

Urban Planning and Design

Contemporary City.

Descriptions and Projects

Urban Planning Section

Prof. Patrizia Gabellini

“Sprawl in Usa and Europe”

March 22, 2012

- **An urban scenario**
- **What is sprawl?**
- **Causes and consequences**
- **Indicators**
- **Urban sprawl in Europe**

Cities, Size, Scale and Form

Through 41 city maps at the same scale, Bosselmann shows the explosion of the city around the world.

Using a grid of 50x50 km, he can easily demonstrate how natural features and stories, economic dynamics and practices of use can produce urban settlements very different for size, density and form.

These differences must be deepened and interpreted, because they are the starting point for a contextual project: recognizing patterns may be the first design action.

**By Peter Bosselmann, *Understanding City Design and Form*,
Island Press, Washington, Covelo, London, 2008**

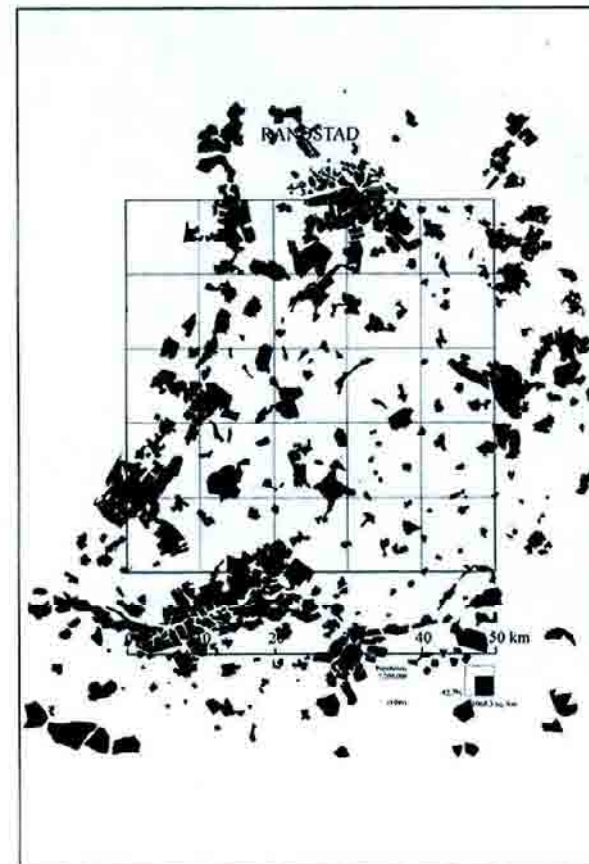
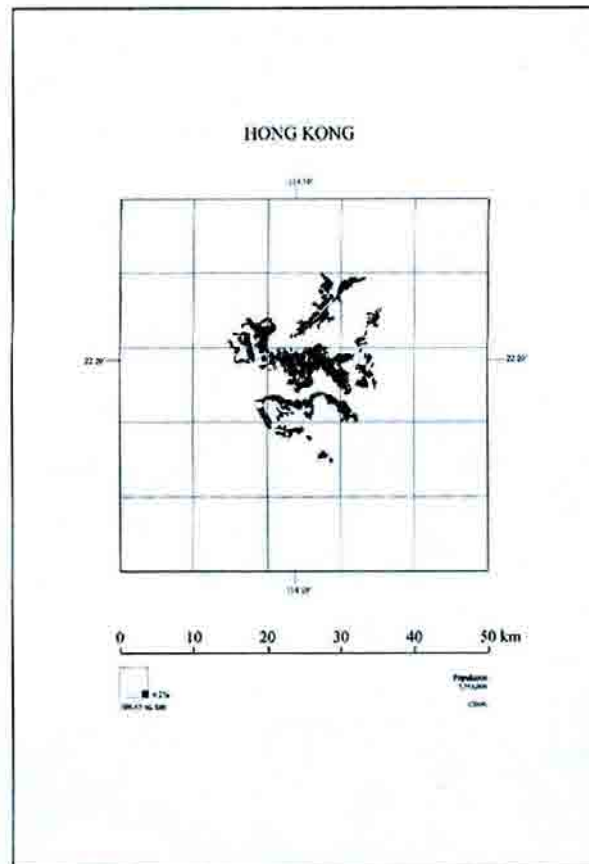
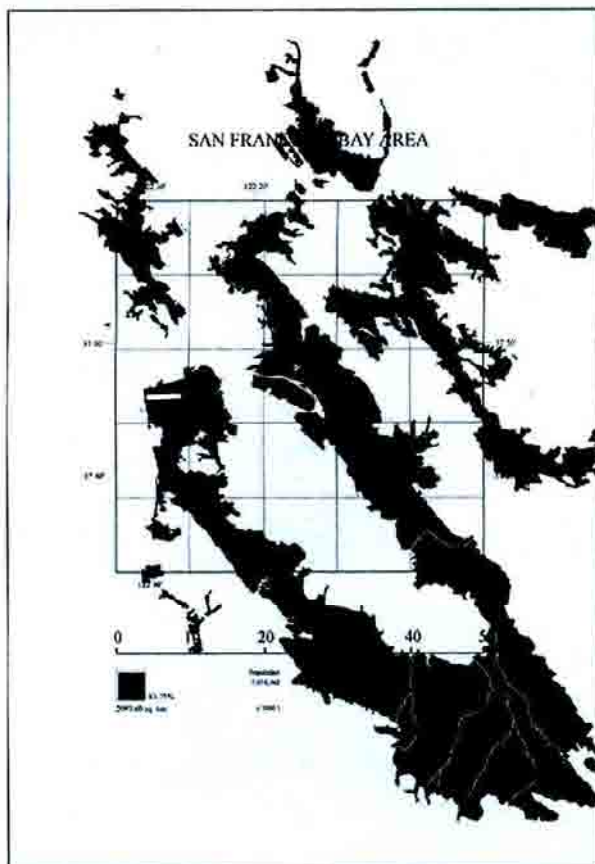


Figure 1.5 San Francisco Bay Area (top) compared to Hong Kong (top right) and the Randstad (right). The three maps were reproduced at the same graphic scale; all three show urbanized regions that accommodate nearly the same number of inhabitants, seven million people. The comparison is made possible by computing the surface of each of the three urbanized areas and expressing it as a percentage of a fifty by fifty kilometer square.

An urban scenario

At the turn of the twenty-first century, the world is faced with an unprecedented challenge. It must address a fundamental shift in the world's population towards the cities, and away from mankind's rural roots.

Today, for the first time in history, **more than half of the global population resides in urban areas** - a number likely to reach a staggering **75 per cent by 2050**.

80 per cent of the Earth's surface is **affected by the human footprint**.

A new generation of megacities over 1 million people is developing across Asia and some parts of Africa, Central and South America.

Taking six major world cities (New York City, Shanghai, London, Mexico City, Johannesburg, Berlin) as its focal point, the book ***Endless City***, edited by Richard Burdett and Deyan Sudjic in 2008, examines the key social, structural and economic factors that are critical in creating a thriving modern city.

The research, produced with the London School of Economics and presented alongside informative texts written by some of the greatest professionals in the field of architecture, urbanism, economics and politics, including Richard Sennett, Saskia Sassen, Rem Koolhaas, is one **the richest report on the urban age** with photographs, maps, diagrams and statistics.

Jacques Véron (a demographic scientist who wrote *L'urbanisation du monde/L'urbanizzazione del mondo*, 2006) says **we are going towards a planet of citizens**. What does it mean?

Véron underlines that it is not only a problem of numbers: it is not enough that the majority of global people lives in the cities. It is important that people adopt an urban lifestyle and change their representation of the world because of different conditions (economic, logistic, social conditions).

“Urban age” and “Planet of citizens” are expressions which declare a revolution and describe the urban scenario.

What is Sprawl?

“Sprawl is a pattern of land use that is characterized by dispersed, automobile-dependent development outside of compact urban and village centers, along highways, and in the rural countryside. Sprawl is typically characterized by...

- * Excessive land consumption
- * Low densities in comparison with older centers
- * Lack of transportation options
- * Fragmented open space, wide gaps between development and a scattered appearance
- * Lack of choice in housing types and prices
- * Separation of uses into distinct areas
- * Repetitive one story development
- * Commercial buildings surrounded by expansive parking
- * Lack of public spaces and community centers”

This is a **common definition published in Vermont Forum on Sprawl** (www.vtsprawl.org).

We can find a **similar definition** in the book of Gillham Oliver *The Limitless City. A Primer on the Urban Sprawl Debate* (2002):

“a form of urbanization distinguished by leapfrog patterns of development, commercial strips, low density, separated land uses, automobile dominance, and a minimum of public open space”.

The same website of the **Vermont Forum on Sprawl** (www.vtsprawl.org) promotes a Smart Growth:

“Smart growth describes a pattern of land development that uses land efficiently, reinforces community vitality and protects natural resources. Smart Growth is about promoting development that is good for the economy, community and the environment. Key benefits of smart growth include the creation of diverse housing options; protection of farm and forest land; diverse transportation options and less dependence on the automobile; greater social interaction with neighbors; lower cost for public services resulting in reduced taxes; and a higher quality of life”.

Causes and Consequences

According to the same source (Vermont Forum on Sprawl):

“There is no one factor that determines how our landscape and settlement patterns change over time. Various policies and public decisions at the local, state and federal level, as well as individual preferences and actions, have served to foster sprawl. These include:

- * **Public investments in roads, public buildings, water, sewer and other infrastructure in peripheral areas; disinvestment in existing centers**
- * **Land regulations that promote spread out, land consumptive development**
- * **Increases in our population**
- * **Consumer desire for rural lifestyle with large homes and large yards, sense of security and less traffic congestion**
- * **Preference of business and industry for easy highway access, plenty of free parking and corporate identity**
- * **Demands of commercial tenants for particular locations and standardized designs for buildings and sites**
- * **Other public policies, including tax policies and utility rate structures**
- * **Higher costs of development in older, traditional centers**
- * **Lower land prices in peripheral areas**
- * **Commercial lending practices that favor suburban development**
- * **Weakening farm and forestry sectors”.**

This is a hybrid list, of common sense too, which puts together different aspects. We must deepen and distinguish.

Indicators

Density, concentration, centrality, diversity, mixed uses, connectivity, proximity are some recurrent words used by architects and planners opposing sprawl.

