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▶ **To cite this version:**

Renaud Le Goix, Elena Vesselinov. A typology of gated communities in US Western Metropolitan Areas – working paper. 2012. halshs-00851443

HAL Id: halshs-00851443
https://shs.hal.science/halshs-00851443

Preprint submitted on 14 Feb 2014

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A typology of gated communities in US Western Metropolitan Areas
- working paper -*

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19 novembre 2012†

Abstract

This working paper investigates the social dimensions of gated communities in US western metropolitan areas, and investigates their contribution to segregation patterns at the metropolitan level. On the basis of a socio-economic typology at the block group level, we analyze the socio-economic patterns associated with gated residential streets in 20 metropolitan areas in the western US (in California, and in Las Vegas and Phoenix). We use geographically referenced data at the gated street level to build a database of gated streets and gated block groups. This definition of gated block groups and gated streets is then compared with the results of a multivariate analysis investigating socioeconomic patterns in three aspects: race and ethnicity, economic class and age in 2010 census. The results show a contrasting understanding of their contribution to segregation patterns: whereas larger gated communities are more likely to be "retirement communities", the stronger trend relates to the amplitude of the diffusion of both large and small gated communities within the wealthier neighborhoods. But the analysis of smaller gated developments demonstrates the really diverse and wide spectrum of the gated and private realm of residential neighborhoods.

Keywords: segregation, inequality, US metropolitan areas, gated communities, spatial analysis.

*This paper was prepared with funding from a National Institute of Child Health and Human Development – NIH Grant, titled 'Socio-Economic Impact of Gated Communities on American Cities' (5R03HD056093-02). This support is gratefully acknowledged.

†First draft. Do not quote without permission

1 Introduction

From the early academic and public debates about gated communities until now scholars and observers have discussed the link between gating and segregation. Not surprisingly there is a wide continuum of arguments from scholars supporting the idea that gating is in fact a process which contributes to residential integration, to scholars believing that it is a form of exclusion and segregation. This paper investigates the social dimensions of gated communities in US western metropolitan areas, and investigates their contribution to segregation patterns at the metropolitan level. On the basis of a socio-economic typology at the block group level, we analyze the socio-economic patterns associated with gated residential streets in 20 metropolitan areas in the western US (in California, and in Las Vegas and Phoenix). We use geographically referenced data at the gated street level to implement a database of gated streets and gated block groups. This definition of gated block groups and gated streets is then compared with the results of a multivariate analysis investigating socioeconomic patterns in three aspects: race and ethnicity, economic class and age in 2010 census. We compare socio-economic patterns in gated communities and in the rest of metropolitan areas.

We first outline the backgrounds, i.e. the links between gated communities and segregation, and especially discuss how the private urban governance organize the governance and social structure with an interlocking of spatial, legal, social system, that yield increased selection of residents. A second section describes the methodology used to prepare of geo-referenced dataset of gated communities (gated streets and gated block groups) and the data used to perform of multivariate analysis of socio-economic patterns. We discuss the results, at the gated block group level, and also at the block group with some gated streets level, and by doing so we propose an analysis of several profiles of metropolitan areas in terms of significance of socio-economic patterns associated with gated enclaves.

2 Backgrounds: gated communities and segregation

Gated communities are territories of exclusiveness, building up by design social homogeneity on security, snob values, fear of crimes, symbolic and physical distance from others. But all these attributes are not truly independent, as they derive from the contractual agreement binding all property owners. Questions raised about their alleged effects usually address their efficiency on preservation of the tidiness and value of the neighborhood, and ultimately on segregation patterns. Gated communities in US western metropolitan areas account for a substantial part of newly built subdivisions since the last three decades, and there has been a need for empirical assessment of how they have contributed to a reshaping a suburban social dimensions by means of walls and gates. The Community Association of America estimated in 2002 that 47 million Americans had been living in 231,000 community associations and that 50% of all new homes in major cities belonged to community associations (Sanchez and Lang 2005). Only a proportion — varying between 12% and 30% in the region of Los Angeles (Le Goix 2005)

— of these private local government areas are gated.

This articulates with debates on fragmentation and privatization that shape and defines the residential suburban-scape. Gated communities are residential schemes (Common Interest Developments, CIDs) organizing the governance and social structure with an interlocking of spatial, legal, social system (Le Goix and Webster 2008).

- On morphology: gated communities are built as enclaves and have physical enclosures, secluding some collective urban space (parks, sidewalks, streets, common grounds, golf courses...) (Blakely and Snyder, 1997).

- Legally: property rights are implemented in POAs, and private governance structure are designed to exclude others (i.e. selecting residents) (Kennedy 1995; McKenzie 1994; McKenzie 2003; McKenzie 2006; Owens 1997).

- Socially: securitization forms are embedding social strategies to seek "comfort" and social homogeneity (Low 2003; Low 2006).

Since Blakely and Snyder's seminal book, there has been a noticeable consensus among the authors who describe the security logic as a nonnegotiable requirement in contemporary urbanism and architecture, and all agree that 'both the privatization of public space and the fortification of urban realm, in response to the fear of crime, has contributed significantly to the rise of the contemporary gated community phenomena' (Bagaeen and Uduku 2010) in different national contexts. On the one hand, a strong thesis is therefore the link between security and fear of others — sometimes distinguished from the desire for security of person and property (Low 2001; Low 2003). On the other hand, gated communities, as a member of the wider family of private urban governance, derive in the United States from a long history of exclusive regulations being implemented both in planning and land-use documents, but more significantly in the legal structuring of residential associations by means of restrictive covenants (Fox-Gotham 2000; Kennedy 1995; Kirby, Harlan, Larsen, Hackett, Bolin, Nelson, Rex, and Wolf 2006). In a Tieboutean world, residential preferences and economic rationale prevail, and gated communities are understood as an exit-option from the public realm, from the over-regulated and overcrowded cities, with their inefficiency in providing community services (Cséfalvay and Webster 2012). This has been thoroughly discussed under the terminology of "club economy" (Lee and Webster 2006; Webster 2007; Webster 2002). This also explicitly contributes to social selection of prospective buyers. There are multiple and concurring evidences, based on diverse methodologies, of the price premium of gated communities over non-gated private neighborhood. On average, GCs are known to generate a price premium, and to better guaranty the homogeneity of property values within the neighborhood and to better protect values on the long run than other non-gated private neighborhoods in the US. (Bible and Hsieh 2001; Lacour-Little and Malpezzi 2001; Le Goix and Vesselinov 2012).

Several authors have therefore demonstrated the link between proprietary neighborhoods and segregation, either in the Los Angeles area (Le Goix 2005), or in a more general contexts such as planned communities (Gordon, 2004) and new towns (Kato

2006). Private governance and the organization of property rights by the means of CC&R's lead to a implicit selection processes of the owners. The effect of gated communities on social homogeneity (Le Goix 2005; Vesselinov, Cazessus, and Falk 2007; Wu 2005) has been well established. Social homogeneity is achieved through design guidelines, age restrictions or a selective club membership, and yields a measurable effect on local segregation: in the US, gated communities tend to segregate more by age (Life cycle and age polarization), and by socio-ethnic status (White vs. Hispanics, correlated with wealth and age), and do not locally influence segregation patterns in terms of racial segregation.

3 Methodology

3.1 A georeferenced dataset of gated communities

We have identified the exact location of GCs in a set of an initial set of 31 metropolitan areas (MSAs and PMSAs), available through Thomas Guides®[1]. We then match the newly constructed data for GCs with Census data at block group level. Using data from 2010 US Census, we will then allow to identify the characteristics of the population living within and outside of the gated areas. This paper presents, compares and discusses the results for the 11 metropolitan areas for which the analysis yielded significant results. In all other areas, the quality of the sample did not allow to significantly conclude.

3.2 A multivariate analysis of socio-economic patterns in gated streets

We use a geographically referenced dataset covering metropolitan areas in the western US. Our dataset is based on a ratio of gated streets by block groups (BG), constructed with proprietary dataThese data come from Thomas Bros. Maps®. The company publishes interactive maps that identify private streets. Access to vector maps allows spatial queries of gated streets, in order to identify gated neighborhoods. The files also contain information related to military bases, airfields, airports, prisons, amusement parks and colleges, some of which may also contain private streets with restricted access.. Aerial photographs from the usual on-line providers (Google Earth, MapQuest) have been also used, and has been helpful in visualizing residential physical patterns and the presence of gates. Field survey data collection have also contributed to identify GCs as opposed to nonresidential gated areas, and to control for the overall quality of data.

In order to produce an accurate typology of gated communities, the analysis will sort them out of their more general socio-economic contexts. Therefore, the methodology

[1] *Bakersfield, CA*; Chico–Paradise, CA; *Fresno, CA*; *Las Vegas, NV–AZ*; *Los Angeles–Long Beach, CA*; Merced, CA; Modesto, CA; *Oakland, CA*; *Orange County, CA*; *Phoenix–Mesa, AZ*; Redding, CA; Reno, NV; *Riverside–San Bernardino, CA*; *Sacramento, CA*; *Salinas, CA*; *San Diego, CA*; *San Francisco, CA*; *San Jose, CA*; San Luis Obispo–Atascadero–Paso Robles, CA; *Santa Barbara–Santa Maria–Lompoc, CA*; *Santa Cruz–Watsonville, CA*; *Santa Rosa, CA*; Stockton–Lodi, CA; *Vallejo–Fairfield–Napa, CA*; *Ventura, CA*; *Visalia–Tulare–Porterville, CA*; *Yolo, CA*; Yuba City, CA (MSAs and PMSA with significant results in italics)

consists in classifying, by the means of a hierarchical cluster analysis over a principal component analysis, all block groups within the studied MSAs, except block groups with quartered population. Three main characteristics of the socioeconomic differentiation are analyzed, using the following variables for each block group, extracted US Census 2010 (SF1) and American Community Survey 2010 (5 years estimate) (Table 1). It is of importance to mention that our proprietary database of gated block groups and block groups with gated streets had originally been designed according to 2000 census block groups geographies. Consequently, we have retropolated 2010 census data into 2000 block group entities, for the means of our comparisons with gated communities. This has been performed by the means of an surface-based average weighted means computation of 2010 census data.

- Socioeconomic status: median property value; owner-occupied housing units (% of housing units),
- Ethnicity: White non-Hispanic persons; Black persons; Hispanic and Latinos ethnicity; Asian origins; Native American origins, Others (% of population 2000),
- Age: less than 5 years old; 5-17 y.o., 18-21 y.o.; 22-29 y.o.; 30-39 y.o.; 40-49 y.o.; 50-64 y.o.; more than 65 y.o. (% of population).

Table 1: Univariate statistics of 2010 census data in block groups (all MSAs)

	Mean	Std. Dev.	Min	Max	CV	Q1	Median	Q3
percent								
Hispanics	35.3	26.9	0	99.3	0.762	12.8	26.8	55.1
White non-hispan	42.5	28.1	0	100.0	0.661	15.6	42.7	67.6
Black	5.8	9.9	0	93.0	1.718	1.0	2.4	6.0
Native	0.5	2.4	0	94.0	4.507	0.1	0.3	0.5
Asian	11.1	14.2	0	95.8	1.283	2.1	5.7	13.6
Pacific Islanders	0.3	0.6	0	13.9	1.945	0.0	0.1	0.4
Other races	2.6	1.5	0	27.5	0.588	1.5	2.5	3.6
Under 5 y.o.	6.4	2.6	0	23.8	0.405	4.7	6.2	8.0
5-17 y.o.	17.1	6.0	0	37.7	0.348	13.9	17.8	21.2
18-21 y.o.	5.4	2.9	0	87.6	0.537	3.9	5.4	6.6
22-29 y.o.	11.2	5.1	0	61.7	0.454	8.2	11.0	13.4
30-39 y.o.	13.2	4.5	0	43.2	0.338	11.0	13.4	15.4
40-49 y.o.	14.0	3.3	0	29.4	0.233	12.7	14.2	15.8
50-64 y.o.	18.3	6.0	0	94.2	0.326	14.4	18.1	22.0
more than 65 y.o.	12.5	8.9	0	99.8	0.714	7.3	10.7	15.3
Owners	58.1	27.2	0	100	0.468	37.2	62.9	81.3
$ Median Value	448581.4	256241.7	0	1000001	0.571	255808.1	414485.3	607631.2

4 Results

To present the results, we then distinguish three levels, describing the different topological distance and geographies we use:

- Where gated streets represent more than 50% of a gated BG

- The BG with some gated streets (below the 50% threshold).
- The other BG within the metropolitan area.

After a general analysis of the socio-economic typology by block groups, we elaborate a more detailed analysis at the gated block group level, and also at the block group with some gated streets level. We discuss the results with a focus on how some metropolitan areas differ in terms of significance of socio-economic patterns associated with gated enclaves.

