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## **UrbanSCOPE**

### **Urban Sustainable Mobility in Focus: Student Education, Community Involvement and Participative Planning**

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**Urban Sustainable Mobility in focus: student education, community  
involvement and participative planning**

**Alternative SUMP Scenarios and Action Plan  
IO2 Report  
*Darmstadt, Germany***

**Final Report – September, 2022**

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## **PART 1 - Necessity of Sustainable Urban Mobility Planning**

### **1.1 Why do we need SUMP?**

A Sustainable Urban Mobility Plan -SUMP- is a strategic plan designed to satisfy the mobility needs of people and businesses in cities and their surroundings for a better quality of life. It builds on existing planning practices and takes due consideration of integration, participation and evaluation principles (Rupprecht Consult, 2019).

Since 2005, a Sustainable Urban Mobility Plan – concepts and guidelines - for Europe has been systematically developed by Europe's decision makers. The SUMP documents were published by the European Commission in Brussels on the 17.12.2013. The guidelines were revised in a second version and published in 2019, which is referred to in this document.

SUMP is a strategic and integrated approach to effectively deal with the complexity of urban transport. Its core objective is to improve the quality of life and accessibility for all, by shifting the balance of the current transport situation towards sustainable mobility. SUMP advocates evidence-based decision-making guided by a long-term vision for sustainable mobility. As key components, this requires a thorough assessment of the current situation and future trends, a broad-based shared vision with strategic goals and an integrated package of regulatory, promotional,

financial, technical and infrastructural measures to achieve the objectives - whose implementation should be accompanied by systematic monitoring and evaluation.

In contrast to traditional planning approaches, SUMP places special emphasis on the involvement of citizens and stakeholders, the coordination of policy coordination between sectors (in particular transport, land use, environment, development, social policy, health, safety and energy) and broad cooperation between different levels of government and with private actors.

The concept also emphasises the need to integrate all aspects of mobility (both persons and goods), modes of transport and services in an integrated way and to plan for the entire "functional urban area", as opposed to a single municipality within its administrative boundaries.

In Germany, the planning processes described on the SUMP guidelines of the EU and according to the experts, are being implemented since long time ago, following all the steps described on the guidelines. Nevertheless, there is a clear need for a more interdisciplinary and cross-institutional work while planning sustainable urban mobility in Germany. The country is still dominated by the private motorized traffic, bringing negative impacts to the citizens and to the environment in many forms.

In Germany, there are already plans being implemented similarly to the SUMP guidelines. In addition, all experts interviewed on the framework of this project are oriented towards a SUM policy, and everyone, experts as well as users, have a positive attitude towards SUM, agreeing on the most sustainable transport modes: walking, cycling and public transport.

In addition, many German cities have been working towards a more sustainable mobility since authorities recognize the negative effects of unsustainable mobility behaviours, not only in an economic form, but also for the environment, for the citizens, for the city itself in terms of space, etc. In the case of the city of Darmstadt, Hessen, the case study of this project, the tendency is to become a more cycle-friendly city and many strategies are being developed to reach this goal. On the Master Plan Darmstadt 2030+, one of the main objectives is to reduce the share of trips of individual motorized traffic by 10% (currently 35%) and increase the environmentally friendly shares of trips (walking, cycling and public transport) by 75% (currently 65%). Therefore, to reach those goals, SUMP are needed, since it gives the

uniformed framework to plan towards a strategic and complex goal. In addition, creating SUMP highlights the importance of interdisciplinarity of the process and the importance of the stakeholders and citizens voice while planning. It cannot be a one-way process, but rather a multi-way process.

Moreover, as in many cities, the commuting situation between cities is increasing and a challenge to overcome. A challenge that has to be tackled by collaborative planning within the regional authorities. It is important as well to have SUMP since mobility does not finish at the border of an area/city. It involves a deeper thinking and conception of bigger and broader areas and structures that need to cooperate together to offer an overarching solution. This means, planning not only for a certain city, but planning for the region as well.

## **1.2 Why is it important to involve residents, businesses and civil society into a participative SUMP planning? An analysis through the lens of the City Redevelopment Plan Darmstadt East**

In contrast to traditional planning approaches, SUMP places special *emphasis on the involvement of citizens and stakeholders*, the policy coordination between sectors (in particular transport, land use, environment, development, social policy, health, safety and energy) and broad cooperation between different levels of government and with private actors. The concept also emphasises the need to integrate all aspects of mobility (both Persons and goods), modes of transport and services in an integrated way and to plan for the entire "functional urban area", as opposed to a single municipality within its administrative boundaries.

In this sense, on the framework of this project, the task force analysed through literature and expert interviews, how the process of SUMP described on the guidelines, is being implemented in a current urban redevelopment (Stadtumbau) plan in our case study area: The East part of Darmstadt. Specific attention was paid to the involvement of the citizens and stakeholders in each stage of the planning process.

In this funding programme "Stadtumbau in Hessen" by the Hessian Ministry for the Environment, Climate Protection, Agriculture and Consumer Protection. During a ten-year period (2016-2026), the municipalities are to implement urban development measures for climate protection and to adapt to the consequences of climate change, where urban mobility plays a big role. In this part of the report we make emphasis on how this current plan involve the citizens.

According to the analysis, the citizens are involved at the first stage of the project, where the city of Darmstadt *plans the stakeholder and citizens participation*. In this early phase, the city of Darmstadt plan timewise the meetings with the citizens, the methods for the public participation, identified the groups of stakeholders, planned the communication campaign and organized the core group of citizens interested (LoPa – Local Partnerships).

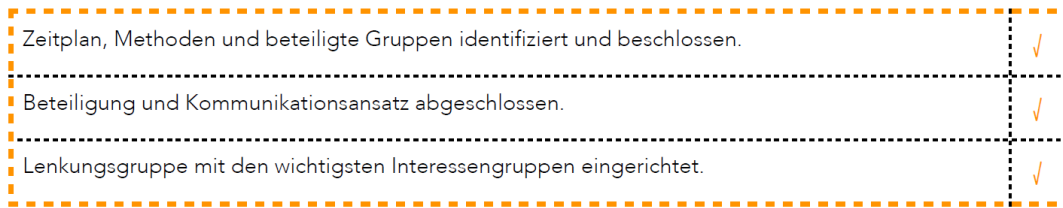


Figure 1: early stages of community involvement based on the SUMP guidelines document and applied on the Stadtumbau Ost Project. Source: Own literature search and Expert Interviews with the City Planning Office.

As part of the preparation of the integrated urban development concept for the Darmstadt East three public participation events were held. They served to integrate the knowledge of residents, traders and local institutions into the concept. In those meetings, together with the citizens, the contents were developed and findings from the analysis process were reviewed. Parallel to the events, suggestions, comments and ideas in the form of postcards or e-mails could be sent to the urban planning office in order to increase the public participation.


By the phase 2 described by the SUMP guideline: Strategy development, the city of Darmstadt continued involving the citizens in several processes. Nevertheless, by the phase of “creating different scenarios and evaluating them” the city of Darmstadt does not offer any evidence. Apparently only one scenario was created together with the citizens, rather than several.

According to the expert interviews, scenarios of possible futures are only pursued later during the planning of measures. At this stage of the project “strategy planning” and together with the LoPa, the current situation of the neighbourhood was discussed at intervals and decisions were made on how to proceed. Individual measures are discussed and prioritised within the possible budget.

One reason mentioned by the city planning office here is that in this process it is important to focus on one strategic scenario, which should be feasible in terms of economic, time, capacity and other resources. In addition, this action helps to avoid false expectation by creating utopic scenarios.

Continuing with the process of SUMP, the city of Darmstadt involved the citizens on creating visions for the area and concrete objectives. At the third public participation on 17 August 2017, the fields of action and proposed measures were rated by those present using a point allocation system. The citizens could mark the importance of a field of action with a red dot and favour measures with three blue dots. A total of six fields of action and 20 measures were on display. The highest score, 37% of the votes, went to field of action D "Sustainable mobility" (other fields of action: B Living Together, C Climate-Friendly Living and Working, D Sustainable Mobility, E Connected Nature, F Liveable Places and Street Spaces).

