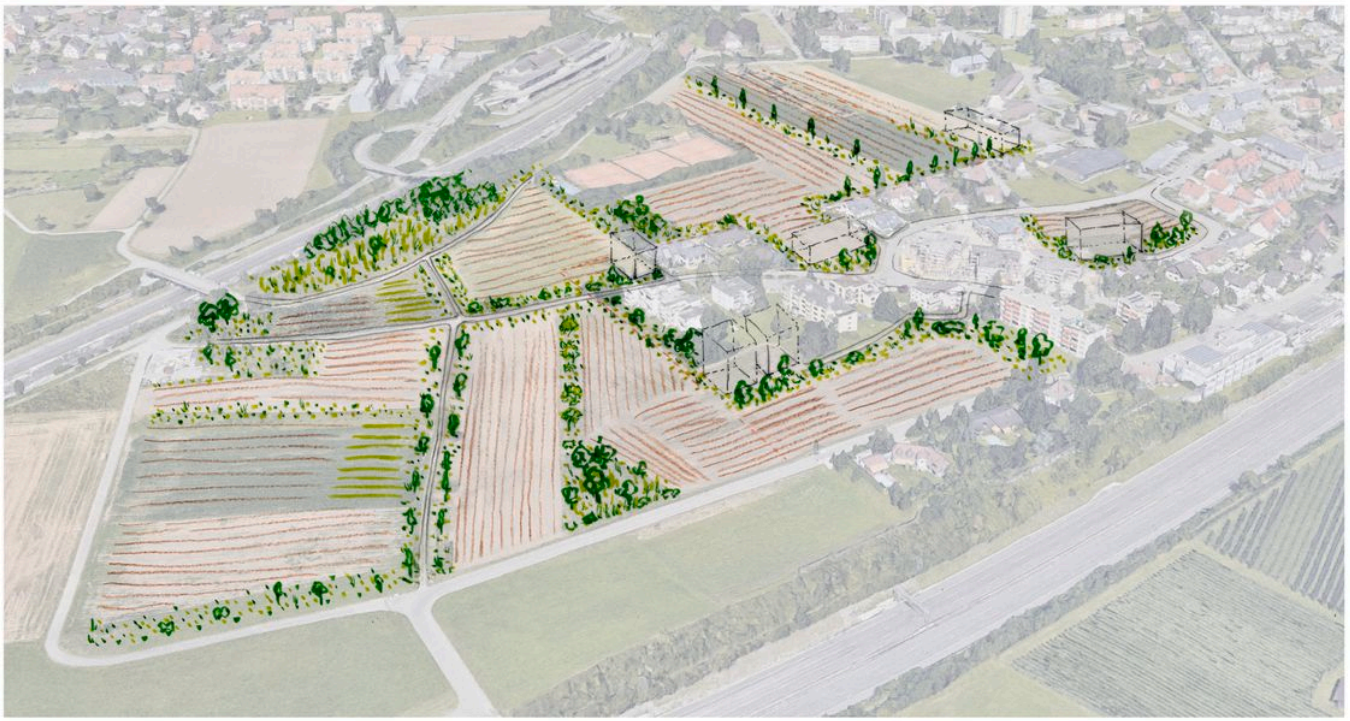
ETH Zurich Department of Architecture
ARCHITECTURE OF TERRITORY
Chair of Architecture
and Territorial Planning
Professor Milica Topalović

Agrarian Project
Spring 2023

Unterengstringen and Kloster Fahr

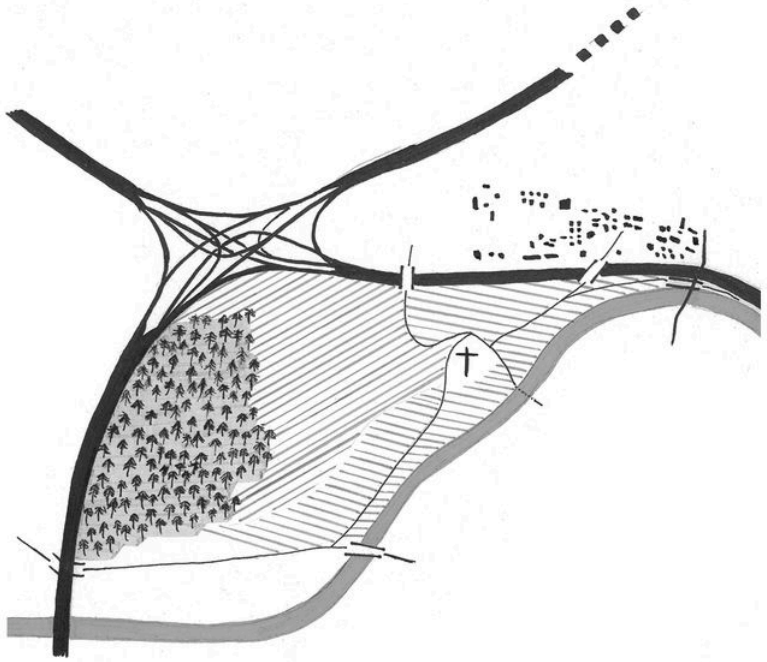
The Agri-Urban Zone: Changing Land Use to Enable Opportunities for Biodiversity and Housing

Yufei Li and Jonas Zimmermann

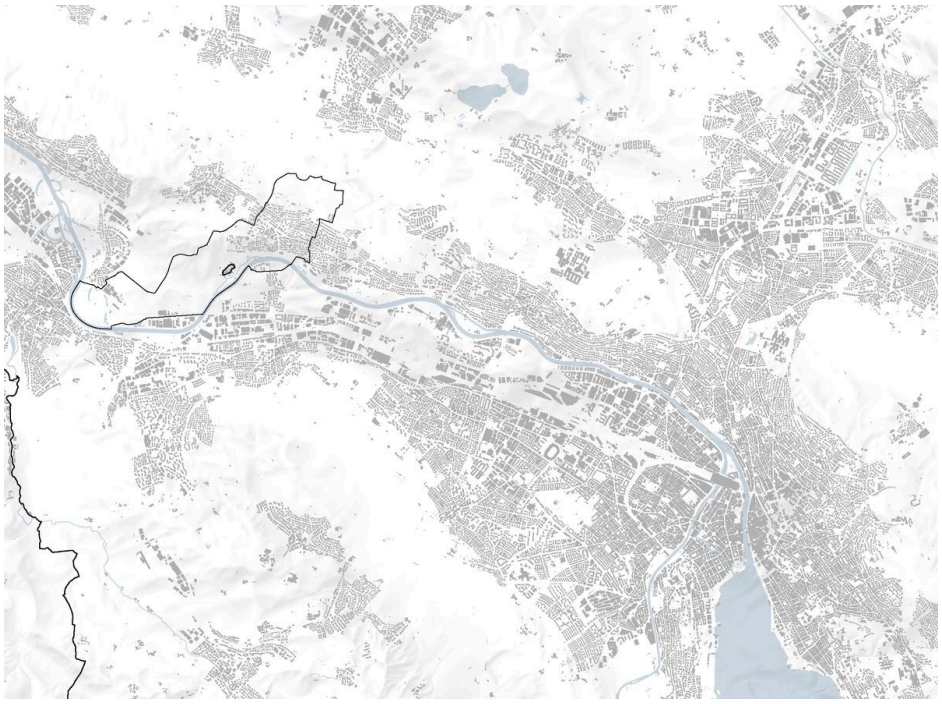


Unterengstringen is located in the Limmattal, the urban agglomeration between the Cantons of Zurich and Aargau. It is characterised by urban sprawl, with the majority of the area's ground being built on, while the density of it is low. Spatial planning and agricultural land are developed individually and relatively independently of each other. Based on the specificity of agriculture in the building zone and the agriculture of Fahr Monastery in the urban context, this project designs a new zone: the agri-urban zone. It allows the mixing of agriculture and living and increases biodiversity in urban areas. The goal is to strengthen the connection between agriculture and the settlement area and to enable the preservation of agricultural land.