4.1 A socio-economic typology by block groups

The four principal axis extracted (62.94% of total cumulative Eigenvalues) describe the main dimensions of socio-spatial segregation in the metropolitan areas. Figure 1 summarizes the factorial coordinates of variables. Each factor describes a specific dimension of socio-economic differentiation.

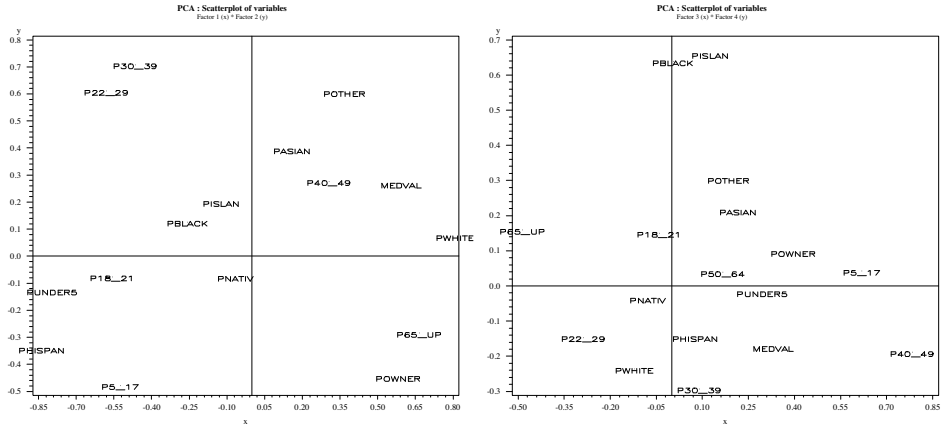

Figure 1: Principal components analysis of socio-economic variables in 2010.
Block group geography, in metropolitan statistical areas. Proportion of Eigenvalues: F1=0.31, F2=0.13, F3=0.10; F4=0.07

Factor 1 describes distance on White vs. Hispanic status, correlated with wealth and age status. On average, it discriminates areas with an over-representation of wealthier and older (more than 40 y.o.) White population with a dominant owner status, from areas where Hispanic and younger populations are overrepresented. Factor 2 summarizes the spectrum of life-cycle combined with ownership status. On the one hand, block groups are better described by pure owner-occupied status of households ; on the other hand, population between 22-39 y.o. are over-represented, with a secondary component of asian and other race status. Factor 3 also conveys interpretations on life-cycle and age, although more explicit on age segregation of elderlies. It describes block groups with older (65+) population vs. block groups with an overrepresentation of ownership, younger, and more family-oriented neighborhoods (30-39 y.o. and 17 y.o. or less). Racial

segregation is finally characterized by factor 4. Everything else being equal (in terms of property values, age and ownership status), it clearly discriminates White population on the one hand of the spectrum, and Black and Pacific Islanders populations on the other hand.

We then extract summarizing clusters from the PCA factors, by the means of a hierarchical cluster analysis (Figure 2). The best fit of 9 clusters explains 65% of intergroup variance, and distinguish:

- An average profile of mixed White and Hispanic neighborhoods (as on Table 1), in which ownership of high property values predominates as the most significant discriminant characteristics, along with an overrepresentation of more than 40 years-old (CL11);
- Young adults mixed neighborhoods, where 22-39 y.o., Whites and Asians are overrepresented, and owners underrepresented (CL 12);
- Mixed neighborhoods, with a younger population, average values and less owners, and a higher share of African-americans and Asians among Whites and Hispanics (CL 13);
- Affluent White neighborhoods, with an over-representation of Whites, along with higher property values, owners, families with children 5-17 (CL19);
- The end of the life-cycle: elderlies and owners. Racial mix with an over-representation of Whites and higher property values (CL17);
- Retirement neighborhoods, with an overrepresentation of 65+, non-Hispanic White and mostly owner-occupied neighborhoods (CL 10);
- Hispanic neighborhoods (younger population, lower value, fewer owners) (CL9);
- Minority neighborhoods, with an n overrepresentation of Blacks, younger, less owner status, and lower property values (CL14);
- Asian neighborhoods, with a dominant profile of 22-49 y.o. and a relative median profile (CL15).

4.2 Socio-economic characteristics of gated block groups

As in Table 2, across the 11 metropolitan areas in which we have a significant subset of the 240 gated block groups. The largest share — 88 block groups, 36% of total — belong to the cluster describing retirement communities (CL10), followed by gated block groups that corresponds to the affluent white neighborhoods (CL19), as well as block groups described by an overrepresentation of elderlies and owners, with higher property values (CL17). Those three clusters summarize the socio-economic characteristics for 74% of the largest gated enclaves than fit entire block groups. But Asian neighborhoods (CL15) represent a share of 8.3%, and other clusters demonstrate the wide social spectrum of gated neighborhoods, that are found in every socio-economic contexts.

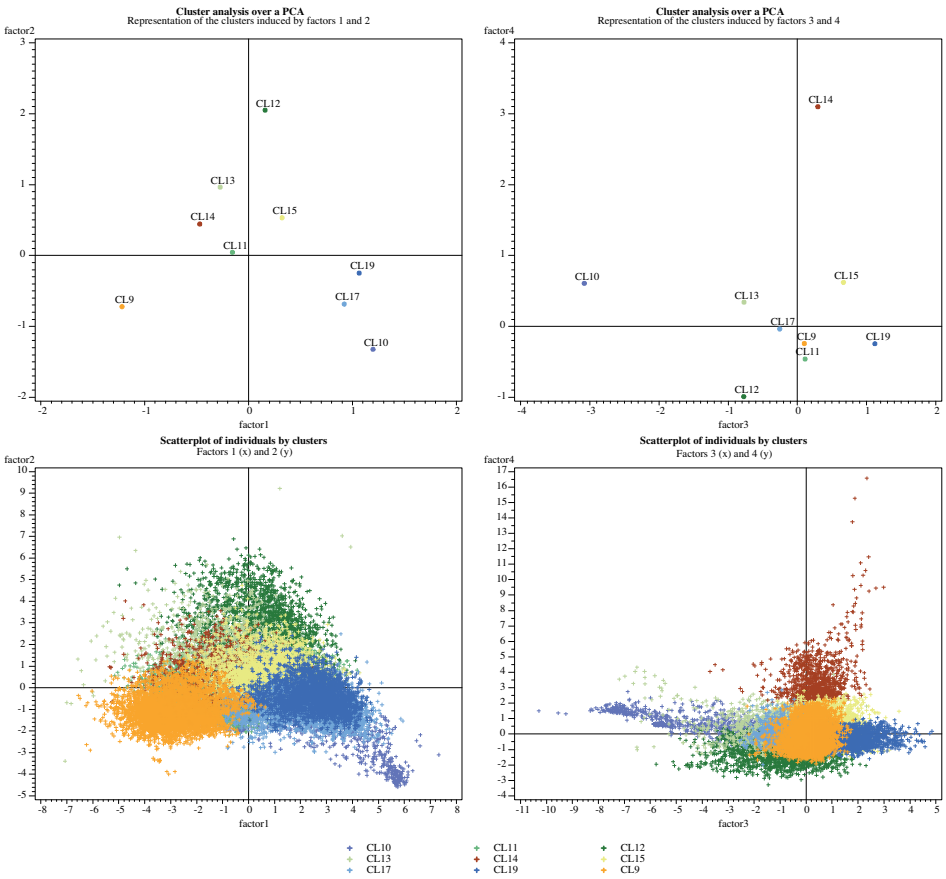

Figure 2: Cluster analysis over the PCA, factors 1 to 4, by block groups. Scatterplots of cluster centroïds (top) and individuals (down)

Table 2: Gated block groups by socio-economic typology

Metropolitan areas		CL10	CL11	CL12	CL13	CL14	CL15	CL17	CL19	CL9	MSA
Las Vegas	*n*	4	1	.	2	.	2	**6**	4	.	19
	%	21.0%	5.3%	.	11.0%	.	11.0%	**32.0%**	21.0%	.	100%
Los Angeles-Long Beach	*n*	7	1	5	1	1	**8**	7	7	.	37
	%	19.0%	2.7%	14.0%	2.7%	2.7%	**22.0%**	19.0%	19.0%	.	100%
Oakland	*n*	**5**	.	.	1	1	.	1	**4**	.	12
	%	**42.0%**	.	.	8.3%	8.3%	.	8.3%	**33.0%**	.	100%
Orange County	*n*	**41**	10	4	3	.	5	9	**30**	2	104
	%	**39.0%**	9.6%	3.8%	2.9%	.	4.8%	8.7%	**29.0%**	1.9%	100.0%
Phoenix-Mesa	*n*	**10**	.	.	.	.	.	**6**	3	.	19
	%	**53.0%**	.	.	.	.	.	**32.0%**	16.0%	.	100.0%
Riverside-San Bernardino	*n*	**19**	1	.	2	.	2	**8**	2	2	36
	%	**53.0%**	2.8%	.	5.6%	.	5.6%	**22.0%**	5.6%	5.6%	100.0%
San Diego	*n*	1	.	.	.	.	.	.	**2**	.	3
	%	33.0%	.	.	.	.	.	.	**67.0%**	.	100.0%
San Francisco	*n*	.	.	.	1	1	1	1	.	.	4
	%	.	.	.	25.0%	25.0%	25.0%	25.0%	.	.	100.0%
San Jose	*n*	.	1	.	1	.	**2**	.	.	.	4
	%	.	25.0%	.	25.0%	.	**50.0%**	.	.	.	100.0%
Santa Cruz-Watsonville	*n*	.	.	.	.	.	.	**1**	.	.	1
	%	.	.	.	.	.	.	**100.0%**	.	.	100.0%
Ventura	*n*	**1**	.	.	.	.	.	.	.	.	1
	%	**100.0%**	.	.	.	.	.	.	.	.	100.0%
Total block groups		***88***	***14***	***9***	***11***	***3***	***20***	***39***	***52***	***4***	***240***

But data also show that different patterns are found across the different metropolitan areas (Table 2). Figure 3 illustrates this point, and compares on the one hand the typology of gated block groups only (top) and the centroïds of gated block groups in MSA, plotted on the four factorial axis. It is therefore possible to delineate four groups of metropolitan areas, according to the local significance of gated block groups on social patterns.

Phoenix and Mesa metropolitan (Figure 10) area represents the quintessence of a metropolitan area in which larger gated developments are essentially retirement communities (CL10, 53%) and communities for the older and wealthier share of the population (CL17). Santa Cruz (Figure 18) and Ventura County (Figure 20), with only 1 large GC each, also relate to this category. In San Diego (Figure 14), larger gated communities either belong to the retirement category, or to the more affluent neighborhoods with an overrepresentation of White families (CL19).

Riverside-San Bernardino (Figure 11), Orange County (Figure 9) and Oakland (Figure 8), although dominated by retirement communities, nevertheless show a more diverse context for different types of gated neighborhoods: the more affluent White neighborhoods (CL19) represent a significant share of large gated enclaves, up to 33%, along with either more mixed neighborhoods (CL11 and CL13), Asian neighborhoods (CL 15) and gated communities matching the residential market of Hispanics, and retirement communities, in the Palm Springs area of Riverside-San Bernardino metropolitan area.

Both areas of Los Angeles (Figure 7), Las Vegas (Figure 6) show a more diverse metropolitan model, in which larger gated communities are more likely to be found within the richer White neighborhoods (19 and 21% respectively), but the whole spectrum of the neighborhoods typology is covered by gated block groups, especially retirement communities (CL10) and communities for the older and wealthier share of the population

(CL17), but also either mixed neighborhoods (CL11 and CL13) or Asian neighborhoods (CL 15).

In San Francisco and San Jose, the small total number of gated block groups show on the one hand the relative weakness of the phenomenon of large gated enclaves fitting block groups geographies in these local contexts. On the other hand, it is nevertheless significant that they all belong either to clusters describing the mixed neighborhoods of Whites and Hispanics owners (CL11), the mixed and much younger neighborhoods with average property values and less ownership (CL13), minority neighborhoods (CL14), and more significantly asian neighborhoods (CL15) described by a relative median social profile (Figures 15 and 16).

