



Overview L'Aquila reconstruction

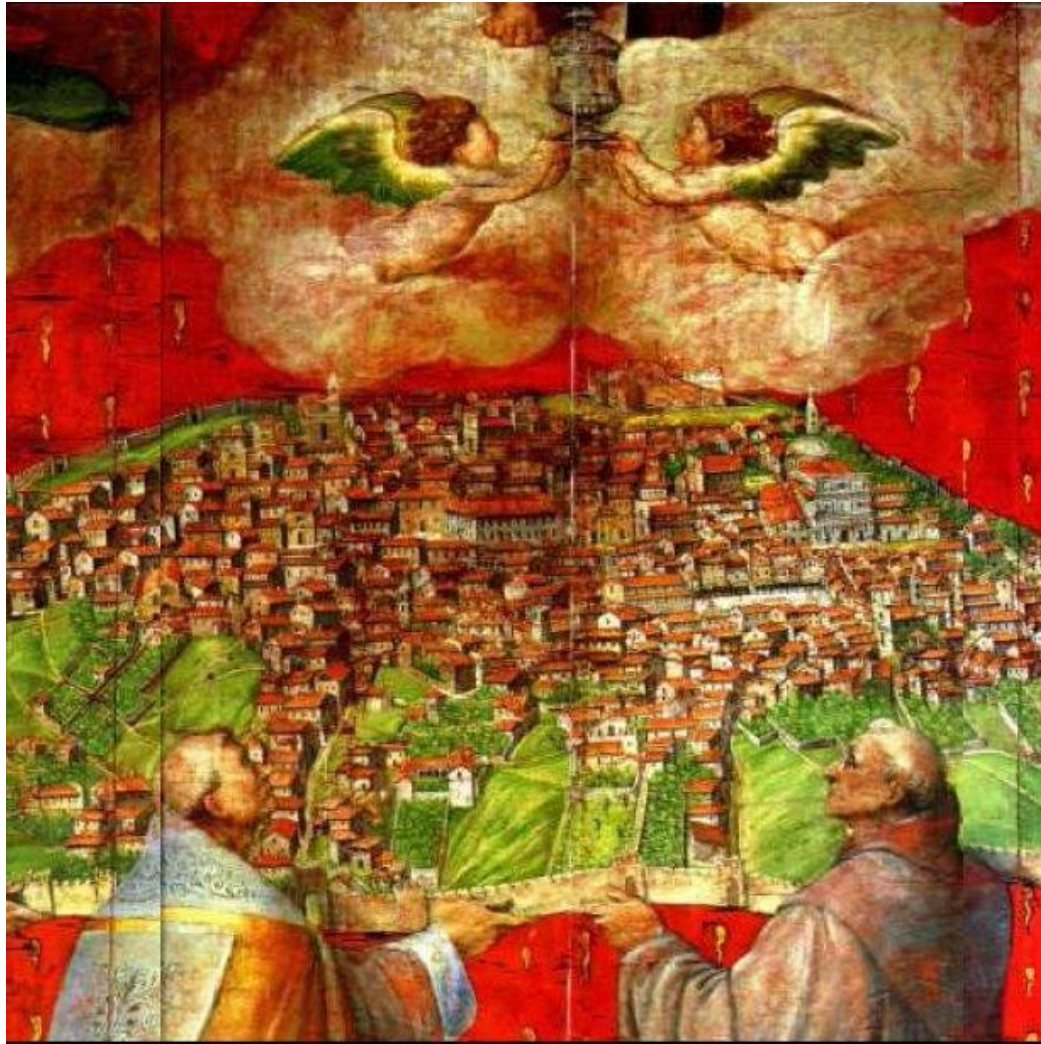
PhD Research Fellow Federico D'Ascanio



PARTNER



Brief history of the city of L'Aquila

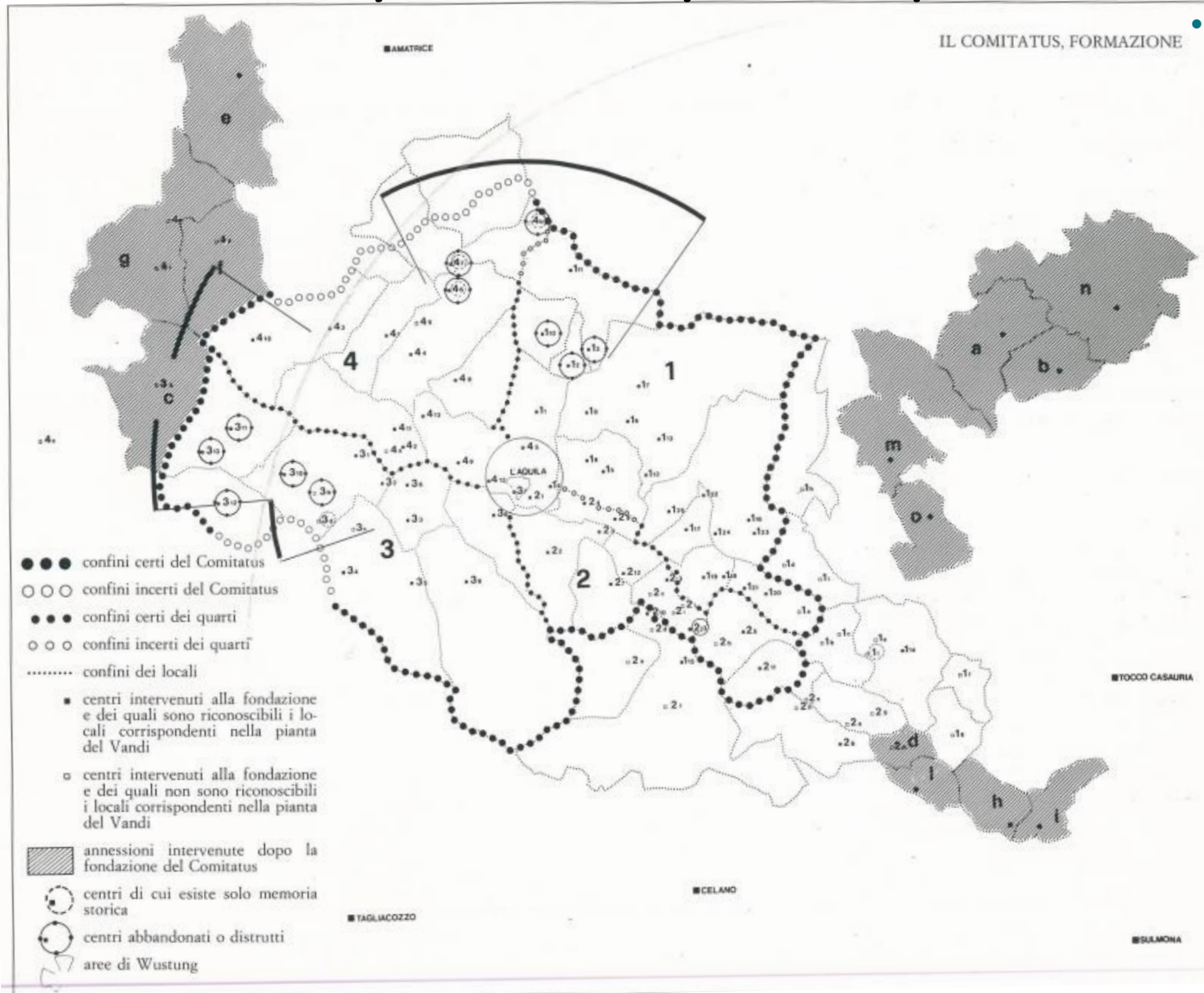


G.P. Cardone, Gonfalone of the city of LAquila, 1579



- The history of L'Aquila began in 1254, when the city was founded by King Conrad IV of Swabia, son of Emperor Frederick II, from the legendary 99 castles (that actually numbered around 70). However, the number has remained in tradition to such an extent that, as a reminder of the foundation, the bell in the Torre Civica was still tolling 99 times until the 2009 earthquake and the city's oldest monument is the Fontana delle 99 Cannelle.

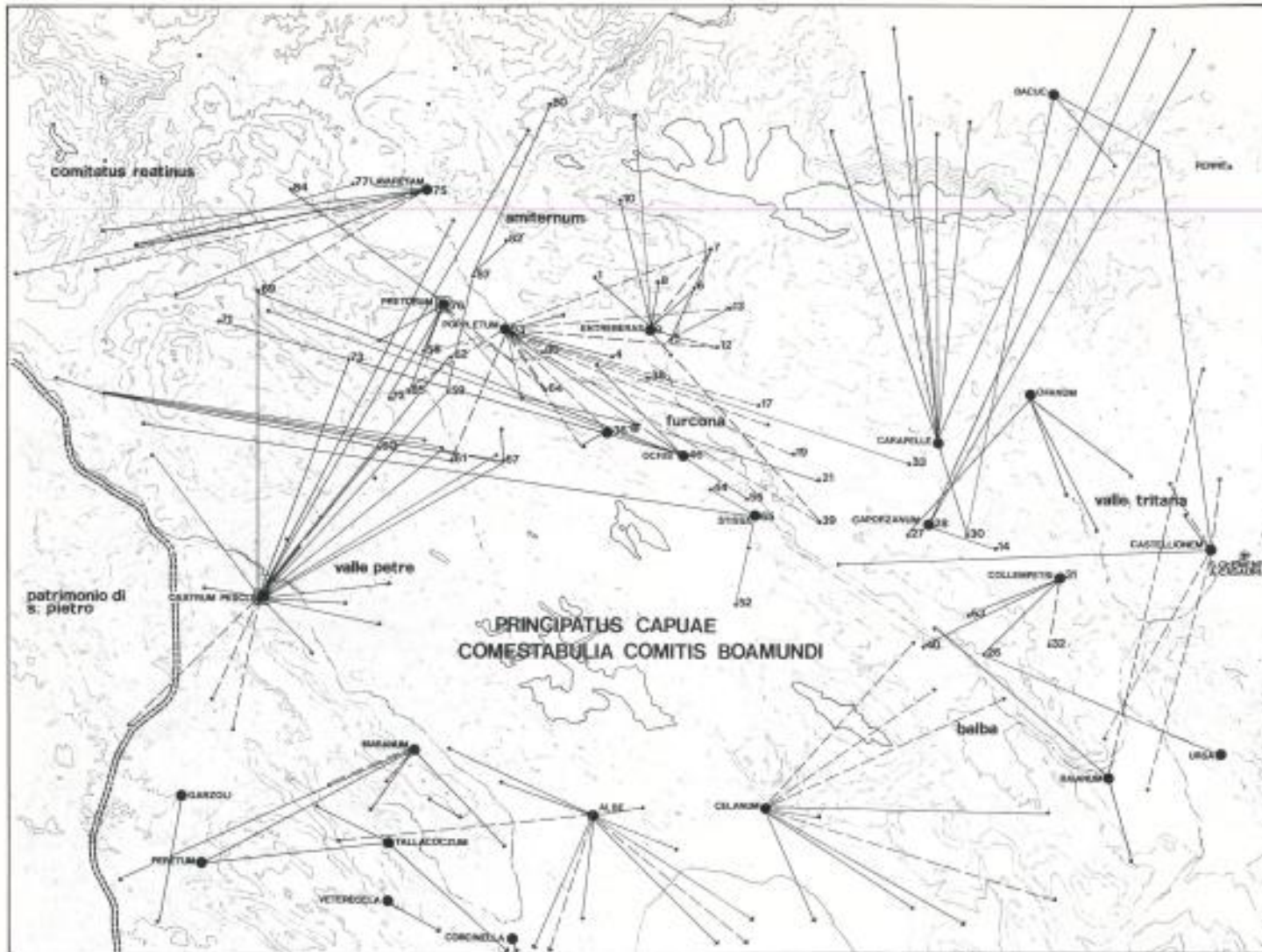
Brief history of the city of L'Aquila



- The valley represents a large transit area from east to west and, despite being located in a strategic area for settlement, there are no reports of settlements stable **before the 11th century**.

