

«Who Densifies Our Cities, Where, and How? Contribution of Systematic Landownership and Property Data Analyses to Effective Settlement Densification»

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«Who Densifies Our Cities, Where, and How?
Contribution of Systematic Landownership and Property
Data Analyses to Effective Settlement Densification»

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Project

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1. Problem analysis

- The lack of housing supply in the context of increasing housing demand has become a key challenge for Swiss urban development. This is particularly true in densifying cities, such as in the city of Opfikon studied in this project, where land is scarce and highly contested among urban actors (e.g., landowners, investors, developers, public authorities, etc.).
- In such conflicting land use situations, **the question of who owns, controls, and decides on the land available to meet the housing demand is critical to the effective development of our cities.**
- **As legal title holders, landowners have significant territorial power to shape the socio-economic geography of cities. While they cannot be legally compelled to meet public land use objectives within a given time frame (e.g., with respect to zoning for densified housing), they have the legal capacity to block, delay, or redirect planned housing (re)development. This makes landowners key decision-makers in implementing housing provision goals.**

(e.g., Needham & Verhage, 1998; Jacobs & Paulsen, 2009; Korthals Altes, 2019; Needham et al., 2018; Gerber et al., 2020)



2. Research gap and objectives

- **Housing is one of the most pressing issues in urban development, yet little is known about how different categories of landowners** (e.g., institutional investors, owner-occupiers, cooperatives, and public owners) **influence housing provision in densifying urban contexts.**
- This project's overarching goal is thus **to address this housing challenge from a *landownership and property perspective***. The starting point is that, while conditioned by the state and the market, landownership and property represent an understudied key mechanism influencing effective housing provision outcomes (i.e., number of dwellings, floor space consumption per resident, etc.; Adisson & Artioli, 2020).
- The specific aim of this ETHZ/ROREP-project collaboration is **to conduct an in-depth empirical investigation of how different landowners influence city housing provision.** Such research is timely as, land and property market data for the city studied in this project (Opfikon, ZH), have recently become accessible for the research team and have not yet been systematically analyzed.



3. Research questions

RQ1: How do different categories of landowners (institutional, owner-occupied, cooperative, and public) influence housing provision outcomes in densifying cities?

RQ1.1: Who owns what, where, and when in densifying cities?

RQ1.2: What spatial clusters of housing provision per landowner category emerge in densifying cities?



4. Case study selection: The city of Opfikon, Zurich

- Opfikon is situated within the Zurich metropolitan area (see Figure 1)
- The municipality of Opfikon has grown from 11'115 (1970) to over 21'066 (2021) residents
- Estimated population growth +29.8% by 2050
- Intensive urban densification activities in recent years (e.g., replacement buildings, renovations, modernization of existing stock)
- Limited unbuilt land use reserves
- Rising rents and displacement dynamics
- Lack of (affordable) housing

→ **Representative example for many other Swiss agglomeration municipalities confronted with similar land use and housing challenges.**

(see e.g., Theurillat et al., 2023; Debrunner, 2024)

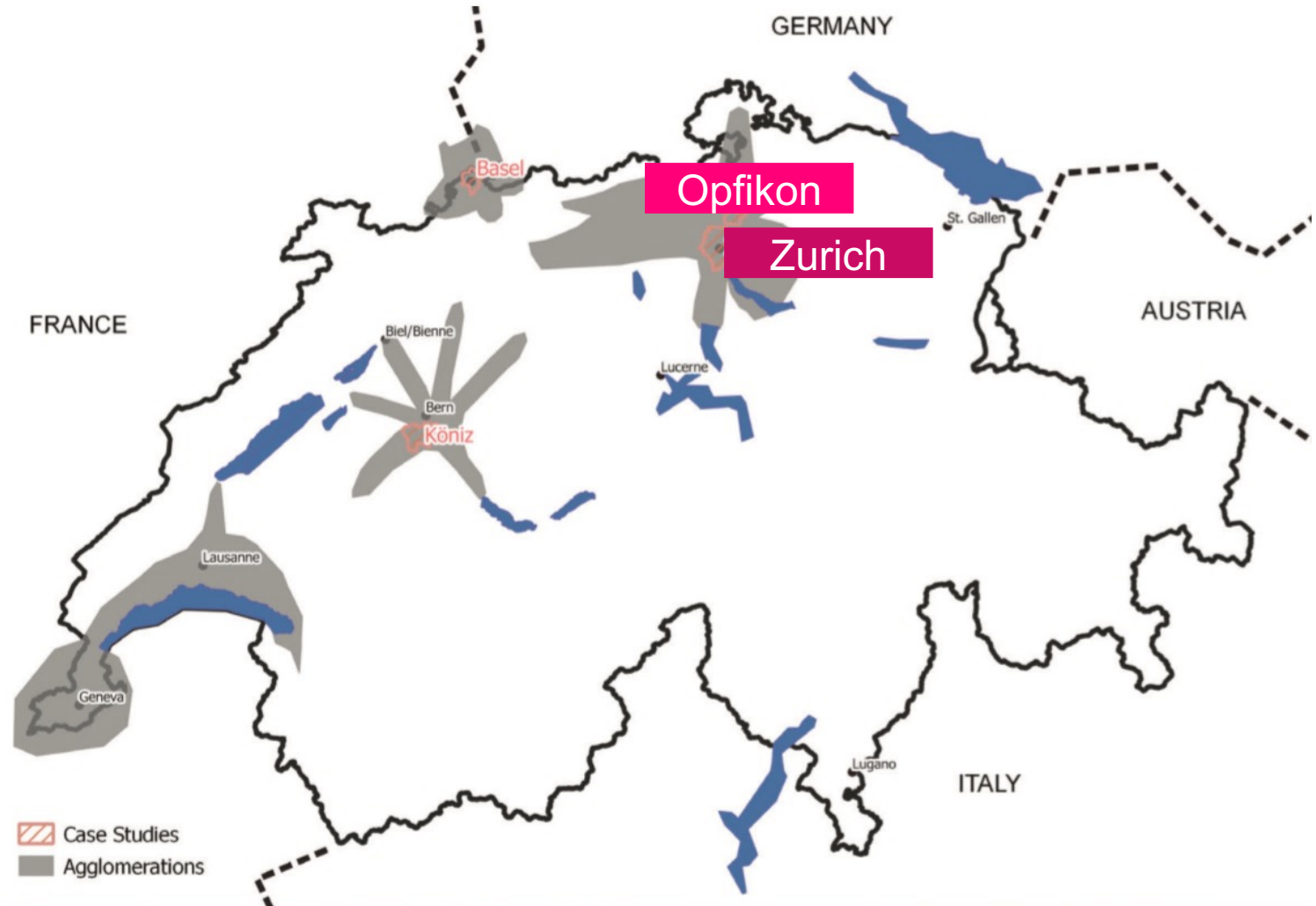


Figure 1: Map of Switzerland and the location of Opfikon municipality in the Zurich agglomeration area.

