



Urban Morphology of the City of Tshwane

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Introduction

- Comparative typology analysis between various areas in the City of Tshwane and International Examples

Scale of analysis:

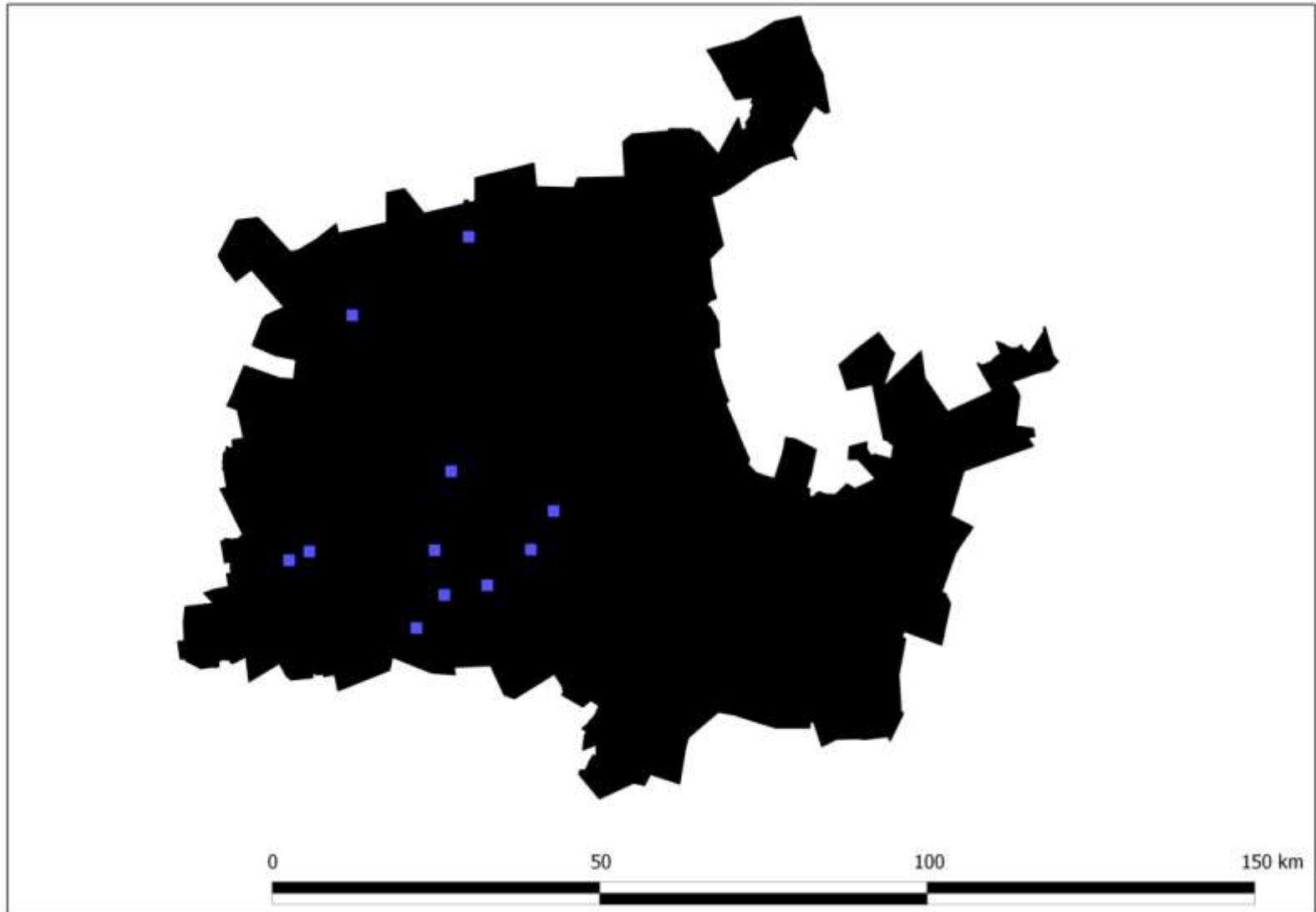
- 1600m X 1600m (1 square mile)
- 800m X 800m
- Block and Building interface

Morphological Typology in the City of Tshwane

Case study areas

- Inner city of Pretoria Tshwane
 - Grid model
 - Fine grain grid
- Suburban
 - Classic Open
 - Enclosed and Gated communities
- Township
 - Informal
 - “RDP”
- Rural