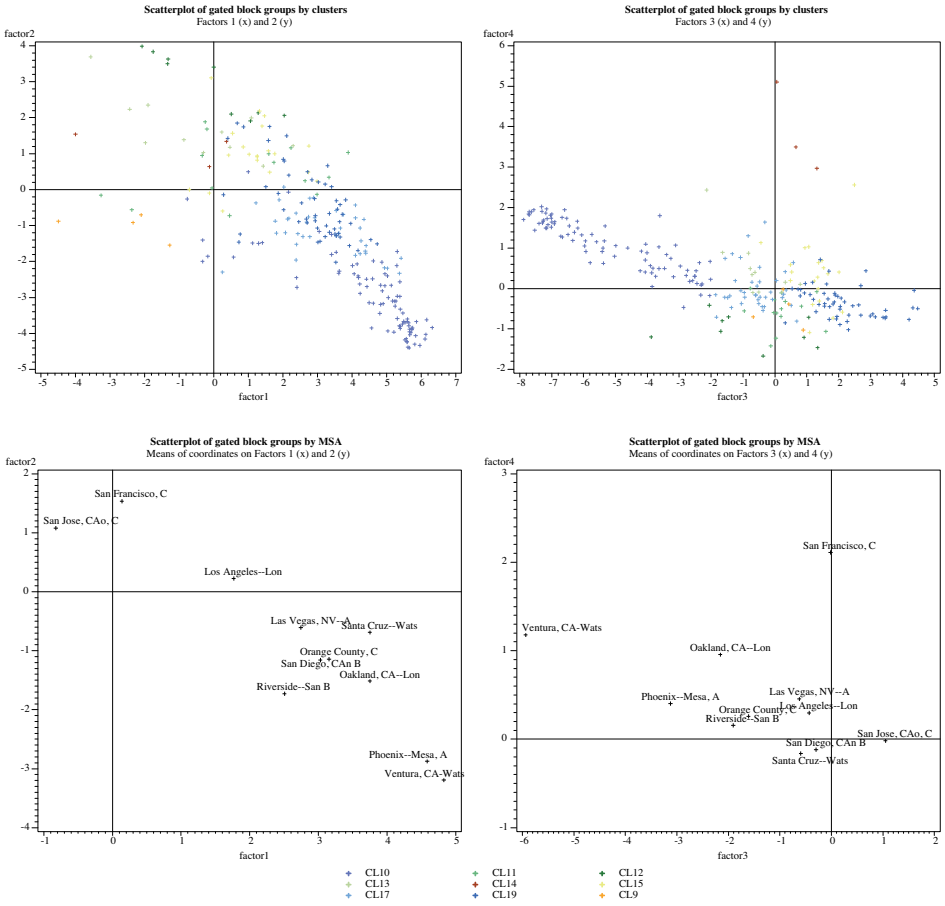

Figure 3: Scatterplots of gated block groups by clusters (top) and by MSA (down).

4.3 Block groups with gated streets: smaller gated communities are more diverse in kind

Not surprisingly, smaller gated communities are more diverse in kind (Table). When considering block groups in which gated roads represent less than 50% of the residential road network, the first trend in amplitude is the overrepresentation of CL17 and CL19, i.e. the older and wealthier share of the population, and the more affluent White neighborhoods (44% of the 2563 block groups with gated roads, and on Table). Strong tendencies are found in Asian neighborhoods (CL15, 12.5%), in the mixed neighborhoods of Whites and Hispanics owners (CL11, 15.5%), the mixed and much younger neighborhoods with average property values and less ownership (CL13, 7.4%), and significantly enough in mostly Hispanic, more modest and younger block groups (CL9, 7.2%).

Table 3: Block groups with gated streets by socio-economic typology

Clusters		CL10	CL11	CL12	CL13	CL14	CL15	CL17	CL19	CL9	MSA
Bakersfield	*n*	1	7	.	3	.	1	**12**	**7**	6	37
	%	2.7%	19.0%	.	8.1%	.	2.7%	**32.0%**	**19.0%**	16.0%	100%
Fresno	*n*	1	**4**	.	1	.	.	**4**	1	1	12
	%	8.3%	**33.0%**	.	8.3%	.	.	**33.0%**	8.3%	8.3%	100%
Las Vegas	*n*	15	6	2	44	5	**58**	44	20	11	205
	%	7.3%	2.9%	1.0%	21.00%	2.4%	**28.0%**	21.00%	9.8%	5.4%	100%
Los Angeles Long Beach	*n*	19	**103**	43	33	18	59	83	**116**	59	533
	%	3.6%	**19.0%**	8.1%	6.2%	3.4%	11.0%	16.0%	**22.0%**	11.00%	100%
Oakland	*n*	2	9	9	5	16	**49**	8	**60**	9	167
	%	1.2%	5.4%	5.4%	3.0%	9.6%	**29.0%**	4.8%	**36.0%**	5.4%	100%
Orange County	*n*	12	**75**	27	31	1	45	71	**126**	14	402
	%	3.0%	**19.0%**	6.7%	7.7%	0.2%	11.0%	18.0%	**31.0%**	3.5%	100%
Phoenix-Mesa	*n*	30	43	7	9	.	5	**59**	**50**	9	212
	%	14.0%	20.0%	3.3%	4.2%	.	2.4%	**28.0%**	**24.0%**	4.2%	100%
Riverside San Bernardino	*n*	23	31	.	10	.	17	**48**	22	31	182
	%	13.0%	17.0%	.	5.5%	.	9.3%	**26.0%**	12.00%	17.00%	100%
Sacramento	*n*	5	9	4	12	5	16	**36**	**29**	2	118
	%	4.2%	7.6%	3.4%	10.00%	4.2%	14.0%	**31.0%**	**25.0%**	1.7%	100%
Salinas	*n*	3	**6**	.	1	.	.	**6**	.	3	19
	%	16.00%	**32.00%**	.	5.3%	.	.	**32.0%**	.	16.00%	100%
San Diego	*n*	7	19	15	11	.	17	**50**	**36**	11	166
	%	4.2%	11.00%	9.0%	6.6%	.	10.0%	**30.0%**	**22.0%**	6.6%	100%
San Francisco	*n*	2	7	8	7	6	14	**30**	**48**	2	124
	%	1.6%	5.6%	6.5%	5.6%	4.8%	11.00%	**24.0%**	**39.0%**	1.6%	100%
San Jose	*n*	1	11	14	5	1	23	5	**39**	2	101
	%	1.0%	11.0%	14.0%	5.0%	1.0%	23.0%	5.0%	**39.0%**	2.0%	100%
Santa Barbara Santa Maria-Lompoc	*n*	2	**6**	2	4	.	1	**12**	2	2	31
	%	6.5%	**19.0%**	6.5%	13.0%	.	3.2%	**39.0%**	6.5%	6.5%	100%
Santa Cruz Watsonville	*n*	.	**9**	.	.	.	.	4	5	.	18
	%	.	**50.0%**	.	.	.	.	22.0%	28.0%	.	100%
Santa Rosa	*n*	5	**29**	.	2	.	2	**37**	9	3	87
	%	5.7%	**33.0%**	.	2.3%	.	2.3%	**43.0%**	10.0%	3.4%	100%
Vallejo Fairfield-Napa	*n*	4	5	.	2	10	10	7	1	1	40
	%	10.00%	13.00%	.	5.0%	25.00%	25.00%	18.00%	2.5%	2.5%	100%
Ventura	*n*	5	14	1	5	.	2	**12**	**25**	3	67
	%	7.5%	21.00%	1.5%	7.5%	.	3.0%	**18.00%**	**37.00%**	4.5%	100%
Visalia-Tulare Porterville	*n*	1	3	.	2	.	.	**12**	2	**17**	37
	%	2.7%	8.1%	.	5.4%	.	.	**32.00%**	5.4%	**46.00%**	100%
Yolo	*n*	1	.	.	**3**	.	1	.	.	.	5
	%	20.00%	.	.	**60.00%**	.	20.00%	.	.	.	100%
Total		***139***	***396***	***132***	***190***	***62***	***320***	***540***	***598***	***186***	***2563***

As a result, the share of block groups with gated streets belonging to the "retirement communities" category falls under the threshold of 5.4% (CL10), whereas it is the dominant trend in absolute values for large gated enclaves. Furthermore, larger metropolitan areas are on this respect less differentiated: they all follow the average trend with an overrepresentation of block groups with gated streets within the clusters CL17 and 19, along with an under-representation of retirement communities. An overrepresentation of

gated streets within the different types of average profile neighborhoods (CL11), within mostly hispanic (CL9) or Asian (CL15) neighborhoods, also describe the trends that affect larger metropolitan areas, for instance in Los Angles, San Diego, Orange, Phoenix, Riverside-San Bernardino, San Jose, Ventura.

Smaller metropolitan areas, such as Santa Barbara, Salinas, Vallejo and Santa Cruz show more specific profiles, where smaller gated commutes are very likely to be found within the average profile of mixed White and Hispanic neighborhoods, in which ownership of high property values predominates as the most significant discriminant characteristics, along with an overrepresentation of more than 40 years-old (CL11);

5 Conclusion

In this investigation of the the socio-economic dimensions of gated communities in US Western metropolitan areas, data show a contrasting understanding on their contribution to segregation patterns at the metropolitan level. The results show a contrasting understanding on their contribution to segregation patterns. On the one hand, regarding larger gated communities defined such as areas with more than 50% gated roads by block groups (therefore fitting block group boundaries), data show the overrepresentation of both retirement communities, and wealthier White neighborhoods with older and owner-occupied households, that describe more than 74% of the total subset of gated block groups. Larger gated communities are more likely to be "retirement communities", the stronger trend relating to the amplitude of the diffusion of both large and small gated communities within the wealthier neighborhoods. Metropolitan areas differentiates according to the amplitude of the "retirement communities" phenomenon (as in Phoenix), and the contribution of gated communities to the affluent White neighborhoods genre (as in Orange County, Riverside San Bernardino, Oakland). Some larger metropolitan areas, such as Los Angeles, San Francisco or Las Vegas, have more diverse profiles. On the other hand, our results demonstrate the social diffusion of gated communities among other areas. Smaller gated communities (fitting our category "block groups with gated streets") are often under-investigated, but are located within contexts and block groups which are more diverse in kind, as on table . Even though small gated enclaves among wealthier and mostly White and aging neighborhood remain a dominant structure, smaller gated communities are related with an overrepresentation of gated streets within the different types of average profile neighborhoods, within mostly hispanic or Asian neighborhoods, especially in Los Angles, San Diego, Orange, Phoenix, Riverside-San Bernardino, San Jose, Ventura. These results contrast with the common understanding of gated communities, homes of the riches and retired, which is partially true for larger and highly visible gated enclaves that are found for instance in Orange County and Phoenix. In this research, data show the really diverse and wide spectrum of the gated and private realm of residential neighborhoods.

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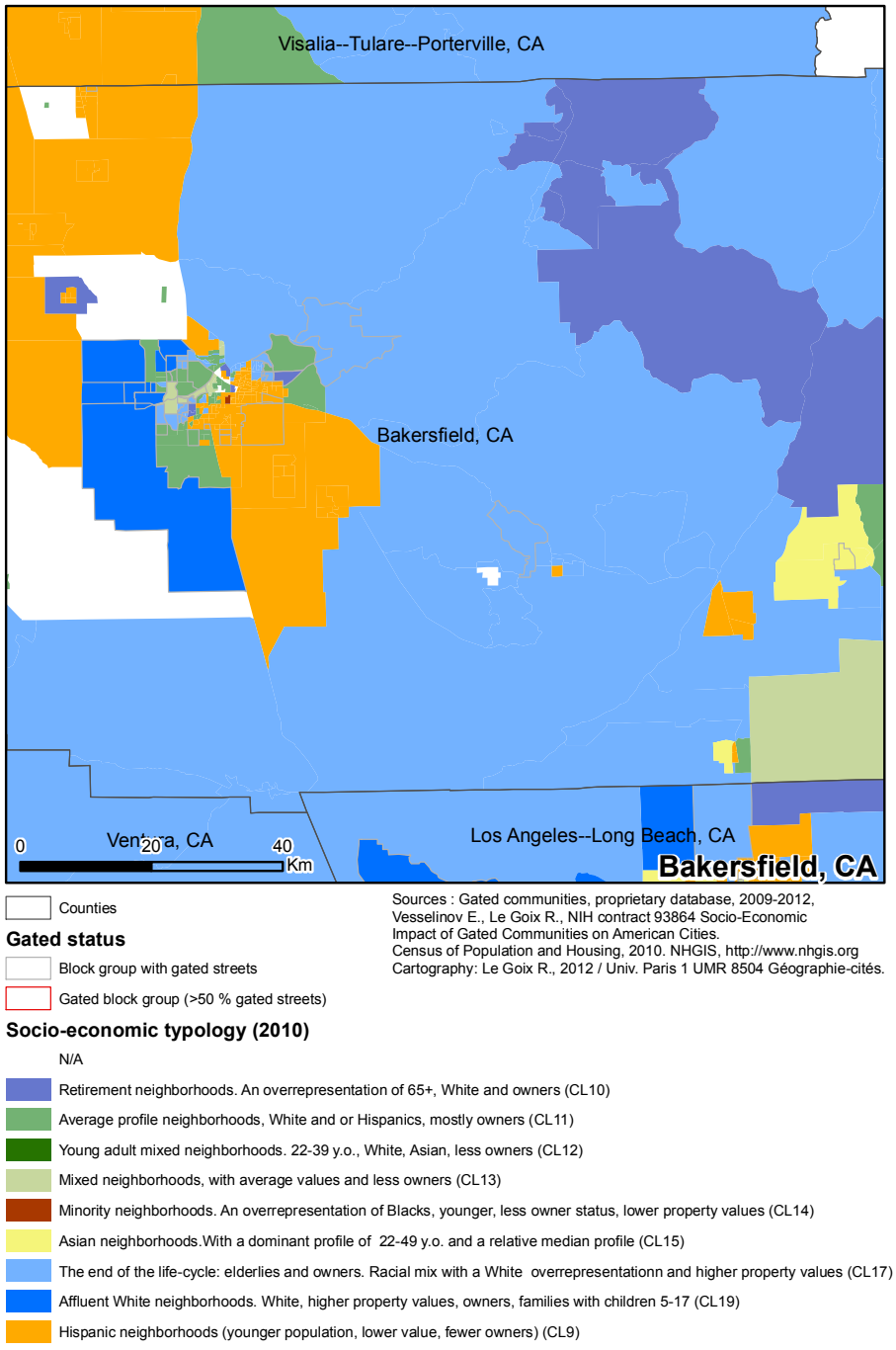


