

SMCE

Smart City Ebreichsdorf

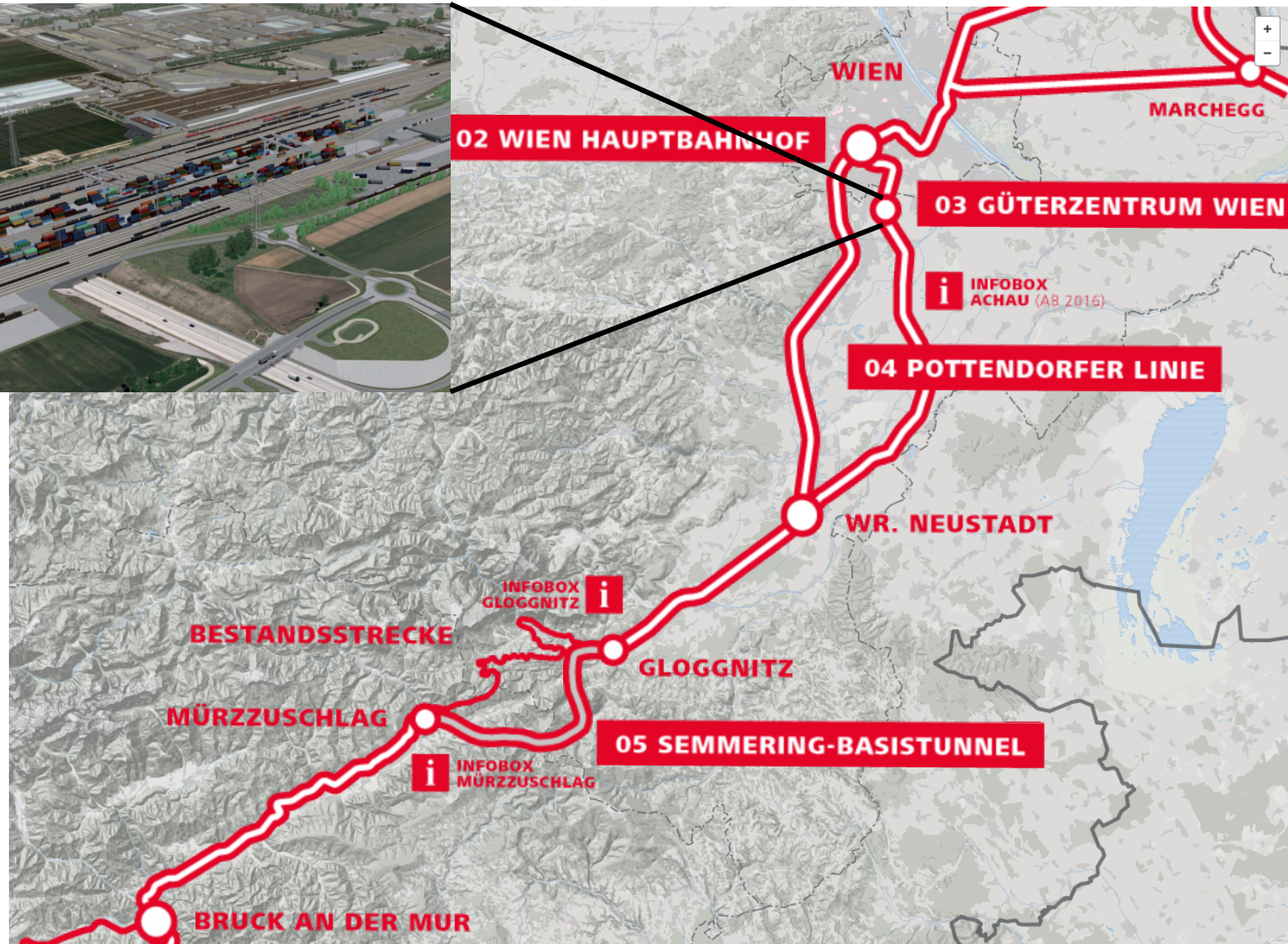




The new southern route „Südstrecke“

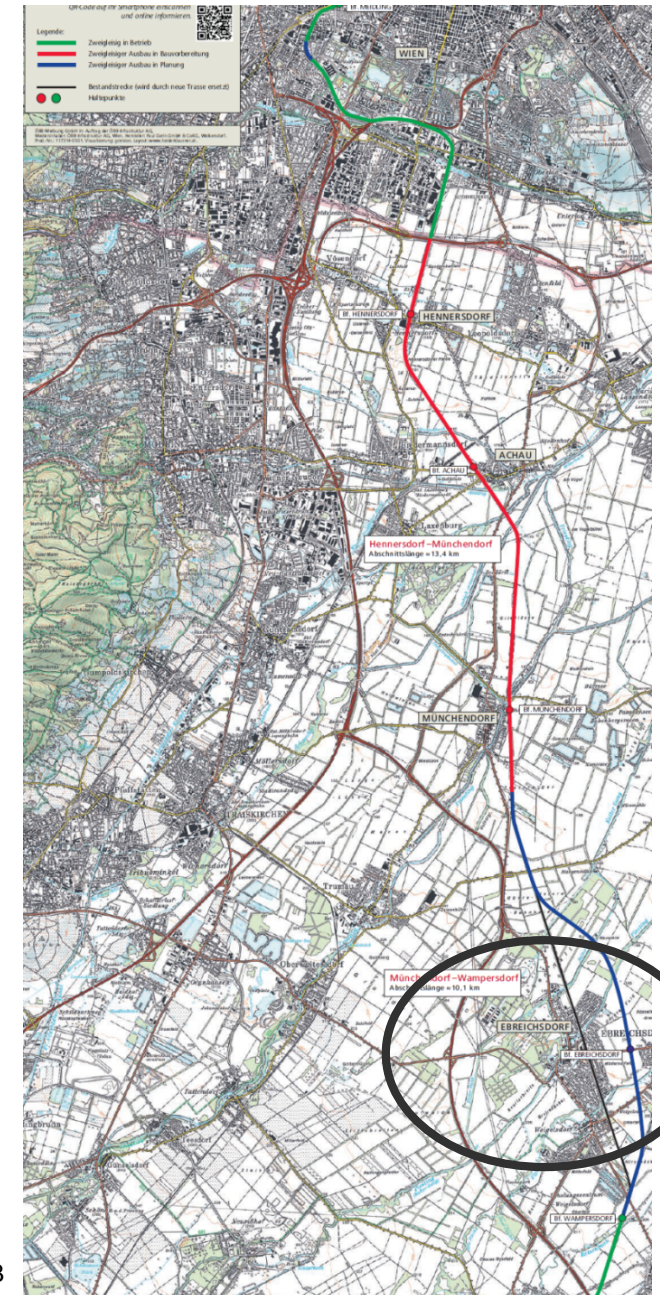


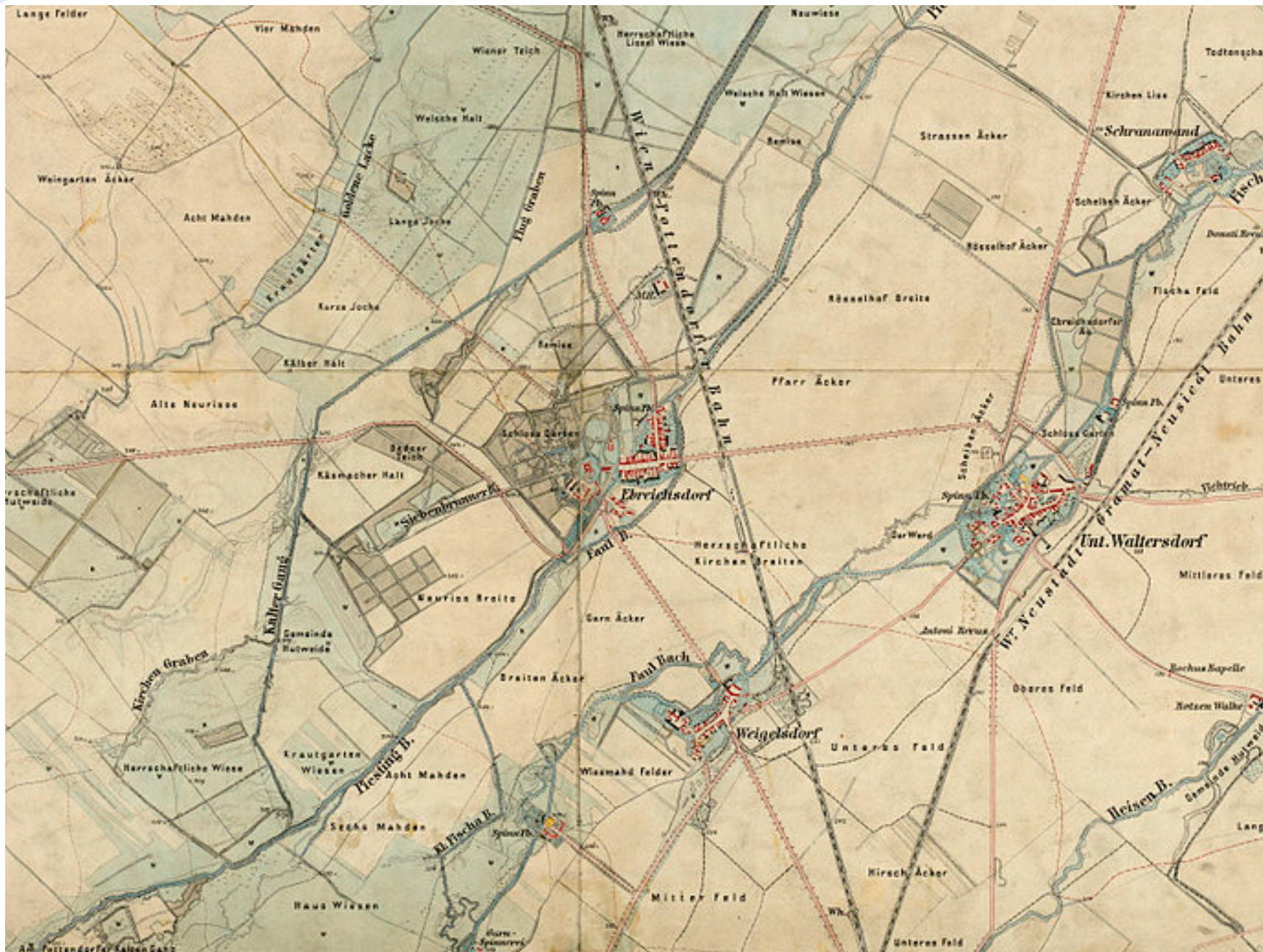
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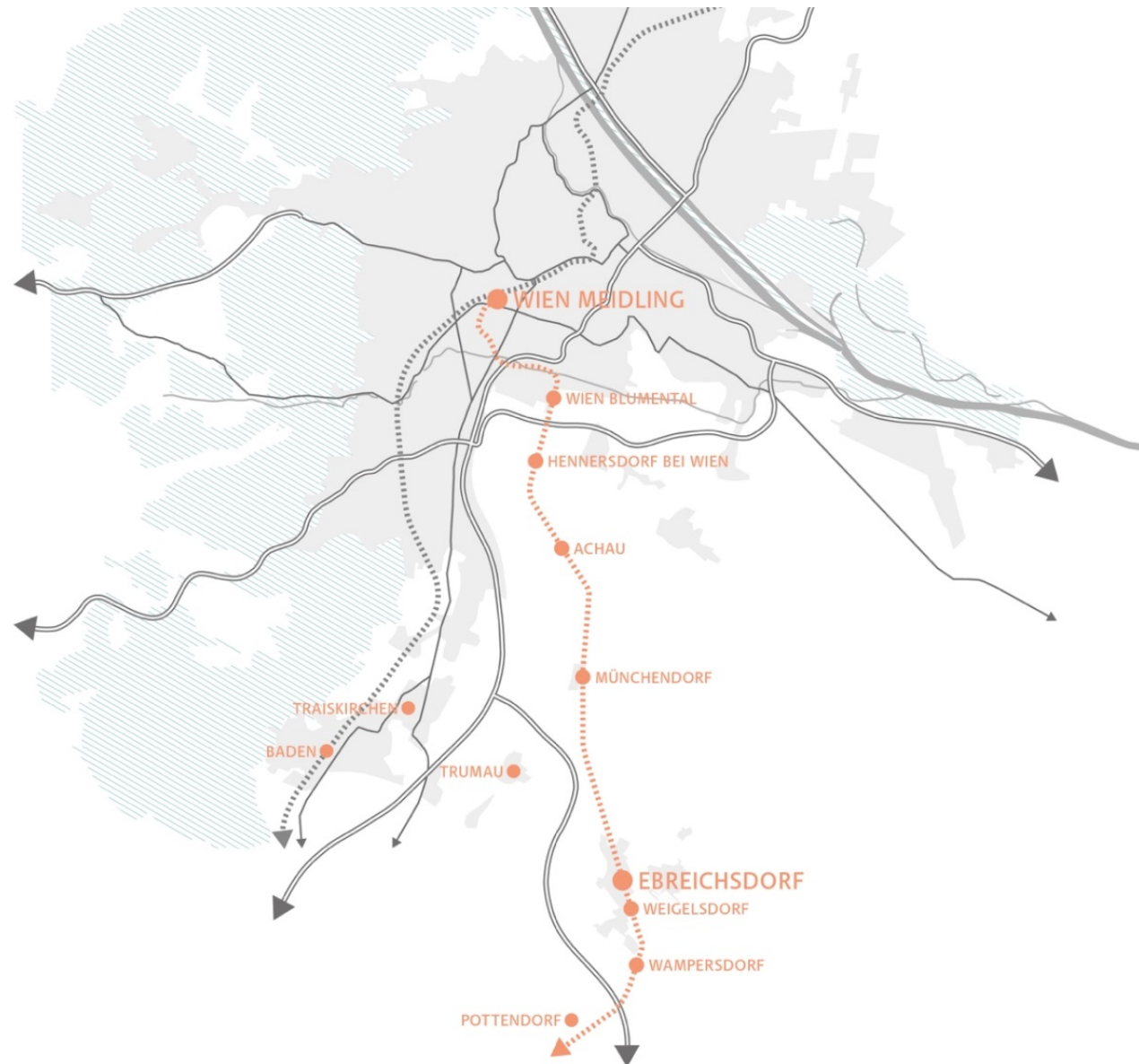
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„Pottendorfer Line“

