Title:

Urban Land Parcelization Based on Energy Efficiency Approach

(The Case Study: Mahmoudabad City)

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Presentation Process

- Introduction
- The Necessity and Importance of Research
- Purpose of Research
- Study Gap
- Methodology of Research
- Literature Review
- Conceptual Framework
- The Case Study (Mahmoudabad City)
- Conclusion

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Introduction

Today, sustainable development and energy- one of its most important components- has become a global problem. Excessive consumption of energy has many harmful environmental effects, leading to waste and the risk of finishing non-renewable energy sources. The present research tries to provide a modeling an urban land parcelization based on energy efficiency approach in cities to bring cities closer to sustainability. In this research, trying to answer three basic questions:

"What is the role of urban land parcelization in energy efficiency?"

"What are the characteristics of an urban land parcelization that guarantees energy efficiency?"

"How can energy efficiency be increased by urban land parcelization and appropriate strategies and policies?"

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The Necessity and Importance of Research

01

Lack of proper attention to the issue of energy efficiency in urban development projects.

02

Problems that resulting from uncontrolled consumption of renewable energies such as bad environmental consequences.

03

Lack of proper attention to the urban land parcelization in urban planning and design.

04

A tremendous impact of urban land parcelization in energy efficiency.

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Purpose of Research

Main Purpose

To achieve the pattern and framework of sustainable and energy efficient urban land parcelization.

Secondary Purposes

- Decreasing the energy consumption in the city by urban land parcelization.
- Reducing environmental impacts caused by non - renewable energy consumption in cities
- Regenerate the ecological balance and keeping pace with nature in the city.

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Study Gap

“ This research addresses a new and challenging topic of energy efficiency in urban planning, and is one of the first researches that utilizes energy efficient land parcelization, including urban blocking. ”

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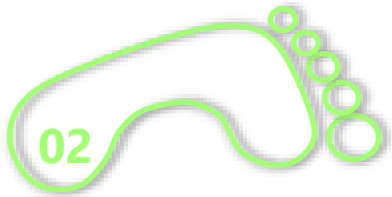
Methodology of Research

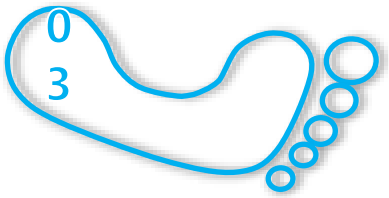
The method is descriptive-analytical and of a practical nature. Several tools have been used to gather information, land surveys, library documents and face-to-face interviews. ArcGIS software is also used to analyze spatial data and information, design maps and present the proposed plan maps.

In general, the research includes three steps :

The guidelines, principles, and indicators of urban land parcelization based on energy efficiency have been extracted through library documentation studies



The case study has been recognized and analyzed.



according to the principles of energy efficient land parcelization, the final design of the land parcelization of Mahmoudabad city is presented

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Literature Review

Parcelization

/. pɑːs(ə)lʌɪˈzeɪʃn/

(also parcellisation, parcelisation, parcellization)

noun

1. Division (**especially of land**) into separate parcels, parts, or portions. (Oxford Dictionaries)

Land Parcelization

A process of organizing a physical framework that divided zones of land smaller cells with numerous owners to respond to the activity system . The urban cell is also smaller than the city , characterized by spatial and non - spatial properties .

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Literature Review

Energy Efficiency

Energy efficiency concerns the technical ratio between the quantity of primary or final energy consumed and the maximum quantity of energy services obtainable (heating, lighting, cooling, mobility, and others) (V. Oikonomoua et al, 2009)

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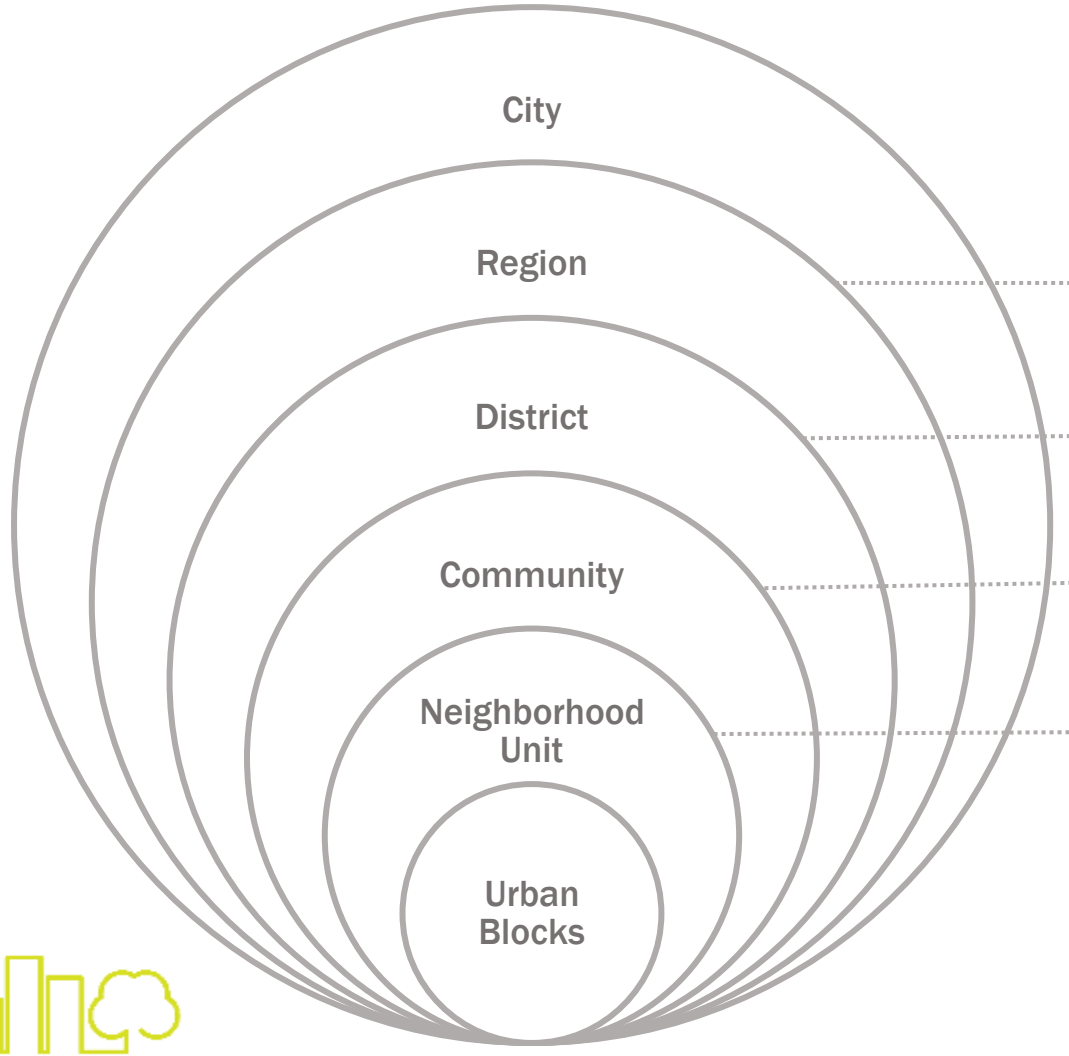
Literature Review

Elements of Urban Land Parcelization and Their Relationships



48000-60000 Population, 12000-15000 Family, 2000-3000 Meter Service Radius

24000-30000 Population, 6000-7500 Family, 1250-1500 Meter Service Radius

8000-10000 Population, 2000-2500 Family, 600-750 Meter Service Radius

2000-2500 Population, 500-625 Family, 250-300 Meter Service Radius

(Soltani, 2016)