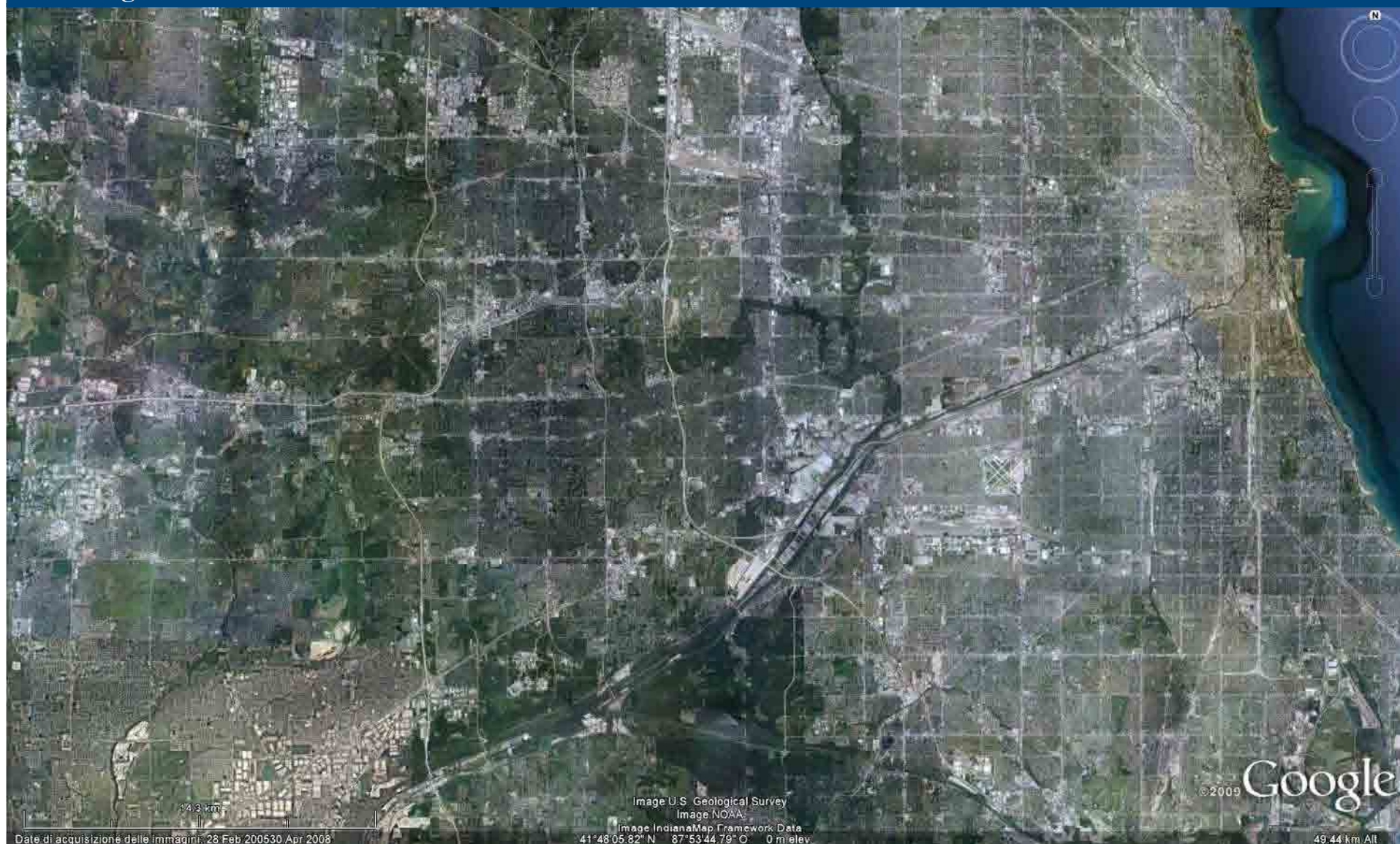
According to four indicators (compactness-density; diversity - mixed uses; sense of place-strength of vibrancy of activity centers in a region; connectivity-accessibility) three researchers -Ewing, Pendall and Chen (2002) - made a comparative analysis to evaluate sprawl in the Usa and pointed out the **record of California.**

The editors of the book *Urban Sprawl and Public Health* (Frumkin, Frank and Jackson, 2004) used two combined indicators - **density and land use mix; automobile dependence and connectivity-** to estimate the consequences of sprawl.

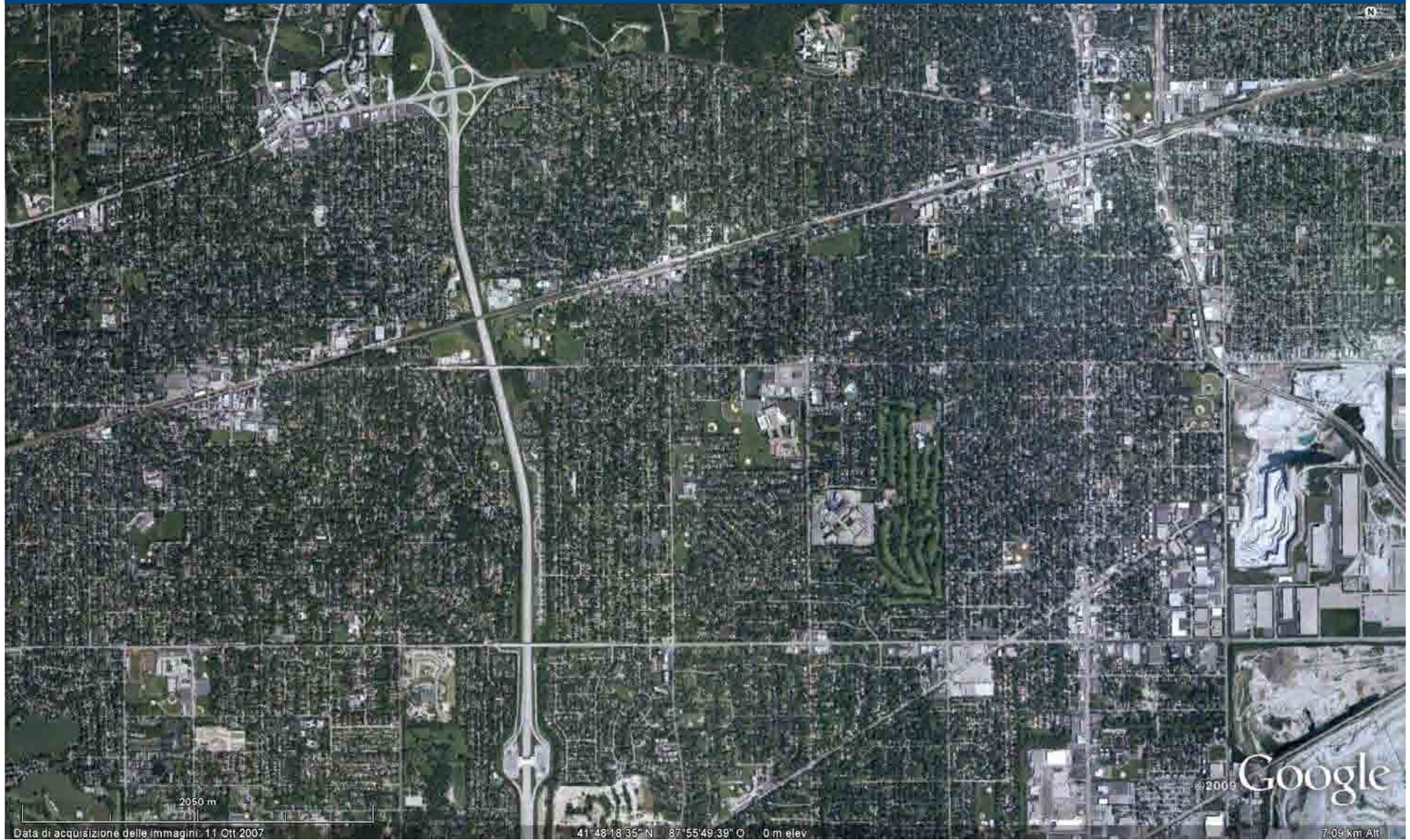
The most important and original contribution of this research is on the **relationship between sprawl and public health** (physical and mental health), related to the automobile-dependence:

- **crashes**
- **reduced physical activity**
- **breathing diseases (because of air pollution)**
- **illness due to the bad quality of the water**
- **stress and mental troubles**
- **decline of social capital**
- **penalties for weak people (women, children, the elderly, poor people and people of color, people with disabilities).**

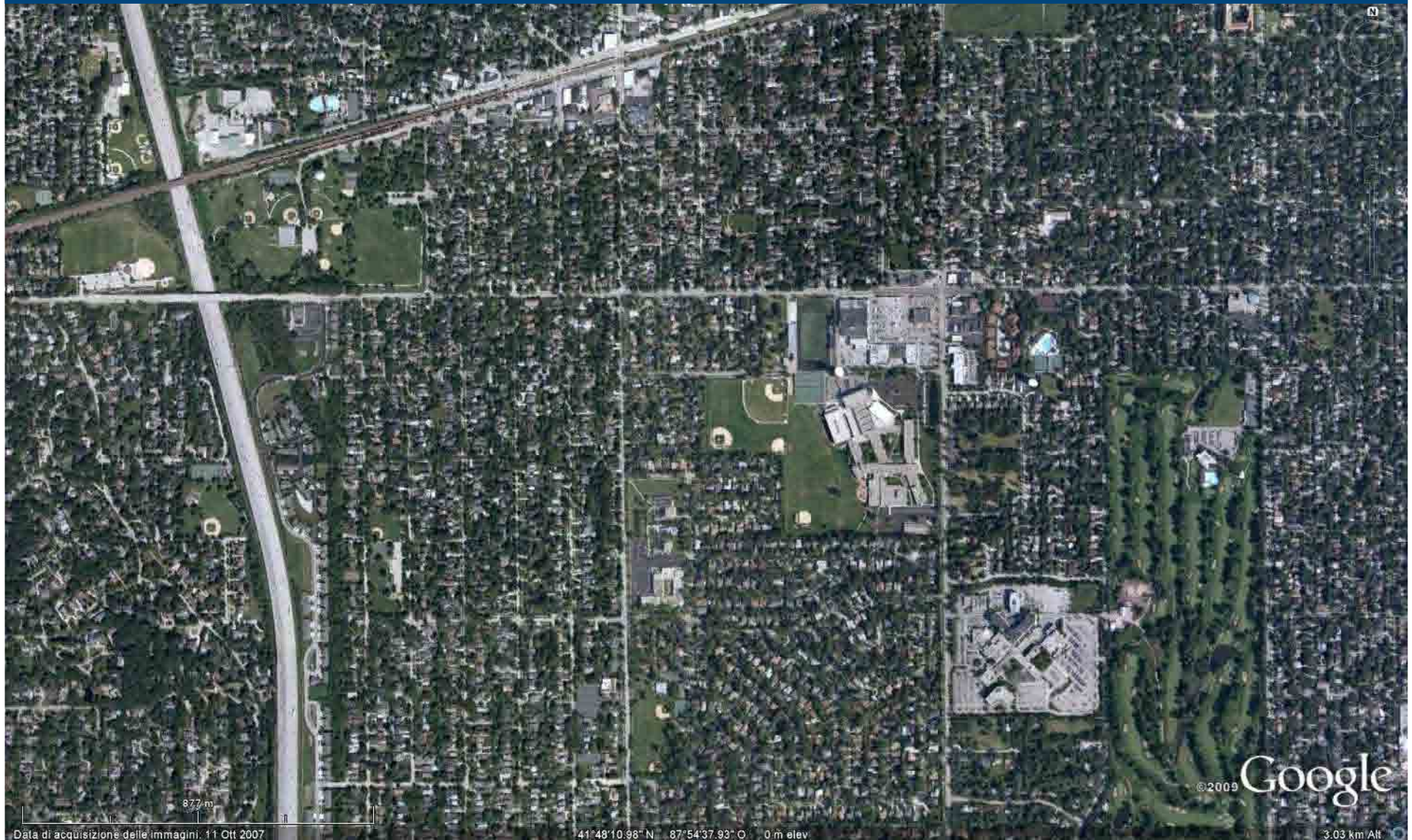
Chicago, Illinois, USA



Chicago, Illinois, USA



Chicago, Illinois, USA



877 m
Data di acquisizione delle immagini: 11 Ott 2007

41°48'10.98" N, 87°54'37.93" O, 0 m elev.

