

REAL CORP 2011  
Essen, 18-20 May 2011

## *Parallel infrastructures and the changing metropolis: the case of Lisbon*



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## *Parallel infrastructures and the changing metropolis: the case of Lisbon*

- 1. Some ideas concerning 'metropolitan linear formations' (MLF)*
- 2. The reticulation of Lisbon Metropolitan Area: a brief view*
- 3. Morphological interpretation of metropolitan linear formations*

*MLF and planning tools: an assessment of Lisbon's Metropolitan Regional Plan*

- 4. Final remarks*

## 1. Some ideas concerning 'metropolitan linear formations' (MLF)

What are 'metropolitan linear formations'?

More than the axial sequencing of various spatial products; in the context of metropolisation, they are combined into a sort of *fibrous or plexiform fabric*, produced by the overlapping redundancies of multiple infrastructural lines.

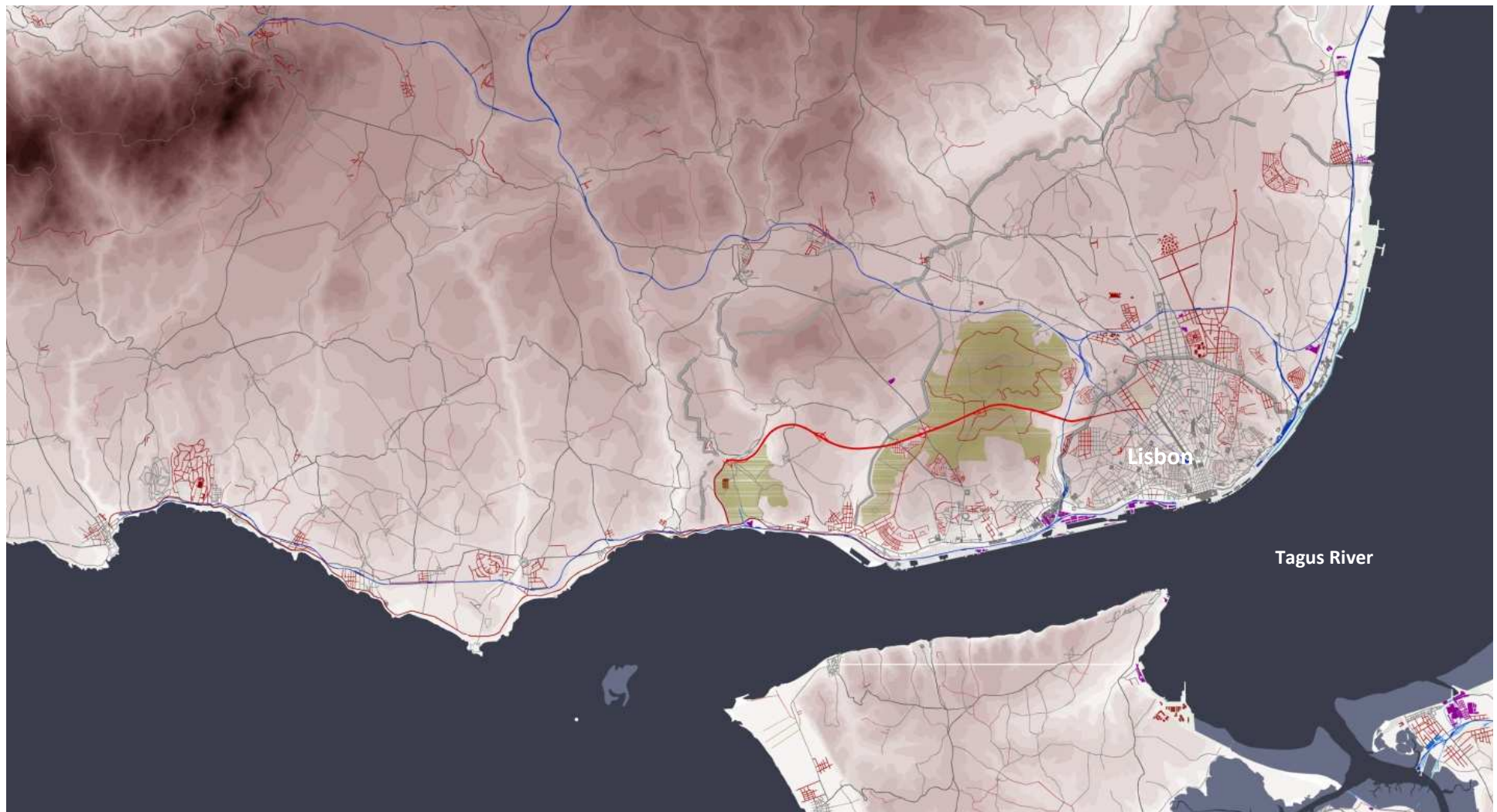
Why working with MLF?

To identify and clarify which morphological characteristics may contribute to the acknowledgment, intelligibility and design of linear metropolitan structures

