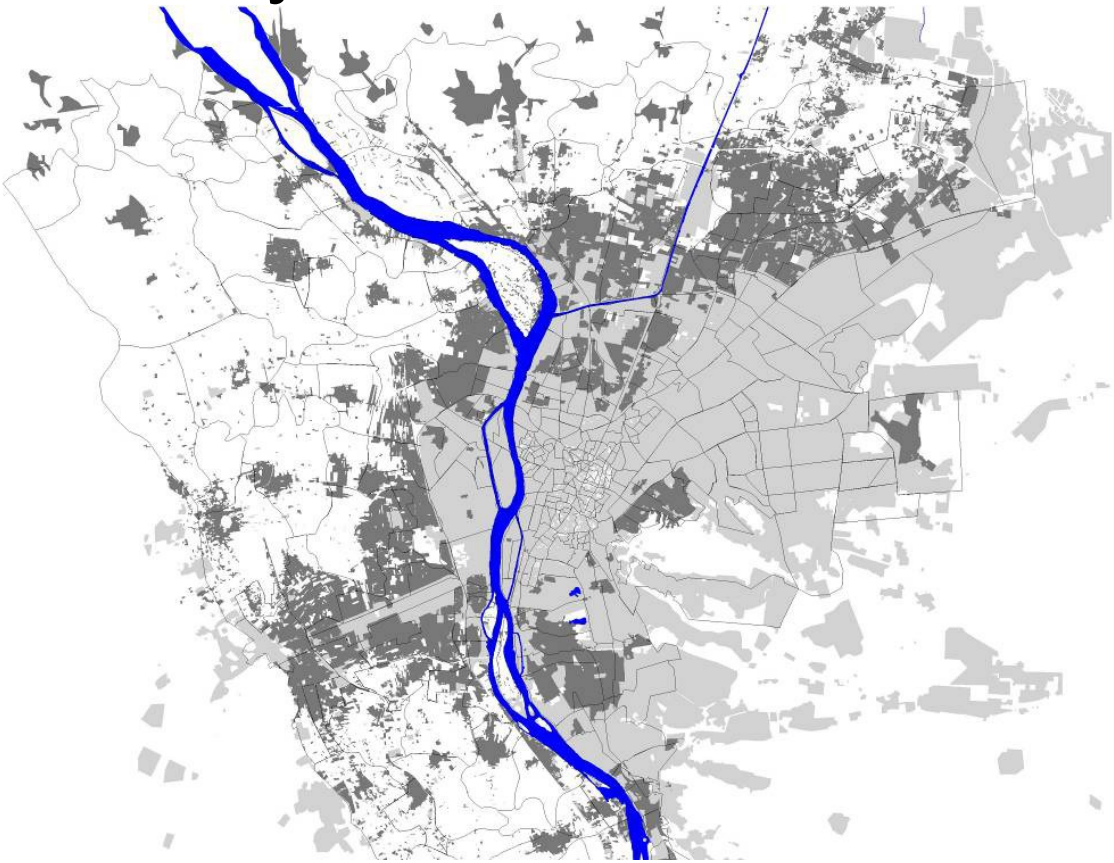
Transportation in Greater Cairo: Density and the Private Car



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22nd Cairo Climate Talks

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Cairo is Dense and Compact

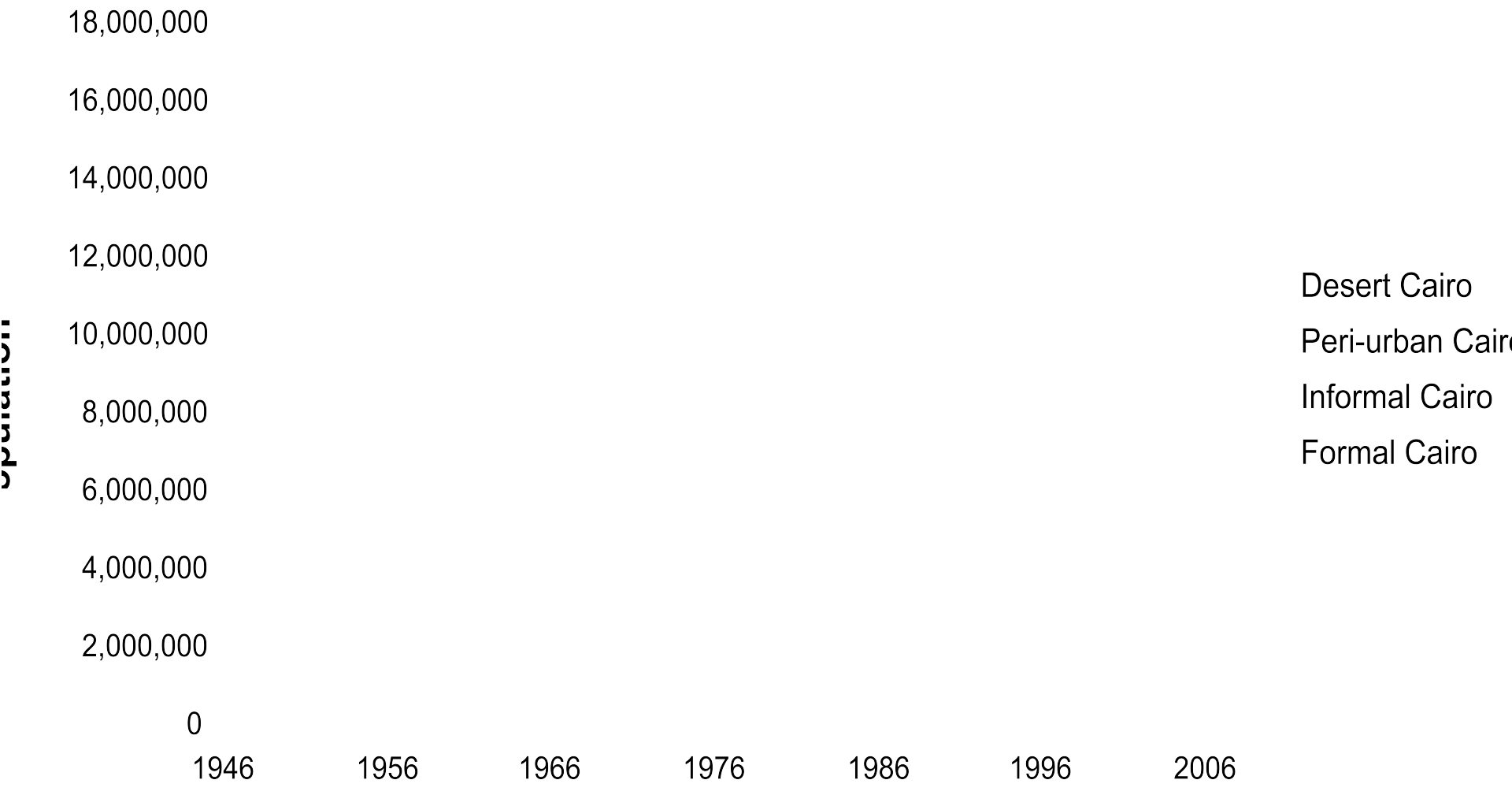
- Greater Cairo is probably the most dense mega-city in the world
- If the new towns in the desert are excluded, overall density exceeds 350 persons per gross hectare.
- At least two-thirds of the population (17.5 million in 2009) live within 15 kilometers of the center.
- At least half of the population live within 10 kilometers of the center.