Case study Areas



1 square mile selection



Woodhill



Brooklyn



Atteridgeville



Hammanskraal



CDB



Zambezi



Irene



Mamelodi



Ahmedabad: 2700 intersections

Hammanskraal



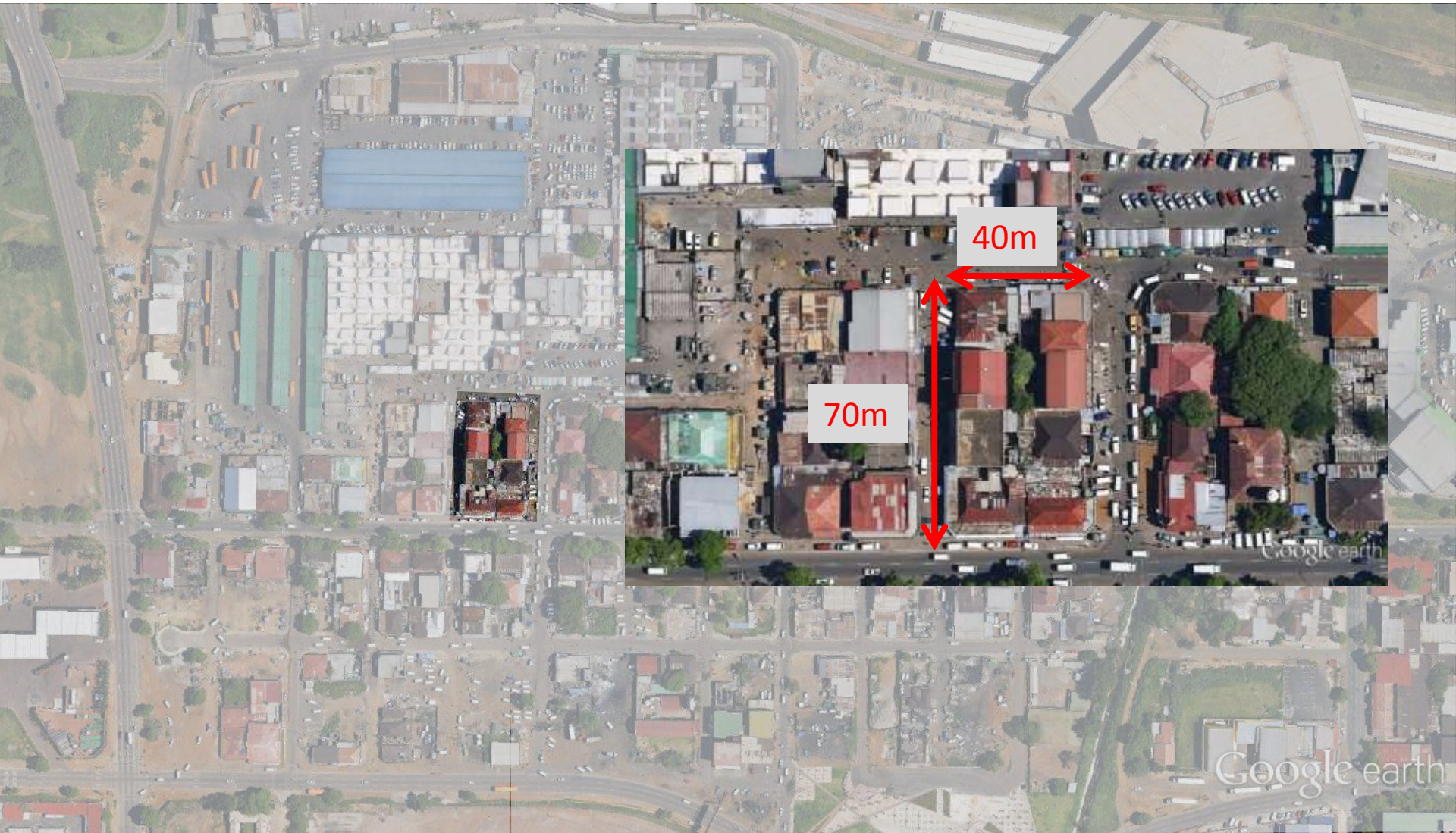
Ahmedabad: 2700 intersections



Mamelodi



Marabastad

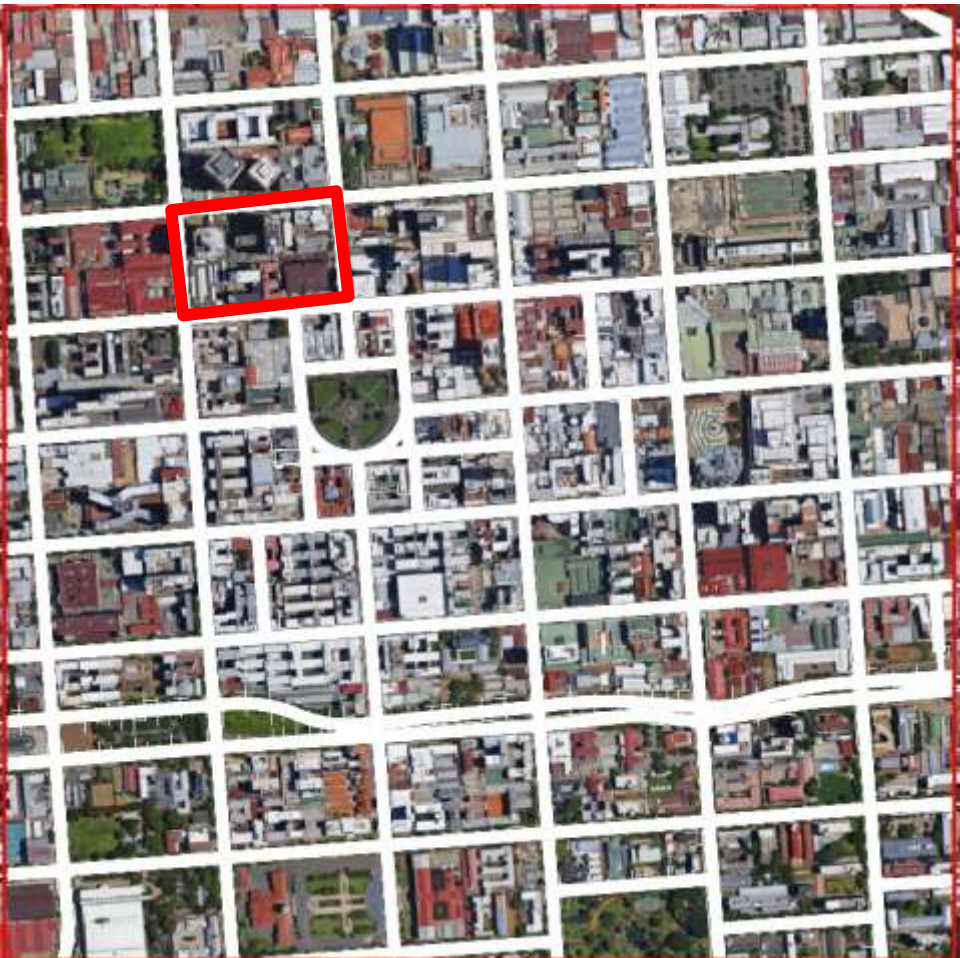


Pretoria Central

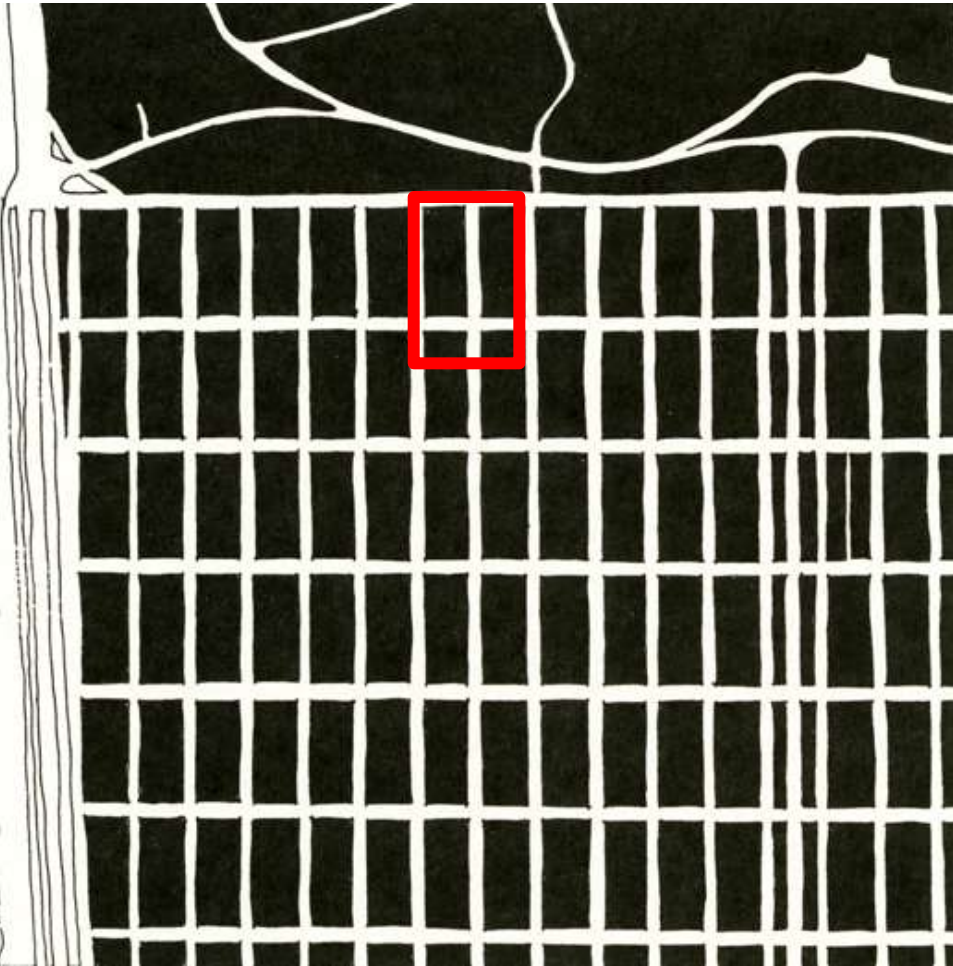




New York



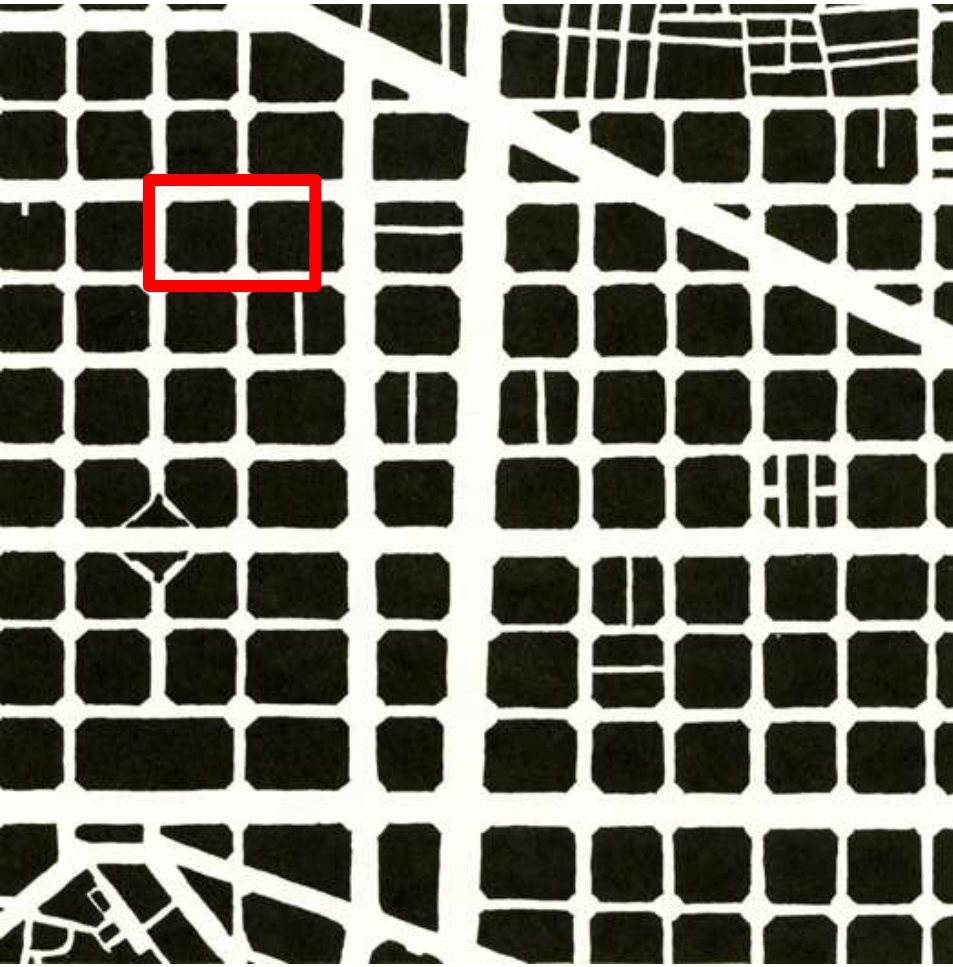
CBD of Tshwane



San Francisco: 137 intersections



CBD of Tshwane



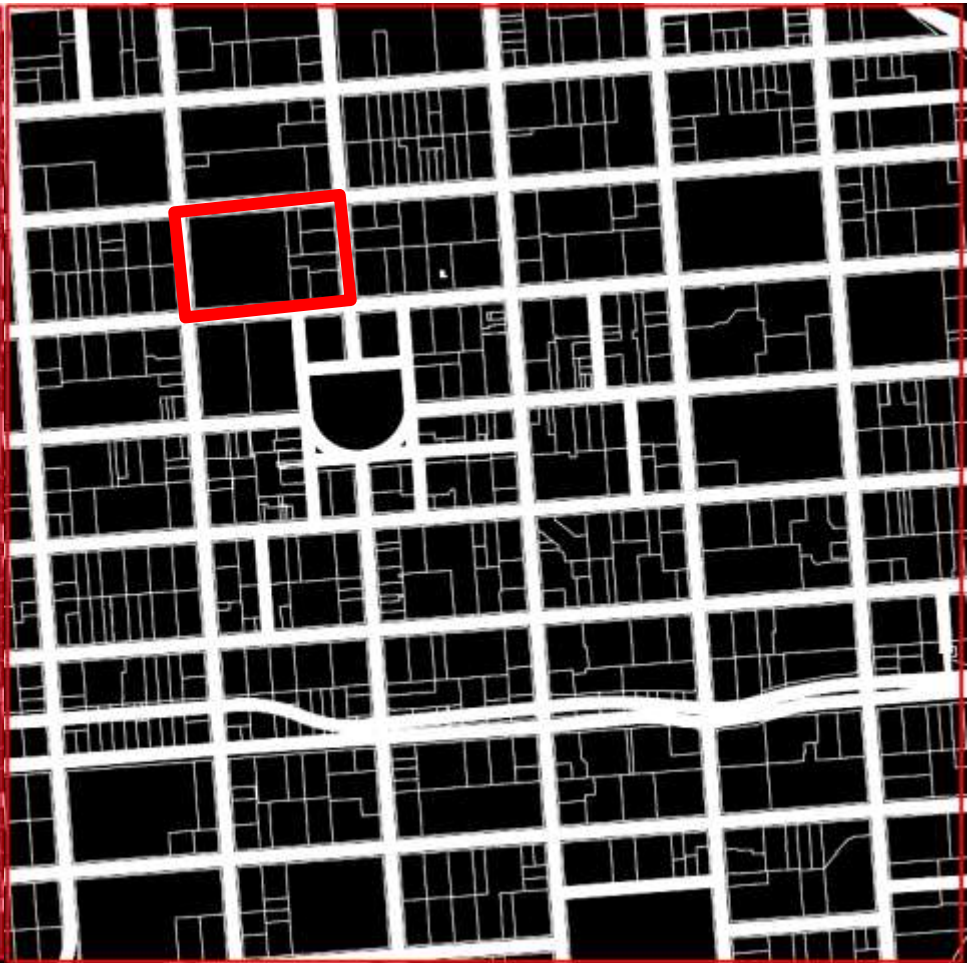
Barcelona: 168 intersections



CBD of Tshwane



Brooklyn



CBD of Tshwane



Marabastad



CBD of Tshwane

+73 000



PHASE 4

EXISTING NATURAL VEG. STATUS TO BE MAINTAINED

LANDSCAPING TO BE MAINTAINED

ROADSIDE FOR MOTOR VEHICLE

PLAY AREA MAINTAINED