Comitatus Aquilanus

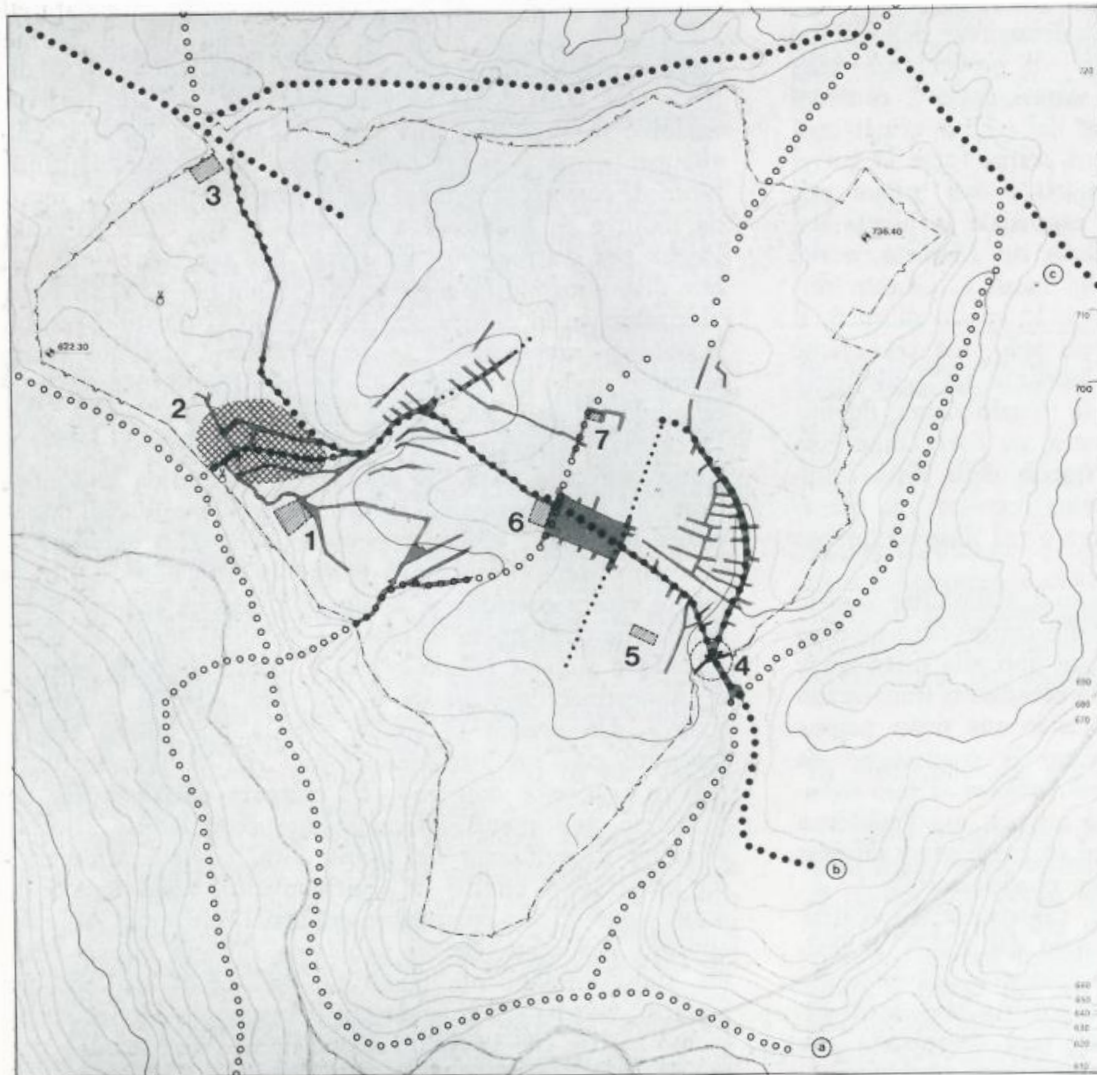
Brief history of the city of L'Aquila



- The encastellation that occurred during the Norman period profoundly marked the Abruzzo region of L'Aquila, causing a substantial reorganisation of the previous territorial organisation, characterised by a limited number of fortifications.
- In this peculiar historical period, the territory saw the birth of new fortified settlements, based on Norman models already successfully tested in other border areas.

Encastellation of L'Aquila by the Normans before the foundation

Brief history of the city of L'Aquila



GLI ELEMENTI COSTITUTIVI DELLA CITTÀ ORGANICA

- Ⓐ percorso secondario di fondovalle
- Ⓑ percorso secondario di scollinamento
- Ⓒ percorso principale
- percorsi urbani di convergenza
- percorsi urbani di impluvio
- percorsi urbani in quota
- ▭ piazza

- 1. convento S.M. Aquili; 2. Borgo di Acculi; 3. ospedale S. Spirito; 4. porta Bazzano; 5. S. Giusta; 6. SS. Giorgio e Massimo (Duomo); 7. S. M. ad Civitatem.

- Constituent elements of the organic city (until 1259): it is recognisable in the connections between the existing polarities, among which the square emerges, according to routes that take advantage of the contours of the land.
- The elevated and sloping streets create an initial, typically natural urban fabric that is still recognisable today.

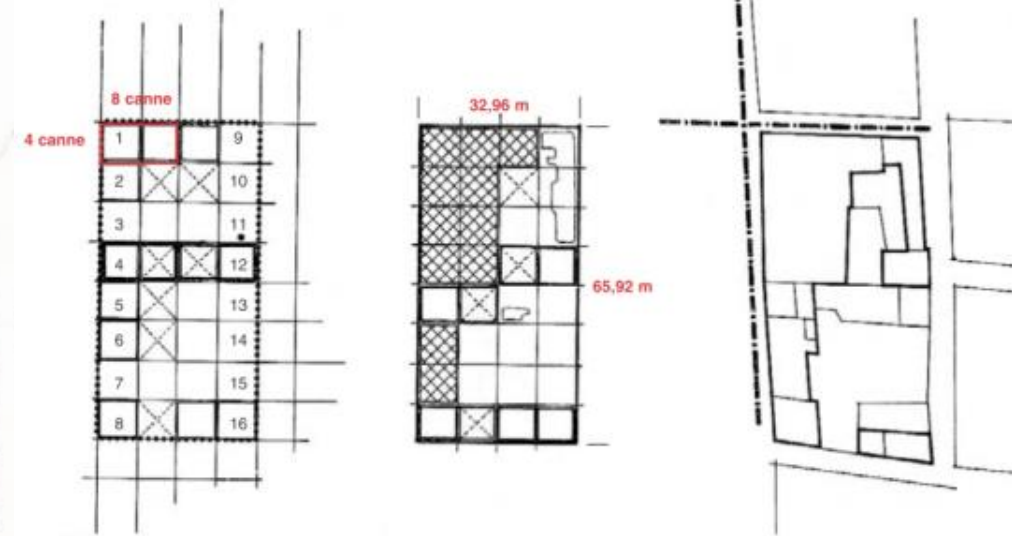
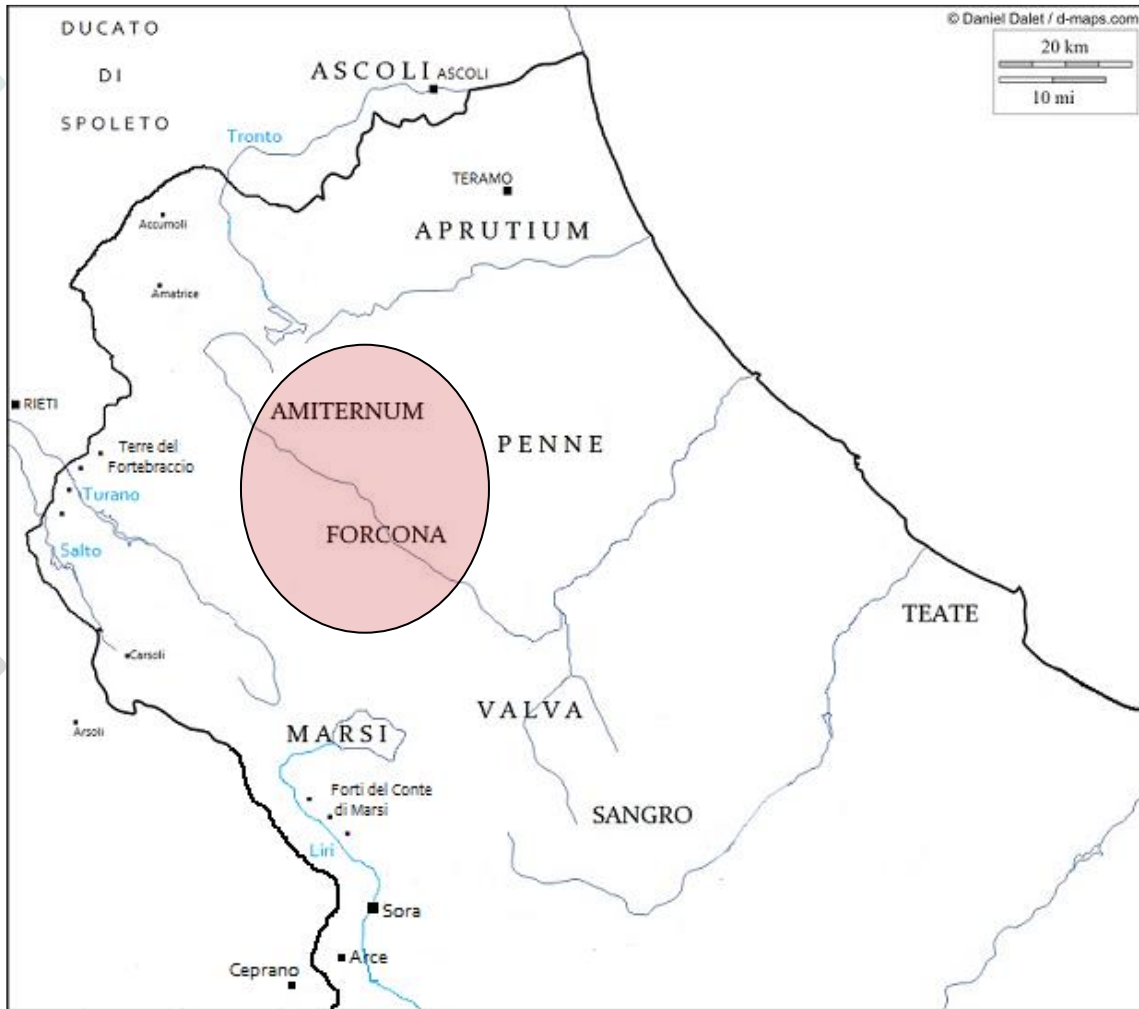


Fig. 8. Il modello di aggregazione originaria dei lotti nell'isolato (tipo A); 16 lotti da 4 canne (8.24 m) per 8 canne (16.48 m)

ENCASEMENT OF LAQUILA BY THE NORMANS BEFORE THE FOUNDATION

The first foundation of the city (from 1254 up to 1259)