Tranquil Island, Hectic Surroundings



A stroll through Unterenstringen will take you from the settlement characterised by urban sprawl, to industrial buildings sitting right next to a forest, and to a golf course at its border. But what stands out the most, is a sizable green island taking up almost a third of the commune’s area. What are the factors contributing to such an unusual oasis of biodiversity amidst the bustling urban environment?



Regional Context Unterengstringen

Unterengstringen is located on the right bank of the Limmat river and part of the Limmattal, an urban agglomeration area of Zurich. In just twenty minutes the 4100 inhabitants of the commune can reach the centre of Zurich by public transport; the entrance to the A1 highway is located right at the commune border as well. This allows quick access to the centres in the region. Due to the high level of construction activity, the village has grown together with its neighbouring commune Oberengstringen. This settlement area extends as far as Zurich Höngg.



FAHR MONASTERY AND AGRICULTURE



GREEN ISLAND



FOREST



GOLF COURSE



GOLF COURSE



CEMENT PLANT



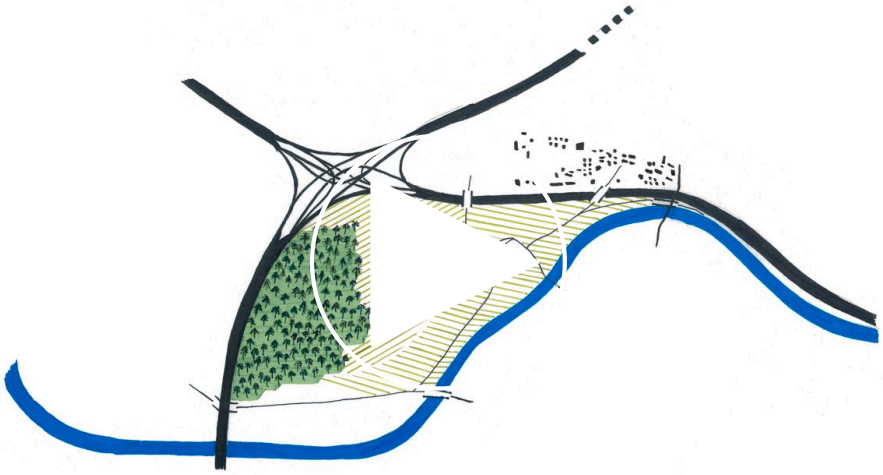
ZONING PLAN UNTERENGSTRINGEN

- Industrial Zone
- Agricultural Zone
- Building Zone
- Forest

The highway cross and the river are two critical elements that define the spatial configuration of the commune of Unterengstringen. The highway cuts through the commune and divides the town centre in the north from a large part of the commune. The area southwest of the highway is hardly connected to the town and is defined by a cement plant and a golf course.

Between the river and the highway arc acting as borders, an enclosed area with high spatial quality is formed. In it lies a green island with the Fahr Monastery. As it is located right next to the Limmat as well, this place is used and appreciated as a regional recreation area.

The island has a total of only five access points. They are of low quality, since a major infrastructure always needs to be crossed above or below. As a result, these points are for the most part either very noisy, or narrow and dark. However, these limiting accesses enhance the effect of tranquillity once you are inside.



ACCESS TRANQUIL ISLAND

https://vimeo.com/830962713

There are four farms in Unterengstringen. The agricultural areas are located on the outskirts of the settlement and between the highway and the Limmat. The farms cultivate arable land, grow vegetables, keep animals and provide pensions for horses. Most of the land belongs to the Fahr Monastery. The high proportion of biodiversity areas of the monastery's farm is special compared to average farms.



LAND USE AGRICULTURE

- Extensive Biodiversity
- Meadow
- Arable farming
- Golf
- Vineyard
- Orchard



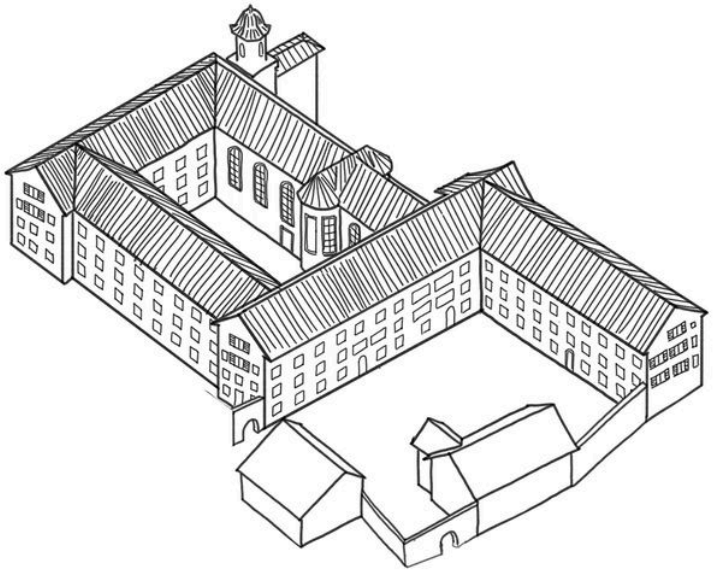
BIODIVERSITY AREA FAHR MONASTERY



WHAT DOES BIODIVERSITY LOOK LIKE?

https://vimeo.com/830963537

Thinking Fa(h)r Ahead



Fahr Monastery and its agriculture have a history of almost 1000 years. Over the millennia many changes happened of which some contributed to the creation of a special zone in which the monastery is located today. Thanks to the special zone, a new strategic plan has been implemented, which provides for a modern form of agriculture and community living.



LANDOWNERSHIP FAHR MONASTERY

The Monastery Fahr is a benedictine convent. Together with Einsiedeln Abbey in the canton of Schwyz, they form the only double monastery in Switzerland. Currently, 18 sisters there live according to Benedictine values. Praying and working are integral parts of their belief. They have everything they need there, a chapel to pray in, living quarters, a library, and they also have a Klostergarden for herbs. In 1944, the convent established a Bäuerinnenschule, an agricultural school for women.



FAHR MONASTERY 1923. Source: ETH-Bibliothek [https://ba.e-pics.ethz.ch/catalog/ETHBIB.Bildarchiv/r/124709/viewmode=infoview/qsr=Untereengstringen]

History of Land Ownership

Land donations by the aristocracy to the church for the purpose of founding new monasteries was the norm in medieval times. This transfer of land ownership which traces back to almost a millenia ago still has social, spatial and economic effects on today's configuration.

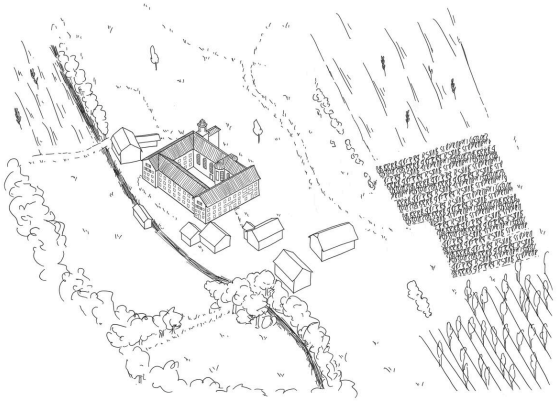
With 1,910 ha, Einsiedeln Abbey is the biggest private landowner of Switzerland. Their property spans over the cantons of Schwyz, Zurich, Thurgau, Aargau and St. Gallen, as well as an enclave in Austria. The land was donated as an economic basis for the upkeep and maintenance of running a monastery. Apart from some events like the battle of Morgarten 1315 their property size has remained the same over 1000 years. They operate on the principle of preserving and tending to the land they already own and have no plans to acquire or sell land.