5. Case study area: Rohr/Platten residential area, Opfikon

- Highly urbanized residential area
 - Around 130 different landowners in total in the Rohr/Platten neighborhood
 - Next to Zurich international airport (about 10 minutes by bus)
 - Residential area with affordable rents and intensive densification pressure due to limited land use reserves and housing use potentials
 - Majority of buildings from the 1960-1980s
- **Representative case study area for many other Swiss agglomeration municipalities confronted with similar land use and housing challenges.**



5. Case study area: Rohr/Platten residential area, Opfikon

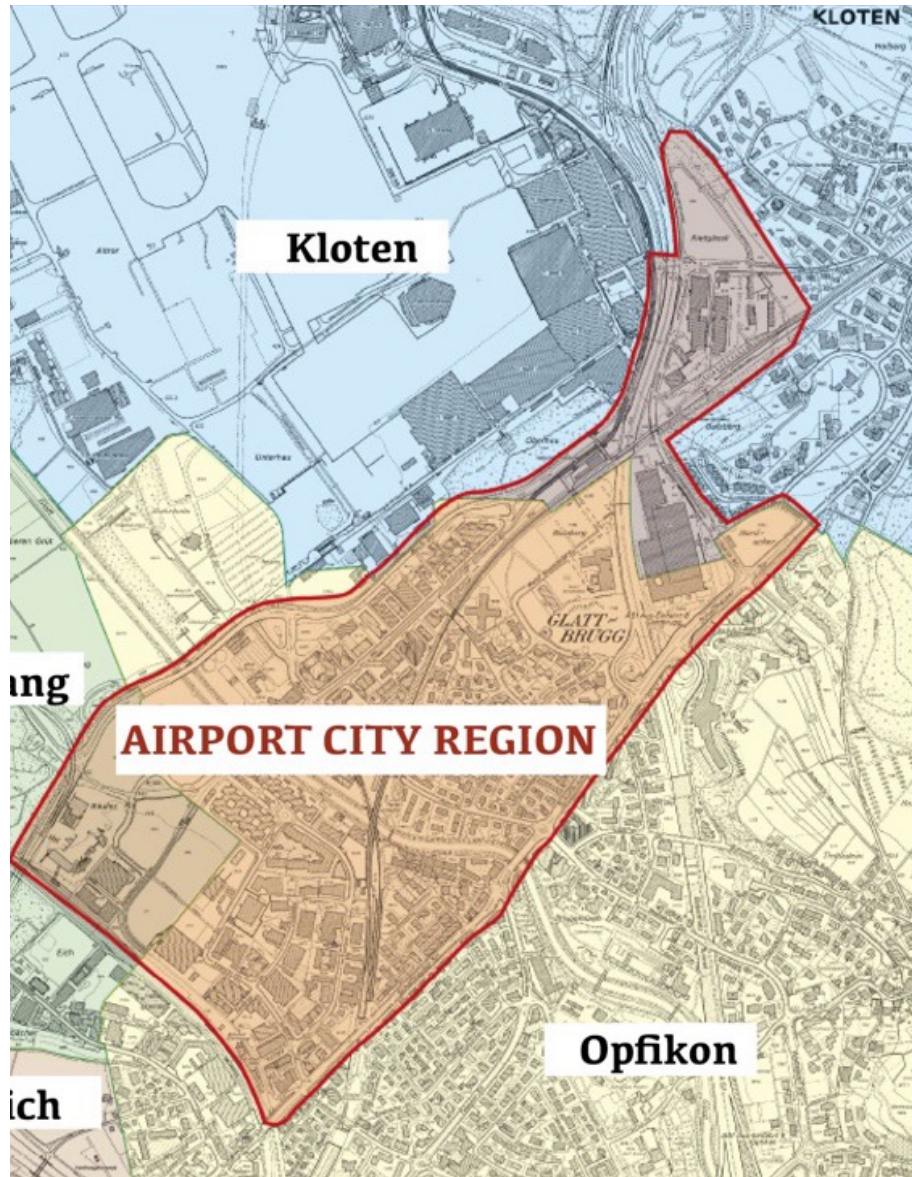


Figure 2: Map of Rohr/Platten district located in the municipality of Opfikon.

6. Methodological approach: Property-Assessment-Database (PAD) analysis tool

The PAD consists of **three steps**:

- (1) Spatial analysis of landownership and property data and structures by overlapping data layers (e.g., Geospatial buildings data, Property data, Geospatial parcel data) in the Geographical Information System (GIS)
- (2) Visualization and clustering of the changes in landownership and property structures over time ($t_0 = 2005$; $t_1 = 2023$)
- (3) Visualization of decision-making structures and connections among landowners through a social-network-analysis (SNA). → not yet performed.