#### 4.1 Szenarien möglicher Zukünfte entwickeln

Die Auswirkungen potenzieller Veränderungen der externen Faktoren untersucht.		X
verschiedene alternative Szenarien beschrieben, einschließlich eines Business-as-usual-Szenarios.		X
Geeignete Techniken zur Unterstützung der Szenarioentwicklung und -beurteilung angewandt.		X
Sensitivität der Szenarien auf sich ändernde Umstände bewertet.		X

#### 4.2 Szenarien mit Bürgern und Interessenvertretern diskutieren

Den Veränderungsbedarf, der sich aus dem mit Interessenvertretern und Bürgern diskutierten Business-as-usual-Szenario ergibt.		✓
Diskutierte mit Interessenvertretern und Bürgern, welche Szenarien oder Elemente von Szenarien wünschenswert sind.		✓

Figure 2: Building Scenarios Phase evaluation. Source: own literature review and expert interview with the City Planning Office

At the current stage of the Stadtumabu Ost Darmstadt process and based on the SUMP guidelines, both processes, SUMP guidelines (theoretical) and the example of the “Stadtumbau Ost Darmstadt” (practical) place equal emphasis on involving citizens and stakeholders in the planning process. On the example of “Stadtumbau Ost” Citizens and stakeholders were involved in the planning from the beginning and have the opportunity to participate in the further development of the project through the Local Partnership.

In summary, even though the planning processes seems to accordingly in the city of Darmstadt, as reported by the city planning office, the capacity of public relations needs to be increased, since public participation and stakeholder involvement demands a lot of effort and time. As a reflection, links to international teams and projects should be strengthened to learn from their experiences regarding these processes to make them more effective and efficient. Another important reflection is that a fundamental part of the planning process should be the educational institutions (e.g. local universities) in order to benefit from each other's resources, knowledge, ideas, contacts, etc. From such a constellation, a team can be formed that can meet all requirements. The joint capacities can create a network can be created that relieves the burden on the city of Darmstadt.

### 1.3 Aims of this document

The Urban SCOPE team of the city of Darmstadt creates this document to provide some examples on how participatory process could look like, involving an education institution, in our case the Technical University of Darmstadt; a local authority and the citizens; giving examples in a smaller scale to, hopefully, inspire the local planners.

This document aims on one hand at facilitating the project activities foreseen within the Urban SCOPE project, and on the other hand at providing documentation and a basis for discussion on the connection of two institutions: the city planning office and the university, to join forces and synergies for a more holistic urban sustainable planning.



The objectives of the present document are presented below.

Objectives relating to the Urban SCOPE project:

- To provide a basis for the learning material to be developed in following phases of the project (Learning Methodology and Learning Course for tertiary education) to be applied on a seminar given on the Technical University of Darmstadt.
- To be employed as reference with regard to the SUMP Competition foreseen in Darmstadt

Objectives relating to SUMP in Darmstadt:

- To create a professional connection between the Technical University of Darmstadt, Faculty of Architecture, and the city planning office of Darmstadt in order to join efforts/synergies in topics related to sustainable urban planning.
- To support the city of Darmstadt with new ideas, research, methods for participation and academic support in current city plans, especially on the area of Darmstadt east.

## PART 2. Preparation and Analysis

### 2.1 Planning context

The city of Darmstadt developed recently a new master plan called “*Master Plan Darmstadt 2030+*” which describes the actual situation, the challenges to face in the next years and the development guidelines (areas of development, strategies and targets) (Wissenschaftsstadt Darmstadt, 2020).

Regarding to mobility, the Master Plan 2030+ poses as target to reduce the individual motorized traffic by 10% and to increase the sustainable transport modes (public transport, bicycle and walking) to a 75% in total (See figure 3).

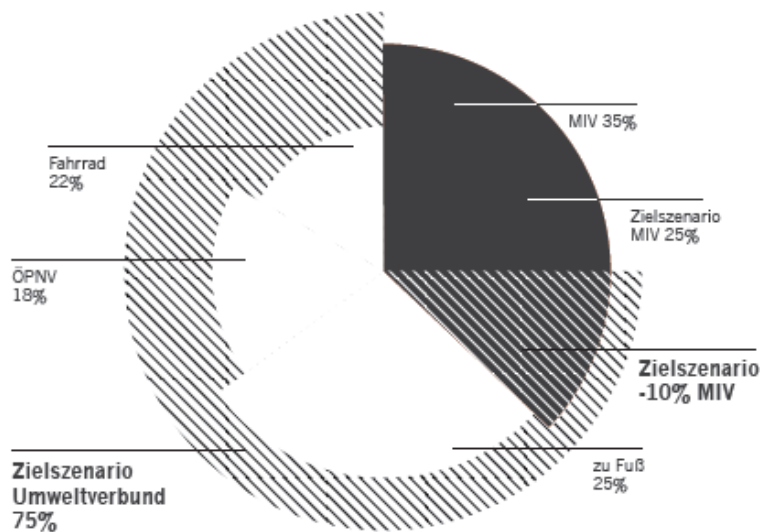
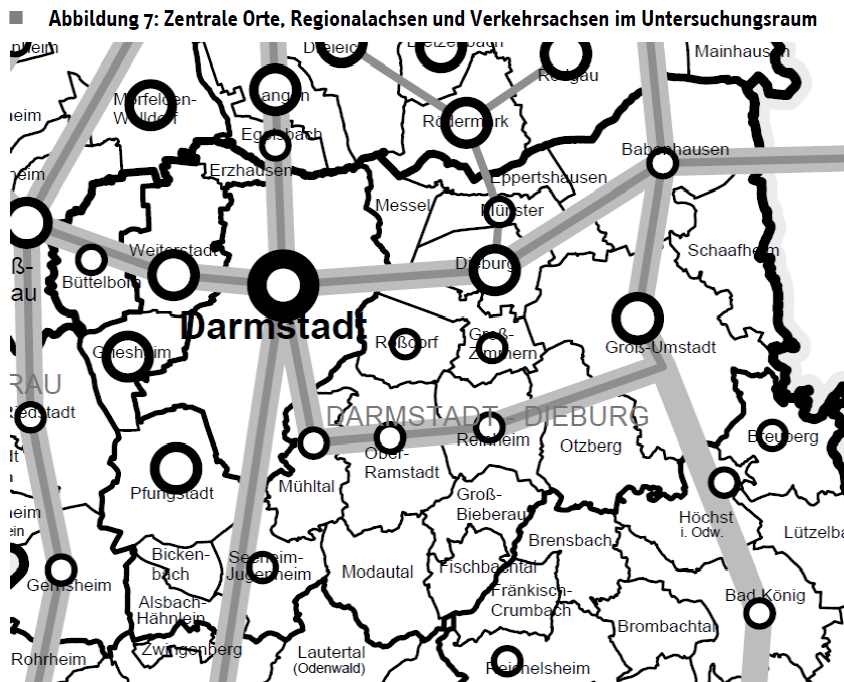


Figure 3: Travel shares of different transport mode 2018, in Comparison with the target scenario. Source: Technische Universität Dresden, Omnirend GmbH. „Mobilität in Städten – SrV (System repräsentativer Verkehrsbefragungen)“, 2018.

Other strategies mentioned on the master plan that are related to a sustainable urban mobility are:

- Increase the density of residential areas – save land areas
- Increase the mixture of land uses
- Increase green and blue infrastructure
- To realize justice in regards of the division of the public space
- To densify and make stronger the public transport
- To support constantly and strongly the bicycle as a transport mode
- To create new or enhance existing local “mobility multimodal points”
- To implement new mobility concepts (as for example the Lincoln Siedlung)

The Darmstadt-Dieburger Nahverkehrsorganisation DADINA (local transport organization between Darmstadt and Dieburg) published the in 2019 the *Joint Local Transport Plan for the City of Darmstadt and the Darmstadt-Dieburg District 2019 – 2024* which contains an extensive analysis of the situation, takes into consideration the current plans related to mobility in Darmstadt and region and propose strategies for the short future.