Though they are rich in land property, not much money is made off of it. Over half of it is forest which is not profitable, and a huge part of it is used for agriculture, which too is barely profitable.

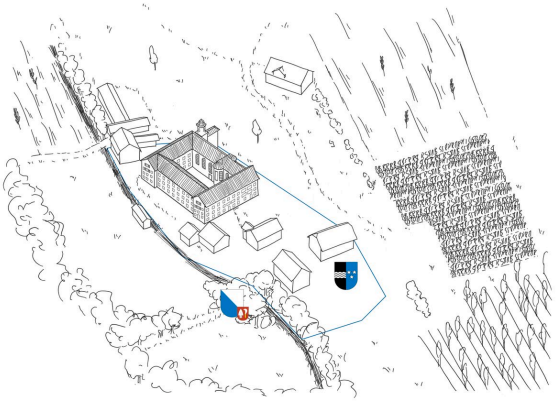


MONASTERY ABBEY Source: Tourist Office Einsiedeln, 2023.
[https://www.eyz.swiss/de/besuchen/touren-ausfluege/private-klosterfuehrung]

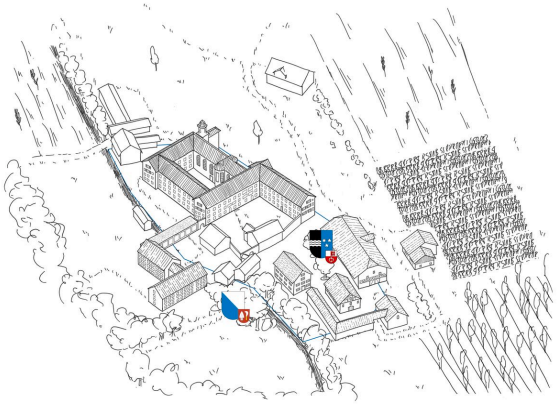
History of Fahr Monastery



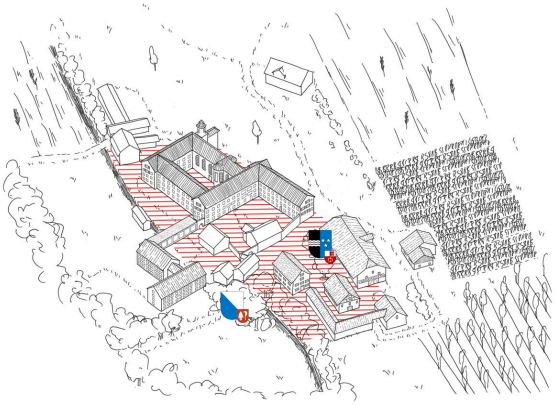
1130 FOUNDING OF MONASTERY
THROUGH LAND DONATION



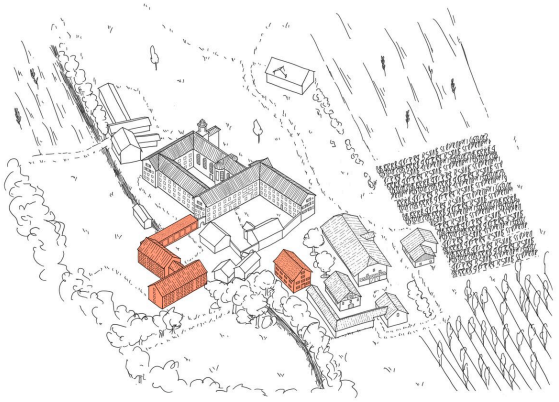
1803 ACT OF MEDIATION BY NAPOLEON:
NEW CANTONAL BORDERS ARE DRAWN



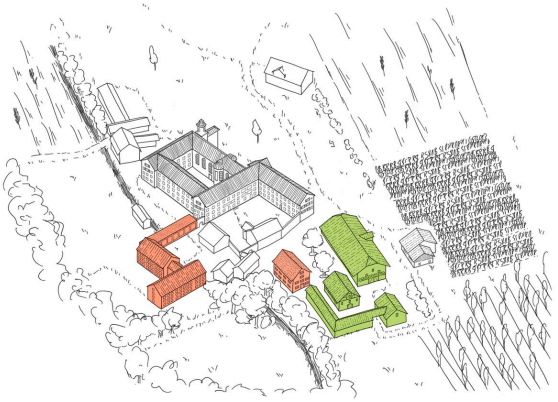
2008 INCORPORATION INTO
COMMUNE WÜRENLOS



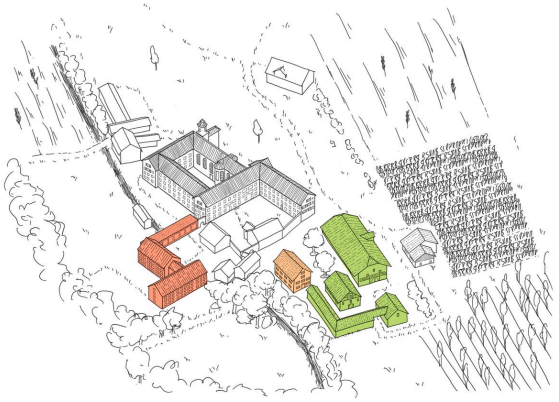
2008 INCORPORATION INTO COMMUNE
WÜRENLOS AND SPECIAL ZONE



2020 STRATEGIC PLAN: PRO SPERITA, FORMER "BÄUERINNENSCHULE" AND RESTAURANT



2020 STRATEGIC PLAN: AGRICULTURE "FAHR ERLEBNIS"



2020STRATEGIC PLAN: RESTAURANT SUBLEASED TO "FAHR ERLEBNIS"



MONASTERY GARDEN



OLD WINE PRESS HOUSE



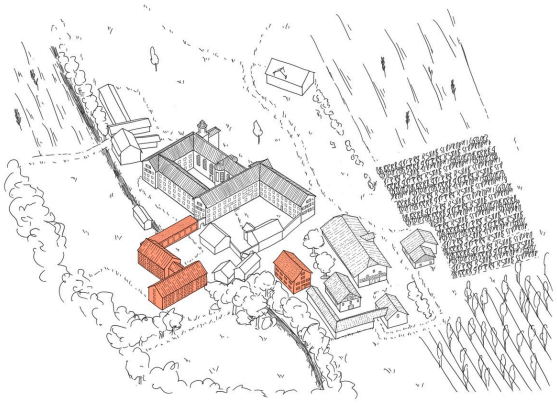
COWSHED WITH VISITOR AREA

In the 12th century, the aristocratic House of Regensberg donated parts of their lands on the shore of the Limmat to the Einsiedeln Abbey under the condition that they establish a Benedictine convent. Thus, the Fahr Monastery was founded in 1130 before the Swiss Confederacy—the precursor of the modern state of Switzerland—existed.