©2009 Google

3.03 km Alt.

Chicago, Illinois, USA



South East Chicago, Illinois, USA



Image IndianaMap Framework Data
Image U.S. Geological Survey
Image NOAA

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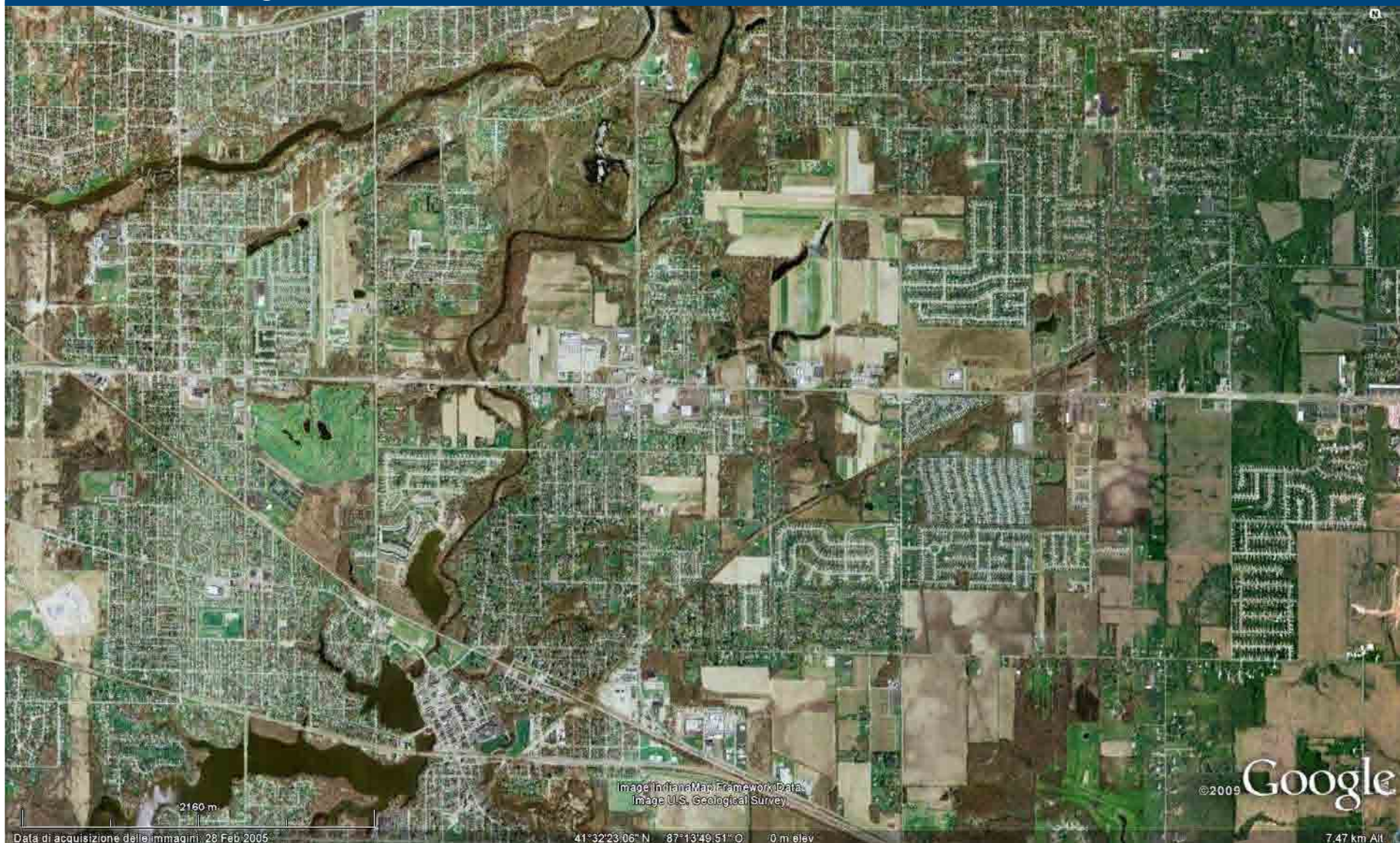
41°39'35.22" N 87°22'29.16" W 0 m elev.