ZAMBEZI 21

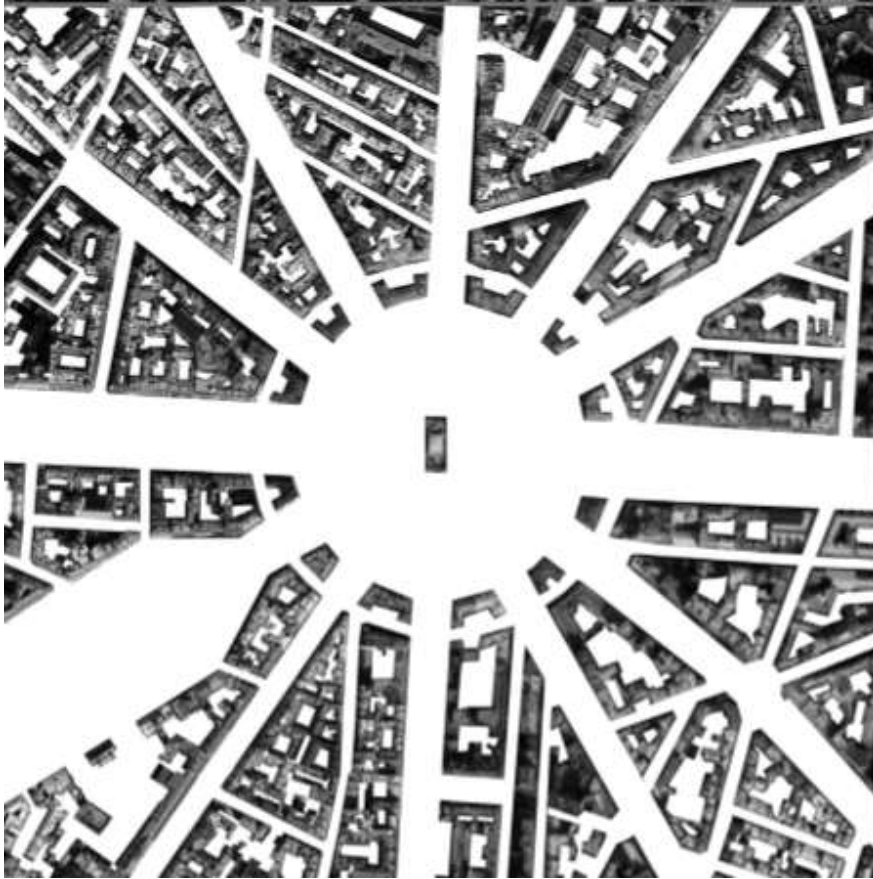
X40





Walnut Creek: 107 intersections

Zambezi Country Estate



Paris



Attridgeville



Walnut Creek: 107 intersections

Woodhill estate

Inner city Blocks

Key scales for urban sustainability

City scale

- Compact
- Connected

Community scale

- Walkable
- Accessible

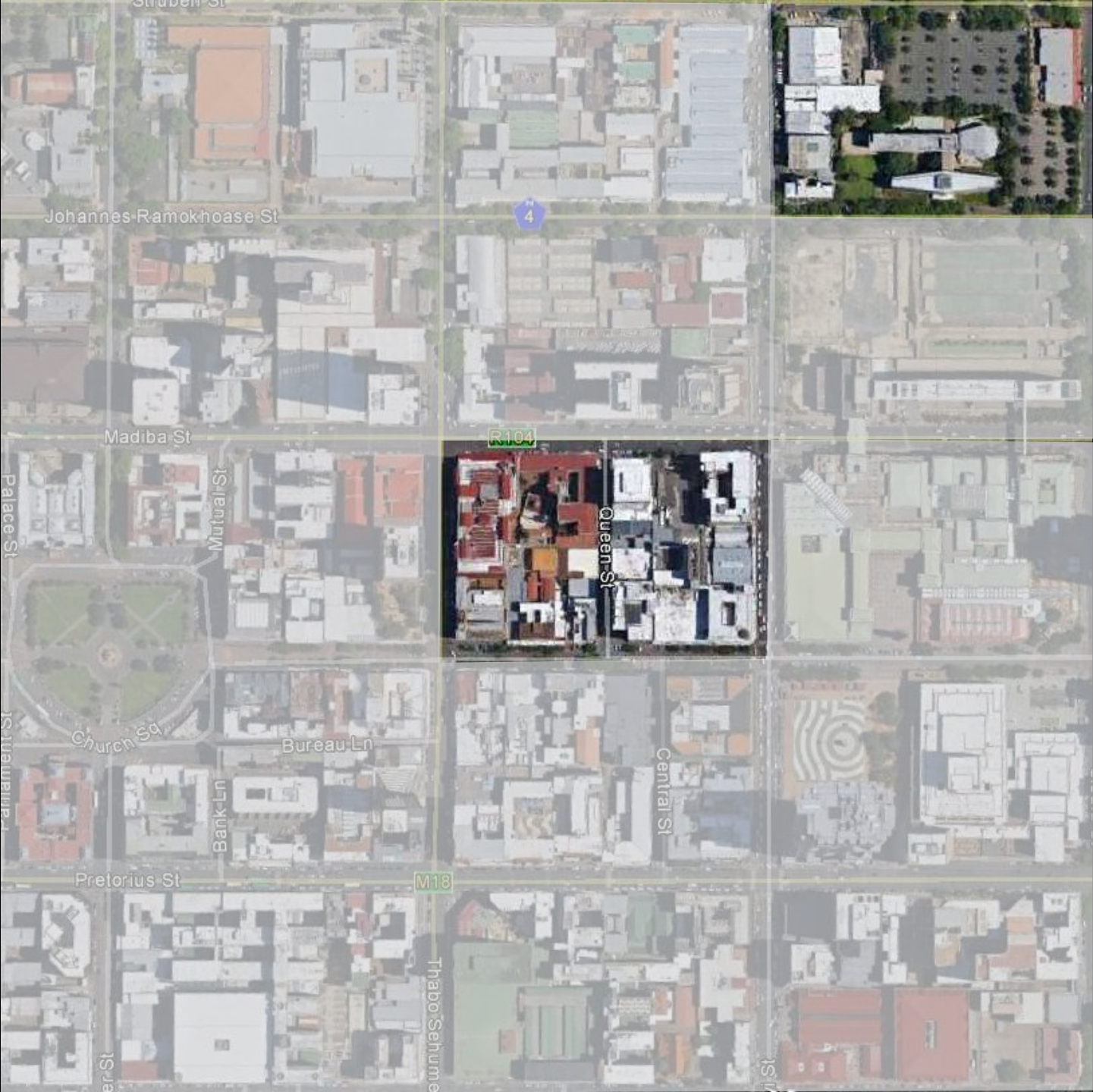
Block scale

- Mixed use
- Diversified

800mX800m area



Google earth



Johannes Ramokhoase St

4

Madiba St

R104

Palace St

Mutual St

Queen St

Church St

Bureau Ln

Central St

St. Juwama St

Bank Ln

Pretorius St

M18

Thabo Sehume St

er St

St

The Contrast between interface and use



LEGEND

- Informal Trader
- Mobile Street Trader
- Chain Store/National Retailer
- Convenience Store
- Wholesale
- ↔ Arcade/Shopping centre route
- Individual Shop