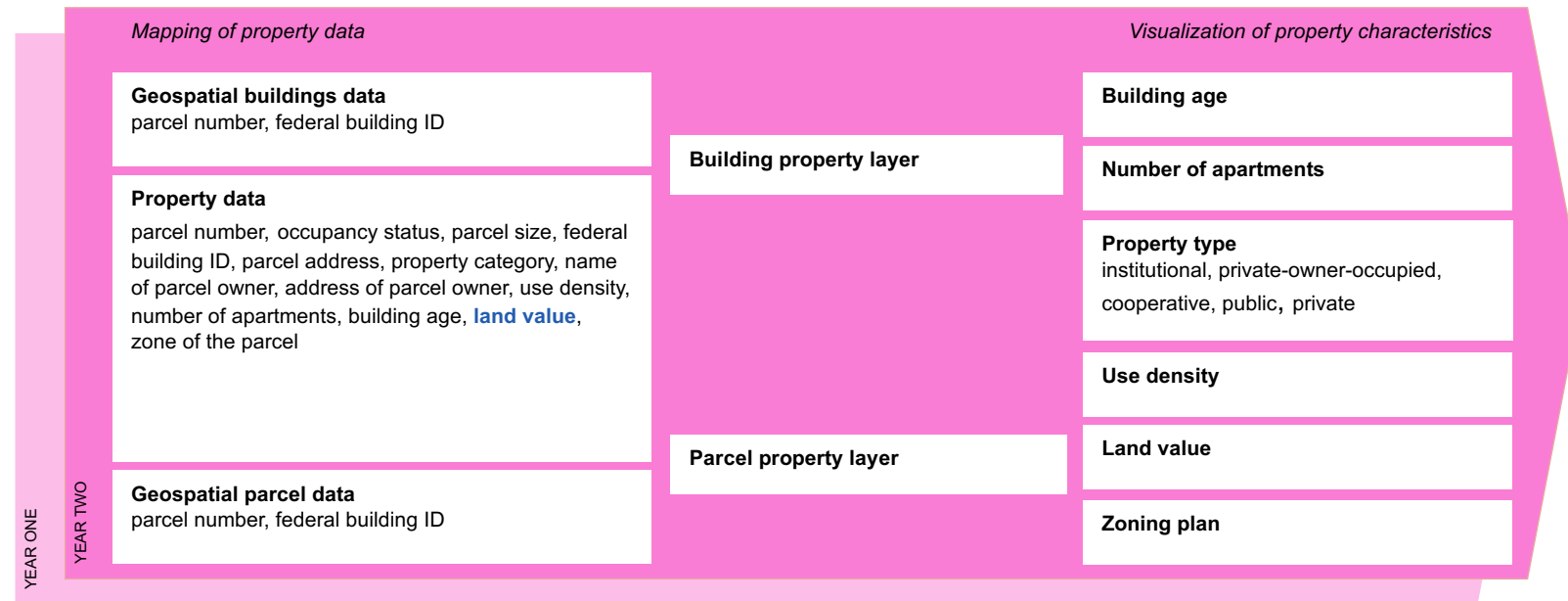
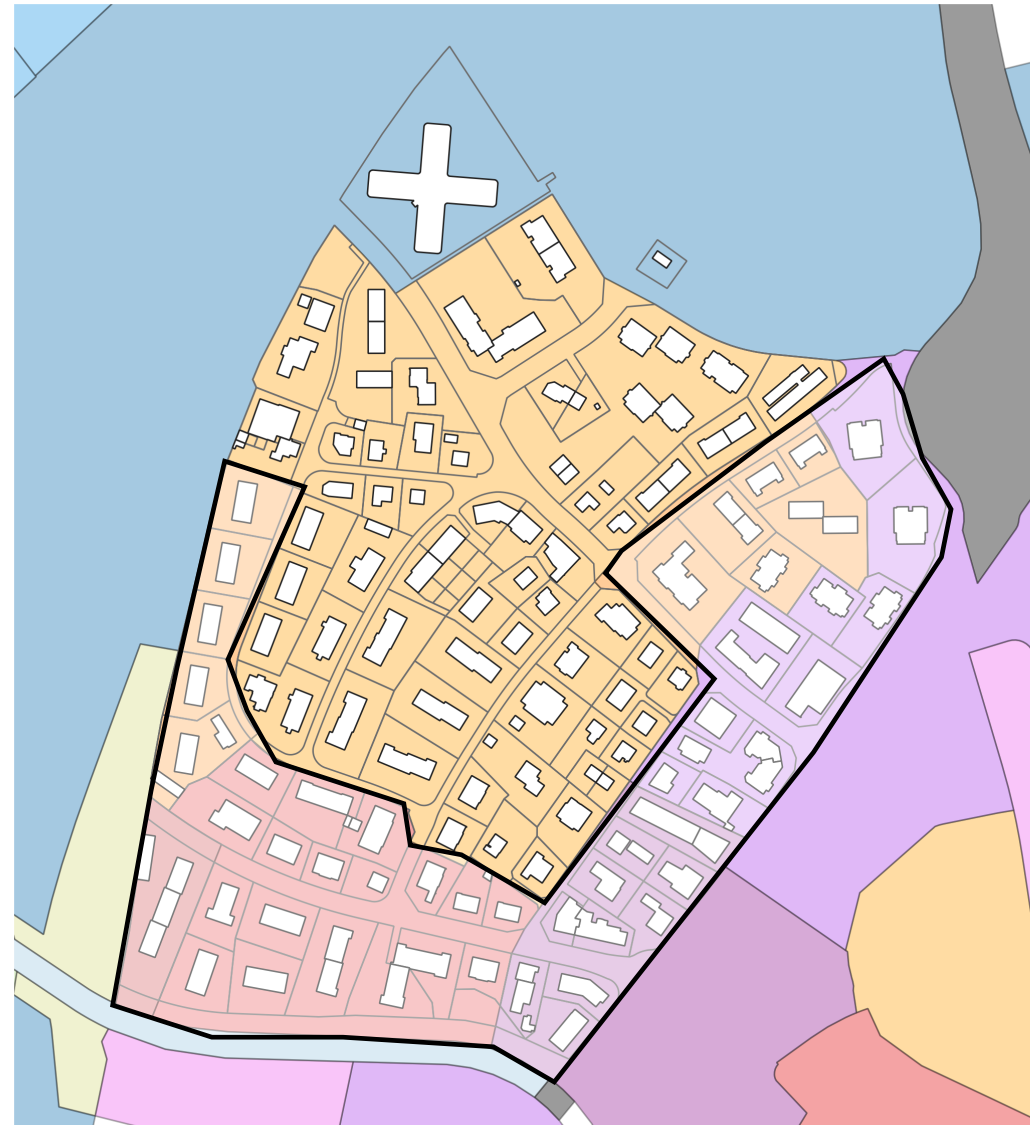


Figure 3: Step one of the PAD. Property data is mapped onto geospatial building and parcel data, yielding two foundational layers. One comprising buildings with corresponding property attributes and the other comprising parcels with associated property attributes. Utilizing these layers, individual property attributes are then visualized. This process is carried out for both analyzed time points.

7. Preliminary empirical results: (Up)zoning history Rohr/Platten, Opfikon

- In 2012, the city of Opfikon has revised its municipal zoning plan (see Figure right).
- In particular, the city has performed upzoning measures in the Eastern and Southern parts of the Rohr/Platten area (see selected area in white).
- Whereas previously, the majority of the residential area was situated in a W3-residential zone, these parts have been substantially upzoned to W4 and W5 zones.