Quelle: Regionalplan Südhessen 2010

Figure 4: Darmstadt-Dieburg Region. Source (DADINA, 2019)

## 2.2 Main problems and opportunities

According to the results of the literature review developed conducted in 2019-2020 with a multi-method approach on the framework of this project, below listed the current stand, potentials and challenges of each sustainable transport mode for the city of Darmstadt.

For *walking*, is stated in the online survey that the majority of citizens walks for leisure purposes, for going shopping, for bringing the children to school/kindergarten and some even for going to work. Users and experts visualize a city which can be walkable and decentralized. Moreover, there is a great potential to be used: the perceived safety by citizens when walking in the neighbourhoods in Darmstadt. Nevertheless, results from the expert interviews show that there is no “pedestrian strategy” or even a cadastre of the pedestrian areas, neither a comprehensive strategy to recover these spaces from cars, which shows the little importance paid to this, if not the most, sustainable transport mode. Still, parking management measures are being implemented in certain neighbourhoods of the city in order to reach a more just division of the public space, resulting on an increased quality, safety and livability of the area by eliminating parking cars.

The *bicycle* in Darmstadt is one of the transport modes most used and with still a lot of potential. Experts report several strategies enhancing this transport mode; nevertheless, there is still potential to reduce the motorized individual trips (e.g. to go to work or to go shopping) by a 25% though improve the cycling infrastructure (making it more safe, dense and attractive). One important aspect to consider here, is the safe and comprehensive design of the cycle infrastructure in Darmstadt, to avoid conflicts with the other transport modes.

*Public Transport* in Darmstadt still has a lot of potential. Users as well as experts state the need of increasing the quality of service and infrastructure of the public transport of Darmstadt. To

support this, the online survey reports that public transport (tram and bus) is always the fourth option for all trips, after walking, bicycle and car. Nevertheless, many (experts and users) believe that public transport is a sustainable urban transport mode, due to the capacity of moving big quantities of people with less space occupancy in a short period of time. Experts also agree that the future of mobility in regards of public transport should be a “semi-private/public transport” allowing a little personalization on it.

Even though there are new forms of sustainable mobility (e.g. sharing options, or on-demand options) emerging, it is still unclear their potential related to the user and the location of these new forms. As showed not only in the literature review, but also in the online survey, users are still not open to use bike and car sharing options, even they consider it a sustainable option.

Finally, in Germany, experts and local authorities are working towards a SUM development. Users and experts agree on promoting sustainable urban mobility. There is a momentum regarding bicycle usage and priority is being given to this mode in Darmstadt. Nevertheless, when it comes to practice, users still report a high percentage of trips made by motorized individual traffic. There is need to continue working on the quality and quantity of the infrastructure and services which promote a sustainable urban mobility.

### 2.3 Options for the future on SUM

The development of mobility forms and especially *mobility technologies* has been characterized by a high dynamic in recent years. One of the main factors contributing to this has been the enormous increase in the importance of modern information and communications technologies, known as digitization in business and society (Bundesregierung, 2014a).

Germany is putting effort on changing its modal split towards a more sustainable one. The changes might not seem to be as fast, as Denmark for example, but constantly. According to the Institute for Mobility Research (IFMO) study "Mobility of Young People in Transition", in which data from Germany and international comparisons were compiled: young people increasingly use other means of transport in addition to the available car. In particular, the combination of own car and bicycle has increased significantly among younger people between 1998 and 2008 (IFMO 2011).

Some trends that can be observed on the field of transport and mobility in Germany, in urban as well as in rural areas are: car sharing options, combinations of means of transport, on-demand and special bus/taxi services, carpooling, bike sharing, e-scooters, Intermodal mobility services (park&ride / bike&ride) and autonomous drive/self-propelled cars.

In practice it is still unclear what is the potential and risks of the new transport offers and their acceptance of them. For example, the sharing offers seem to be a good and promising option for the future of sustainable urban mobility, but there is still unclear the acceptance among all socio-economic groups and further development of this option.

### PART 3. Alternative scenarios and their evaluation

The SUMP Task Force has developed 3 different SUMP Scenarios, corresponding to different levels of intervention and periods of implementation for the East area in Darmstadt. The conception of the scenarios considers the current planning processes/projects and objectives based on the Master Plan Darmstadt 2030+ and the ISEK (Stadtumbau Ost Darmstadt). The scenarios formulated by the task force are open to public participation and are intended to encourage the engagement of the residents of the city and especially of the study area (Woogsviertel – Darmstadt East).

In addition to purely ecological aspects of sustainability, such as the use of environmentally friendly means of transport, social aspects, such as people's mobility behavior, are to be considered. Raising citizens' awareness of the benefits of sustainable urban mobility and encouraging them to use sustainable means of transport as much as possible are also goals that must play a role in the design of the proposals.

Under the motto "Ready - Steady - MOVE", three different scenarios for the year 2030 were developed.

The 3 different scenarios by 3 different task force members were designed targeting one-time frame, namely 2030, but different in the following way:

*Scenario 1: no changes in politics*

What would the mobility would look like in 2030 if we continue planning with the same objectives and at the same pace as now?

*Scenario 2: the ideal plan - a wish concert!*

What would the mobility would look like in 2030 if we could plan as we please?

*Scenario 3: an integrative solution*

How does the mobility would look like if integrated your proposed mobility solutions on the political/economic/social agenda of Darmstadt? Basically, how do you integrate the above 2 scenarios?

On June 2021, the task force, with a total number of 12 participants (all students and residents from Darmstadt), had a meeting with the objective of: first, to offer a first overview of the planning context related to SUM in Darmstadt Germany, and more specifically of the east part of the city; and second, to start drafting first concepts, visions and scenarios for the area. The meeting took around 1.5 hours containing a presentation and a round for questions and answers.



Figure 5: Impression of the first meeting with the task force via Zoom

## Scenario 1: no changes in politics

For the first scenario, the most common vision if we change nothing at the political level and everything stands by is that the city of Darmstadt will have problems due to the car-dominated behavior of the population (parked streets and sidewalks, more traffic, more pollution, more deaths, etc).

### „Congestion“ by Hanyang Yu



The first scenario for the Woogsviertel 2030 is entitled "Congestion". It shows a cross-section of Landgraf-Georg-Straße in Darmstadt at the level of Rudolf-Müller-Anlage. It looks at how traffic would develop if there were no new mobility strategy. From the perspective of pedestrians and cyclists, the situation in the Woogsviertel is very bad. Examples are the separation effect of main roads, parking on the pavement, and congestion of the central bus connection. If this situation is not improved, more and more citizens will probably prefer motorized private transport. Therefore, the main roads might be widened from five to six lanes. As a result, there would be a vicious circle: more pollution and noise, a more difficult parking situation and an increasing conflict between car drivers, cyclists and pedestrians.

### Three mobility hubs by Paula Tempel

This scenario also looks to the east and sees the Ostbahnhof as one of three important mobility stations (mobility hub). Two other important mobility stations are Mercksplatz and Rosßdörfer Platz. The Ostbahnhof is also considered in the regional context due to its connection to rail transport. This is because the train VIAS arrives there from surrounding small towns and offers onward travel by bus, for example. A tram would also be a good option here, but unfortunately it was dismantled many years ago. The other means of transport available to move further around the city are car and bike sharing. At this point, the footpath connection should also be strengthened and made barrier-free. The aim is to get to different places in Darmstadt as quickly as possible. All of this should be barrier-free so that it is attractive for everyone. The connection to the next mobility station would then be the Mercksplatz, which already holds many cars, but could perhaps hold more in the future, depending on the design, in order to place the neighbourhood parking there and no longer on the footpaths in the neighbourhood. There it would of course be possible to change to the bus or the tram

## Ready, steady, MOVE!

Woogsviertel-What will Mobilities look like in 2030?

### Scenario 1

no changes in politics



again. At Mercksplatz, there are also sharing concepts to relieve the burden on motorized private transport. This is also where the cycle path connects, which in itself should be better developed (coming from the Botanical Garden). The parking situation in the Woogsviertel itself should be relieved by simply parking more cars at Mercksplatz. This will also make the pavements in the quarter re-accessible and barrier-free.