## *2. The reticulation of Lisbon Metropolitan Area: a brief view*

*2. The reticulation of Lisbon Metropolitan Area: a brief view*

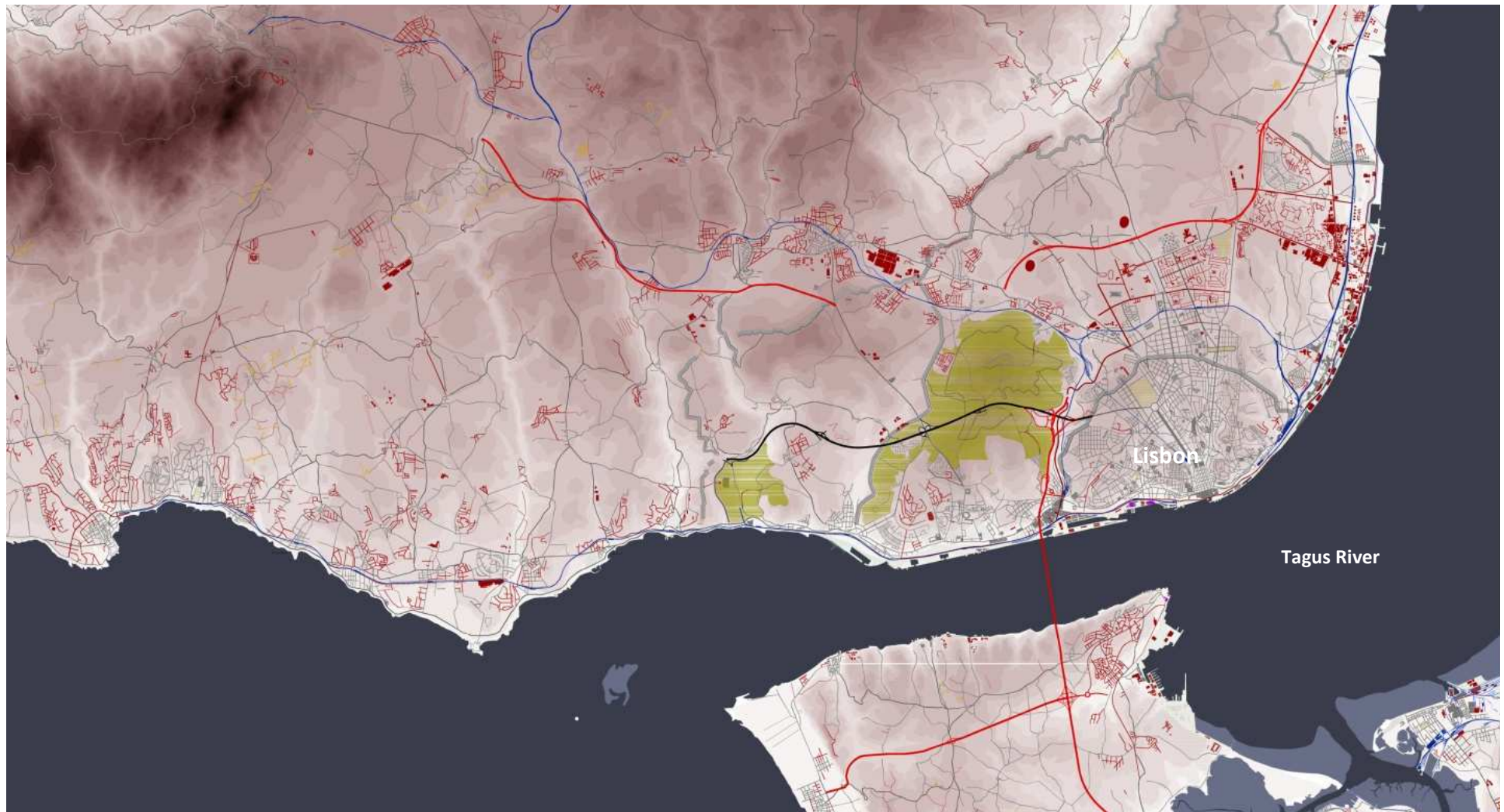
**1891-1944**





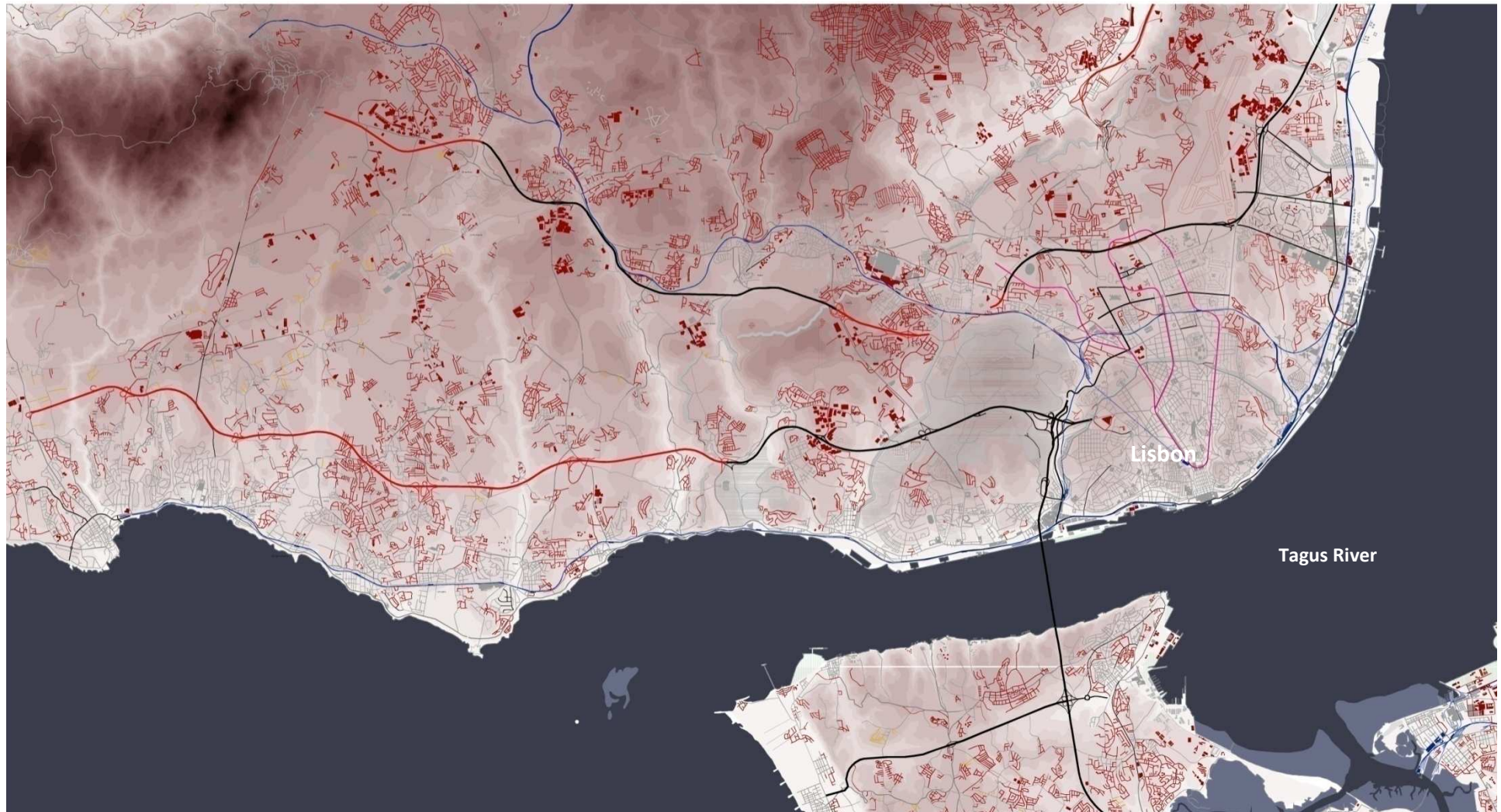
2. The reticulation of Lisbon Metropolitan Area: a brief view

