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# MORPHOLOGY AND URBAN DESIGN

new strategies for a changing society

## Self-organized peripheries in Mediterranean cities. Examples from Rome and Jerusalem

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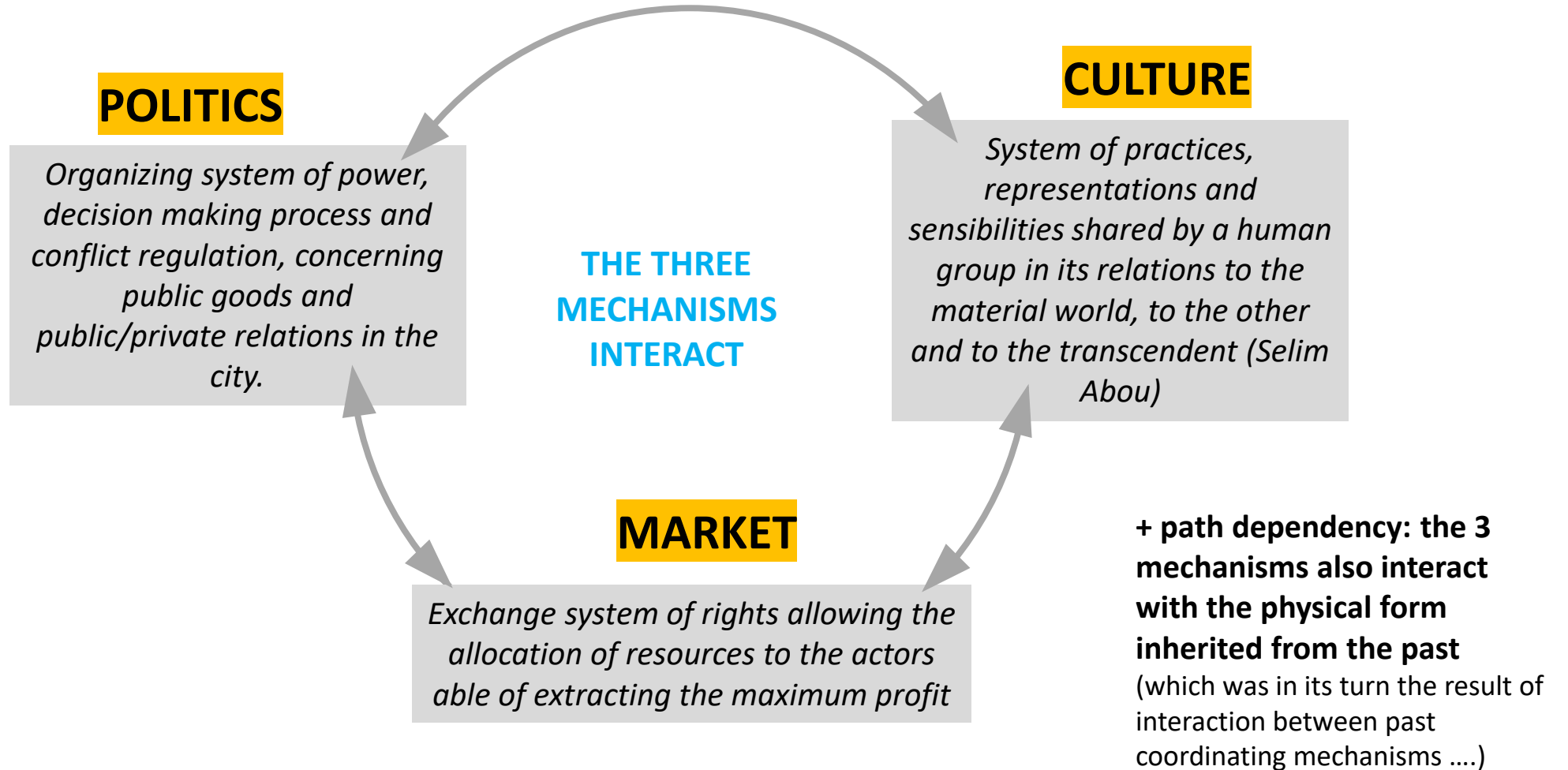


# Why it is interesting to study illegal self-organized systems?

Often described for their chaotic appearance, for their crucial lack of public space and public facilities, for the fact of being poorly integrated bedroom communities. However, ...

1. A witness of the ordinary relationship between inhabitants and the space
2. Provide us conclusions about inhabitants' needs, preferences, culture, and lifestyle
3. Reveal hidden methods for low-cost urban development and define factors that may affect the resulting urban structure
4. **HYPOTHESIS:** Could be representative of human scale approach
5. **HYPOTHESIS:** Could produce a more adaptive and complex system than controlled plans and projects... they need improving but they are capable of improving

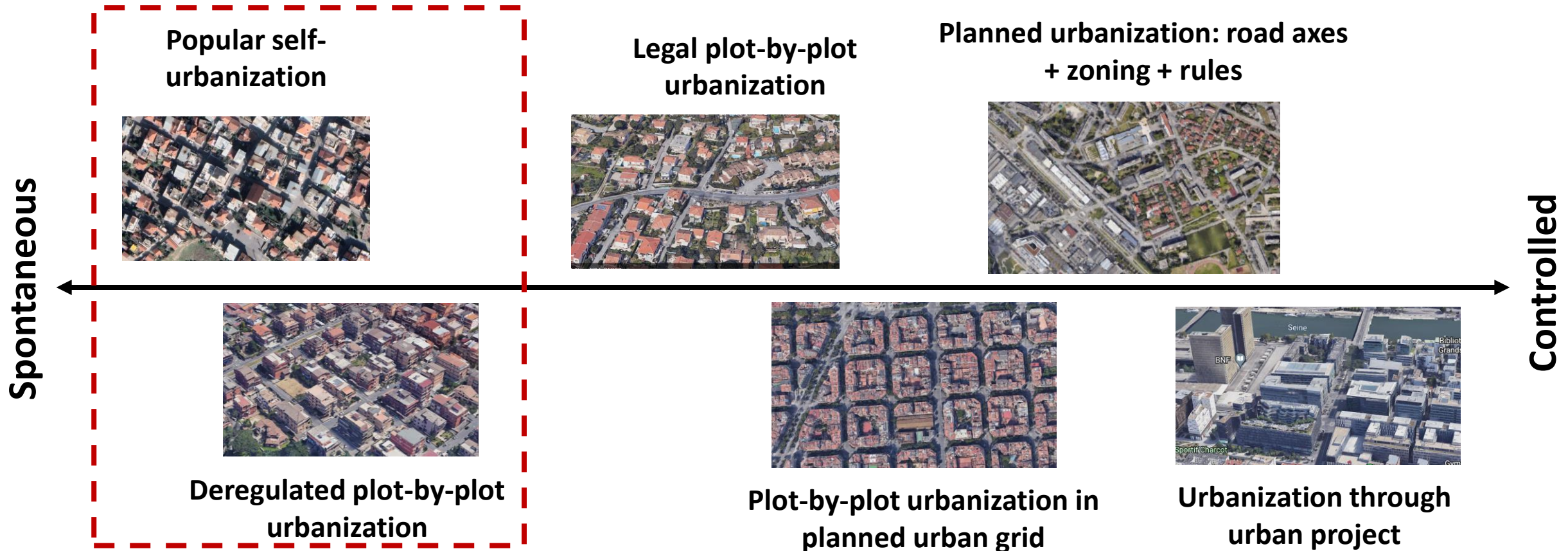
# Three mechanisms coordinate the actors who build the physical city



**Illegal/deregulated self-organization when market and culture are much stronger than politics and/or politics doesn't plan the physical city**

# The urbanization processes

The fabrication of the city (*fabrique urbaine*) = sociotechnical process of production of the physical city (Noisier, Roncayolo). Joint intervention of politics, market and culture. Spontaneous vs. controlled gradient is the relative importance of politics in it.