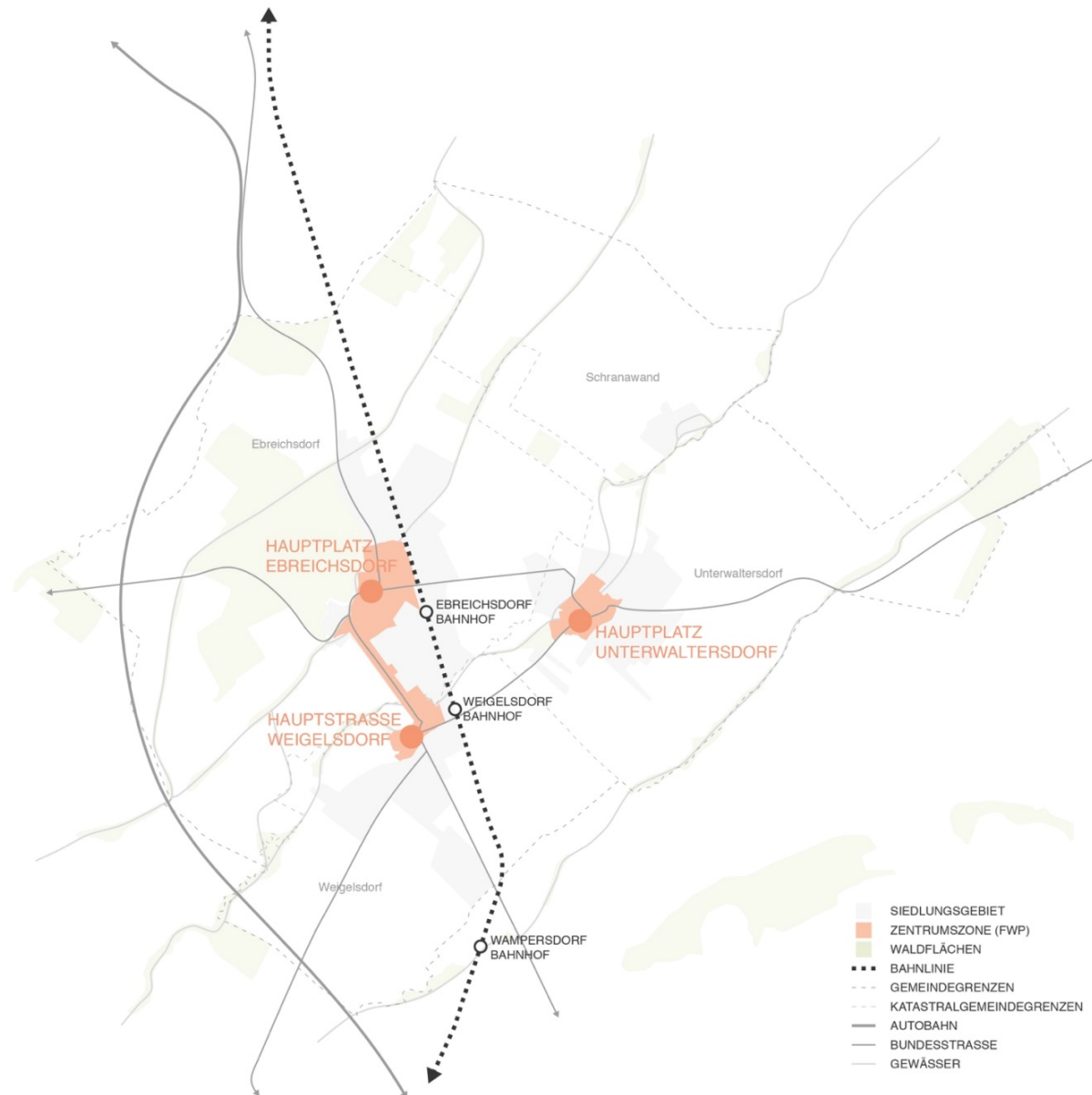




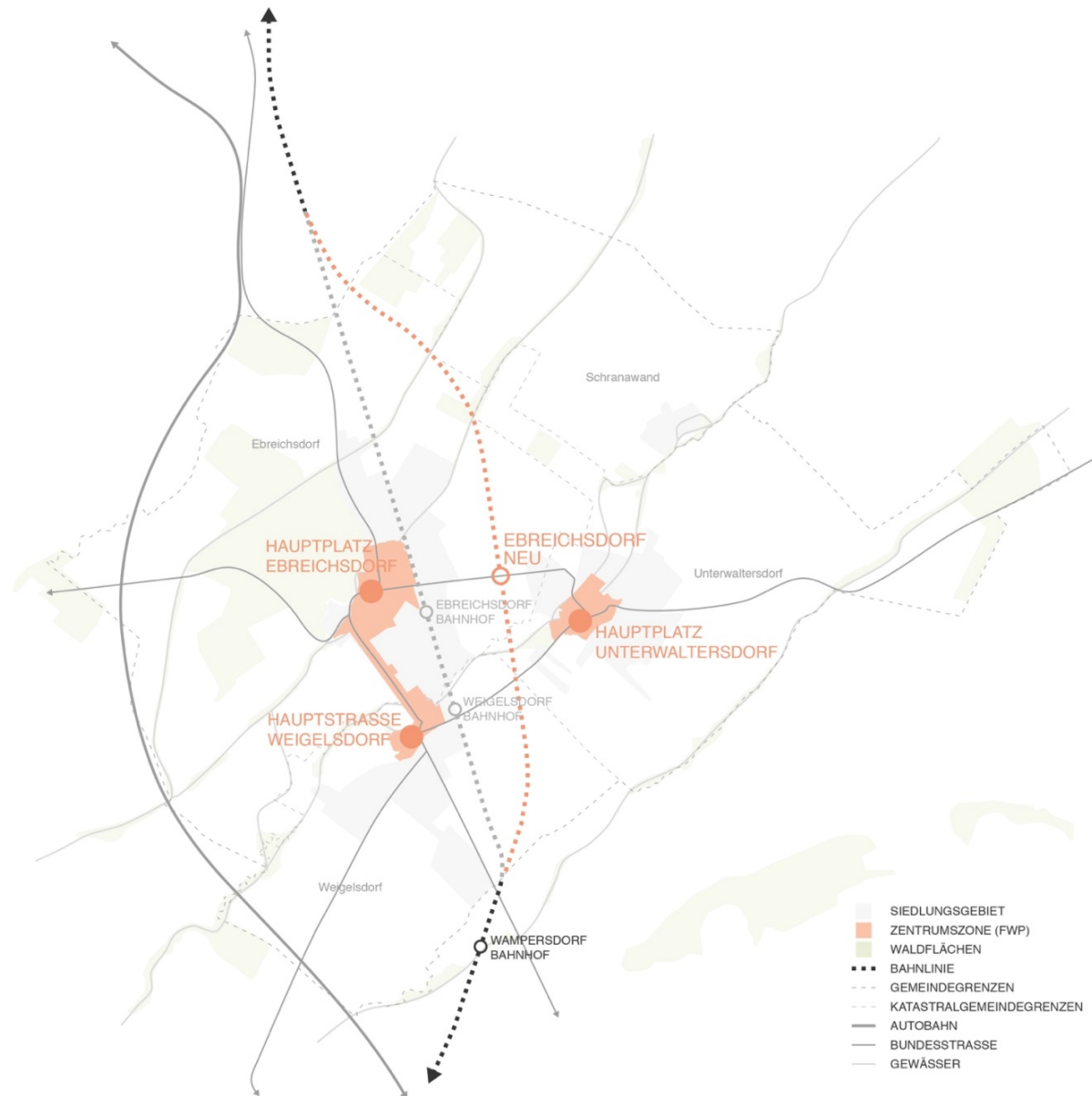
Regional Context



Regional Context



Regional Context



Ebreichsdorf

(Loweraustria; District Baden)

- inhabitants: 10.654 (2016)
- distance to Vienna: 30 km
- growing commune/region

With the expansion of the Pottendorfer Railway it takes about 25 min from Ebreichsdorf to Vienna