Then there is a third mobility station. This would be Rossdörfer Platz as a superordinate unit, where there is a changeover to the tram and the bus. But of course there would also have to be a car-sharing station there to make short journeys possible for everyone. Bikesharing, both e-bikes and conventional bikes, should also be there to make it accessible to all.

In summary, there should be cycle lanes, no parking on the footpaths, multimodal travel and a greater sense of safety in the urban space.

## "Pedestrian areas" by Kun Fang



The scenario first shows the deficits if the policy remains unchanged and looks in particular at the consequences for pedestrian areas. Directly on Landgraf-Georg-Straße, large already accessible parking areas are not used effectively. If there are no changes in the general policy, there will still be a high number of cars on the neighbourhood streets, both parking and driving. These vehicles block the street and affect the quality of open spaces, both physically and visually. This is because parked-up streets disrupt sight lines, which are supposed to guarantee safety for pedestrians in traffic on the one hand and reduce subjectively perceived quality of stay on the other. Even if more and more people switch to e-cars, this will not change. However, it can be assumed that the use of public transport will increase. This can be seen as a potential for the following scenarios.

## Scenario 2: the ideal plan – a wish concert!

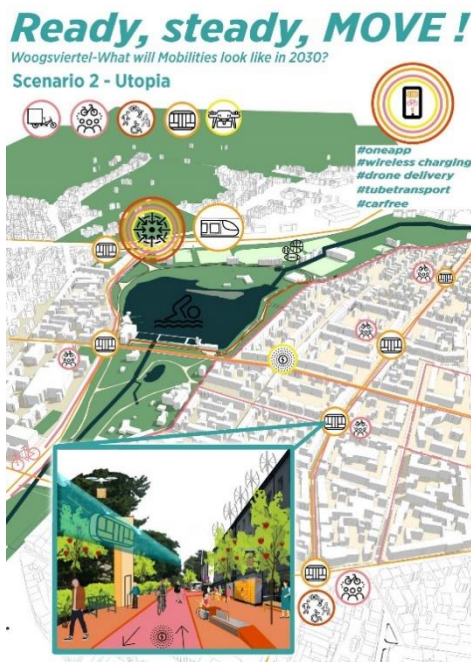
The second vision, the utopic one, is mainly dominated by a pedestrianized vision where the cars are not allowed on certain parts of the neighborhoods, achieving more justice in terms of the division of public space. Most of the space should be dedicated to walking and cycling, offering then other solutions as: elevated "vacuum tram" or drones for delivery, among others.

## "Dematerialisation of mobility" by Hanyang Yu



This scenario assumes a change in behaviour resulting from a new business model, increased environmental awareness and changed lifestyles (for example, home office as the norm). Car sharing, bike sharing and short distances to a bus stop enable flexible and, above all, cost-effective mobility. Since an increased demand for cars is to be expected in general, main roads will also have to be heavily redesigned. Landgraf-Georg-Straße, for example, could be transformed into a two-lane road with accompanying tree plantings and cycle paths. In addition, in future people would no longer buy a single ticket for each means of transport, but pay a total price for the mobility chain. Sharing offers and mobility services would reduce the demand for cars in the future. Nevertheless, with regard to the current traffic flow, a certain amount of traffic space is still required on main roads. Therefore, this scenario is somewhat utopian.

## "Utopia" by Paula Tempel



Scenario 2 is the super utopian representation. You have to imagine it in such a way that you no longer have any cars in this urban area, only perhaps regionally. Most of the connections to get around quickly will be possible with a magnetic levitation train in vacuum tunnels, so that you can get to wherever you want super quickly. The connections are always shown here in this orange color. You can get on and off at many stations and travel very comfortably. The roads are also relieved by drone deliveries, which then deliver the parcels to your doorstep, or at least to your roof. The other individual transports that one would like to have would then be done with bicycles of any kind. (That would be cargo bikes, wheelchairs with motors, scooters or other wheeled objects). Everything is possible there. The special thing here is that there is no more space for cars on the street,

but only a wide lane for electrically powered devices. These are then inductively charged from the ground. The free fields or footpaths can then also be equipped with such a flow that can be used to generate electricity while standing, if you run or jump there a lot. Everything is then fed with renewable energy, which can then also be fed from the houses directly into the smart grid there. So it's a very utopian picture on purpose.



## "Pedestrian streets" by Kun Fang



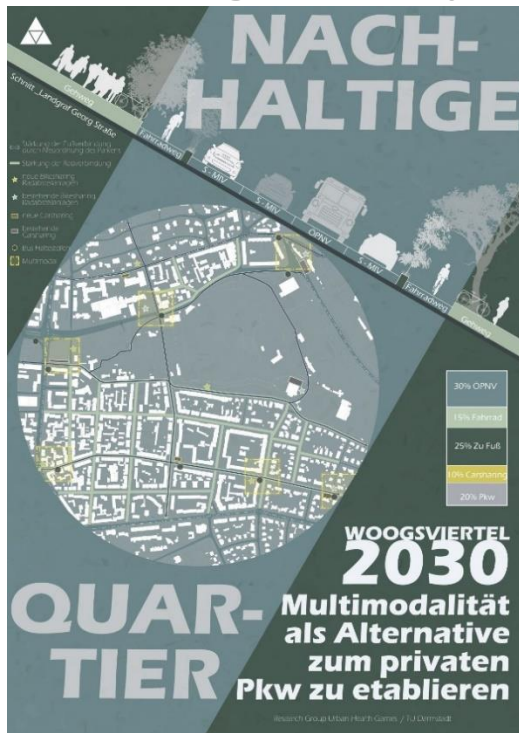
The ideal plan includes a mobility center at Darmstadt's Ostbahnhof. The aim is to offer a high number of different mobility options at the Ostbahnhof in the future (e.g. car sharing, e-bike sharing). In contrast, all cars are to be banned in the neighbourhood area opposite. It is therefore a predominantly pedestrian neighbourhood that only allows bicycles, e-bikes, and small self-driving delivery vehicles on the "pedestrian" streets. These delivery robots can be booked via apps. Only for removals are exceptions possible in the form of vans. Charging stations for e-bikes are located at the end of each of these pedestrian streets, so that the transition from one means of transport to other flows more smoothly. The central contact point for all means of transport and all residents is the aforementioned mobility center. The share of self-driving means of transport (e.g. self-driving sharing cars) will automatically return to the mobility center in case of low use or low battery level. Electric

propulsion should also be used for the self-driving trains that stop at Ostbahnhof. This energy must be generated 100% from clean electricity to minimize environmental impact and promote environmental sustainability.

## Scenario 3: an integrative solution

The examples for the third vision, the integrated one, focus mostly on reducing the car-oriented traffic through other multimodal options as car-sharing.

## "Sustainable neighbourhood" by Hanyang Yu



This scenario includes the urban development concept (ISEK) for the Woogsviertel and the Darmstadt 2030 Master Plan. Parking space management can ease the parking situation here. On the main roads, the freed-up spaces can be used as cycle paths. Away from the adjacent main roads, the parking spaces within the neighbourhood will be rearranged and optimised. This will strengthen the quality of the footpath connections (light green lines). At the beginning of the planning process, walking and cycling connections in the neighbourhood should initially be considered separately. Cycling connections will then be developed along the key routes (dark blue lines). In addition, this scenario is based on the guiding principle of "flexible mobility", i.e. starting a journey without having to think in advance about which distance one wants to cover with which means of transport. The current bus stop and three bikesharing stations are marked (light

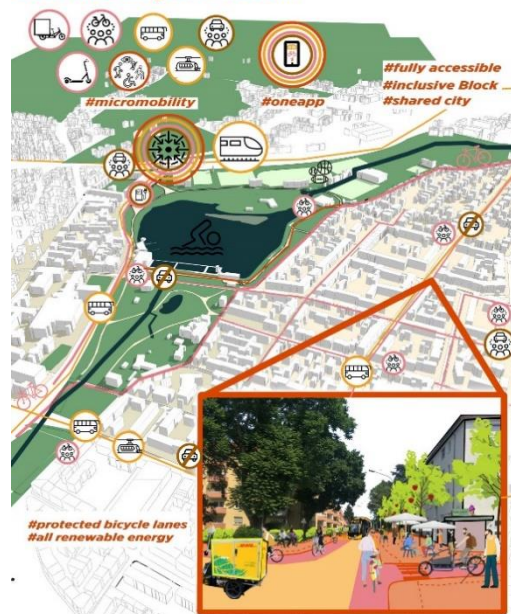
green stars). In addition, there will be five new bikesharing stations (yellow stars) and new carsharing stations will be deployed near bus stops. These interventions will upgrade six transport points as multimodal mobility stations (yellow rectangles). This is how to achieve a sustainable neighbourhood and sustainable mobility in the Woogsviertel.