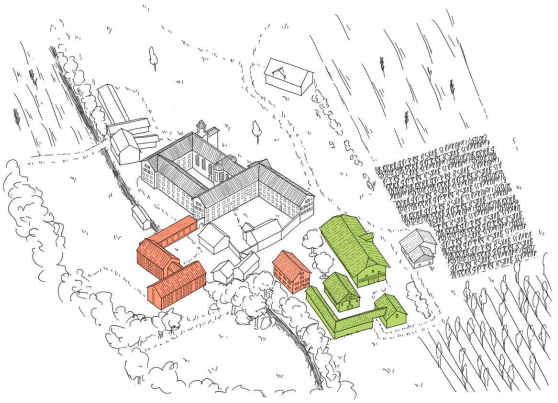
During these times, the sisters lived a simple life. Their days consisted of praying and working, which included sewing paraments, a religious kind of clothing and working the land. A male abbot from Einsiedeln Abbey would visit them every week and was in charge of managing agricultural decisions. The sisters formed different working groups; some tended to the vineyards, some to the field, other to the animals and the orchards.

After the French invasion, the Act of Mediation was issued by Napoleon in 1803. The previous Helvetic Republic was abolished, the Swiss Confederation was established, and new cantonal borders were drawn. As the reformation movement was strong in Zurich, the cantons of Zurich and Aargau established an exclave of Aargau within Zurich for the lands of the monastery.
The exclave didn't belong to any commune until it was incorporated into the commune of Würenlos AG in 2008, following a law that passed in which required every piece of land in Switzerland to belong to a commune. Würenlos is the commune located nearest to the exclave, but it is still quite a distance away. Because of this, the exclave is a special zone for itself called "Spezialzone Kloster Fahr" (special zone fahr monastery) and it is surrounded by agricultural land of Unterengstringen ZH.

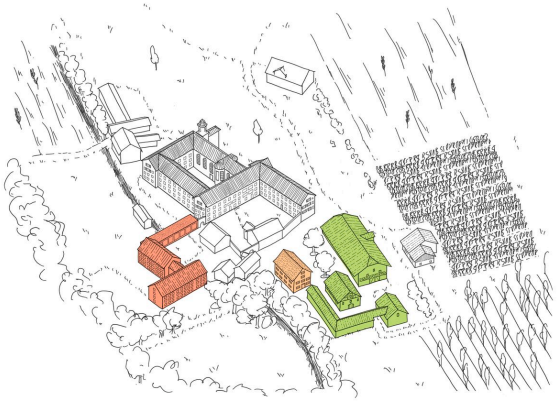
Strategic Process



2020 STRATEGIC PLAN: PRO SPERITA, FORMER "BÄUERINNENSCHULE" AND RESTAURANT



2020 STRATEGIC PLAN: AGRICULTURE "FAHR ERLEBNIS"



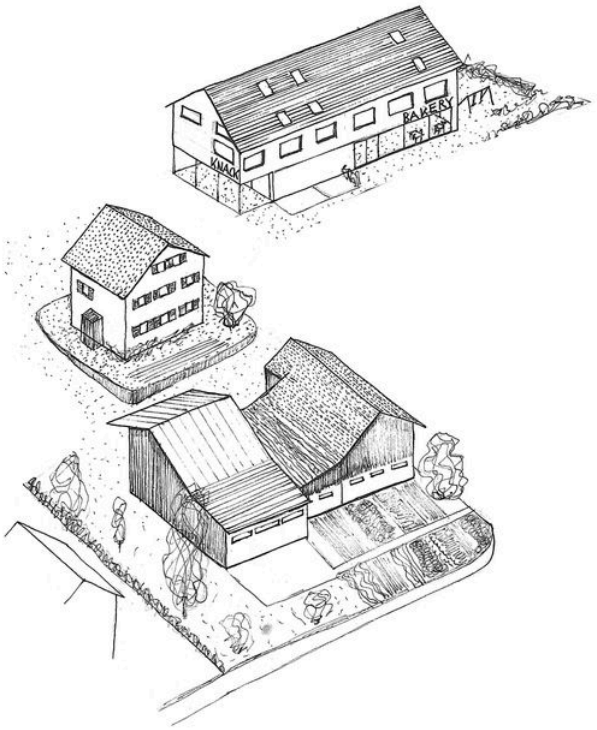
2020 STRATEGIC PLAN: RESTAURANT
SUBLEASED TO "FAHR ERLEBNIS"

With the ageing of the monastery population, the workload became too much for the sisters. Around the 1990s, the monastery employed secular staff who worked on the farm and in the restaurant. It worked well but it was not sustainable and not what the sisters wanted.

The sisters wanted another model of agriculture and thus made a public call for proposals which should have a holistic vision of what happened to the closed Bäuerinnenschule (agricultural school for women), the restaurant and the farm. Prosperita, a pension fund, won with Wohnprojekt erFahrbar, a communal living project with christian values. The people of Prosperita which were supposed to be in charge of restaurant and farms left, after which Fahr Erlebnis sprung in.
The Monastery set conditions and had the authority to decide over which project was in line with their vision and values.

The majority of the old Bäuerinnenschule is located in the agricultural zone, on which housing is strictly forbidden. The communal living project as well as gastronomy are only made possible by the legal Special Zone on which the monastery is located. Another speciality is the high proportion of biodiversity areas. Before the lease, the monastery only received subsides for these areas and had less pressure from the market due to its large land holdings.

The Vision of a Social Centre: Knackfrisch



Agriculture is not known as a business field where you can make a lot of profit. Investments in residential construction, on the other hand, do. Hansjörg Vogler owns a piece of land that is designated as a building zone, but on which he farms. What are his motivations, his values and the challenges he faces?

Unterengstringen Town Development



ARIAL VIEW 1919. Source: Mittelholzer Walter ETH Bibliothek [https://ba.e-pics.ethz.ch/catalog/ETHBIB.Bildarchiv/r/503689/viewmode=infoview/qsr=unterengstringen], 1919.



ARIAL VIEW 2022. Source: Gemeinde Unterengstringen [https://www.unterengstringen.ch], 2023.



ARIAL VIEW 1919. Source: Mittelholzer Walter ETH Bibliothek [https://ba.e-pics.ethz.ch/catalog/ETHBIB.Bildarchiv/r/503689/viewmode=infoview/qsr=unterengstringen], 1919.