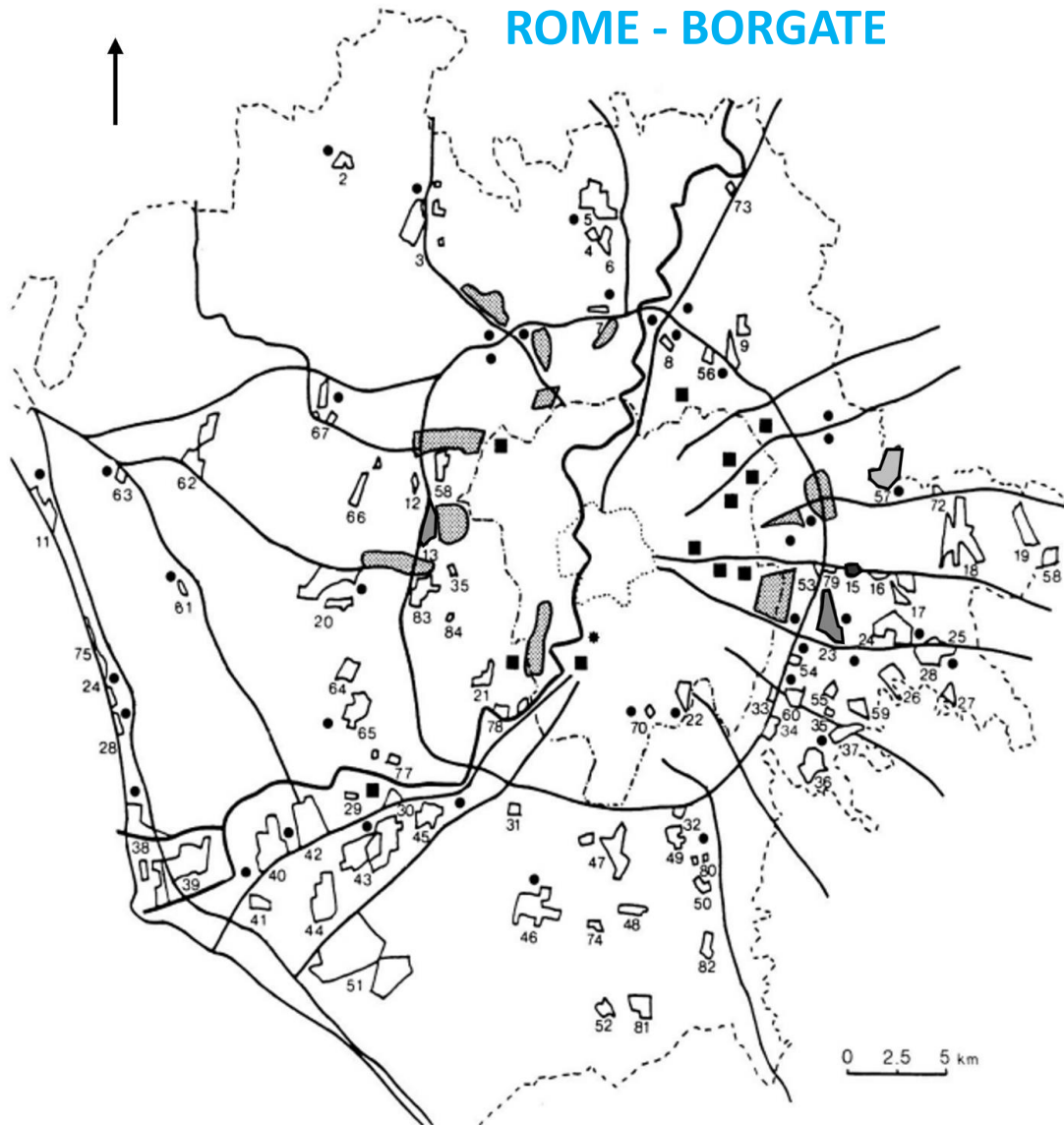


## Illegal self-organization

Schmid et al. 2018, *Towards a new vocabulary of urbanisation processes*

# Self-organized system in two different case studies

## ROME - BORGATE



## JERUSALEM – KUFR AQAB



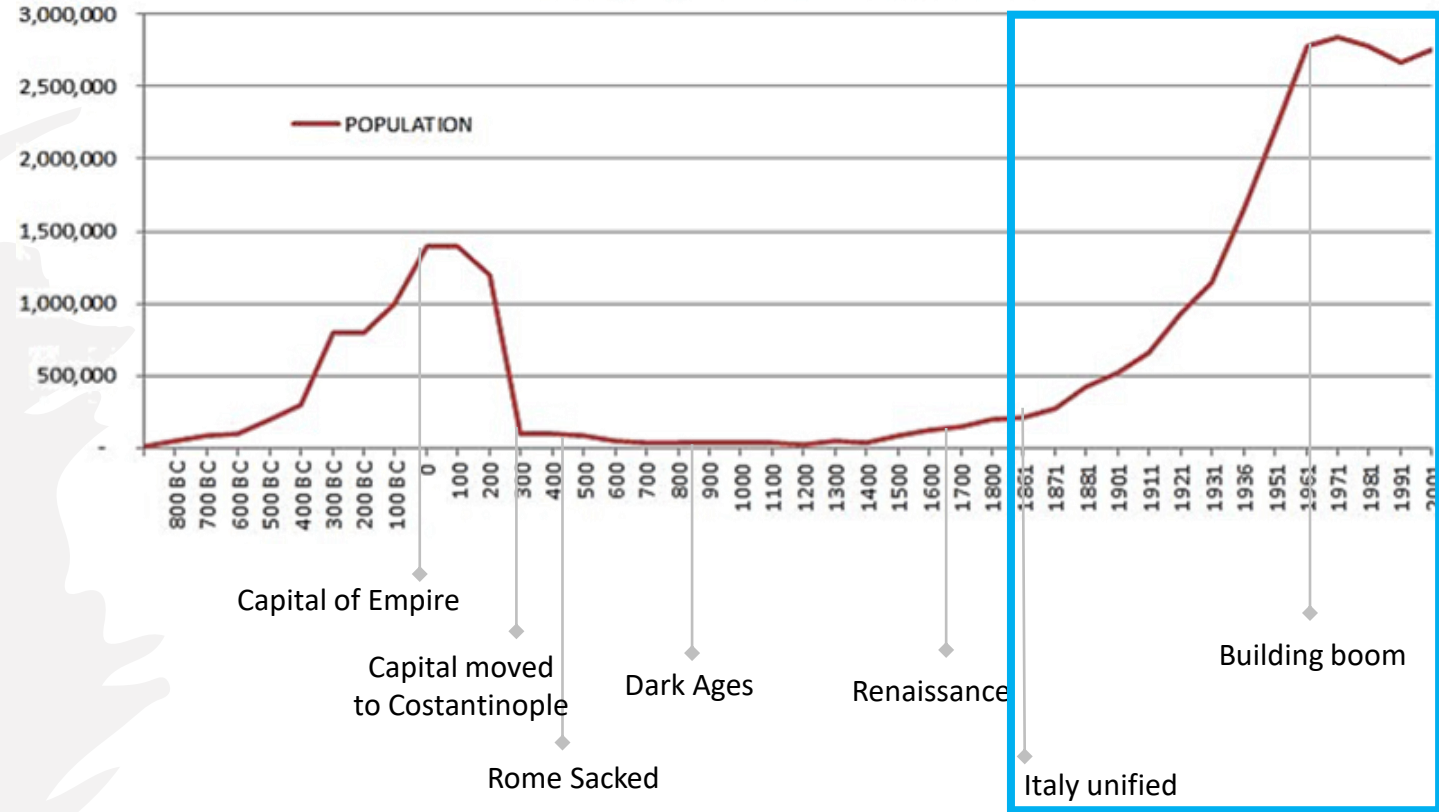
# The Case of Rome – Borgate

By the turn of the century, the city inside the walls had been completely built out, and the population was expanded greatly because of **the city's capital status**. The city began to spread outward. Enter Mussolini (1922-1944).



The city experienced a huge expansion that the municipality was unable to cope with, failing to provide land to meet future housing needs.

### POPULATION - CITY OF ROME



**Urban administrative districts in color. All other space is Agro Romano.**

Source: R. Comte, as part of a Study of City Structures, Masters in Urban Planning, University of Cincinnati  
<https://romabyrachel.weebly.com/the-timeline.html>

# The Case of Rome – Borgate

By the turn of the century, the city inside the walls had been completely built out, and the population was expanded greatly because of **the city's capital status**. The city began to spread outward. Enter Mussolini (1922-1944).

1950

The city experienced a huge expansion that the municipality was unable to cope with, failing to provide land to meet future housing needs.

1960

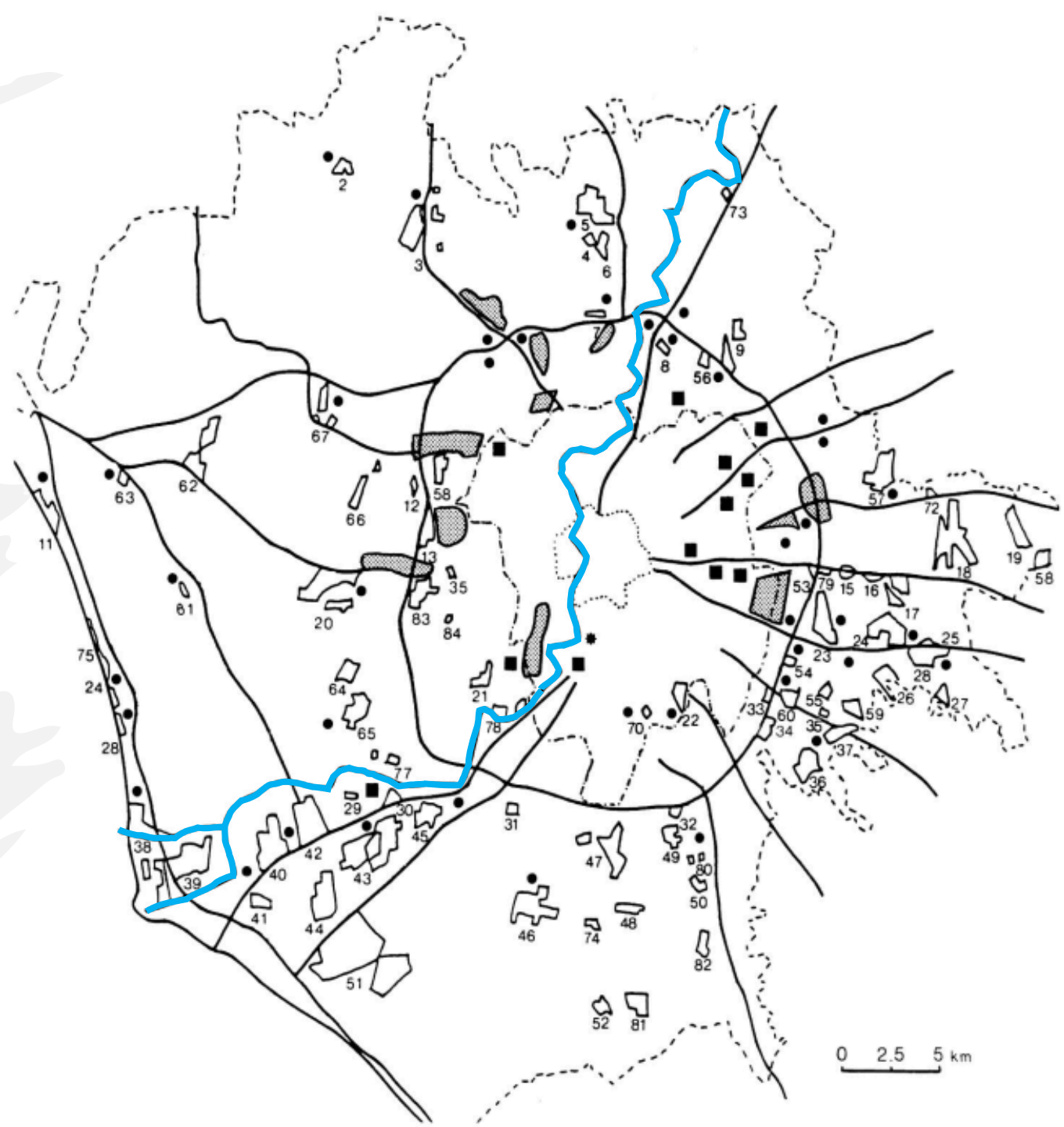
As a result, spontaneous “Irreducible neighborhoods” emerged in vacant lands, and poor families themselves built their neighborhoods within a self-organized approach taking the name of Borgate

1980

Borgate vague stopped due to the stability of Rome’s population, however, residents continued fighting for their services and essentials (access to water, gas, electricity, transport, and even citizenship recognition) with the government