50.10 km Alt

South East Chicago, Illinois, USA



South East Chicago, Illinois, USA



South East Chicago, Illinois, USA



Data di acquisizione delle immagini: 28 Feb 2005

41°32'49.39" N 87°14'52.44" O 0 m elev

3.59 km Alt

South East Chicago, Illinois, USA

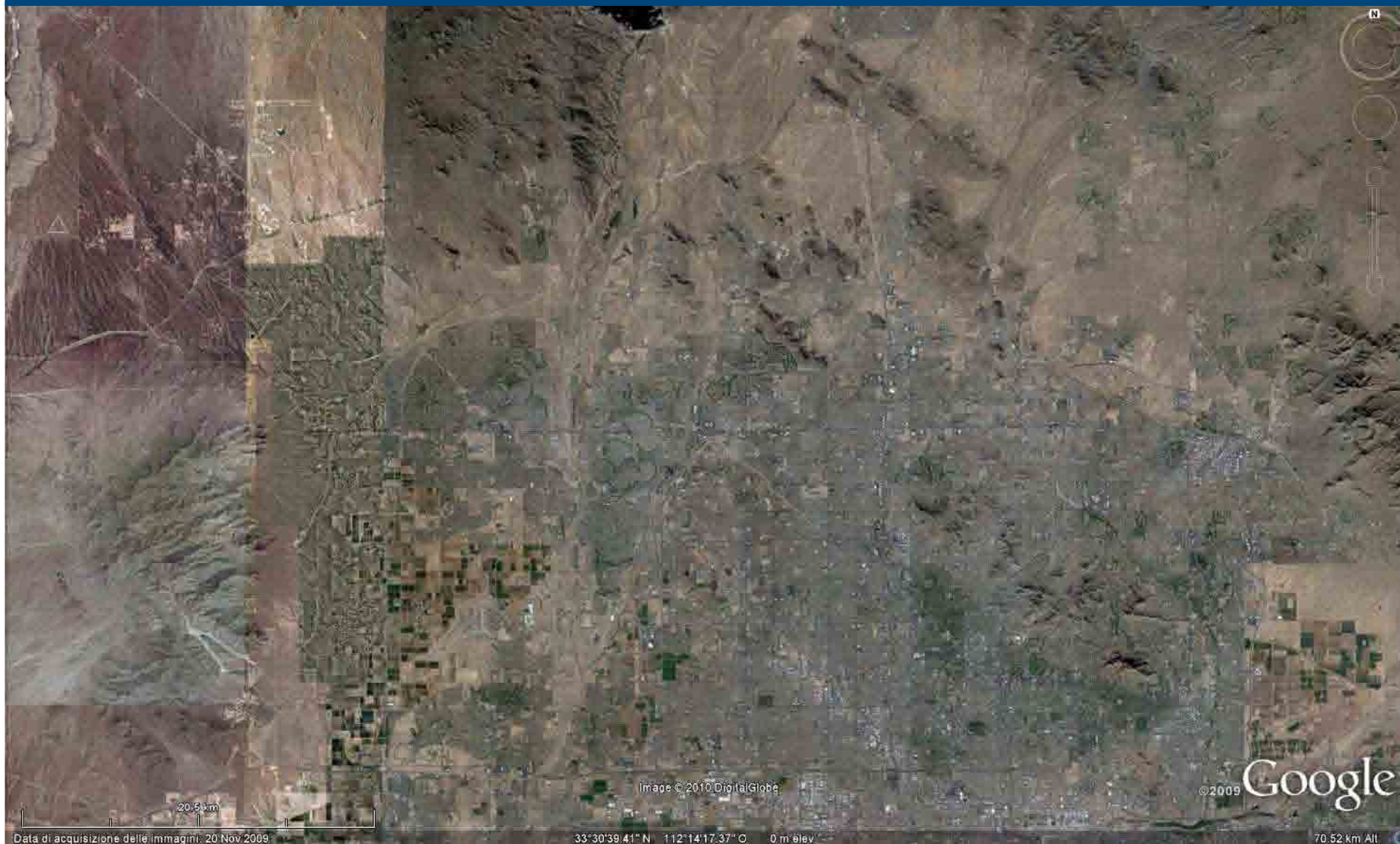


Data di acquisizione delle immagini: 28 Feb. 2005

41°32'55.17" N 87°14'07.79" O' 0 m elev

1.48 km Alt

Phoenix, Arizona, USA



Phoenix, Arizona, USA



Data di acquisizione delle immagini, 20 Nov. 2009

33°39'07.35" N, 112°16'21.71" O, 0 m elev

15.26 km Alt