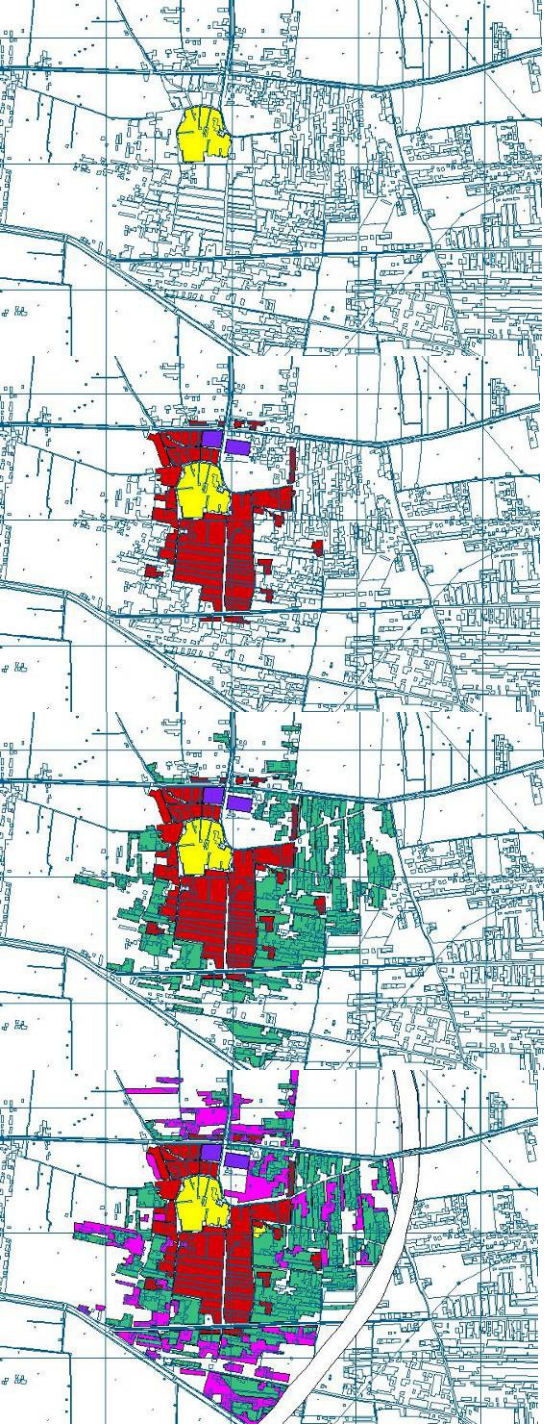
Advantages of Density and Compactness

- Average trips are short in distance
- Much is accessible by walking
- Fuel consumption is less, as are carbon emissions
- Supports cheap and efficient public transport
- Supports easy access to public and commercial services

How did Cairo achieve such compactness?

- The traditional urban fabric was dense
- The high value of surrounding agricultural land constrained urban sprawl
- Most formal development has ignored building codes (e.g. Medinat Nasr)
- Informal (un-planned) urban housing generated extremely dense development on the near periphery and in outlying villages