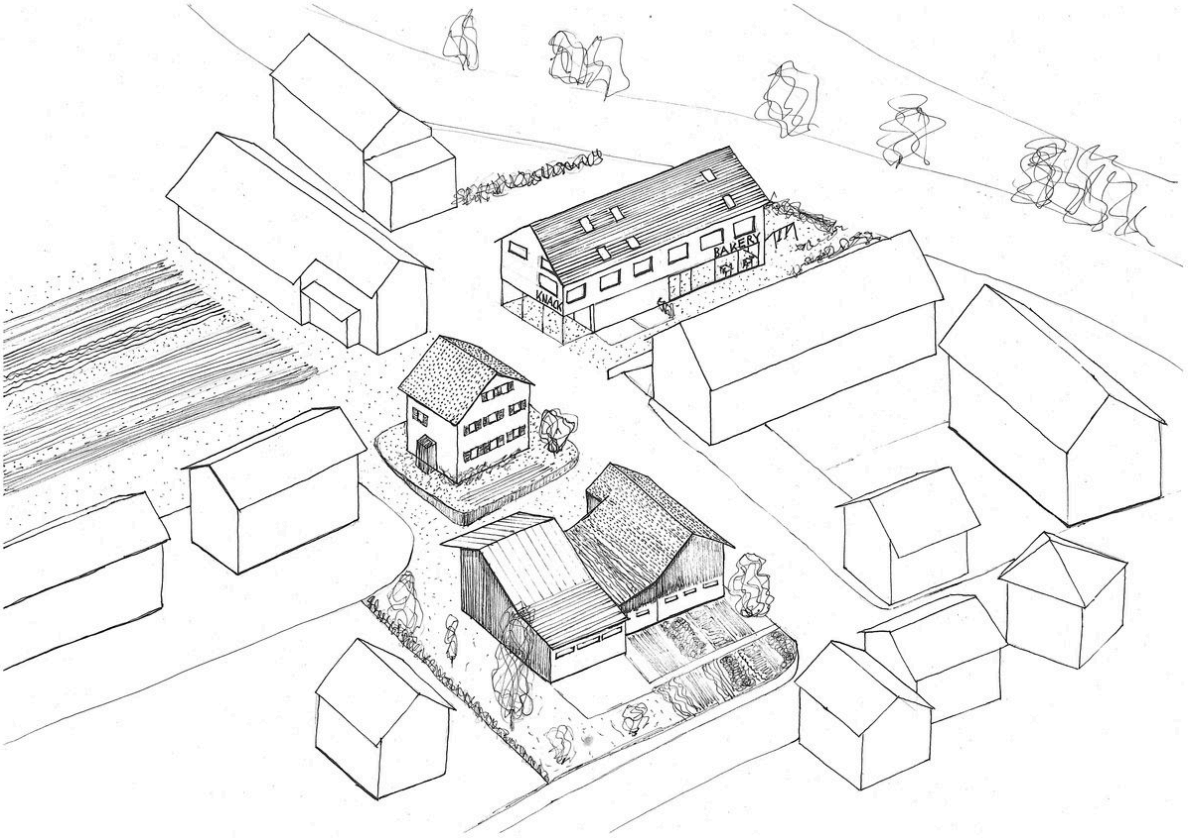
ARIAL VIEW 2022. Source: Gemeinde Unterengstringen [https://www.unterengstringen.ch], 2023.

Unterengstringen has grown strongly over the last 40 years due to the high demand for housing in the region of Zurich. The village near the city became an agglomeration town. The workplaces and important infrastructure shifted to the city and Unterengstringen changed into a so-called “sleeping village”. The residents commute to the centre to work, shop and consume offers and culture in the city. In Unterengstringen, most flats were built without an overall concept in the municipality. The private interests pursued weakened the attractiveness of the village and there is a lack of basic infrastructure such as a supermarket or a post office. These can only be found in neighbouring towns.