1944-1966



2. The reticulation of Lisbon Metropolitan Area: a brief view

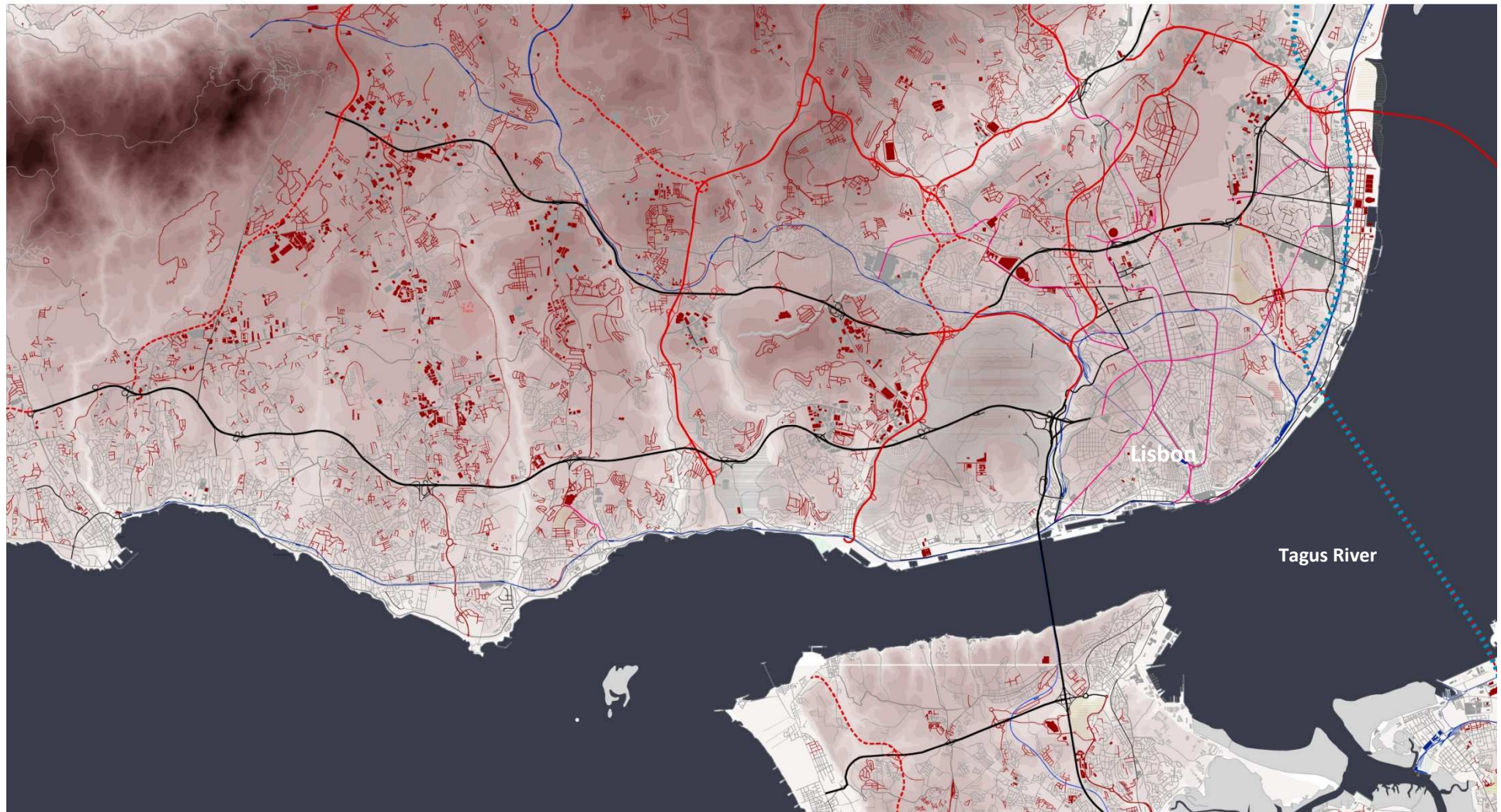
1966-1995





2. The reticulation of Lisbon Metropolitan Area: a brief view

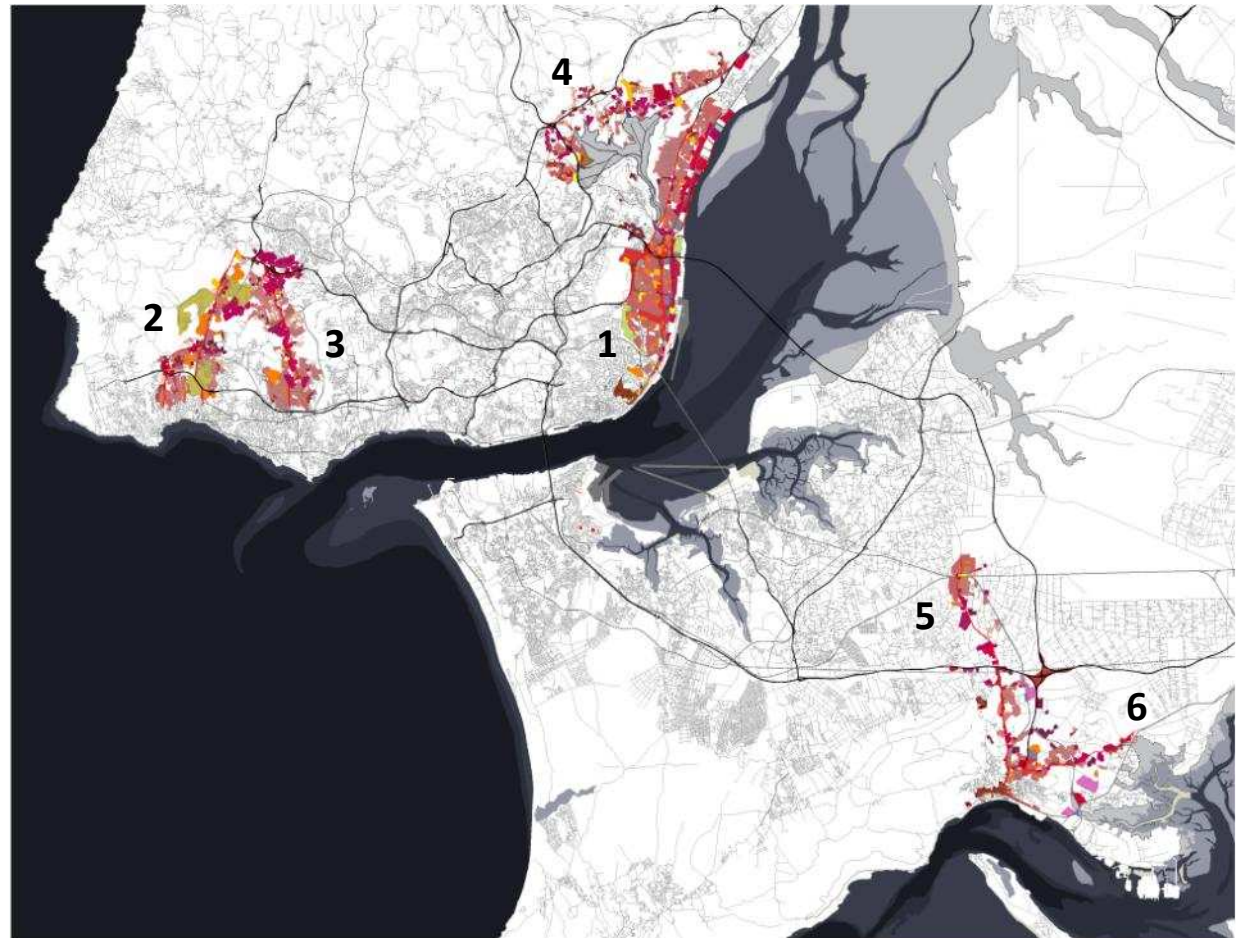
1995-2007





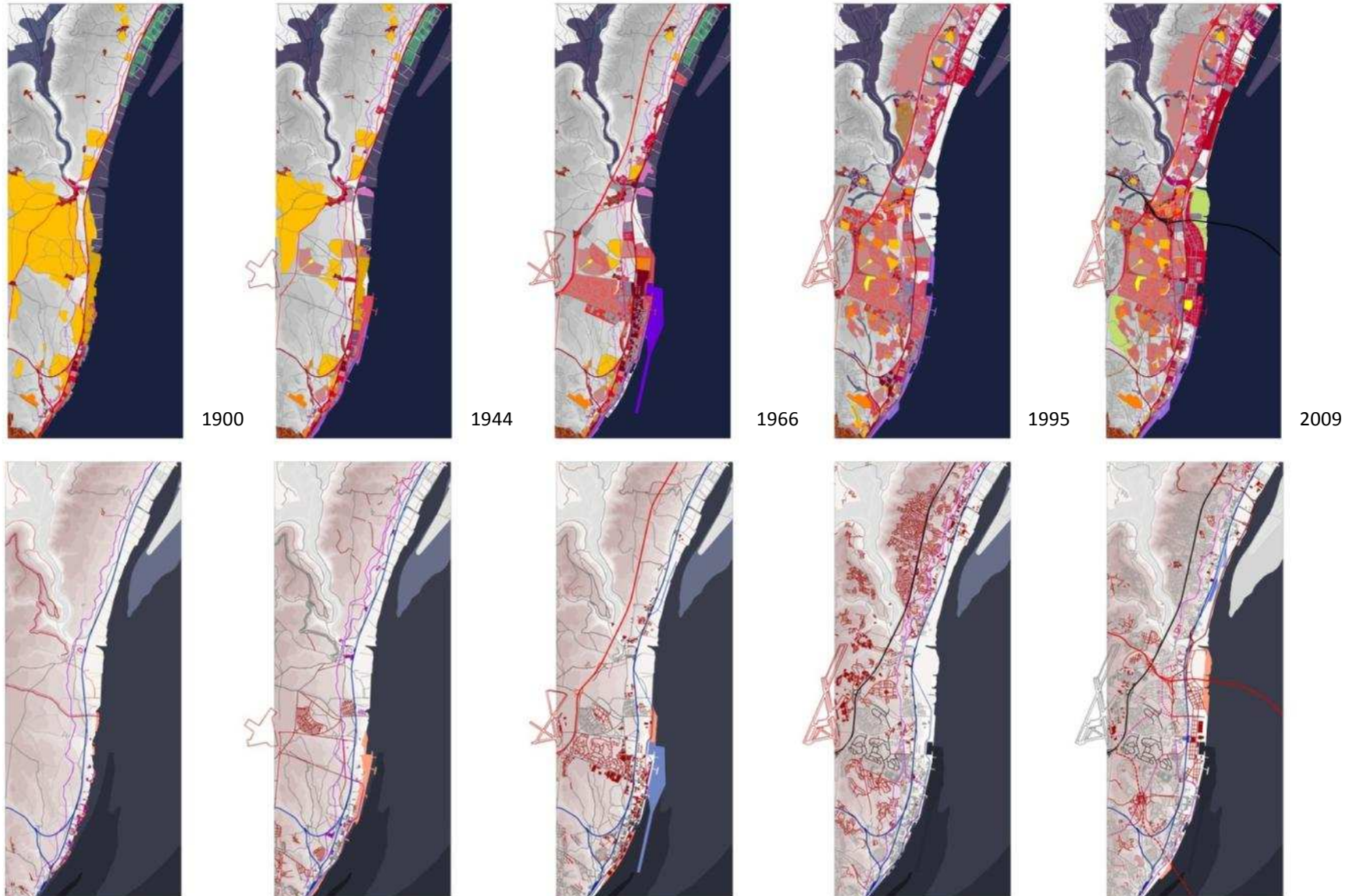
### 3. Morphological interpretation of metropolitan linear formations

1. Xabregas-Sacavém-Santa Iria da Azóia  
*(partly part of N1)*
2. Alcabideche-Linhó-Ranholas (N9)
3. Abóbada-Trajouce-Abrunheira (N242-4)
4. Loures-Tojais-Vialonga  
*(N115 e Via de Cintura da AML Norte/ER19)*
5. Setúbal-Palmela-Pinhal Novo (N252)
6. Setúbal-Águas de Moura (N10)