Phoenix, Arizona, USA



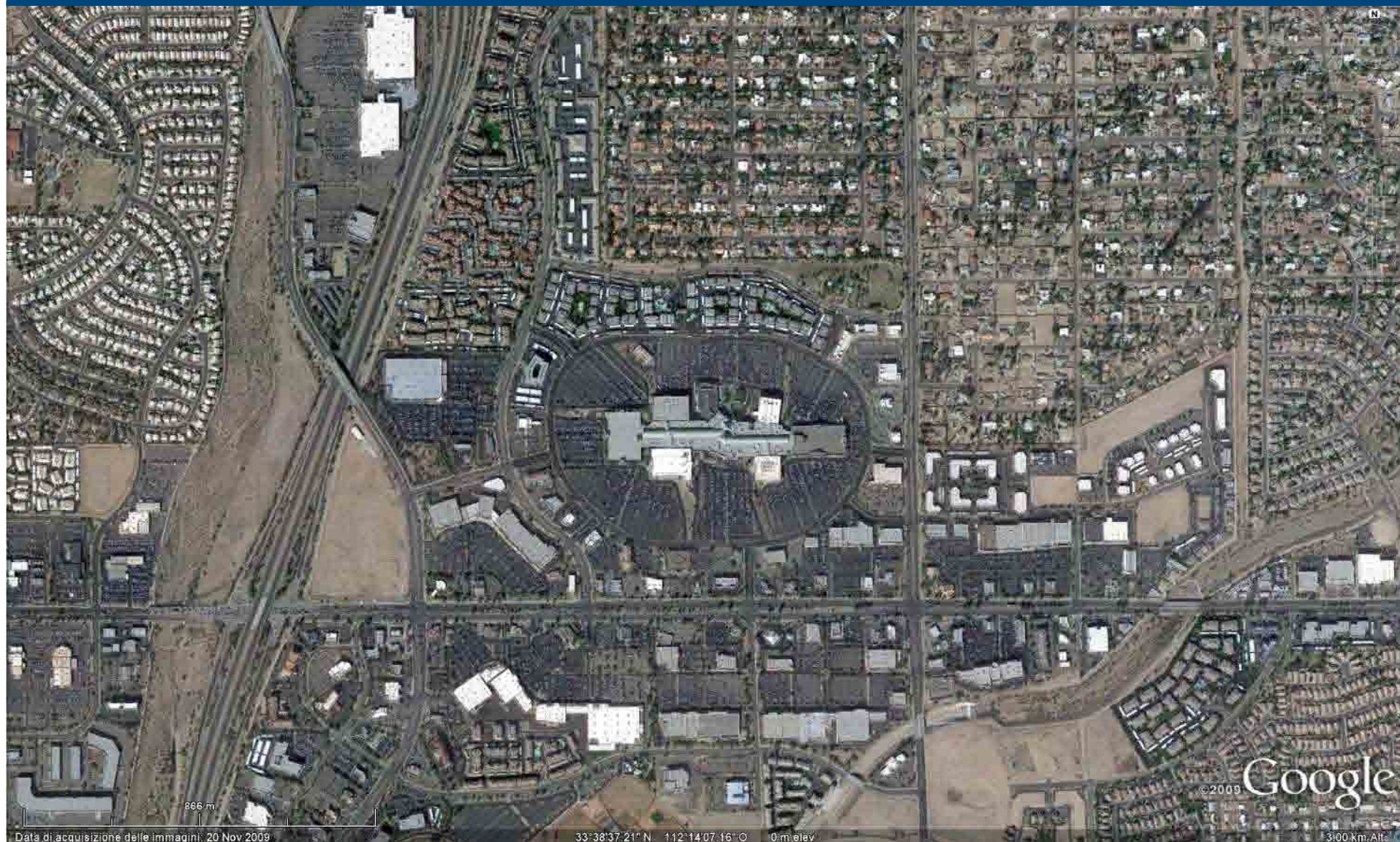
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33°38'48.26" N, 112°14'51.04" O, 0 m elev

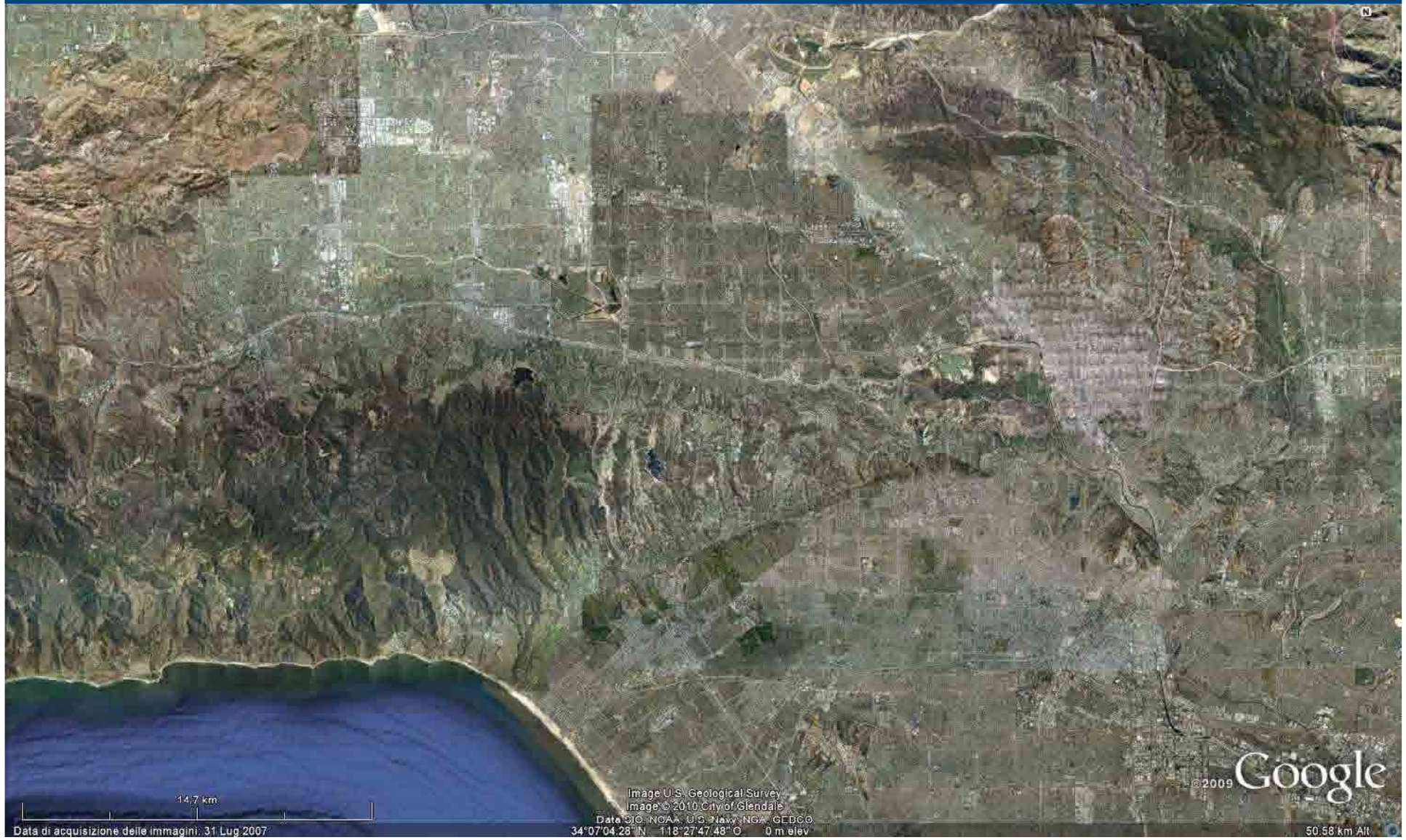
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7.00 km Alt

Phoenix, Arizona, USA



Los Angeles Hills, California, USA



14.7 km

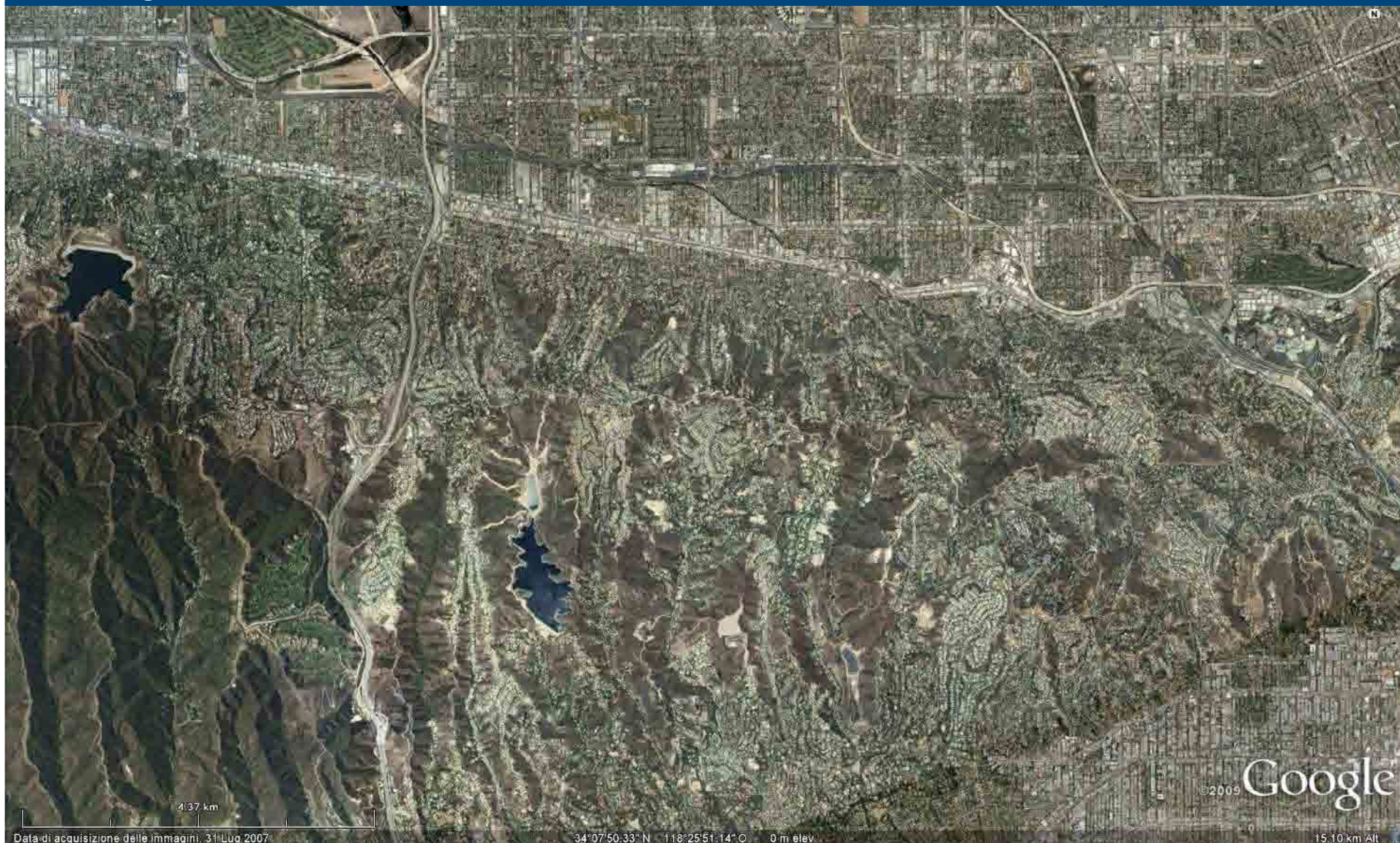
Data di acquisizione delle immagini: 31 Lug 2007

Image U.S. Geological Survey
Image © 2010 City of Glendale
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
34°07'04.28" N 118°27'47.48" O 0 m elev