Knackfrisch



LANDOWNERSHIP KNACKFRISCH



FARM KNACKFRISCH UNTERENGSTRINGEN



TERRACE AND PLAYGROUND OF THE CAFÉ



INSIDE STORE KANCKFRISCH

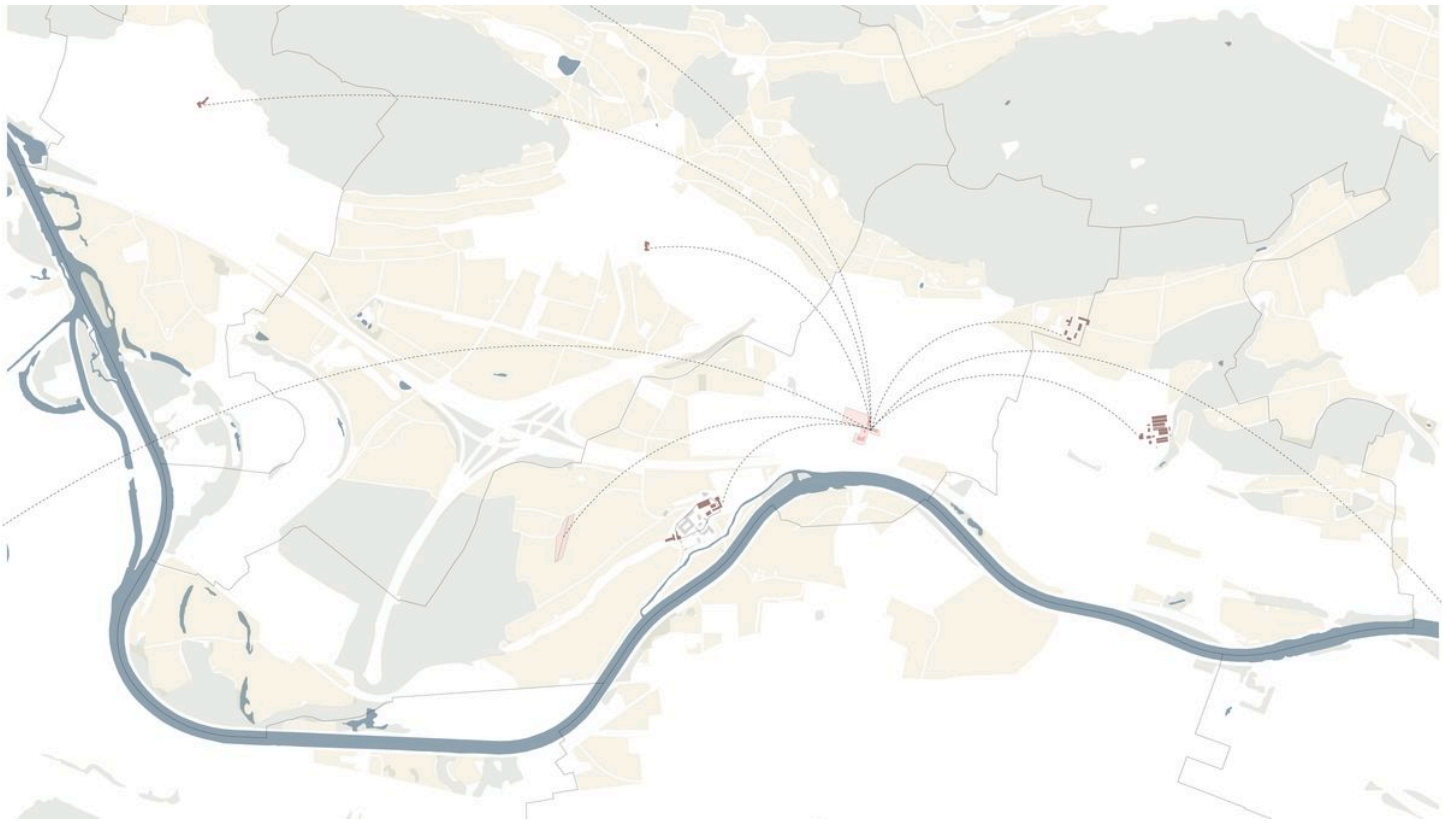




CONNECTION BETWEEN CAFE AND STORE

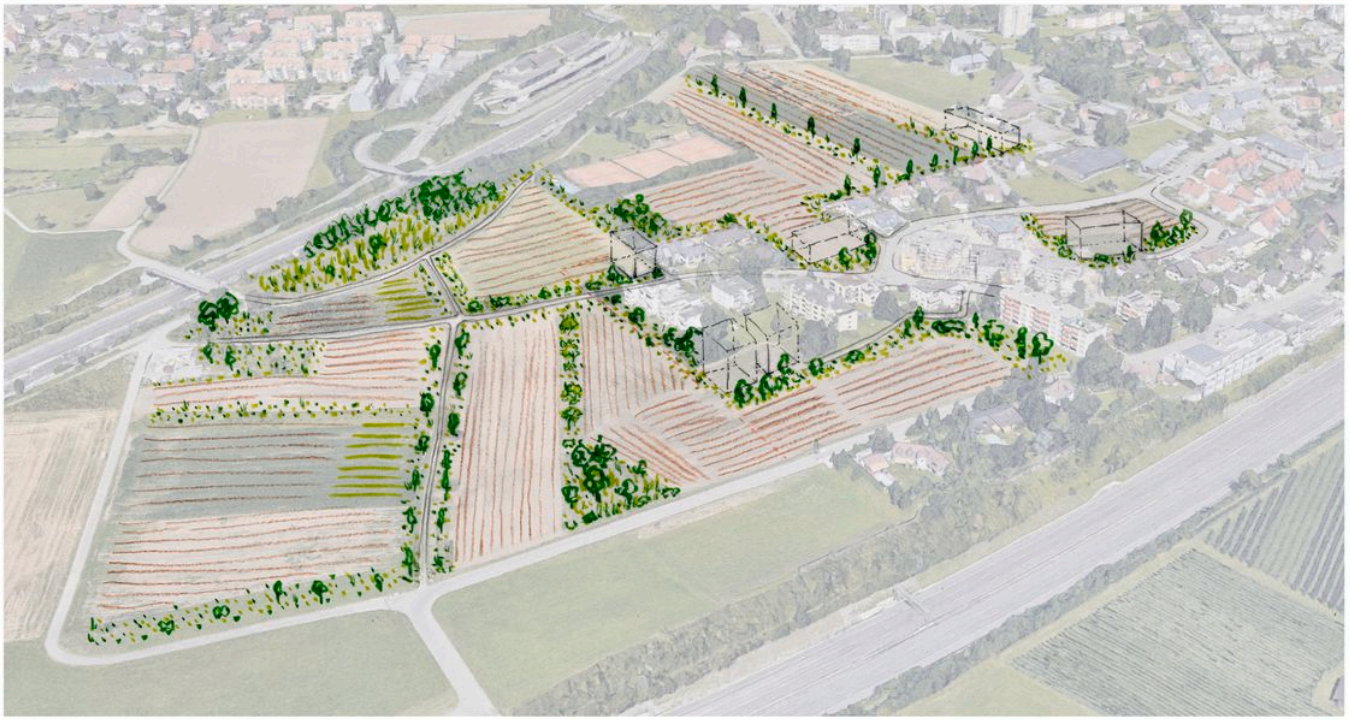
TEXT

H. Vogler and his mother run the Knackfrisch vegetable and fruit farm in the centre of the village. His fields are located in the building zone, which is under pressure due to the higher tax burden compared to agricultural land.
In 2011, he decided to develop part of his building land and create a new distribution channel for the farm and his import company. Although it would have been most profitable fiancially, he did not build flats on the ground floor instead he built commercial space. As he was dissatisfied with the village development, he developed a farm store for Knackfrisch on the ground floor, which relates to a doorway to a café. This created a new social meeting place in Unterengstringen and a store. The Knackfrisch farm store also sells products from surrounding farms and thus also creates a centre for local products.



ADDITIONAL SUPPLIERS FOR KNACKFRISCH STORE

A Case for an Agri-Urban Zone



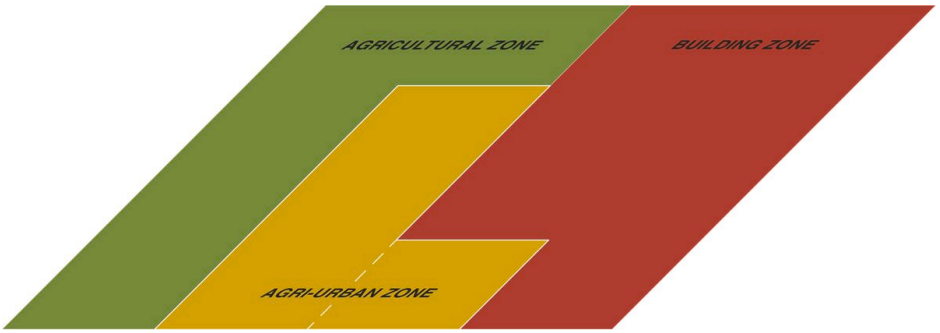
The Federal Act on Spatial Planning (*Raumplanungsgesetz*) was set in motion to stop urban sprawl and to protect the disappearance of agricultural land and natural landscapes. It strictly draws the line between building zones and agricultural zones, between urban and rural. What if instead of such a strict division of city and agriculture, a mesh of both is allowed? How would an agri-urban zone look like?

Through these two case studies, as well as the experience we gathered during the seminar week of the design studio, it becomes apparent that zoning designation has a great impact on how agriculture is practised. In many cases, they are the limiting or enabling factor for allowed functions and can encourage or discourage possibilities and potentials.

Despite being an integral part of local production and the spatial quality they possess, agriculture in the building zone is under high pressure due to the goal of inner densification and tax regulations, especially in the case of succession. On the other hand—especially in farms close to the city in the agricultural zone—there often is a good reason and the desire to convert old unused agricultural buildings into farm shops, event spaces or housing; which the law does not allow.

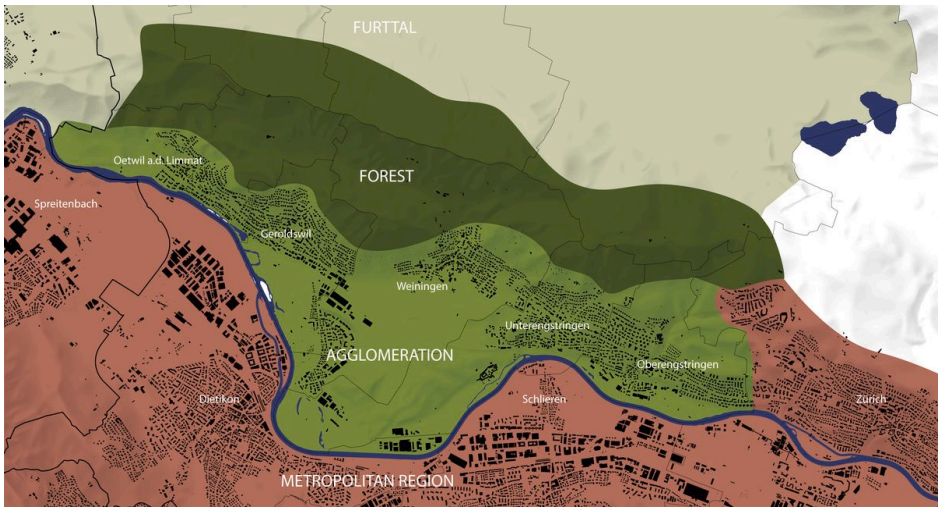
These problems are a consequence of the legal separation between agricultural areas and the Spatial Planning Act. Fahr Monastery in its special zone demonstrates the potential of allowing mixed use. As a local recreation area with a visitor-oriented and bio-diverse agriculture, farm shop and event room, it is met with great interest and creates regional qualities.

Based on these takeaways, we thus propose a new zone: the agri-urban zone. This zone allows the repurposing of agricultural buildings and affordable housing under the condition of increasing high quality biodiversity areas and agriculture close to the city.