- Speciality Retail



Small Blocks with subdivisions and mixed uses



LEGEND	● Informal Trader	● Mobile Street Trader	 Chain Store/National Retailer
	● Convenience Store	● Wholesale	↔ Arcade/Shopping centre route
	 Individual Shop	 Speciality Retail	

Grid Resilience & Subdivisions

1939



1958



1976



1991



2013



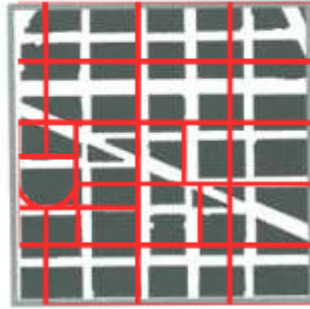
New York
Manhattan



Washington
Center



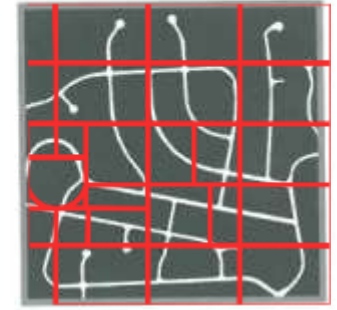
Washington
Center



New York
Periphery



Washington
Periphery



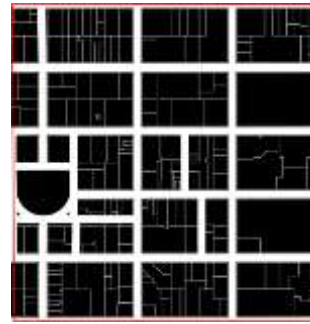
Menlyn Maine



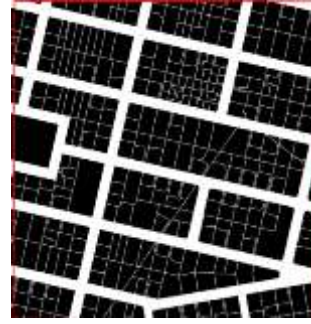
Attridgeville



CBD



Brooklyn



Zambezi Estate



Neighbourhood Analysis

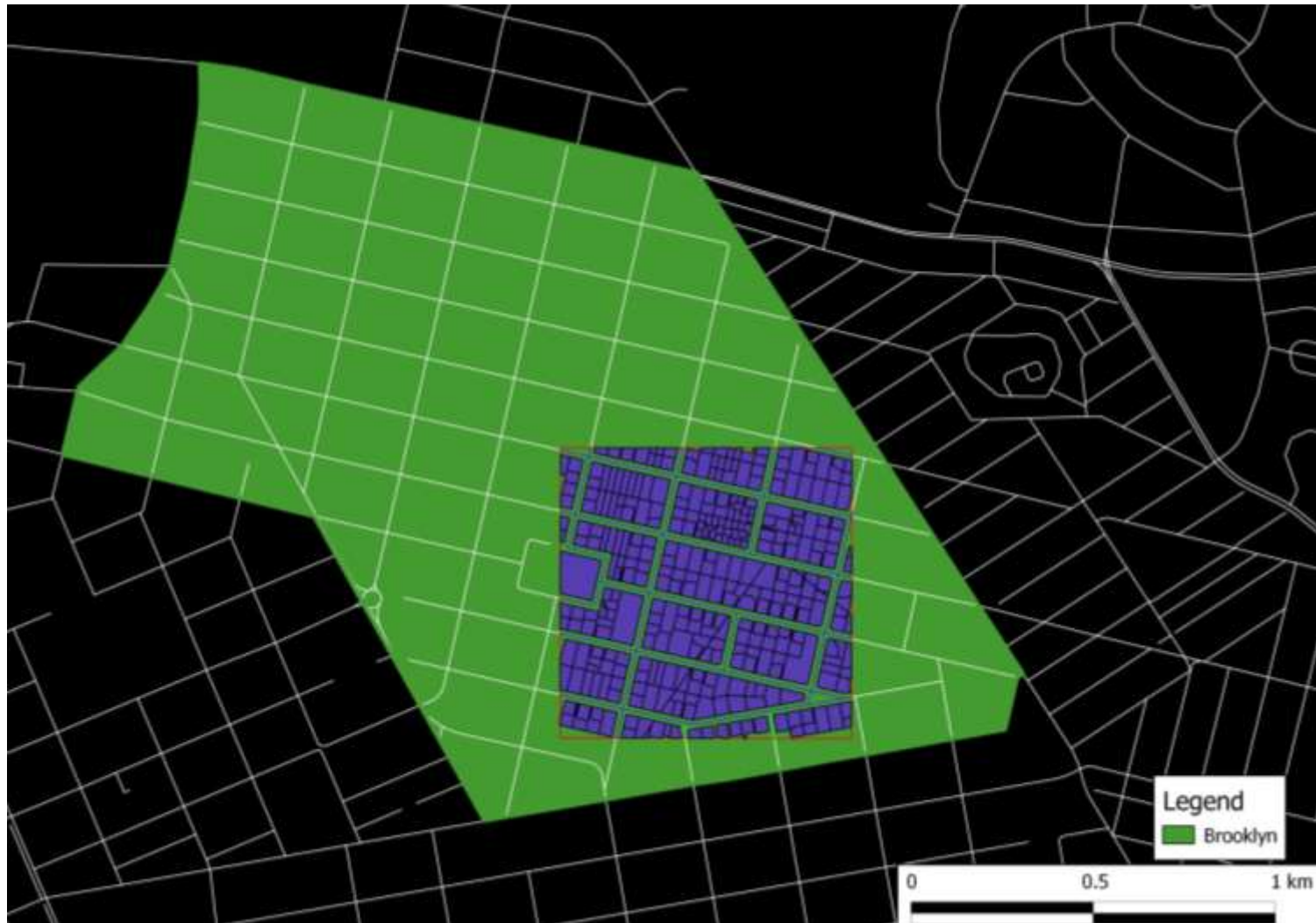
Selected study areas



Brooklyn



Brooklyn: unit of analysis (800 x 800 m blocks)