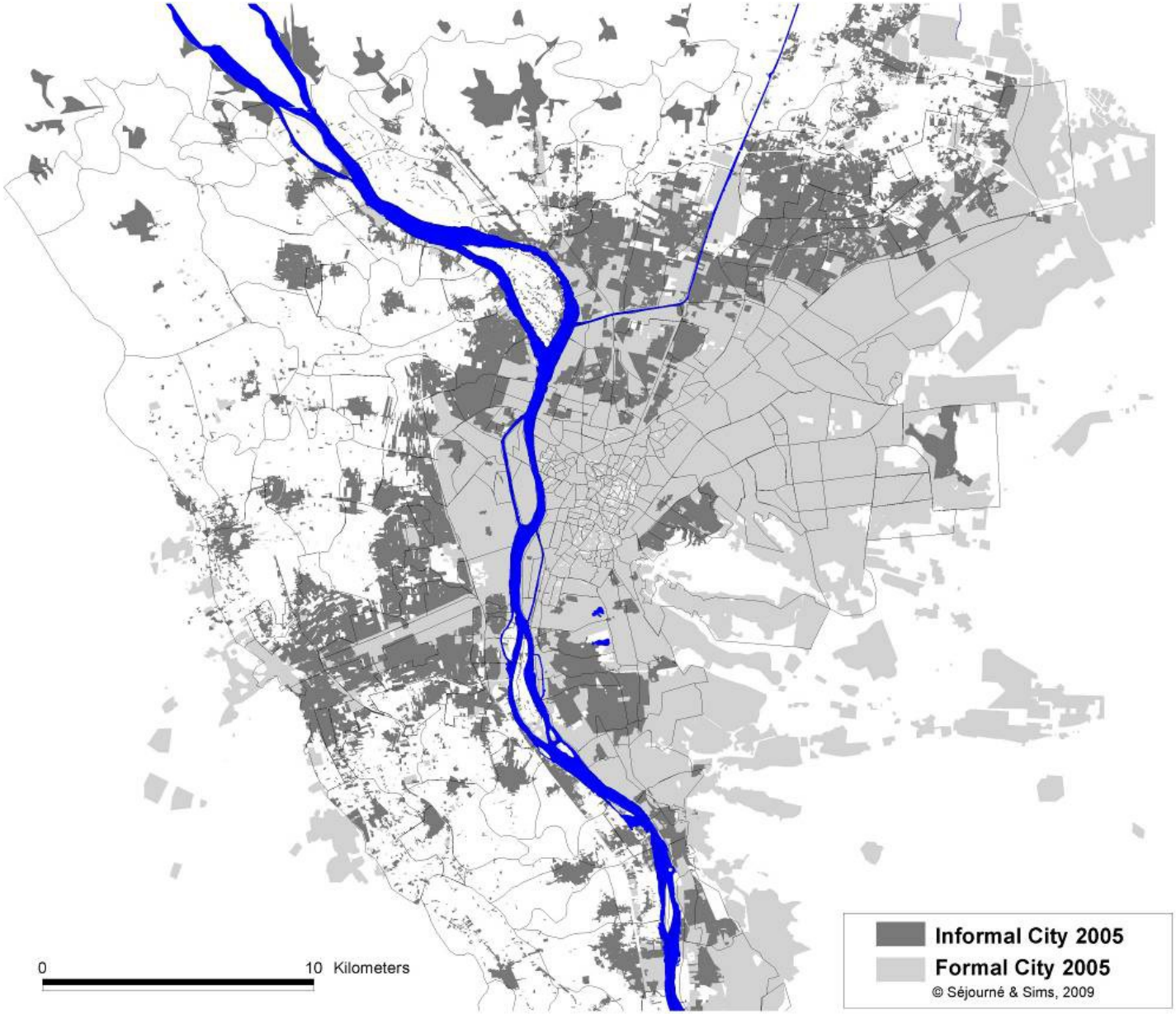

18,000,000
16,000,000
14,000,000
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
0
1946
1956
1966
1976
1986
1996
2006
Desert Cairo
Peri-urban Cairo
Informal Cairo
Formal Cairo



Building high density

Organic expansion in peri urban Cairo

(Al Muatemadia, Giza, 1947, 1977, 1993, 2000)