Figure 4: Typology by metropolitan areas, Bakersfield

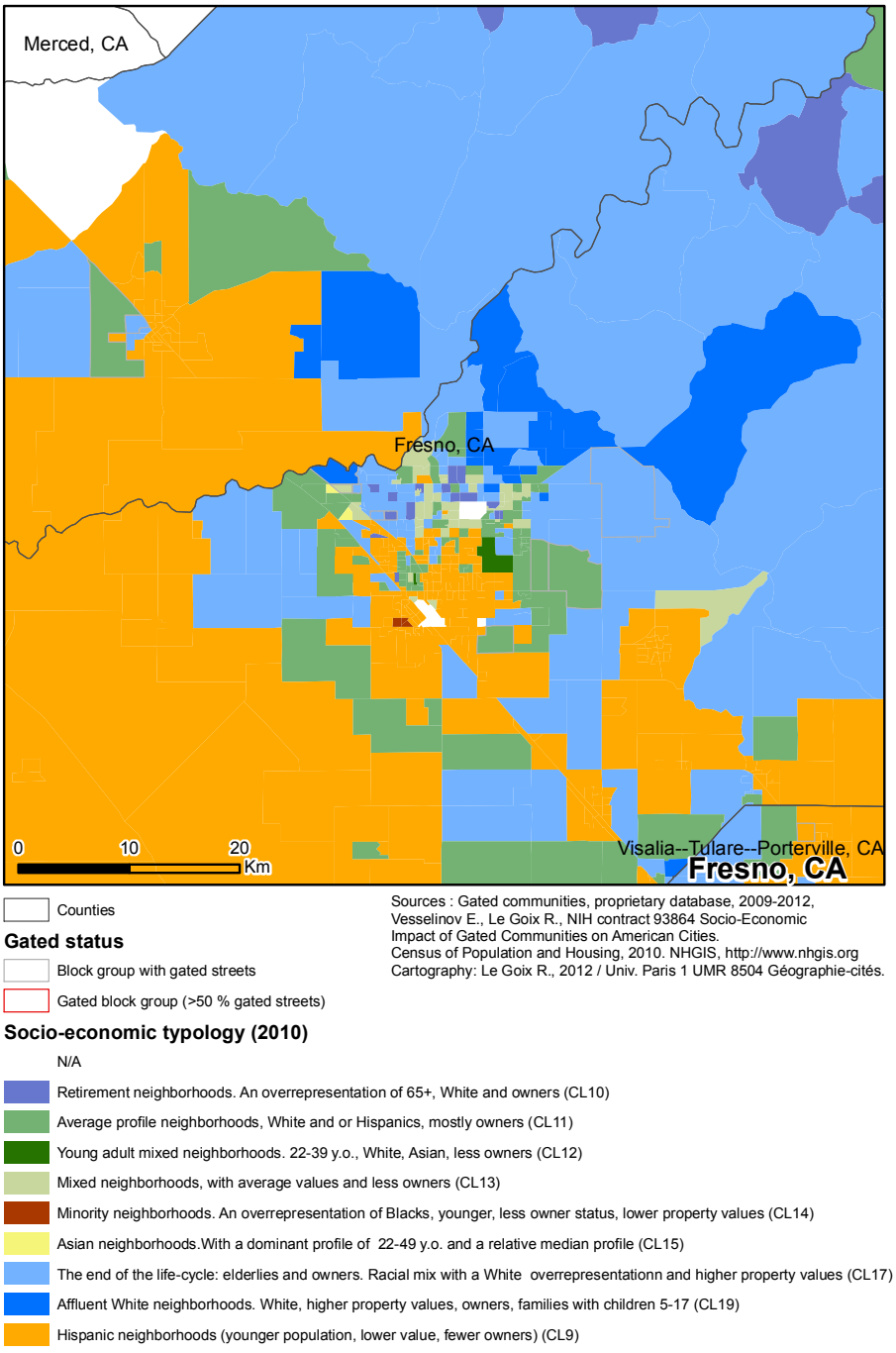


Figure 5: Typology by metropolitan areas, Fresno

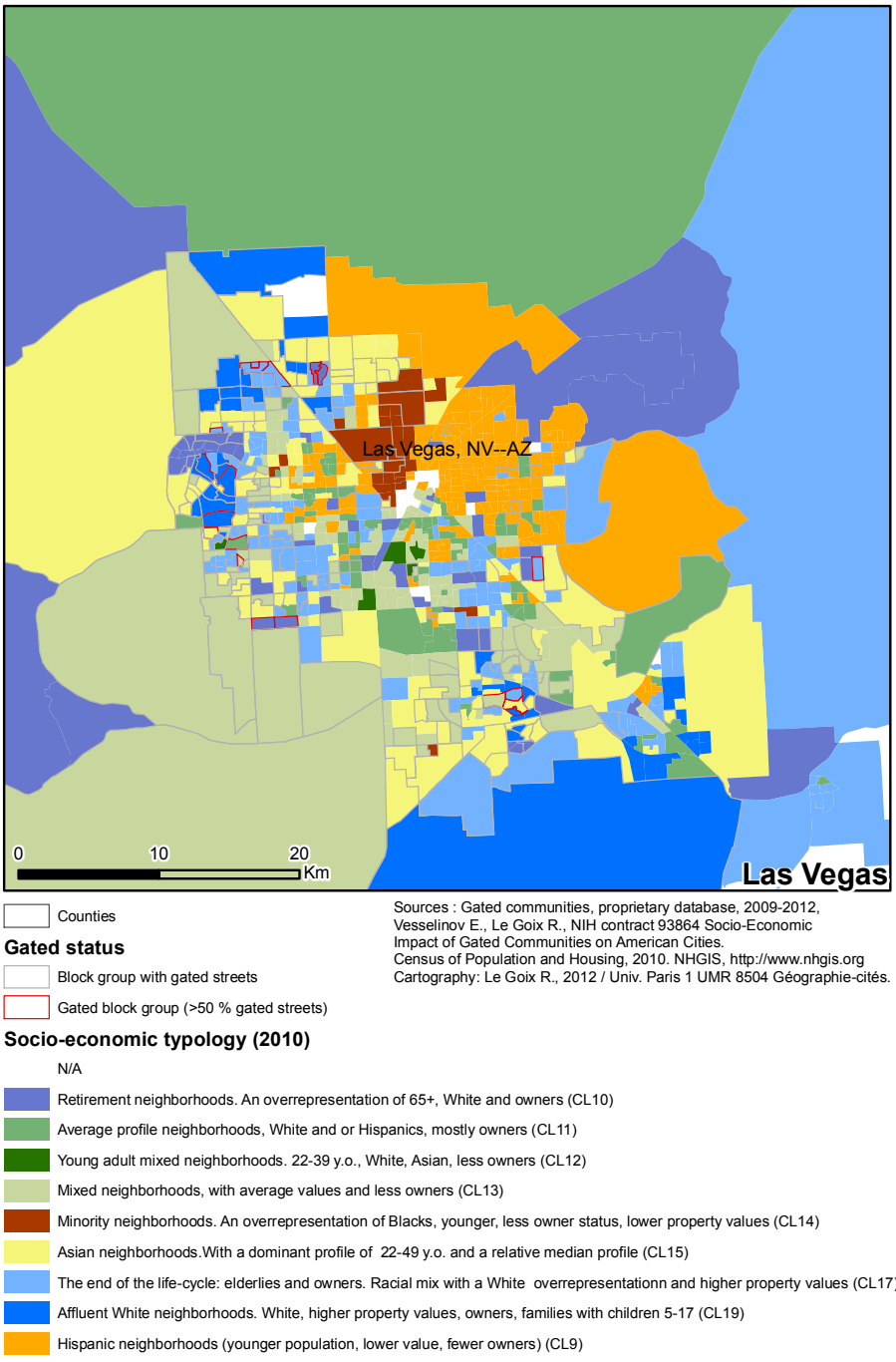
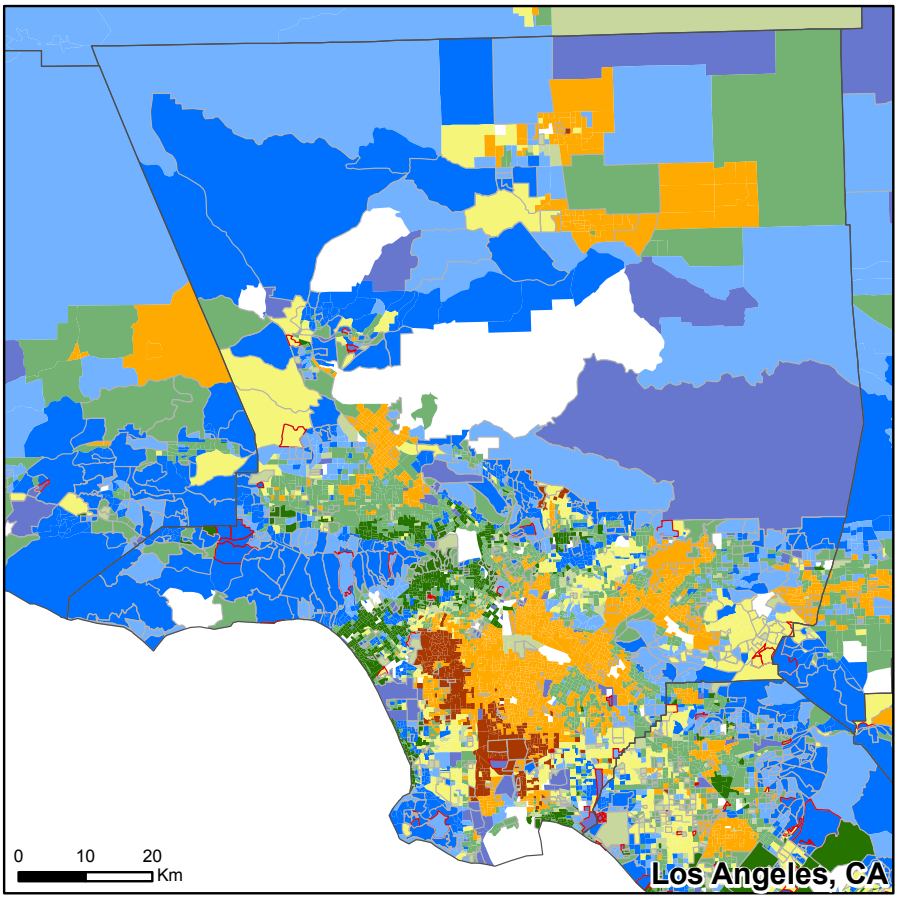


Figure 6: Typology by metropolitan area, Las Vegas



Counties

Gated status

Block group with gated streets

Gated block group (>50 % gated streets)

Socio-economic typology (2010)

N/A

Retirement neighborhoods. An overrepresentation of 65+, White and owners (CL10)

Average profile neighborhoods, White and or Hispanics, mostly owners (CL11)

Young adult mixed neighborhoods. 22-39 y.o., White, Asian, less owners (CL12)

Mixed neighborhoods, with average values and less owners (CL13)

Minority neighborhoods. An overrepresentation of Blacks, younger, less owner status, lower property values (CL14)

Asian neighborhoods.With a dominant profile of 22-49 y.o. and a relative median profile (CL15)