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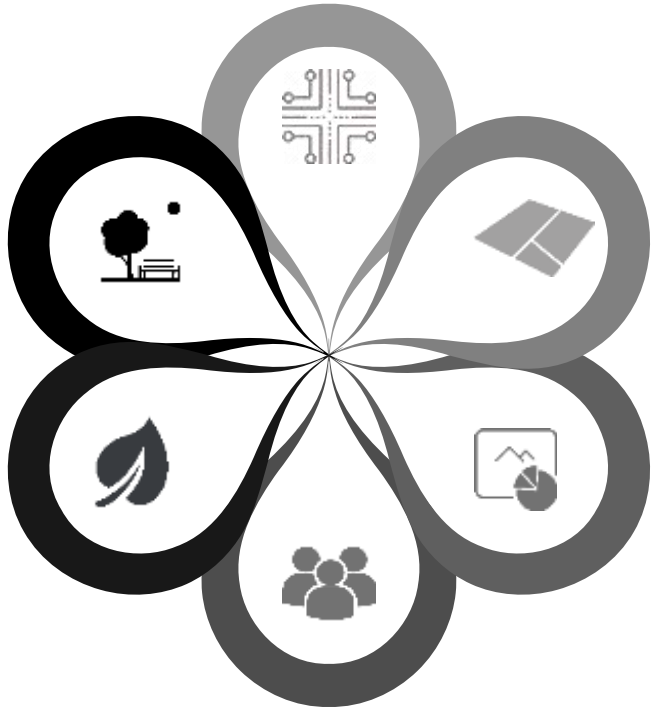
Literature Review

Energy Efficient Urban Land Parcelization Principles

- Dense street networks
- development of small urban blocks with varied uses
- Mixed use land use development
- Designing streets for people , not for cars
- Maximum environmental design capacity
- Available green spaces

(World Bank and ESMAP, 2014)



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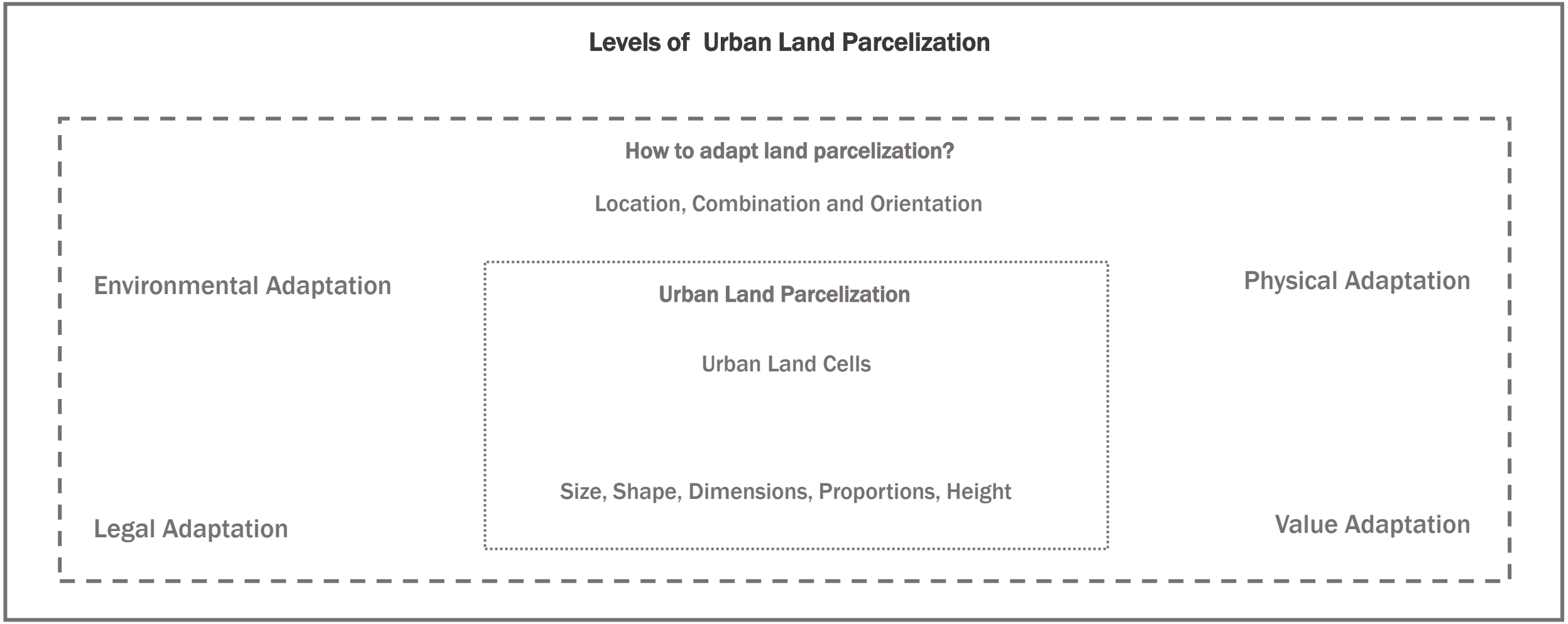
Conceptual Framework



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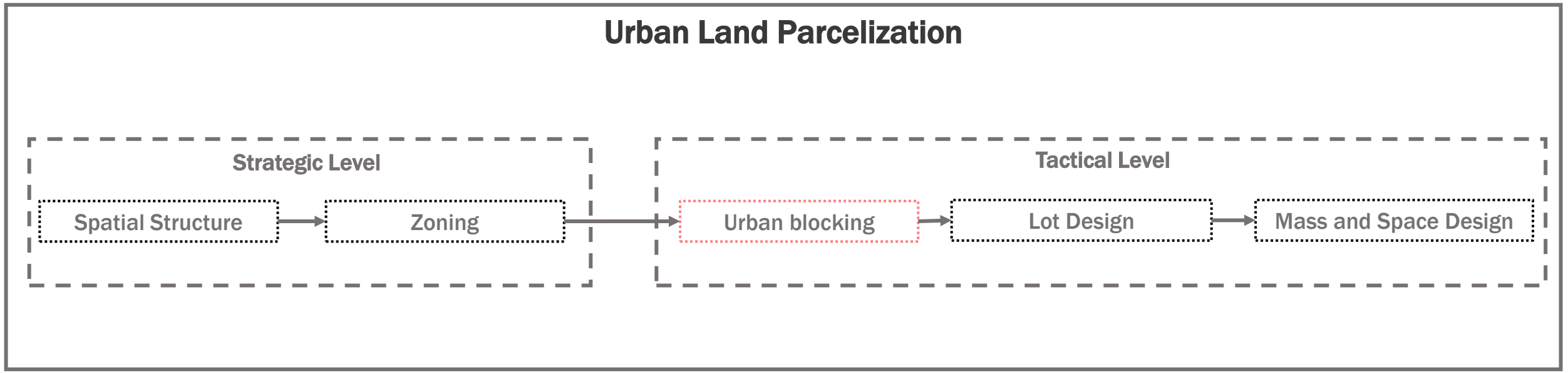