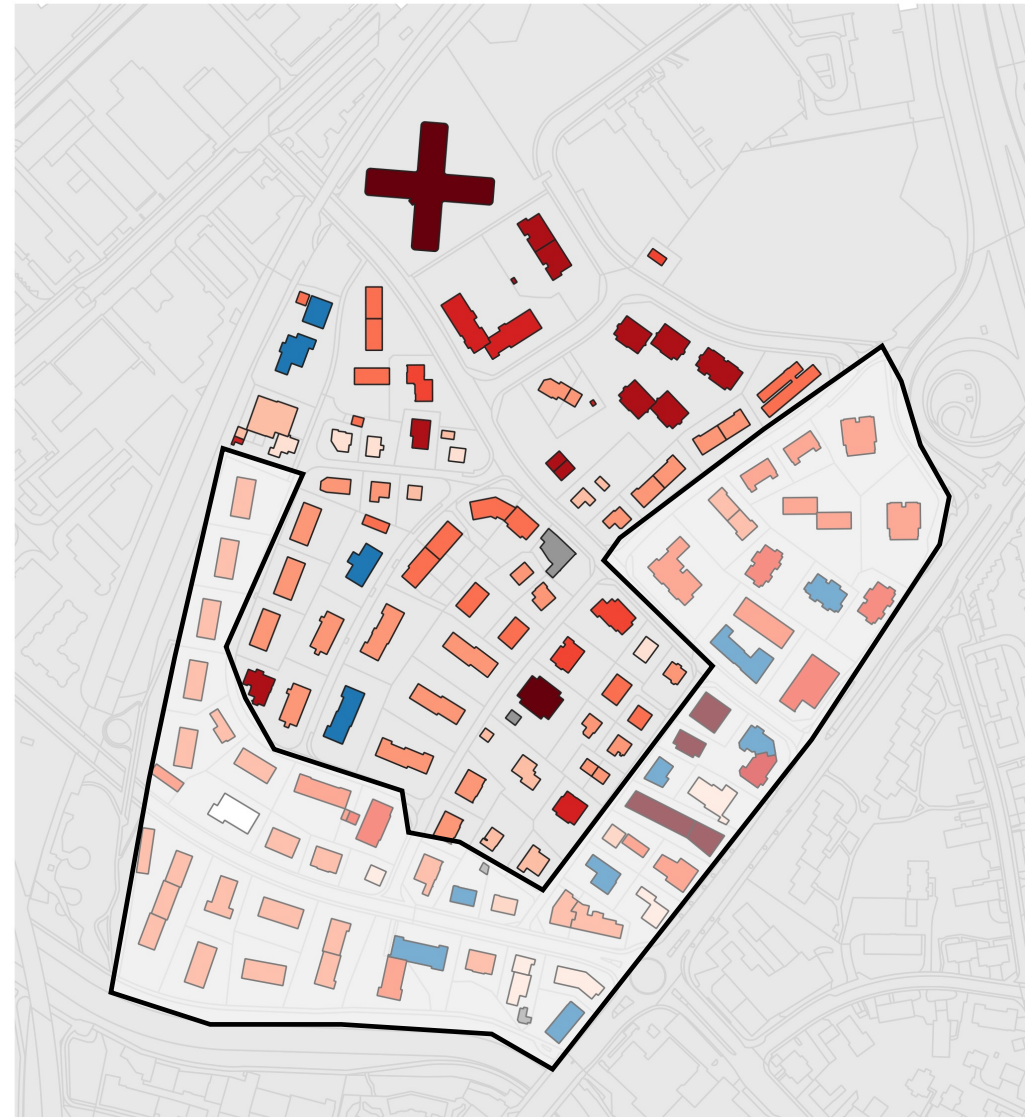


Zonenplan (2012)

- Erholungszone Spielplätze
- Freihaltezone
- Gewässer
- Gewerbezone Arbeitsplatzgebiet, BZO Art. 25
- Industriezone Flughafen
- Strassen (HLS)
- Wohnzone mit Gewerbeanteil, 4-geschossig dicht
- Wohnzone mit Gewerbeanteil, 4-geschossig locker
- Wohnzone, 3-geschossig
- Wohnzone, 4-geschossig
- Zentrumszone, 4-geschossig
- Zentrumszone, 5-geschossig
- Zentrumszone, 6-geschossig