## "Multimodal" by Paula Tempel

### **Ready, steady, MOVE!**

Woogsviertel-What will Mobilities look like in 2030?

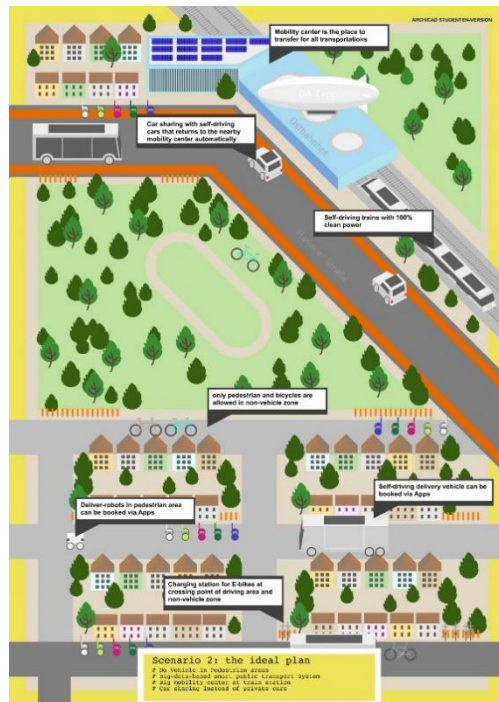
#### Scenario 3-integrative solution



The third integrated solution also provides for very multimodal travel. With this micromobility, so that you divide your routes so perfectly that you always have the fastest option. This is supposed to work with an app that tells you whether it's best to walk, take the shared e-bus or tram, or first walk to the end of the neighbourhood and then take a car-sharing service. The neighbourhood itself would then be car-free, except for the large streets bordering it, such as Heinrichstrasse or Landgraf-Georg-Strasse. The big streets would then again have these car-sharing offers where you could move around. Especially at the Ostbahnhof with a large mobility station, because you can also travel beyond the city into the region. And the paths in general in the neighbourhood have a lot of space for barrier-free accessibility, which benefits everyone, not only people with limited mobility. Another focus is on Rossdorfer Str., which is located in the neighbourhood. It is not one of the main roads mentioned above, but it nevertheless

has a special significance. It also functions as the centre of the neighbourhood (shops, post office, ice cream parlour). Most deliveries, such as the post office, could be made with the small cargo bikes. The paths of the Rossdorferstr. are open for public transport (e-buses; already in use). The pavements are so wide that there is still room for greenery to make the microclimate a little more pleasant. This makes people want to spend time there and share their neighbourhoods. It should also give people the opportunity to get to know their neighbours and get away from this anonymity.

## “The integrative scenario” by Kun Fang



The integrative solution retains the idea of a neighbourhood that is as pedestrian-friendly as possible. Motorised vehicles are prohibited in the pedestrian zone. Parking fees on the surrounding streets are increased in an attempt to create strong incentives to use car sharing instead of using one's own car. The sharing offers are to be supported by a smart mobility system based on big data technology. Car sharing or taxi sharing offers are to be made available to every resident within five minutes by means of an app on the smartphone.

## Evaluation and selection of the best scenario

In order to *evaluate* the scenarios, professionals from local authorities and NGOs were invited in order to discuss each scenario and select the most plausible and attractive one.

The second meeting with the task force, namely the evaluation, took place as well at the end of June 2021 with a total number of 9 participants (students and residents from Darmstadt, and representatives from the public transport company in Darmstadt, an NGO representing pedestrians, the city planning office of the city of Darmstadt, and the TUDa).

The objective of this meeting was to discuss about the 3 different scenarios developed on the past meeting and select the most plausible and attractive one. The meeting took around 1.5 hours.

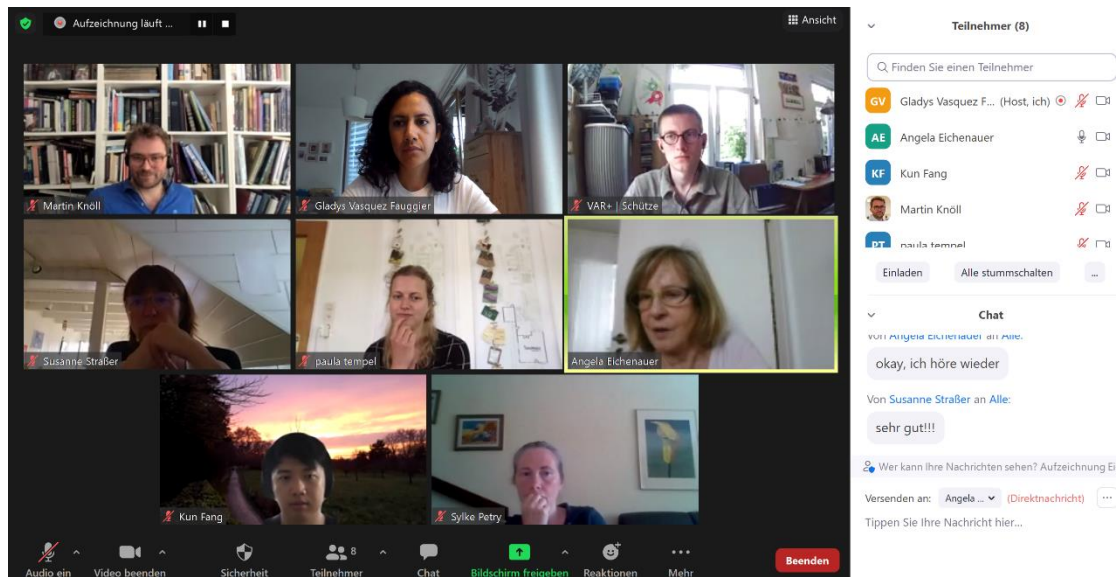
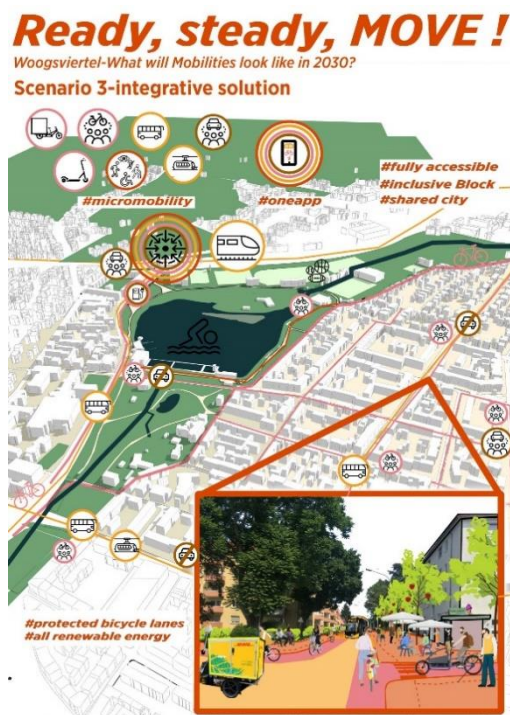


Figure 6: Impression of the 2nd meeting with the Task force. Only for internal use and for documentation. Not allowed for publication



After discussing all the scenarios, their positive and negative aspects, students and experts concluded that the most interesting scenario, attractive and feasible would be the “Multimodal” by Paula Tempel.

This scenario considers different combination of mobility options (as car-sharing, or bike sharing, or other micro mobility options) and includes the current and increasing digital trends (e.g. all mobility options together in one application). In addition, due to the high proportion of multimodality, there is a huge reduction on private car usage, which results in more space in the streets to move freely and more in a more sustainable way (walking and cycling). This scenario also considers the concept of barrier free, making emphasis on the inclusion of all groups in society.