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The Case Study

Mahmoudabad City

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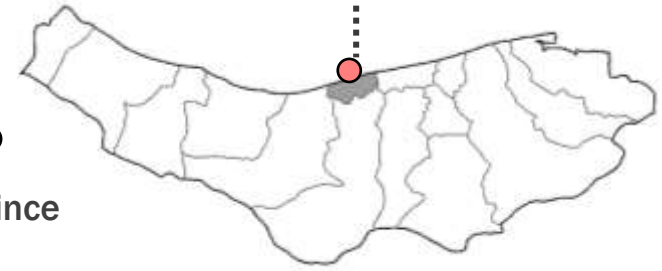
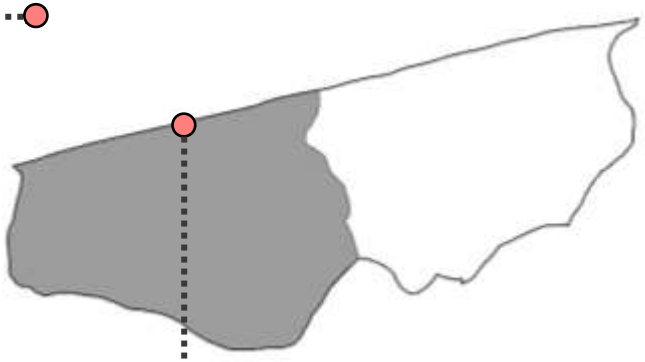
Position of Mahmoudabad City in the Administrative Divisions of Iran

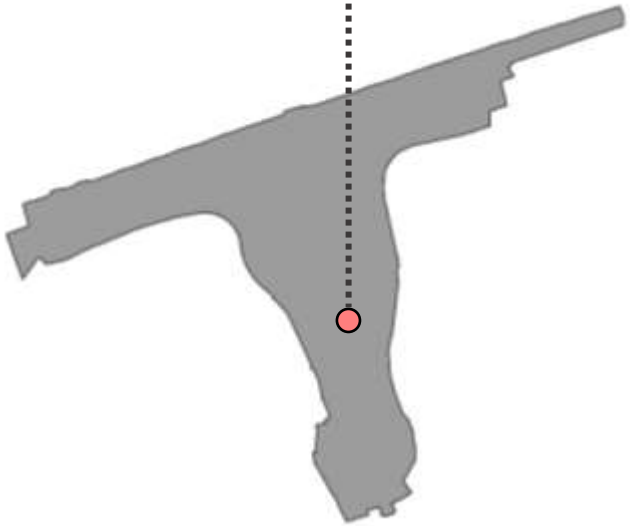
Mazandaran Province in Iran Country



Mahmoudabad County in Mazandaran Province



Central Sub Region in Mahmoudabad County



Mahmoudabad City In Central Sub region

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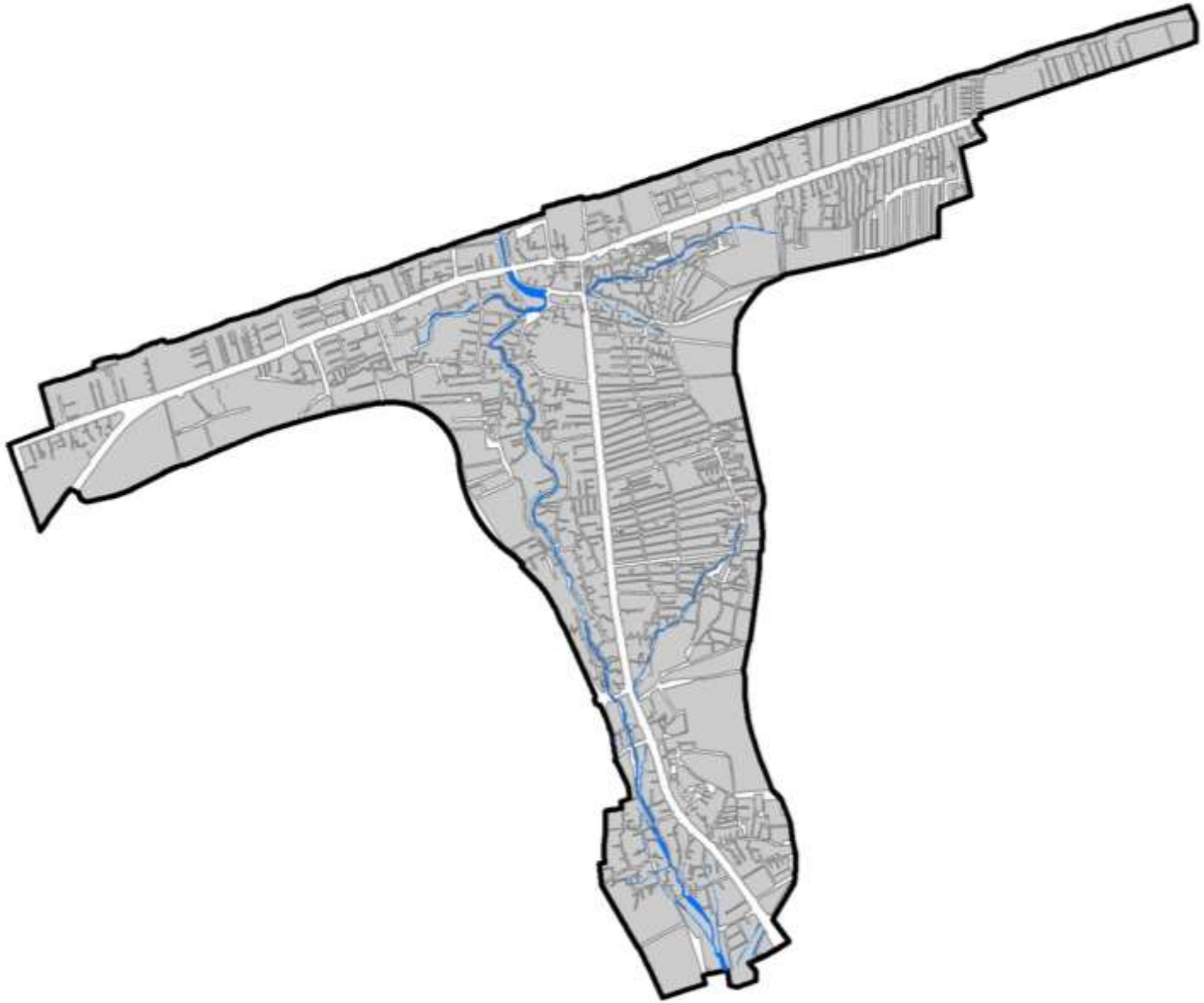
Mahmoudabad City Existing Urban Blocks



Map Legend

Existing Urban Block

City Boundary

River

N

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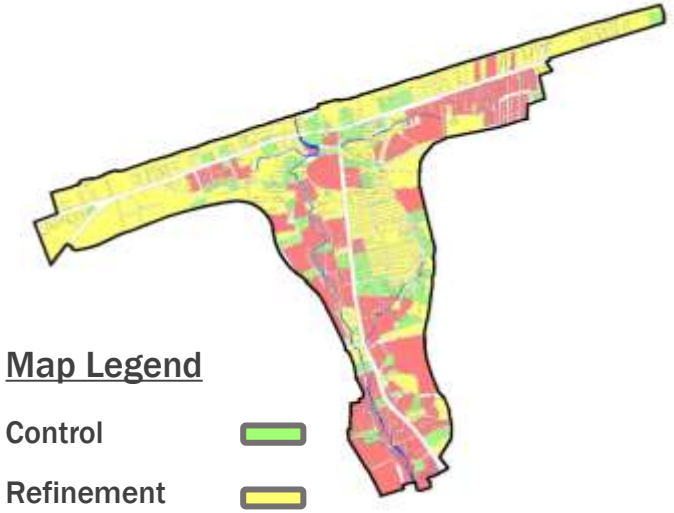
Analysis of Mahmoudabad City Urban Land Parcelization

the Mahmoudabad urban blocks are analyse by criteria such as proper climatic design for Mazandaran climate , including orientation , dimensions , size , scale , permeability , proper shape and etc.