© ÖBB



Initial situation



Station and warehouse Ebreichsdorf, 2016, © sz



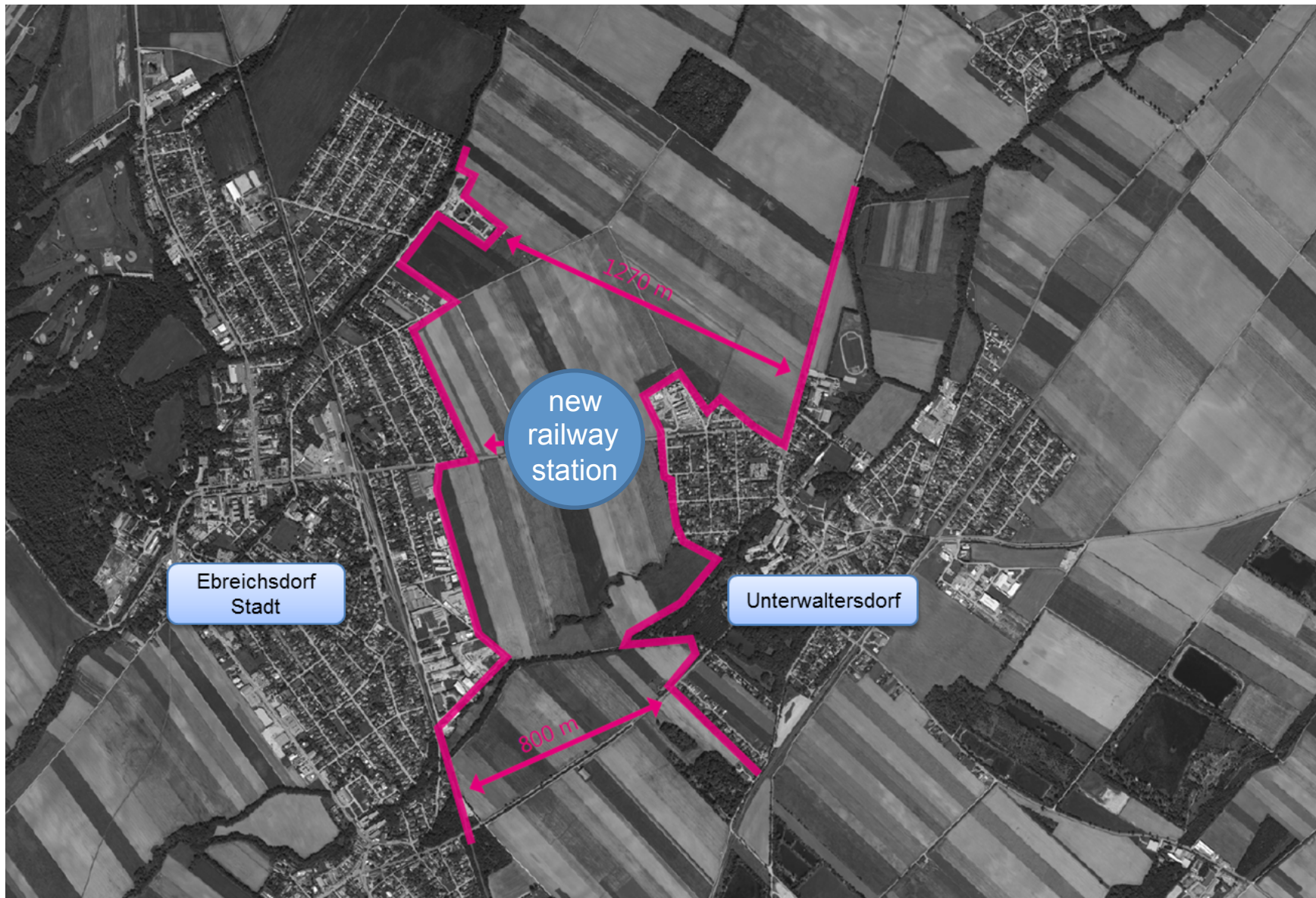
Sattion and existing route, 2016 © SZ



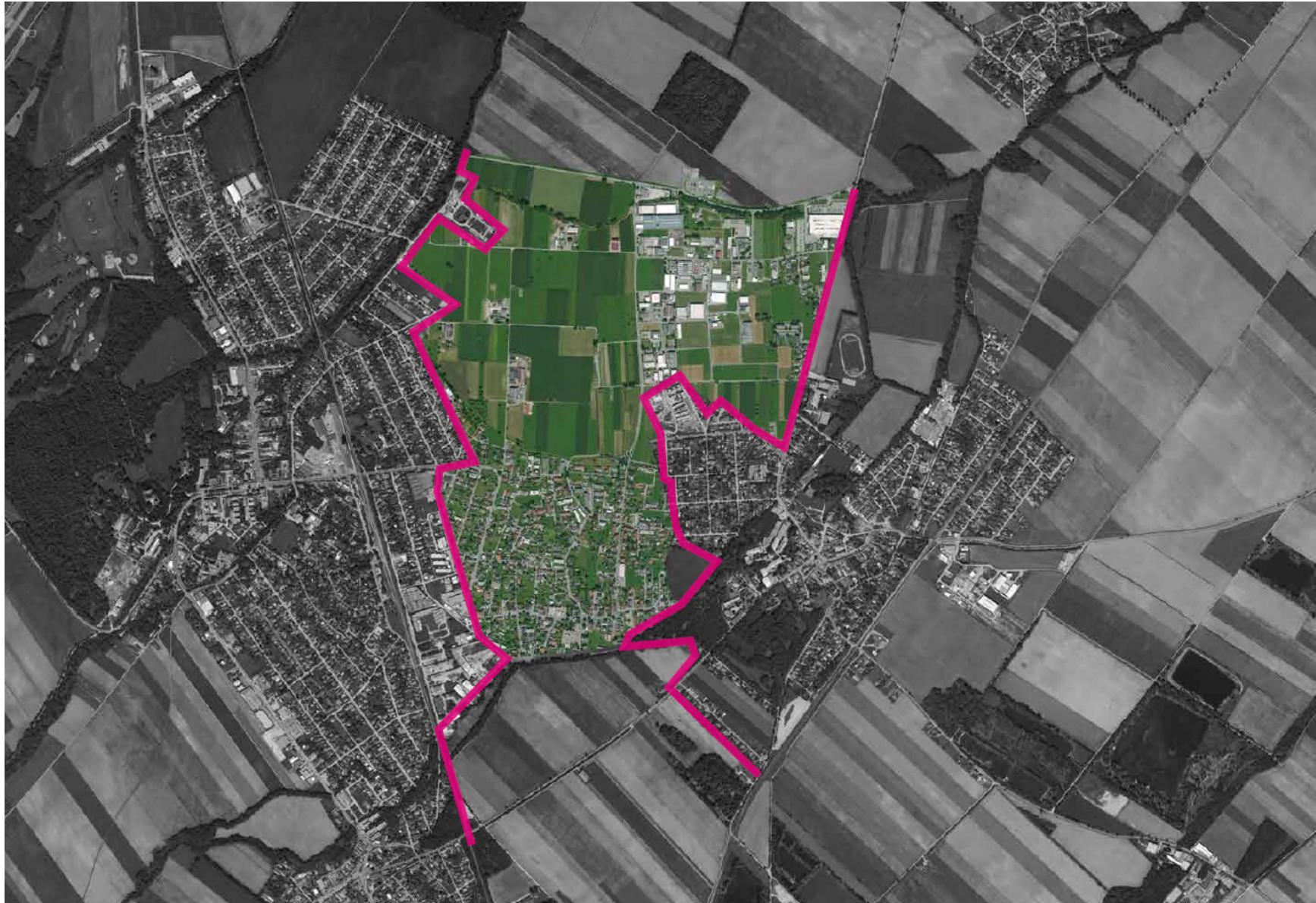
New railway station

Initial situation

Ebreichsdorf and Unterwaltersdorf – settlement boundaries



Vision: urban sprawl?



Vision: chaotic settlement structure

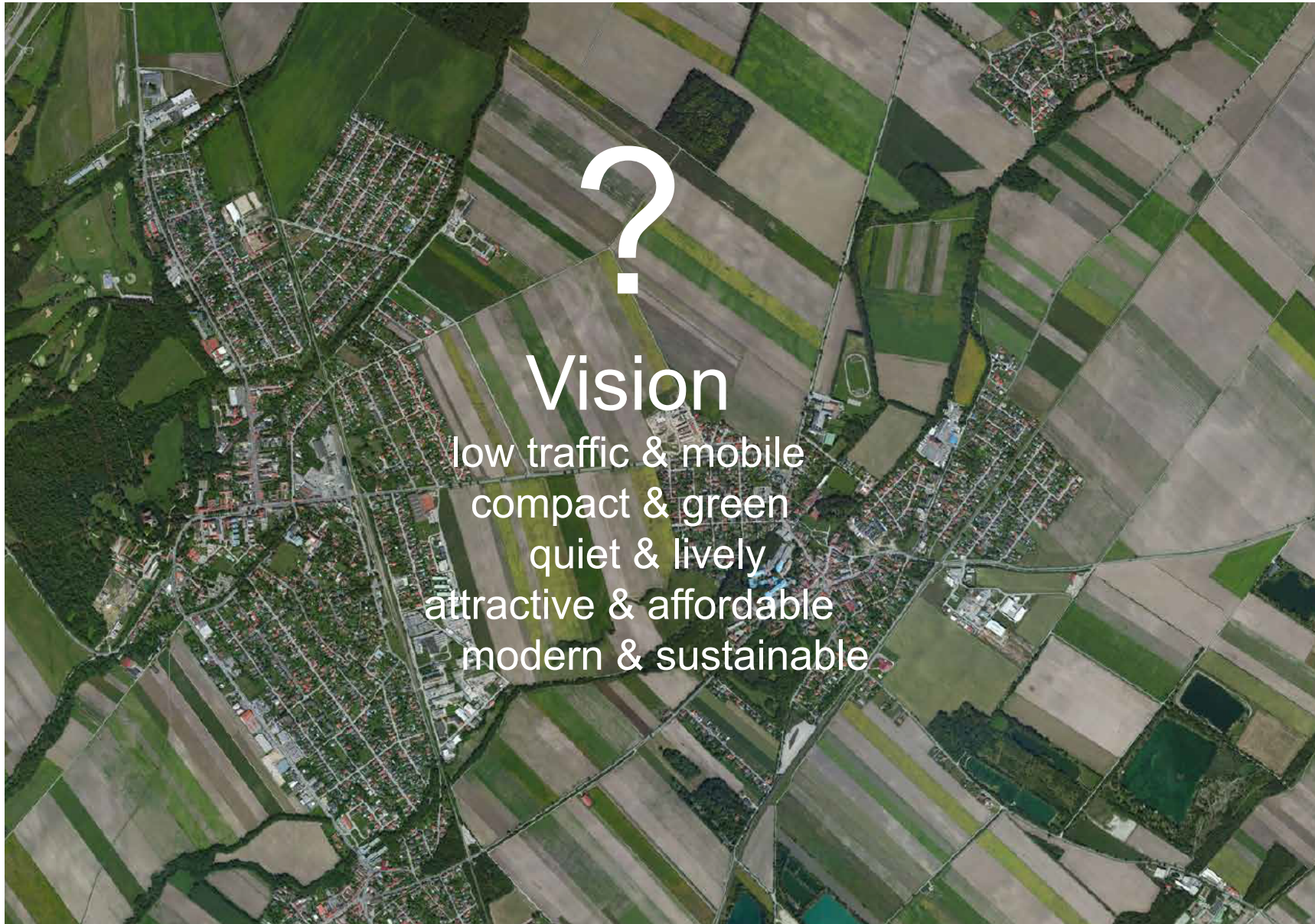


Initial situation

Comparison of size: Vienna Aspern - Seestadt



Vision



Vision

low traffic & mobile
compact & green
quiet & lively
attractive & affordable
modern & sustainable

Ebreichsdorf needs a vision for the future!