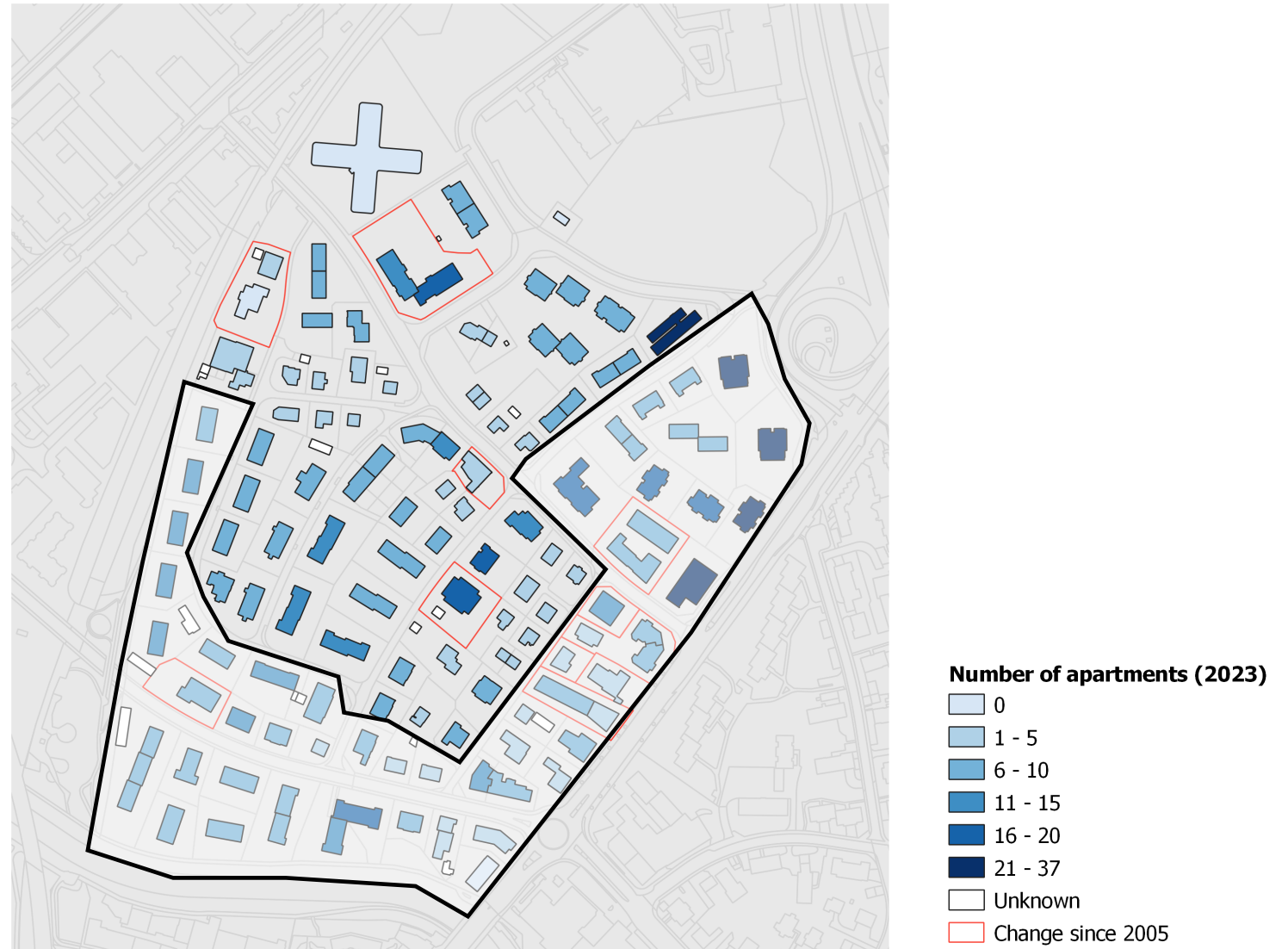
7. Preliminary empirical results: (Up)zoning history Rohr/Platten, Opfikon

- The following years (from 2012 onwards), these upzoning measures have led to substantial building activities.
- Multiple buildings have been replaced and reconstructed from anew (see buildings in **deep red** and **blue** color).

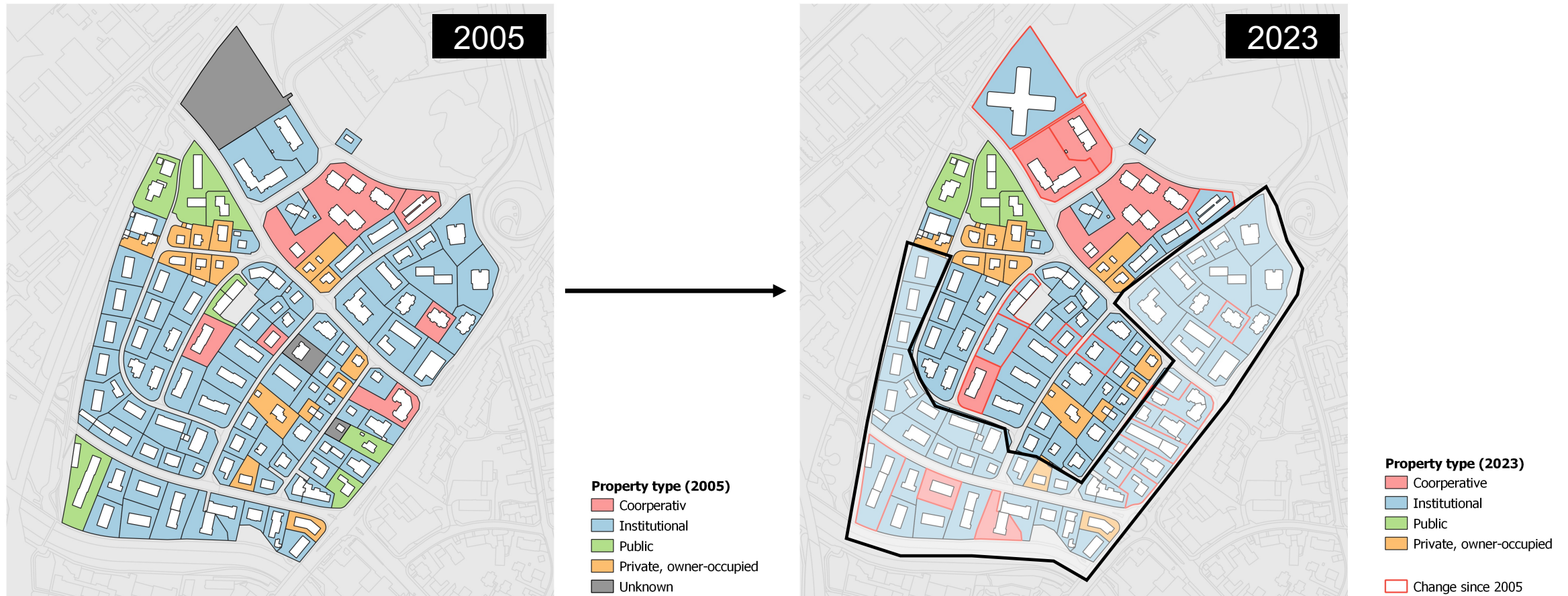


7. Preliminary empirical results: (Up)zoning history Rohr/Platten, Opfikon

- The densification activities (replacements, reconstruction of existing buildings) have – in general – led to an increase in the numbers of apartments per newly constructed building.
- **However, it remains unclear; Who densifies where, how, and what exactly?**