Moreover, this scenario focuses on a big mobility hub: the Ostbahnhof, which at the moment is not working efficiently and a lot of potential is there.

The Ostbahnhof is a key hub to improve the mobility of the area. Another important aspect considered on this scenario is the re-organization of one of the main streets of the neighborhood, namely the Rossdorferstr. Where many different uses are already happening. This scenario considers as well areas for greenery to improve the micro climate and create more livable and attractive spaces.

## PART 4 – Action Plan

### The Redesign of the Woogsplatz and Surroundings in Darmstadt

Kapellplatzviertel is one of the Darmstadt neighborhoods, where the city of Darmstadt introduced parking management (Parkraumbewirtschaftung). In April 2021 (after the implementation and during COVID-19 pandemic) and as part of the project Urban SCOPE, a study by FB 15 found as the main outcome the availability of around 30% of the total parking spaces being now most of the time empty and the reduction of parking slots search. Therefore, a huge potential exists on this public space, due to its central location and “node” character”, the infrastructure surrounding it and the current plans by the city of Darmstadt on this area. Under this framework, and taking into consideration the plans and strategies proposed by the City of Darmstadt (Master Plan 2030+, ISEK, tendering for the new design of the plaza), we take the re-design of the Woogsplatz as the focus for this Action Plan, which is currently used as a parking lot.

The aim of this action plan is to collect a series of new and interesting ideas on how to change this part of the city, favoring the sustainable urban mobility and increasing the quality of life of the residents. In addition, to make it more graspable, the action plan proposes the idea of “tactical urbanism” while suggesting some interventions on the public space, which could be used for a testing period. These interventions are supposed to be easy to implement and with a relatively low economic cost.



In this Action Plan, participants developed concepts and designs on the future programming for this public space of this public space and a prototype for an intervention based on the following questions: What are the needs of citizens, specifically of the neighborhood, and

what can we propose on this public space? How can we reach a balance between sustainable urban transport modes and livable, safe and inclusive public spaces?

The Action Plan was divided in two tasks.

The first task is about the re-design of the new Woogsplatz, its concept and program. The following aspects should be considered for the future Woogsplatz:

- The Woogsplatz should be a meeting place for the neighborhood, providing amenity qualities for its residents, considering the current dynamics of the neighborhood (schools, library, parks, swimming pool, restaurants and cafes, the residential area) and future plans (including a new elementary school).
- The redesign of Woogsplatz should consider the facades, existing trees, surrounding uses, landscape, and mobility concepts planned for the area.

The second task of the action plan is to design and build an interesting, exciting and feasible prototype for an urban intervention on the "new Woogsplatz". The goal of the installation is to provide the square with new activities and qualities for the residents. The content of the urban installation should relate to the proposals from the first task.

The tasks can be done in groups of up to 3 people.

### Criteria

Task 1: Redesign of the new Woogsplatz based on the following criteria:

- Program of activities and zoning: quality of stay for different user groups needed in the Chapel Square neighborhood.
- Priority for sustainable urban transport modes (walking, cycling, sharing offers, connection to existing public transport stops) and conflict reduction between different transport modes
- Integration of existing green and blue infrastructure: consider climate adaptation.
- Redesign of the facades facing Woogsplatz towards a more vibrant space.
- Barrier-free spaces for all users / inclusion.
- Easy orientation / navigation in the area
- Character, originality (an analysis should justify why the proposed design is right for the Chapel Square neighborhood).

Task 2: Design a concept and build a prototype of an artistic urban installation for the public space Woogsplatz that meets the following criteria:

- The concept and prototype should aim to actively use the public space and enhance the special qualities of the public space.
- The design of the prototype should be creative, integrable into the space, feasible and ideally economical in material use and production.

## Results

In total 17 different ideas were collected for the action plan – Neuer Woogsplatz. A jury member was set to select the most proficient and creative ideas. The jury member was formed by individuals from:

- The city planning office of Darmstadt
- The green areas office of Darmstadt
- Institution Nassauische Heimstätte/Wohnstadt

The best three ideas were selected following the criteria mentioned before. Moreover, the best three ideas selected were presented on a wider audience, namely the Local Community (LoPa) in order to communicate and create room for dialogue. In addition, these three ideas are going to be integrated on the tendering process for the redesign of the area. In this report it is only presented the best result for the action plan.



*Figure 7: Impression of event: Neuer Woogsplatz - Presentation of the three best ideas. Darmstadt, June 2022*

## **Flexible use of the "Neuer Woog" as identification space**

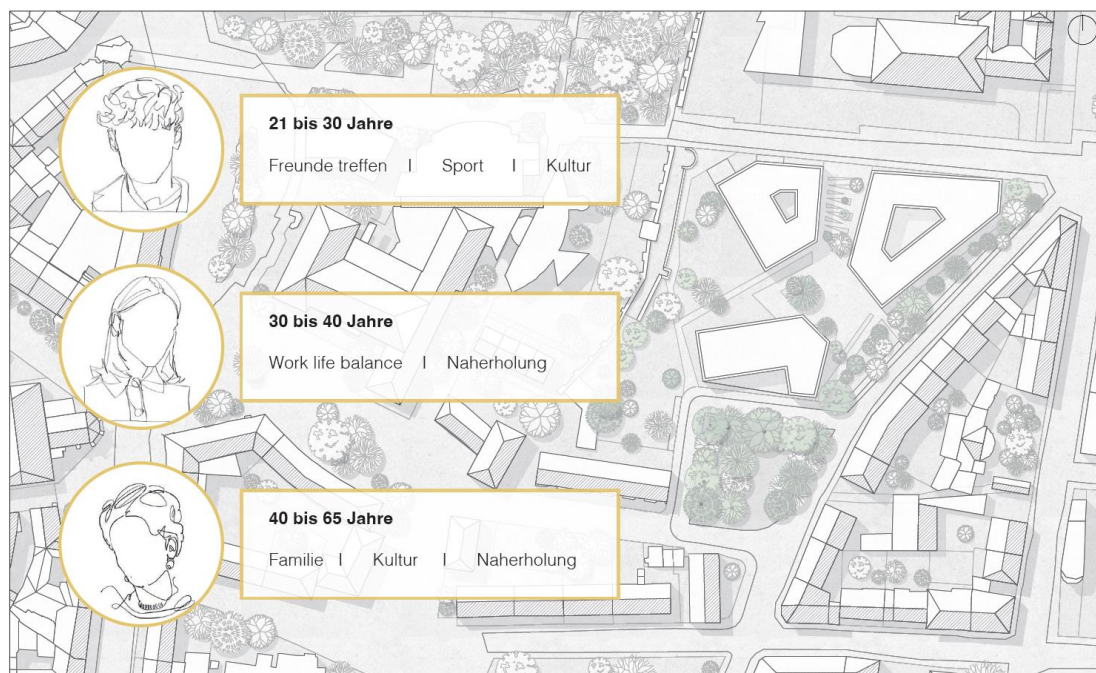
By: Elvira Zorn, Nina Schäfer, Christina Haber (Citizens of Darmstadt)

For the redesign of the Woogsplatz in the Kapellviertel in Darmstadt, the following insights were gained from the overall analysis of the square and its immediate surroundings and specific planning goals were developed.

First of all, the centrality of the Woogsplatz is a potential. The plaza is situated between Darmstadt Mitte and the Woogsviertel, the Martinsviertel and the Kapellplatzviertel. Directly adjacent, the new complex of the Heinrich-Hoffmannschule, which will include a daycare center, elementary school, a playground and a new sports hall. Next to it is the old town complex with remains of the old city wall and the Art Nouveau baths, both of which are important cultural institutions. Nearby is the Justus-Liebig-Haus with its adjacent municipal library. The Woogsplatz thus possesses an attractive location between public uses and the need for an identity-forming meeting place.

Furthermore, when considering the public transport connection, it should be noted that there is a bus and tram connection that can be reached on foot. Bus and tram connections exist, which provide a good connection to the city center, the Ostbahnhof and further. Also, in the analysis of the parking areas for cars and bicycles, it became clear that there is a need for public bicycle parking areas.