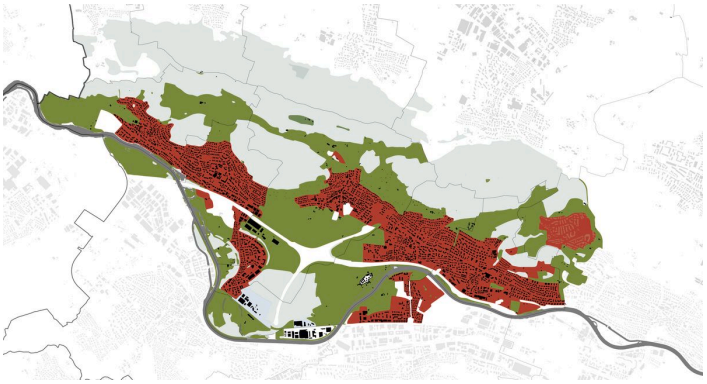
CONCEPT AGRI-URBAN ZONE

This Agri-Urban Zone demarcates itself from urban sprawl and speculation. The overall objective of this project is to increase biodiversity areas, promote biodiversity in the building zone and enable social meeting places, educational spaces and affordable housing to connect the urban population and agriculture. The project is located in the Limmattal.

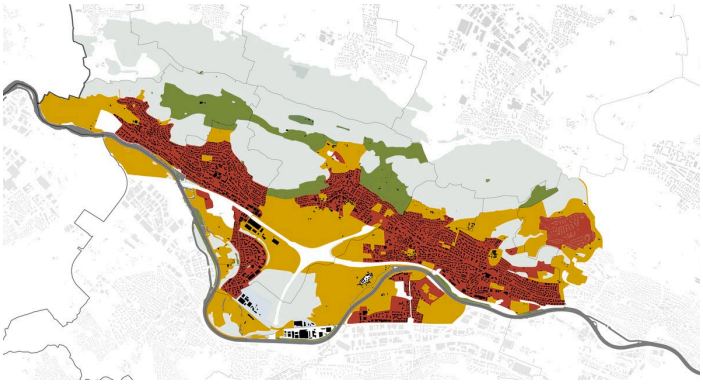


The Limmat Valley between Zurich and Würenlos is characterised by the spatial development of recent decades. Downstream of the Limmat on the left side of the valley, a dense and highly urbanised part of the Zurich metropolitan region has emerged from Schlieren via Dietikon to Spreitenbach. Infrastructure and mobility have been expanded and this side is growing more and more into a Limmat city. On the right side of the Limmat between Zurich Höngg and Würenlos lie several agglomeration towns surrounded by agriculture on the slopes. In contrast to Furthal behind, where intensive arable farming is practised, there is a diversification of agriculture here. Due to the proximity to the city and the geographical location, there are also several vegetable and fruit gardeners, horse boarders and vine growers. The project perimeter is this zone between the Limmat and the forest on the slope.

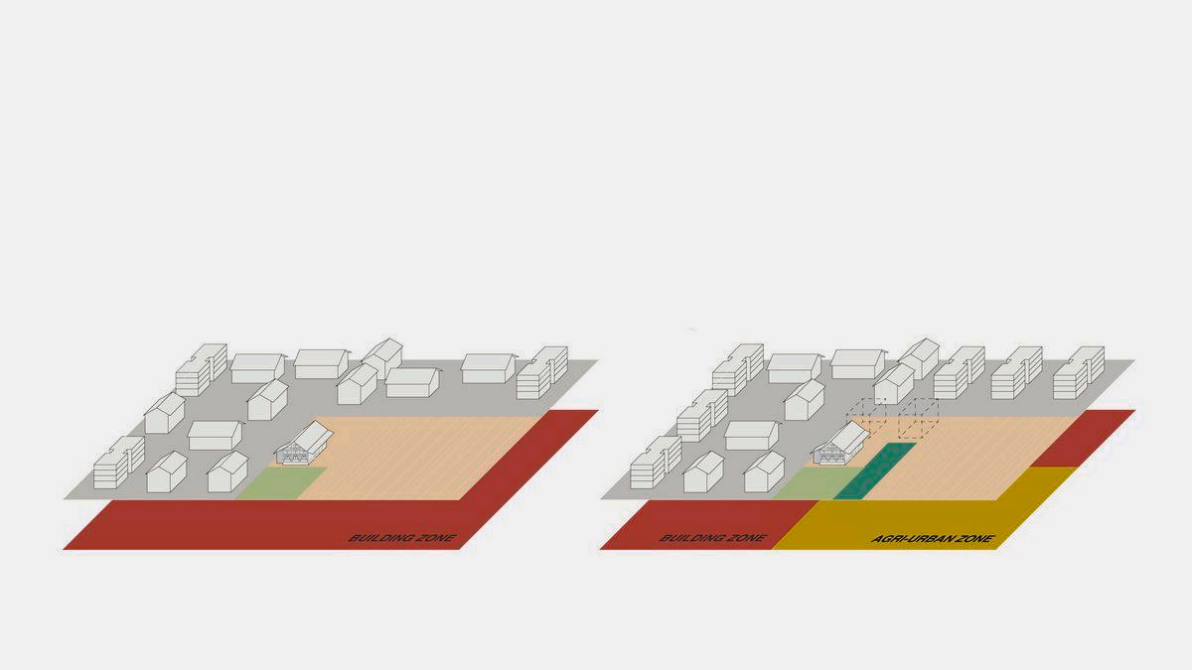
On this project perimeter, we propose to rezone almost all of the agricultural zone to the agri-urban zone, as they are bordering/immediately next to urban housing. Furthermore, the plots of land that are still being used for agricultural purposes and are currently designated as building zone shall be rezoned into the agri-urban zone as well.