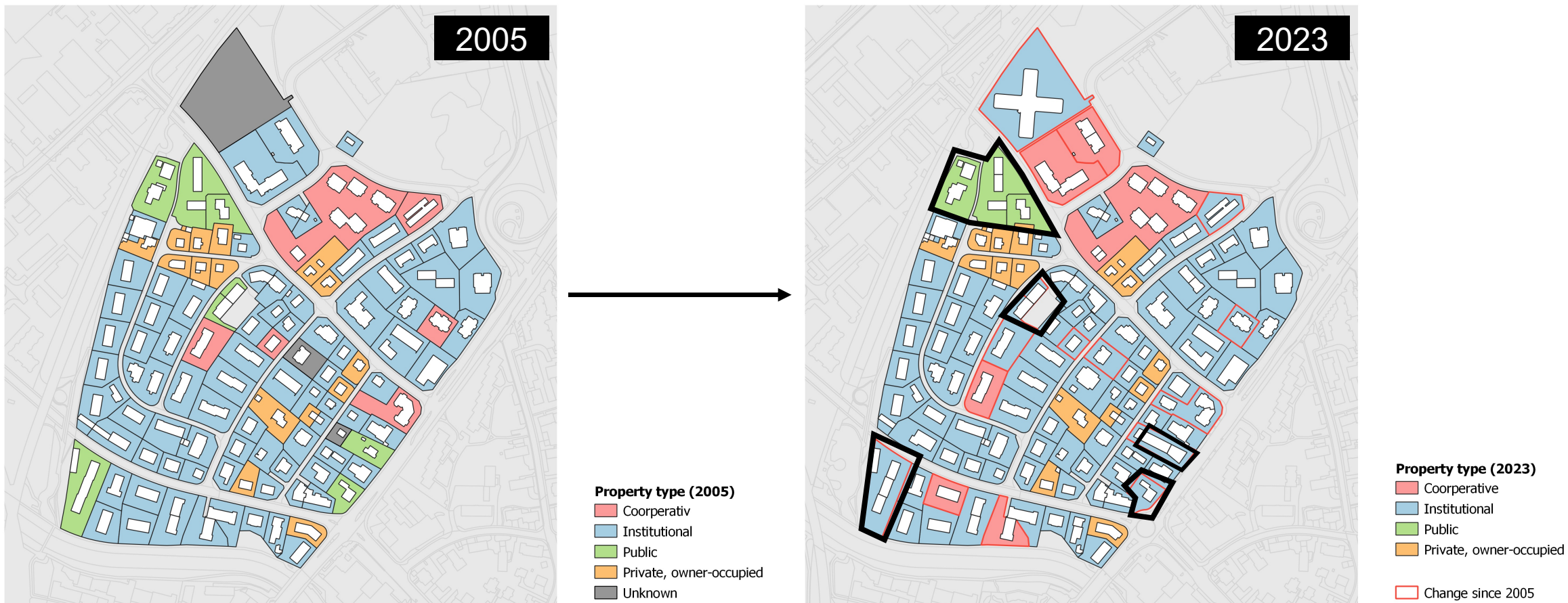


7. Preliminary empirical results: Systematic landownership structure and property data analysis



- For the years 2005 and 2023, we therefore systematically clustered and visualized the landownership and property data for the whole Rohr/Platten area. As you can see from the colors, significant changes in landownership have taken place, particularly in the upzoned areas (see selected in white).

TYPE I: INSTITUTIONAL INVESTORS

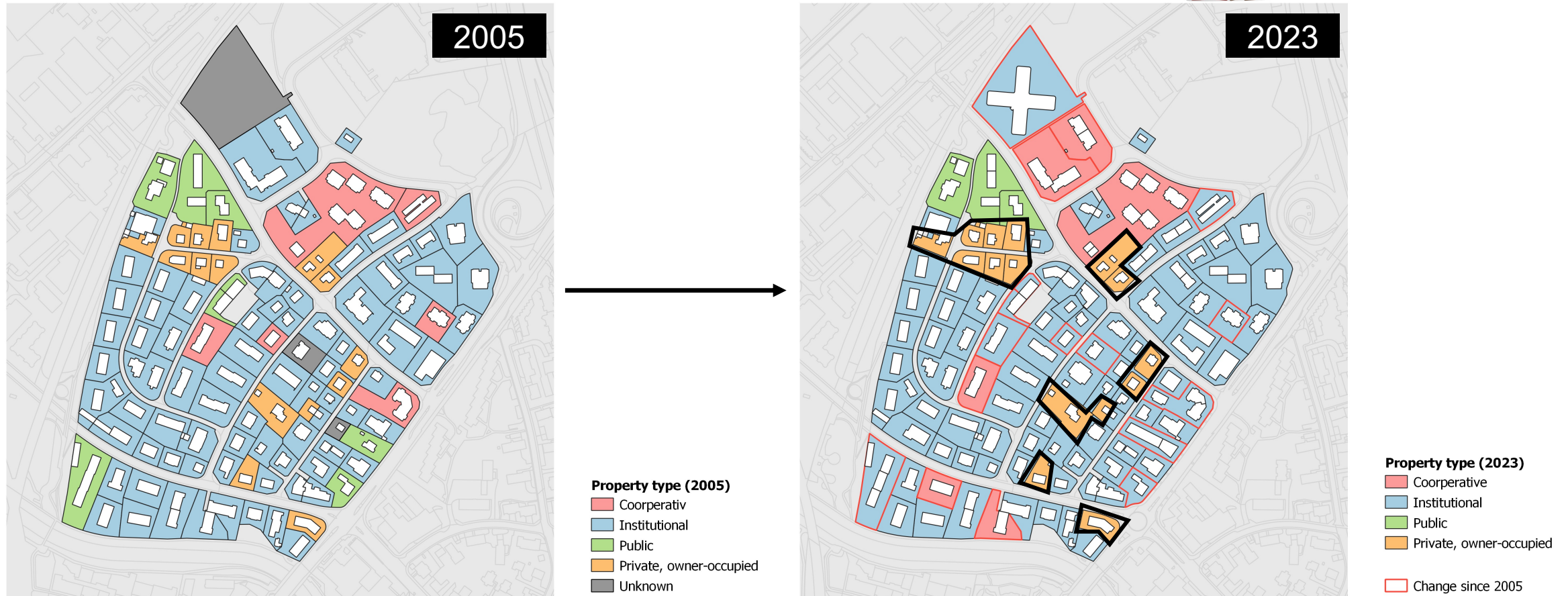


7 parcels (6% of the total land stock) have changed its ownership structure to «institutional» within the last 18 years. Particularly, at the loss of public landownership providing public housing to lower income residents.

- **2005** 72% of all parcels and 74% of all housing units were owned by institutional investors.
- **2023** 78% of all parcels (+6%) and 83% of all housing units (+9%) were owned by institutional investors.