The main aim of the project is to initiate a process of awareness building and reflection.

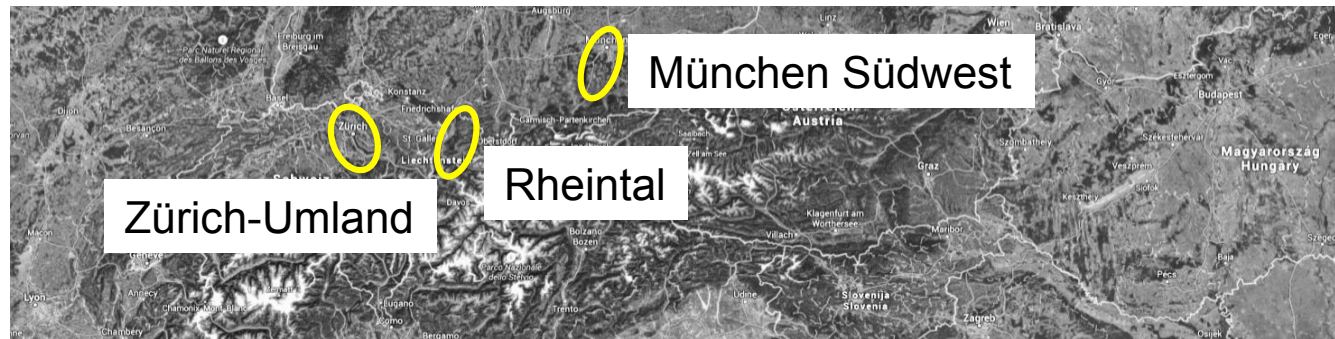
Hence the focus in the first step is not on concrete solutions, but on the examination of potential actions and planning processes.

vision & engineering

visioneering

„Smart City Ebreichsdorf“
smart urban region

Excursion, Stakeholder-talks on-site



- **Smart Cities Demo – 6. call**
 - exploratory study („Sondierungsprojekt) funded by the Austrian Research Promotion Agency (FFG)

- **Main aims**
 - preparation for subsequent implementations in the city district as a "test bed"
 - developing criteria for an innovative implementation
 - involving necessary actors at an early stage
 - confront and familiarize a wider public

- **Project term**
 - February 2016 until January 2017

“Smart City” is often used by municipalities as well as in politics

Many definitions, but there is **no shared definition of „Smart City“**

Aims of a Smart City:

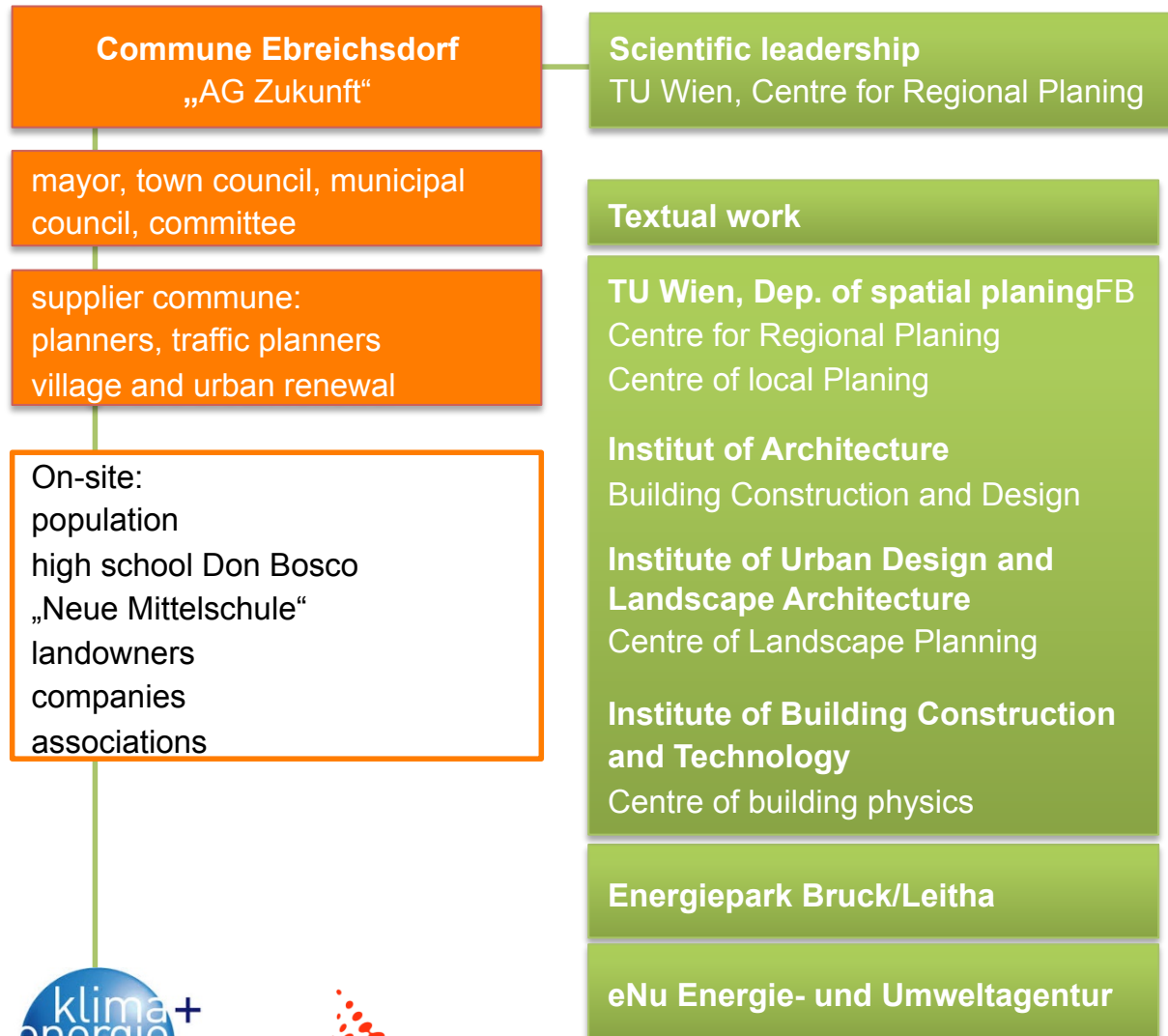
- create a sustainable environment and economy
- in order to ensure the quality of life
- improving city performance by using technology
- gain public and social value

Smart City is a combination of technological and socio-economic development!

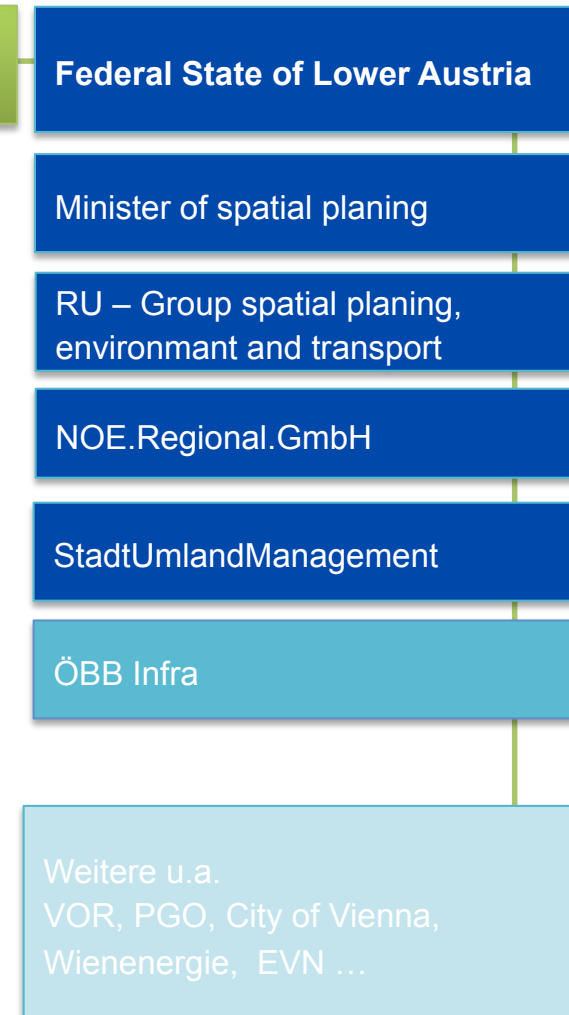
Exemplary characteristics of a Smart City:

- environmental protection / sustainable resource management (smart environment)
- e-governance, participation (smart governance)
- sustainable and innovative public mobility (smart mobility)
- local transportation, sustainable building (smart development)
- high quality of social infrastructure (smart living)
- flexibility, creativity, open-mindedness (smart people)
- Competitiveness (smart economy)
-

project team



cooperrattion partners



Set-up of the project

Three components of the exploratory study

- **Temporal- Processrhythm**

The new railroad as well as the new train station should provide in 2023 their full services. It is now the proper time to make the “imaginable” and the “possible” a subject of discussion and to start a dialogue in politics, administration, public and science.

- **Political / administrative positioning**

The federal state of Lower Austria, the regional stakeholders (such as Regionalmanagement Wien Umland Süd, NÖ Energie und Umweltagentur, Stadt- und Dorferneuerung) as well as the city of Ebreichsdorf are already integrated actively in this project. This early integration is prerequisite for a safe implementation of the science results in future time.

- **Interdisciplinarity**

The research team consists of scientists out of many different fields, such as regional planning, architecture, urban planning, landscape planning, mobility planning, social science and energy- and resources planning. This variety makes an interdisciplinary thinking and work possible and ensures an integrated complete solution.

Set-up of the project

From theory to praxis: work packages and issues

vision &
engineering
smart city

WP1 Smart City Future-Dialog

- _Planing and participation process:
city, region, land
- _Fundig system: housing, economy
mobility, energy
- _Land policy, land management
- _Identity and lifestyle: cultures,
fears (urban growth), youth

smart governance

WP2 Railway station of the future

- _multifunctional
- _urban area
- _Urbanity, social areas
- _Intermodality
- _structural ecology, open space

smart mobility

WP 3 Railway station district of the future

- _sustainable building
- _Inner development, subsequent use
- _Mixed use, settlement typologies
- _Public space
- _Local mobility / Greenspce

smart development

WP4 Energy town / region

- _Renewable energies
- _Energy efficient settlement
structures and infrastructures
- _Energie-conscious lifestyles,
creating awareness

smart energy

WP5 Public relations, dissemination, projectmanagement

smart city
Ebreichs-
dorf

Set-up of the project

WP 1: Smart City Future-Dialog

■ Goals

- New approaches to the development of a Smart City as the example of Ebreichsdorf
- Development of social innovation processes to bring the Smart City concept "to the people" to

■ Contents

- How do smart planning and participation processes towards a smart city look like?
- How can existing identities and lifestyles of the population be considered?
- How can "fears" of the population be eliminated and how to access local knowledge?
- How can the funding system in the area of housing, business, mobility, energy, etc. support the concept of Smart City?