### 3. Morphological interpretation of metropolitan linear formations

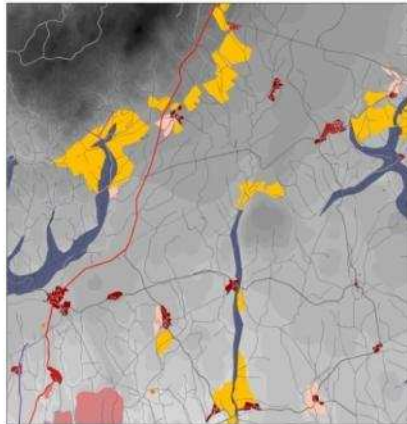
Xabregas – Stª Iria da Azóia (N1 e A1)



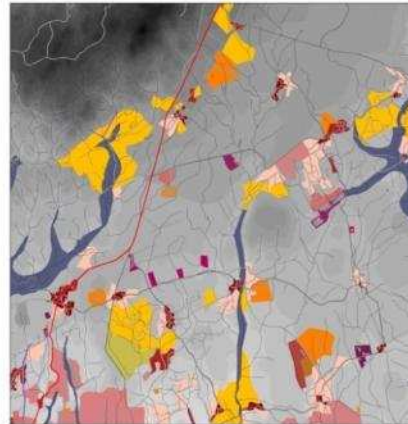


### 3. Morphological interpretation of metropolitan linear formations

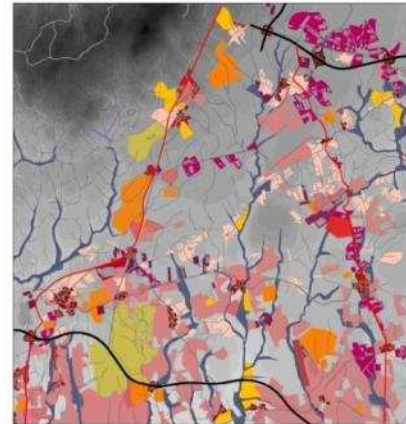
Alcabideche / Ranholas (N9) e Abódada / Abrunheira (N242-4)



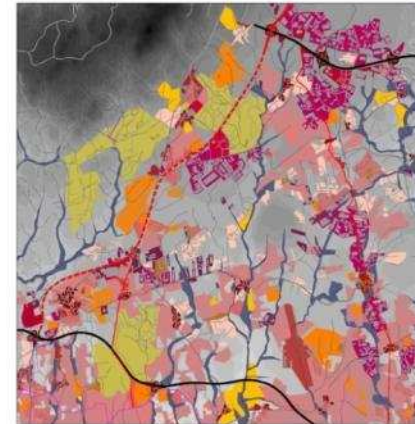
1944



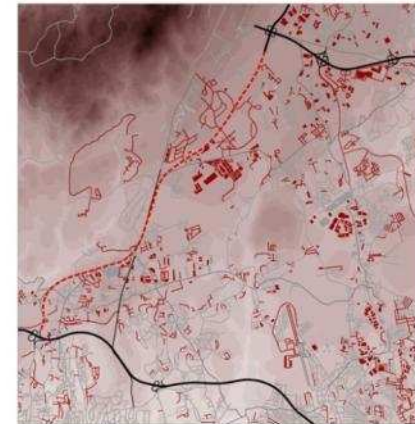
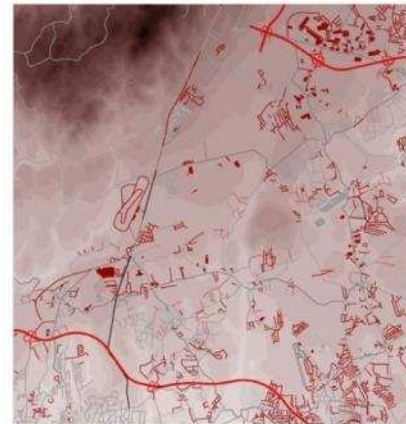
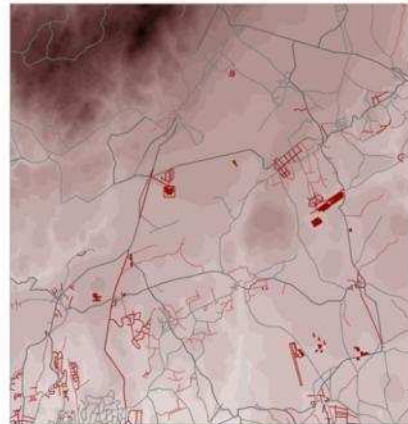
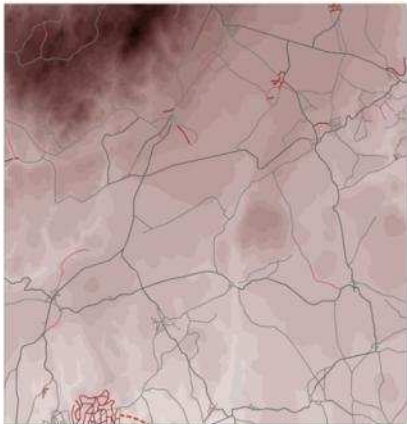
1966



1995



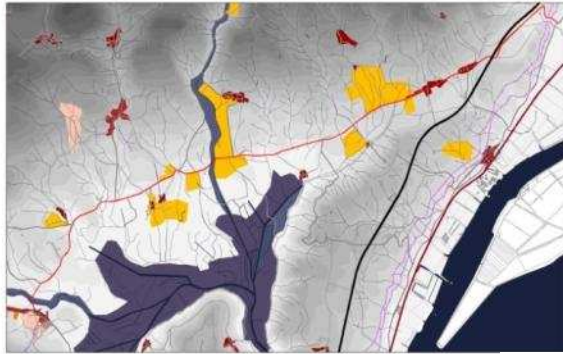
2009



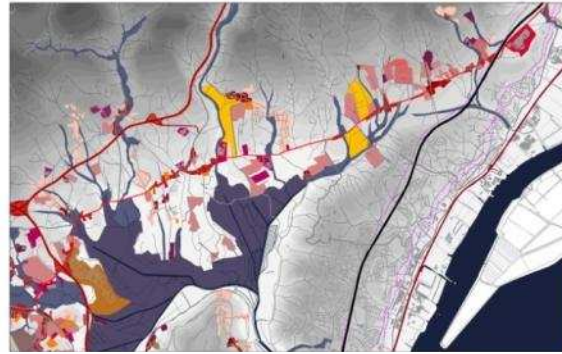


### 3. Morphological interpretation of metropolitan linear formations

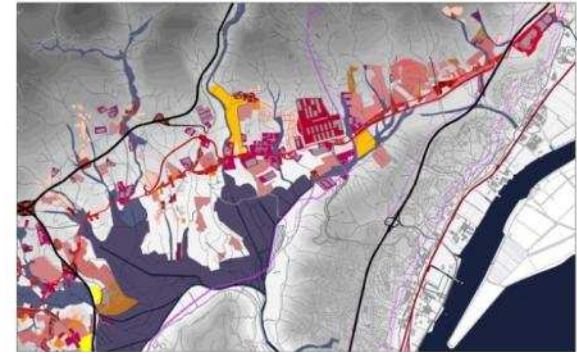
Loures / Vialonga (N115 e ER19)