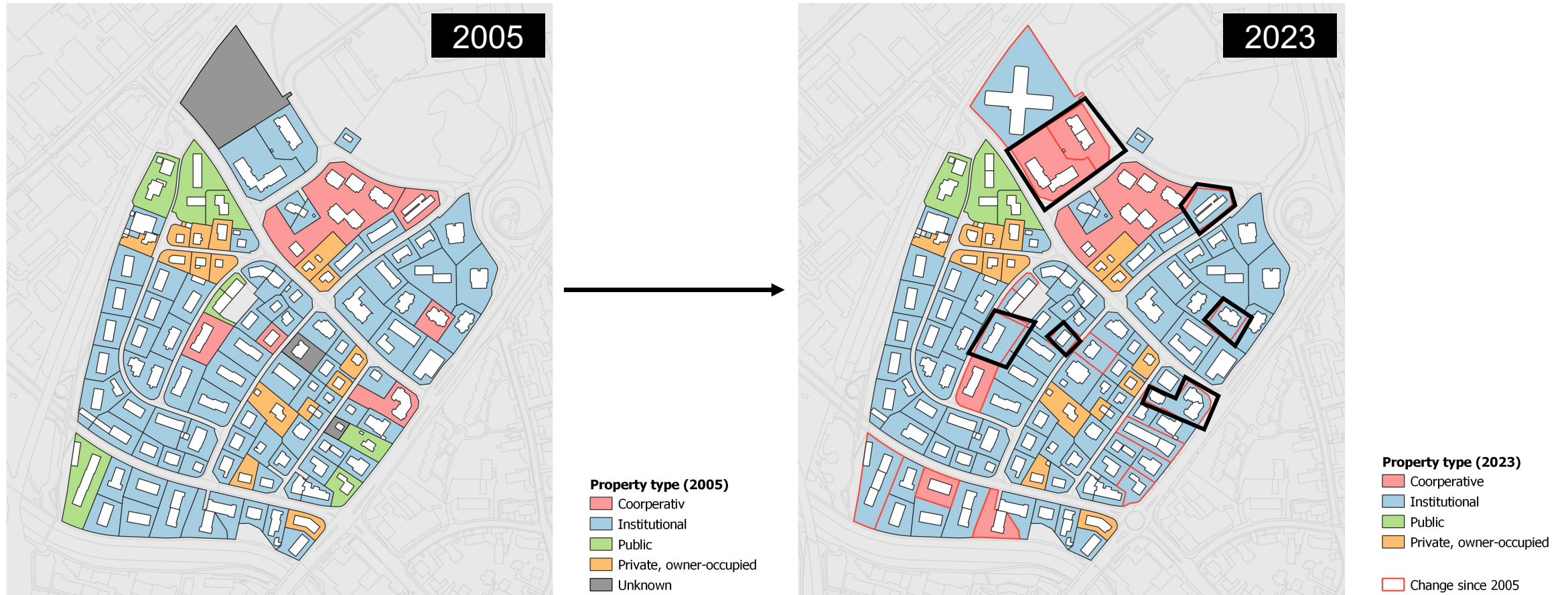
→ **Major shift towards financialization of urban housing stocks.**

TYPE II: OWNER-OCCUPIED PROPERTY



- **No change in the share of owner-occupied property incl. condominium over the full timeframe of 18 years.**
- **Owner-occupied housing appears to be highly stable in regard to (re)construction measures over time.**

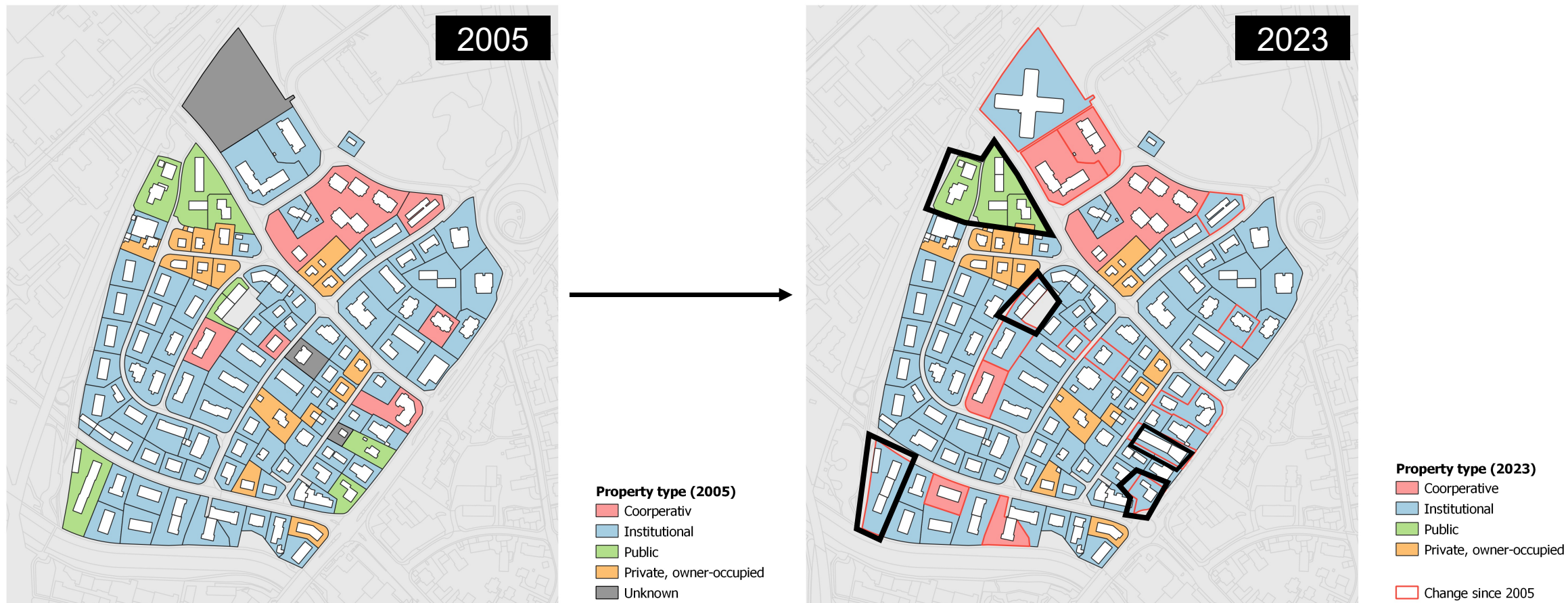
TYPE III: HOUSING COOPERATIVES



- **High dynamic in purchasing and selling parcels owned by housing cooperatives** over the timeframe of 18 years. However, not much is known about the reasons for these activities.