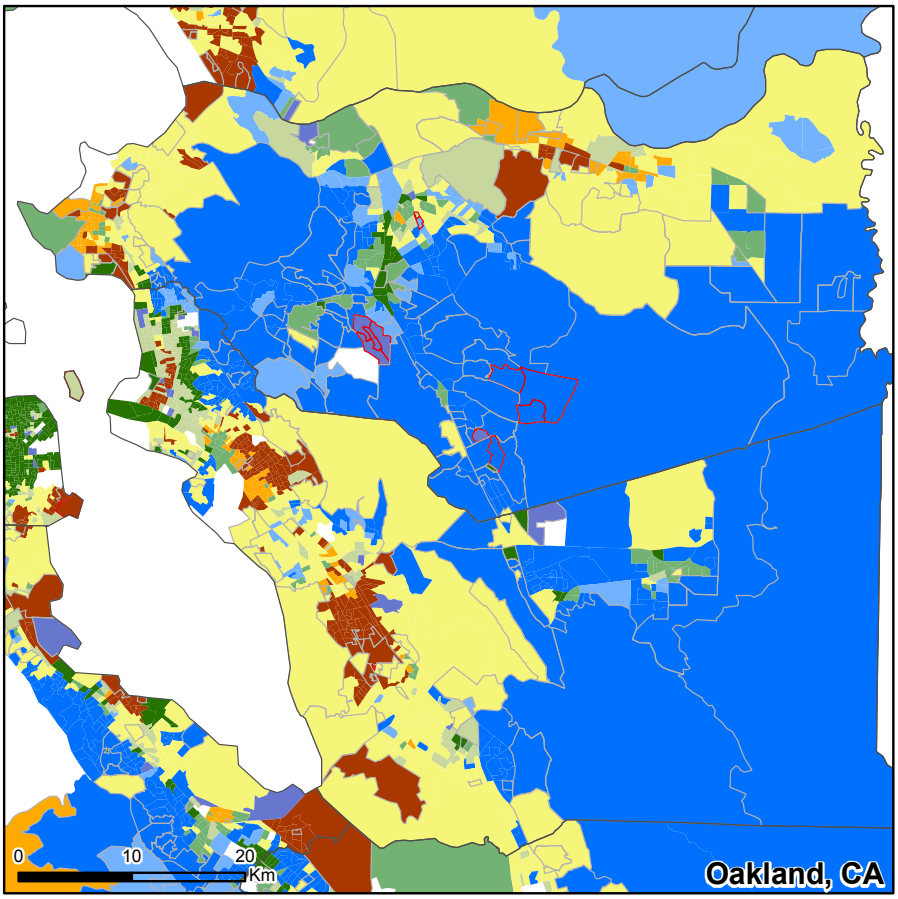
The end of the life-cycle: elderlies and owners. Racial mix with a White overrepresentationn and higher property values (CL17)

Affluent White neighborhoods. White, higher property values, owners, families with children 5-17 (CL19)

Hispanic neighborhoods (younger population, lower value, fewer owners) (CL9)

Sources : Gated communities, proprietary database, 2009-2012, Vesselinov E., Le Goix R., NIH contract 93864 Socio-Economic Impact of Gated Communities on American Cities.
Census of Population and Housing, 2010. NHGIS, http://www.nhgis.org
Cartography: Le Goix R., 2012 / Univ. Paris 1 UMR 8504 Géographie-cités.

Figure 7: Typology by metropolitan area, Los Angeles



Counties

Gated status

Block group with gated streets

Gated block group (>50 % gated streets)

Socio-economic typology (2010)

N/A

Retirement neighborhoods. An overrepresentation of 65+, White and owners (CL10)

Average profile neighborhoods, White and or Hispanics, mostly owners (CL11)

Young adult mixed neighborhoods. 22-39 y.o., White, Asian, less owners (CL12)

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Census of Population and Housing, 2010. NHGIS, http://www.nhgis.org
Cartography: Le Goix R., 2012 / Univ. Paris 1 UMR 8504 Géographie-cités.

Figure 8: Typology by metropolitan area, Oakland

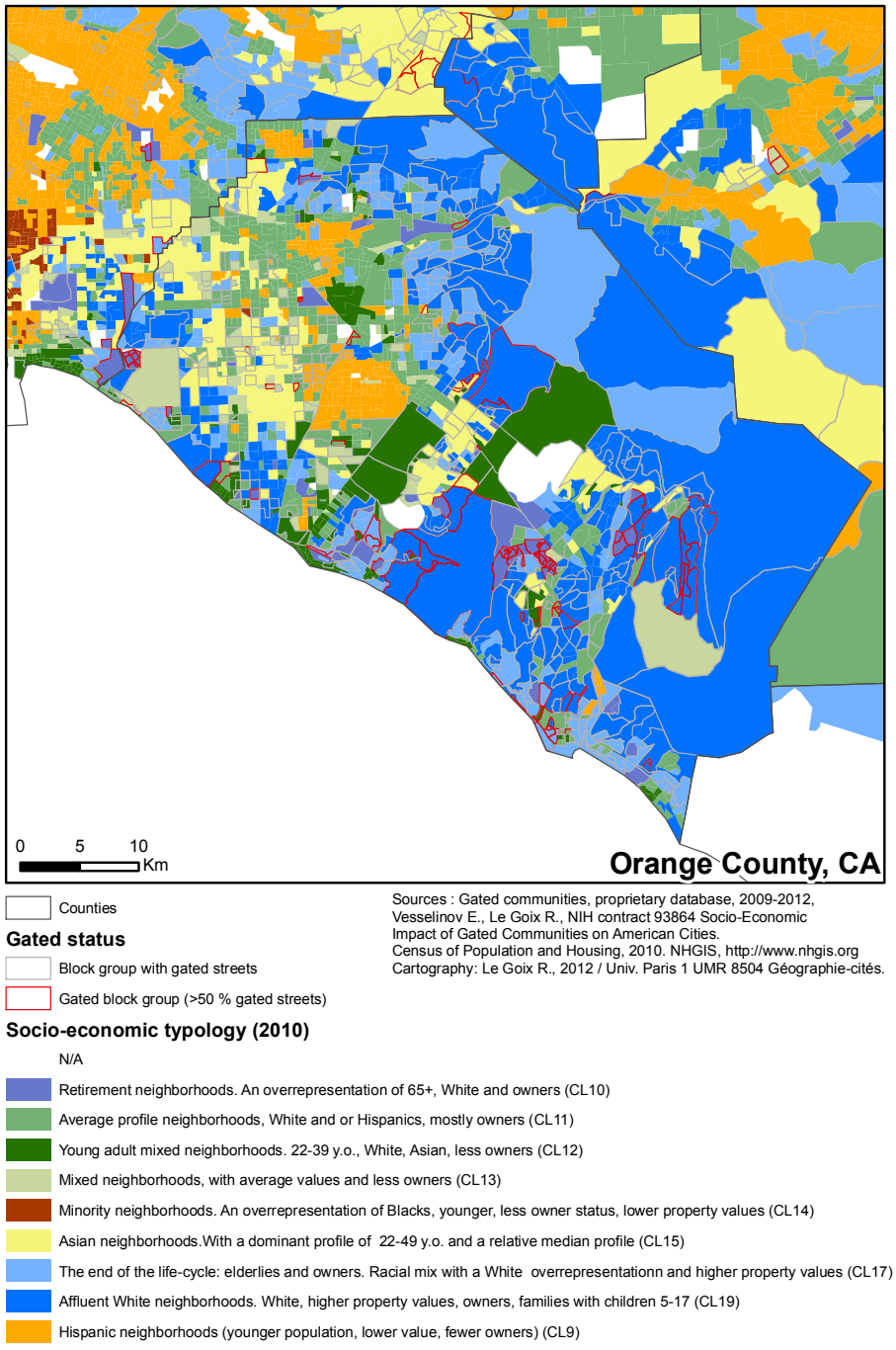


Figure 9: Typology by metropolitan area, Orange County

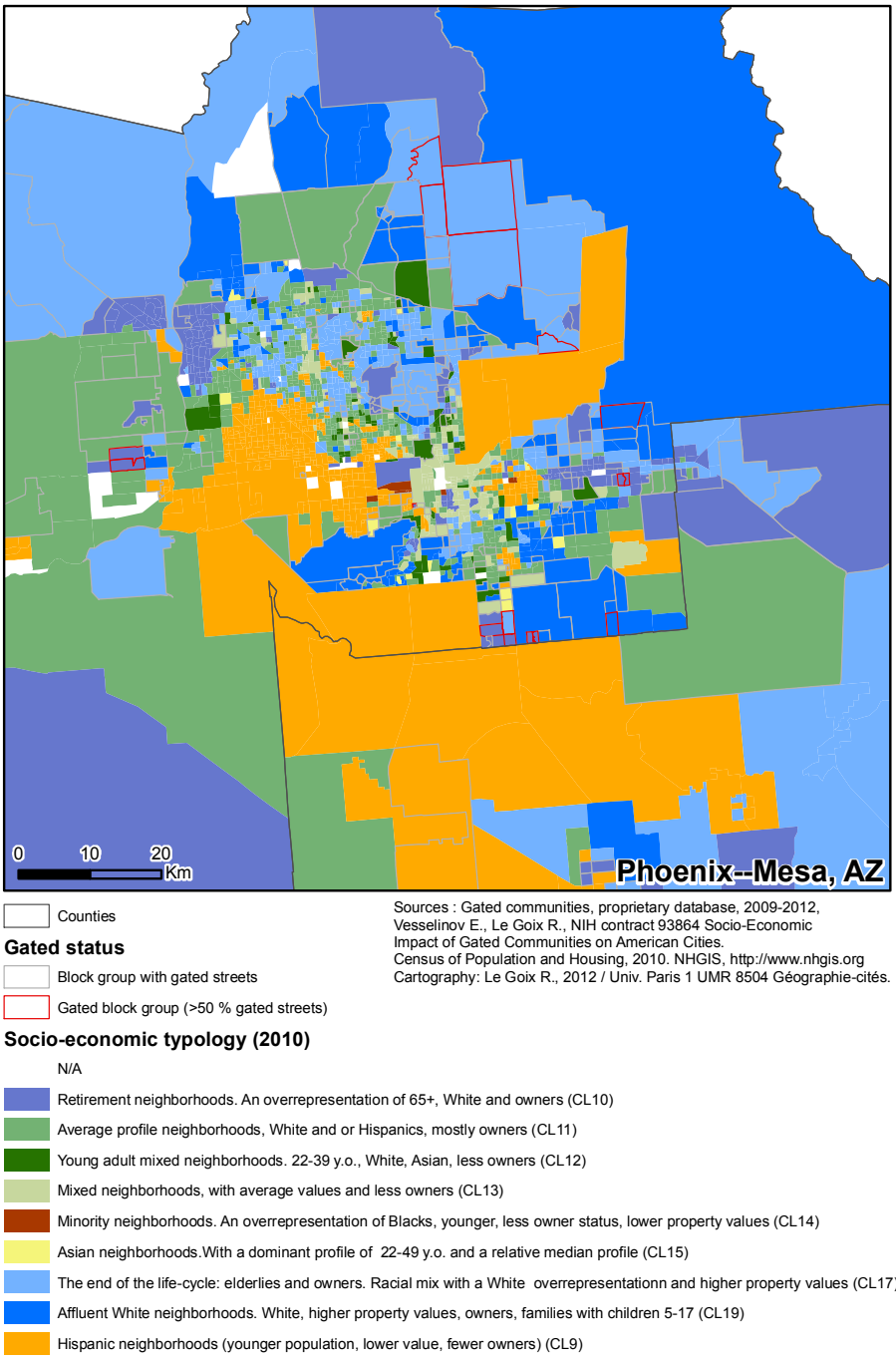
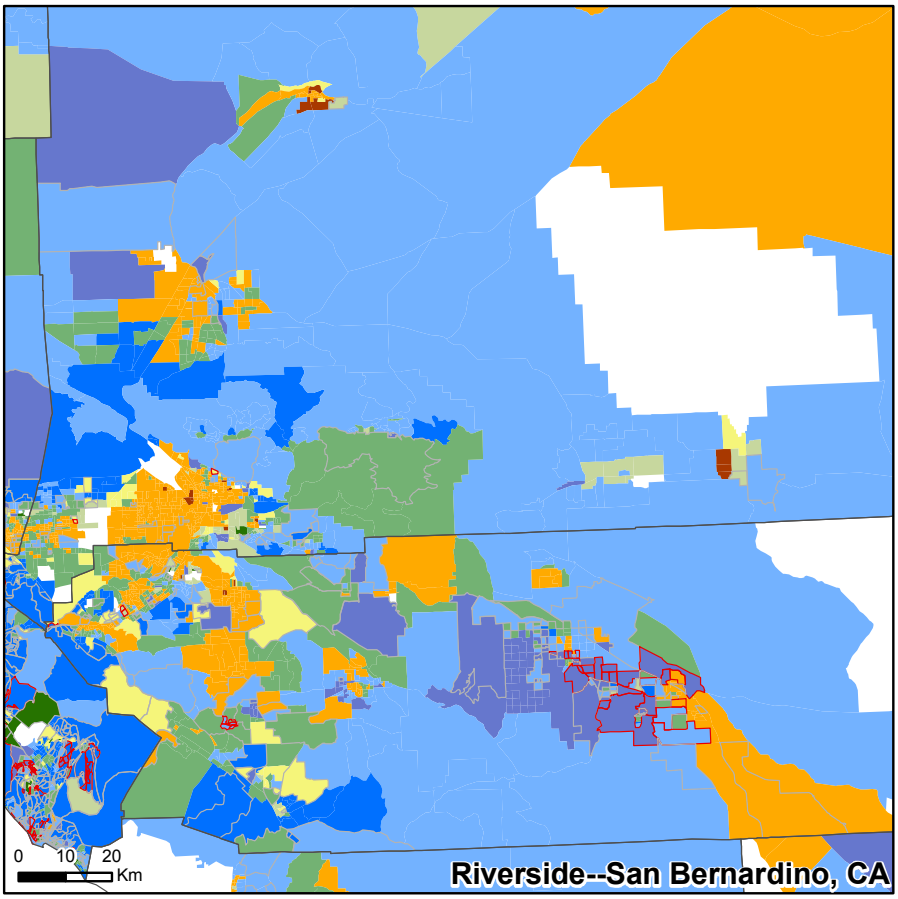