1982 /  
1997

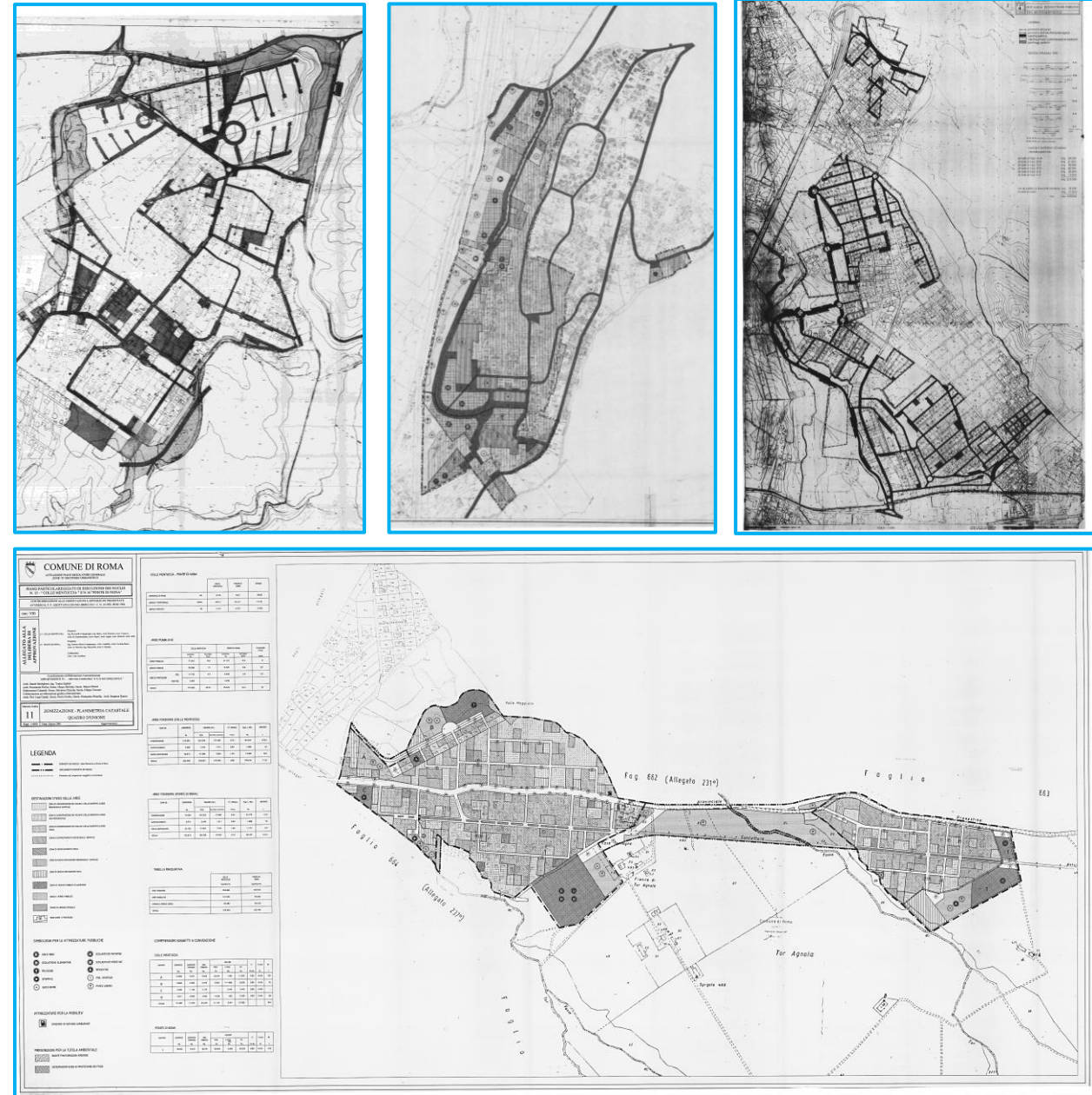
2022



# The Case of Rome – Borgate

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- 1950 ○ The city experienced a huge expansion that the municipality was unable to cope with, failing to provide land to meet future housing needs.
- 1960 ○ As a result, spontaneous “Irreducible neighborhoods” emerged in vacant lands, and poor families themselves built their neighborhoods within a self-organized approach taking the name of Borgate
- 1980 ○ Borgate vague stopped due to the stability of Rome’s population, however, residents continued fighting for their services and essentials (access to water, gas, electricity, transport, and even citizenship recognition) with the government
- 1982 / 1997 ○ The government accepted the official recognition of the district and its inhabitants as full citizens, enjoying the right to vote and to participate in political life.  
And provide them with the needed services through detailed top-down master plans
- 2022 ○ Borgate districts are part of Zone O in Rome, with a population of more than 400 000



Examples of the detailed master plans for Borgate areas (Colle Mentuccia, Valle della Piscina , MonteSpacatto, Case Rose )

Source: Roma Urbanistica - <http://www.urbanistica.comune.roma.it/zoneo/zoneo-elenco.html>



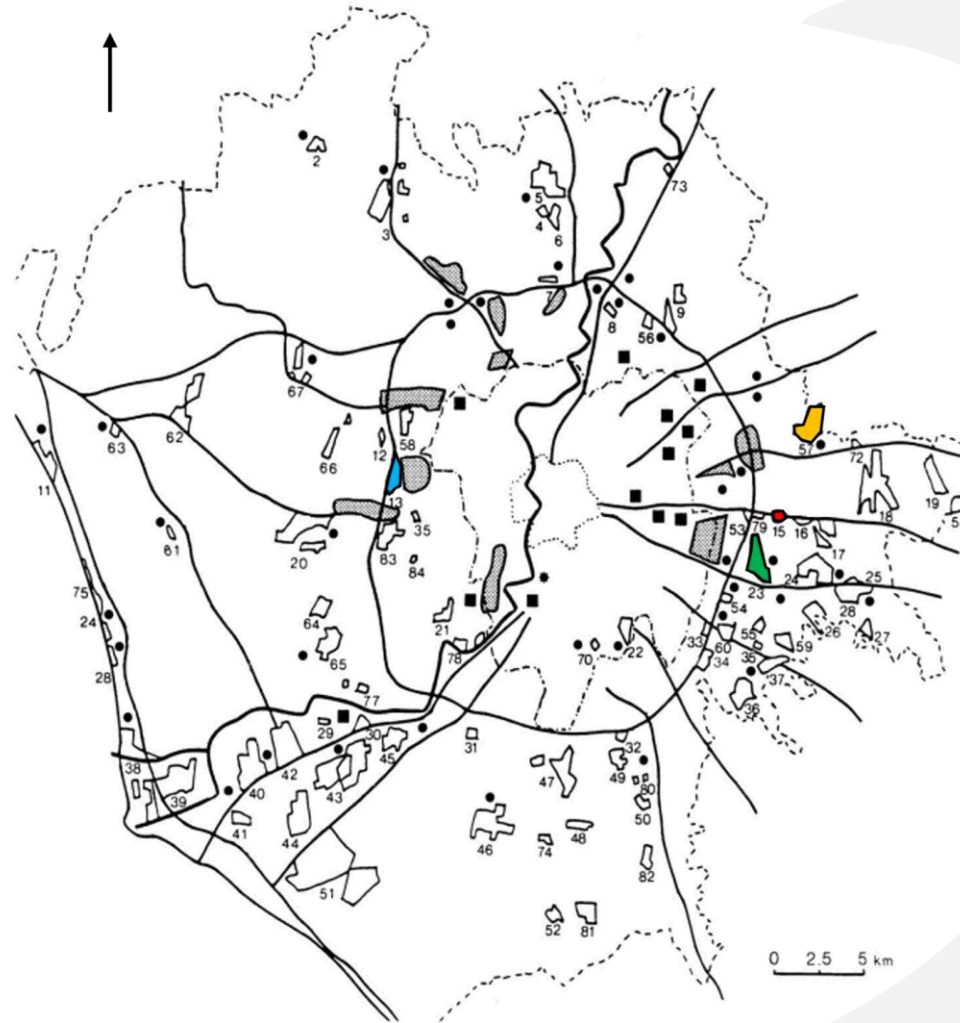
# The Case of Rome – Borgate

To better understand the Case of Rome, four examples are taken to better understand the self-organization process and the urban morphology of the area, these Borgate are as follows:

- Case Rosse
- Colle Mentuccia – Pedica di Tor'Angela
- Torre Angela  
(Valle della Piscina – Via Atlante – Via Coribanti)
- Montespaccato

However, why the previous four not others?  
To cover different scenarios for self-organized system, hence, the four examples have different:

1. Population and built-up area densities
2. Street networks and topography
3. History and development process
4. Building types
5. Proximity to major access to the city center
6. Proximity to attraction points.



- Far away from major roads.
- Experienced a gradual expansion of the built-up area
- Not fully saturated by buildings
- Most buildings range between single houses or 2-3 floors.

#### Case Rosse



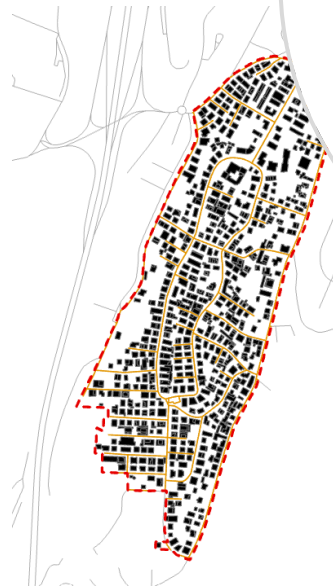
- On a major road (radial via Prenestina)
- Not fully saturated by buildings
- Most buildings 2-3 floors.

#### Colle Mentuccia - Pedica di Tor Angela



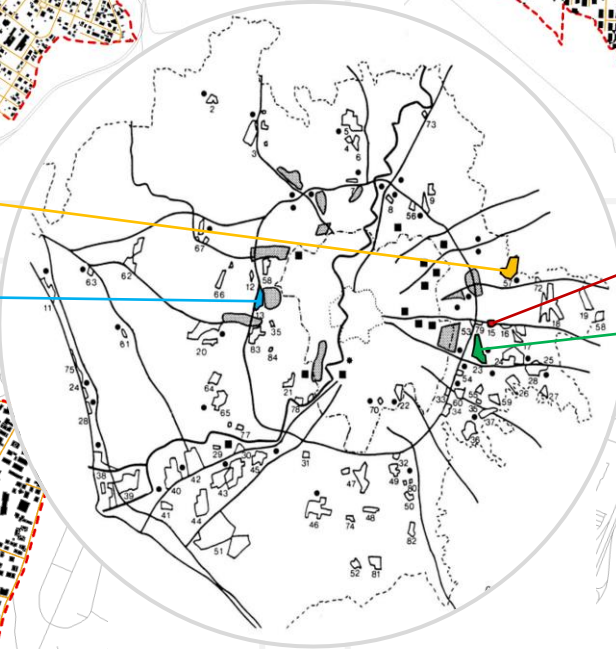
#### Montespaccato

- Close to major roads
- Could be considered as a continuation of the built-up area to the west side of Vatican City
- Street network: organic with topography + grid system
- Semi-saturated by buildings
- Most buildings range between (3 – 5) floors



#### Valle della Piscina

- Close to major roads (Prenestina, Casilina)
- Close to attraction point (industrial zone to the west side)
- Fully saturated by buildings
- Most buildings range between (3 – 5) floors