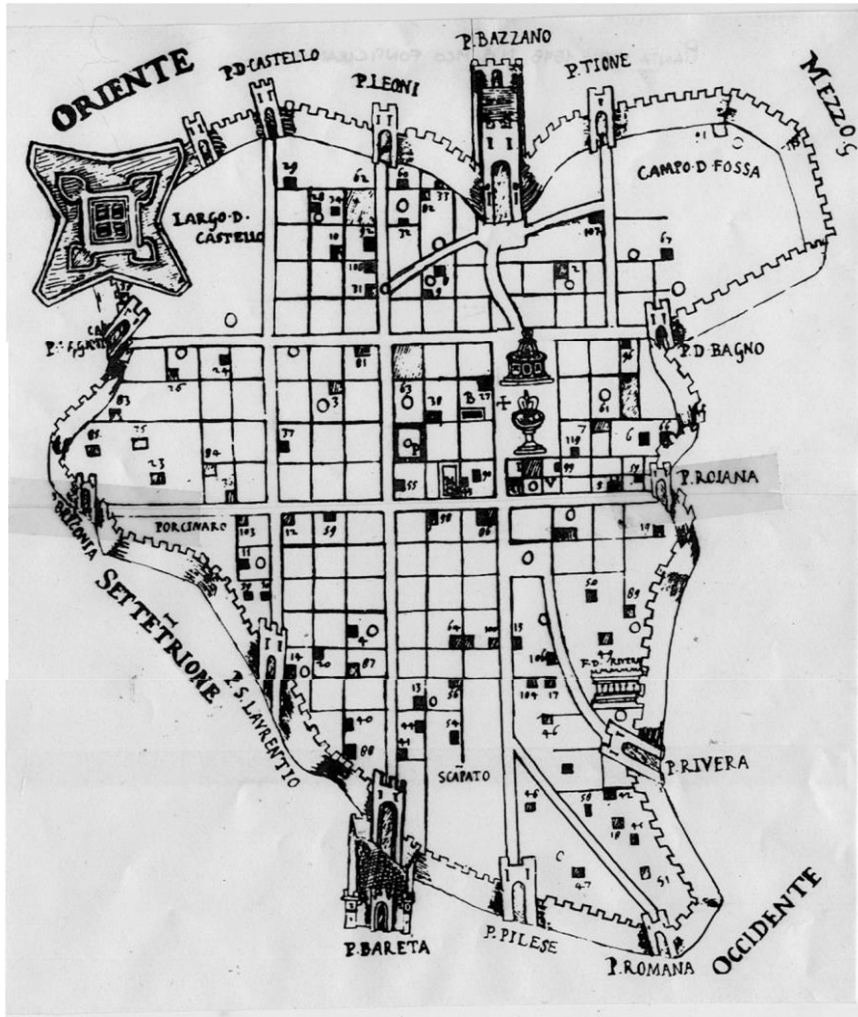
- The name perhaps derives from the abundance of water ("Accule" means "streams of water"), to underline the enormously advantageous natural position of the conca aquilana, while the spread of Cistercian abbeys is a testimony building and architectural knowledge prior to the founding of the city.
- The valley of L'Aquila was, at the end of the first half of the **13th century**, divided between **two dioceses: Amiterno (north) and Forcona (south)**, both part of the **Kingdom of Sicily**. Their territories were a perfect example of feudal fragmentation, shared among local barons fighting against Emperor Federico II.
- In **1229** the inhabitants of these castles decided to **rebel against the pressure of the Norman-Swabian barons** (taxes, imprisonments, death sentences and various mutilations for those who disobeyed the law). After contacting **Pope Gregory IX**, they obtained permission to found the city but the initiative did not materialize.
- The people of L'Aquila once again obtained permission to build a new large city, in an anti-feudal function, which has remained testimony in the so-called **Diploma of Federico II**: in this document the castles of the ancient suburbs of Amiternum and Forcona are encouraged to merge to form a single urban center.

The Swabian domination



- The foundation was for political-religious purposes, wanted either by **Charles I of Angiò** or by **Federico II**. In the first foundation the city was at the same time papal, Swabian, Angevin.
- One of the reasons for the growing importance of L'Aquila in its earliest years was certainly the strategic position in which it was built. The city was built on a hill in the centre of a wide basin, surrounded and protected by the Sirente-Velino range and the Gran Sasso and Monti della Laga massifs.
- L'Aquila therefore found itself in an almost barycentric position with respect to its countryside and the entire Aterno Valley and soon became a place of meeting and trade, a role specifically studied by the Crown and for which **Conrad IV** assigned the surrounding territory to the city.
- With the death of **Conrad IV** in 1254, **Manfredi** (natural son of Federico II of Swabia and half-brother of Conrad IV) assumed the reign of the kingdom, which clashed with **Pope Innocent IV** for the temporal dominion of the Kingdom of Sicily. In **1259**, guilty of remaining faithful to the Church in the dispute between the Pope and the empire, **the city was punished and destroyed by Manfredi**.

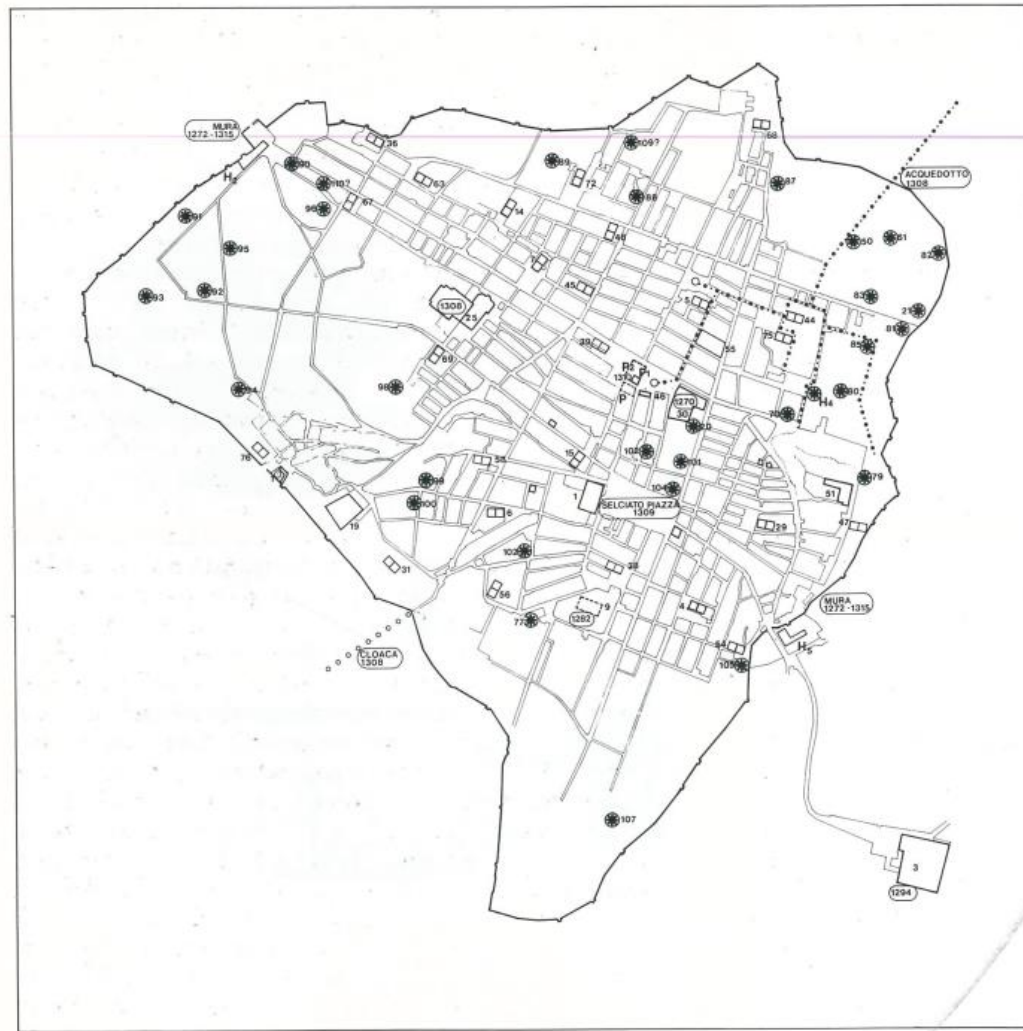
The Angevin Reconstruction (from 1266 up to 1315)



- It was rebuilt in **1265** by **Charles I of Angiò**, to whom L'Aquila spontaneously submitted, regaining prestige and prominence. **Pope Clement IV**, french like Charles of Angiò, asked and obtained his help to bring relief to the citizens, **also through the financing of Florentine bankers**.
- While **the Pope supported the cause of the feudal barons**, since the territory was in the Papal States, **Charles of Angiò pushed for the reconstruction of the city**, because involving the neighboring castles economically he could return the money to the Florentine bankers.
- In **1276** work began on the construction of **the city walls**, while the city became increasingly vast and populous, reaching, at the end of the thirteenth century, about 60,000 inhabitants. Legend has it that there were **99 castles** that contribute to the foundation of the city, although it is more likely that the actual number was around seventy, and each of which contributed to the construction of a piece of the city, building a church, a square and a fountain.
- The city was born according to a very precise harmonic design, **the plan copy of the city of Jerusalem**, which has no precedents in the history of urban architecture (a similar case, in 1703, was the birth of St. Petersburg). **The city was divided into rooms** that were donated to the castles that contributed to the foundation, in proportion to the number of their original inhabitants.

Ideogrammatic plan of J.pico Fonticulano, 1575. The first "topographical" representation of the city.

The Angevin Reconstruction (from 1266 up to 1315)



SEZIONE STORICA AL 1315

- chiese di locale, ancora esistenti sulla pianta del Vandi
- edifici realizzati nel corso del periodo storico oggetto della tavola (individuati in base alla documentazione raccolta o per caratteristiche stilistiche significative)

N.B. Gli asterischi riguardano edifici oggi non più esistenti e per i quali non è possibile indicare la consistenza. La numerazione si riferisce a quella generale della iconografia storica comparata (*infra*, pp. 167-75)

- Historical section in 1315: are highlighted the urbanisation works (aqueduct, fountains, cloaca, partial paving of the road network) and defence works (the walls), which support the still modest building stock.

Fig. 45. Sezione storica al 1315: in evidenza le opere di urbanizzazione (acquedotto, fontane, cloaca, parziale selciatura della rete viaria) e quelle di difesa (le mura), che costituiscono il supporto di una edilizia ancora di modesta consistenza.

Historical section in 1315

Seismic history of the City



2 February 1703, the Great Candlemas earthquake

- L'Aquila rises in one of the most seismic areas of the peninsula and since its foundation it has been ravaged many times by earthquakes. The first earthquake of which there is news in historical times dates back to December 13, **1315**. The first quake occurred on February 1, but the greatest damage occurred in December, with the tremors that were repeated for the next four weeks after the main earthquake.
- However, the first destructive earthquake for the new city occurred on 9 September **1349**. It is estimated that the earthquake had a **6.5 magnitude on the Richter scale**. The difficult and laborious reconstruction discouraged a part of the population, who preferred to return to the villages and castles from which their descendants had come. Faced with the massive exodus of the population and the consequent prospect of seeing L'Aquila disregarded between the cities of the Kingdom of Naples, Camponeschi had the breccias of the city walls closed with wooden boards, garrisoning them.
- One of the most intense earthquakes in the city's history took place on November 26, **1461**. The estimated magnitude is **6.4 on the Richter scale**.
- At the end of the **seventeenth century** some violent tremors returned to trouble L'Aquila; in particular we remember the earthquake of April 1646, and that of June 1672 also felt by Amatrice and Montereale. That of **1703**, known as the **Great Earthquake** is probably the most serious earthquake in recent city history, is estimate that it had a magnitude of 6.7 on the Richter scale causing devastation estimated in the 10th degree of the Mercalli scale.

The reconstruction after the earthquake of 1703



- The plan drawn by Vandi shows great accuracy in the topographical reconstruction of the routes and the perimeter walls. This plan, representative of the reconstruction of the city after the Great Earthquake of 1703, bears witness to a technical culture that was now completely independent of ideologies and was to be the reference metric for knowledge of the city for over a century.