Figure 10: Typology by metropolitan area, 6200-Phoenix–Mesa



Counties

Gated status

Block group with gated streets

Gated block group (>50 % gated streets)

Socio-economic typology (2010)

N/A

Retirement neighborhoods. An overrepresentation of 65+, White and owners (CL10)

Average profile neighborhoods, White and or Hispanics, mostly owners (CL11)

Young adult mixed neighborhoods. 22-39 y.o., White, Asian, less owners (CL12)

Mixed neighborhoods, with average values and less owners (CL13)

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Asian neighborhoods.With a dominant profile of 22-49 y.o. and a relative median profile (CL15)

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Hispanic neighborhoods (younger population, lower value, fewer owners) (CL9)

Sources : Gated communities, proprietary database, 2009-2012,
Vesselinov E., Le Goix R., NIH contract 93864 Socio-Economic
Impact of Gated Communities on American Cities.
Census of Population and Housing, 2010. NHGIS, http://www.nhgis.org
Cartography: Le Goix R., 2012 / Univ. Paris 1 UMR 8504 Géographie-cités.

Figure 11: Typology by metropolitan area, Riverside–SanBernardino

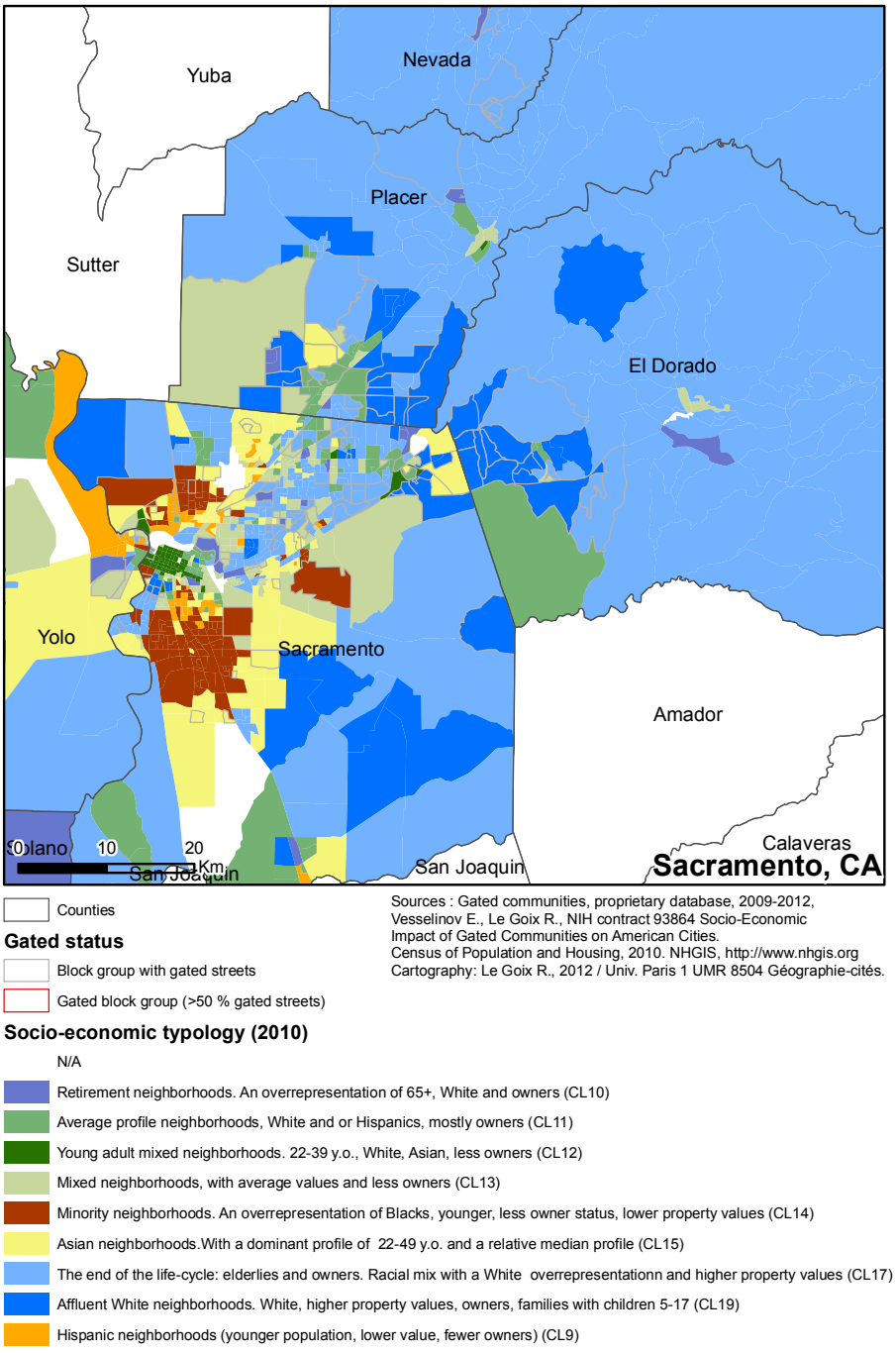


Figure 12: Typology by metropolitan area, Sacramento

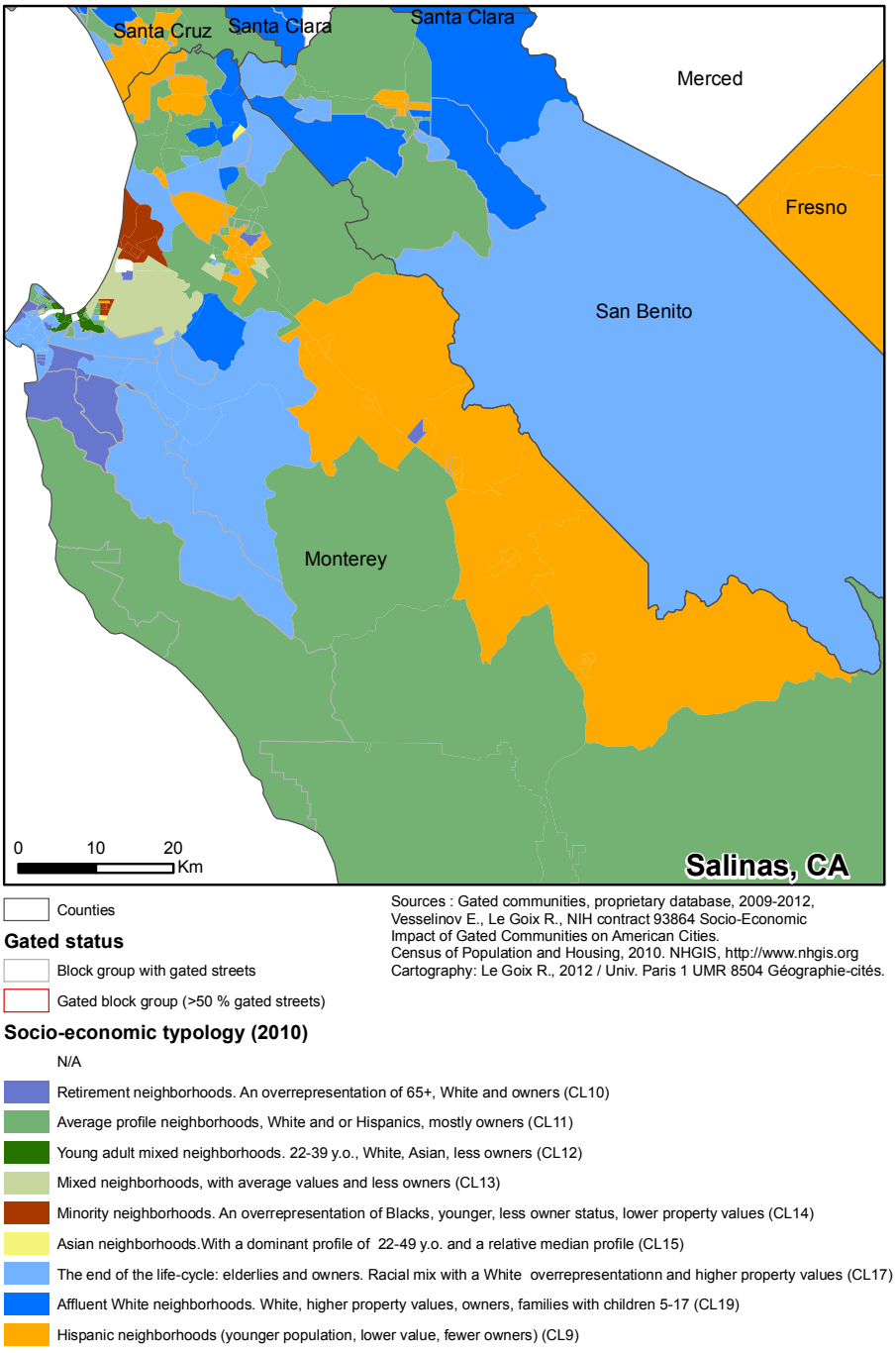
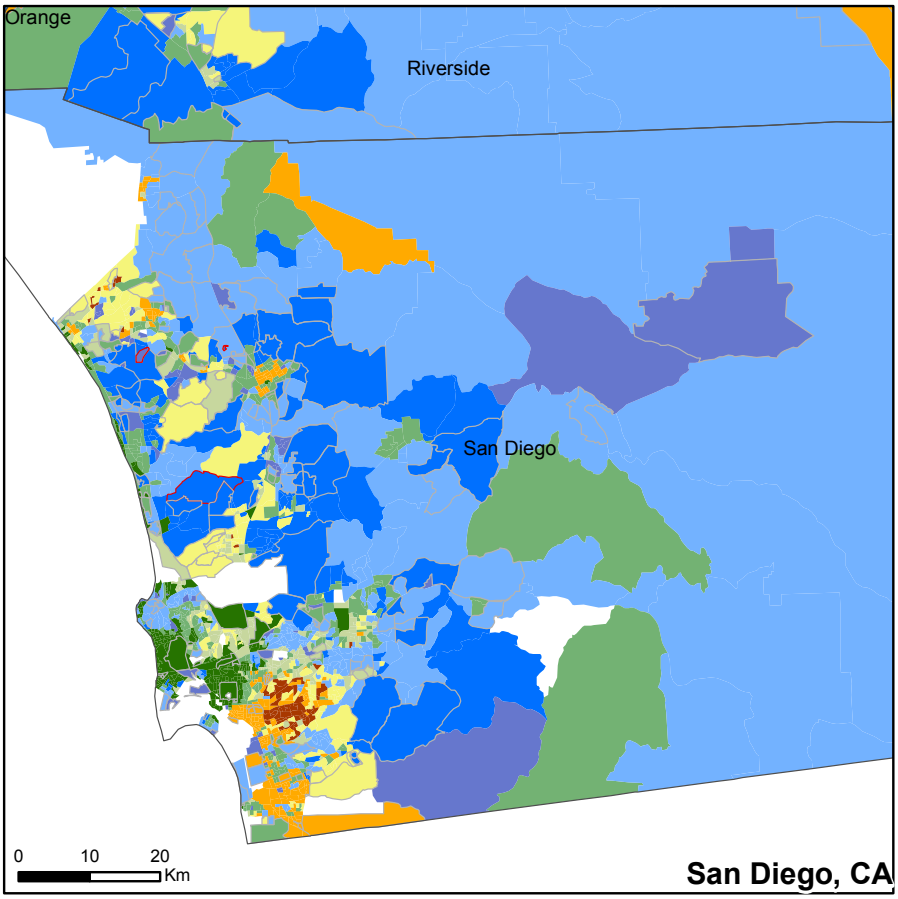


Figure 13: Typology by metropolitan area, Salinas



Counties

Gated status

Block group with gated streets

Gated block group (>50 % gated streets)

Sources : Gated communities, proprietary database, 2009-2012, Vesselinov E., Le Goix R., NIH contract 93864 Socio-Economic Impact of Gated Communities on American Cities.
Census of Population and Housing, 2010. NHGIS, http://www.nhgis.org
Cartography: Le Goix R., 2012 / Univ. Paris 1 UMR 8504 Géographie-cités.