## The Case of Jerusalem – Kufr Aqab

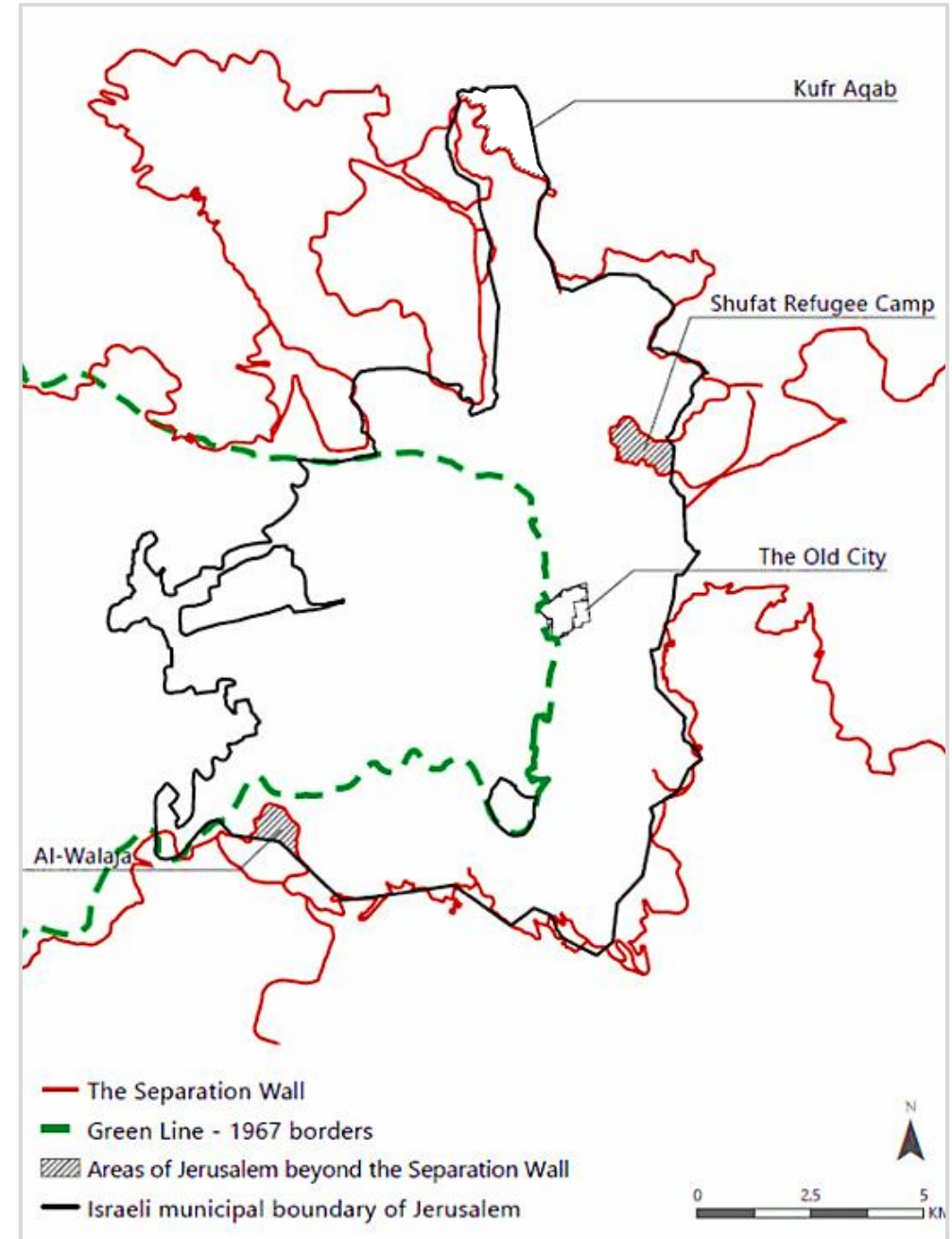
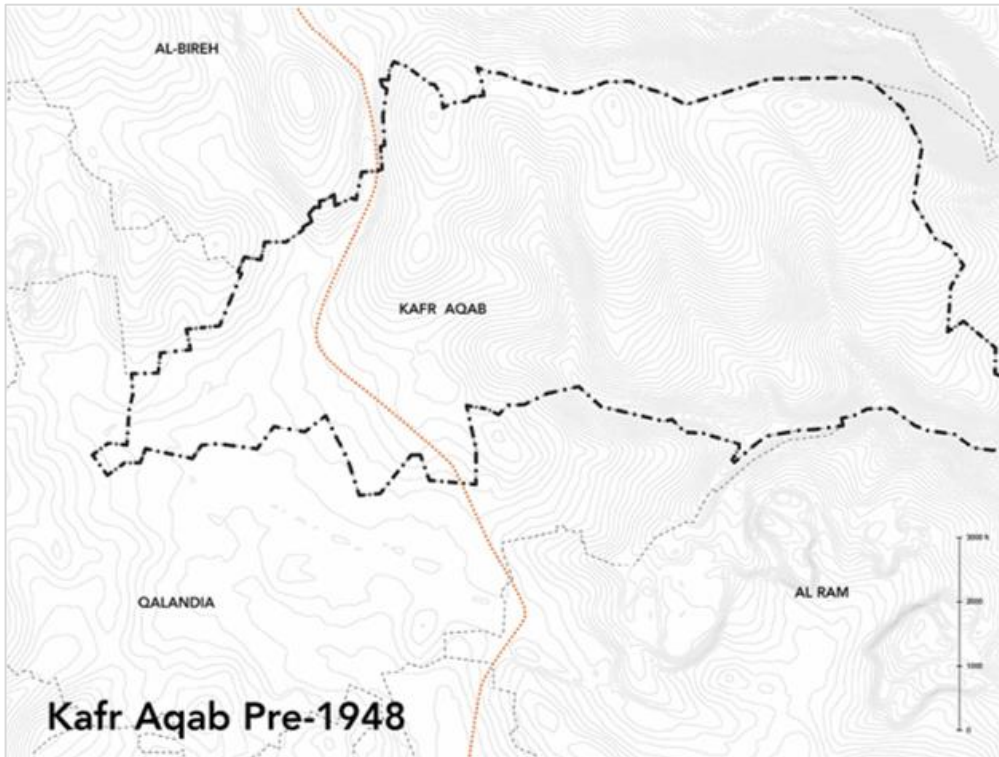
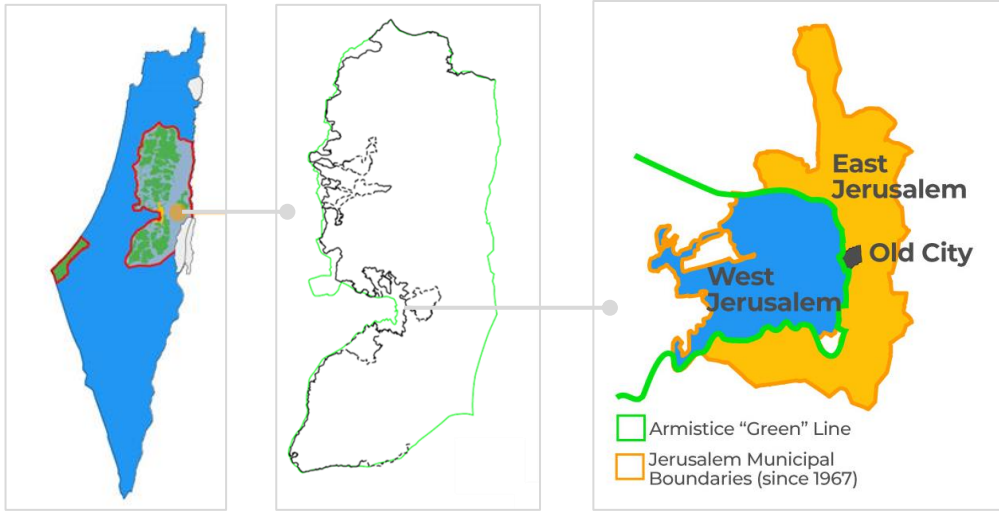
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- Before going through the Case of Jerusalem, It is important to understand the political situation and the main derivatives that induced the current urban morphology in the Area.



# The Political Situation in Palestine

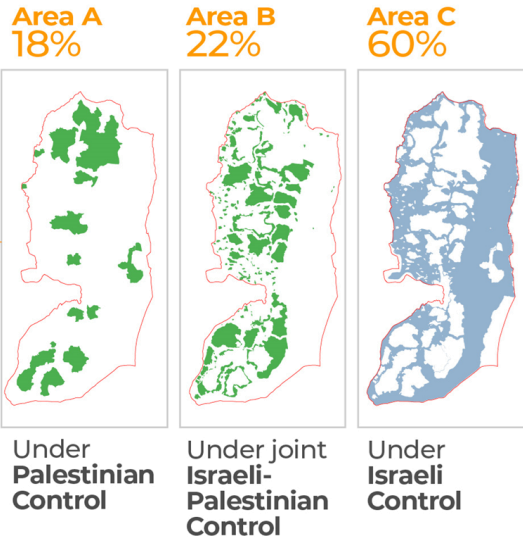
The Case of  
Jerusalem – Kufr  
Aqab





# The Case of Jerusalem

----- Kufr Aqab

## Area Political Classification



## Israeli IDs System

- West Bank ID  Following the annexation of East Jerusalem in 1967, Israel devised a color-coded ID system issued by the
- Jerusalem + Mixed ID  Israeli military and reinforced in 1981 through its Civil Administration branch.