1966



1995



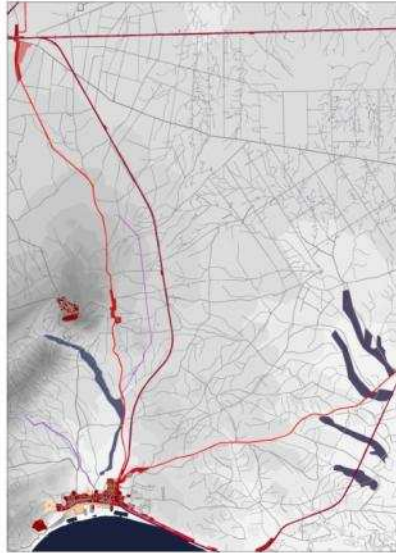
2009



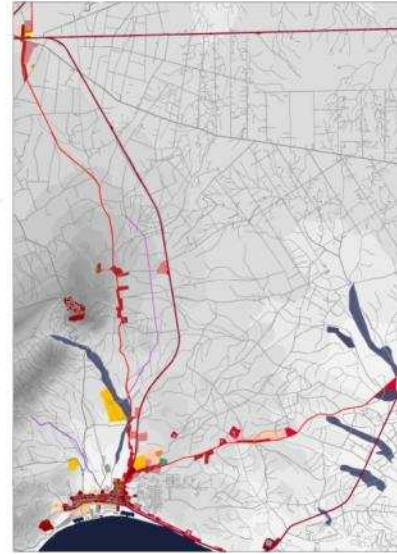


### 3. Morphological interpretation of metropolitan linear formations

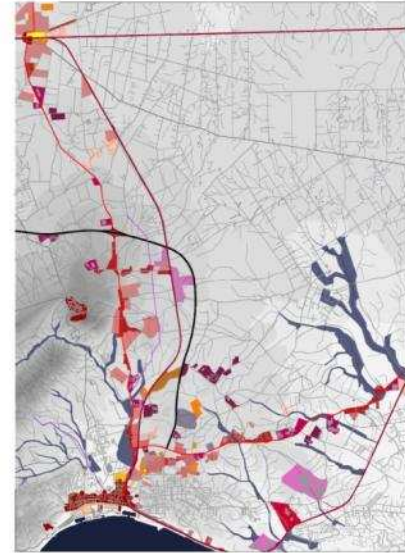
Setúbal (N252 e N10)



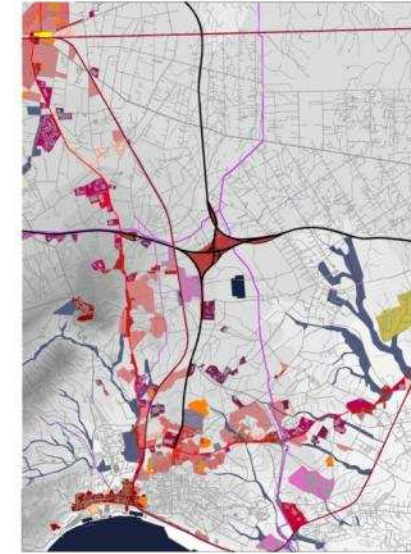
1944



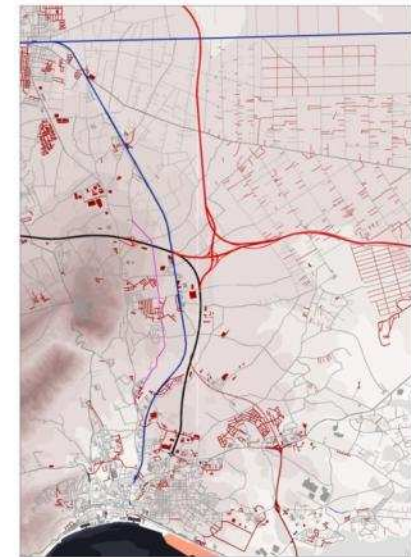
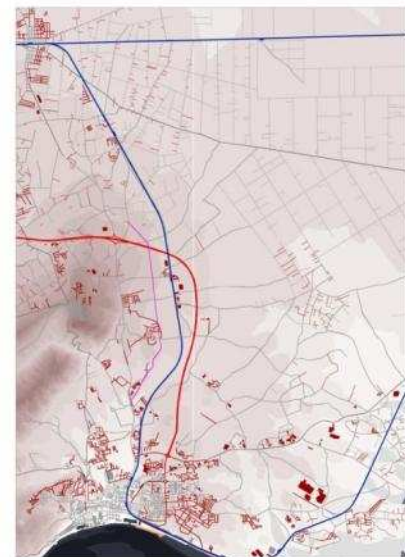
1966



1995



2009



### 3. Morphological interpretation of metropolitan linear formations

	Xabregas-Sacavém-Srª Iria da Azóia	Alcabideche-Linhó-Ramôis	Abdiada-Trajouce-Abrunheira	Loures-Tojais-Vialonga	Setúbal-Palmela-Pinhal Novo	Setúbal-Águas de Moura
<b>Physiography/hydrography relationship</b>						
Hillside / countour line				•	•	•
Crest and divide line		•	•			
Valley, coast line, or river bank	•					
Spaces determined by water features	•			•	•	
<b>Contiguity and transversal aggregation</b>						
Linear elongation of urban settlement	•				•	•
Linear contiguous aggregation _ residential	•					
Linear contiguous aggregation _ pavilion			•			•
Relationship with remarkable open space		•		•	•	
Densification of rustic matrix		•	•	•	•	•
Transversal subdivision _ grid	•	•				•
Transversal subdivision _ type-volumetric layout				•		
Transversal subdivision _ polygonal pavilion layout			•	•		
Inter-axial urban development	•					
Multifunctional urban development		•				•
<b>Infraestrutural polarisation</b>						
IP/C (arterial motorways) intersections	•	•	•	•	•	•
Commercial and logistic poles		•		•		•
Port / Airport	•					•
<b>Parallelistic vertebration</b>						
Armature for discontinuous urban fabrics		•	•		•	•
Building of intermediate road network	•	•		•		•
Pavilion/industrial site redevelopment into commercial space with parking	•					•
Declassification and integration of national roads into the urban structure	•				•	•
Conversion of bounded open spaces (villas/estates) into gated-community real-estate		•				
Specialization and functional differentiation a)	PI+LI	GC+MF	PI+PC	PI+LI	PC	PC

a) PI – Pavilion/Industrial PC – Pavilion/Commercial GC – Gated-community residential MF – Multifunctional LI – Logistic/Industrial



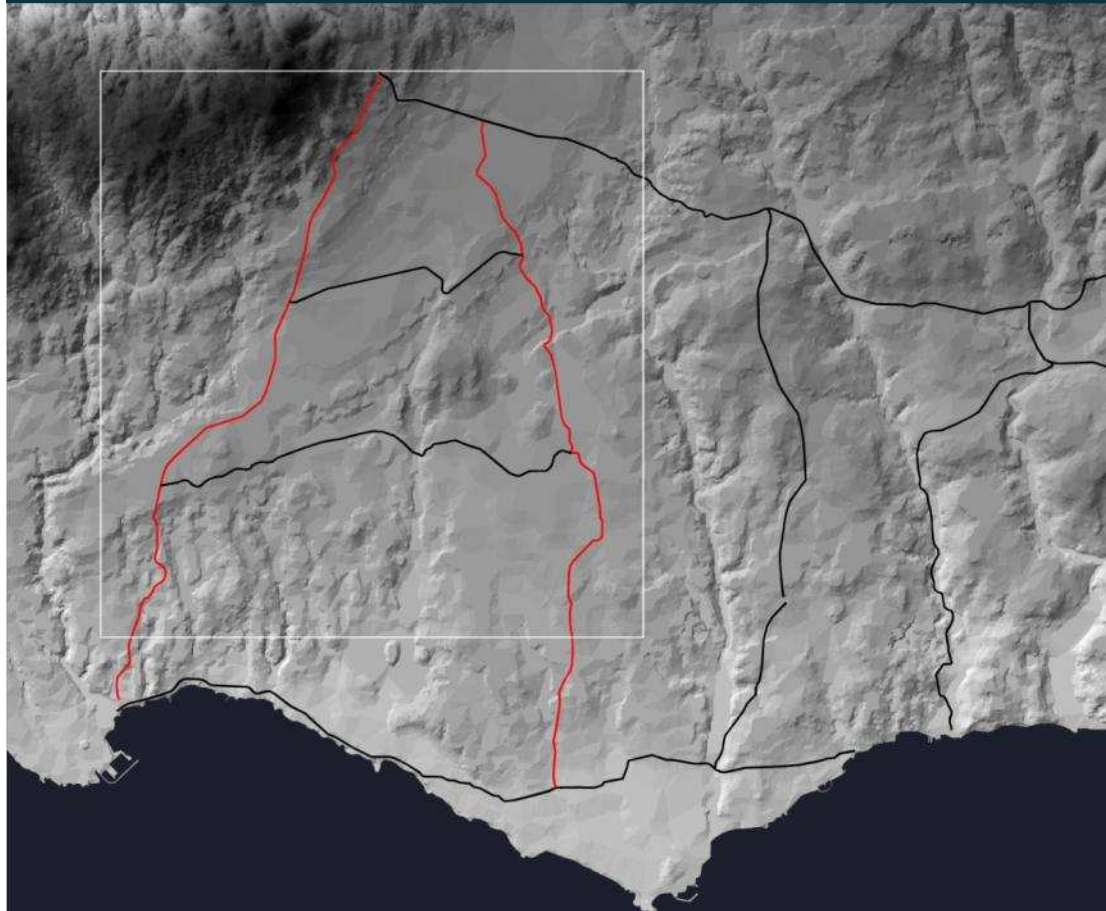
### 3. Morphological interpretation of metropolitan linear formations