So blocks have been divided into three categories in need of control , refinement and redevelopment .



51% Refinement


%12


%51


%37

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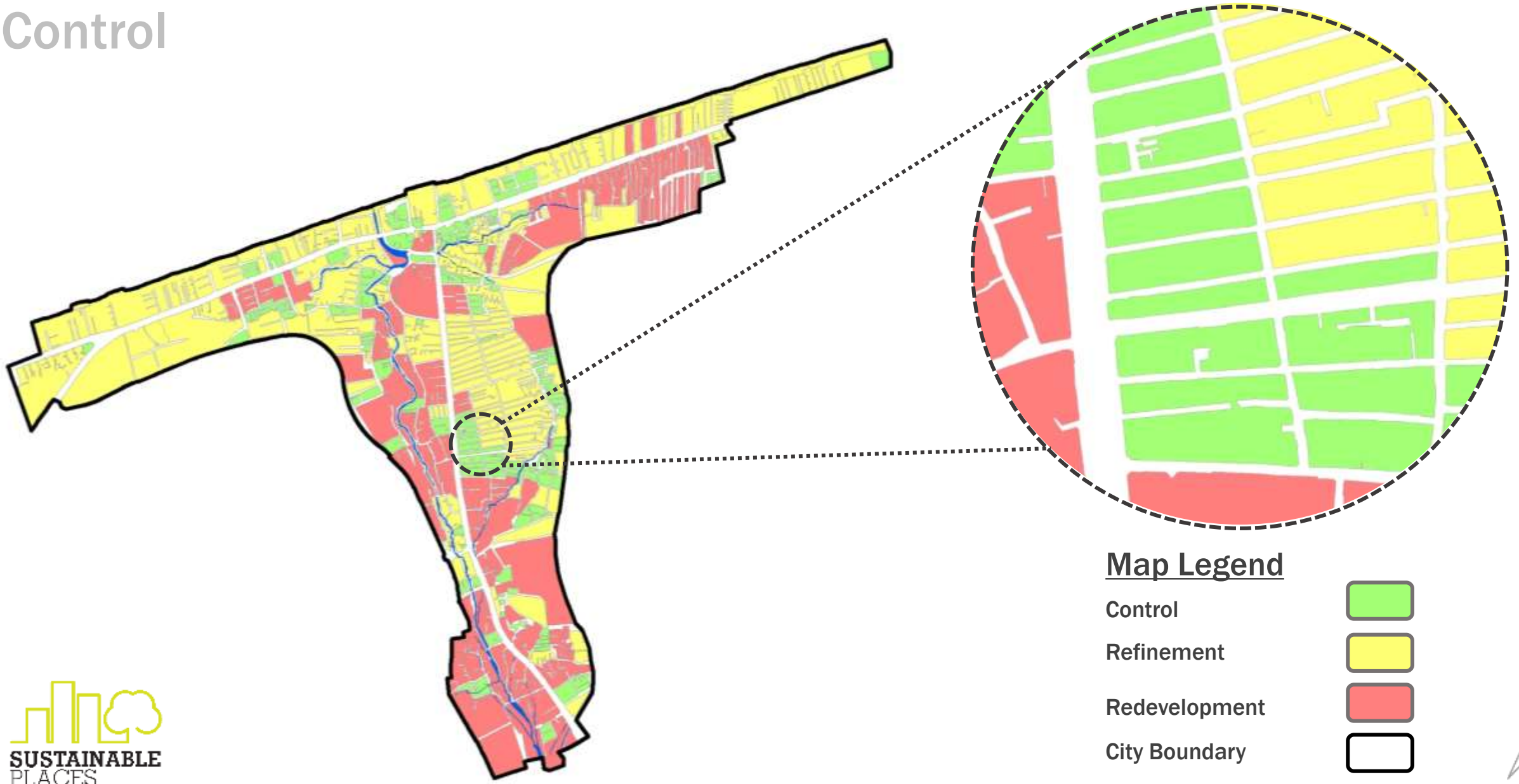
Analysis of Mahmoudabad CityUrban Land Parcelization

Control



Map Legend

- Control
- Refinement
- Redevelopment
- City Boundary
- River

N

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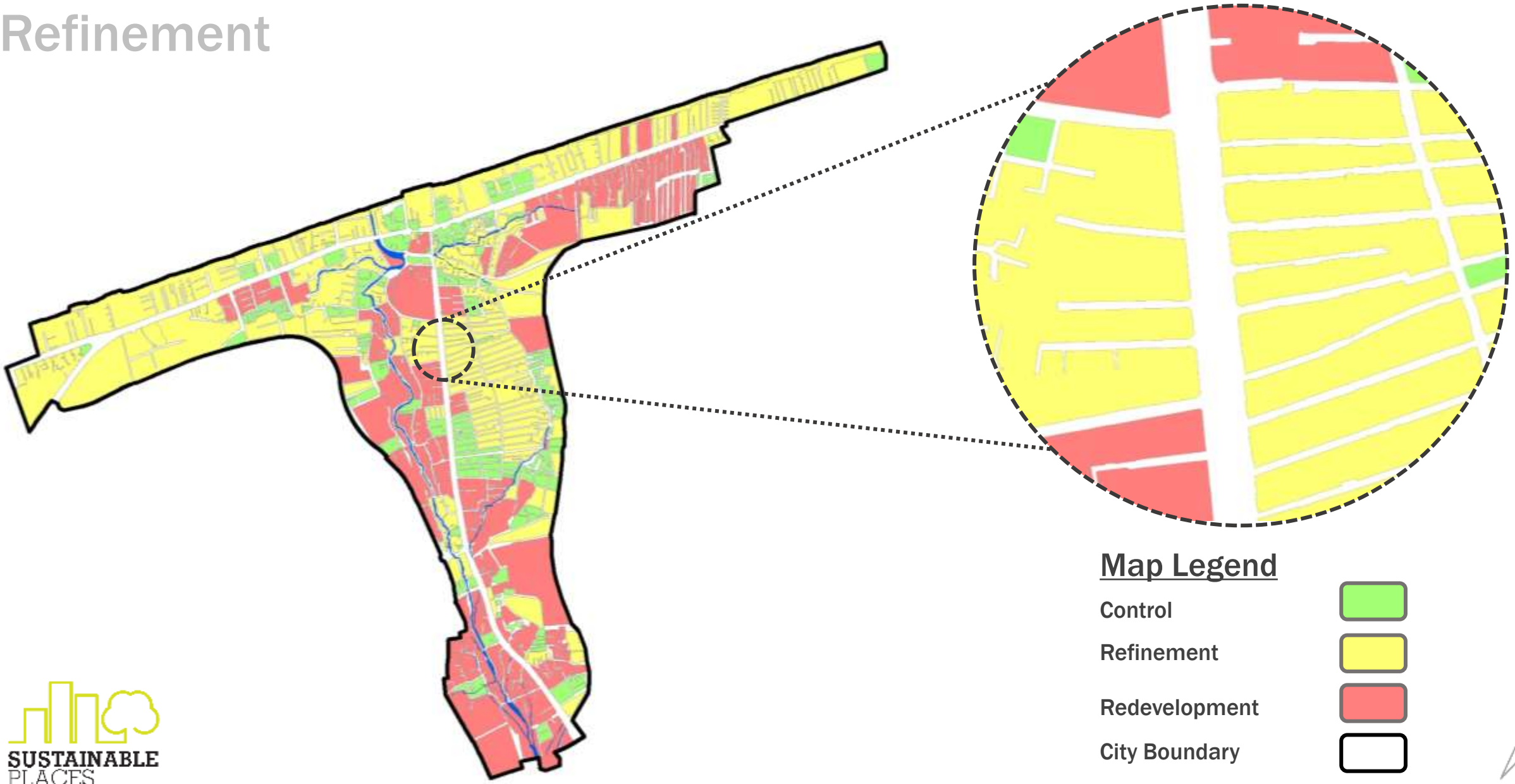
Analysis of Mahmoudabad CityUrban Land Parcelization