OLD ZONING

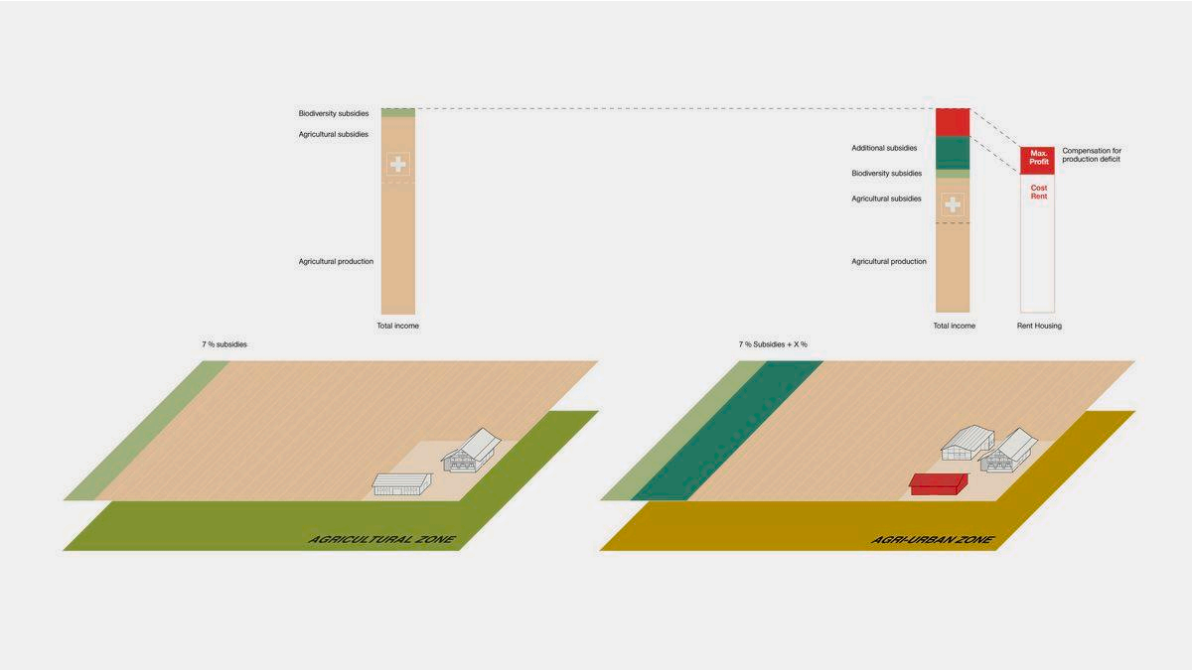


NEW ZONING



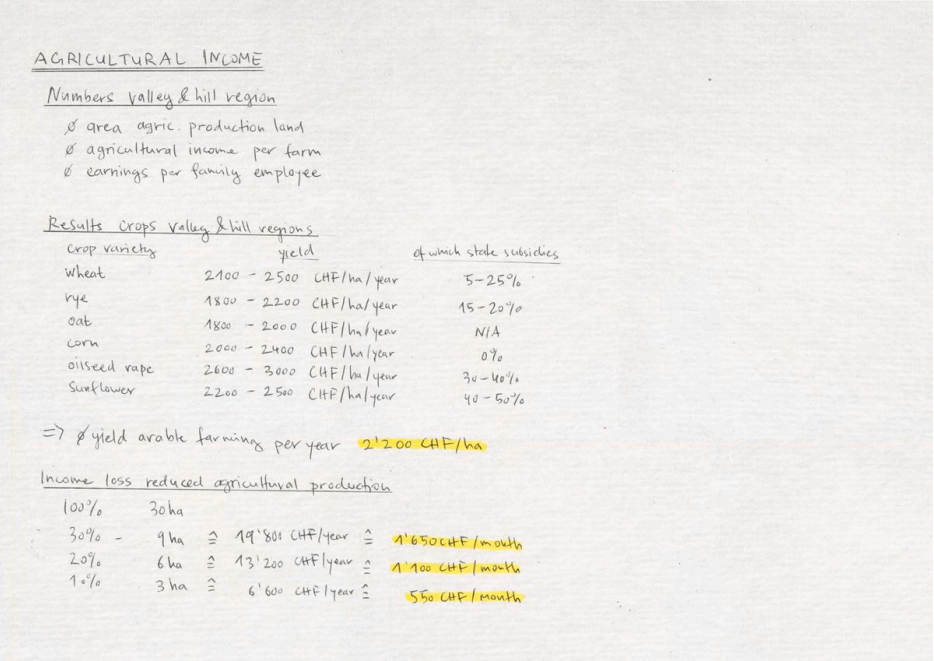
BUILDING ZONE TO AGRI-URBAN ZONE

On agriculturally used plots on the former building zones, you are required to retain a certain percentage of agricultural land and to turn some of it into biodiversity area. In return, buildings of higher density compared to before are allowed. The income made from agriculture will be taxed based on the agricultural zone taxation model instead of the building zone taxation model, which further reduces the pressure to convert agricultural land into housing.
The goal is to preserve agricultural land and increase biodiversity in an urban area and to dissolve the hard dividing line between settlement and agriculture. Instead of building on the whole area, the spatial quality of an open area within the settlement can be retained with higher density buildings.



AGRICULTURAL ZONE TO AGRI-URBAN ZONE

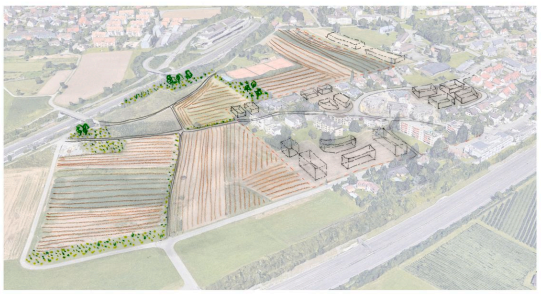
Once the conditions of increasing biodiversity area by a certain amount are met, the agri-urban zone allows the reuse and expansion of farm buildings for non-agricultural purposes. The buildings can be repurposed into social gathering places, educational venues, small crafts businesses and affordable housing, so long as they fit into the overall architectural picture. This is especially interesting and attractive for the many cases in which old barns and stables are empty, unused or underused, as either the farm shrunk or new more appropriate and modern facilities had to be built.



By converting productive agricultural land into biodiversity areas, there will be an income loss for the farmer. This will partly be compensated by the increased biodiversity subsidies from the state, while the remaining difference can be covered by the value generated from the new use.

If the agricultural buildings are repurposed into housing, the profit made by housing rent will compensate for the income loss. The additional rent on top of the cost rent—which is calculated on the cost of providing and maintaining the property without allowing for a profit—is capped at the maximum of the income loss and is distributed equally among the apartments. Since the additional amount is shared, the apartments will be affordable and remain below usual market price. These apartments will be of high quality and surrounded by a lot of green, and the residents will have a close relation to agriculture.

With there being less productive areas and more biodiversity while the income stays the same, the high workload of farmers can be reduced as well.



FUTURE NO ZONING CHANGE



FUTURE: NEW AGRI-URBAN ZONE



CURRENT SITUATION



FUTURE: NO ZONING CHANGE



FUTURE: NEW AGRI-URBAN ZONE

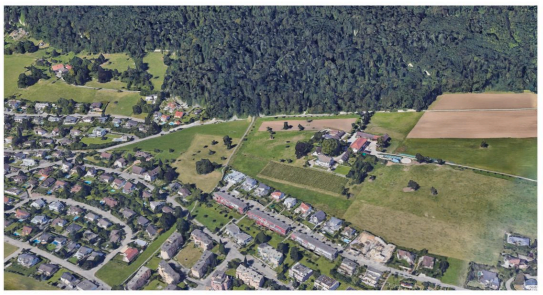


FUTURE: NO ZONING CHANGE



CURRENT

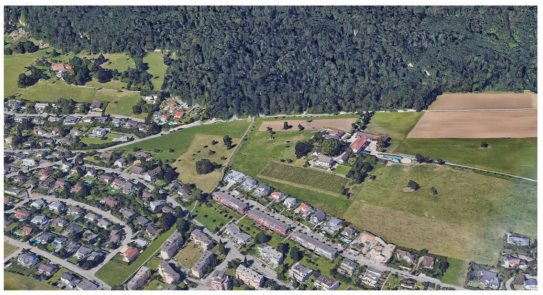




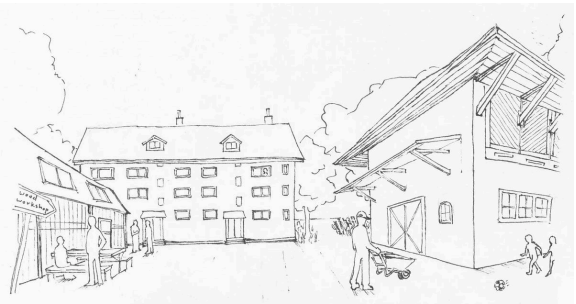
CURRENT



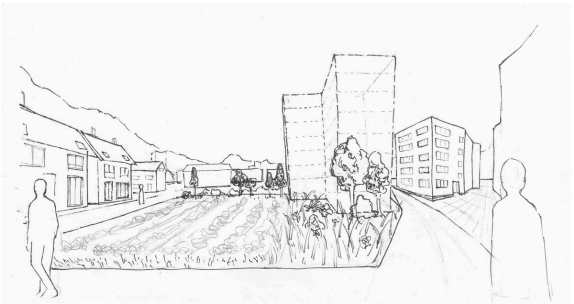
FUTURE: NEW AGRI-URBAN ZONE



CURRENT



VISUALIZATION REUSE AND AFFORDABLE HOUSING IN FORMER AGRICULTURAL ZONE



VISUALIZATION AGRICULTURE AND HOUSING IN FORMER BUILDING ZONE

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