■ Methodology

- Short survey on „quality profile of Ebreichsdorf“
- Possibility for visiting the warehouse tower „Lagerhausturm“
- Projects with young people to capture their images of their future living environment
- Six Think Tanks with stakeholders

Set-up of the project

WP 2: Railway station of the future

■ Goals

- Promotion of public transportation
- Development of a model station
- Compound of the neighboring communities and design proposals for the "gap"

■ Contents

- Identification of the roles and the requirement profile of a "station of the future"
- Concept for the design of a "model" -Bahnhofs
- Design of the spaces between the station and the villages

■ Methodology

- Incremental approach
- Holistic approach / iterative steps
- Integral planning

Set-up of the project

WP 3: Railway station district of the future

■ Goals

- Formulation of a neighborhood model
- Deduction of model-like and perspective oriented dimensions of action in the development of the station district Ebreichsdorf

■ Contents

- Development of the new station district in Ebreichsdorf
- Potential of the station for a smart spatial development

■ Methodology

- Szenario technology

Set-up of the project

WP 4: Energy town / region

■ Goals

- Exposition of the possibilities of a smart energy town / region, with reference of a district

■ Contents

- Preparation of guidelines of energy and resource consumption, construction and building technology as well as the cross-building energy exchange

■ Methodology

- Deduction of substantial energy demand indicators
- Analysis of comparable best practice projects
- Creation of a concept of the future settlement and development structure

Set-up of the project

WP 5: Public relations, dissemination, projectmanagement

■ Goals

- Project management, project execution and project control
- Publicity about the project progress
- Dissemination of project results

■ Contents

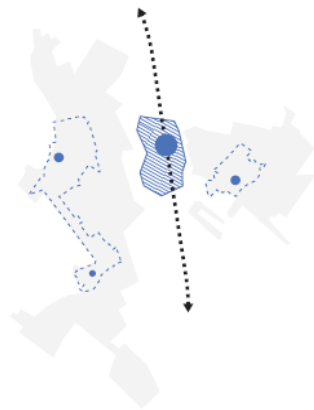
- Information and communication of stakeholders and project partners
- Ensuring the timely completion of the project
- Coordinating role towards the FFG
- Management of public relations

■ Methodology

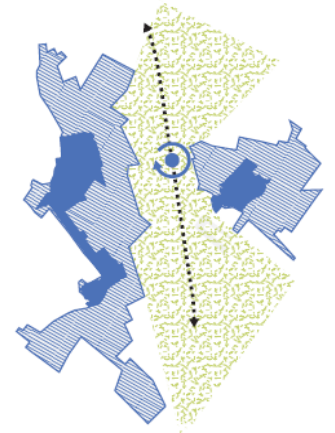
- Development and agreement of a working structure facilitates cooperation
- Verification of quality standards
- Schedule coordination, reporting, publishing activities

Four scenarios

for the „railway station district of the future“



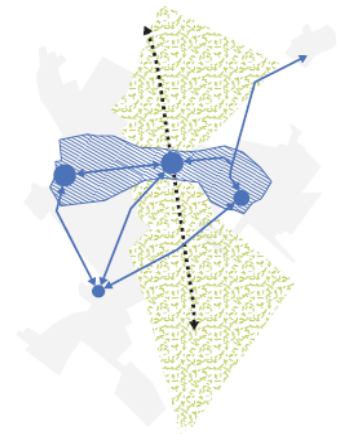
Scenario 1
„Station Ebreichsdorf NEW“



Scenario 2
„Extend the existence“



Scenario 3
„Sharp edges“

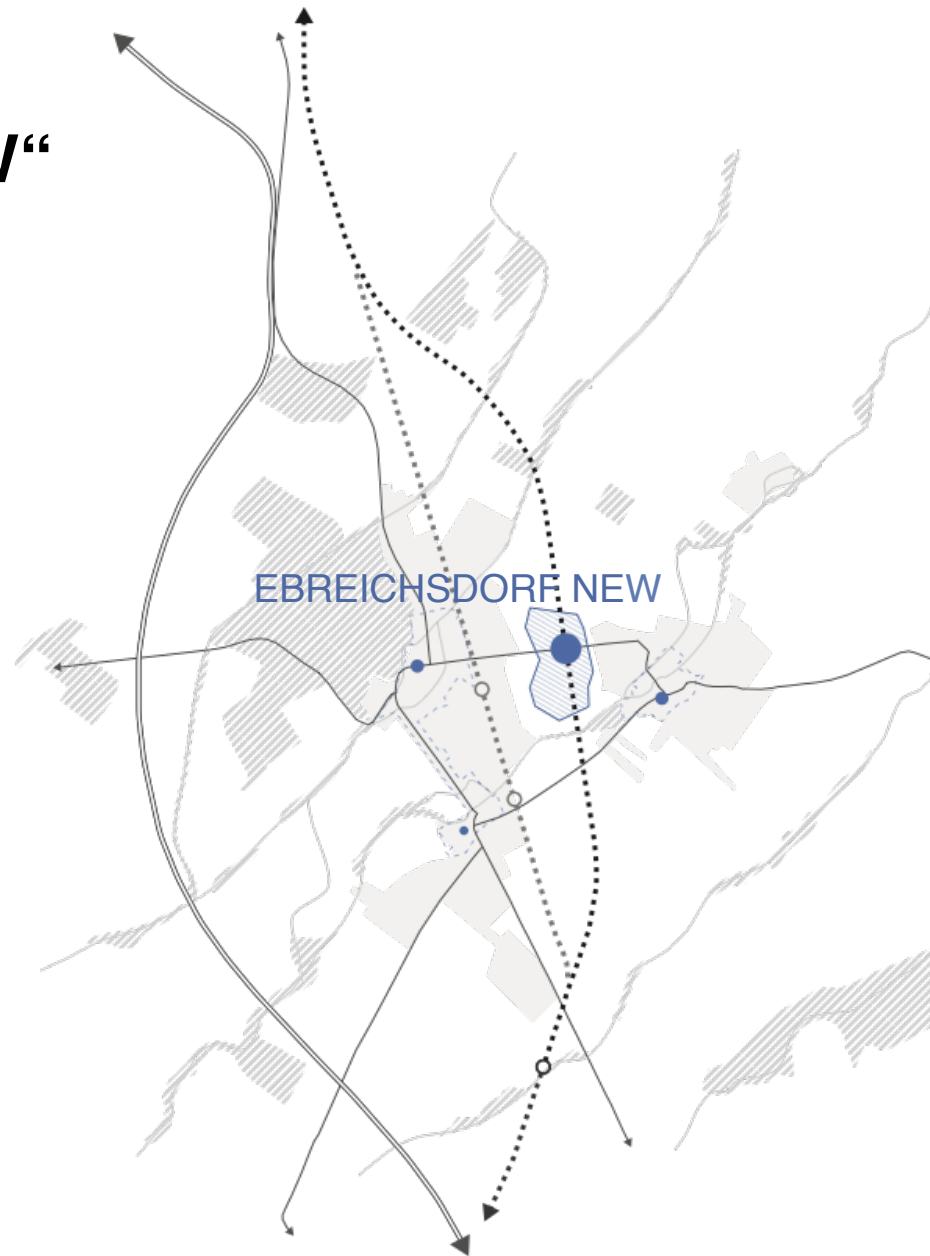


Scenario 4
„Building bridges“

Scenario 1 „Station Ebreichsdorf NEW“

Characteristics

- Development focus on the new station
- New quarters arises
- Hollowing of existing centers
- Old town centers will be replaced
- Vacancy rates in the existence
- no development on existing railway line