Refinement



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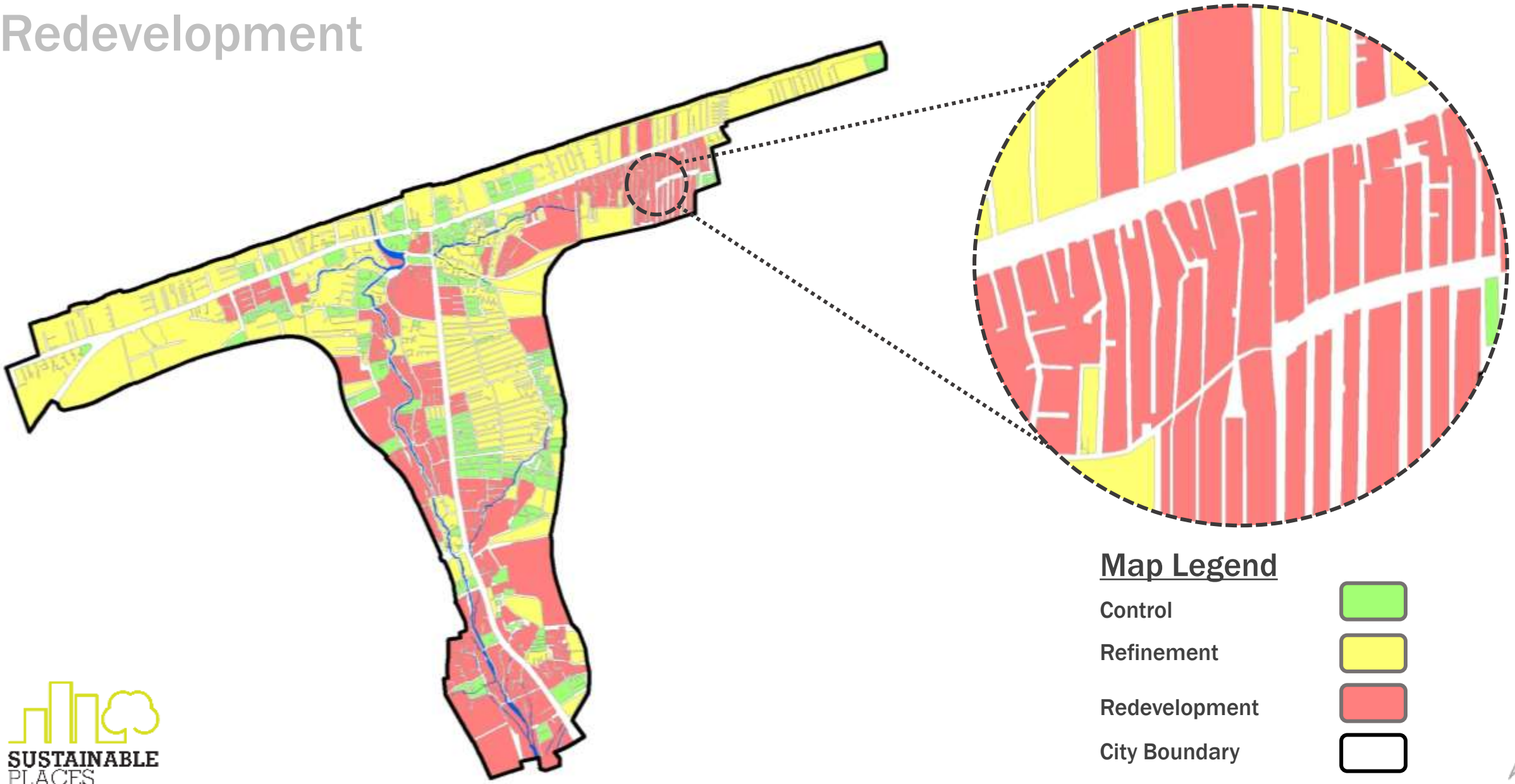
Analysis of Mahmoudabad CityUrban Land Parcelization

Redevelopment



Map Legend

- Control
- Refinement
- Redevelopment
- City Boundary
- River

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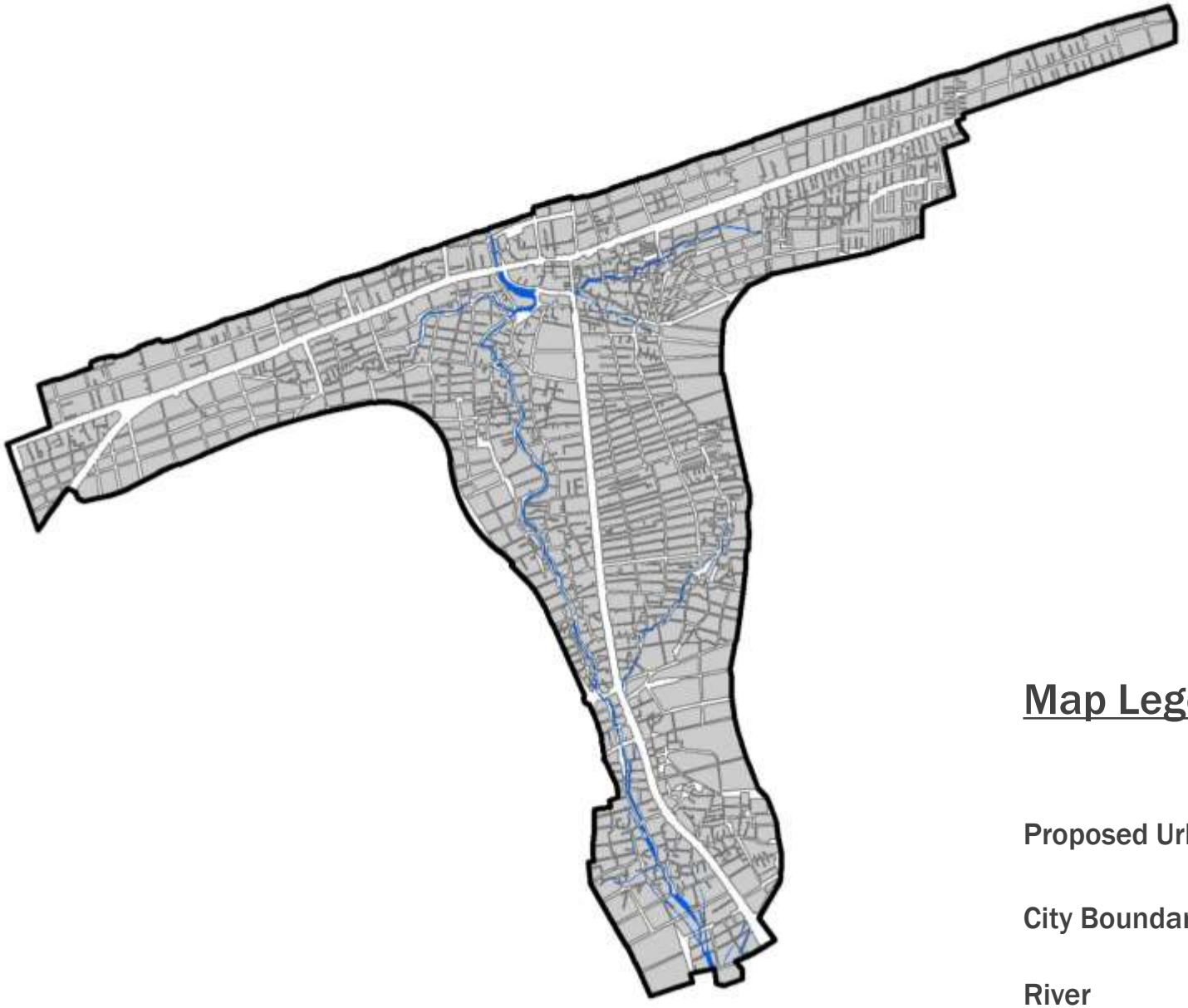
Mahmoudabad Urban Blocks Proposed Plan