Ramallah and Northern West Bank Cites

Qalandiya Checkpoint



Checkpoints: 140



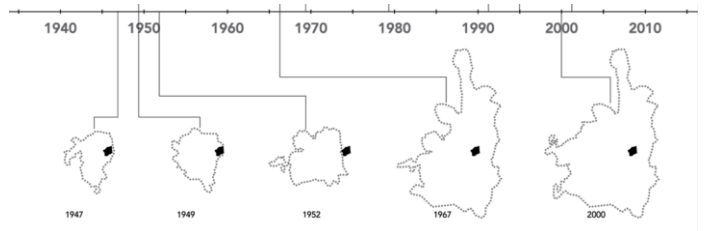
Separation and Annexation Wall



Up to 8m  
700km

Jerusalem

Jerusalem City Boundary



Ramallah and Northern West Bank Cites

Qalandiya Checkpoint



Checkpoints: 140



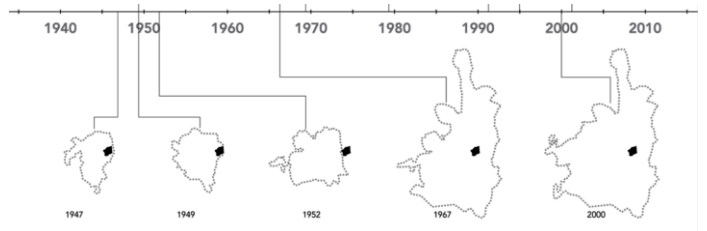
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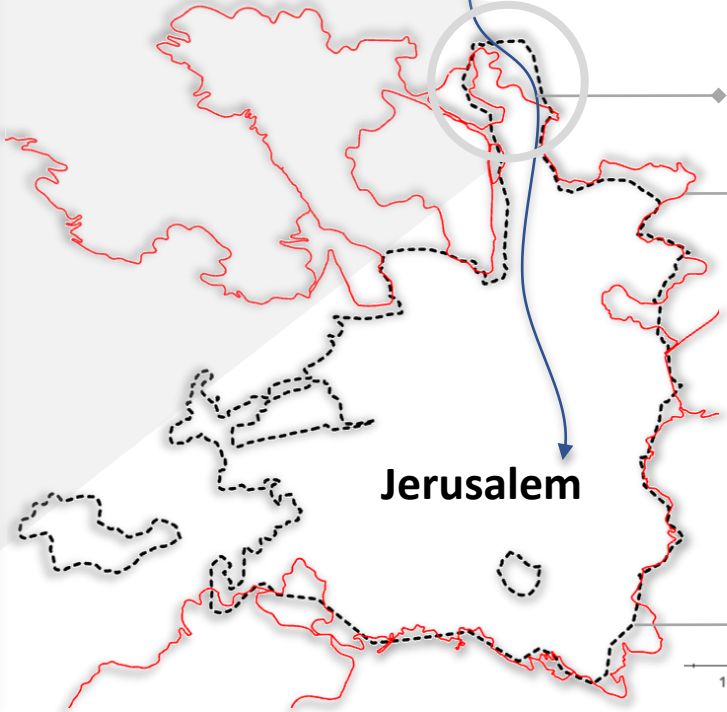
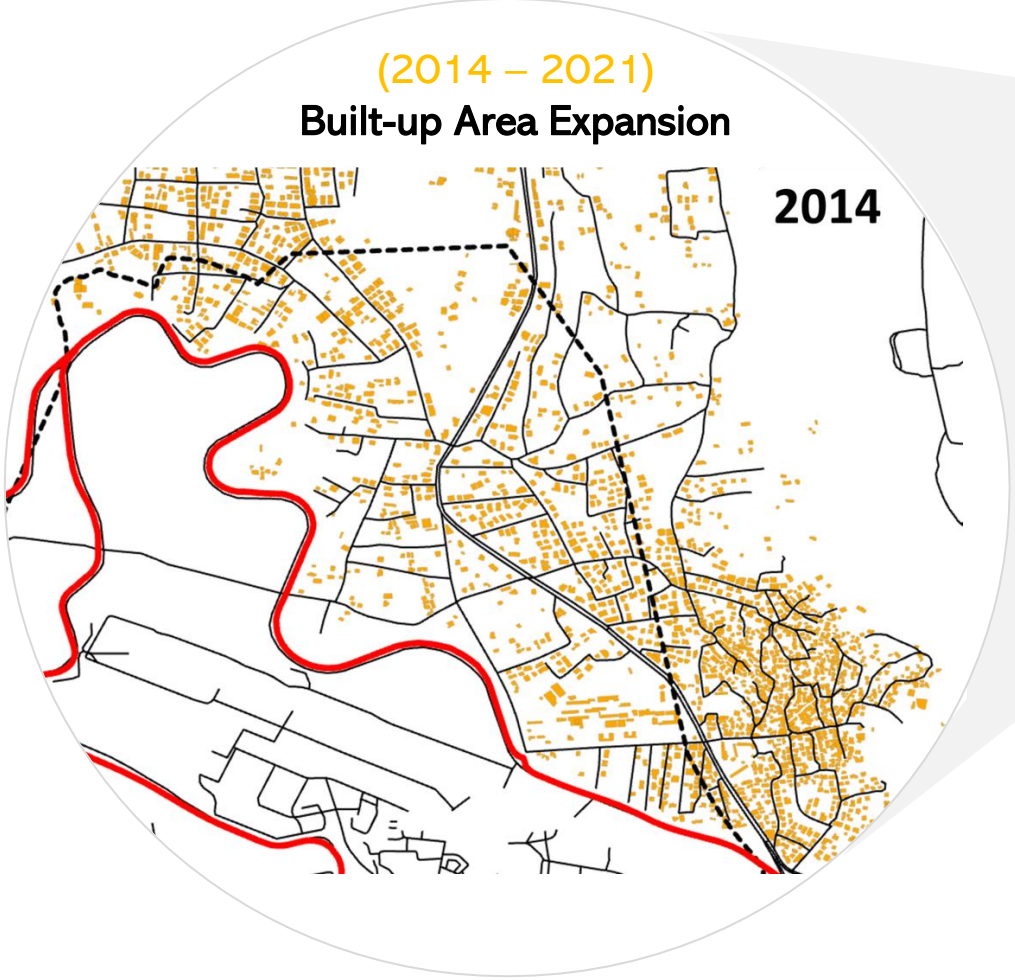
Jerusalem

Jerusalem City Boundary



(2014 - 2021)  
Built-up Area Expansion

2014



Ramallah and Northern West Bank Cites

Qalandiya Checkpoint

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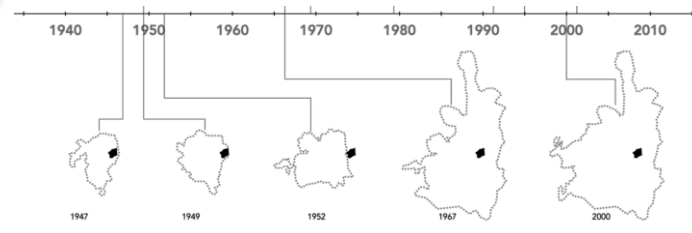


Separation and Annexation Wall

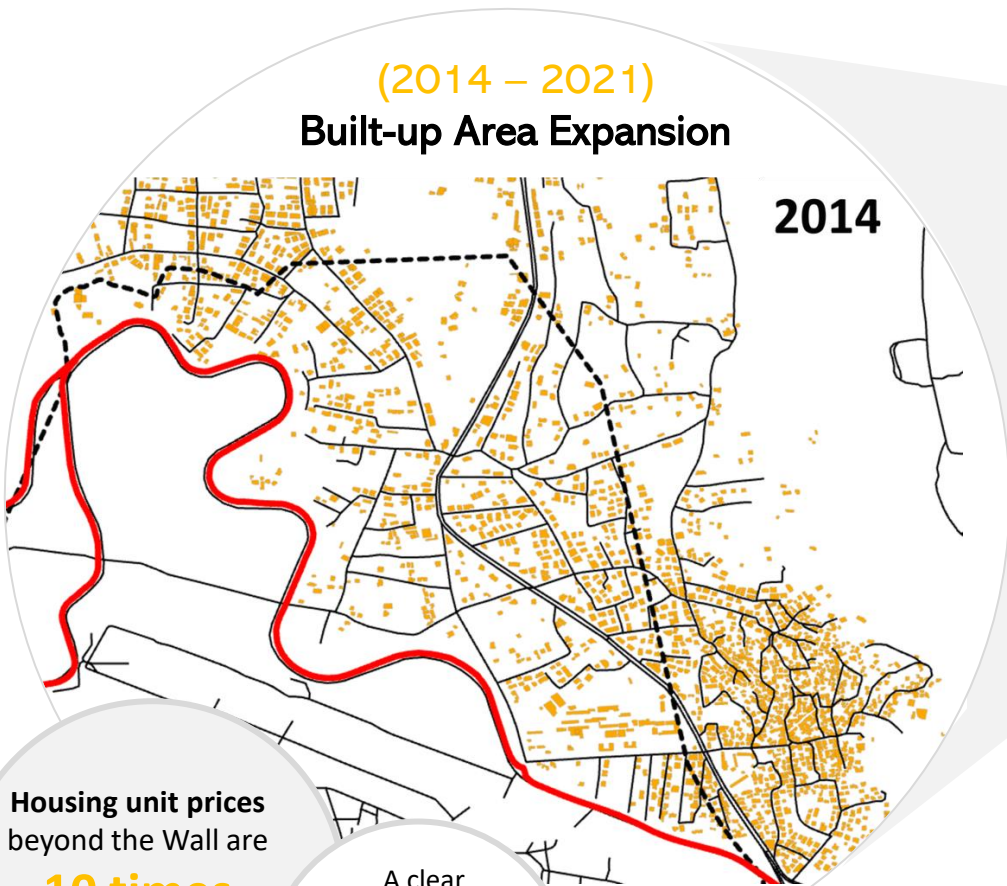


Jerusalem

Jerusalem City Boundary



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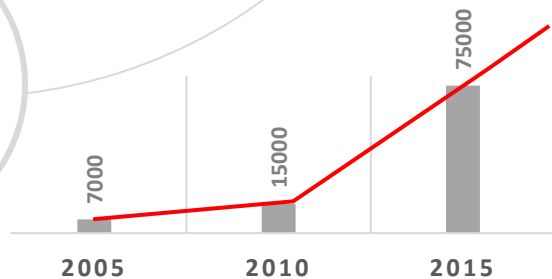
2014

Housing unit prices beyond the Wall are

**10 times**

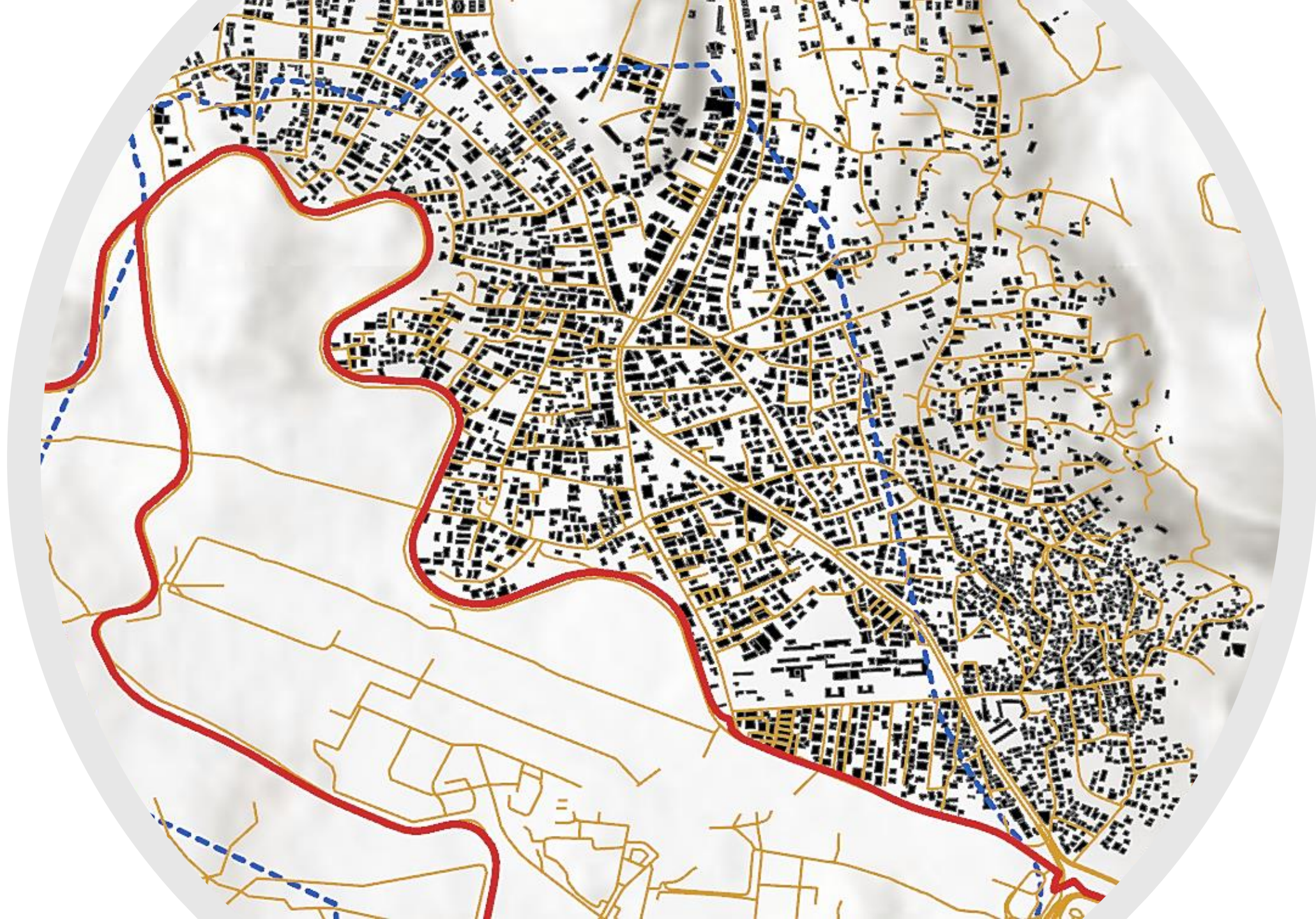
cheaper than other municipality neighborhoods

A clear movement from central to peripheral neighborhoods beyond the Wall



Kufur Aqab Demography









- High demanded area (within Jerusalem City boundary )
- Fully saturated with buildings 5-15 storeys
- Close to the major road
- A mix between old and new built-up



- High demanded area (within Jerusalem City boundary )
- Not saturated by building however, lately, it experiences a high construction
- Totally new buildings (for tenant purpose)
- A remarkable plot system.