Vandi, 1703

The skyline of the historical centre of the city of L'Aquila



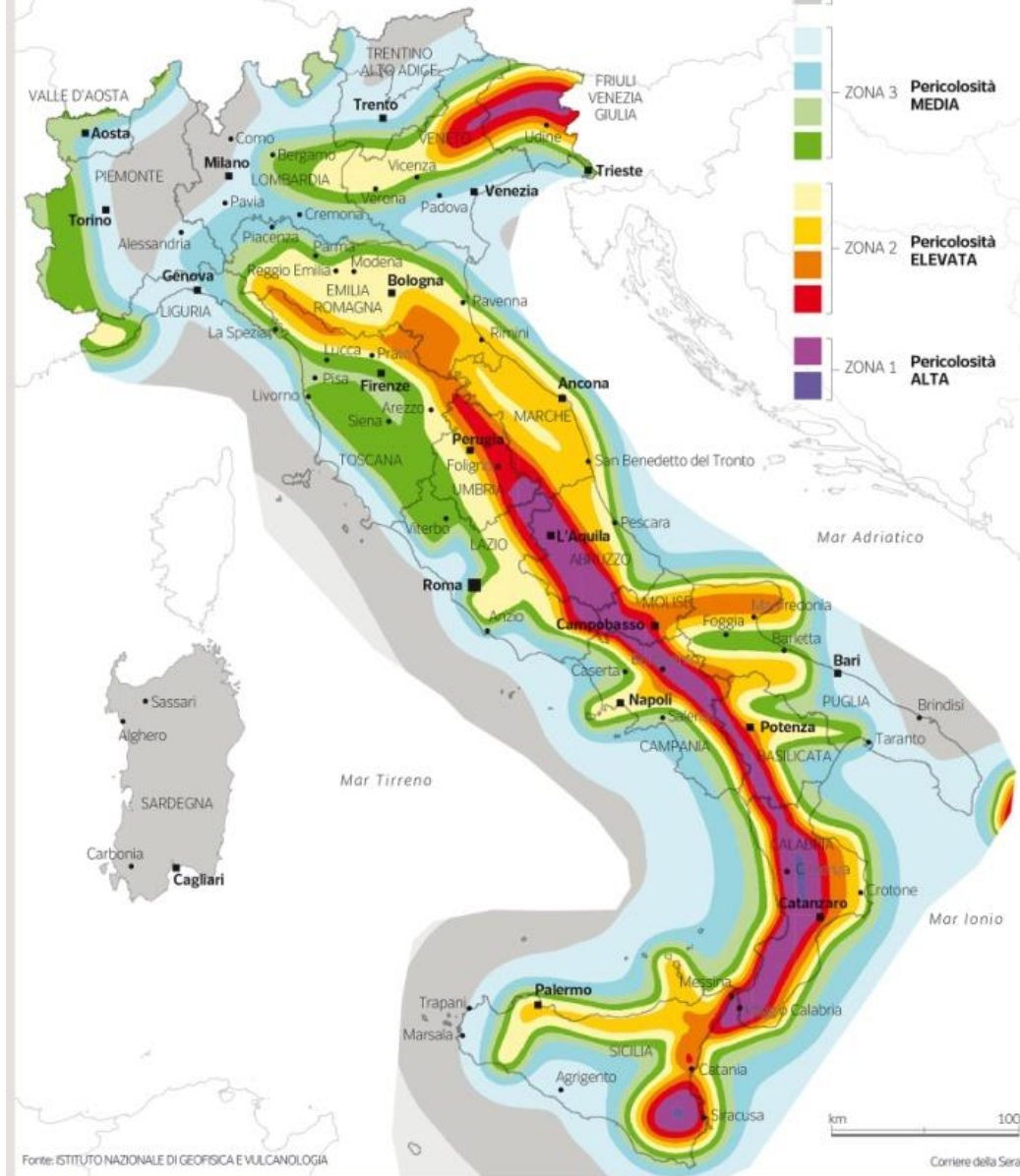
- L'Aquila, the capital of the Abruzzo region, was destroyed by the earthquake of 6 April 2009.

A fragile territory

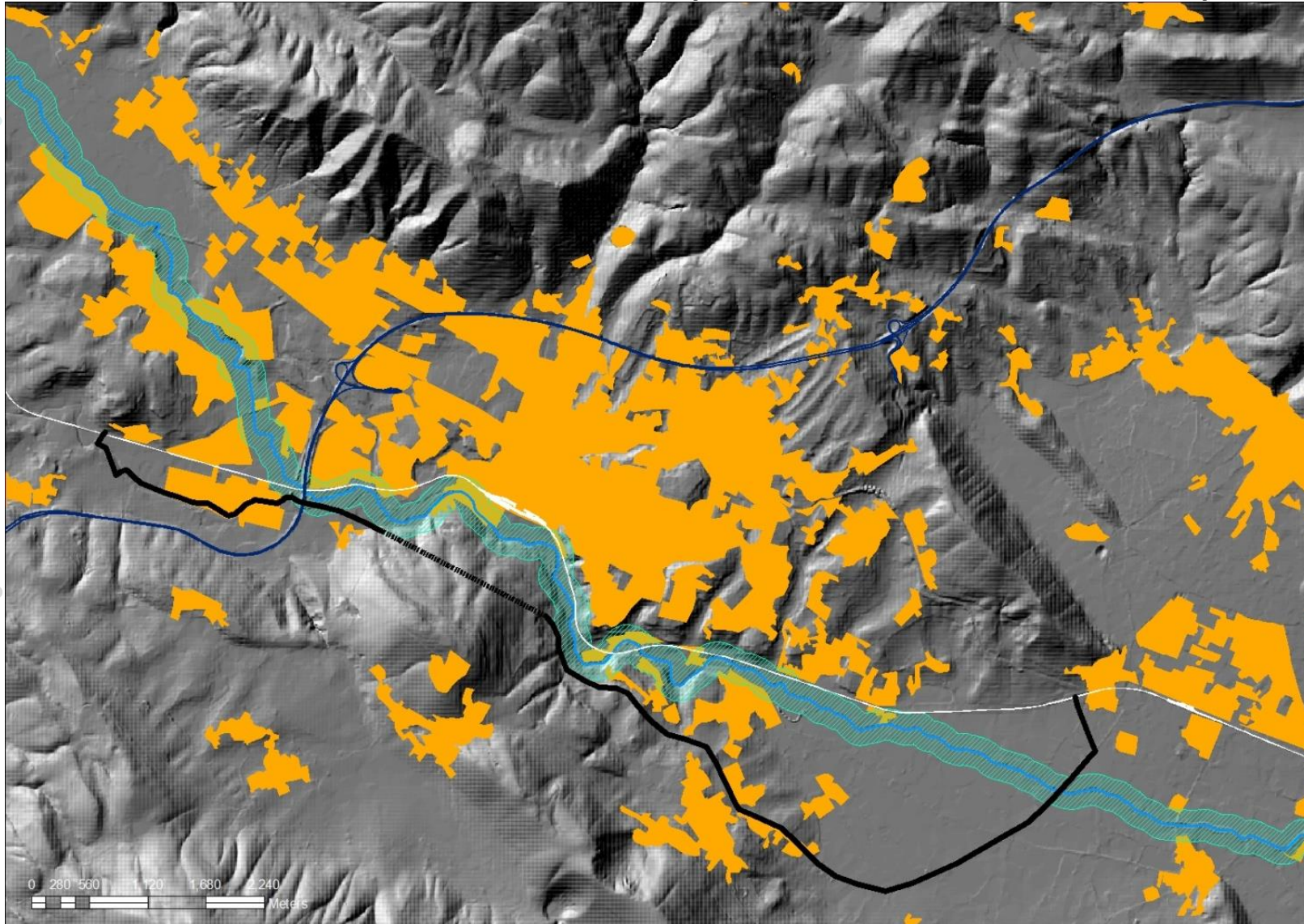
Place	Belice	Friuli	Irpinia	Umbria/Marche	Abruzzo	Emilia	Center Italy
Date	1968	06.05.1976 11.09.1976 15.09.1976	23.11.1980	23.09.1997	2009	20.05.2012 27.05.2012	24.08.2016 30.10.2016 18.01.2017
Magnitudo	6.1	6.5 5.9 6.0	6.9	6	6.3	5.9 5.8	6.0 Amatrice (RI) 6.5 Norcia (PG) 5.5 Capitignano (AQ)
Homeless*	57.000	80.000	280.000	22.000	67.500	41.000	17.000
Buildings damaged/Da destroyed/De Da+De	9.000 De	31.000 Da+De	75.000 De 275.000 Da	20.000 Da+De	35.736 Da+De	7.700 De	21.000 Da+De
Affected Population	1.300.000	500.000	6.000.000	165.000	144.415	552.312	25.000
Victims	352 dead 576 injured	993 dead 2.400 injured	2.914 dead 8.848 injured	11 dead 100 injured	309 dead 1.500 injured	29 dead	298 dead / 2016 34 dead / 2017
Affected area	5.500 km2	5.000 km2	5.000 km2	strip of 50 km between the two regions	2.375km2	2.700 km2	1.728 km2
Industry damaged/Da destroyed/De		450 (50%) severe Da+De	1.186 business Da+De	2.000 business/Da 1277 supported		606 industries 469 service Da+De	190 industries 372 building 1.356 service Da+De
Agriculture	90% severely damaged or destroyed	20.000 animal died	no record	1.194 damaged 902 now in function		1.143 940 supported	1.894

Mapa di pericolosità sismica del territorio nazionale

La Carta della pericolosità sismica realizzata dall'Ingv è pubblicata sulla Gazzetta Ufficiale si basa sull'accelerazione massima del suolo prevista conseguente alle onde sismiche (S) in suoli omogenei rigidi entro una profondità di 30 metri. L'Italia è stata suddivisa in quattro zone di pericolosità



Some data about the city before the earthquake

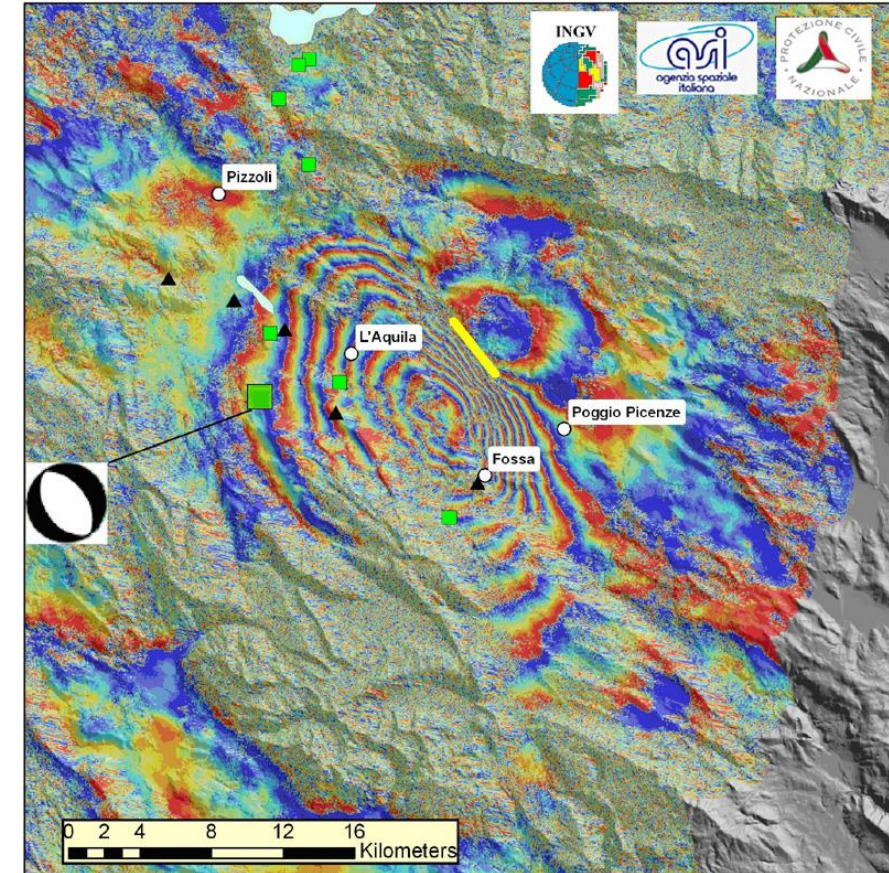


L'Aquila 2009

- *Inhabitants: 72.988 (year 2009)*
- *Urbanized surface: 2.790 ha*
- *Total dwellings: 32.717 (year 2001)*
- *Unoccupied houses: 7.015*
- *Density of housing on urbanized area:*
 - *6,16 ab/ha*
- *Agricultural area: 11.452 ha*