Map Legend

Proposed Urban Blocks

City Boundary

River

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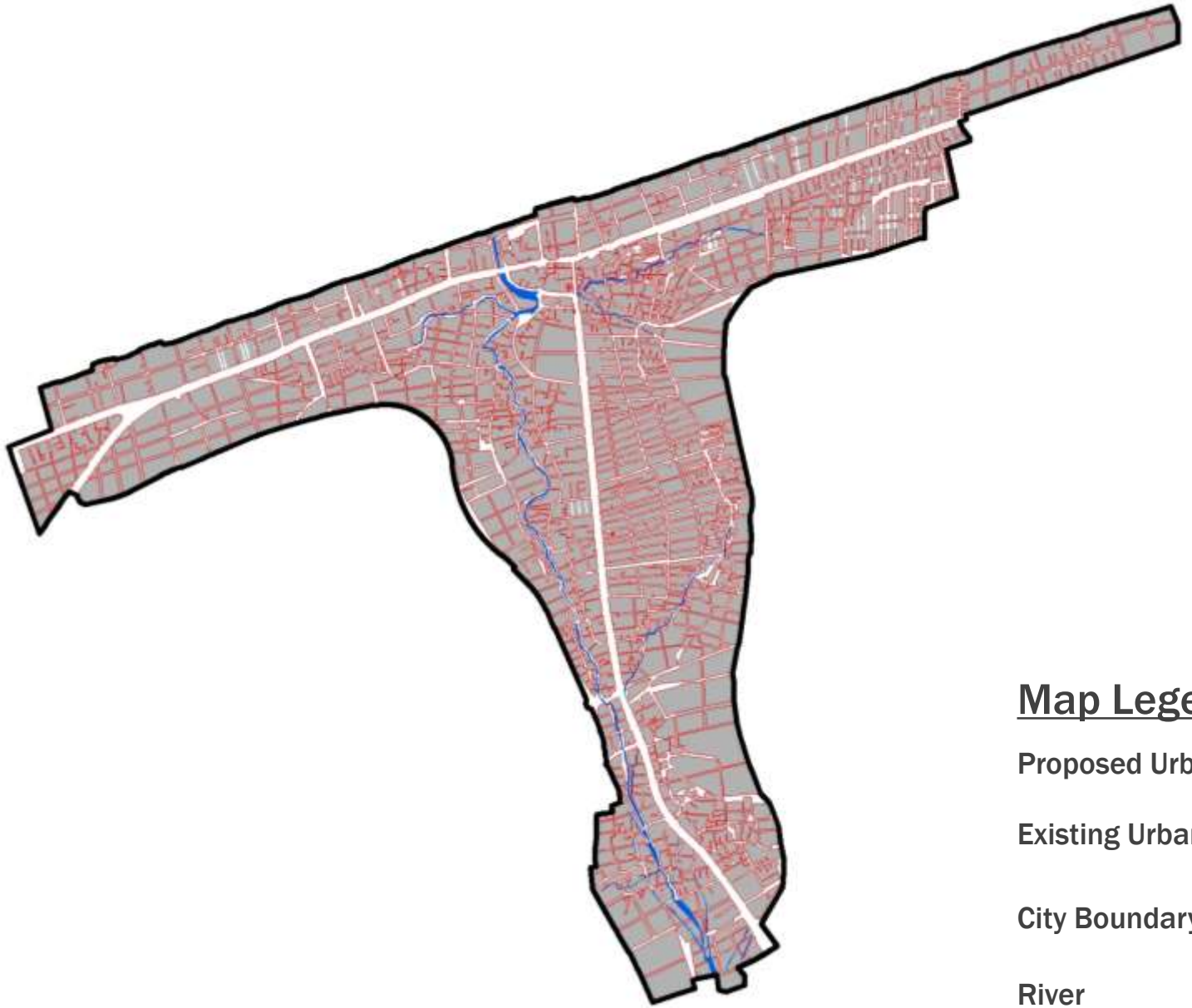
Mahmoudabad Urban Blocks Proposed Plan



Map Legend

- Proposed Urban Blocks
- Existing Urban Blocks
- City Boundary
- River

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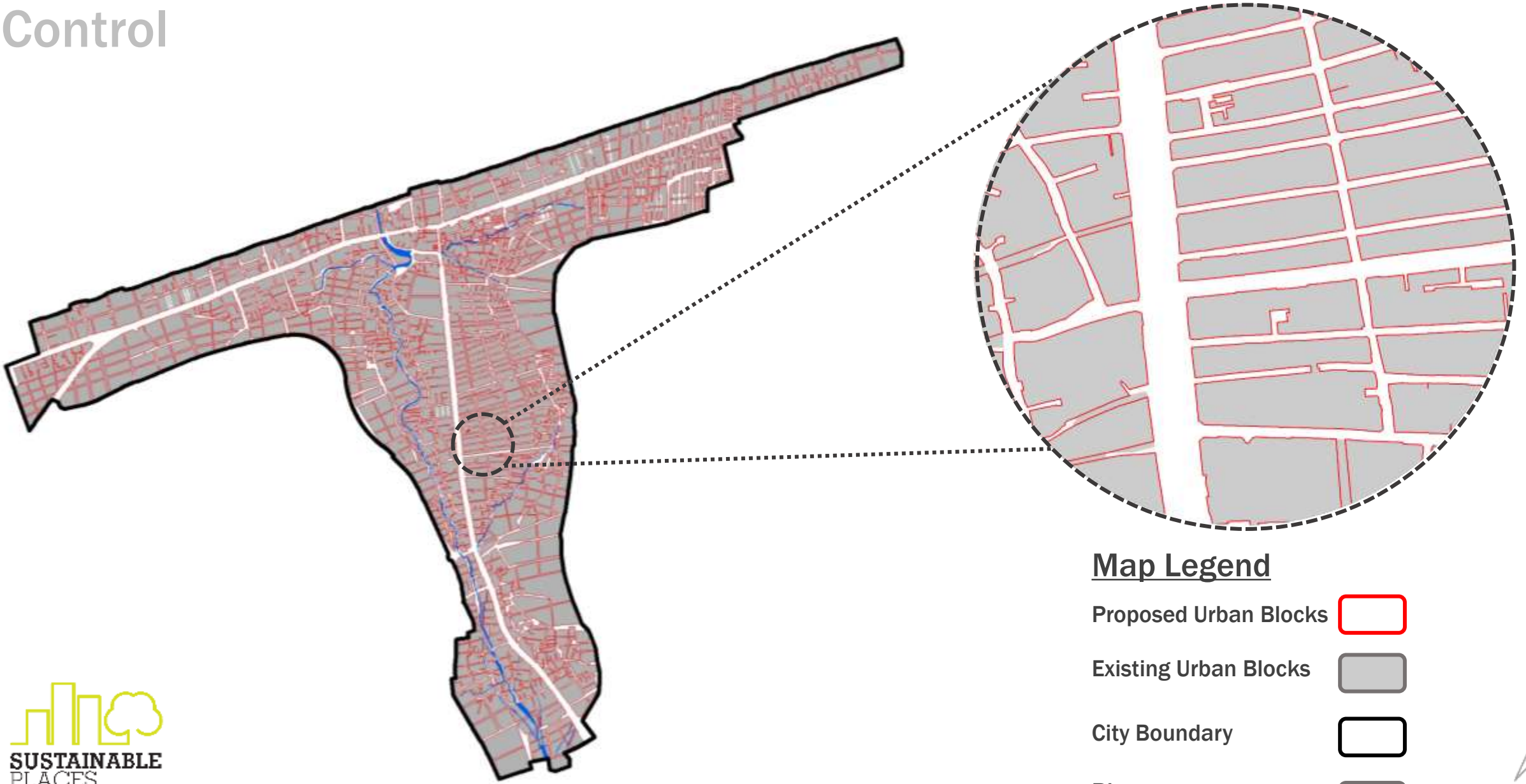
Mahmoudabad Urban Blocks Proposed Plan