Socio-economic typology (2010)

N/A

Retirement neighborhoods. An overrepresentation of 65+, White and owners (CL10)

Average profile neighborhoods, White and or Hispanics, mostly owners (CL11)

Young adult mixed neighborhoods. 22-39 y.o., White, Asian, less owners (CL12)

Mixed neighborhoods, with average values and less owners (CL13)

Minority neighborhoods. An overrepresentation of Blacks, younger, less owner status, lower property values (CL14)

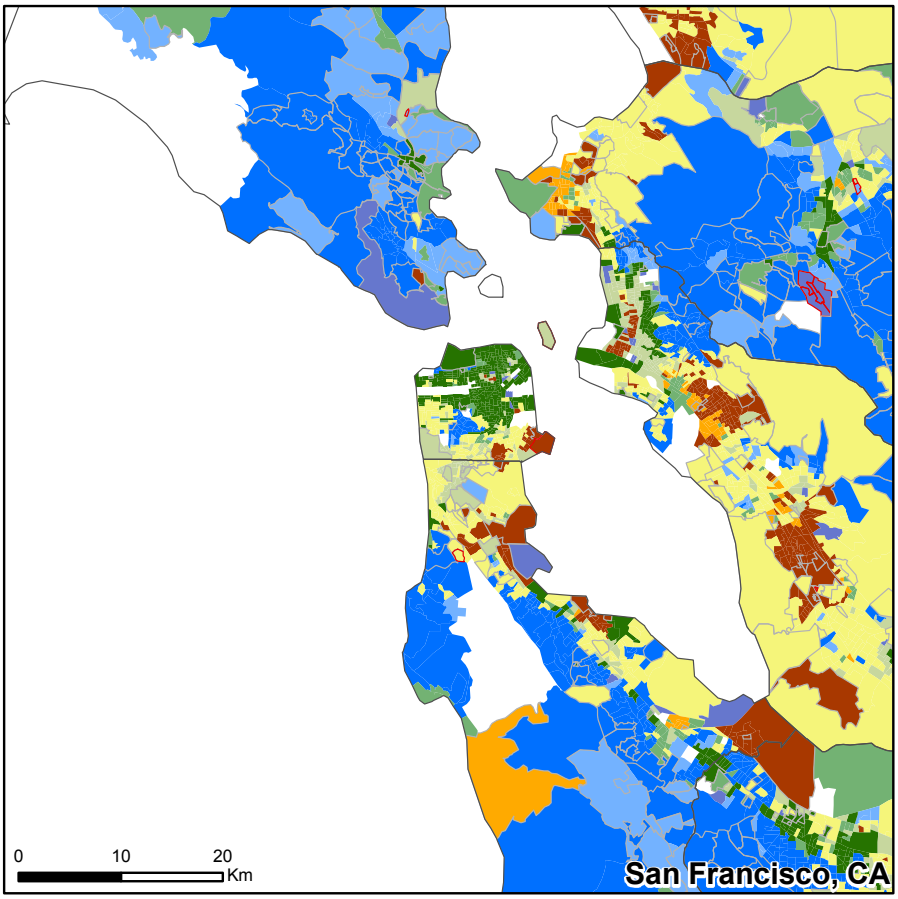
Asian neighborhoods.With a dominant profile of 22-49 y.o. and a relative median profile (CL15)

The end of the life-cycle: elderlies and owners. Racial mix with a White overrepresentationn and higher property values (CL17)

Affluent White neighborhoods. White, higher property values, owners, families with children 5-17 (CL19)

Hispanic neighborhoods (younger population, lower value, fewer owners) (CL9)

Figure 14: Typology by metropolitan areas, San Diego



Counties

Gated status

Block group with gated streets

Gated block group (>50 % gated streets)

Socio-economic typology (2010)

N/A

Retirement neighborhoods. An overrepresentation of 65+, White and owners (CL10)

Average profile neighborhoods, White and or Hispanics, mostly owners (CL11)

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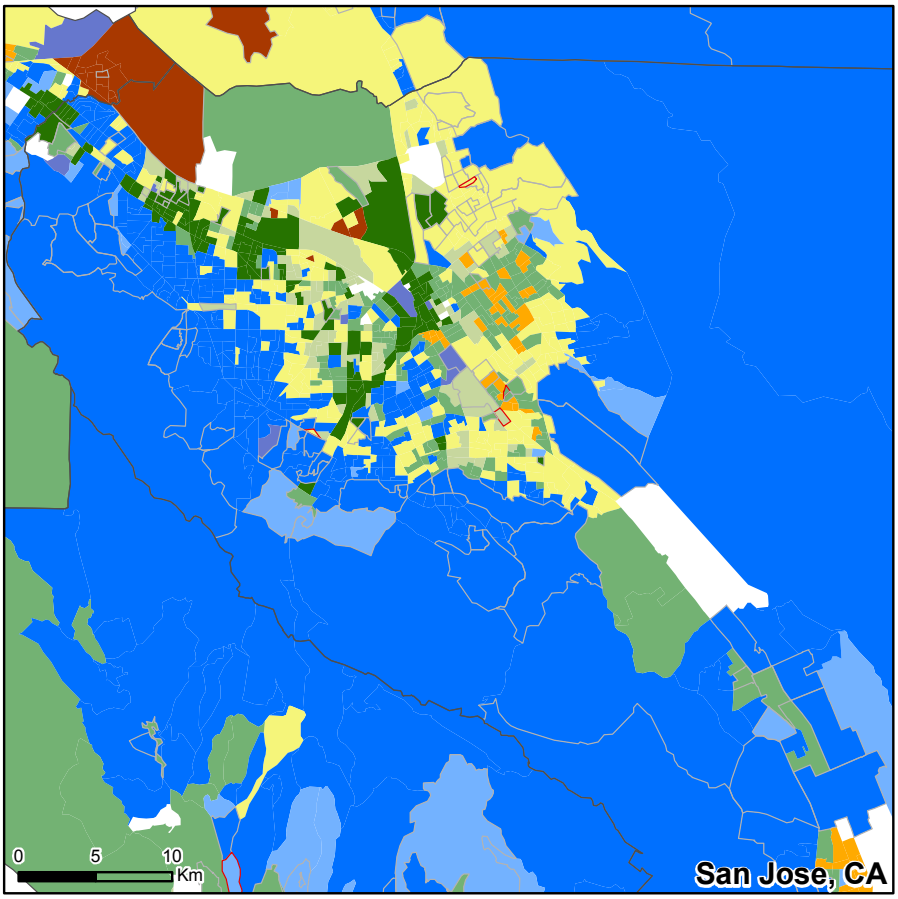
Census of Population and Housing, 2010. NHGIS, http://www.nhgis.org
Cartography: Le Goix R., 2012 / Univ. Paris 1 UMR 8504 Géographie-cités.

Figure 15: Typology by metropolitan areas, San Francisco



Counties

Gated status

Block group with gated streets

Gated block group (>50 % gated streets)

Socio-economic typology (2010)

N/A

Retirement neighborhoods. An overrepresentation of 65+, White and owners (CL10)

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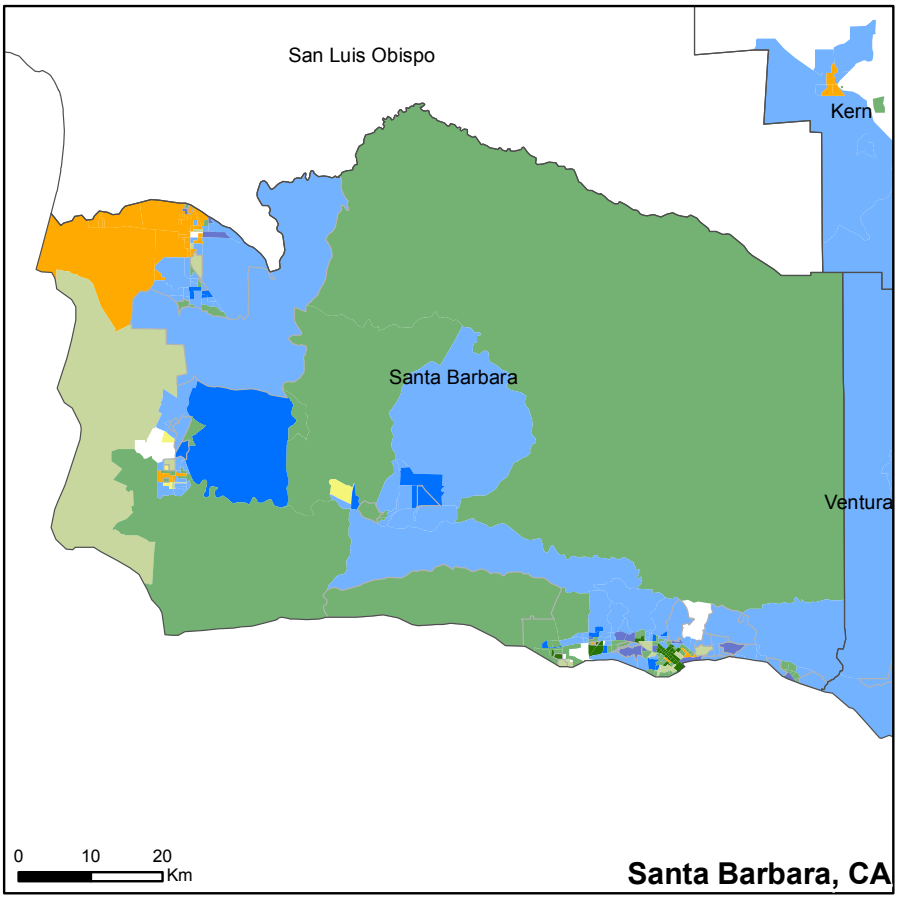
Census of Population and Housing, 2010. NHGIS, http://www.nhgis.org
Cartography: Le Goix R., 2012 / Univ. Paris 1 UMR 8504 Géographie-cités.

Figure 16: Typology by metropolitan areas, San Jose



Counties

Gated status

Block group with gated streets

Gated block group (>50 % gated streets)

Socio-economic typology (2010)

N/A

Retirement neighborhoods. An overrepresentation of 65+, White and owners (CL10)

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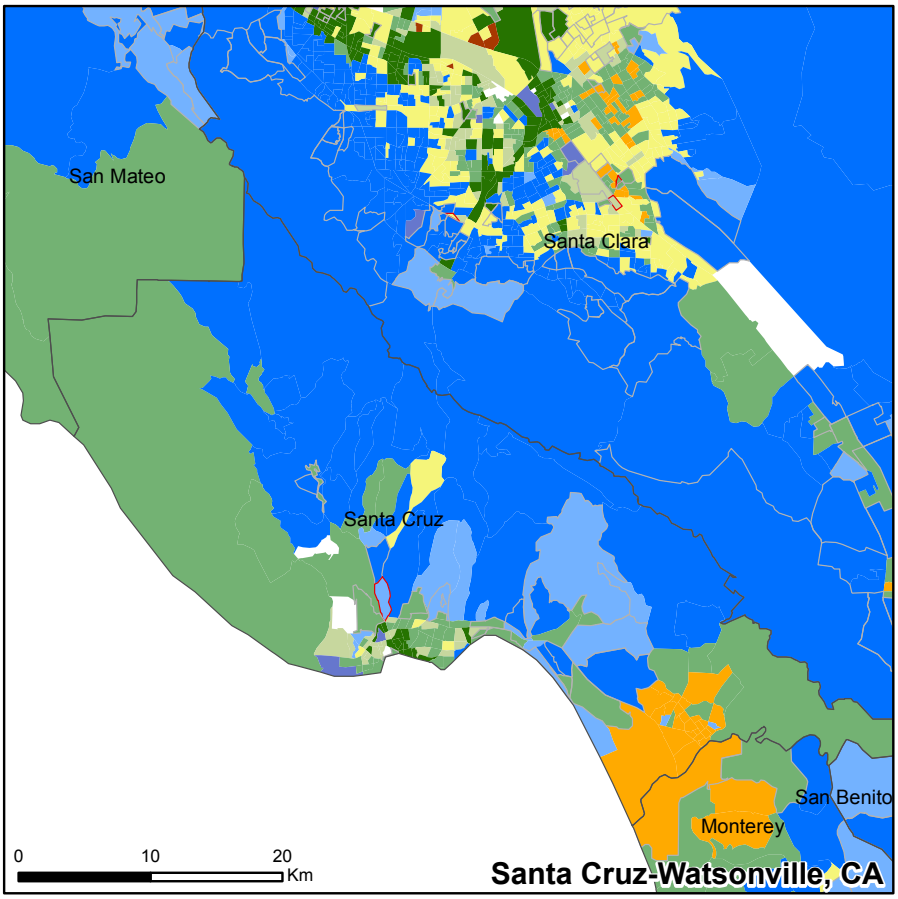
Census of Population and Housing, 2010. NHGIS, http://www.nhgis.org
Cartography: Le Goix R., 2012 / Univ. Paris 1 UMR 8504 Géographie-cités.