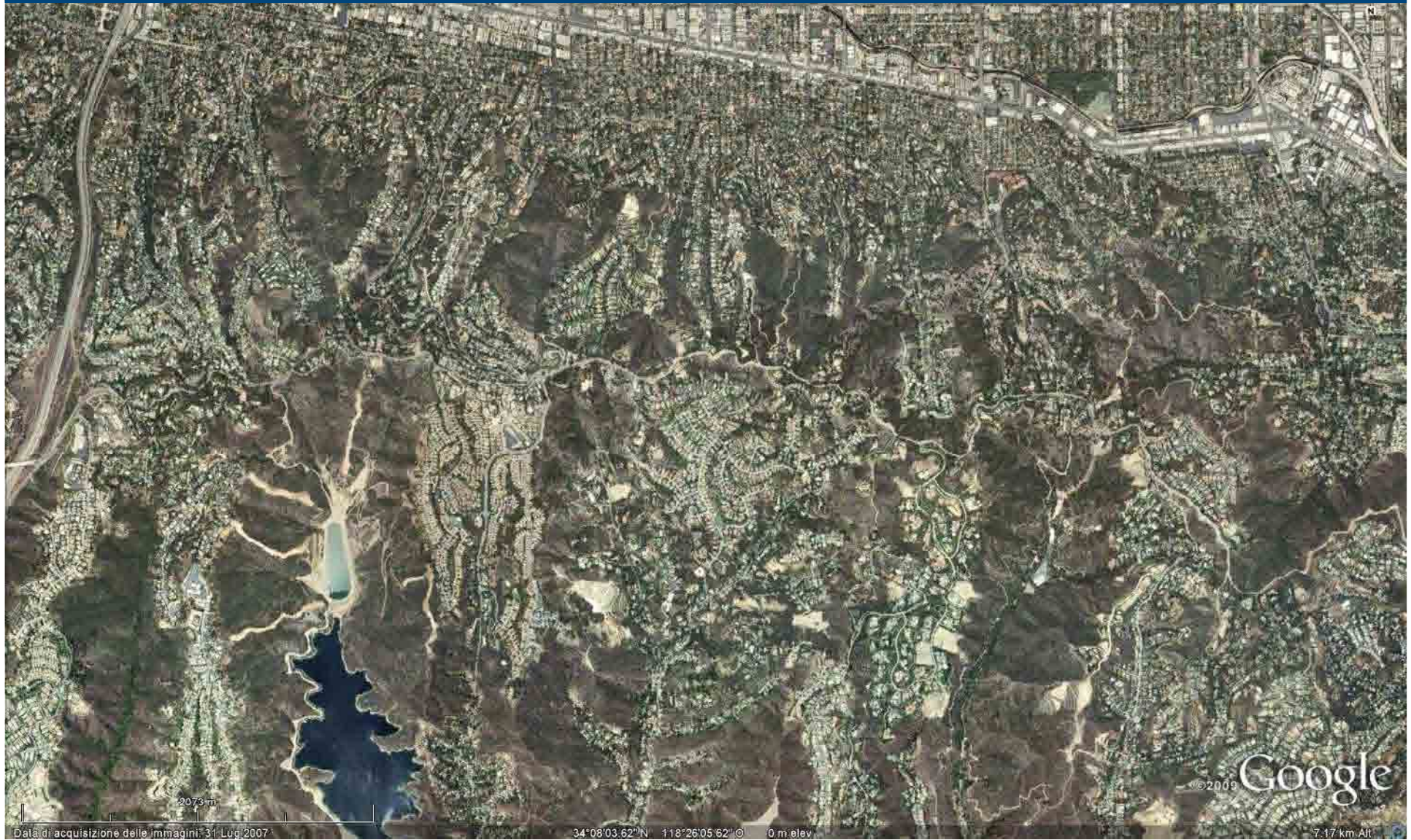
© 2009 Google

50.58 km Alt

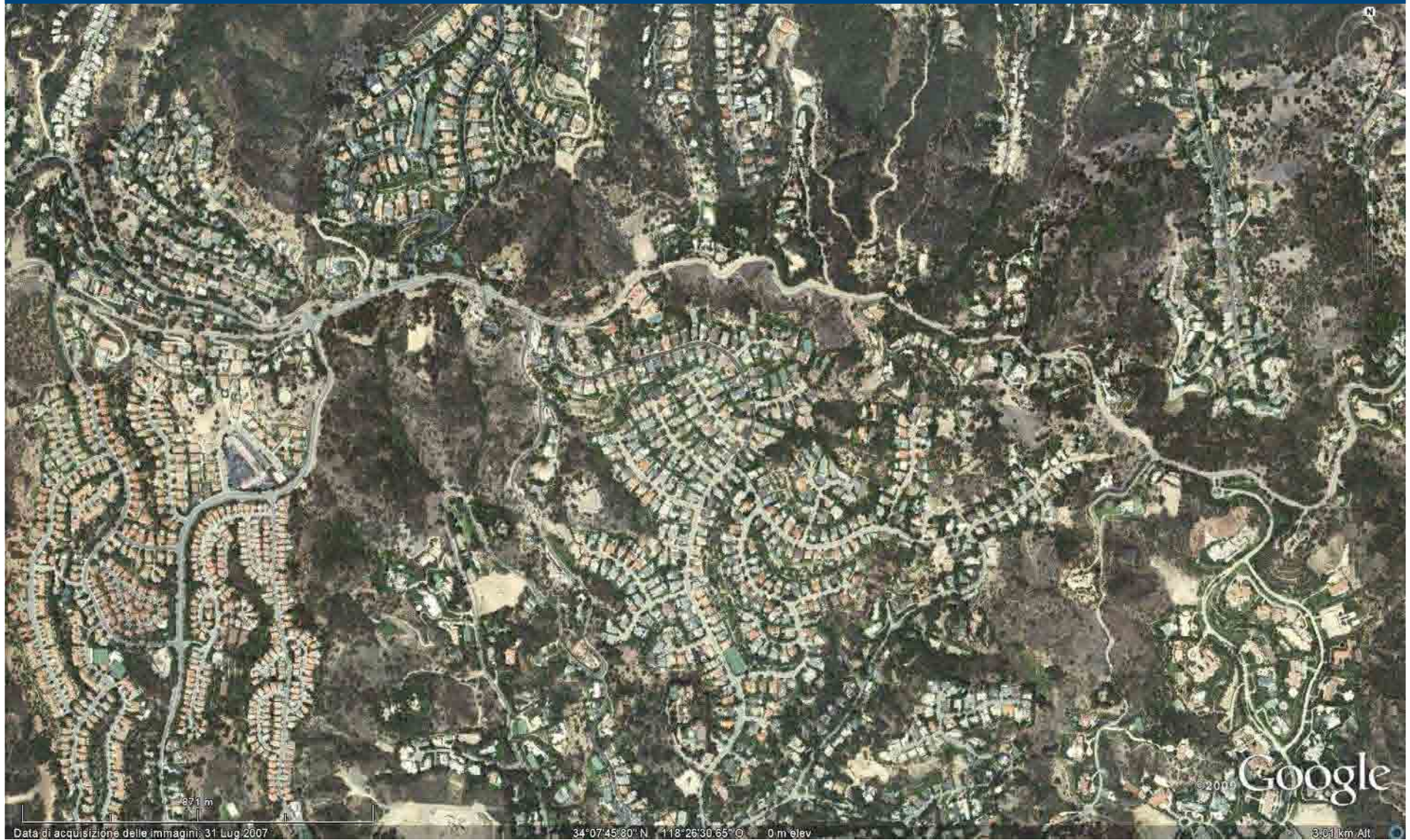
Los Angeles Hills, California, USA



Los Angeles Hills, California, USA



Los Angeles Hills, California, USA



Los Angeles Hills, California, USA



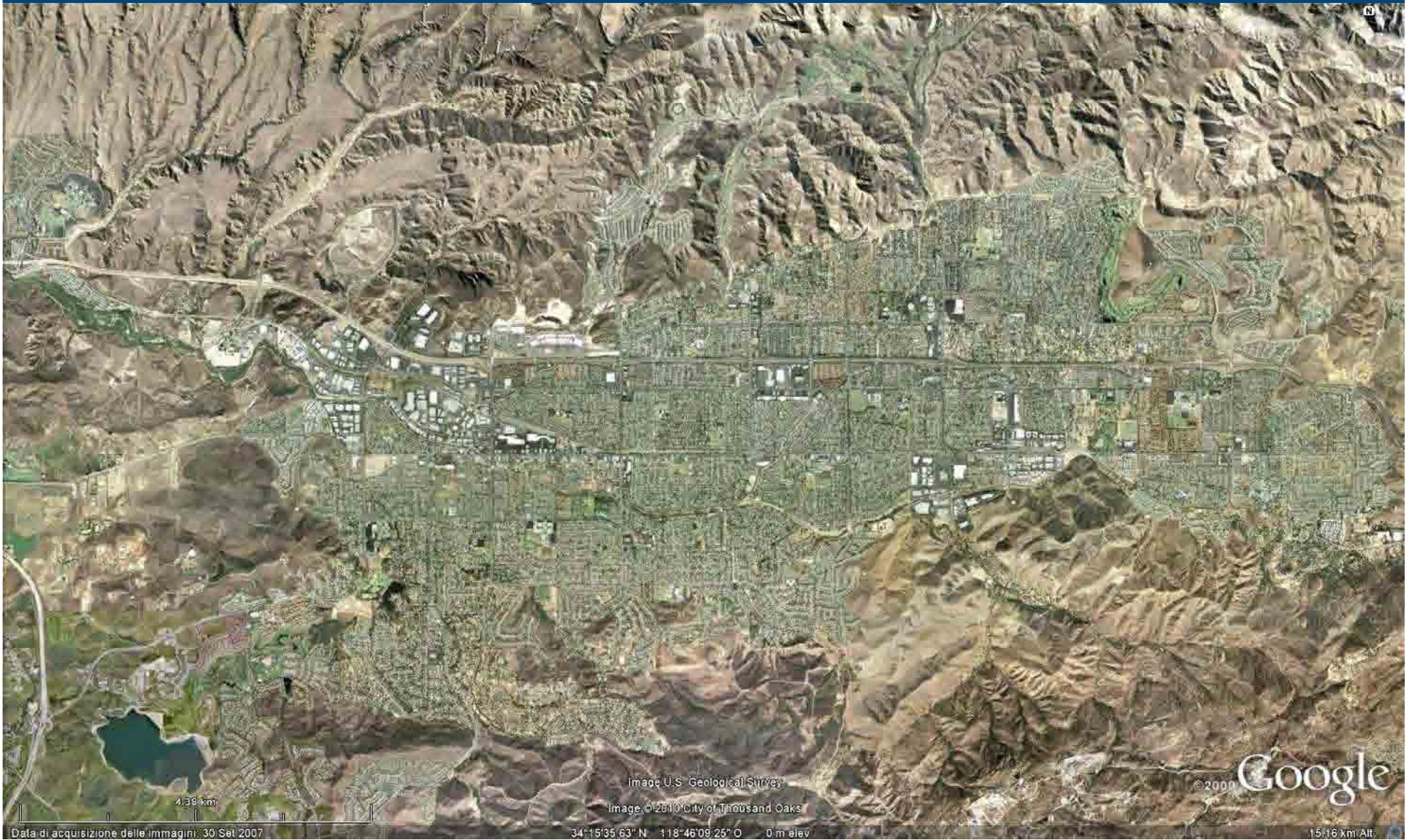
Los Angeles Hills, California, USA



Simi Valley, California, USA



Simi Valley, California, USA



4.39 km

Image U.S. Geological Survey

Image ©2010 City of Thousand Oaks

©2009

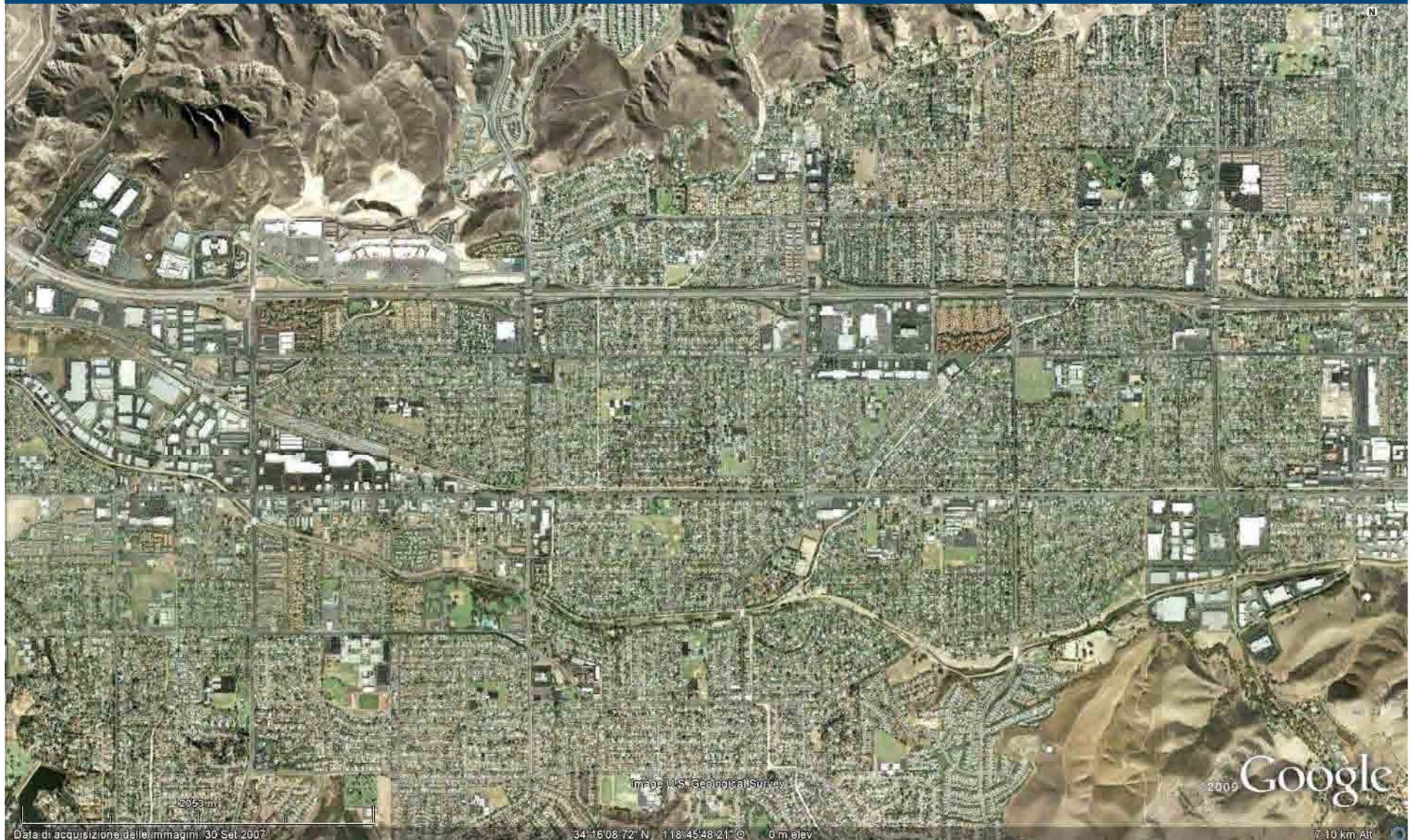
Google

Data di acquisizione delle immagini: 30 Set 2007

34°15'35.63" N 118°46'09.25" O 0 m elev

15.16 km Alt.