Does not lend itself to large enclosures



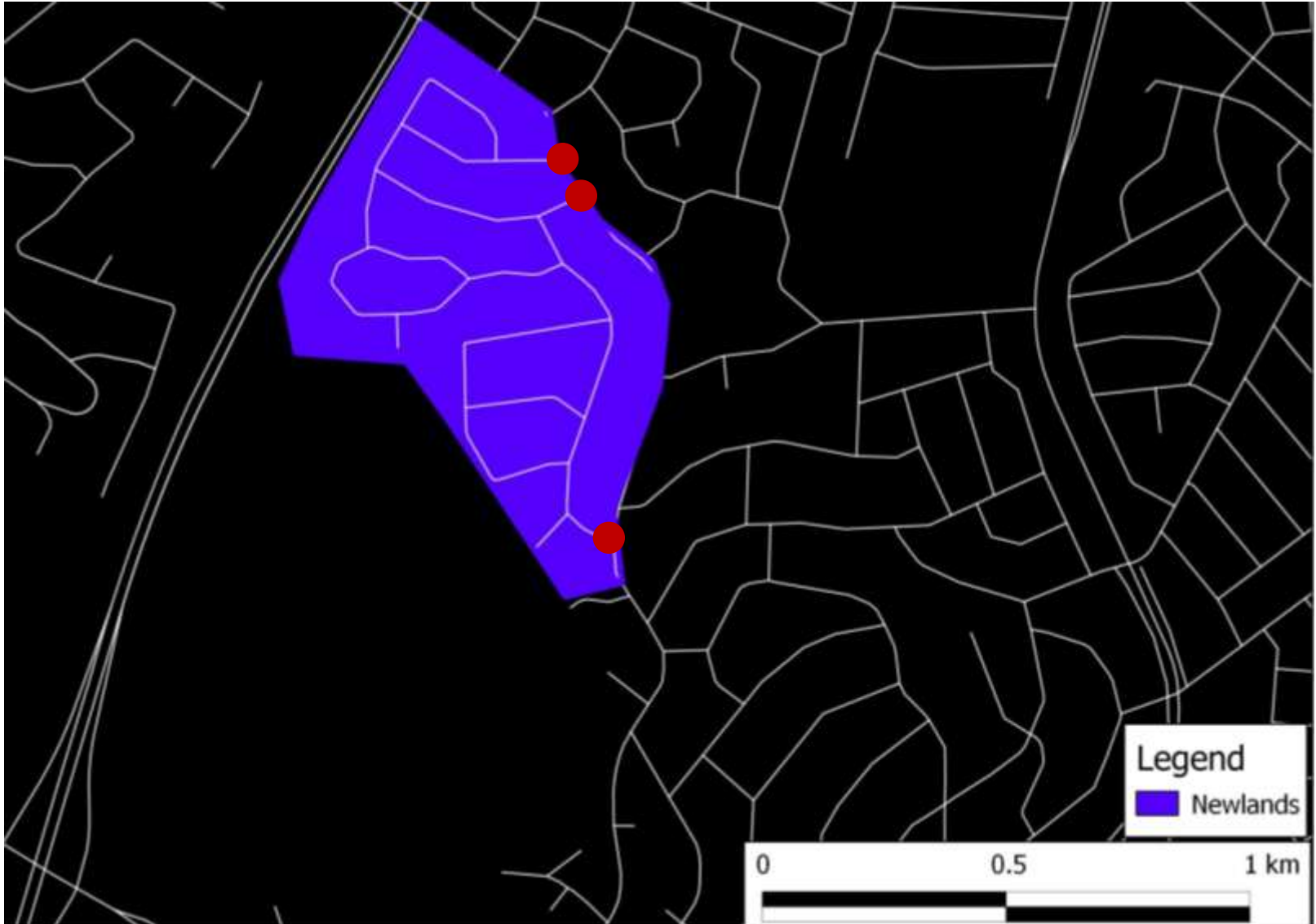
Irene



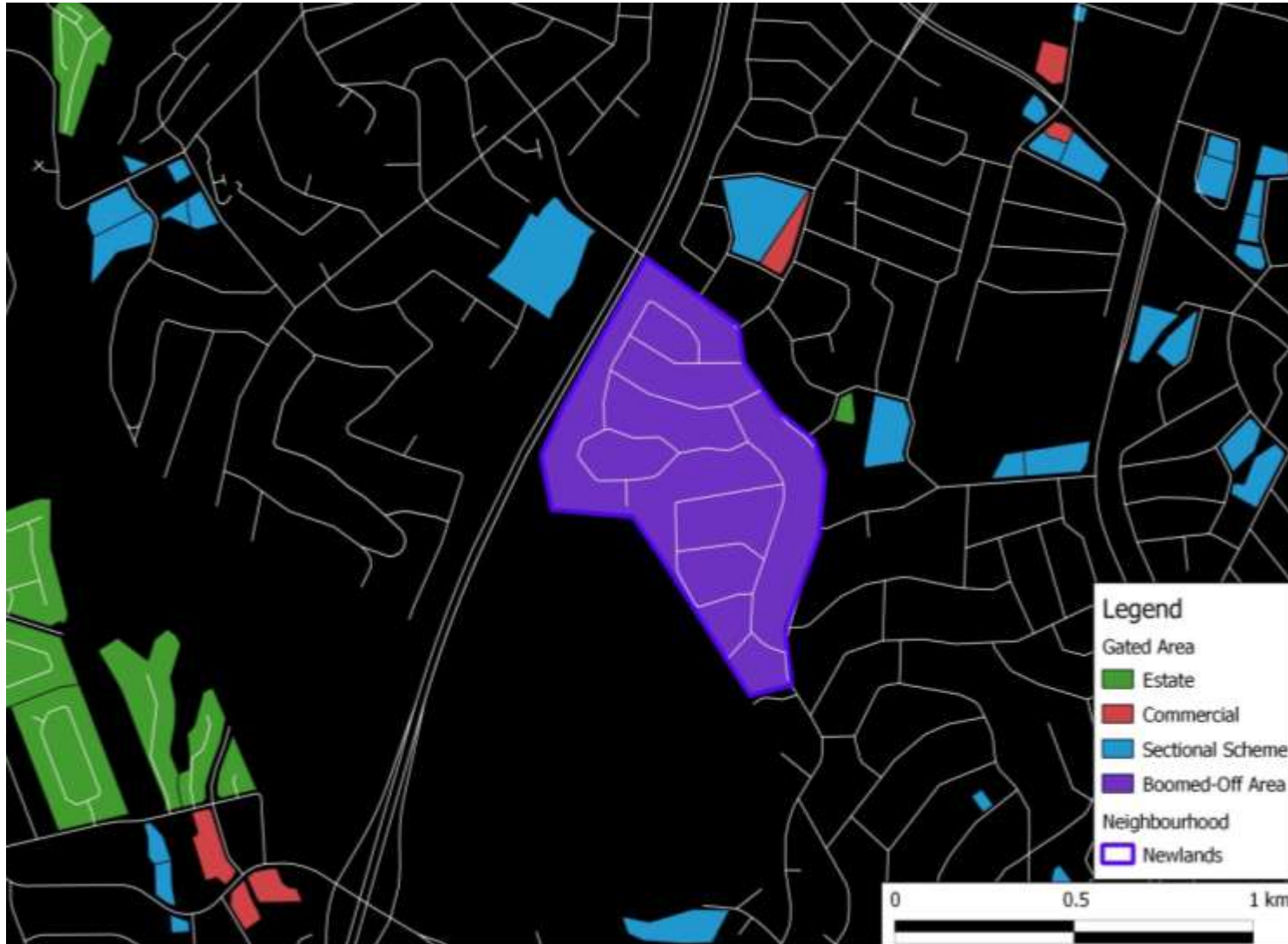
Irene: unit of analysis (800 x 800 m blocks)