AFTER 6 APRIL AT 3:32_Some effects

- *Magnitudo (MMS) 6.3*
- *42°20'51.36"N 13°22'48.4"E*
- *At the end of the event, the final number was 309 victims, over 1.600 injured and over 15 billion € of estimated damages*



AFTER 6 APRIL AT 3:32_Some effects

- *chasms in the ground*



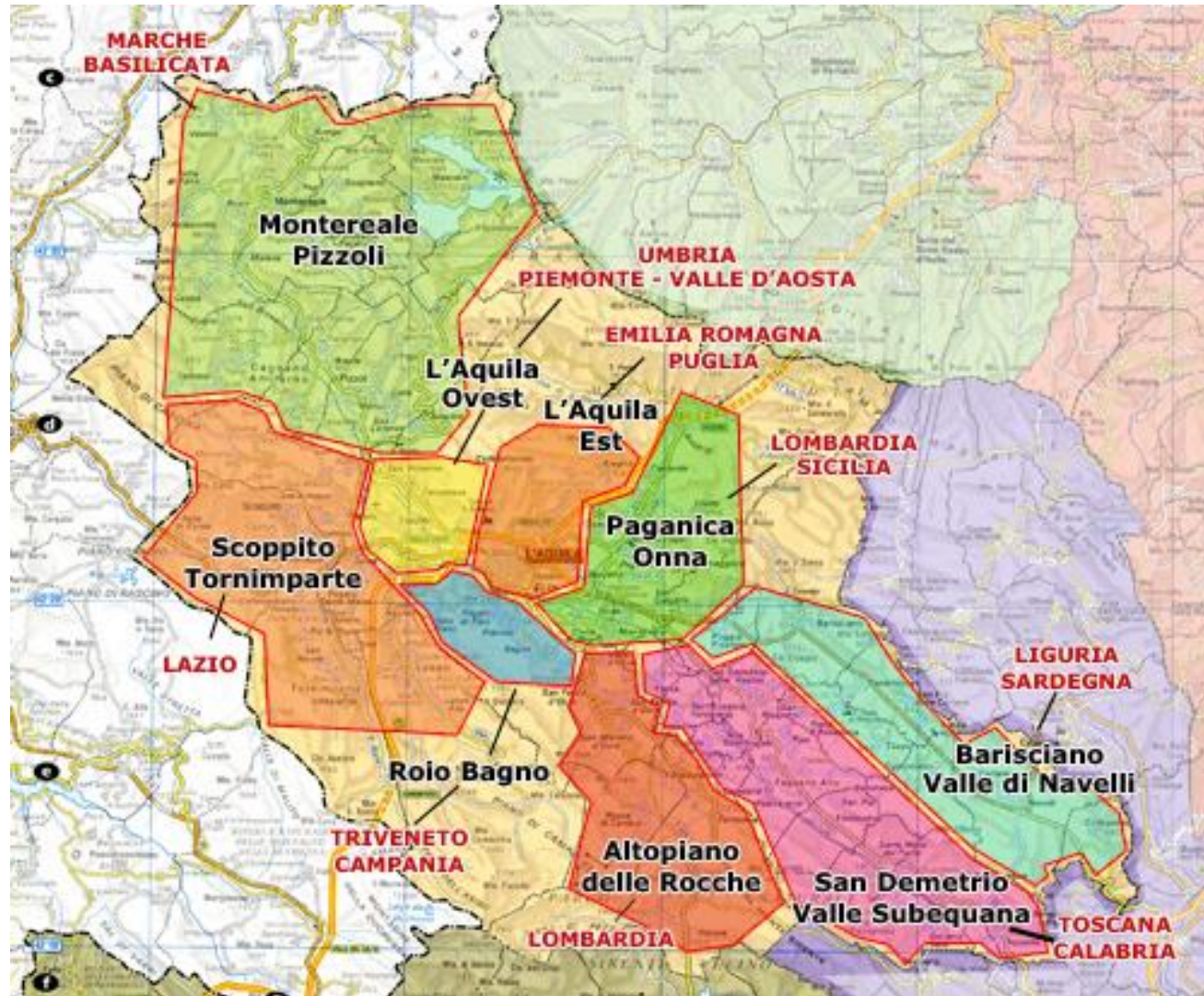
AFTER 6 APRIL AT 3:32_Some effects

- *Strategic sites collapsed*



THE EMERGENCY PHASE AND NATIONAL/REGIONAL AID

- *The Emergency Plan... and the Real Emergency: The Tent City*



After the earthquake: a strong acceleration of low density soil consumption

- **Progetto C.A.S.E.** (*Complessi Antisismici Sostenibili ed Ecocompatibili*):

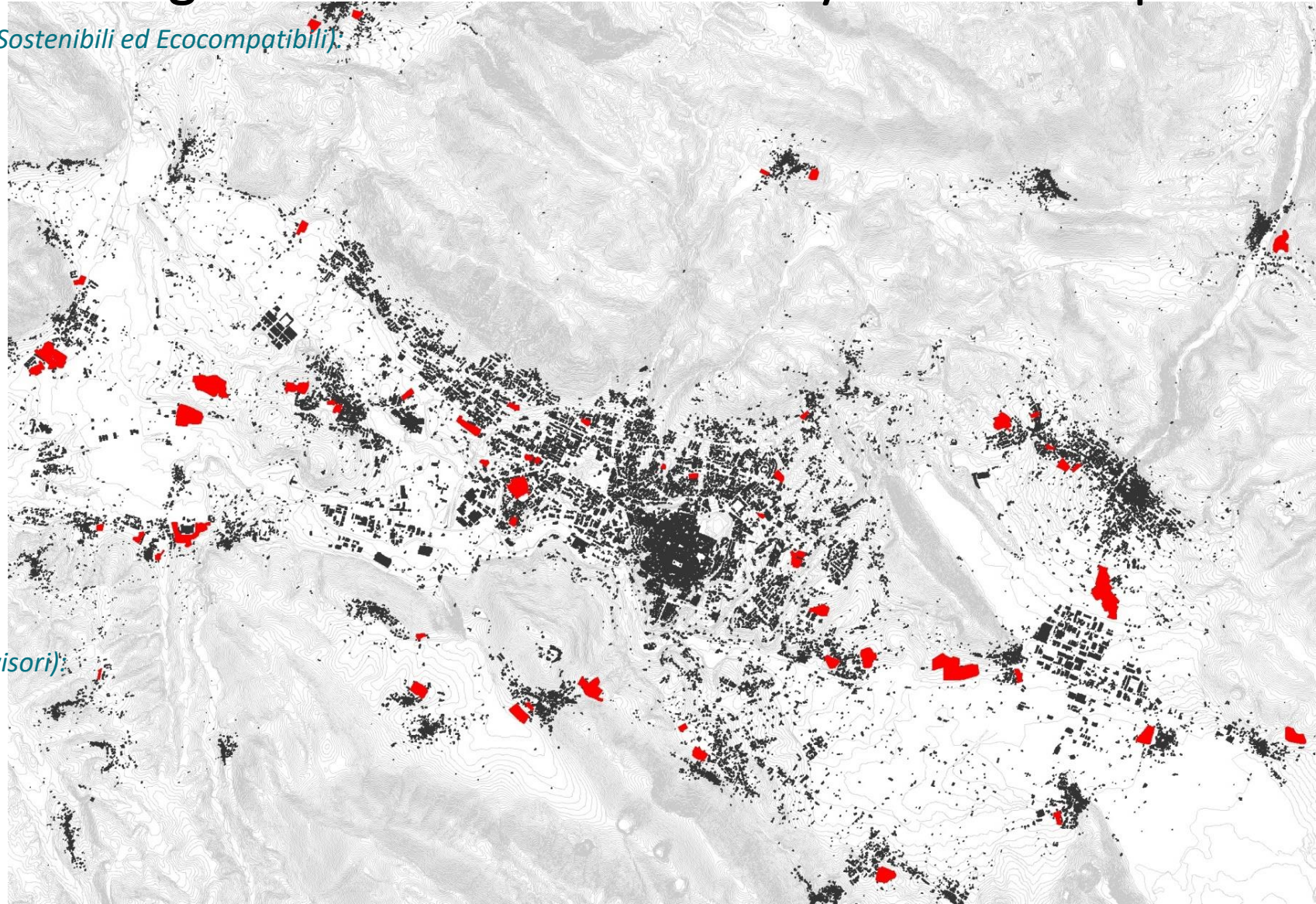
- 19 sites/ 185 buildings
- Inhabitants: ~ 15.000
- Residential: ~ 4.500
- Territorial area: 103 ha

- **M.A.P.** (*Moduli Abitativi Provvisori*):

- 27 sites/ 1.273 forms
- Inhabitants : ~ 3.000
- Residential : 1.273 moduli
- Territorial area: 27 ha

- **M.U.S.P.** (*Moduli ad Uso Scolastico Provvisori*):

- 25 sites
- Students: ~ 5.500
- Territorial area: 16 ha



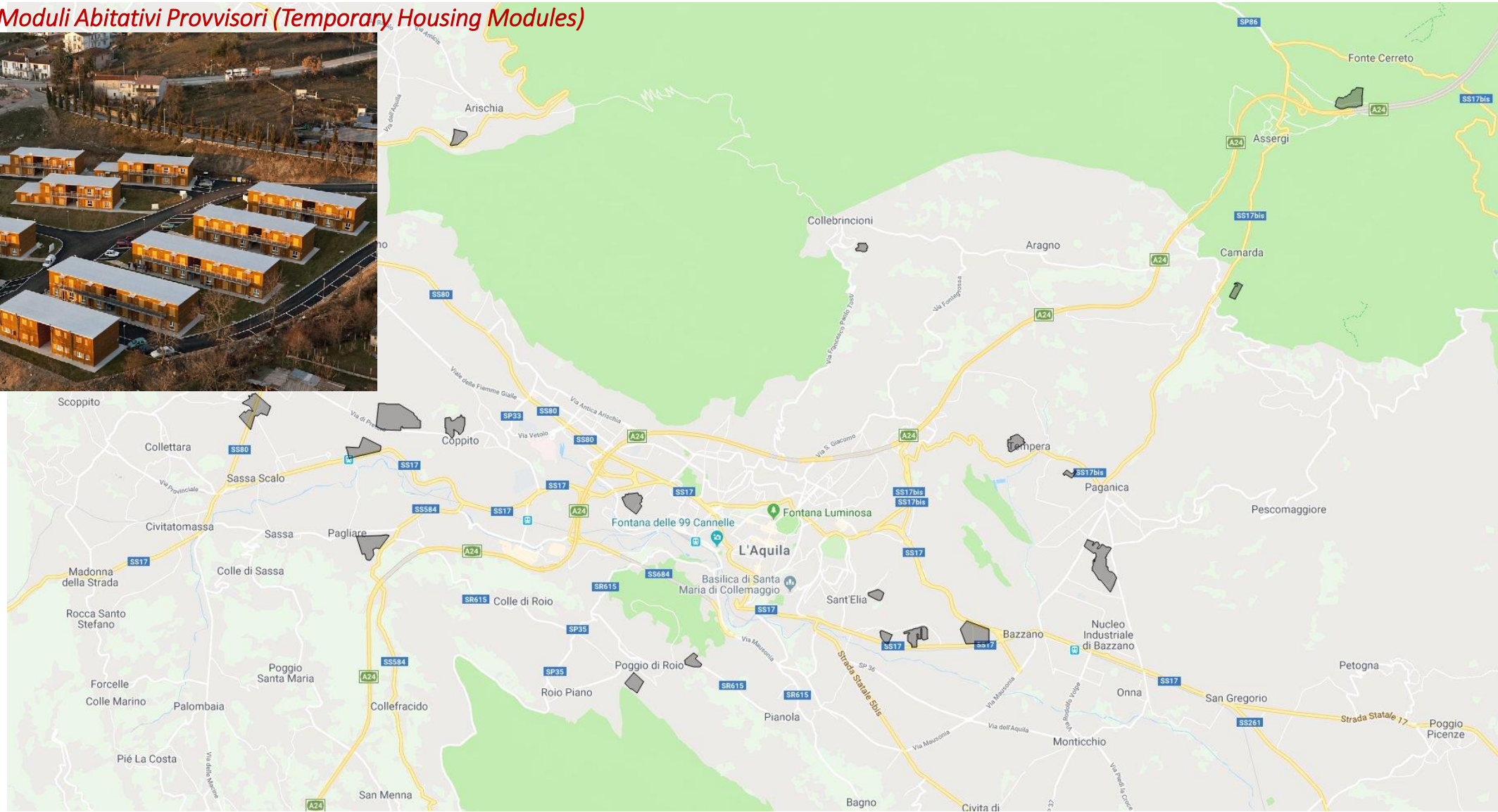
New urban forms, between recompositive morphologies and innovation