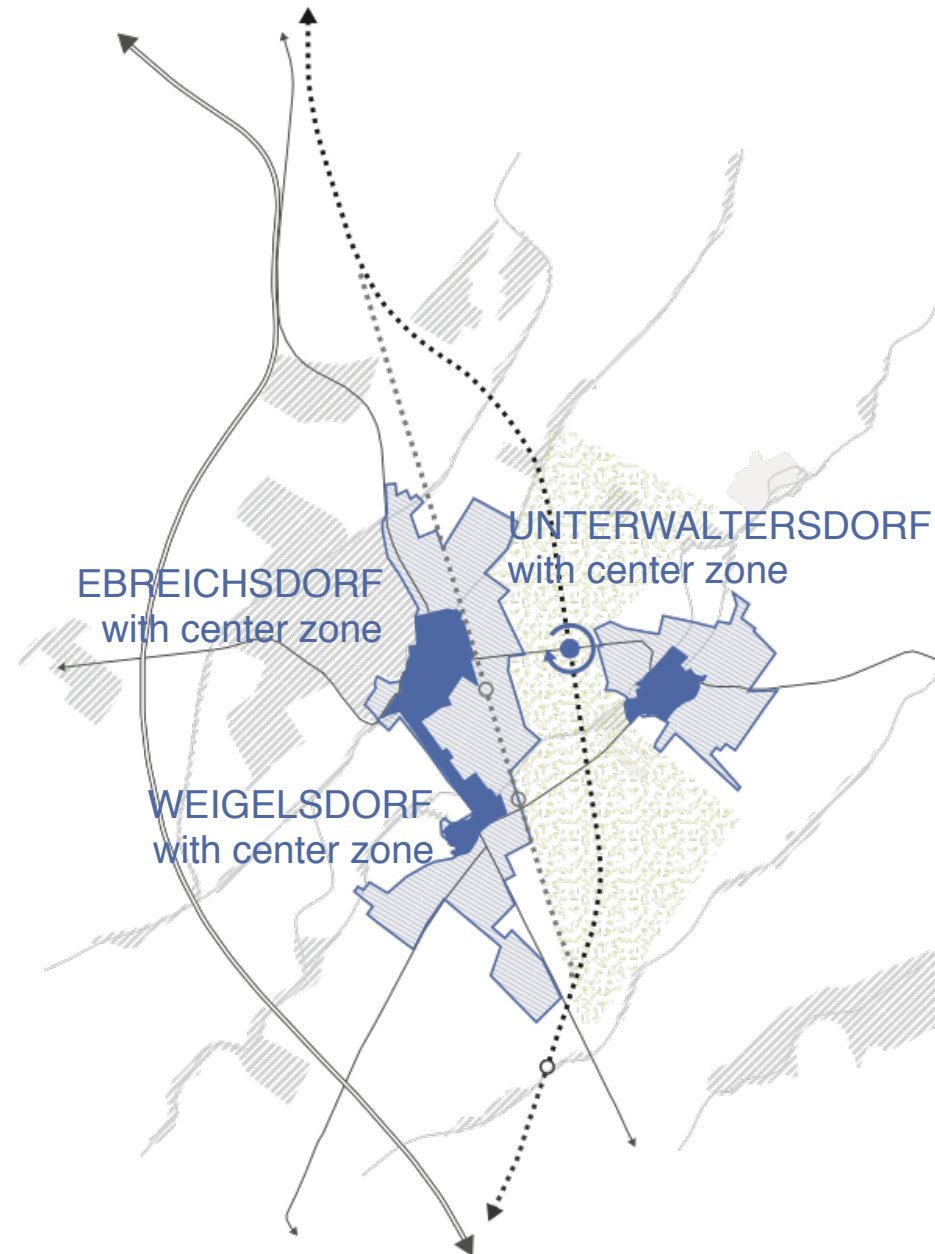


Scenario 2

„Extend the existence“

Characteristics

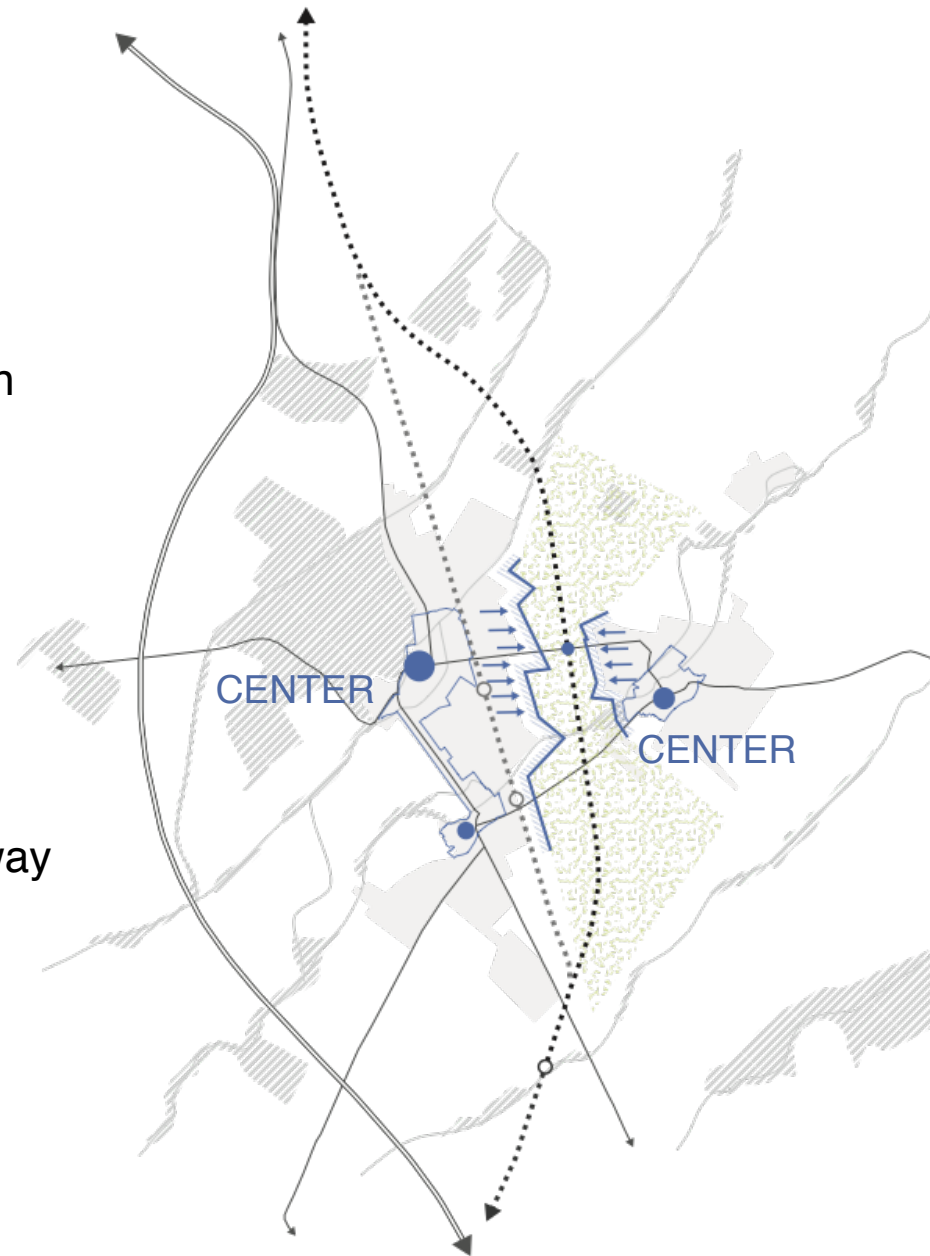
- No development around the station
- Space and landscape between Ebreichsdorf and Unterwaltersdorf
- Development in the existing structure
- Densification, use of the vacancy,...
- New development areas on the existing railway line



Scenario 3 „Sharp edges“

Characteristics

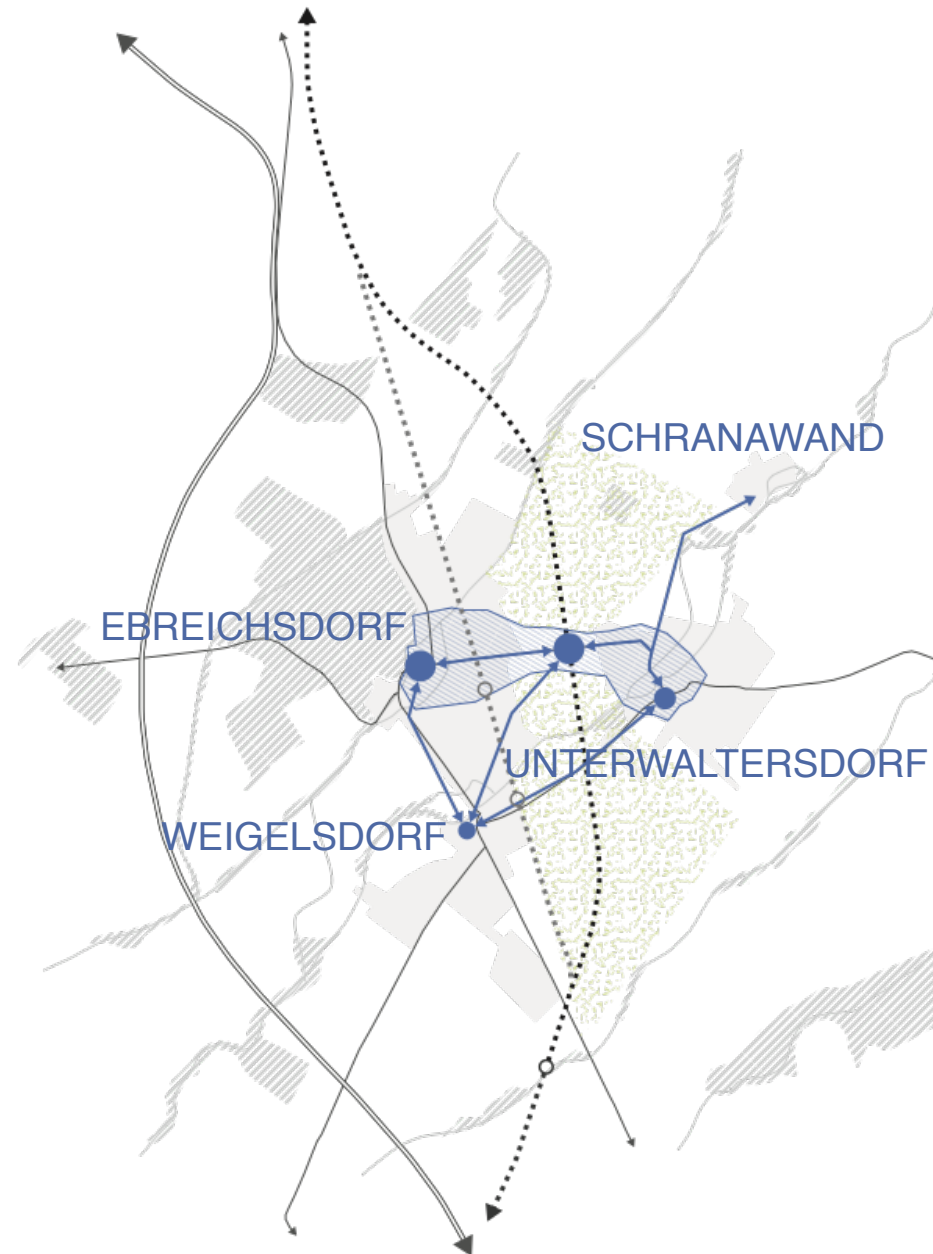
- Settlement expansion towards the station
- Municipal borders / edges are clearly visible
- Landscape / Space remains consistent
- Personal identification with the districts
- New areas available on the existing railway line



Scenario 4 „Building bridges“

Characteristics:

- The existing structures are strengthened by the new developments around the station
- New district is formed at the station
- Station will form the link between the districts - optimal networking of all four districts
- New development areas on the existing railway line



Achieved goals

“Future on sight”

- Information for the citizens in Ebreichsdorf about the project
- Information desk at community festivals in the four districts of Ebreichsdorf
- Dialogue with the research team as well as representatives of the working group Future
 - Basically great interest about the project
 - Uncertainty about the new station
 - Basic information about Smart City



Achieved goals

Future-Workshop

18.06.2016 | city hall Ebreichsdorf

- Workshop with citizens of Ebreichsdorf together with the whole project team
- 70 participants
- Ablauf
 - Welcome by Mayor Kocevar and presentation of the work packages
 - Discussion at four stands on the work package topics
 - Smart City Future-dialog
 - Railway station of the future
 - District of the future
 - Energytown / -region
 - Summary of the results of the discussion

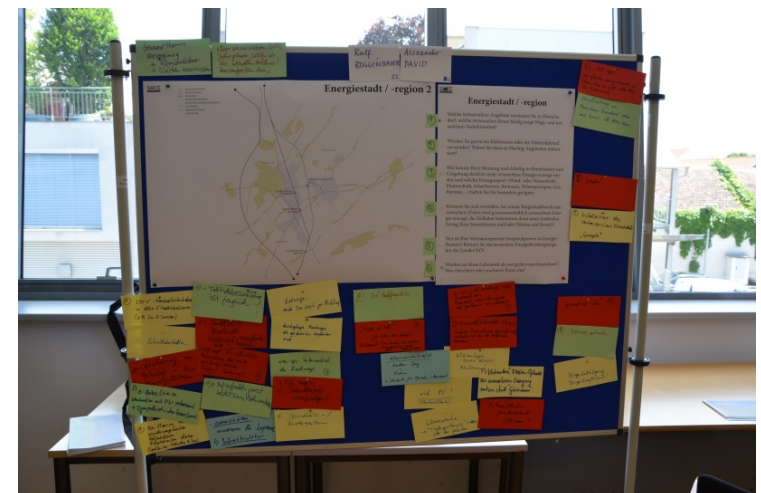
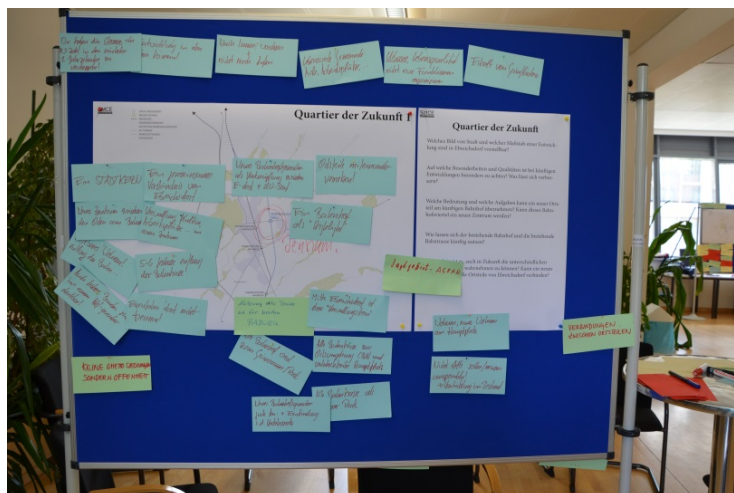
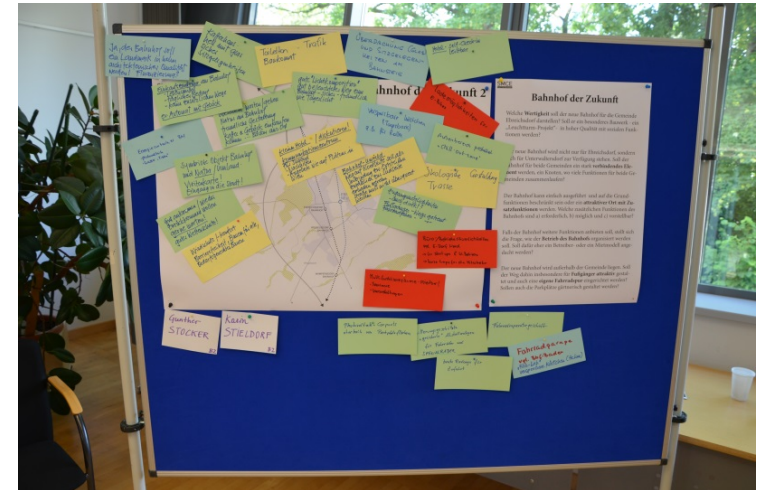
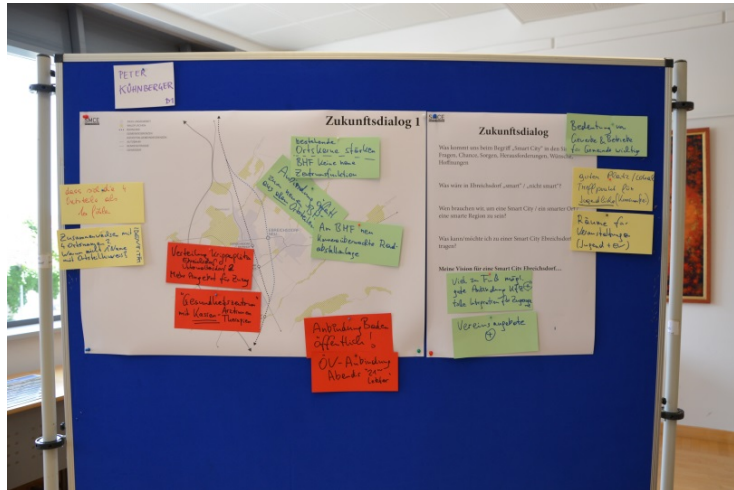
Future-Workshop