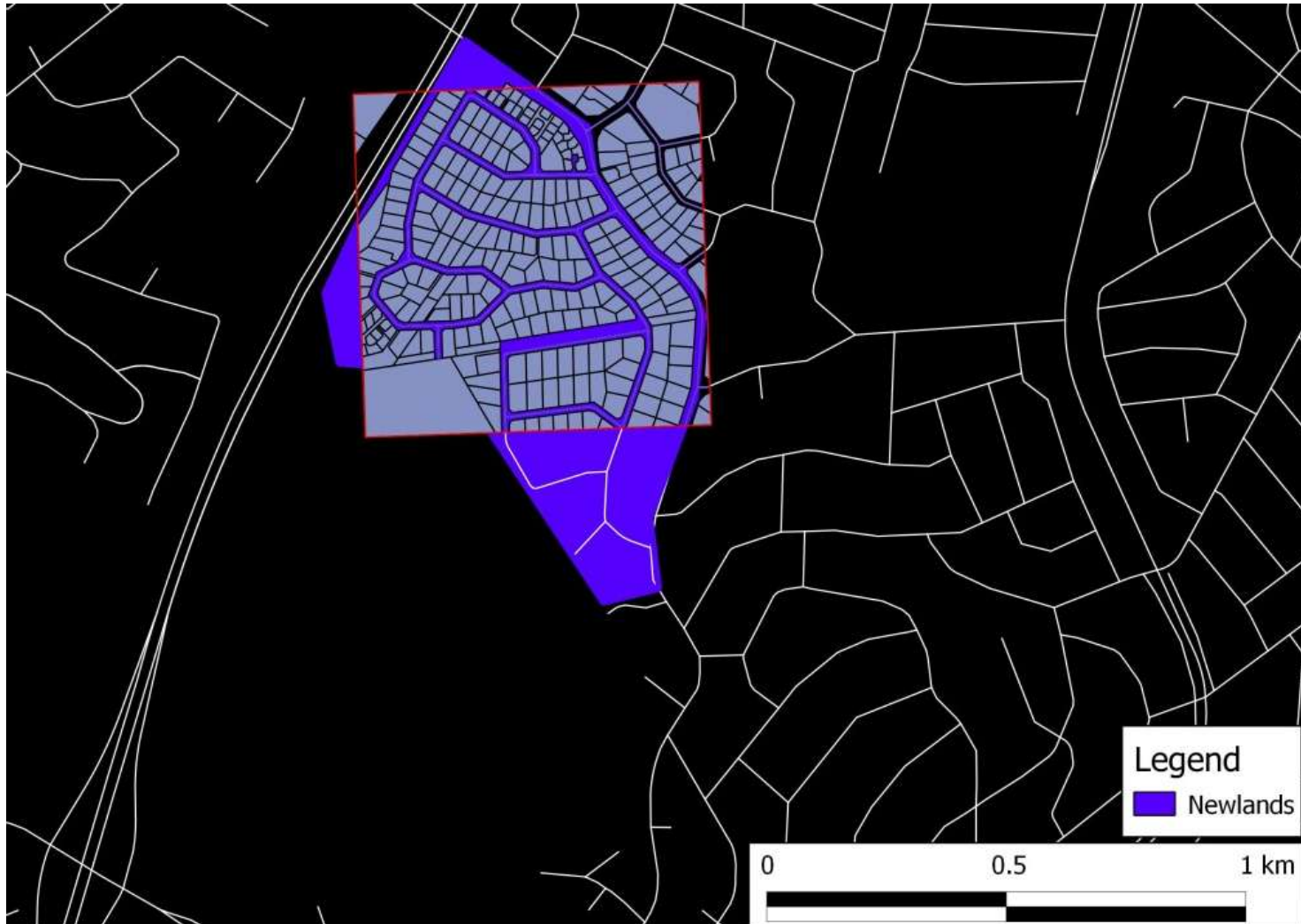
Newlands



Case 2: Newlands (enclosed area)



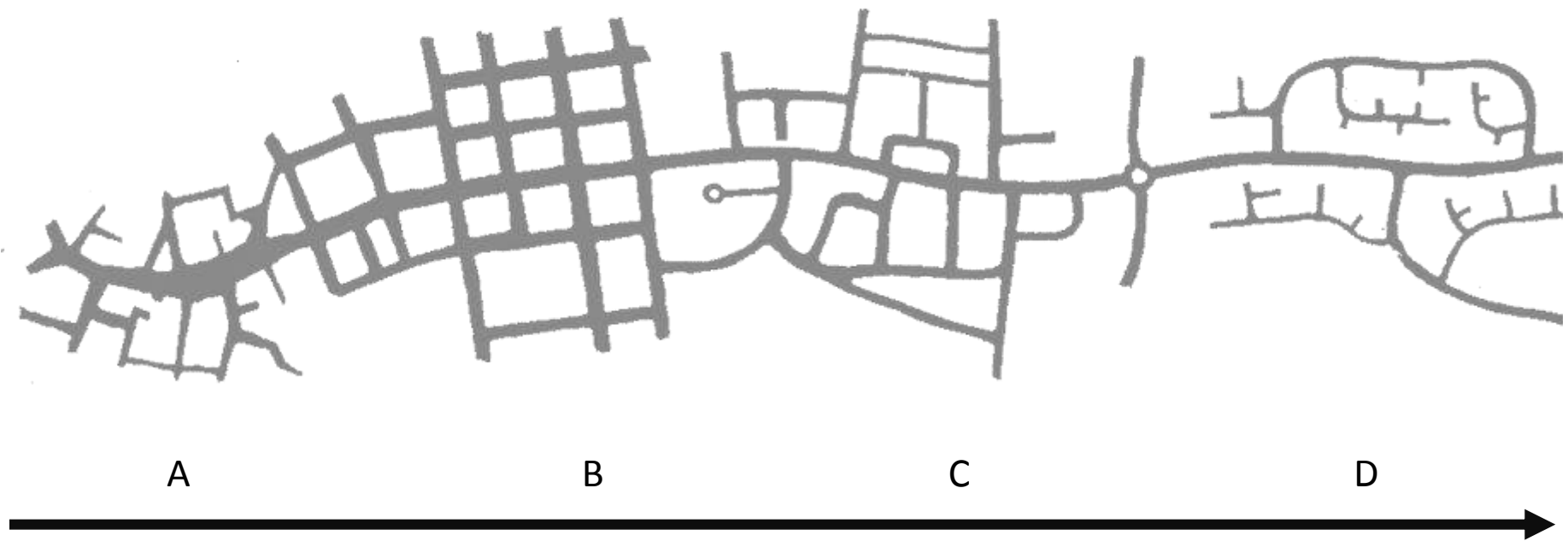
Newlands: Unit of analysis (800 x 800m block)