- *The C.A.S.E. Project : Complessi Antisismici Sostenibili Ecocompatibili (Eco-friendly Sustainable Anti-seismic Complexes)*



New urban forms, between recompositive morphologies and innovation

- *The M.A.P.: Moduli Abitativi Provvisori (Temporary Housing Modules)*



New urban forms, between recompositive morphologies and innovation

- *An example of the M.U.S.P.: Moduli Uso Scolastico Provvisorio (Forms Provisional School Use)*

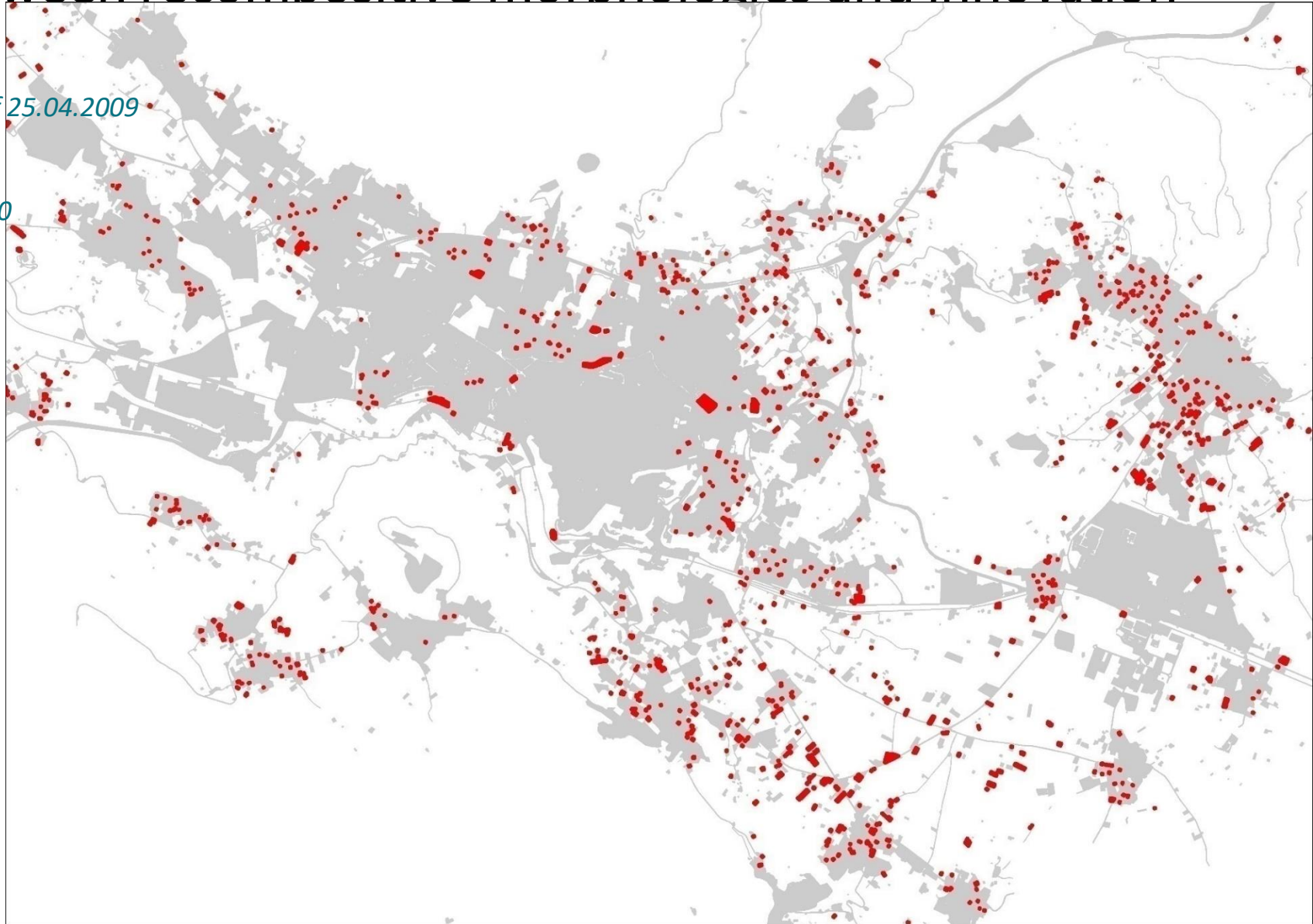


New urban forms, between recompositive morphologies and innovation

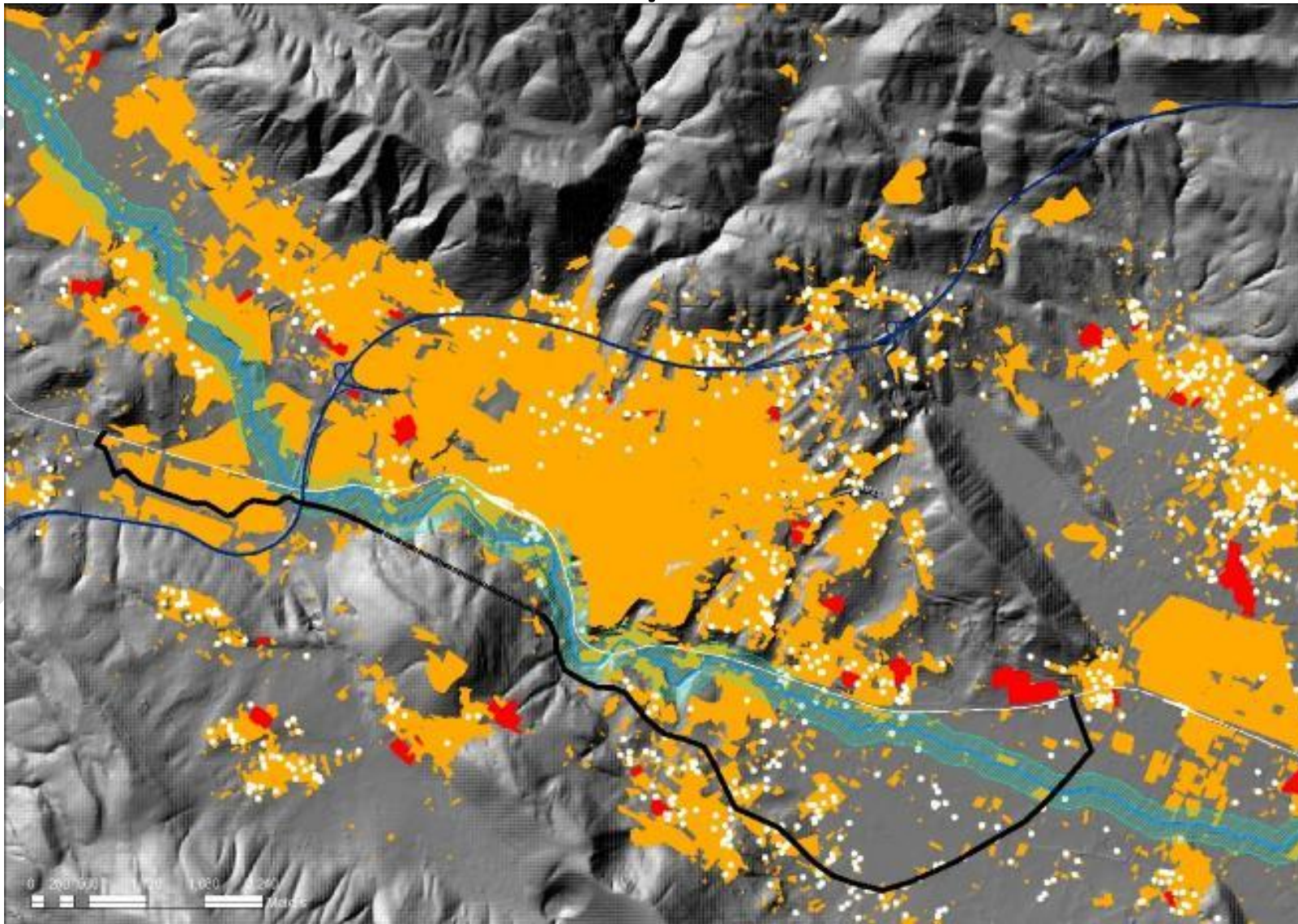
- *... and the cottages...*
- *The Municipal Council Resolution n. 58 of 25.04.2009*
- *Estimated number of buildings: ~ 1.500*
- *Estimated number of inhabitants : ~ 3.500*
- *Urbanized surface : 42 ha*

*... private "provisional" buildings
in agricultural area*

***The emergency phase
has built
a small town for 20,000
people
OUTSIDE THE URBAN
PLAN***



CITY OF L'AQUILA today

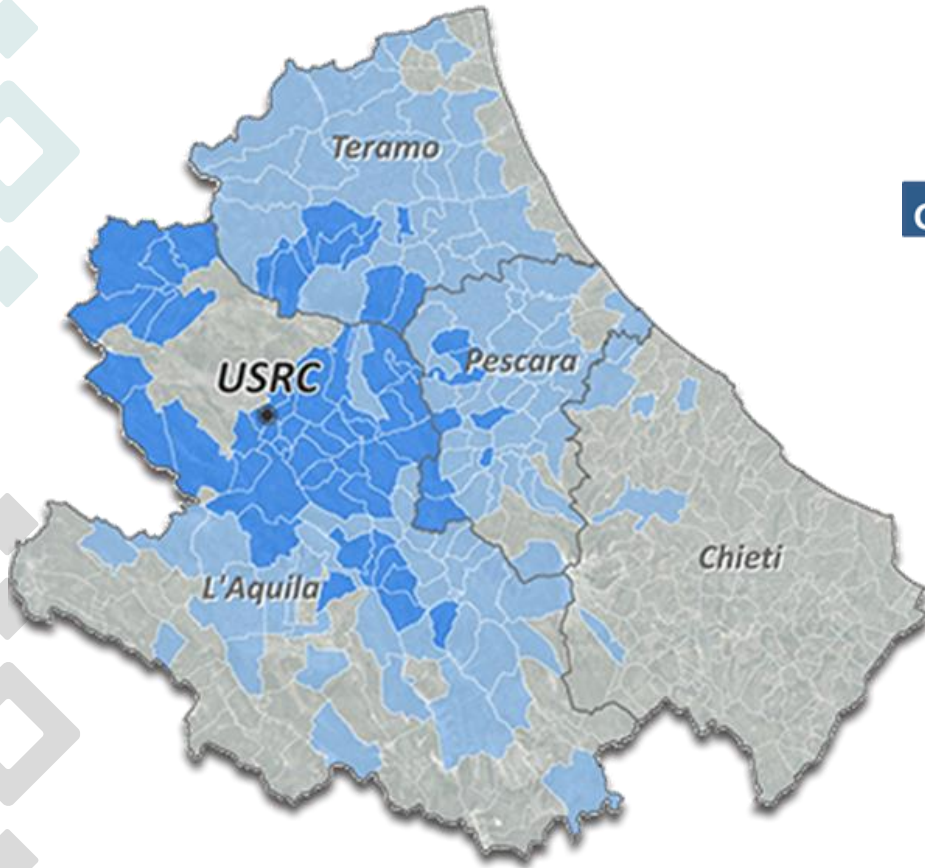


L'Aquila 2015

- *People: 69.605 (year 2016 / 2009-2017 +497 pop)*
- *Urbanized area: 2.978 hectare + 6,7% (year 2015)*
- *Total houses: 46.131 + 41,0% (year 2015)*
- *Houses not occupied: 15.301 + 118,0% (year 2015)*
- *Urban Density: 23,37 people per hectare (year 2015)*
- *Agricultural area: 11.264 hectare - 1,7% (year 2015)*