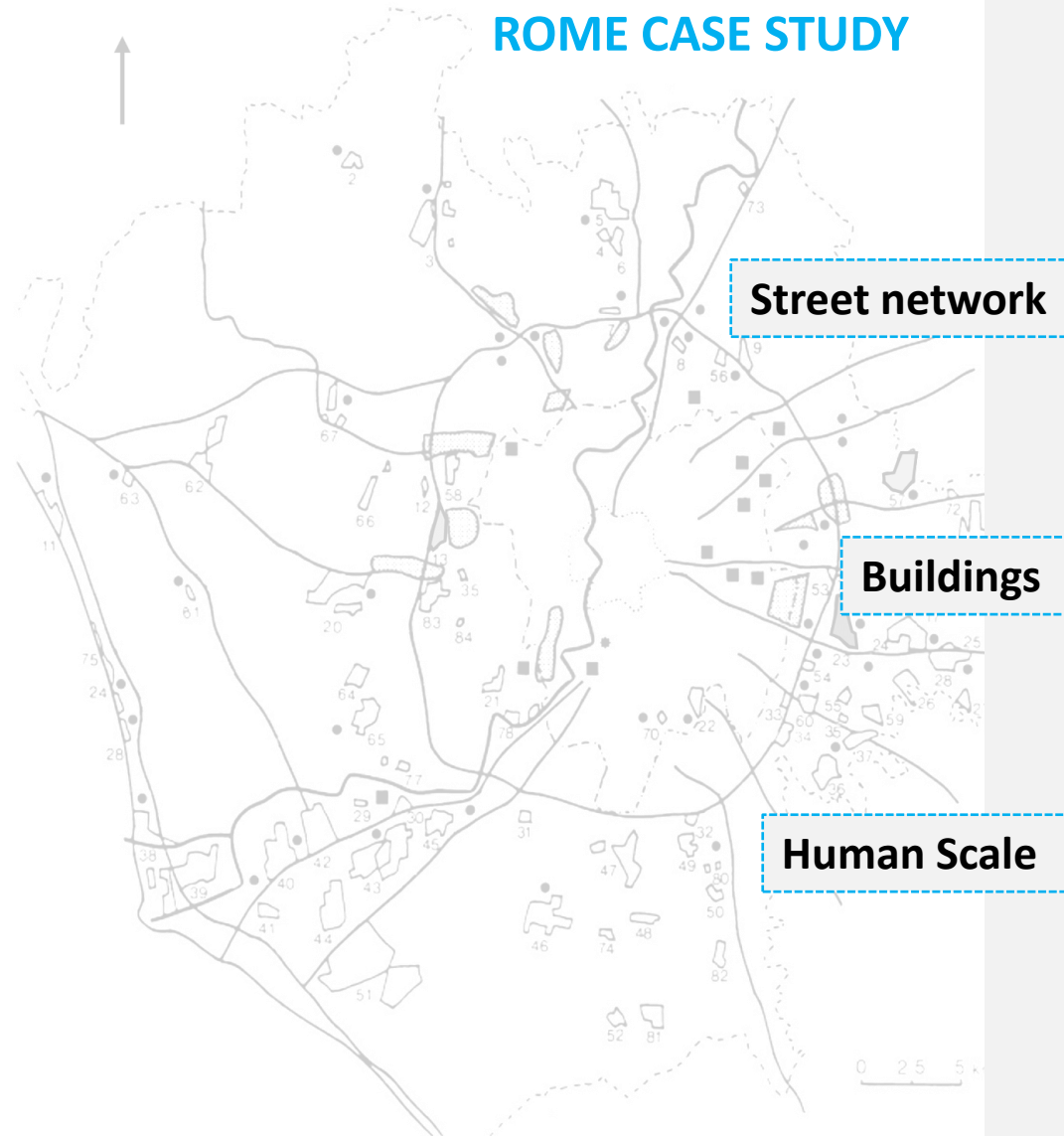


- Low demanded area
- Not saturated by building
- Most of the built-up area is single or two to three floors
- No Investment in high rise building

**Urban Morphology analysis  
for both case studies based on:**

**ROME CASE STUDY**

**JERUSALEM CASE STUDY**



**1**

**Urban development process**

**2**

**Street network**

**3**

**Plot and parcel**

**4**

**Buildings**

**5**

**Public spaces and green areas**

**6**

**Human Scale**

**7**

**Urban transect**

# URBAN DEVELOPMENT PROCESS

## ROME CASE STUDY

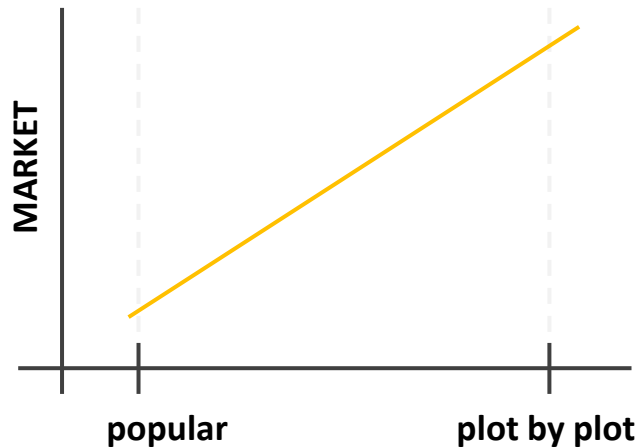
## JERUSALEM CASE STUDY

All case studies fell under or between **Popular Urbanism** and **Plot By Plot Urbanism**

Based on comparative analysis,  
we can conclude that the

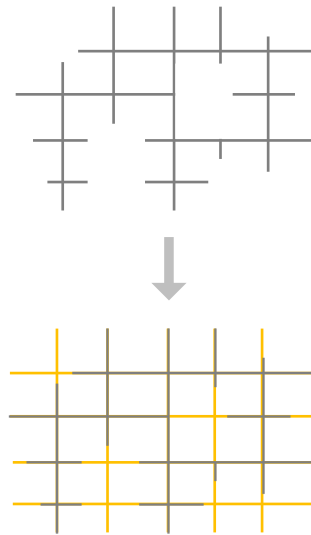
### MARKET

(Housing Demand / Existence of attraction points)  
is a key factor in moving from  
one phase to another



This urban change could happen  
through changes in:

### 1. Street network:

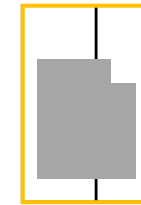


More interconnected  
street network through  
more junctions and less  
cul de sac.

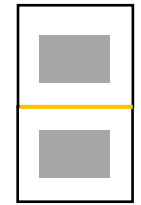
### 2. Plots:



In fill (building in  
the empty space  
within the plot)

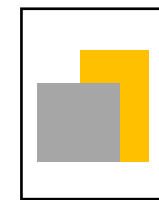


Merge (to create  
bigger plots for  
bigger projects)

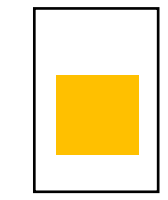
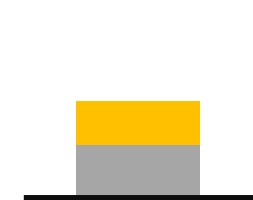


Divided (to allow  
building another  
separate building)

### 3. Buildings may face an ADAPTATION process:



Additive process (building new  
floor/ extension on the same  
building)



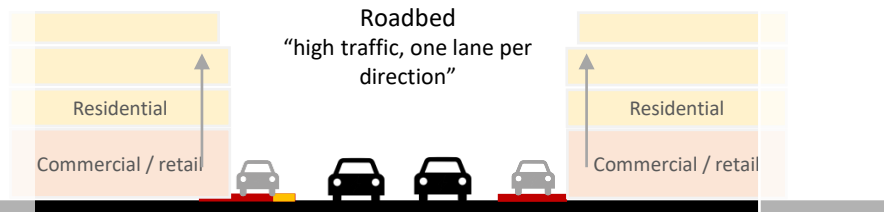
Transformation  
(ruin one to build  
another)

## ROME CASE STUDY



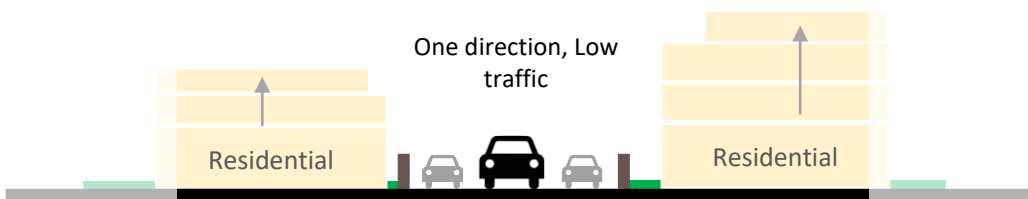
*Large plots and single ownership, allow grid and uniform street network*

Maximize profit, and suitable for flat topography



Roadbed  
"high traffic, one lane per direction"

**Sidewalk:** Narrow, dangerous, in a bad condition, not suitable for a major road"  
Notice that there is no/ slight sidewalks or any kind of street furniture for pedestrian



One direction, Low traffic

**no parking lots , No sidewalks, one-way street**  
Multi stores, high density, and residential use

## STREET NETWORK

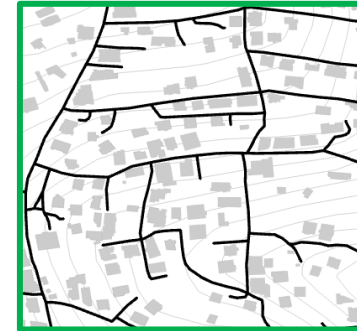
### System Layout

**Key factors:**  
Topography  
Plot ownership  
Plot size  
Market

### Major Roads

### Minor Roads

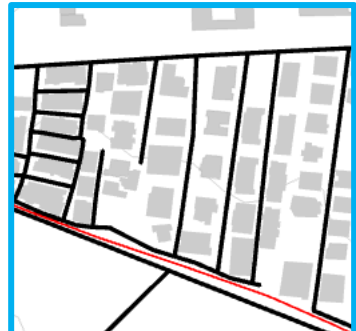
## JERUSALEM CASE STUDY



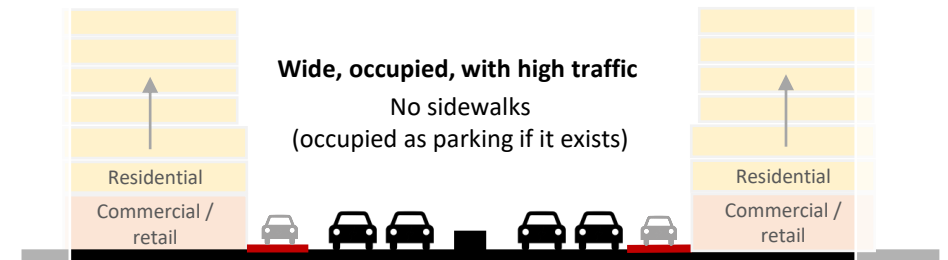
Natural expansion by inhabitants



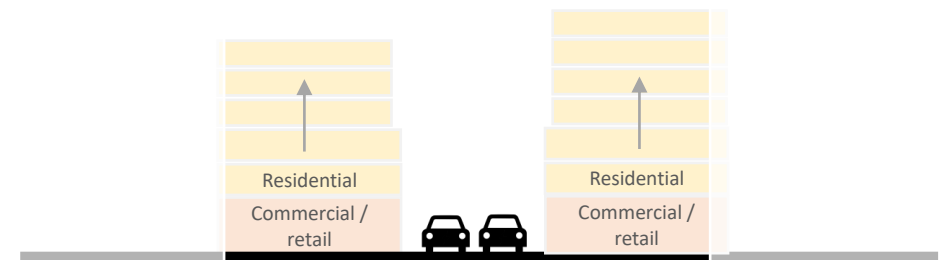
Mixed  
**Natural expansion + high demanded areas**



Areas with high housing demand



**Wide, occupied, with high traffic**  
No sidewalks  
(occupied as parking if it exists)



**no parking lots , No sidewalks, narrow street**

### Notice:

In both cases street networks have a pedestrian scale (block size, street width) but overwhelming presence of cars (traffic and parking)

## ROME CASE STUDY



A small number of owners and big plots allow systematic division (grid system) → to produce the street network, and then buildings are distributed.