18.06.2016 | city hall Ebreichsdorf

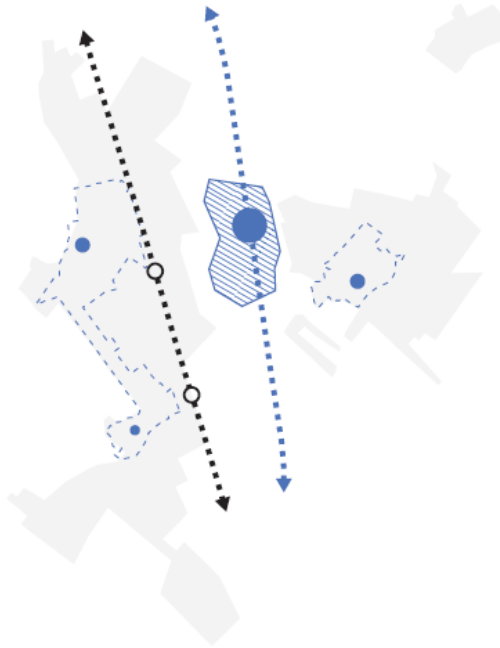


Future-Workshop

18.06.2016 | city hall Ebreichsdorf



Assumptions Scenario 1



Population development until 2030
+ 5.000 inhabitants

Population density
120 inhabitants/ha

Building density
1,3 FAR

Compactness of development
50 % space utilization

Available building land
0 % building land activation

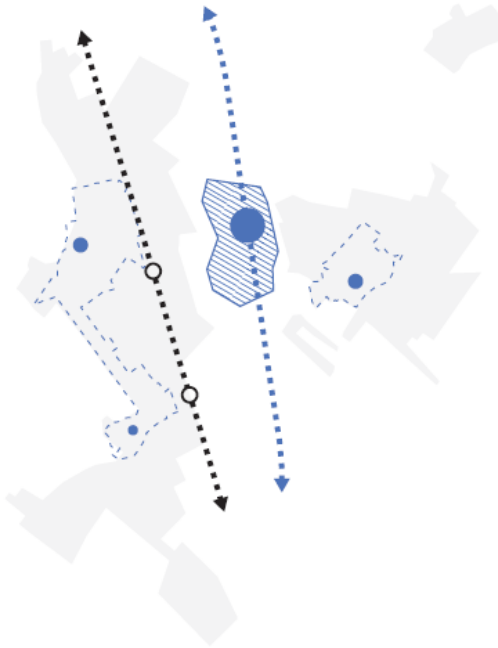
Percentage housing
75 %

Net building land
60 %

Settlement boundary
Release of settlement boundaries possible

spatial preferences
Development of a new district

Profile of requirements Scenario 1



Settlement development and land requirements

- Need for additional building land around the railway station
- Abolish existing and define new settlement boundaries
- Develop appropriate urban typology around the station (density)
- Ensure noise protection at the railway track

Priorities

- New district requires appropriate mix of use
- Pushing commercial use at the new location
- Building the necessary social infrastructure

Existing structures

- New usage of commercial space
- Re-use of vacancies
- no structural compaction – development at the new site

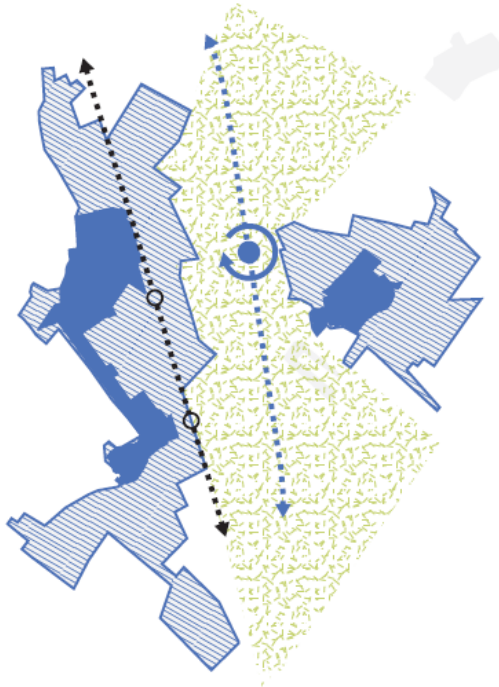
Mobility

- new compact district enables short distances – align incentives to new mobility forms

Open space

- Keeping the open space between the existing districts and the new railway station
- Ensure attractive cross-connections of the new railway line
- Use of the old railroad as a public space

Assumptions Scenario 2



Population development until 2030
+ 2.189 inhabitants

Population density
65 inhabitants/ha

Building density
0,4 FAR

Compactness of development
40 % space utilization

Available building land
75 % building land activation

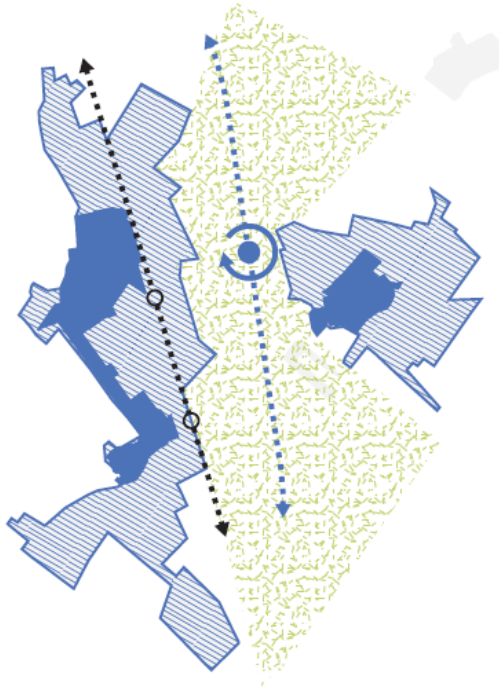
Percentage housing
90 %

Net building land
90 %

Settlement boundary
No release of settlement boundaries

spatial preferences
Growth only within the existing settlement area

Profile of requirements Scenario 2



Settlement development and land requirements

- No new building land - no structural development at the station
- Activate building land reserves
- Keep settlement boundaries

Priorities

- High residential proportion in compacted areas
- Sharing the existing infrastructure
- Existing centers will stabilize in their supply function

Existing structures

- Adequate re-compacting in existing districts
- Conversion and reconstruction of vacancies
- Conversion of the old railway line as a central open space area

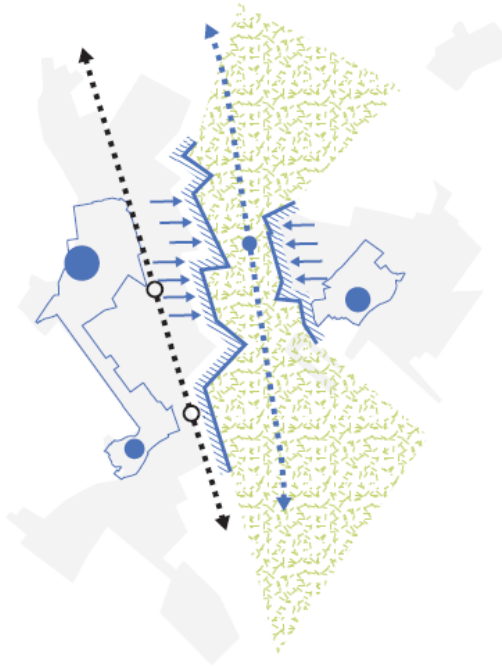
Mobility

- Developing the station into a mobility hub with attractive linking of all mobility offers

Open space

- Keeping agricultural land between Ebreichsdorf and Unterwaltersdorf
- Good connection of the station to the four districts
- Use of the old railroad as a public space

Assumptions Scenario 3



Population development until 2030
+ 2.500 inhabitants

Population density
80 inhabitants/ha

Building density
0,6 FAR

Compactness of development
40 % space utilization

Available building land
0% - 50 % building land activation

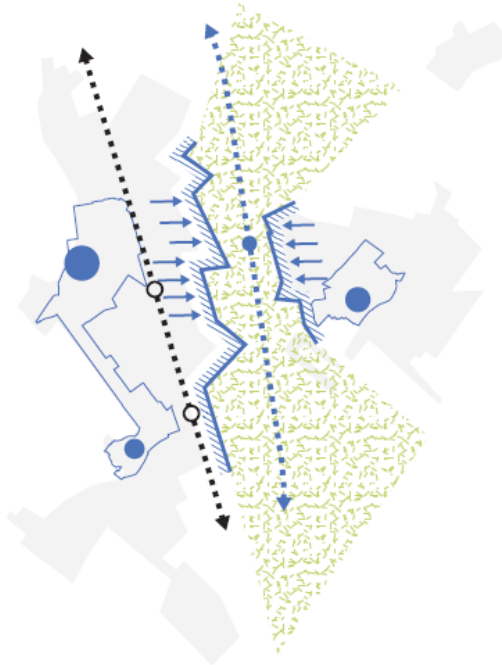
Percentage housing
85 %

Net building land
80 %

Settlement boundary
No aspired release of settlement boundaries

spatial preferences
Growth within the existing settlement area and towards the new station

Profile of requirements Scenario 3



Settlement development and land requirements

- Activate building land reserves
- Exploiting the area potential in the direction of new station
- Develop appropriate compaction / typologies (compacted edge)
- Abolish specific settlement boundaries

Priorities

- High residential share in the extended settlement area
- existing centers will stabilize in their supply function

Existing structures

- adequate re-compacting in existing districts
- Conversion and reconstruction of vacancies
- Conversion of the old railway line as a central open space area