0
10 Kilometers
Informal City 2005
Formal City 2005
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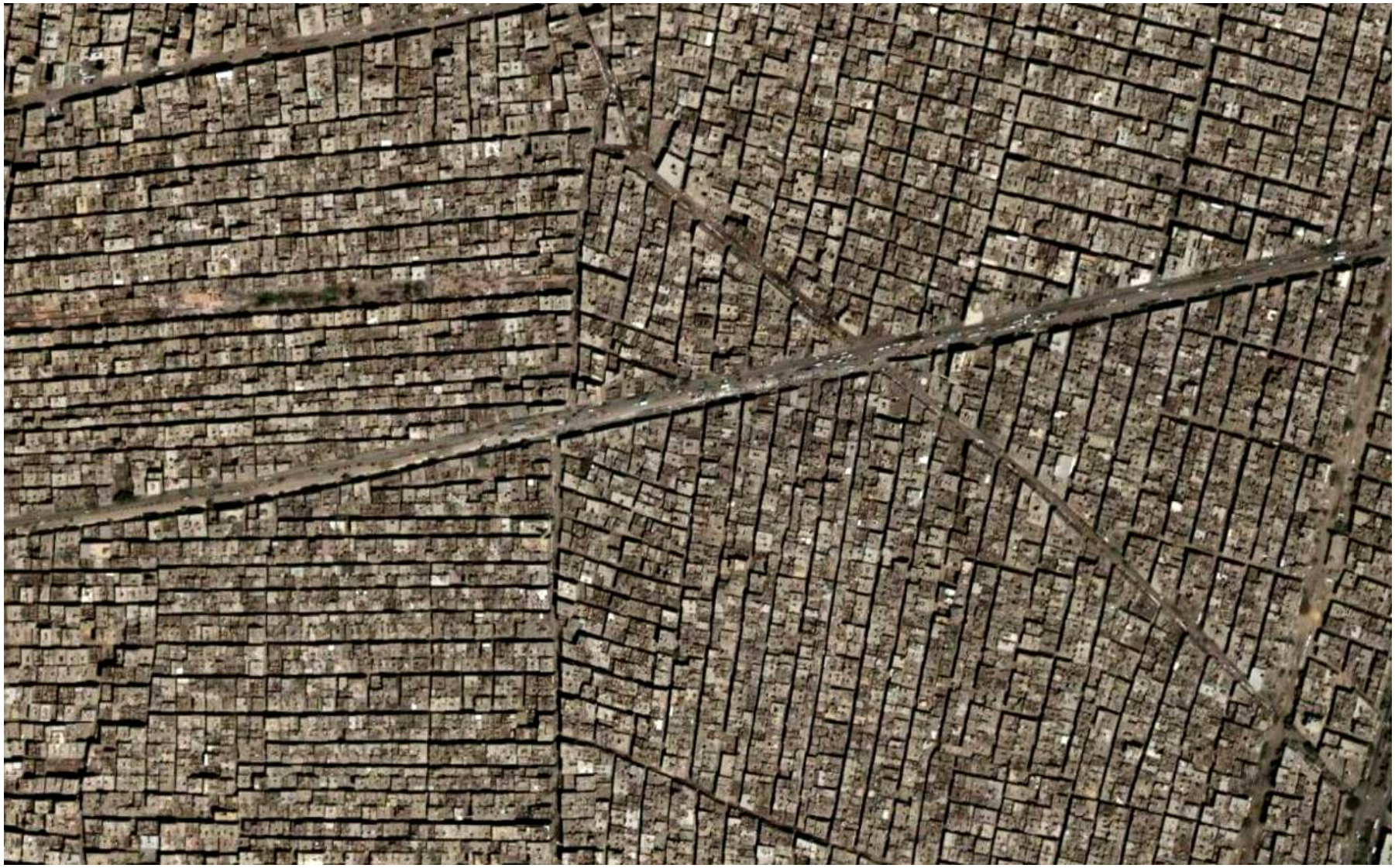
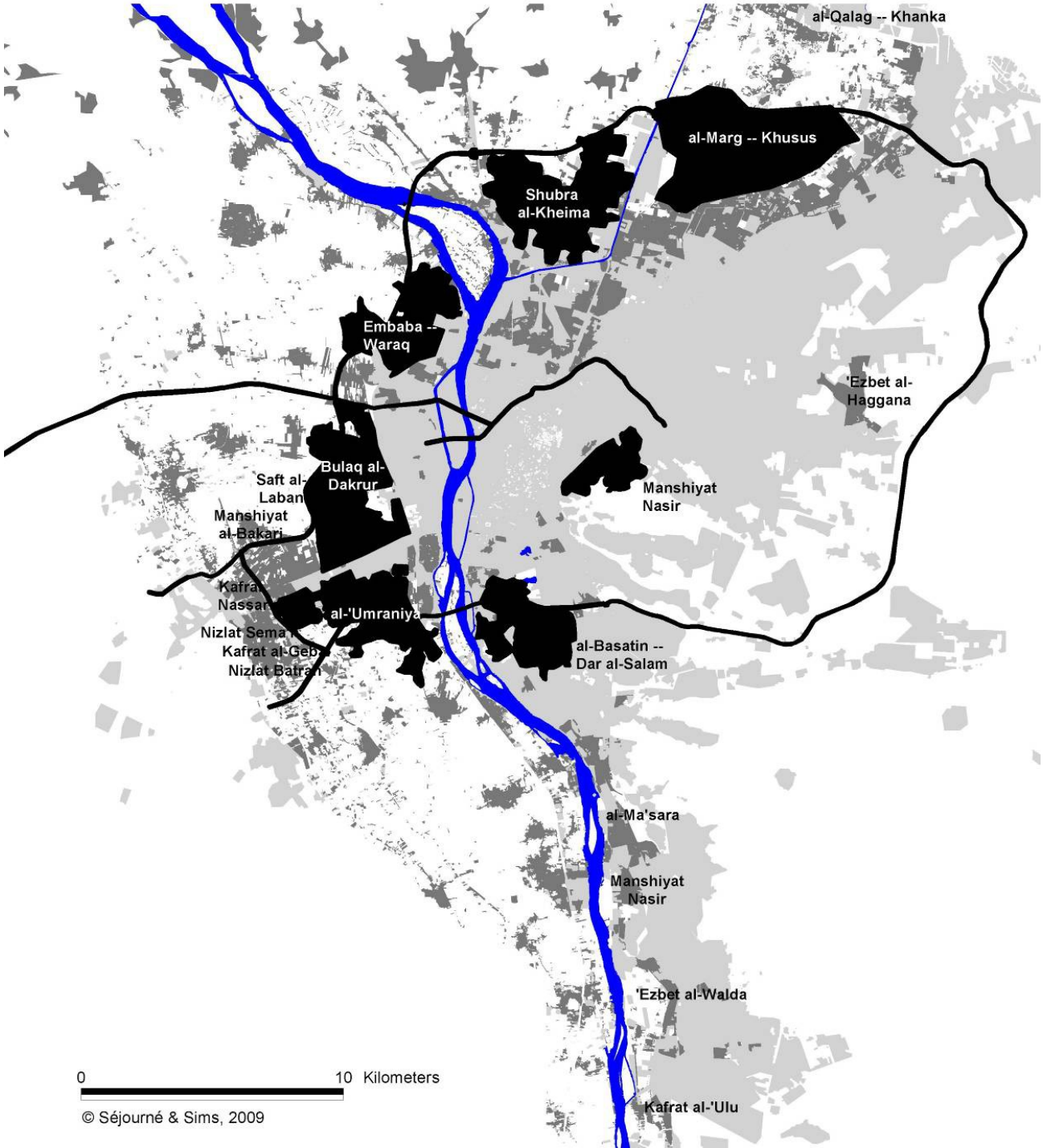
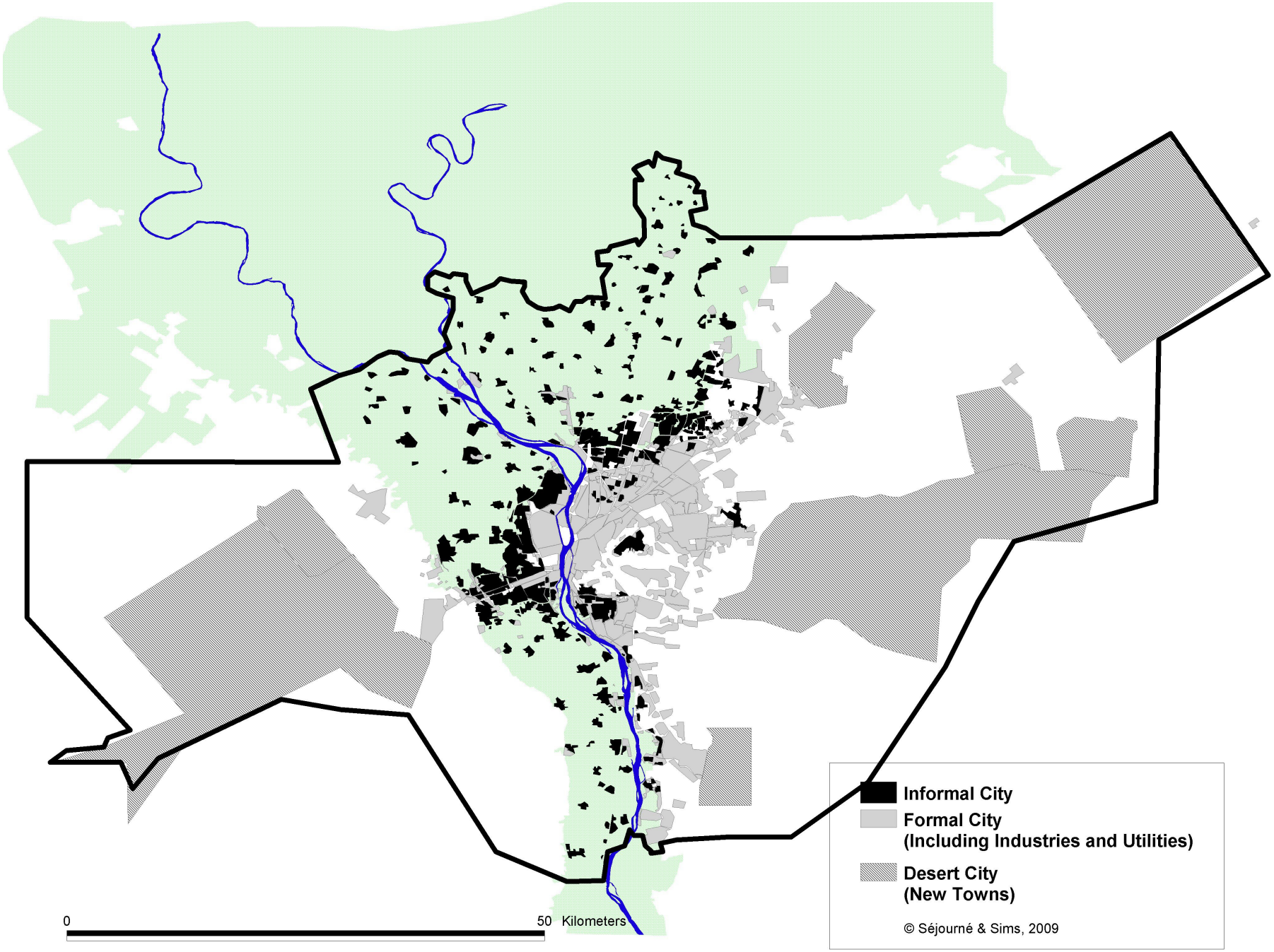