Some Borgate follows **popular urbanism** such as “Case Rosse”, *Medium-Low occupancy rate* others **plot by plot** such as “Valle della Piscina”, a *high occupancy rate of the land*.

**Hypothesis** : all Borgate had a **1st development** cycle of individual houses in large plots as a result of popular self-urbanism (1950s, 1960s). The best connected experienced an **adaptive redevelopment** through market-led plot-by-plot urbanism (1970s, 1980s).

The change from one to another is based on the demand or the existence of attraction points

## PLOTS

Size and shape

Ownership

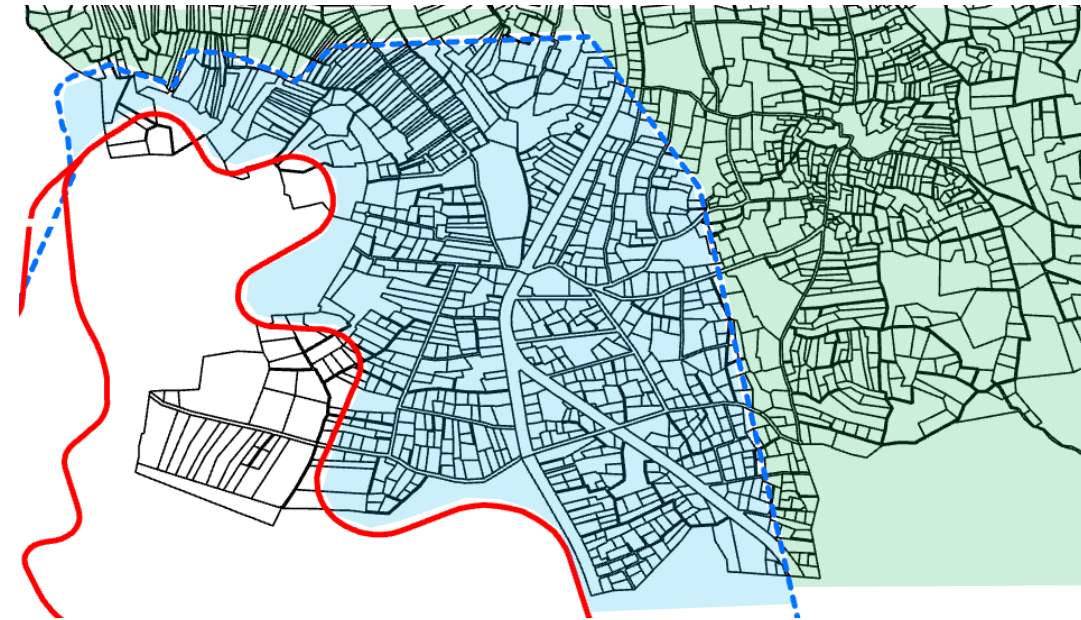
Occupancy rate

### Notice:

Key factors for the urban form in a self-organized system are:

- Plot size and ownership
- Market (supply and demand)

## JERUSALEM CASE STUDY



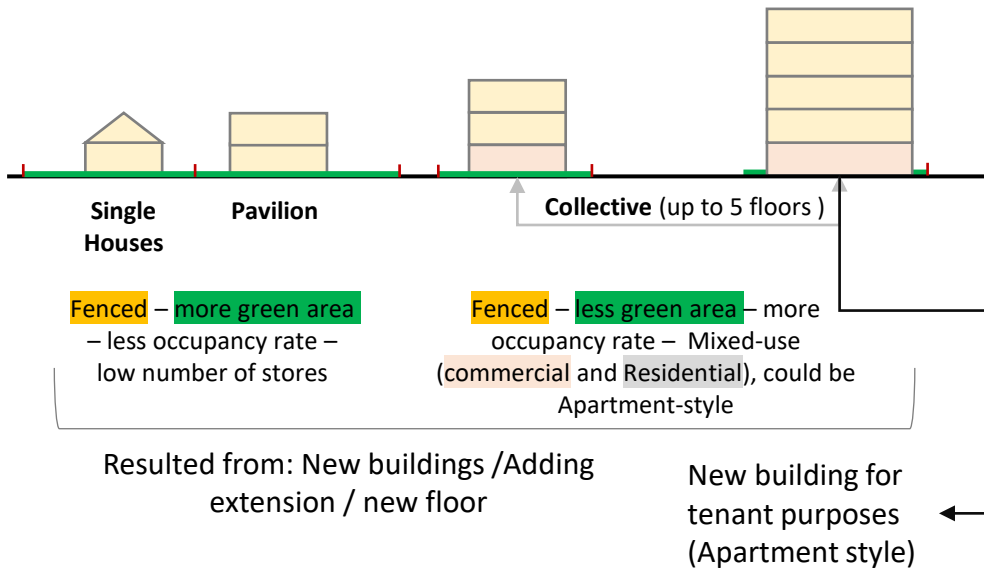
Different owners, and relatively small plots → shape the street network, and then buildings were distributed in two different ways:

- In **low demanded areas**: **popular urbanism** with single houses each plot, and with 1-2-3 floors
- In **high demand areas**: it follows a **plot by plot urbanism**, it might need to merge small plots to have bigger ones, investing in high rise buildings to respond to the housing demand

**Relatively low Occupancy rate**

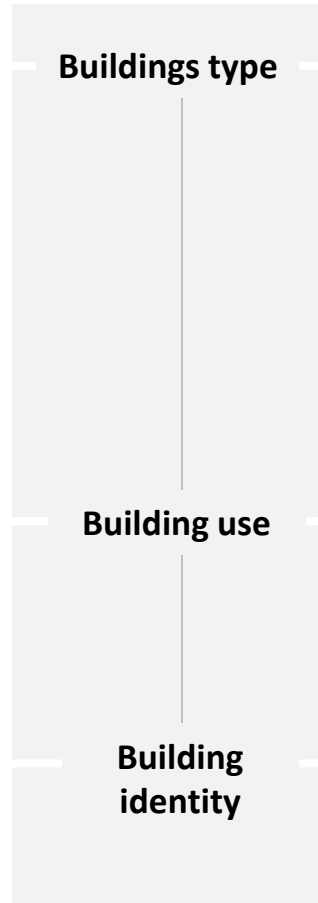
**High Occupancy rate**

## ROME CASE STUDY

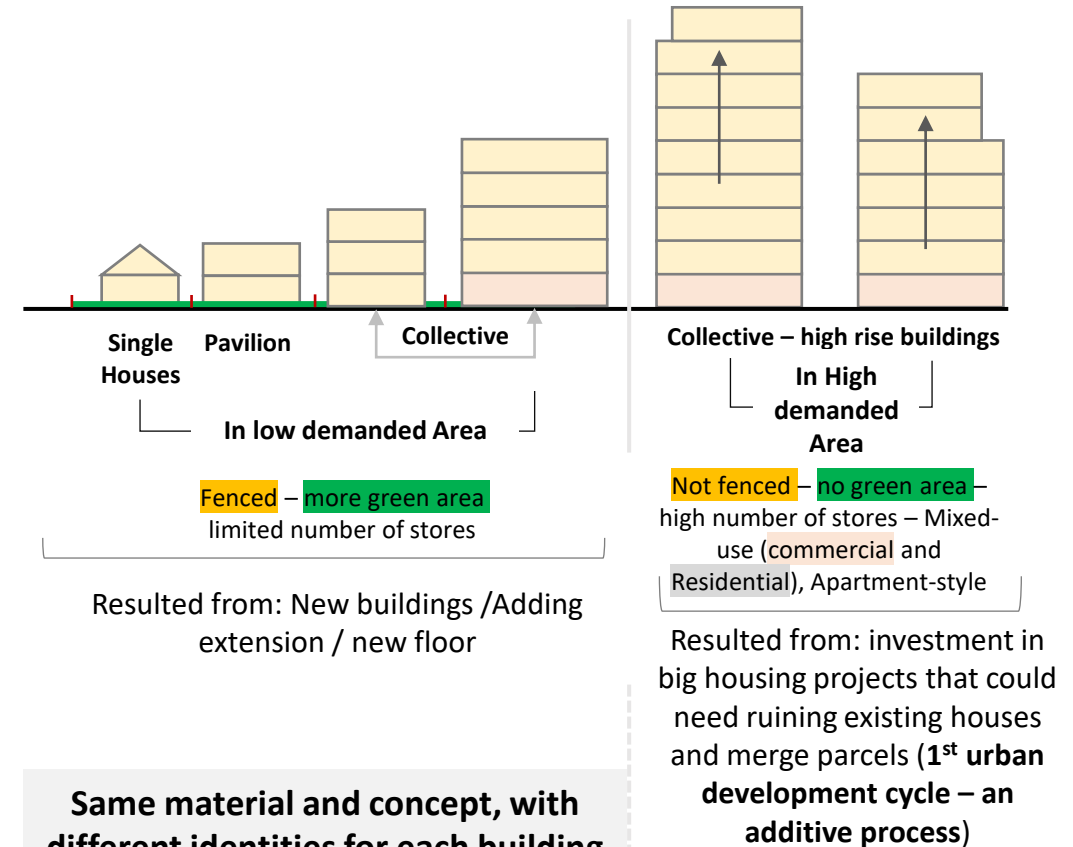


Using the same material, and concept, with different identities for each building

## BUILDINGS



## JERUSALEM CASE STUDY



Same material and concept, with different identities for each building

### Copy-paste huge buildings

Less expensive, done by investors

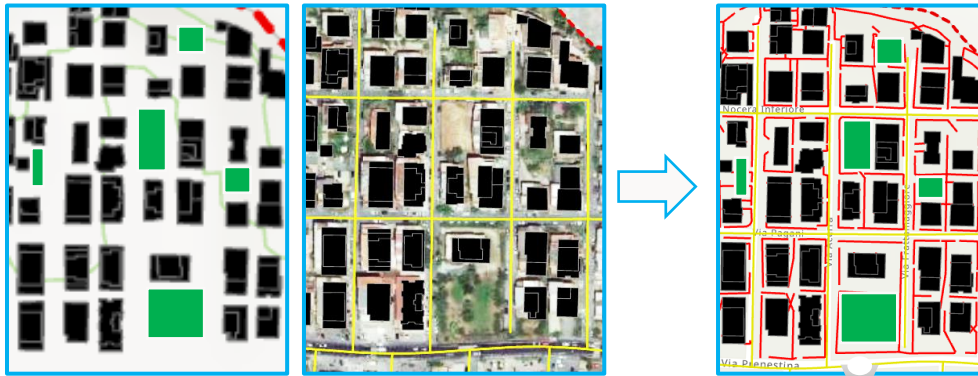
### Notice from the Previous:

- **Housing Market (supply and demand)** → more apartments in huge buildings and fewer single houses
- **Land scarcity** → High land prices, more occupancy rate, “fill in” development, and vertical expansion
- **No fines, regulations, monitoring** → not following safety building requirements
- **Inhabitants** → Homogeneous: notice identity, neighboring respect, and public benefit  
→ Heterogeneous: private and selfish benefit, less identity, and neighboring norms

In both cases development of a mix of building use (which, at least in Rome, was not present at the very beginning)



## ROME CASE STUDY



**Assumption:** plenty of green and public areas in the neighborhood

**In Fact, they are private areas that could be:**

- Abandoned parcels,
- Fenced private plots
- Under construction areas,
- An extension for a house.