Finally, an examination of the different distribution of use revealed that there is a limited supply of leisure, culture and local amenities, but an expansion of the offer is essential for the creation of an identification area.



The results of the analysis led to the following planning goals and the desired concept emerged. The Woogsplatz is to become an identification space for the residents of the neighborhood, and be transformed into an attractive link between Darmstadt East and the city center through a flexible range of uses. The redesign is aimed on the one hand at the collective of the neighborhood, as well as to the resident as an individual. Uses for the entire neighborhood will be offered throughout the year, such as a weekly market, night market, flea market and Christmas market. For the individual resident, the newly designed square will



serve as an extension of the living space, in which the living room, dining room, study and garden is extended to the Woogsplatz.



These uses are implemented with the help of two concrete measures. First, the necessary infrastructure of electricity and light will be created in the form of four ground tanks for the power connection and 12 newly mobile energy columns. The intervention to be developed is the energy column, which was also realized prototype-like. These energy columns can be connected to the ground tanks by an extension cable. Through attached sockets in the upper area, further small electrical appliances can be connected and thus provide a power source distributed over the square. It would also be possible to install a rechargeable battery in the energy column to be cable free. The cylindrical body of the energy column has a translucent membrane, which light up in different colors in the evening.

Herstellen notwendiger Infrastruktur  
Biodiversität, Strom & Licht durch mobile Energiequelle  
Angebot Mobilität  
Stühle, Tische, Stände, Bar



In addition, a different furniture is provided, with which the users can build up market stalls, can create seating groups and use deck chairs or stools for the new neighborhood bar. Except for the fixed bar, the furniture follows the same foldable principle in its placement. In order to ensure proper reuse of the furniture and the energy columns, the use of the furniture is based on a lending principle with the help of a lending machine. At an installed functional wall, the visitor can borrow and use the furniture for a certain period of time by paying a small amount of money. Thanks to the simple folding system, the furniture can be easily moved to the desired place on the site. In the functional wall there is also a public toilet, an info point for the instructions of the vending machine and for all events on the Woogsplatz and last but not least the previously mentioned neighborhood bar. Thereby the adjacent cafés and bars can rent the Quatiersbar for a fixed period of time and thus create a further offer at the Woogsplatz. In addition, the charging station for the energy columns could be integrated into the functional wall. The required electricity could be supplied by a PV system on the adjacent school building.

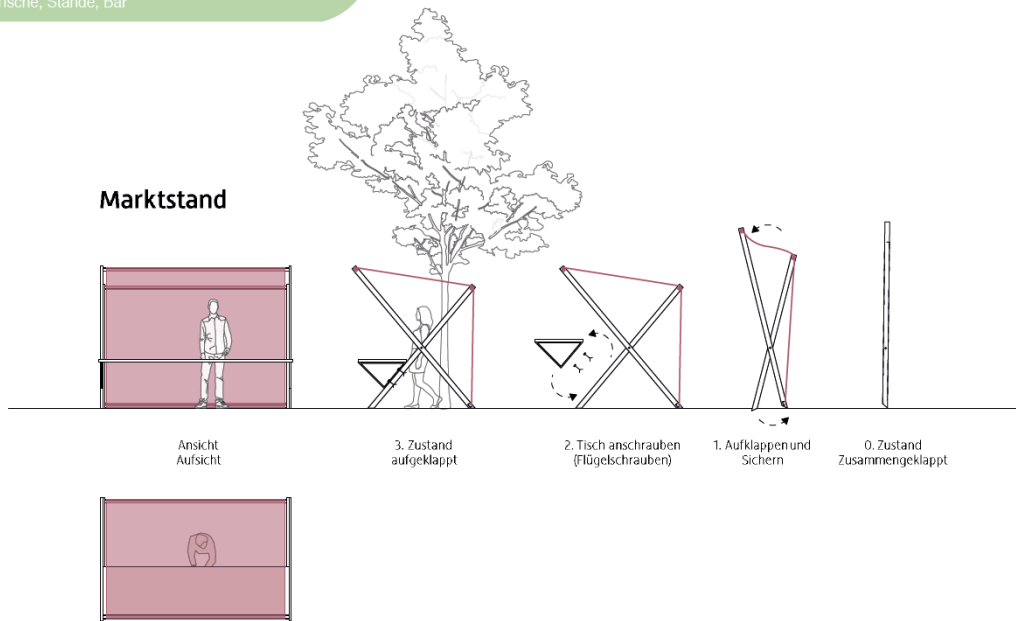
### Herstellen notwendiger Infrastruktur

Bodentanks, Strom & Licht durch *mobile Energiesäule*

### Angebot Mobiliar

Stühle, Tische, Stände, Bar

#### Marktstand



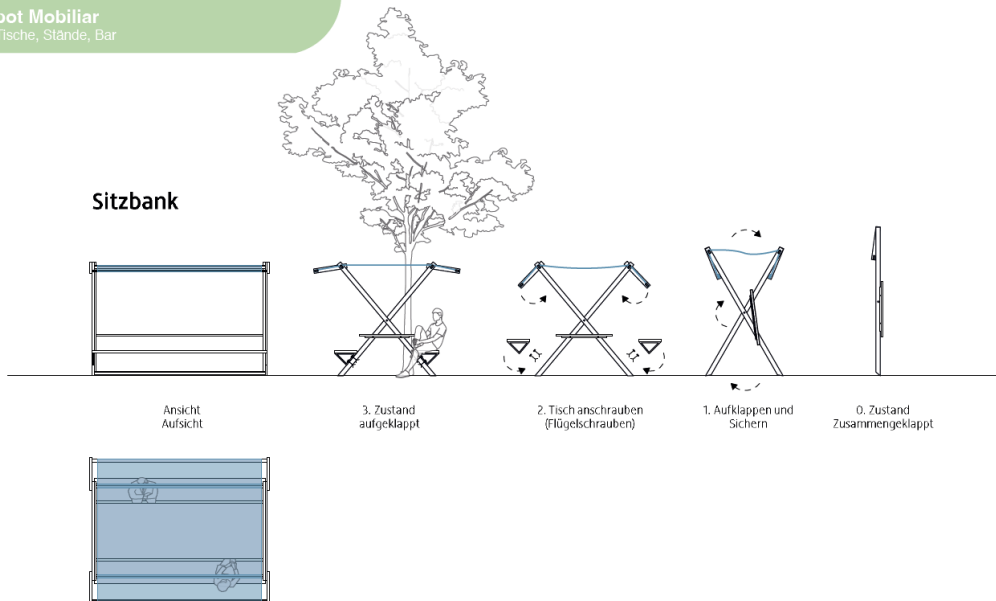
### Herstellen notwendiger Infrastruktur