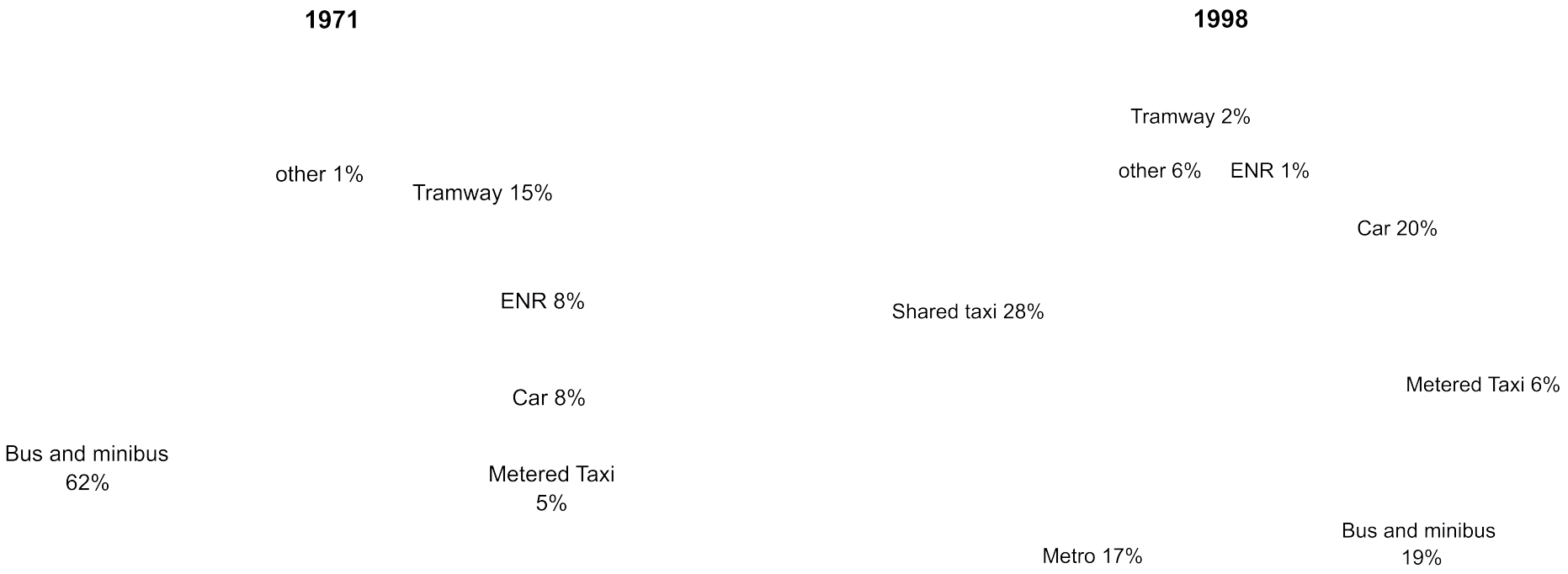


Effect of the new towns on density and compactness

- The seven new towns around Cairo and other desert developments have more than tripled the surface area of Greater Cairo
- The average distance from the center of Cairo to the new towns exceeds 45 kilometers
- The average trip <u>inside</u> a new town exceeds 9 kilometers
- Thus the burden of the new towns on Cairo's transport, in terms of distance, represents a dramatic change of magnitude
- Fortunately, only few people live or work in the new towns (Roughly 7 percent of GCR inhabitants in 2009)
- Unfortunately, access to and within the new towns relies almost exclusively on private vehicles; public transport cannot work because of low densities


Informal City
Formal City
(Including Industries and Utilities)
Desert City
(New Towns)
© Séjourné & Sims, 2009
0
50 Kilometers

Cairo's evolving modes of transport (person-trips)



Cairo's evolving modes of transport (person-trips 1971 to 1998)

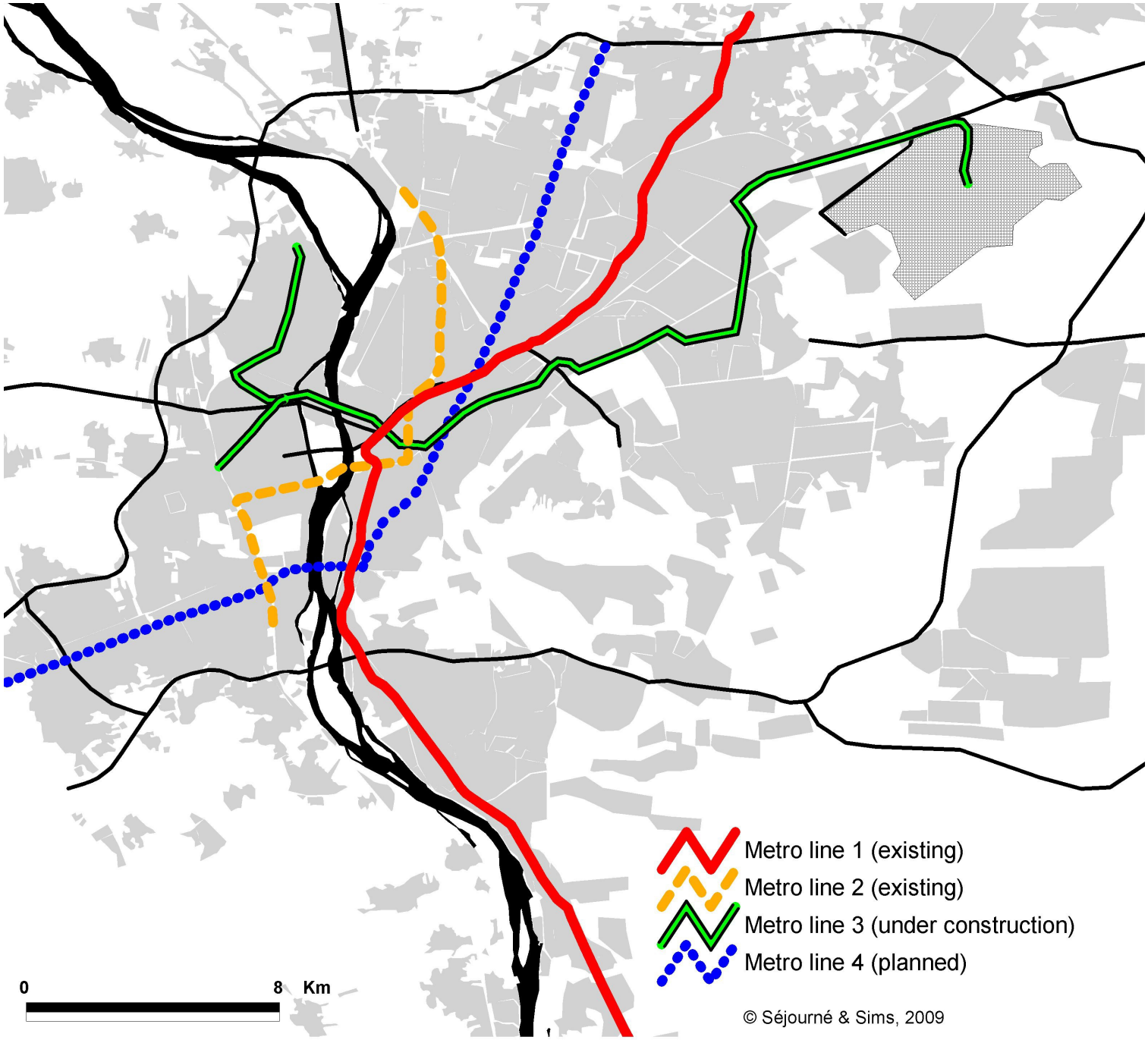
- Rapid rise of shared taxi (mini bus)
- Rise of metro
- Steep decline of CTA bus share
- Disappearance of tram
- Near disappearance of train
- Taxis roughly the same
- Rise of private car


Le Marché XXVIII
INTEGRATED SOLUTIONS
GRBM


GHABBOUR

Separated public transport?