Simi Valley, California, USA



Data di acquisizione delle immagini: 30 Set 2007

34°16'08.72" N 118°45'48.21" © 0 m elev

7.10 km Alt

Simi Valley, California, USA

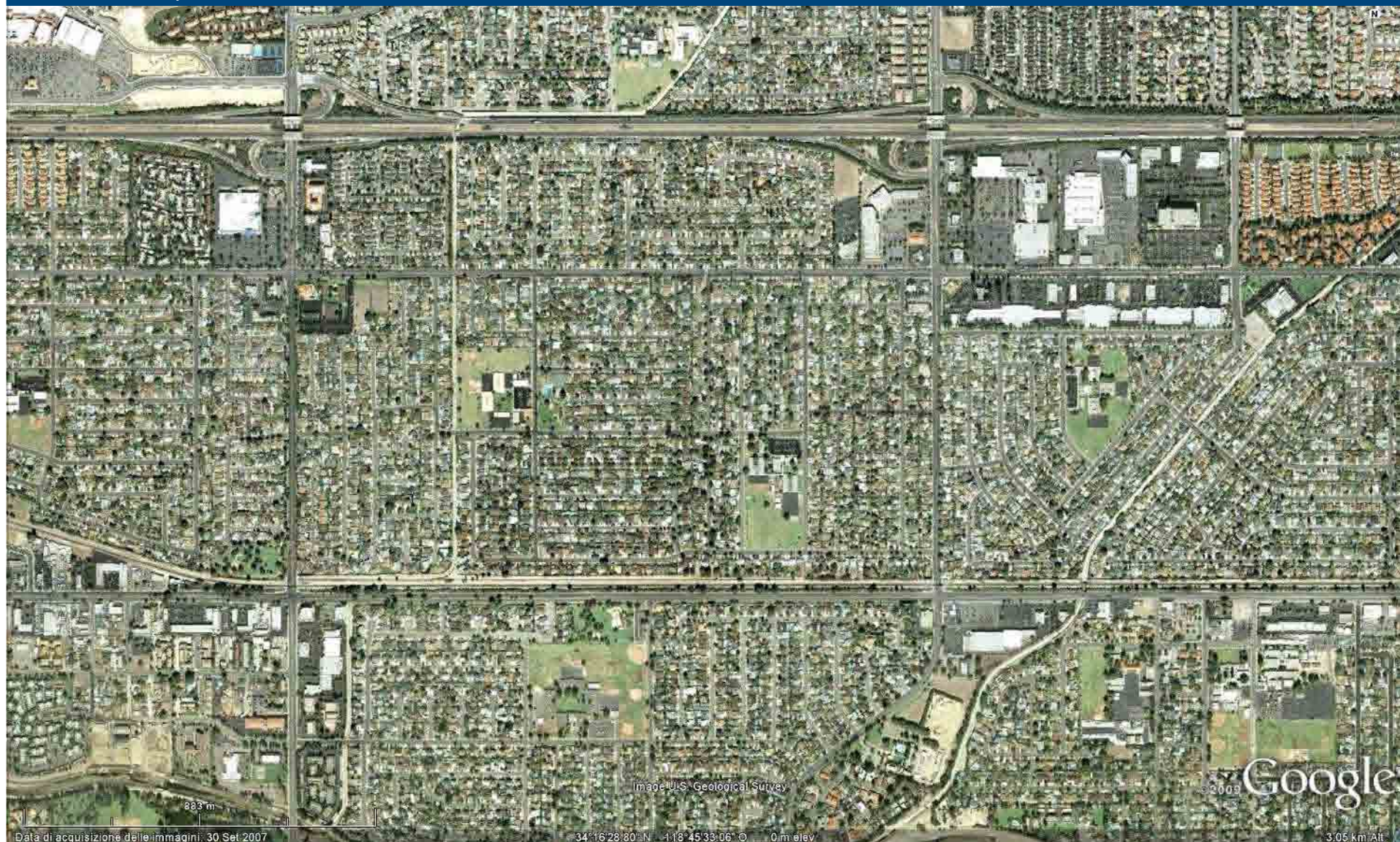


Image U.S. Geological Survey

© 2009

Google

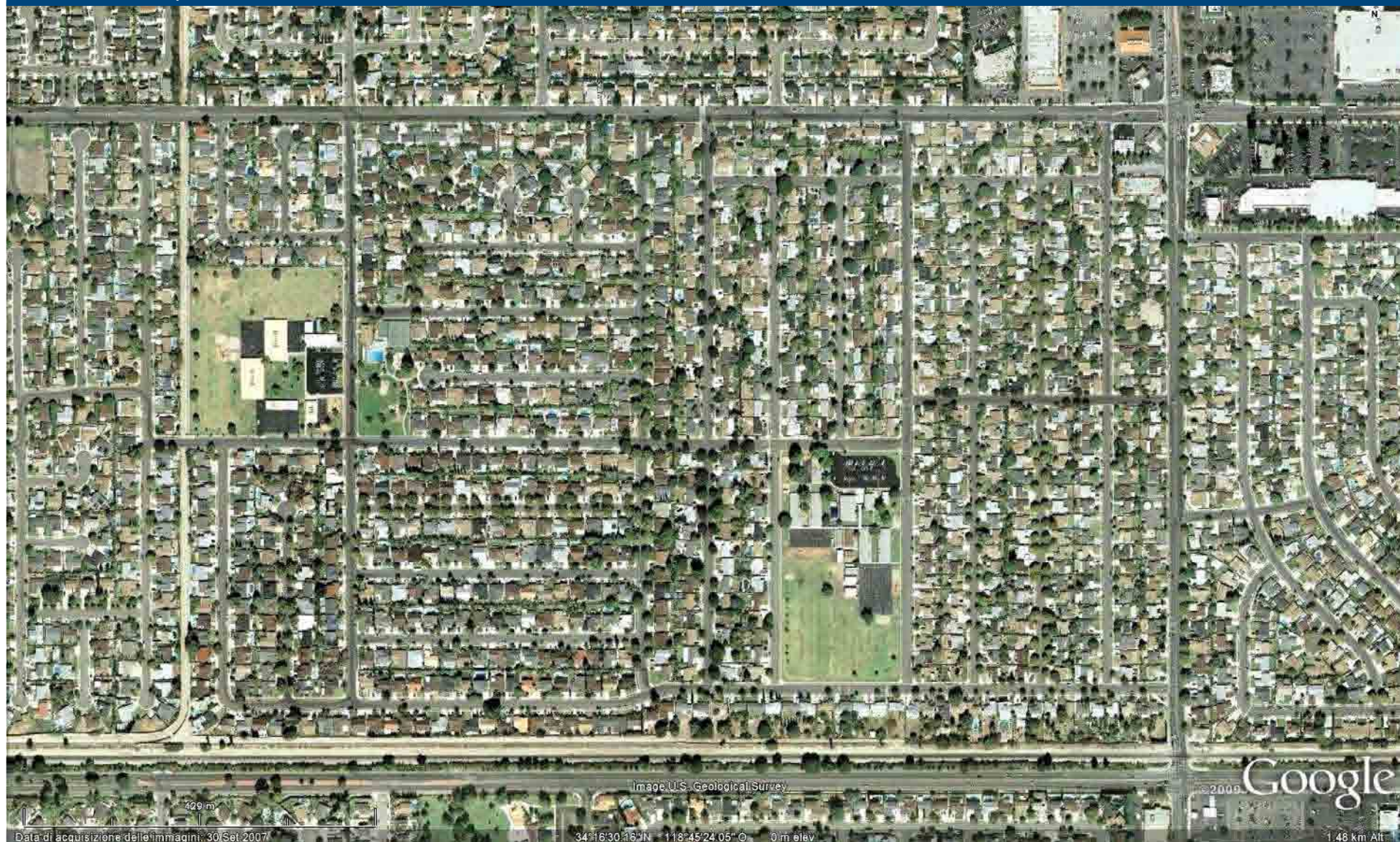
823 m

Data di acquisizione delle immagini: 30 Set 2007

34° 16' 28.80" N, -118° 45' 33.06" © 0 m elev

3.05 km Alt

Simi Valley, California, USA



Data di acquisizione delle immagini: 30 Set 2007

Image U.S. Geological Survey

34°18'30.16"N 118°45'24.05"O 0 m elev

© 2009 Google

1.48 km Alt

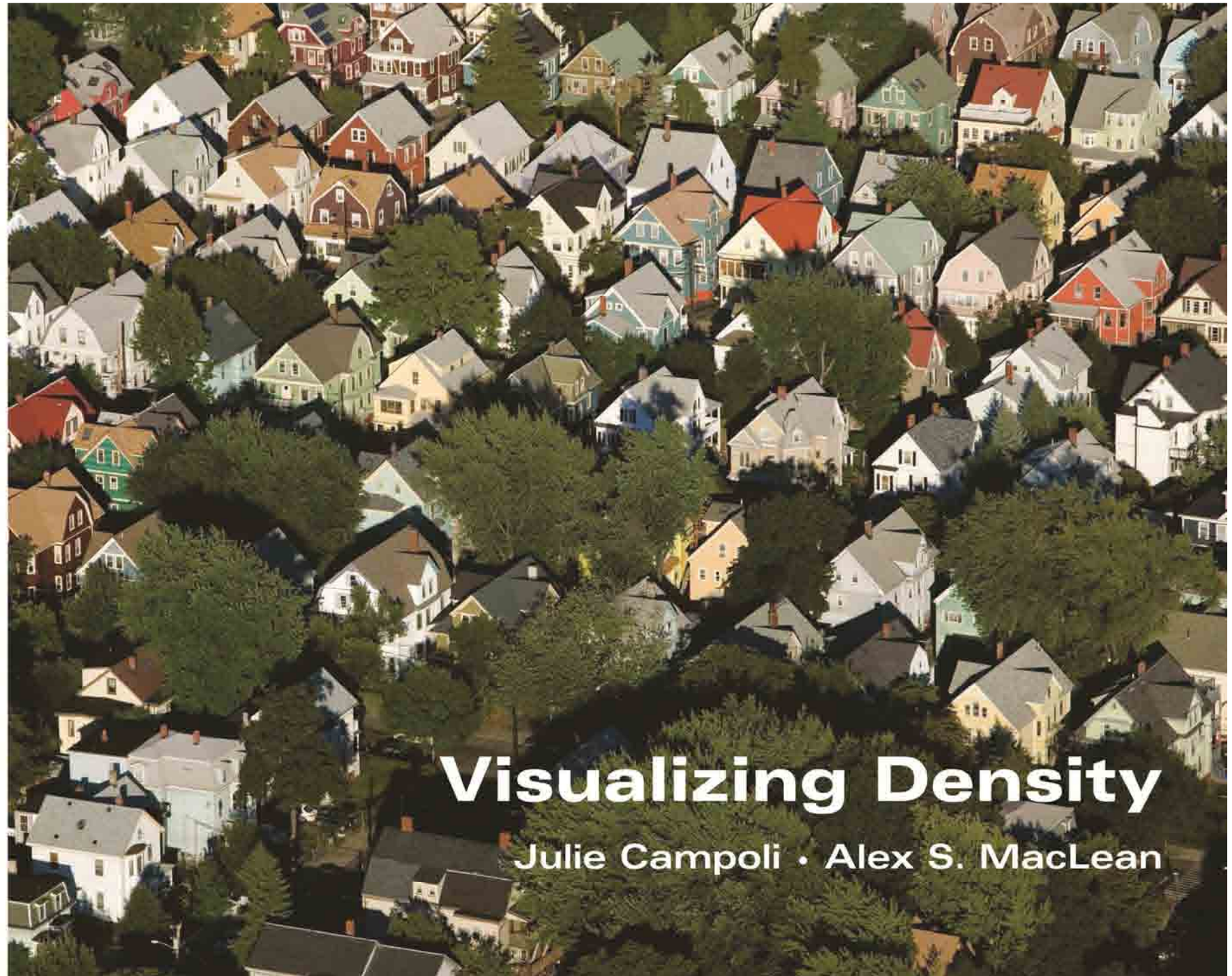
Simi Valley, California, USA



Data di acquisizione delle immagini: 30 Set. 2007

34° 16' 31.35" N 118° 45' 07.06" O 0 m elev

705 m Alt



Visualizing Density

Julie Campoli • Alex S. MacLean

Visualizing Density

Julie Campoli · Alex S. MacLean

© 2007 by the Lincoln Institute of Land Policy,
Julie Campoli, and Alex S. MacLean
Aerial photographs © 2007 Alex S. MacLean

This CD contains the Density Catalog section of the book
Visualizing Density by Julie Campoli and Alex S. MacLean,
which was published by the Lincoln Institute of Land Policy,
Cambridge, MA.

This CD is made available for educational purposes only,
as a way for planning officials, planning board members,
citizens, educators, and others to share information about
residential density in public meetings, classrooms, and
other such venues.



Chicago, Illinois

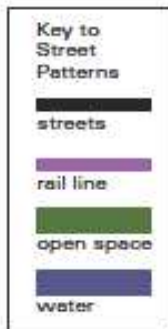
The Density Catalog

Density is easy to calculate. Divide the number of persons by the number of square miles, or the number of housing units by the number of acres, and you will know the density of a given area. But, although measuring density is a rational process, our perception of density is neither rational nor quantifiable. What does a place look like? How does it feel to be there? These qualitative factors, not numbers, determine how we perceive density. We react to the physical environment, which can be shaped in countless ways. How we arrange the streets, buildings, and open spaces of cities and neighborhoods affects the perception, or feeling, of density.

This density catalog shows both physical qualities and numerical measures. It contains aerial photographs of more than 250 neighborhoods across the country, noting the density in housing units per acre for each site. Four photographs of each location are included—a close-up view, a context view, a neighborhood view, and a plan view. Yellow lines superimposed on each context image show the extent of the area measured. Street pattern diagrams drawn at the same scale show the differences in street and open space layout. The catalog is organized by density level, from low density (less than 1 unit per acre) to high density (296 units per acre).

The catalog provides an impartial view of many ways to design neighborhoods. It includes a broad sample of contexts and regions, as well as design approaches. The format is objective, with the sites represented consistently. Your evaluation of these places, however, will be subjective. You will find some neighborhoods attractive and others unappealing. As you browse the images, notice the variety within a given range. For example, 13 different sites have a density between 8 and 9 units per acre. They share a similar measured density, but each has a distinct physical character. It is not density that makes a neighborhood appealing or appalling, but form—the street layout, arrangement of buildings, quality of architecture, and use of open space.

This collection of images is an introduction to the visual form of residential density, but it is also a planning and design tool. Use it to gain consensus on the form that density should take in your community. It will help you and others understand the link between density and design, and enable you to conjure mental images of density you can live with.