MANAGEMENT POST-QUAKE

... beyond the law: a large number of decrees and ordinances



**L'Aquila +
56 Municipalities of the crater +
121 Municipalities Outside the Crater**

GESTIONE DEL POST TERREMOTO: STRUMENTI DI ATTUAZIONE



Il Commissario Delegato per la Ricostruzione
Presidente della Regione Abruzzo

6 aprile 2009 - 31 gennaio 2010

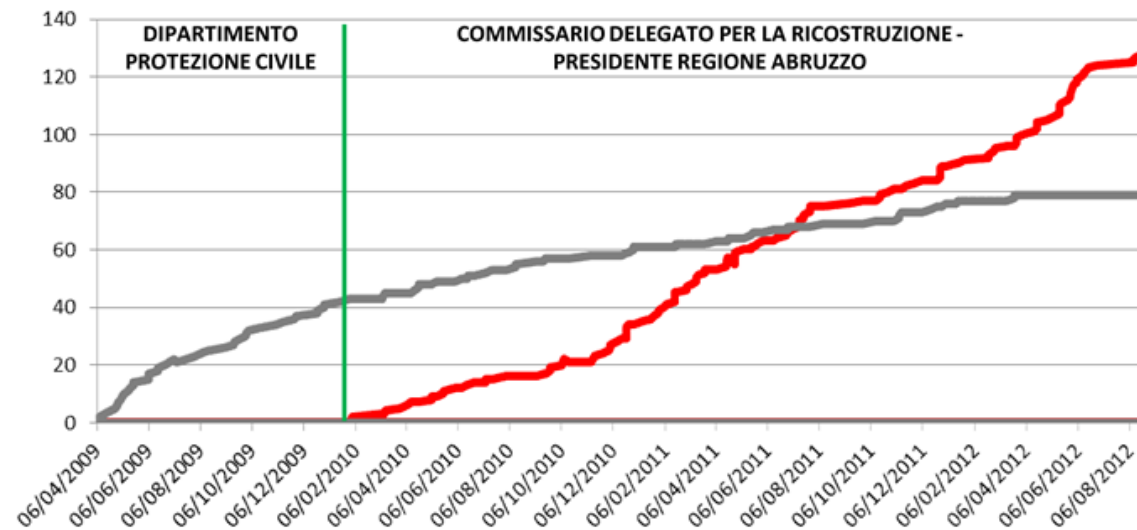
Dipartimento
Protezione Civile

OPCM

1 febbraio 2010 - 31 agosto 2012

Commissario Delegato
per la Ricostruzione –
Presidente Regione
Abruzzo

OPCM
DCD



Legge 77 24.06.09

Legge 134 07.08.12

DCD **143** Decreti
Commissario
Delegato

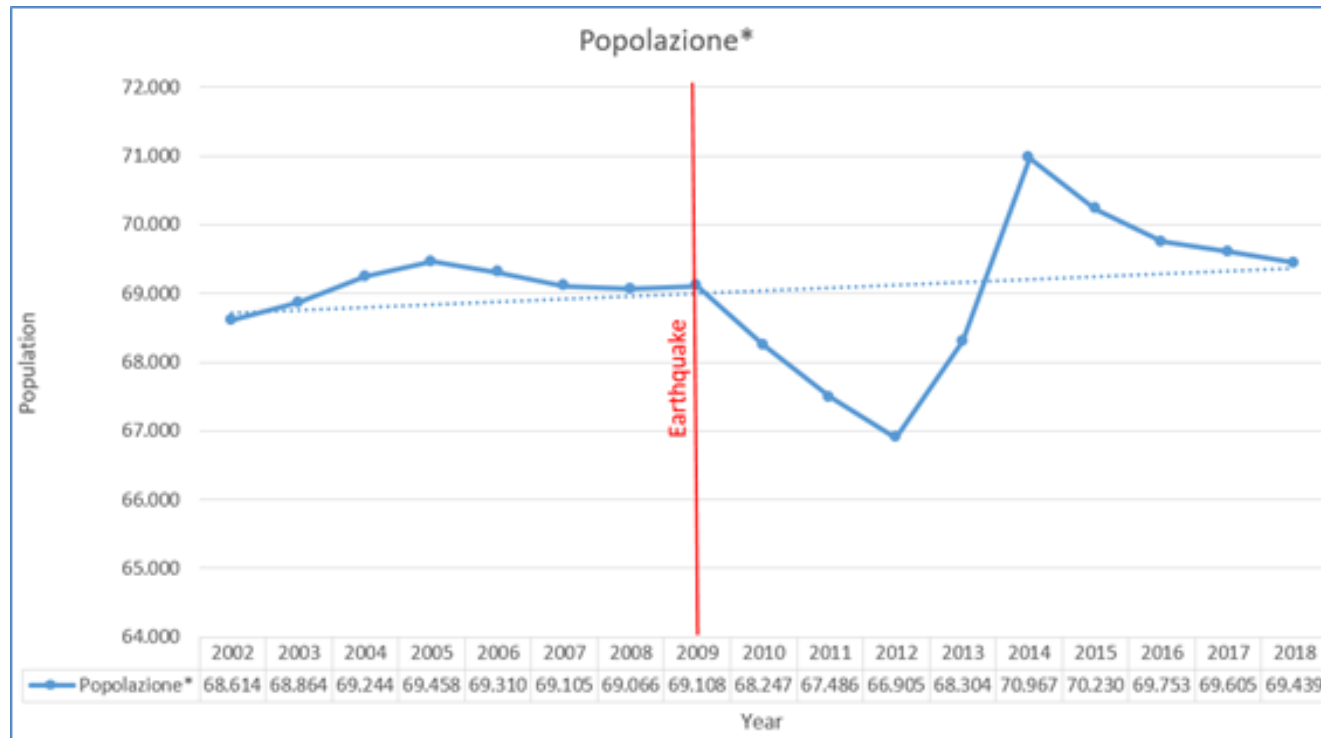
OPCM **77** Ordinanze PCM

L'Aquila, 29 ottobre 2012

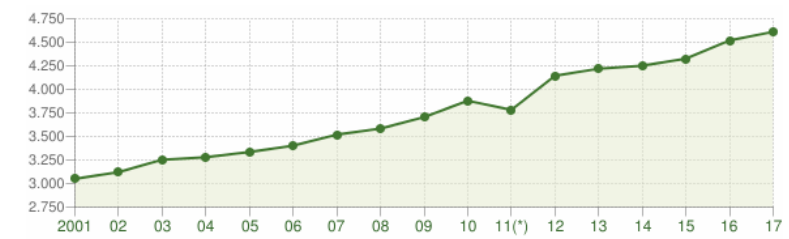
MANAGEMENT POST-QUAKE

WHAT HAPPENED TO POPULATION?

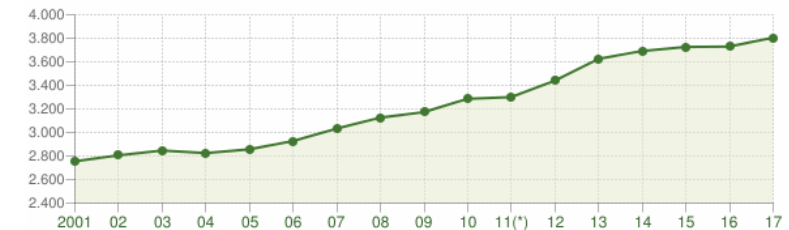
L'AQUILA



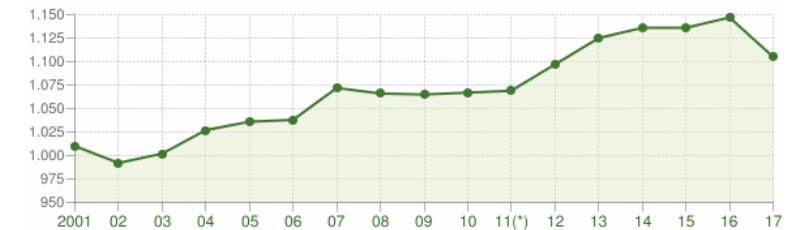
SOME MUNICIPALITIES OF HIS BELT



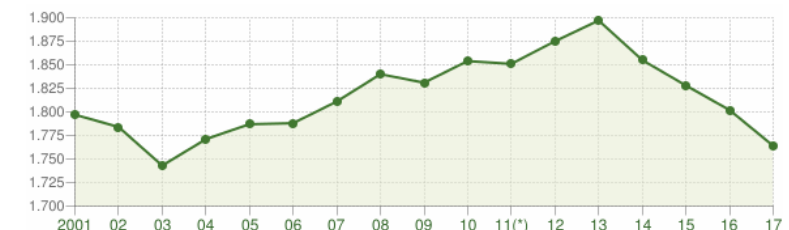
Andamento della popolazione residente
COMUNE DI PIZZOLI (AQ) - Dati ISTAT al 31 dicembre di ogni anno - Elaborazione TUTTITALIA.IT
(*) post-censimento



Andamento della popolazione residente
COMUNE DI SCOPITO (AQ) - Dati ISTAT al 31 dicembre di ogni anno - Elaborazione TUTTITALIA.IT
(*) post-censimento



Andamento della popolazione residente
COMUNE DI POGGIO PICENZE (AQ) - Dati ISTAT al 31 dicembre di ogni anno - Elaborazione TUTTITALIA.IT
(*) post-censimento



Andamento della popolazione residente
COMUNE DI BARISCIANO (AQ) - Dati ISTAT al 31 dicembre di ogni anno - Elaborazione TUTTITALIA.IT
(*) post-censimento

MANAGEMENT POST-QUAKE

The Special Office for the Reconstruction of L'Aquila (Ufficio Speciale per la Ricostruzione dell'Aquila - USRA) was established with the entry into force of **Decree Law No. 83 of 22 June 2012**, Urgent measures for the growth of the country, converted into **Law No. 134 of 7 August 2012**, with the aim of ensuring as a priority the **complete return home of those entitled, the restoration of public functions and services, the attractiveness and the economic and social development of the territories concerned**, with particular regard to the historic monumental centre of the city of L'Aquila.