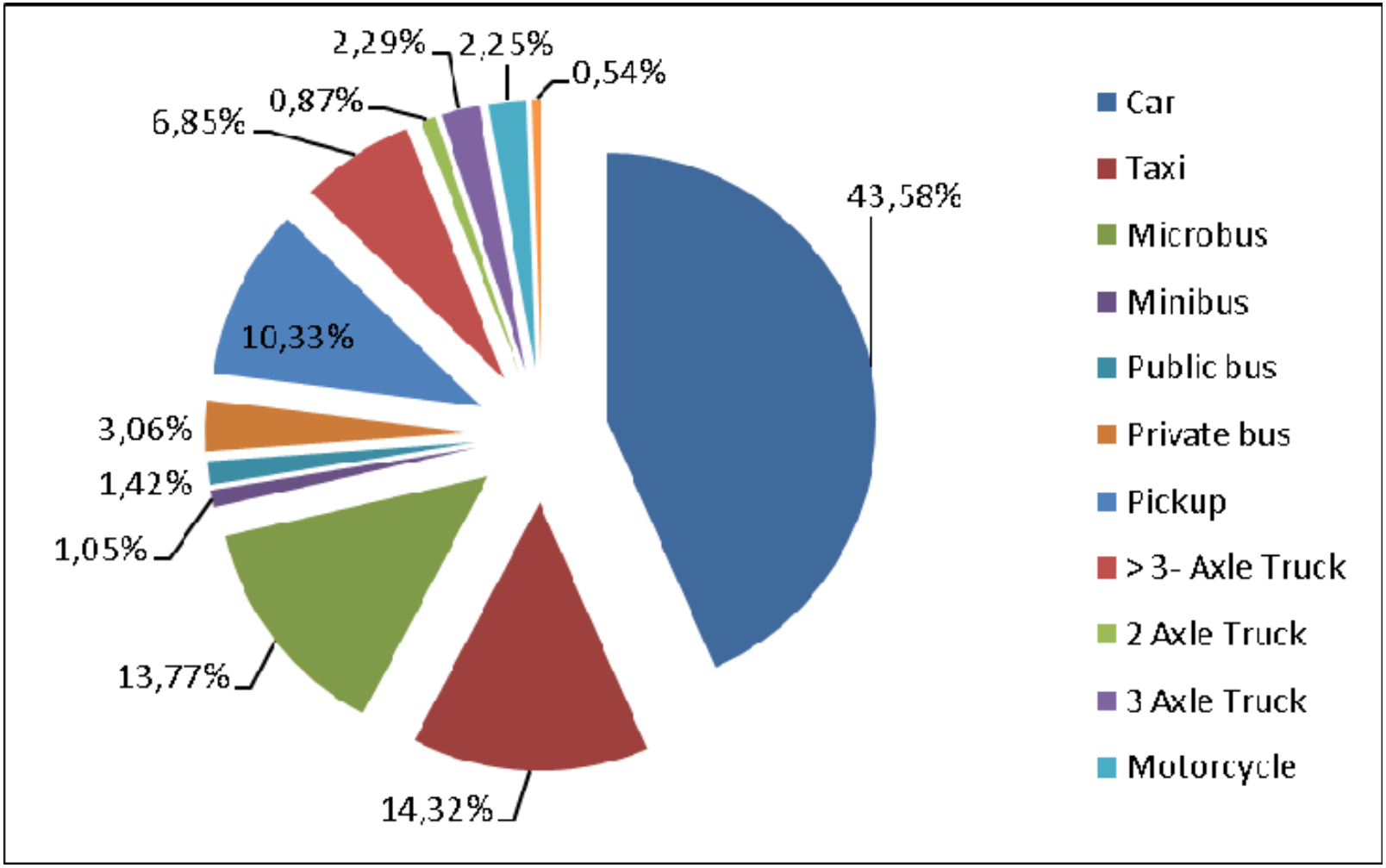
- Really only the metro system, which is way behind schedule, which is extremely expensive, and whose coverage of the metropolis is limited
- Nile river bus forever ignored
- Separated trams and super-trams only a pilot (Nasr City)
- Rapid Bus Transit (separated bus-ways) still a dream


Metro line 1 (existing)
Metro line 2 (existing)
Metro line 3 (under construction)
Metro line 4 (planned)
0
8
Km
© Séjourné & Sims, 2009