Loures / Vialonga (N115 and ER19)

	Xabregas-Sacavem-Stª Iria da Azóia	Alcabideche-Linho-Ranholas	Abóada-Trajouco-Abrunheira	Loures-Tojais-Vialonga	Setúbal-Palmela-Pinhal Novo	Setúbal-Aguas de Moura
<b>Physiography/hydrography relationship</b>						
Hillside / contour line				•	•	•
Crest and divide line		•	•			
Valley, coast line, or river bank	•					
Spaces determined by water features	•			•	•	

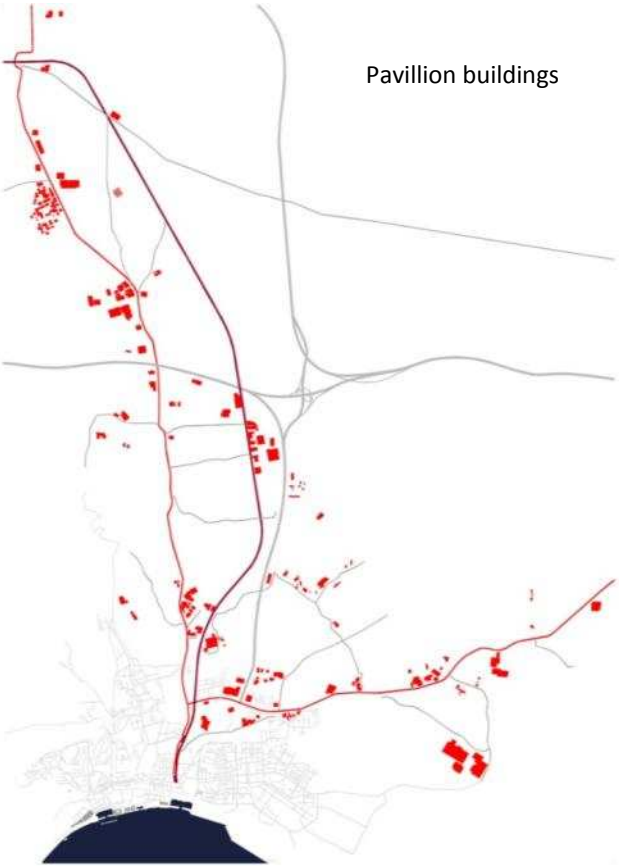
### 3. Morphological interpretation of metropolitan linear formations



Alcabideche / Ranholas (N9) and Abódada / Abrunheira (N242-4)

Physiography/hydrography relationship	Xabregas-Sacavém-Stª Iria da Azóia	Alcabideche-Linhó-Ranholas	Abódada-Trajouce-Abrunheira	Loures-Tojal-Vialonga	Setúbal-Palmela-Pinhal Novo	Setúbal-Aguas de Moura
Hillside / contour line				•	•	•
Crest and divide line		•	•			
Valley, coast line, or river bank	•					
Spaces determined by water features	•			•	•	

### 3. Morphological interpretation of metropolitan linear formations



Pavillion buildings



Road network

Setúbal (N252 and N10)

	Xabregas-Sacavém-Ilha da Azóia	Alcabóideche-Linhó-Ranholas	Albarrã-Trajouce-Alburitelra	Loures-Tojal-Vialonga	Setúbal-Palmela-Pinhal Novo	Setúbal-Águas de Moura
<b>Contiguity and transversal aggregation</b>						
Linear elongation of urban settlement	•				•	•
Linear contiguous aggregation _ residential	•					
Linear contiguous aggregation _ pavillion			•			•
Relationship with remarkable open space	•	•		•	•	
Densification of rustic matrix		•	•	•		
Transversal subdivision _ grid	•	•		•	•	•
Transversal subdivision _ type -volumetric layout				•		•
Transversal subdivision _ polygonal pavillion layout			•	•		
Inter-axial urban development	•					
Multifunctional urban development		•				•



### 3. Morphological interpretation of metropolitan linear formations



1944

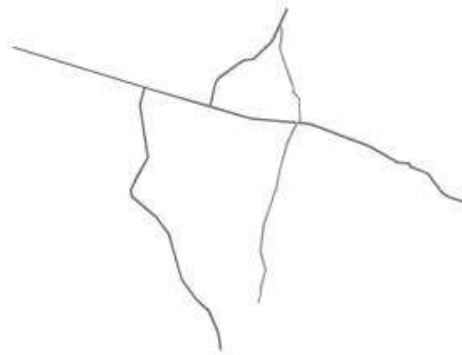
1966

1995

Xabregas – Stª Iria (N1 and A1)

	Xabregas-Sacavém-Stª Iria da Azóia	Alcabláche-Linhó-Ranholas	Alvobacia-Trajouce-Alburitelra	Loures-Tojal-Vialonga	Setúbal-Palmela-Pinhal Novo	Setúbal-Aguas de Moura
<b>Contiguity and transversal aggregation</b>						
Linear elongation of urban settlement	•				•	•
Linear contiguous aggregation _ residential	•					
Linear contiguous aggregation _ pavilion			•			•
Relationship with remarkable open space	•	•		•	•	
Densification of rustic matrix		•	•	•		
Transversal subdivision _ grid	•	•		•		•
Transversal subdivision _ type-volumetric layout				•		•
Transversal subdivision _ polygonal pavilion layout			•	•		•
Inter-axial urban development	•					
Multifunctional urban development		•				•

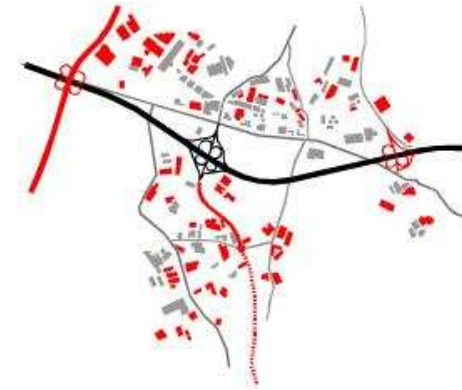
### 3. Morphological interpretation of metropolitan linear formations



1966



1995

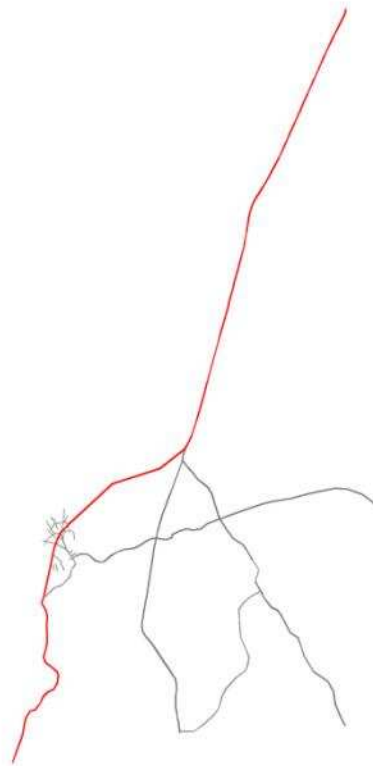


2009

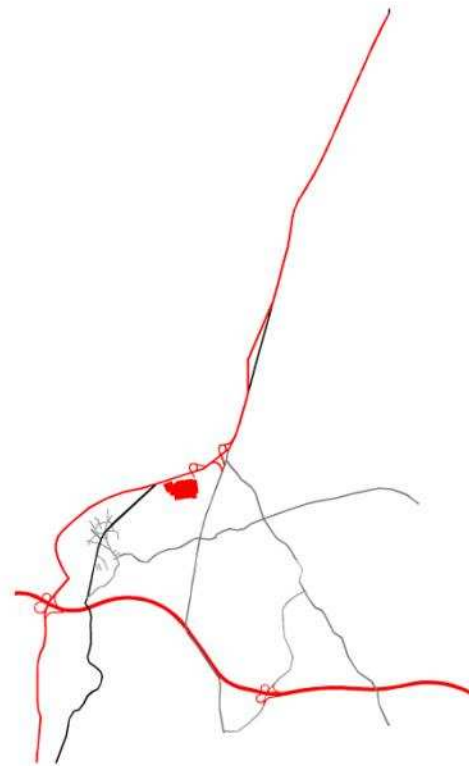
**Abrunheira / Ranholas (N9 and N242-4)**