Sintesi dell'attività dell'Ufficio Speciale per la Ricostruzione dell'Aquila



http://webgis.comuneaq.usra.it/mappa_def.php

COSTI MEDI RICOSTRUZIONE PRIVATA - L'AQUILA E FRAZIONI

Nuova Procedura

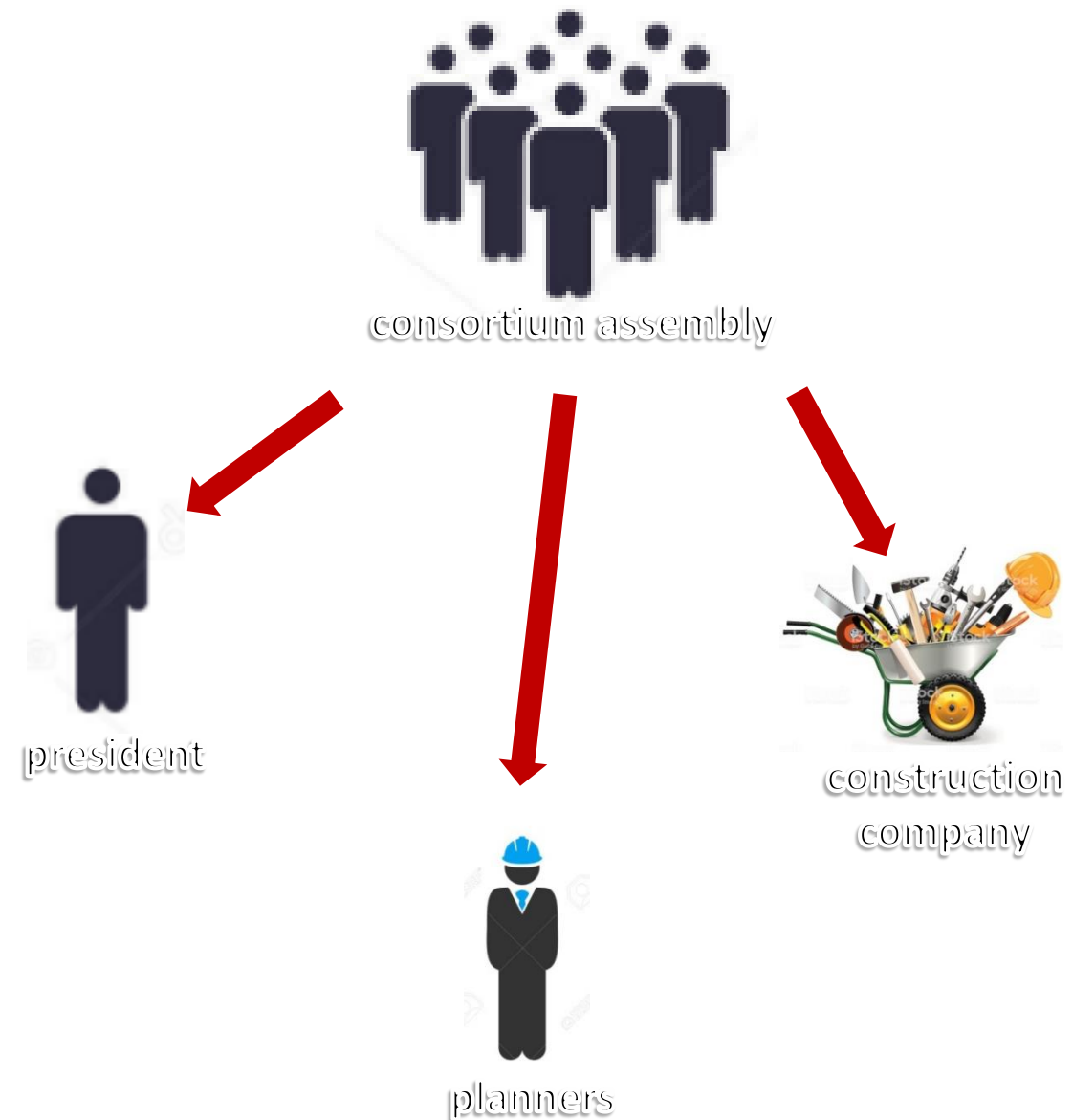
PRATICHE TOTALI				
TIPOLOGIA EDIFICIO	IMPORTO LAVORI STIMATO (euro/mq)	IVA lavori stimata (euro/mq)	Spese tecniche, amministratore, indagini (euro/mq)	Totale concesso (euro/mq)
Con vincolo diretto	2.233,74	223,37	365,74	2.813,85
Inter. paesaggistico	1.601,17	160,12	282,59	2.043,87
Con pregio	1.278,63	127,86	265,46	1.671,96
Ordinario	1.118,65	111,86	225,77	1.456,28

<https://usra.it/intervento/dati-e-numeri/>

MANAGEMENT POST-QUAKE

- **BUILDING CONSORTIA:**

- it is stipulated between the holders of real estate rights of ownership, of usufruct, use and dwelling on the buildings included in the building aggregate;
- has the aim of carrying out in a unitary manner the activities necessary to ensure the realization of the interventions on the structures, common parts and functional plants to the full practicability and habitability of the aggregate;
- The articles of association of the consortium are subject to registration;
- The consortium assembly elects by majority a president who will act as an interface for all phases of the reconstruction, dealing with the conclusion of contracts (with technicians and companies), the payment of the progress of work, the request for connection of users ...
- the assembly appoints by majority vote the technicians who will take care of the drafting of the project and the direction of the works and the companies for the execution of the works necessary for the restoration of the viability of the buildings.

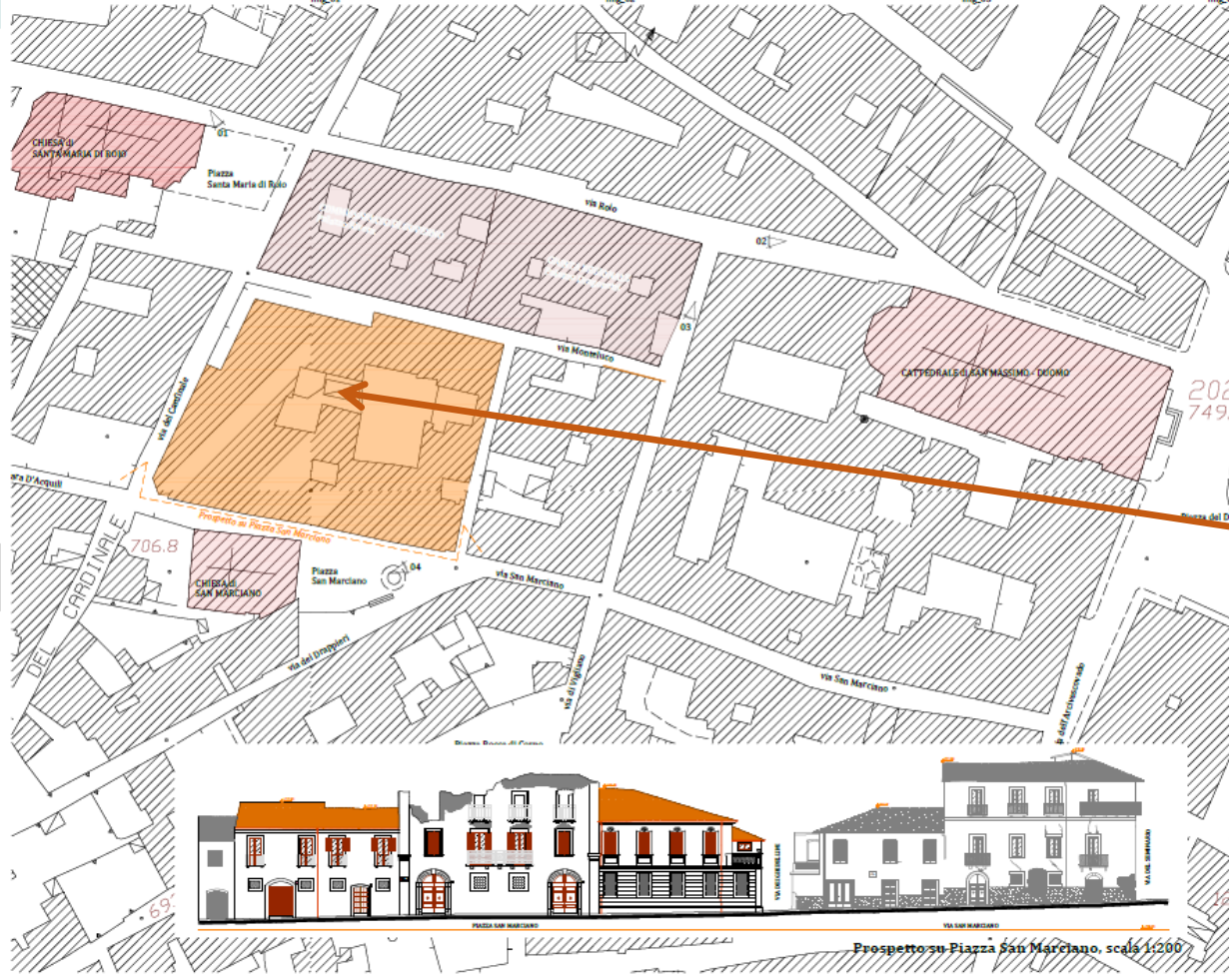


Examples of design and management of post-earthquake works



In **ORANGE**, the aggregate for which the repair, structural seismic improvement and restoration project was drawn up is highlighted;

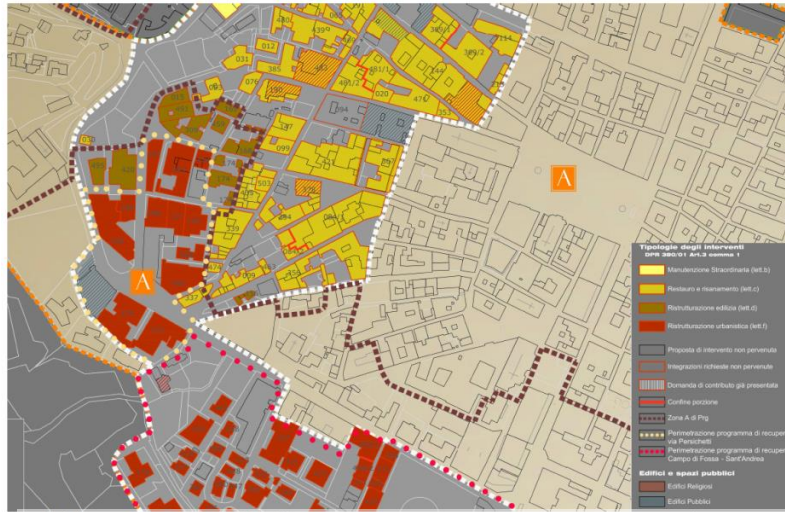
In **RED**, the buildings of historical-artistic value that characterise the area, located in the historic centre, are highlighted.



Aerial image of the historical centre of the city



Reference programming for the design in the historical centre



Type of interventions foreseen in the sub area of the historical centre



General Master plan



In **ORANGE**, the aggregate for which the repair, structural seismic improvement and restoration project was drawn up is highlighted - **AERIAL PHOTO**

Some remarks...

*The themes on the **project of the existing** represent a starting point because they are oriented towards the management of the environmental and temporal characteristics of the artefacts and their context, with a view to governing the processes of change that take into account the necessary dialectic between **transformation and conservation** .*

*It is particularly interesting to start investigating the functional and environmental transformations involving **public spaces** (also on the basis of the best practices already carried out with the cases of living street and woonerf); this represents an opportunity for the city to re-evaluate and revitalize entire pieces of its fabric currently in the shade and in conditions of degradation or abandonment.*

*The **lack of public spaces** different from those offered by the historic center, was already before the earthquake a clear problem that required **flows of movement from the suburbs to the center** in a constant attempt to participate in urban sociality without having similar opportunities in the new consolidated residential areas .*

THE NEW URBAN PLANNING

On 26/11/2015 the City Council approved the Preliminary Document of the PRG

- *Resumes OECD studies and those commissioned by the Ministry for Territorial Cohesion (in particular L'Aquila 2030)*
- *It presents an important cognitive component*
- *It proposes a traditional system of the PRG with some innovations, such as the overcoming of the zoning with the urban and territorial units (general areas with mixed functions) or the use of equalization, a model that nevertheless requires long processing and approval times, which tackles the theme of urban form.*

COMUNE DI L'AQUILA Dipartimento per la Ricostruzione Settore Pianificazione

Dicembre
2014

**DOCUMENTO PRELIMINARE DEL NUOVO
PIANO REGOLATORE GENERALE**

PROVINCIA DI TERAMO

SINDACO
Massimo Cialente

ASSESSORE
Pietro Di Stefano

DIRETTORE DIPARTIMENTO RICOSTRUZIONE
Vittorio Fabrizi

DIRIGENTE
Chiara Santoro

COORDINATORE
Daniela Iacovone

SETTORE PIANIFICAZIONE
Ufficio del Piano Regolatore

REGIONE LAZIO

UNIVERSITA' DI L'AQUILA
Dipartimento di Ingegneria Civile
Edile Architettura e Ambientale

UNIVERSITA' DI ROMA SAPIENZA
Centro Interuniversitario Biodiversità
Fisiologia ed Ecologia del Paesaggio

CRESA
Centro Regionale di Studi
e Ricerche Economico Sociali

TELOS
Tertiary Environment Legislation
to an Open Strategy

CONSULENTE GIURIDICO
Paolo Ursari

COMUNE DI L'AQUILA - Dipartimento per la Ricostruzione / Settore Pianificazione



...thanks for your kind attention.

Federico