→ As a general tendency, **housing cooperatives have lost influence, while institutional investors have gained in influence** in Rohr/Platten over the past 18 years.

TYPE IV: PUBLIC OWNERSHIP



- Interestingly, the data analysis shows that all parcels owned by public authorities (except one) have been sold to institutional investors in the past 18 years.

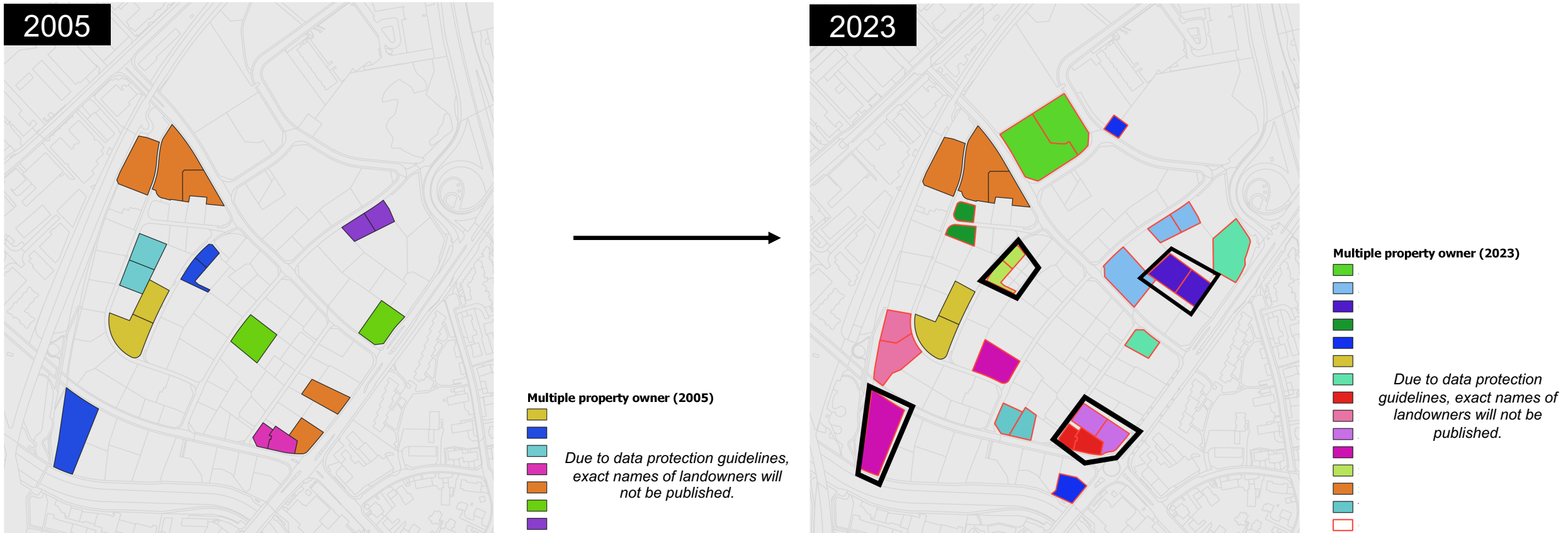
→ From a municipal council's meeting protocol in 2002, we also know that the city's executive members fully agreed to sell these public lands to private investors as they needed money in a short term perspective (City of Opfikon, 2002).

7. Preliminary empirical results: **Densification activities per landownership category**

- Data analysis shows that institutional investors tend to totally replace and reconstruct existing buildings, while;
- Housing cooperatives and owner-occupiers rather renovate their existing housing stocks.



7. Preliminary empirical results: Multiple-landownership constellations



- Data analysis shows that certain institutional investors rather aggressively are buying up the Rohr/Platten area. **Within short term, they purchased multiple parcels in the same area.**
 - **Hence, they tend to strategically purchase land** for institutional investment objectives (e.g., safe return on investment strategy).
- Proximity of international airport Zurich seems to play a role when obtaining institutional land investments.

8. Discussion & conclusion: Landownership and property analyses

- Since the 2005s, the selling of public and cooperative land and housing stocks to private institutional investors have become a clear trend in the Opfikon Rohr/Platten area.
- In particular, in the Rohr/Platten district, institutional investors responded strongly to newly created housing use reserves through upzoning measures in 2012. As a consequence, they demolished, replaced, and reconstructed their properties with higher densities (but also rents) in these upzoned areas.
- Housing cooperatives and owner-occupied property are more likely to renovate existing buildings without demolition and replacement. This has probably to do with the fact that they a) either do not have the financial means to fully replace their buildings, or b) are stronger emotionally attached to their existing housing stocks and do not aim to demolish, but rather preserve them.
- However, many open questions for further research remain, e.g.:
 - What reasons have led to the selling of public and cooperative land in the early 2010s?
 - Who decided on this municipal land policy strategy, how, and why?
 - What does the tendency towards multiple landownership mean for the Rohr/Platten area? Why have these investors purchased multiple plots of land in the Rohr/Platten area? What do they aim to achieve in the upcoming years?

8. Discussion & conclusion: Strategic municipal land policy through systematic landownership and property data analysis

- **Anticipation:** By systematically analyzing landownership and property data, certain investments and construction activity dynamics – especially before a municipal zoning plan revision – can be anticipated by the municipal planning authority.
 - **Evaluation and estimation of replacement constructions and exclusionary housing dynamics:** A systematic monitoring of landownership and property data may help municipalities to evaluate changes, particularly in regard to densification, replacement, and exclusionary housing dynamics (e.g., gentrification, segregation of lower income groups).
 - **Effective efforts for a social and ecological urban transition:** Data analysis shows that particularly institutional landowners tend to demolish and reconstruct existing buildings. This leads to higher building densities but also rents for sitting residents. In such situation, municipalities can preevaluate densification activities and accompany measures in favor social and ecological urban development goals.
- In essence, therefore, systematic landownership and property data analysis presents a clear added value for strategic and active municipal land use policy. All the more relevant in an era of densification, where land has become scarce and highly contested among competing urban actors.

This project will be further funded by the city of Opfikon, Abt. Bau + Infrastruktur, for the next six months (January to July 2024) with a total amount of CHF 5'000. We thank the city of Opfikon for this implementation oriented collaboration with ETHZ.



STADT OPFIKON

9. Literature

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