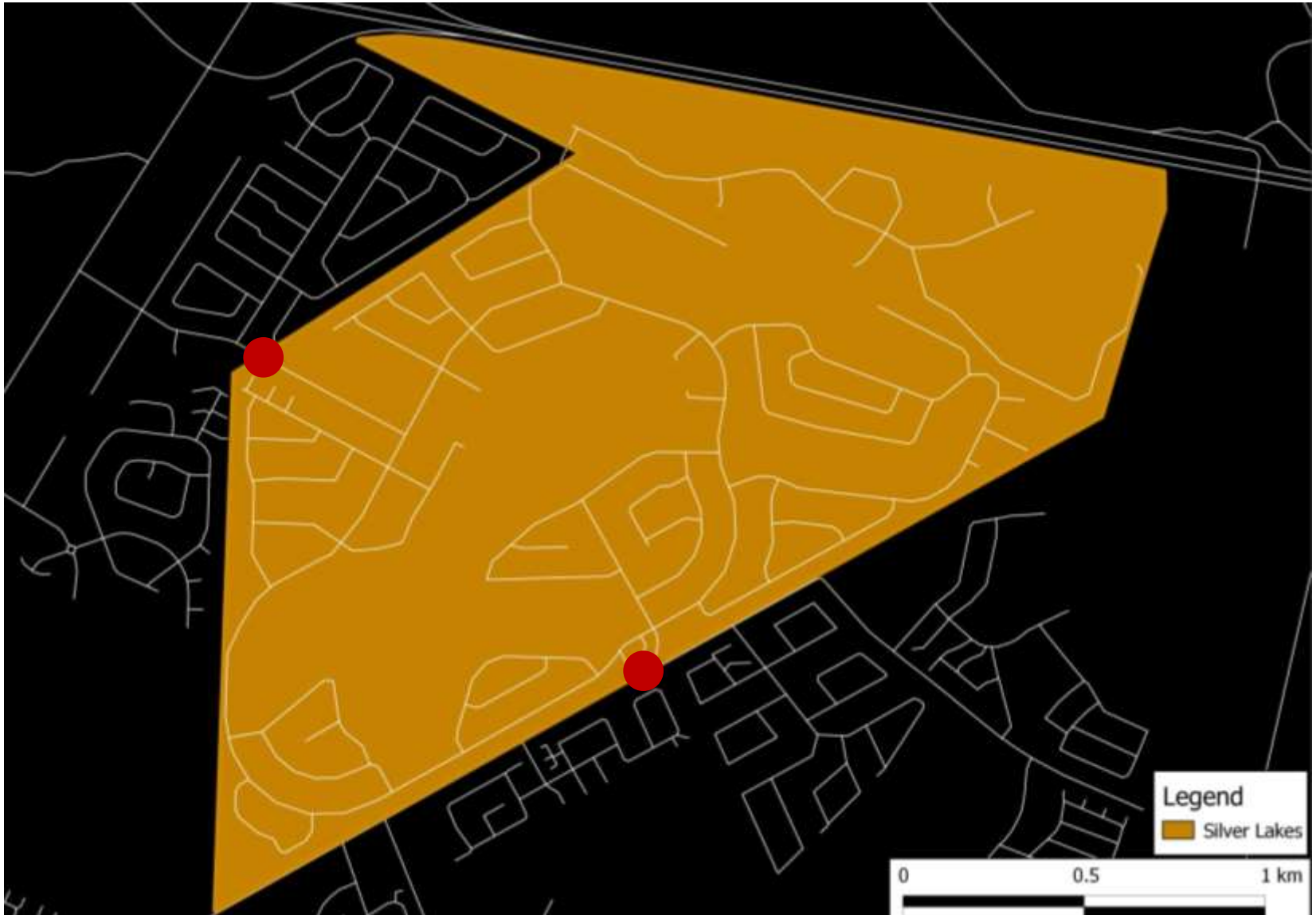
Most of Pretoria east: suburban layout



The evolution of the suburban tree



Silver Lakes



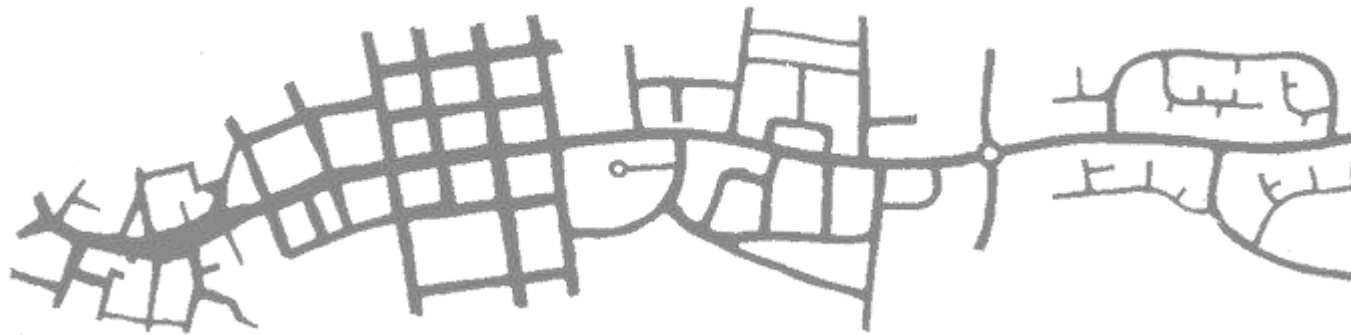
Silver Lakes: unit of analysis (800 x 800 m block)



The evolution of the suburban tree

Indicator	What is being calculated	Brooklyn	Irene	Silver Lakes	Newlands
Intensity	Surface occupied by road network (%)	9.1	15.4	24.8	37.5
Connectivity	Connectivity of the car grid	31.6	28.1	12.5	28.1
	Cyclomatic complexity of the car grid (per 0.64 km ²)	25	26	11	14
	Average distance between intersections car grid (m)	150	152	224	147
	External Connectivity (How easy is it to get outside of the area)	34	2	2	3
Proximity	The mean distance between two destinations (nearest major shopping centre – straight line distance)	Less than 1 km	Less than 1 km	Between 1 and 2 km	Less than 1 km
Diversity	The number of different uses	More than 6	More than 6	2	1
	Number of road hierarchies	2	1	1	2

The evolution of the suburban tree



A

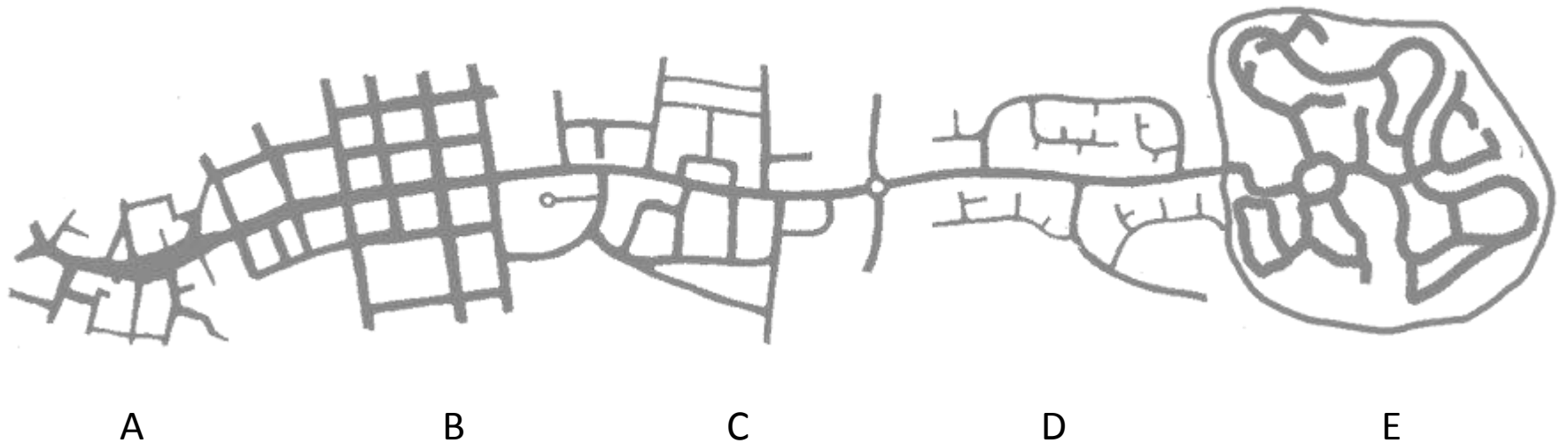
B

C

D



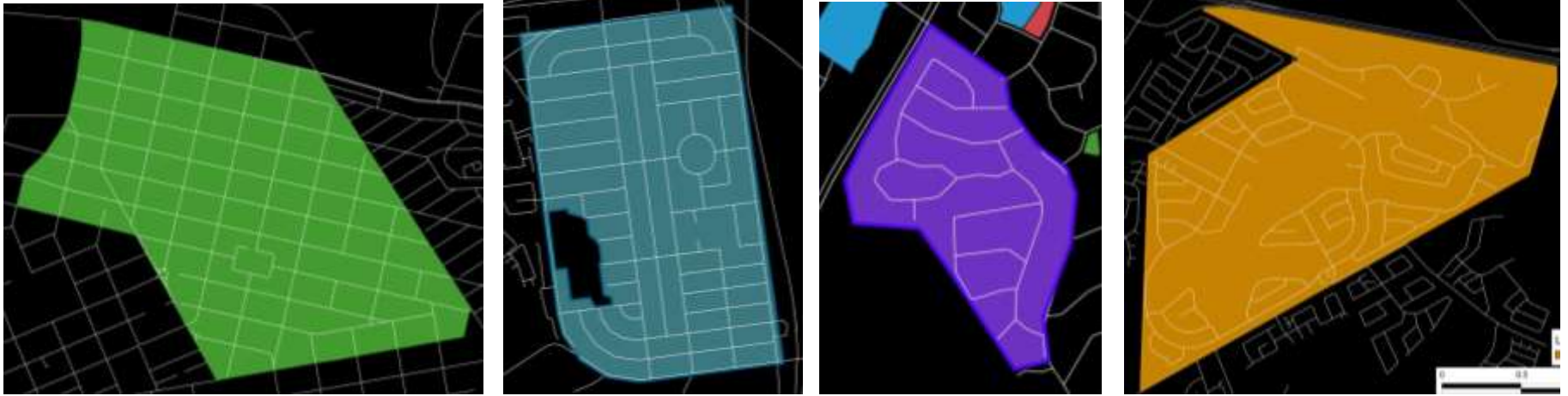
The evolution of the suburban tree



Should it be considered as a new type of urban morphology or just the ultimate manifestation of suburbia?

