 10MB)

GREEN: What is the irrigation system used? ما هي آلية الري للنباتات؟

ري بطرق ذكية مثل المرشات والتنقيط اما اليدوي فمن خلال خرطوم المياه

- Manual System - ري تقليدي ويديوي
 Smart System - طرق ري ذكية

GREEN: Is there any gardening area in the public space specifically designated for crop plants? هل هناك أي منطقة زراعية في الفضاء العام مخصصة بالخصوص لزراعة المحاصيل؟

- Yes - نعم
 No - لا

GREEN: Take a picture of the gardening area? التقط صورة للمنطقة الزراعية؟

Click here to upload file. (< 10MB)

GREEN: Take a picture of the existing greenery in the public space? التقط صورة للنباتات الموجودة في الموقع؟

Click here to upload file. (< 10MB)

» SAFETY

SAFETY: Is there a security person? هل هناك حارس؟

- Yes - نعم
 No - لا



SAFETY: Is their safety cameras? هل هناك كاميرات مراقبة؟

- Yes - نعم
 No - لا

SAFETY: Is the space well-lit? هل الفضاء مضاء بشكل جيد؟

- Yes - نعم
 No - لا

CONNECTIVITY AND ACCESSIBILITY

ACCESSIBILITY: Is the public space accessible? هل يمكن الوصول الى الموقع العام المفتوح بسهولة؟

- Yes - نعم
 No - لا

ACCESSIBILITY: Does the open public space have a defined entrance? هل يمتلك الفضاء العام المفتوح مدخلاً محدداً؟

- Yes - نعم
 No - لا

ACCESSIBILITY: Is there pedestrian crossways or bridges? هل توجد طرق أو جسور لعبور المشاة؟

- Yes - نعم
 No - لا

ACCESSIBILITY: Is there biking lanes? هل هناك ممر للدراجات الهوائية؟

- Yes - نعم
 No - لا

ACCESSIBILITY: Is the open public space accessible by foot? هل يمكن الوصول إلى الفضاء العام المفتوح سيراً على الأقدام؟

- Yes - نعم
 No - لا

ACCESSIBILITY: Is the open public space accessible by biking? هل يمكن الوصول إلى الفضاء العام المفتوح باستخدام الدراجة الهوائية؟

- Yes - نعم
 No - لا

ACCESSIBILITY: Can people with disabilities, elderly, and mothers with a stroller access the open public space? هل يمكن للأشخاص ذوي الإعاقة وكبار السن والأمهات مع العربات الوصول إلى الفضاء العام المفتوح؟

ضع نعم ... ramp ان كان هناك منحدرات لذوي احتياجات خاصة

- Yes - نعم
 No - لا

ACCESSIBILITY: Why is it inaccessible by foot? لماذا لا يمكن الوصول إلى الفضاء العام المفتوح سيراً على الأقدام؟

ACCESSIBILITY: Why is it inaccessible by biking? لماذا لا يمكن الوصول إلى الفضاء العام المفتوح باستخدام الدراجة؟

INCLUSIVITY

INCLUSIVITY: Is the open public space inclusive? هل يستطيع جميع فئات المجتمع استخدام الموقع العام المفتوح؟

مثل ذوي الاعاقة ، كبار السن، النساء ، الاطفال، الشباب ، اللاجئين ، المغتربين ، العمال

- Yes - نعم
 No - لا

USERS: Who are the users of the open public space? من هم مستخدمين الفضاء العام المفتوح؟

- Elderly - كبار السن
 Women - نساء
 Youth - شباب
 Families Only - عائلات فقط
 Children - أطفال

» VIBRANCY

VIBRANCY: Describe the factor that contributes to the vibrancy? صف العامل الذي يساهم في حيوية هذا المكان؟

VIBRANCY: What factors contribute to the vibrancy of this place? ما هي العوامل التي تساهم في حيوية هذا المكان؟

- Event - أنشطة متنوعة
 Shops - محلات
 Greenery - خضار
 People - ناس
 Other - اخرى

VIBRANCY: How would you describe the vibrancy of this place? كيف تصف حيوية هذا المكان؟

- Very vibrant – lively, full of activities, and many people - حيوي جداً - مليء بالأنشطة والحركة وكثرة الناس
 Moderately vibrant – some activities and moderate foot traffic- حيوي إلى حد ما - بعض الأنشطة وحركة مرور متوسطة للأشخاص
 Slightly vibrant – occasional activities and few people - حيوي قليلاً - أنشطة متفرقة وقلّة في عدد الأشخاص
 Not vibrant – rarely any activities or people - غير حيوي - نادراً ما توجد أنشطة أو أشخاص

**» AMENITIES**

AMENITIES: Describe the available amenities in the space ... قِيم المرافق المتاحة في الفضاء ...

- Excellent - بحالة ممتازة -
 Very Good - بحالة جيدة جدا -
 Good - بحالة جيدة -
 Poor - بحالة سيئة -
 Very Poor - بحالة سيئة جدا -

AMENITIES: What is the other available amenities in the space ... ما هي المرافق الأخرى المتاحة في الفضاء ...

AMENITIES: Take a picture of the available amenities in the space ... التقط صورة المرافق المتاحة في الفضاء ...

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AMENITIES: Select the available amenities in the space ... حدد المرافق المتاحة في الفضاء ...

- Lighting - اضاءة -
 Benches - مقاعد -
 Garbage Bins - سلة مهملات -
 Public Toilet - حمام عام -
 Fire Emergency - طفاية حريق -
 Signage - لوحات ارشادية -
 Drainage - مصارف -
 Shades - مظلات -
 Kiosk - كشك -
 Games - العاب -
 None - لا شيء -
 Other amenities - اخرى -



08

ENDNOTES



8. Endnotes

1 Ayah Ahmad Hammad (Hammad Moh'd). (2021). Integration of Industrial Areas with the Urban Setting of Amman Governorate: Dilemma or Opportunity?

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3 Ibid

4 Ibid

5 UN-Habitat. (2025). Multi-layered Vulnerability Profile for Sahab City. United Nations Human Settlement Programme (UN-Habitat), Jordan. Retrieved from: <https://share.google/YA2YMZEsVCckpK-WQI>



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