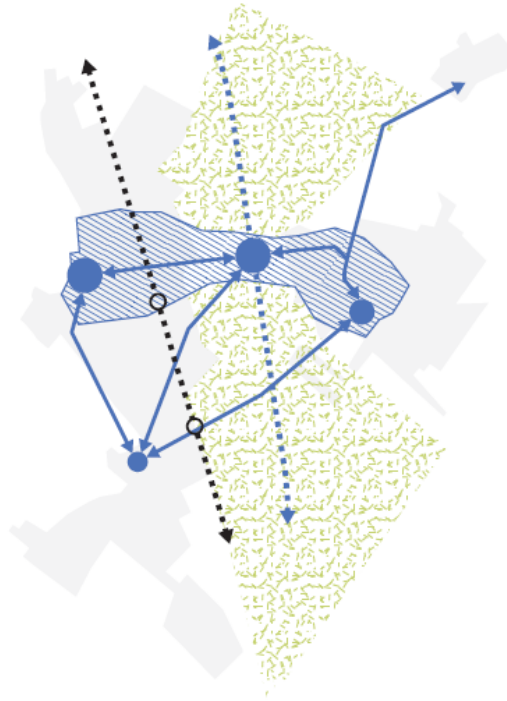
Mobility

- Developing the station into a mobility hub with attractive linking of all mobility offers

Open space

- Keeping agricultural land between Ebreichsdorf and Unterwaltersdorf
- Good connection of the station to the four districts
- Use of the old railroad as a public space

Assumptions Scenario 4



Population development until 2030
+ 3.000 inhabitants

Population density
95 inhabitants/ha

Building density
0,8 FAR

Compactness of development
50 % space utilization

Available building land
0 % - 25 % building land activation

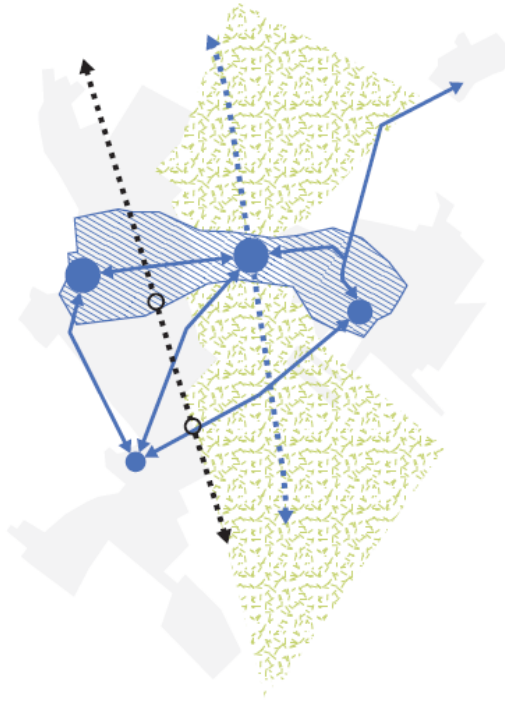
Percentage housing
75 %

Net building land
70 %

Settlement boundary
Release of settlement boundaries possible

spatial preferences
Merging of districts

Profile of requirements Scenario 4



Settlement development and land requirements

- Mobilization of building land reserves in the area of the centers
- Exploiting the area potential in the direction of new station
- Settlement development along the east-west corridor Ebreichsdorf – new station- Unterwaltersdorf
- Abolish settlement boundaries
- Develop appropriate compaction / typologies (compacted tape)
- Ensure noise protection at the railway track

Priorities

- New district requires appropriate mix of use
- Building the necessary social infrastructure
- Existing centers will stabilize in their supply function

Existing structures

- Adequate re-compacting in existing districts
- Conversion and reconstruction of vacancies
- Conversion of the old railway line as a central open space area

Mobility

- new compact district enables short distances – align incentives to new mobility forms
- Developing the station into a mobility hub

Open space

- Attractive connection of the station to the four districts
- Ensure attractive cross-connections of the new railway line
- Use of the old railroad as a public space

Profile of requirements

Railway Station of the future

- Landmark with good connections to the four districts
- The building itself should have a high architectural and ecological quality
- Train station as an infrastructural facility with regard to the surrounding countryside and nature
- Traffic connections to the districts
- Coverage of the standard requirements of a station in combination with usage openness
- Comfort, quality of stay, security, accessibility
- Aging and longevity of the building
- Separated and attractive ways for car, bike and pedestrian
- Connection of indoor, outdoor and transition areas
- Functional organization of the park and storage facilities
- For the feeling of safety, good illumination is important
- The interior is designed according to the latest standards as well as attractive and comfortable

Profile of requirements

Free space and landscape planing

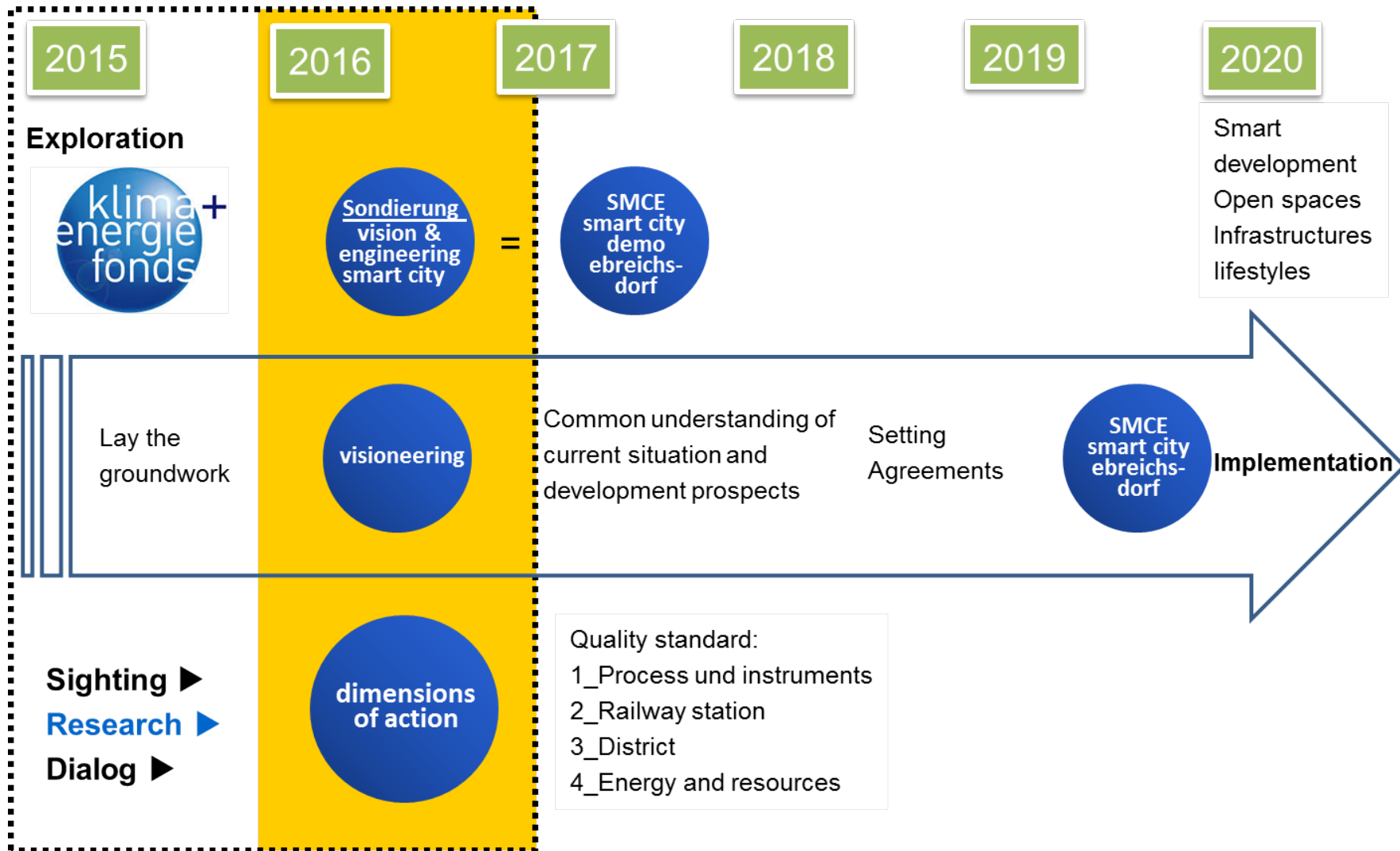
- Permeability in the sense of a "neighborhood of short distances", in particular walking and cycling paths
- The compensation areas through the construction of the train path and station should not only meet ecological criteria
- Securing of open space and green space in the run-up of a district development, as the basis for the community-wide network of open spaces and green spaces
- Consideration of trees as an equipment element
- Lowest possible degree of sealing
- Consideration of the SMART-City concept in district development
 - Area-saving development of new settlements
 - Sparing use of the resources
 - Promotion of facade and roof greening
 - Developing parks, neighborhood gardens, harvest gardens ...

Profile of requirements

Energy (efficiency) and noise

- Street lighting only on LED basis
- All expansion areas should be built in zero-energy-standard
- Promotion of energy-efficiency measures
- Integration of existing heat sources from industry, trade and sewage treatment plants
- Renovate all public buildings and provide them with sustainable forms of energy (exemplary function)
- Use of the railway dam and station for the installation of PV modules.
- Public transport based on renewable energy sources
- Construction of a regional cycling route network
- Promotion of alternative mobility (e.g., micro public transport system)

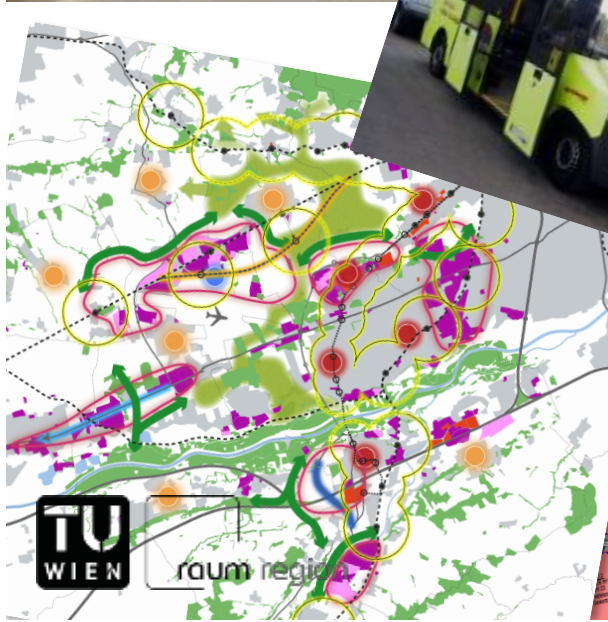
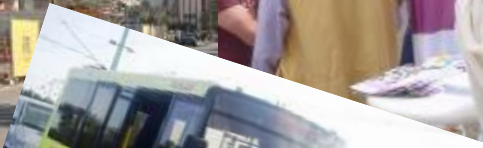
Development process Smart City Ebreichsdorf SMCE



Smart City Ebreichsdorf

Visioneering

A lively research process



raum region

Associate Prof. Dipl.Ing. Dr. Thomas Dillinger

Head of the center for Regional Planing and Regional Development

thomas.dillinger@tuwien.ac.at



Technische
Universität Wien
Department für Raumplanung
Vienna University of Technology
Department of Spatial Planning

Vienna University of Technology

Department of Spatial Planing

Center for Regional Planing and Regional Development (E280/7)

Office: Augasse 2-6 / | 1090 Vienna

Post office: Operngasse 11 / 5.Stock | 1040 Vienna