Adapted from Salat (2012)

The evolution of the suburban tree

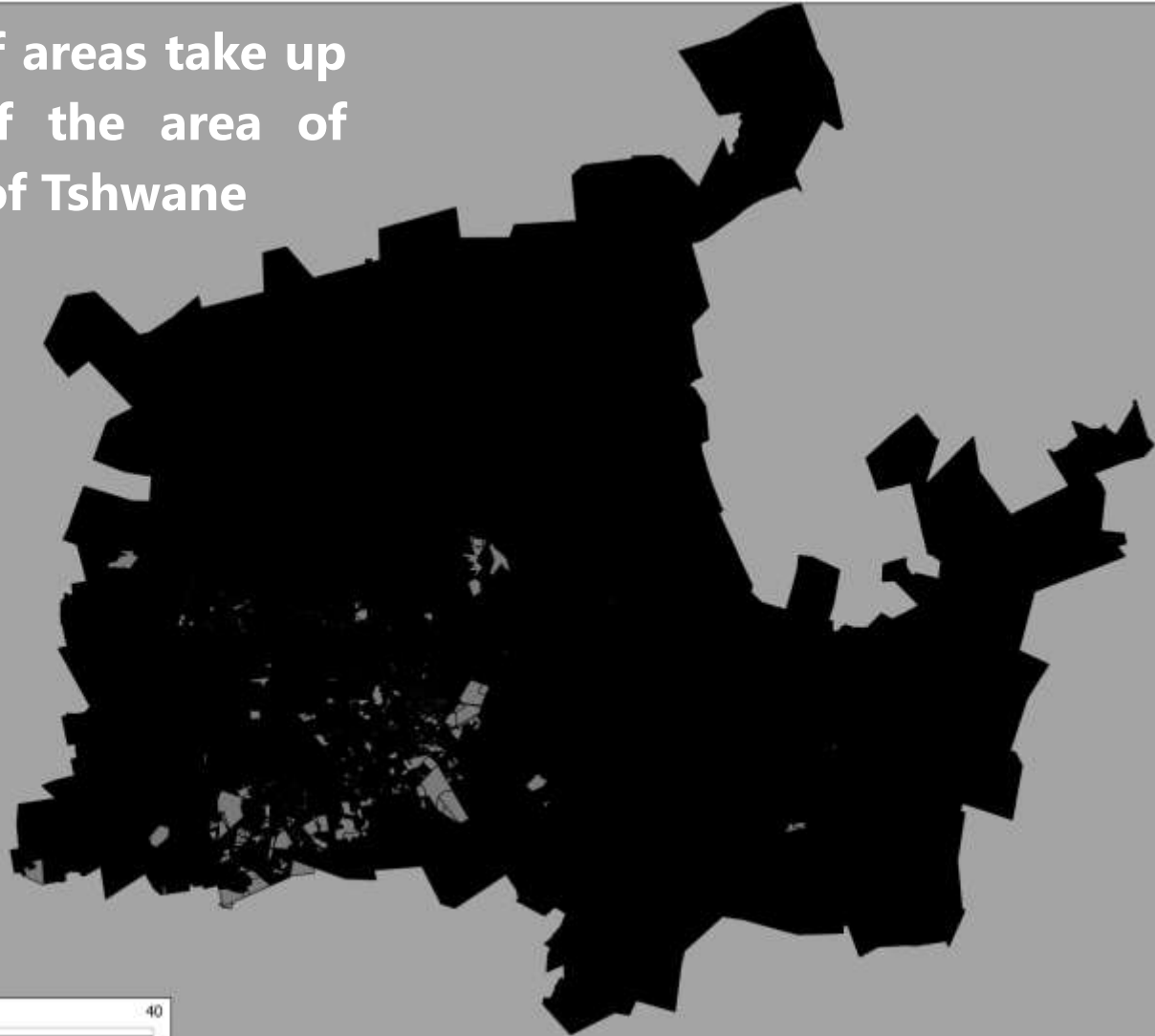


Evolution of modernistic planning In Tshwane

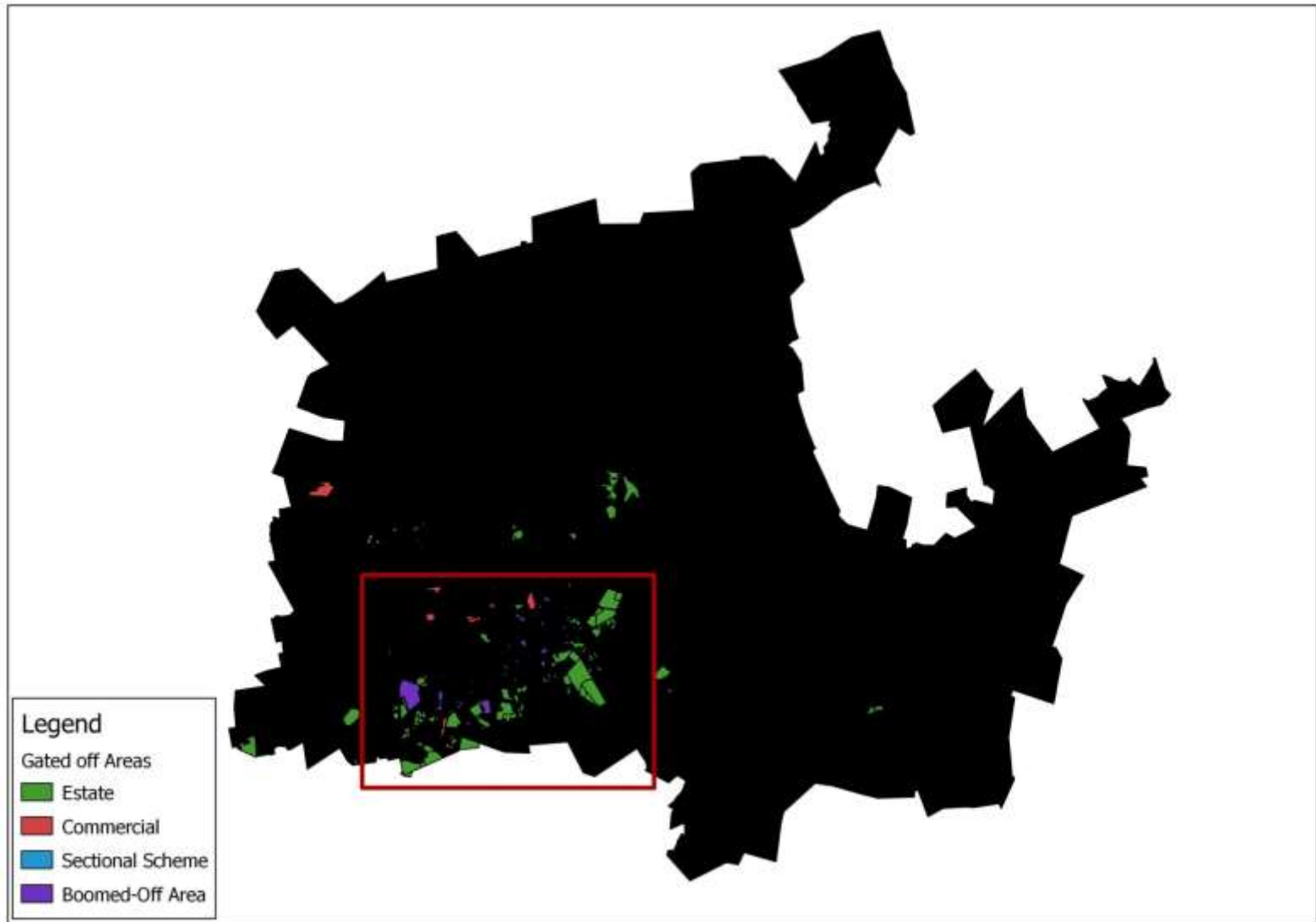


Gated communities: concentrated

Gated off areas take up
 $\pm 2.3\%$ of the area of
the City of Tshwane



Selected area of concentration



Concentration of different types