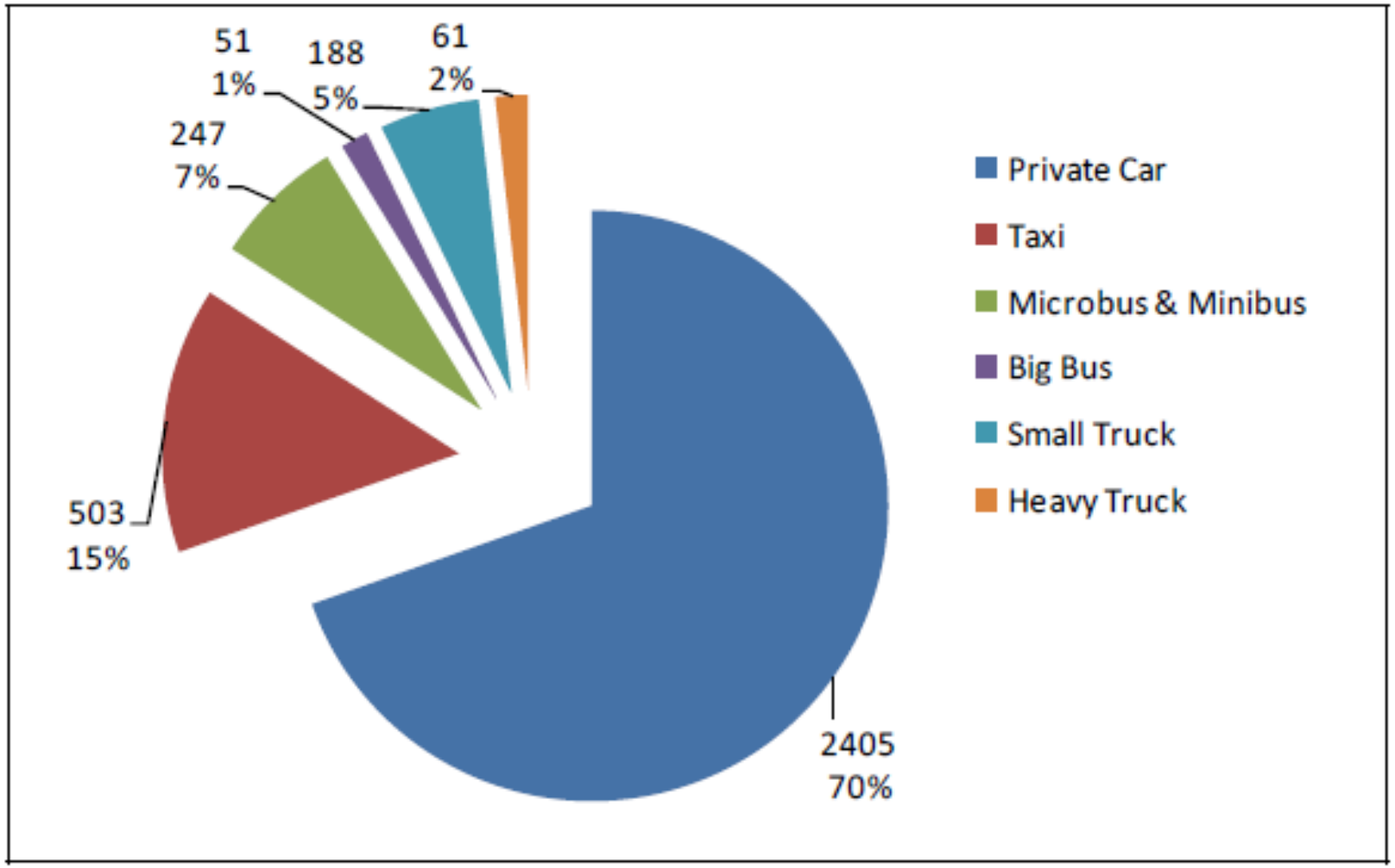
Thus general traffic carries almost the whole of the city's transport burden

- Private car
- Taxi
- Microbus + Minibus
- Public bus
- Private bus
- Pickup
- >3 axle truck
- 3 axle truck
- 2 axle truck
- motorcycle

Traffic: Average modal split 2005



Traffic: Average modal split 2010



Private car dominant and main cause of congestion

- In 2005 the private car represented 43% of traff
- In 2010 the private car represented 70% of traff
- The private car represents over 95% of on-stree parking.
- On-street parking causes more and more traffic congestion

The private car and social justice?

- The private car is the cause of at least 75% of general traffic congestion
- At best it provides only 20% of person-trips
- Only 15% of households in Cairo, Giza City, and Shubra el Kheima owned private cars (2008)
- Only 3% of households in peri-urban Greater Cairo owned private cars (2008)
- Some 4% of Cairo's households own more than one car, and this portion is growing rapidly

The private car and the avalanche to come

- Egypt is only at the beginning of the private car surge
- In other countries it has been shown that the private car is the requirement for joining the middle class, with status an important factor
- In most Middle Eastern countries, car ownership has risen to 50 to 85% of urban families
- Easy credit for car purchase
- Reduced customs duties on small cars

Measures to reduce private car usage – none of which have worked in Cairo

- Encourage shift to public transport, including park and ride
- Restrict parking for private cars and charge economic pricing
- Impose congestion charges
- Impose peak hour tolls
- Drastic: Restrict circulation by even/odd numbers

The private car is simply too attractive

- Fuel costs are ridiculously low
- As traffic gets worse, sitting in a comfortable, AC-ed car, and listening to music or calling on a mobile phone, becomes ironically even more attractive
- Parking solutions (double and triple parking, using munadis, etc.) are still possible
- Most hassles of the private car can be avoided by hiring a driver at a low monthly salary (very common)
- Culturally, the private car is a must for women

Is there any political will to restrict the private car?

- So far, none at all
- Private cars are seen as a right to all who can afford them
- Private cars are also perceived as something modern and Western
- Virtually every person in power owns and uses a private car

Any hope for improving general traffic (mainly traffic management)?

- Apply existing regulations and police moving violations
- Regulate mini-bus activity, esp. loading/offloading
- Improve intersection flows (traffic lights and police)
- Improve road geometry (more lanes, less U turns)
- Remove vendors, dead cars, and other obstructions
- Impose parking bans and steep parking fees

But traffic management improvements rely on effective institutions and enforcement

- As the World Bank says: “solutions can only be implemented by dedicated urban transport institutions and sufficient well qualified staff.”
- No such institutions exist, in spite of years of recommendations
- And police power is arbitrary, self-serving, and only applied in richer areas; and since 2011 traffic police have been almost non-existent

What is the prognosis? Only gloom and doom

- Private car ownership and use will increase inexorably, probably doubling in 10-20 years
- The most likely scenario is worse and worse general traffic congestion, extending into larger parts of the day/night and into formerly uncongested areas.
- Capacities of main corridors will be further reduced
- Total paralysis of main traffic corridors will be inevitable
- The new towns will become isolated islands

Conclusion

- The impending doom is actually the solution in the long run
- Only when traffic congestion reaches paralytic, doomsday levels and everyone suffers will solutions be possible
- At this point a shift to separated public transport lines (metro and others) will become a necessity
- These solutions will take advantage of Cairo's inherent advantages – compactness and high density
- The private car will "wither away" by necessity