LESS THAN 1 UNIT PER ACRE



Phoenix, AZ 0.5 units / acre



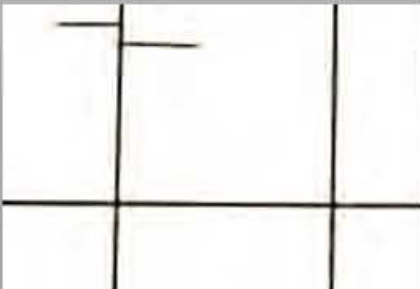
context



neighborhood



plan



street pattern



Cave Creek, AZ 0.5 units / acre



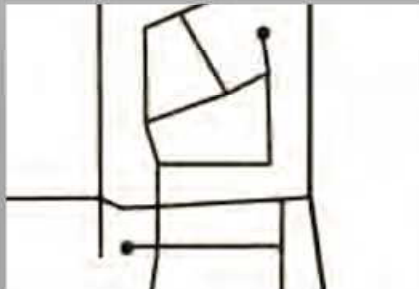
context



neighborhood



plan



street pattern



Plano, TX 0.6 units / acre



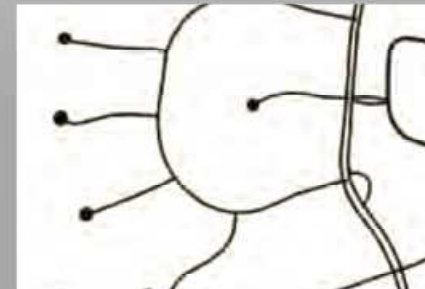
context



neighborhood



plan



street pattern

1 UNIT PER ACRE



Glendale, AZ 1.0 units / acre



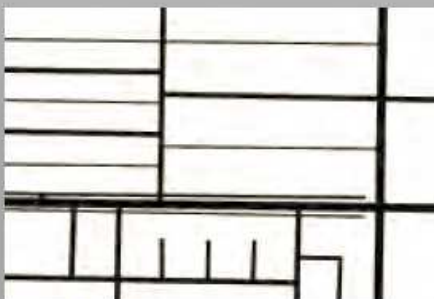
context



neighborhood



plan



street pattern



Edinburg, NJ 1.1 units / acre



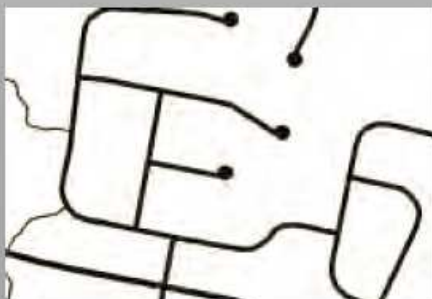
context



neighborhood



plan



street pattern



Prescott Valley, AZ 1.1 units / acre



context



neighborhood



plan



street pattern

1 TO 2 UNITS PER ACRE



Kansas City, MO 1.9 units / acre



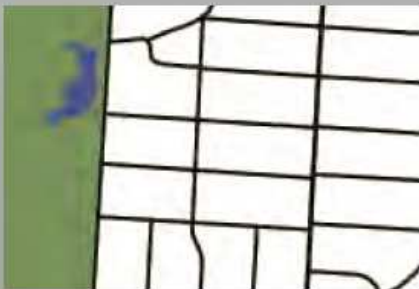
context



neighborhood



plan



street pattern



Delano, CA 1.9 units / acre



context



neighborhood



plan



street pattern



Havasas City, AZ 2.0 units / acre



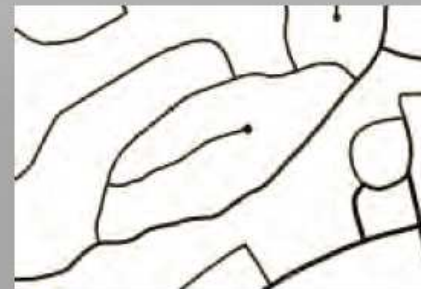
context



neighborhood



plan



street pattern

2 UNITS PER ACRE



Tucson, AZ 2.5 units / acre



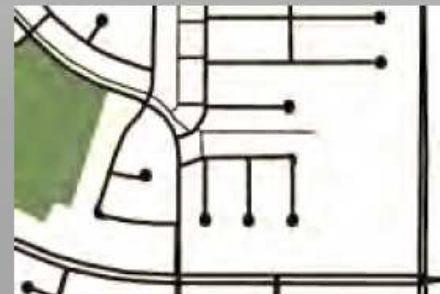
context



neighborhood



plan



street pattern



Plano, TX 2.6 units / acre



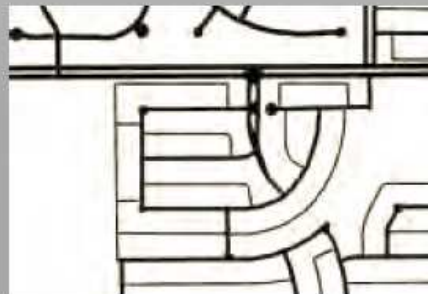
context



neighborhood



plan



street pattern



Longmont, CO 2.6 units / acre



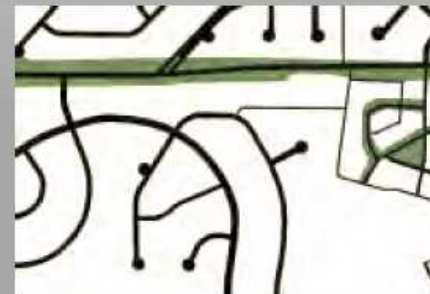
context



neighborhood



plan



street pattern

4 UNITS PER ACRE



Delano, CA 4.0 units / acre



context



neighborhood

plan



street pattern



Sun City, AZ 4.1 units / acre



context



neighborhood

plan



street pattern



Buckeye, AZ 4.1 units / acre



context



neighborhood

plan



street pattern

4 UNITS PER ACRE



Needles, CA 4.3 units / acre

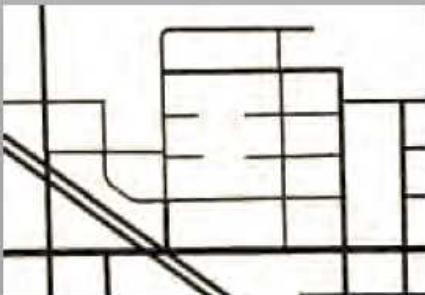


context



neighborhood

plan



street pattern



Boulder, CO 4.4 units / acre



context



neighborhood

plan



street pattern



Hollister, CA 4.4 units / acre



context



neighborhood

plan



street pattern

5 UNITS PER ACRE



Sandusky, OH 5.4 units / acre



context



neighborhood



plan



street pattern



Las Vegas, NV 5.5 units / acre



context



neighborhood



plan



street pattern



Ogden, UT 5.5 units / acre



context



neighborhood



plan



street pattern

11 UNITS PER ACRE



Emeryville, CA 11.0 units / acre



context



neighborhood



plan



street pattern



Kansas City, KS 11.1 units / acre



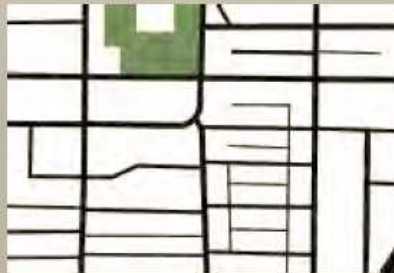
context



neighborhood



plan unavailable



street pattern



Hamtramck, MI 11.2 units / acre



context



neighborhood



plan



street pattern

Density (Great references)

1 acre = 4047 square meters

1 hectare = 10.000 square meters

Horizontal City (Wright: Broadacre City)

5-7 people/hectare

Linear City 1 (Soria y Mata)

10 units/ha

Garden City 1 (Howard)

60 people/hectare in urban nucleus

1 people/hectare in countryside

Linear City 2 (Le Corbusier)

from 50 people/hectare (family houses) to 400 (apartment building)

Functional City 2 (van Eesteren: Amsterdam)

40 units/ha

Garden City 2 (Abercrombie: Greater London Plan)

(Existent: 360 people/hectare)

180-240 people/hectare in internal zone

120 people/hectare in medium zone

72-120 people/hectare in external zone

Compact City (Cerdà: Barcelona)

250 people/hectare each block

Vertical City (Hilberseimer: Grosstadt)

715 people/hectare

Functional City 1 (Le Corbusier: Ville Radieuse)

1.000 people/hectare

Urban sprawl in Europe

In the text *Urban Sprawl in Europe: Landscapes, Land-Use Change & Policy* there is a clear identification of three levels of causes/consequences of urban sprawl.

The editors (Couch, Leontidou and Petschel-Held, 2007) **deconstruct the dualism of causes/consequences** considering complex feed-backs and underline that if many causes and consequences are well investigated and seem indisputable, some others are still ambiguous and it is difficult to find appropriate indicators.

This approach is very important to save a certain criticism in front of too easy conclusions and remedies.

They distinguish **macro-level, meso-level and micro-level causes of sprawl.**

“At the **macro-level** are the political-economic paradigms and trends that shape the nature of our urban societies: the nature of capitalism, political ideologies, economic globalisation, so forth. The **meso-level** is where much of the discourse about the causes of urban sprawl can be found: demographic change and migration waves; local political structures and policies; local geographical, economic and social circumstances. Finally, the **micro-level** captures the decisions of individual actors in the urban system: households, farmers and other organisations – individual decisions about the location of housing and workplaces; uses of services and amenities; choices of transport mode and so forth”.

These editors also group the **consequences of urban sprawl into three headings:**

- **Transport**
- **Density**
- **Conversion of rural to urban land.**

This text is important because it publishes a **multidisciplinary research on European sprawl** when the literature focuses primarily on American sprawl (particularly on the Usa sprawl) or on the Third World phenomena.

The research was funded by the CE program with the title “Urban Sprawl: European Patterns, Environmental Degradation and Sustainability”.

Case studies: Northern and Western Europe: **Liverpool, Stockholm, Vienna**;
Southern Europe: **Athens**; Eastern Europe: **Leipzig, Warsaw, Ljubljana**.

A relevant assertion is:

“‘Urban sprawl’ is a phenomenon and a process affecting different cities in a different manner . . . **there is nothing at all universal about urban sprawl**”.

There are differences between the Usa and Europe, the Usa and the Third World, and diverse patterns have been discovered in Europe.

The same research about the nature of sprawl:

“The term ‘urban sprawl’ is often used today rather negatively, typically to describe low density, inefficient, suburban development around the periphery of the city.

Many of the definitions found in the literature tend to emphasise the idea of urban sprawl being a type of urban form or a pattern of urbanisation, rather than a process of urban change.

However, in our view the latter may be a more useful perspective, since it is the process of sprawling that leads to undesirable side effects and it is in the process of sprawling that policy must intervene”.

Considering urban sprawl as a process, the research focuses on the dynamics.

About the **differences in different countries (1)**:

“Variations in local conditions, traditions and built environment led to different forms of sprawl in different countries. **In the USA**, richer than Europe and with more land, car ownership grew faster, building lots became bigger, and suburbs sprawled further and at a lower densities than in Europe. **In England**, more affluent in the nineteenth and early twentieth century than some of its European neighbours – and with a tradition of living in houses (rather than apartments), supported by a planning ideology and a favourable housing finance system – suburbs grew quickly. **In France, Germany and some other central European countries**, with highly capitalised building industries, traditions of higher density (walled) towns, apartment dwelling and (in the twentieth century) a planning ideology that favoured high-rise building, sprawling suburbs were slower to develop. In much of **Southern Europe** almost the opposite occurred. Weaker planning systems, combined with more individualised and undercapitalised building processes, led to less organised patterns of low-rise urban growth around many cities”.

About the **differences in different countries (2)**:

Considering European geography, society, culture, politics and history with an integrated approach, the researchers identify three major archetypical origins of urban sprawl:

- **Life style-driven in Northern and Western Europe** related with pastoral utopias in cultural representations (an anti-urban culture)
- **Infrastructure-related in Southern Europe and across the Mediterranean** related to a sort of friendliness to the city (many diseases of existing cities)
- **State-regulated in Eastern Europe**, where there is not a marked sprawl.

This research focused on space in-between urban and rural, discovering in the examined **peri-urban landscapes** a great diversity in European urban sprawl:

“Both among cities, and in intra-urban landscapes beyond suburbia, on the urban periphery and sprawling fringes around cities (...) **diverse mosaics of activities on the ‘rurban fringe’, ‘nature in fragments’ among other types of land use (...) hybrid landscapes are the rule, that is, landscapes undergoing mutations (...)**

Hybridity is usually discussed through the merging of nature and culture ..., extended to the rural within the urban, the agricultural within the industrial, so forth. Such mosaics of activities and land use patchworks are frequent in most peri-urban landscapes and make them different from cityscapes, suburbs and satellite towns. They are spaces in-between suburbs and villages beyond the metropolitan regions”.

The conclusion is very interesting:

“The contrast and dualism of the past now fades, as **an emergent culture of urbanism spreads from South to North Europe** (...) Affluent social strata return to urban living inward from sprawling suburbia and re-discover street life, outdoor cafes and compact cities in gentrifying European urban cores (...) The urban periphery also benefits from this regeneration process, mostly as a place for innovative design (...) Southern cities are *not* developing towards Northern models during postmodernity, as conventional convergent theories claimed and ‘urbanlife-cycle’ models posited. On the contrary, the metropolises of Mediterranean Europe slide easily from informality to neoliberal entrepreneurial cities during the past two decades, while at the same time influencing the North (...)

Among researcher, hybrid landscapes have been considered ‘unsustainable’ for a long period (...) we ended (...) **recognizing the quality of life in European sprawling areas, which is a world apart** (...) We have exposed the diversity of peri-urban landscapes as well as cities, and **different personalities therein: life patterns of different population groups, urbanites and suburbanites, and among them various types – for example, residents, commuters, visitors, cosmopolitans migrants** (...) - **create multitude of adaptations, interactions with and actions on urban space**”.

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