Control



Map Legend

- Proposed Urban Blocks
- Existing Urban Blocks
- City Boundary
- River

SUSTAINABLE PLACES 2019

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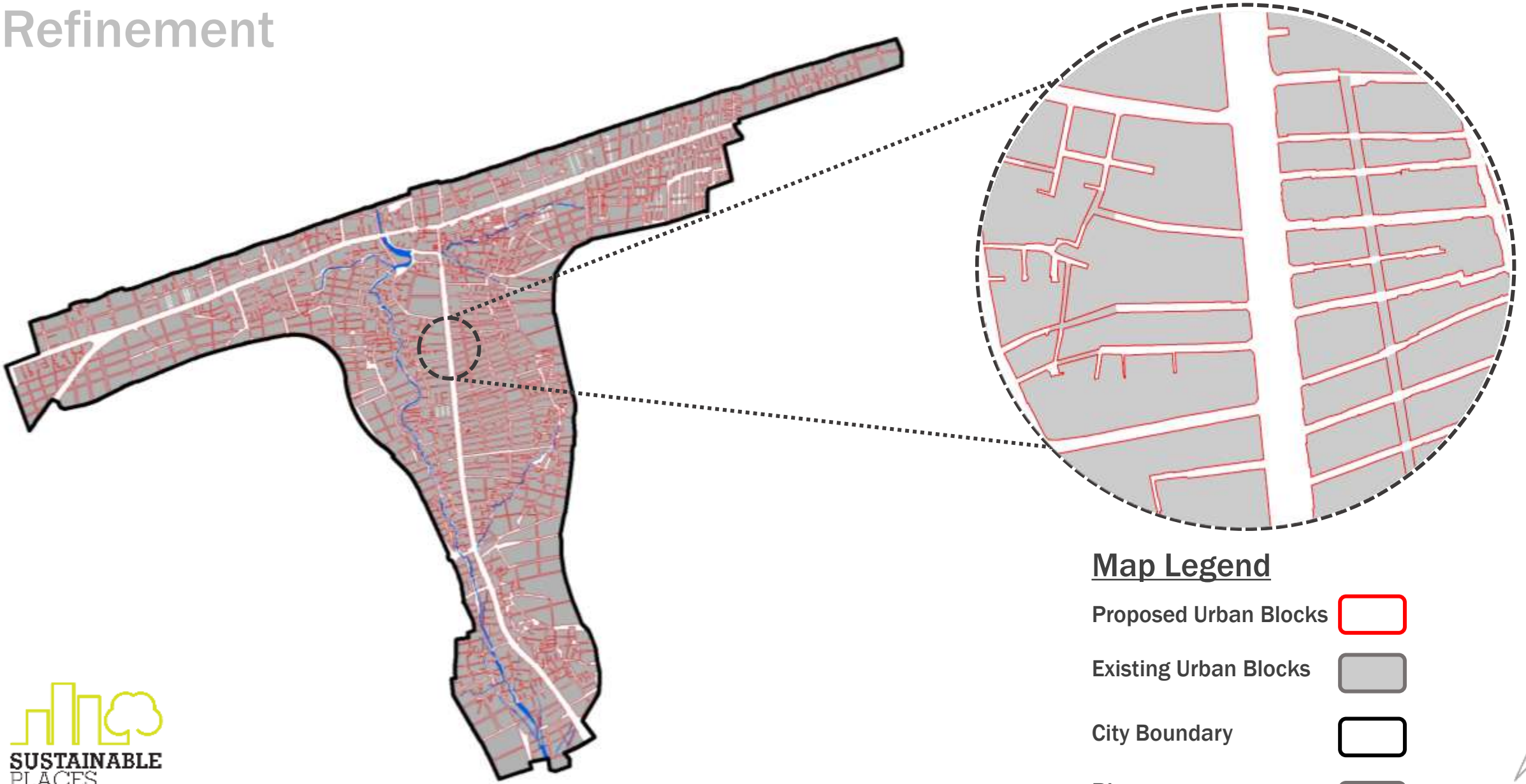
Mahmoudabad Urban Blocks Proposed Plan