	Xabregas-Sacavém-Sa Inês da Azóia	Alcabideche-Linhó-Ranholas	Albareda-Trajouce-Abrunheira	Loures-Tojal-Vialonga	Setúbal-Palmela-Pinhal Novo	Setúbal-Águas de Moura
<b>Infraestrutural polarisation</b>						
IP/IC (arterial motorways) intersections	•	•	•	•	•	•
Commercial and logistic poles		•	•	•	•	•
Port / Airport	•					•

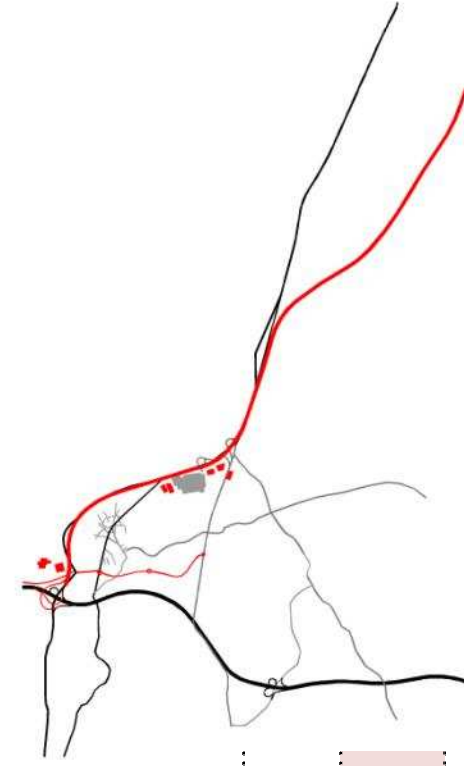
### 3. Morphological interpretation of metropolitan linear formations



1966

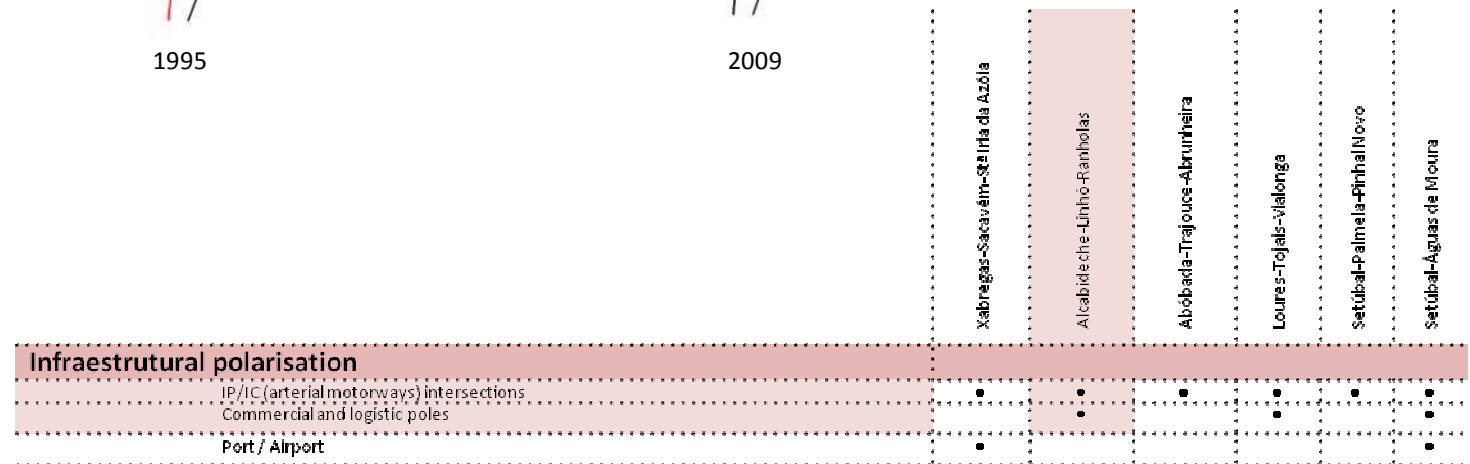


1995



2009

Alcabideche / Ranholas (N9)

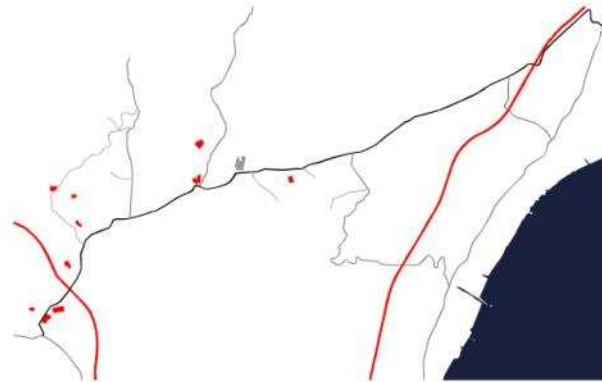




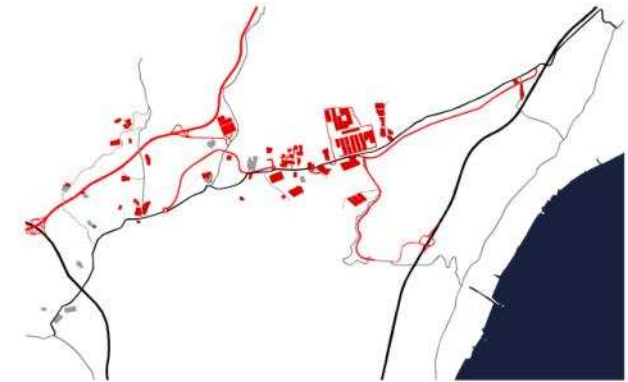
### 3. Morphological interpretation of metropolitan linear formations



1966



1995



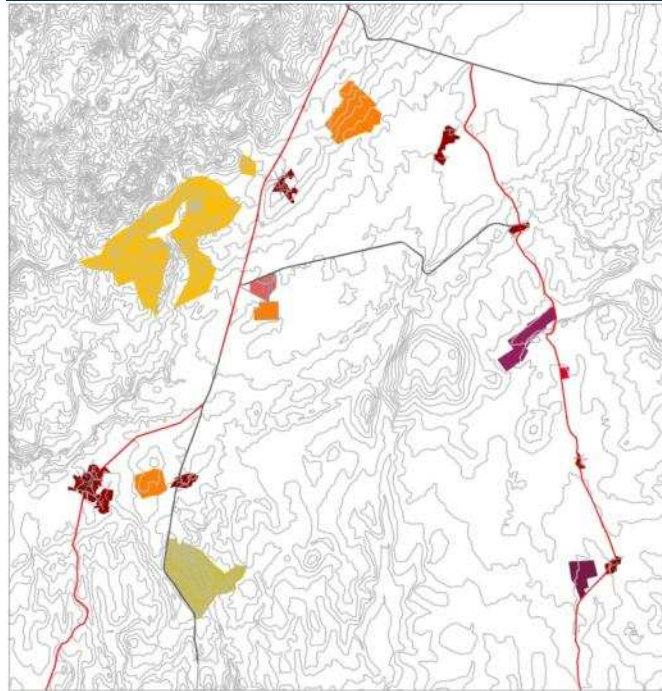
2009

Loures / Vialonga (N115 and ER19)