## PUBLIC AND GREEN AREAS

### Notice

*Inhabitants tend to forget about public and green areas for the public benefit,*

*Instead, street junctions and private gardens are more common*

*(unless there is a high demand on the land)*

## JERUSALEM CASE STUDY

- High demanded area:



No open or green spaces, as it is almost saturated by investors' greed

- Low demanded area:



There are private empty spaces, that could serve – temporarily- as open and green areas.

### BEFORE

Private garden was essential in the house

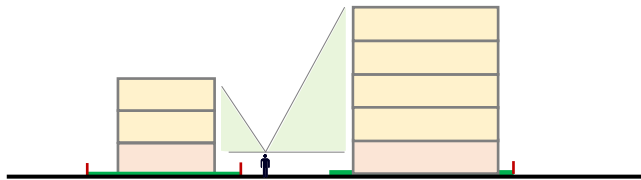
Public areas was always existed as a result of street junctions/ empty lands / and "empty parking"

### NOWADAYS

Parking became much more important than the private garden

## ROME CASE STUDY

Walkable, however there is a high dependency on car

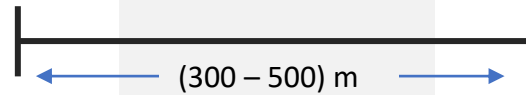


- Good feeling of enclosure
- No need for technology

All borgate were bedroom communities (commuter towns) at the beginning : the autonomous development of retail activities + the programmed introduction of some public equipments (schools, social services) in the 1980s and 1990s made them more mixed at the neighborhood scale.

## HUMAN SCALE

**Walkability**  
Walkable distance on Foot



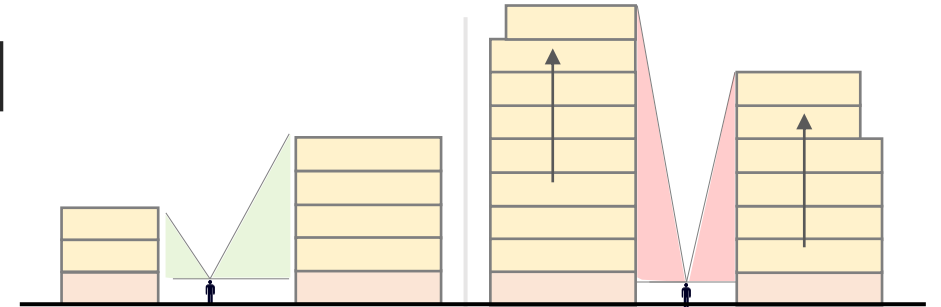
**Enclosure**

**Life between Buildings.**

Activities on street, within public and green areas

## JERUSALEM CASE STUDY

Walkable, however there is a high dependency on car



- Good feeling of enclosure
- No need for technology
- Bad feeling of enclosure
- Need technology to make activities

- Mix-use, activities in the ground floor  
In which it create a specific street life, even if it is not planned to be

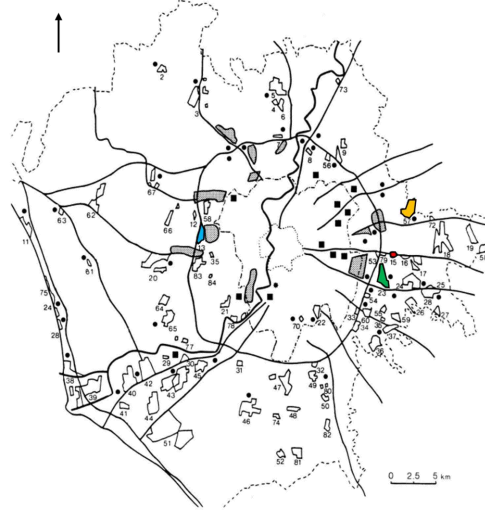
## ROME CASE STUDY

## URBAN TRANSECT

## JERUSALEM CASE STUDY

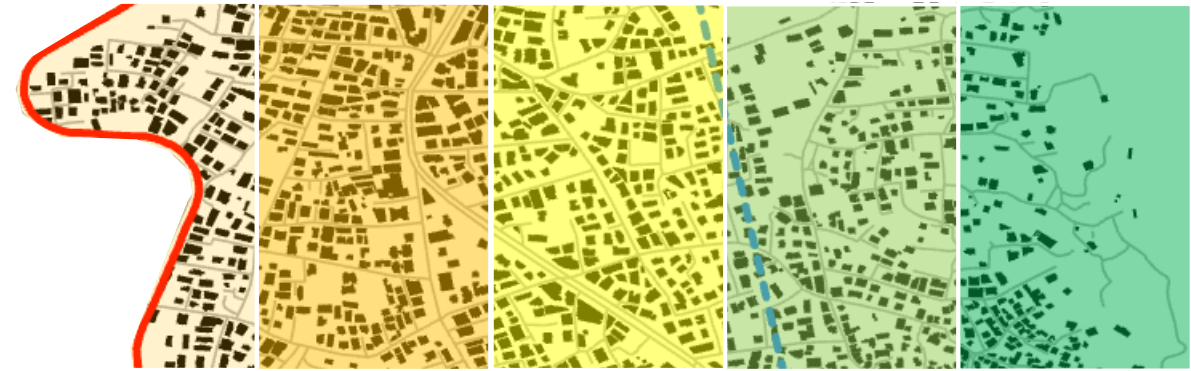
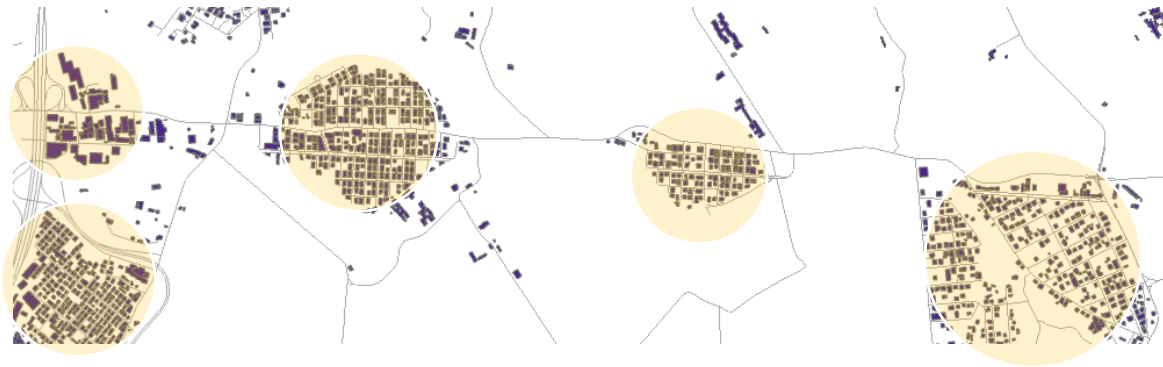
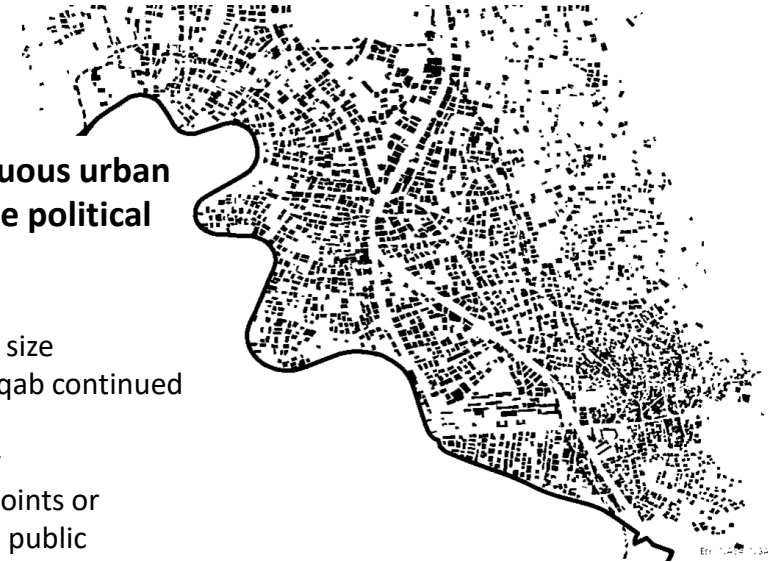
### Defined neighborhoods due to:

- Land ownership and size
- Population in Rome stopped by the end of the nineties
- Away from attraction points or facilities such as fast public transportation)
- Surrounded by agricultural land (could be conserved by the government)
- The new trend of compact city



### Gradual and continuous urban transect, despite the political limitation, due to:

- Land ownership and size
- Population in Kufr Aqab continued growing
- Less land availability
- Close to attraction points or facilities such as fast public transportation)



Neither continuous nor gradual Urban Transect

←----- Higher Density -----> Lower Density

# PRIMARY CONCLUSIONS

Both are self-organized systems, with the same factors (built by inhabitants or by small developers in response to inhabitants' most urgent needs, no regulations) However, the two case studies are different based on the housing demand, land availability constraints (extremely strong in Jerusalem)

As a result, different urban forms resulted, and in both systems they are complex. Why?

- ***They avoid the simplified forms and functional specialization of most planned projects***

- ***They started as extremely low-cost urbanization but have been able to adapt incrementally over time***

- ***They are the epitome of the growth of the ordinary city through the incremental mechanisms of typomorphological adaptation (Muratori)***

0 2.5 5 km

# HOWEVER,

the question is, to what extent this complexity can be used to further adapt the neighborhoods to improve inhabitants' satisfaction?

Some public intervention was needed in the course of time... how to integrate it from the very beginning ? Today's challenges appear different in Rome and Jerusalem: connect scattered towns vs. channel and improve sustained urbanization.





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# MORPHOLOGY AND URBAN DESIGN

new strategies for a changing society

# Thank you for your attention,

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