Refinement



Map Legend

- Proposed Urban Blocks
- Existing Urban Blocks
- City Boundary
- River

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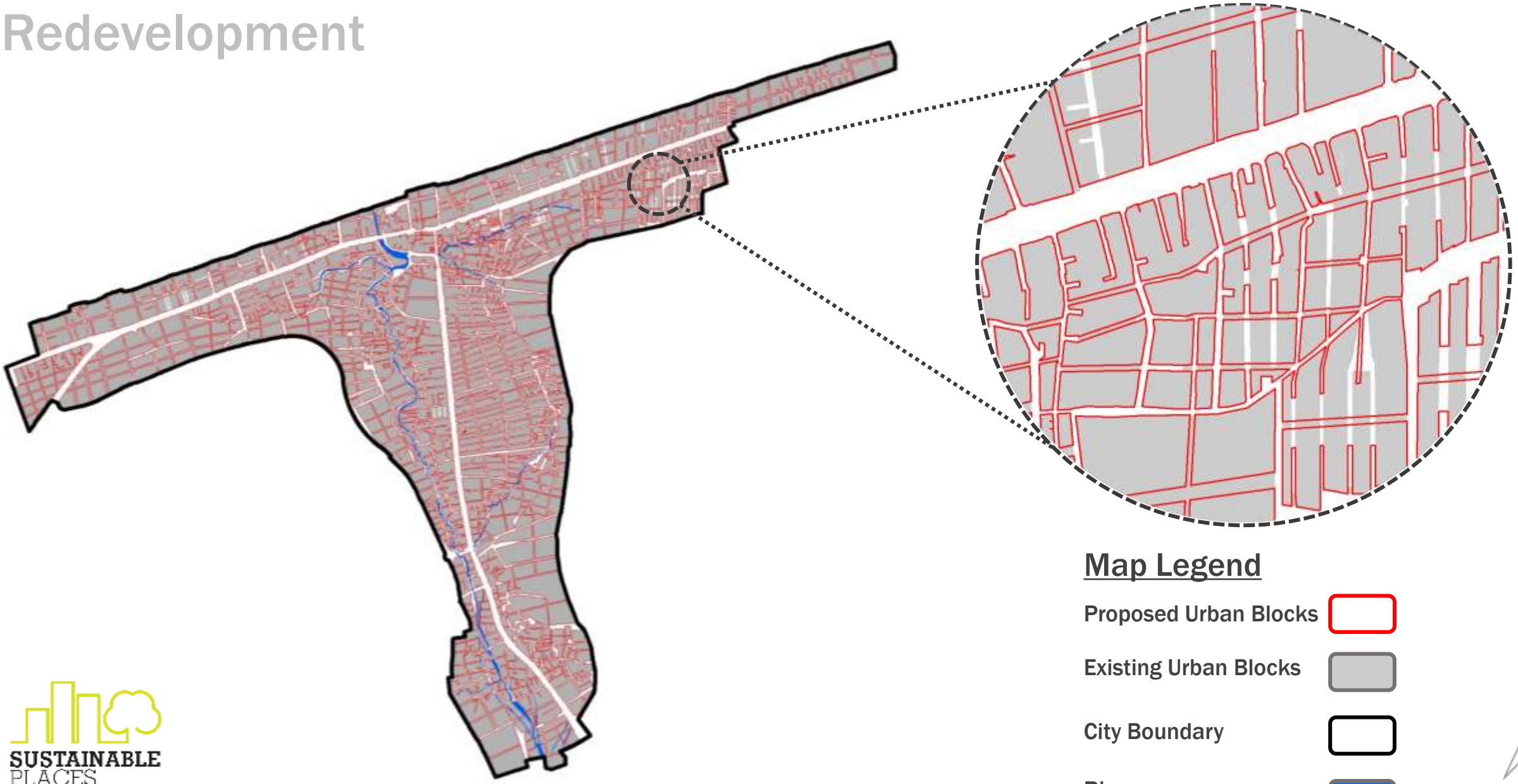
Mahmoudabad Urban Blocks Proposed Plan

Redevelopment



Map Legend

- Proposed Urban Blocks
- Existing Urban Blocks
- City Boundary
- River

SUSTAINABLE PLACES 2019

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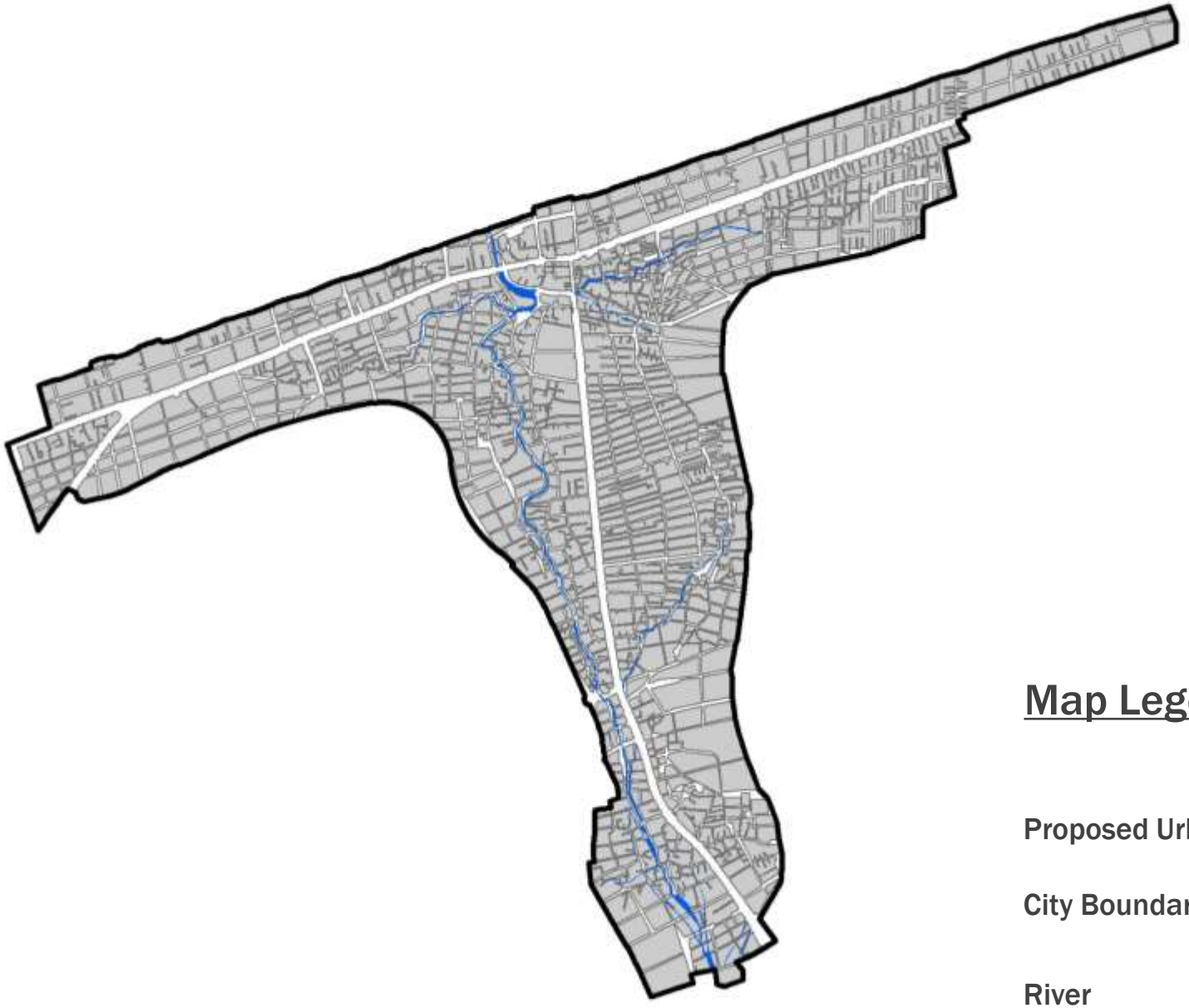
Mahmoudabad Urban Blocks Proposed Plan



Map Legend

Proposed Urban Block

City Boundary

River

N

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Conclusion

The most important general findings of the present research suggest that energy-efficient urban parcels can be achieved, with due observance of principles such as integrity, permeability, flexibility, design small lots and environmental and climatic design. This achievement directly affects their higher and lower levels. This achievement reduces the need for a car and boost pedestrianism, thereby reducing the environmental impact of fossil fuels, as well as reducing energy consumption in cities.

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Presentation Refrences

- Ali Soltani, 2016, **Urban Land Use Planning**, Shiraz University Press, First Ed
- V. Oikonomoua, F. Becchisb, L.Stegc, D. Russolillo, 2009, "Energy saving and energy efficiency concepts for policy making", **Energy Policy**, 37 : P 4787-4796.
- World Bank and Energy Sector Management Assistance Program, 2014, **Planning Energy Efficient and Livable Cities (Energy Efficient Cities)** , Mayoral Guidance, 6, the World Bank.

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Any Question?

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Thank You!

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