Figure 17: Typology by metropolitan areas, Santa Barbara



Counties

Gated status

Block group with gated streets

Gated block group (>50 % gated streets)

Socio-economic typology (2010)

N/A

Retirement neighborhoods. An overrepresentation of 65+, White and owners (CL10)

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Census of Population and Housing, 2010. NHGIS, http://www.nhgis.org
Cartography: Le Goix R., 2012 / Univ. Paris 1 UMR 8504 Géographie-cités.

Figure 18: Typology by metropolitan areas, Santa Cruz

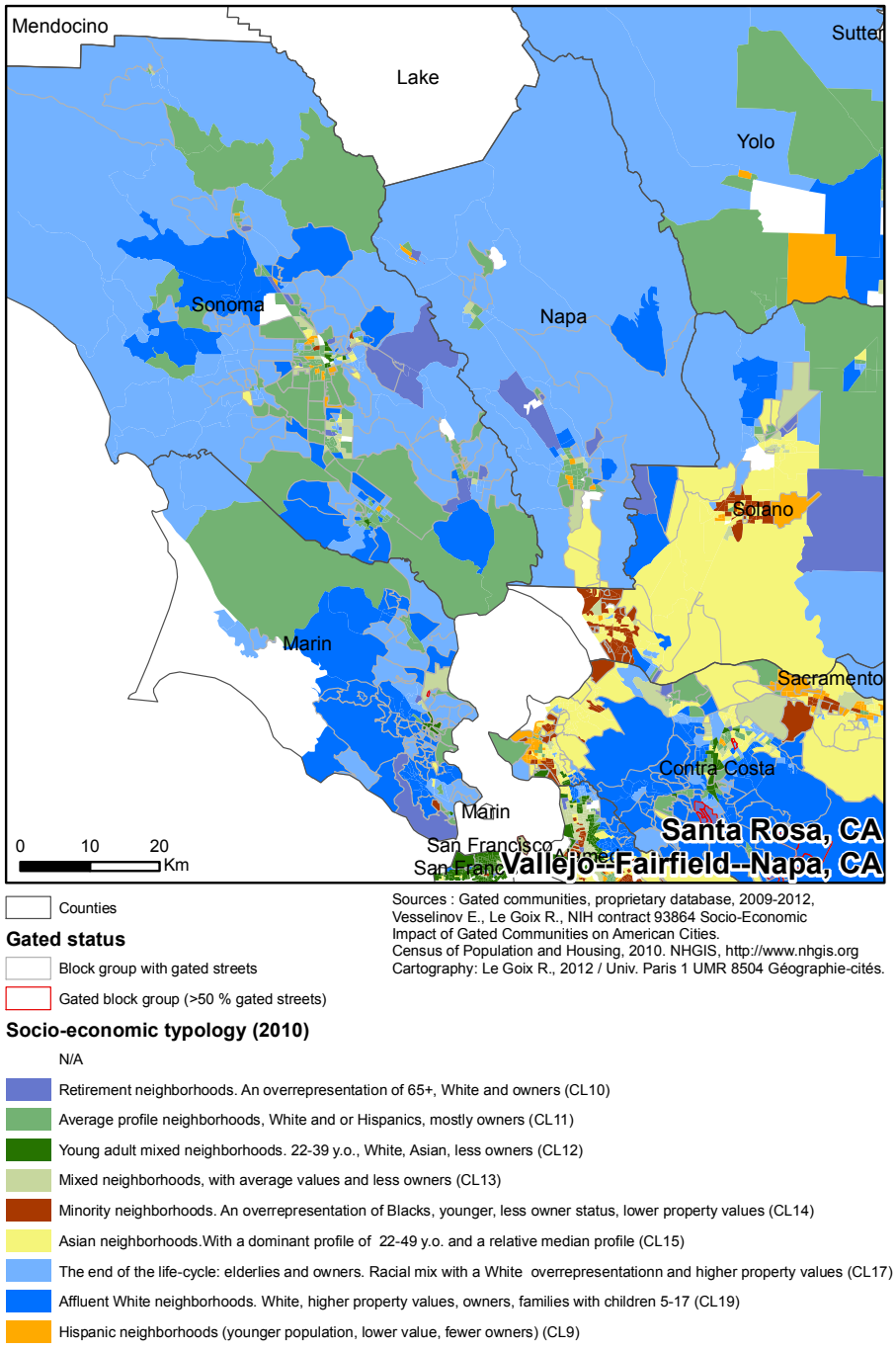


Figure 19: Typology by metropolitan areas, Santa Rosa and allejo–Fairfield–Napa

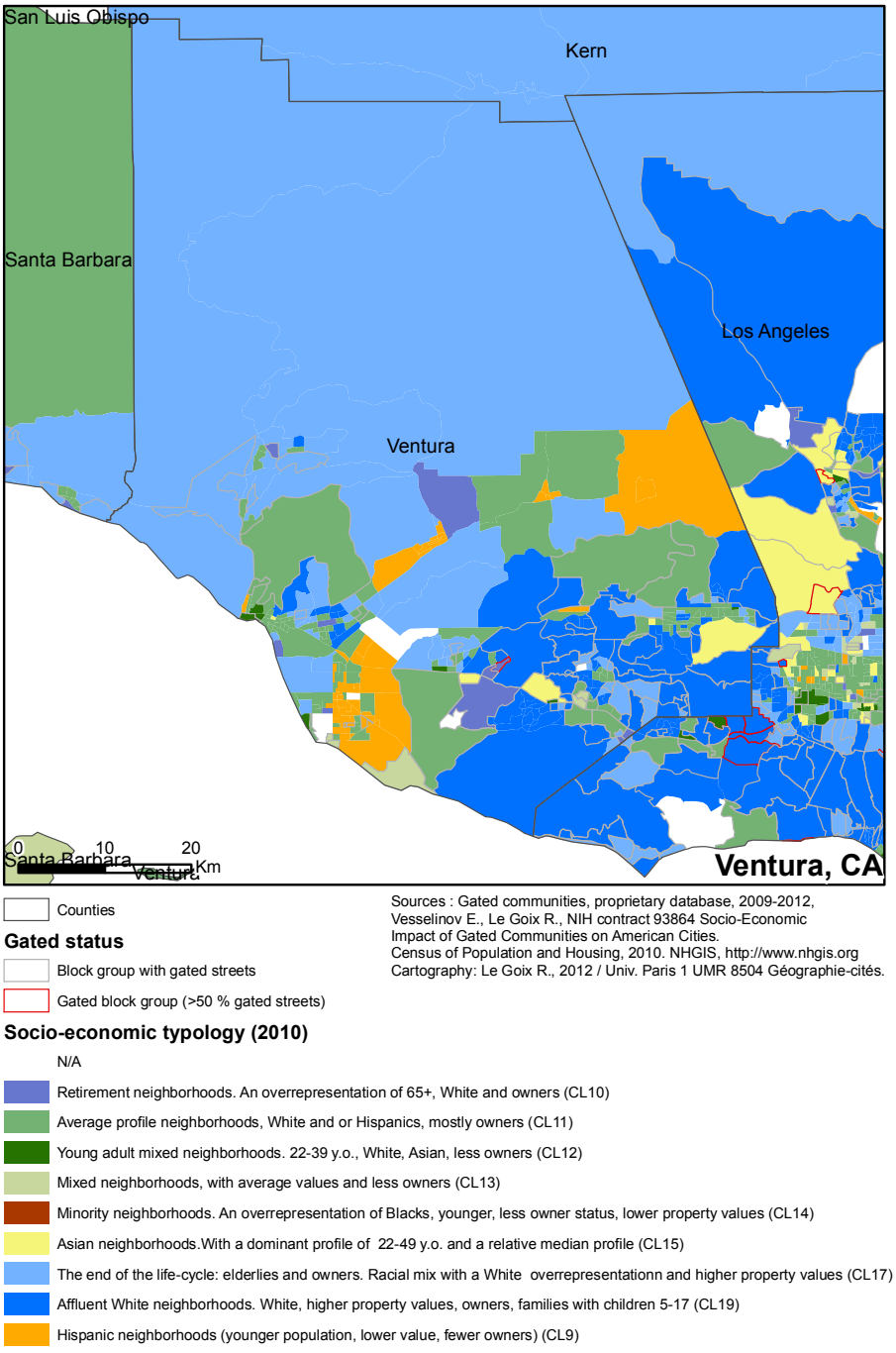
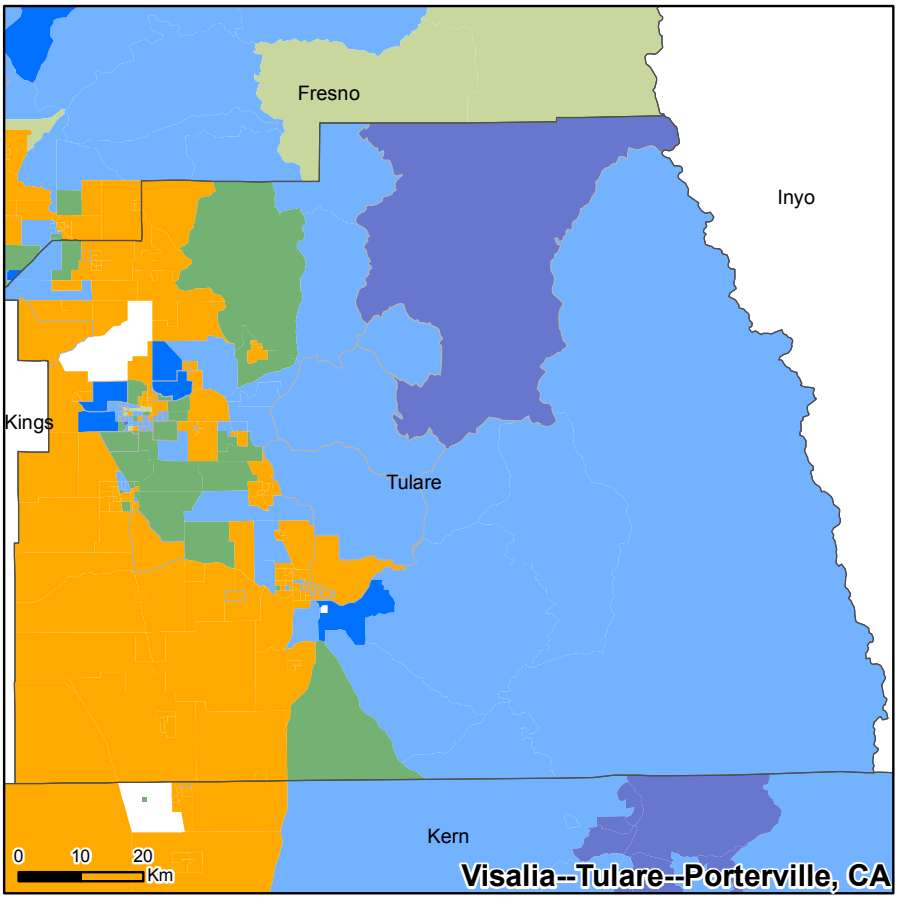


Figure 20: Typology by metropolitan areas, Ventura County



Counties

Gated status

Block group with gated streets

Gated block group (>50 % gated streets)

Socio-economic typology (2010)

N/A

Retirement neighborhoods. An overrepresentation of 65+, White and owners (CL10)

Average profile neighborhoods, White and or Hispanics, mostly owners (CL11)

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Hispanic neighborhoods (younger population, lower value, fewer owners) (CL9)

Sources : Gated communities, proprietary database, 2009-2012, Vesselinov E., Le Goix R., NIH contract 93864 Socio-Economic Impact of Gated Communities on American Cities.
Census of Population and Housing, 2010. NHGIS, http://www.nhgis.org
Cartography: Le Goix R., 2012 / Univ. Paris 1 UMR 8504 Géographie-cités.

Figure 21: Typology by metropolitan areas, Visalia–Tulare–Porterville