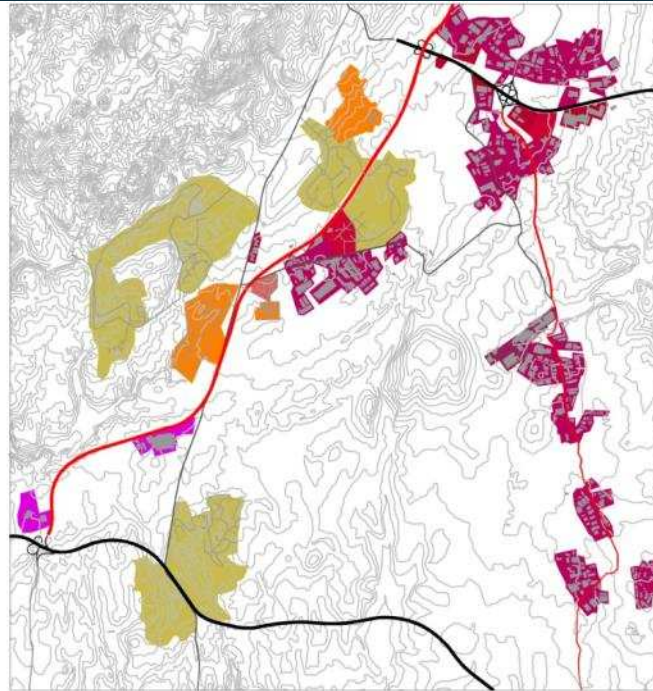
	Xabregas-Sacavém-Szê Infa da Azóia	Alcabedche-Linhó-Panholas	Abóbada-Trajouros-Alrunheira	Loures-Tojais-Vialonga	Setúbal-Palmela-Pinhal Novo	Setúbal-Águas de Moura
<b>Parallelistic vertebration</b>						
Plexi-morphous / multi-infrastructurel formation	•					
Armature for discontinuous urban fabrics		•	•		•	•
Building of intermediate road network	•	•		•		•
Pavillon/Industrial site redevelopment into commercial space with parking	•					•
Declassification and integration of national roads into the urban structure	•				•	•
Conversion of bounded open spaces (villas/estates) into gated-community real-estate		•				
Specialization and functional differentiation a)	PI-LI	GC-MF	PI-PC	PI+LI	PC	PC

a) PI – Pavillon/Industrial PC – Pavillon/Commercial GC – Gated-community residential MF – Multifunctional LI – Logistic/Industrial

### 3. Morphological interpretation of metropolitan linear formations



1966



2009

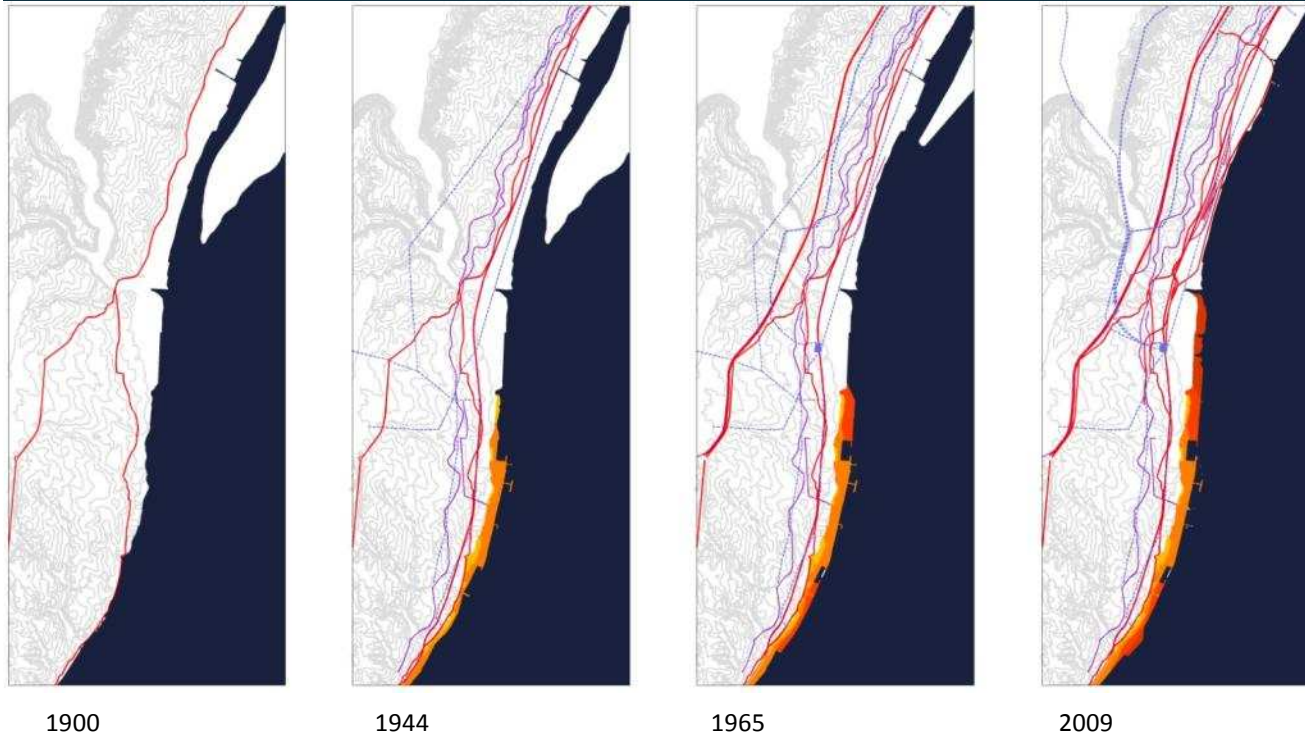
Abrunheira / Ranholas (N9) e Abódada / Abrunheira (N242-4)

Xabregas-Sacavém-Sz. Iria da Azóia  
 Alcáideche-Linho-Ranholas  
 Abódada-Trajouce-Abrunheira  
 Loures-Tojal-Malounga  
 Setúbal-Palmela-Pinhal Novo  
 Setúbal-Águas de Moura

Parallelistic vertebration	Xabregas-Sacavém-Sz. Iria da Azóia	Alcáideche-Linho-Ranholas	Abódada-Trajouce-Abrunheira	Loures-Tojal-Malounga	Setúbal-Palmela-Pinhal Novo	Setúbal-Águas de Moura
Plexi-morphous / multi-infrastructurel formation	•					
Armature for discontinuous urban fabrics		•	•		•	•
Building of intermediate road network	•	•		•		•
Pavilion/Industrial site redevelopment into commercial space with parking	•					•
Declassification and integration of national roads into the urban structure	•				•	•
Conversion of bounded open spaces (villas/estates) into gated-community real-estate		•				
Specialization and functional differentiation a)	PI+LI	RC+MF	PI+PC	PI+LI	PC	PC

a) PI—Pavilhonar/Industrial PC—Pavilhonar/Comercial RC—Residencial condominial MF—Multifuncional LI—Logístico/Industrial

### 3. Morphological interpretation of metropolitan linear formations



1900

1944

1965

2009

Xabregas / Stª Iria Azóia (N1 e A1)

	Xabregas-Sacavém-Stª Iria da Azóia	Alcabideche-Linhó-Panóhelas	Albóada-Trajouros-Alrunheira	Loures-Tojal-Vilalonga	Setúbal-Palmela-Pinhal Novo	Setúbal-Águas de Moura
<b>Parallelistic vertebration</b>						
Plexi-morphous / multi-infrastructurel formation	•					
Armature for discontinuous urban fabrics		•	•		•	•
Building of intermediate road network	•	•		•		•
Pavilion/Industrial site redevelopment into commercial space with parking	•					•
Declassification and integration of national roads into the urban structure	•				•	•
Conversion of bounded open spaces (villas/estates) into gated-community real-estate		•				
Specialization and functional differentiation a)	PI-LI	RC-MF	PI-PC	PI-LI	PC	PC

a) PI – Pavilhonar/Industrial PC – Pavilhonar/Comercial RC – Residencial condominial MF – Multifuncional LI – Logístico/Industrial

## *4. Final remarks*



## 4. *Final remarks*

### **Parallelistic formations require intermediation between *network* and *fabric***

Reticulation is being developed at the middle scale levels of metropolitan fabric

Polarization and parallelistic vertebration are the mechanisms supporting it.

### **Parallelistic formations are spatial laboratories for metropolisation research and planning**

Linear and parallel formations combine the spatial, functional and landscape qualities of *flow* and *place*

Many of the splinters of landscape produced by intermediate reticulation carry the genetic code upon which the metropolis emerged. They're becoming an heritage in the realm of contemporary metropolis.

*Thank you*



Acknowledgements:

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*REAL CORP 2011 | Essen | 18-20 May 2011*