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### Angebot Mobiliar

Stühle, Tische, Stände, Bar

#### Sitzbank

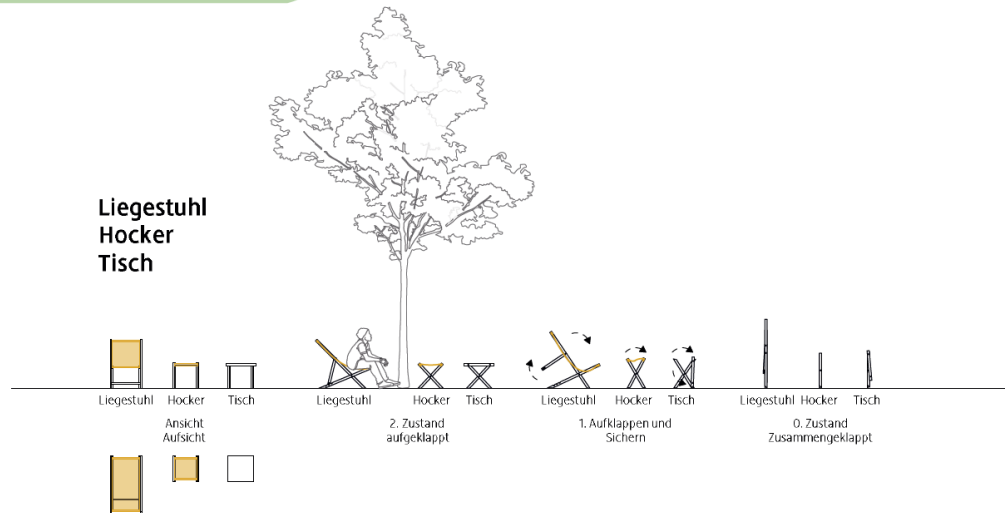


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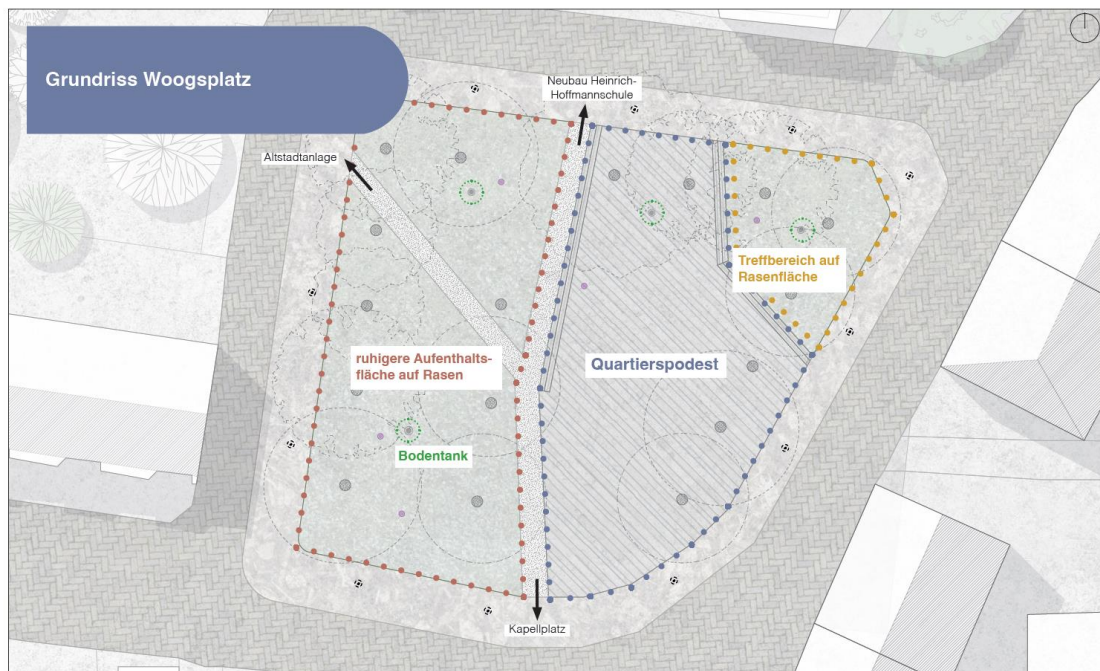
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### Angebot Mobiliar

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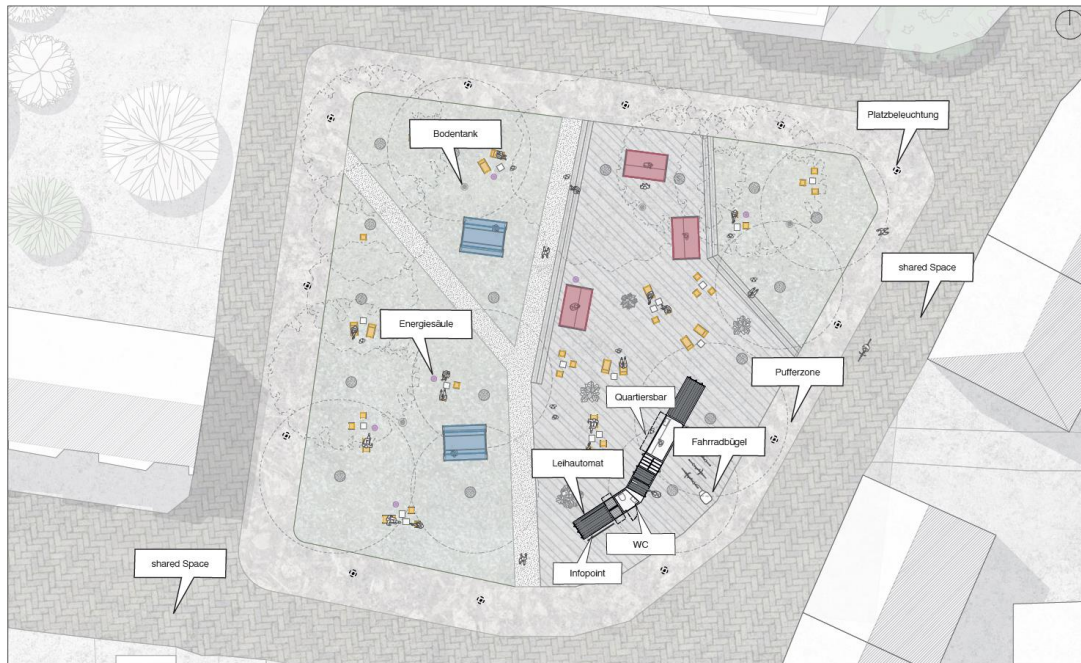
When zoning the square, this results in three areas. The left half is arranged into a quieter lying and sitting area designed with natural grass. The middle area represents the quartier podest where, for example, the weekly market can take place and the rental machine is located in the southern edge, in front of which new bicycle parking spaces have been allocated. A smaller lawn area is created in the north-east and also serves as a meeting area for children and students of the new Heinrich Hoffmann School.

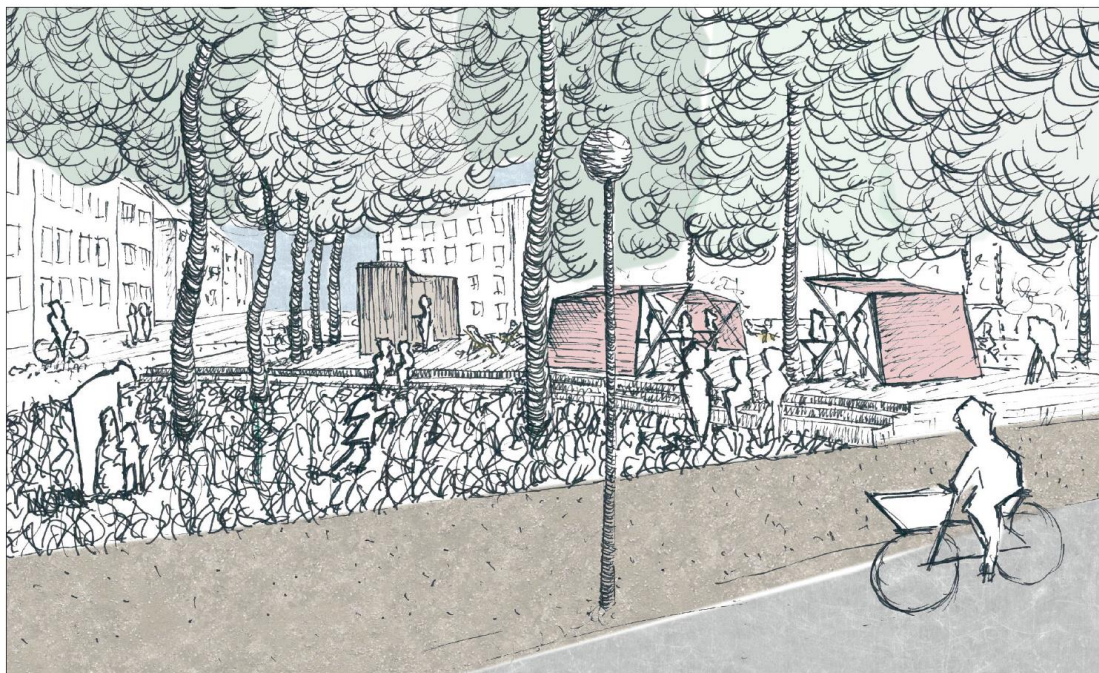


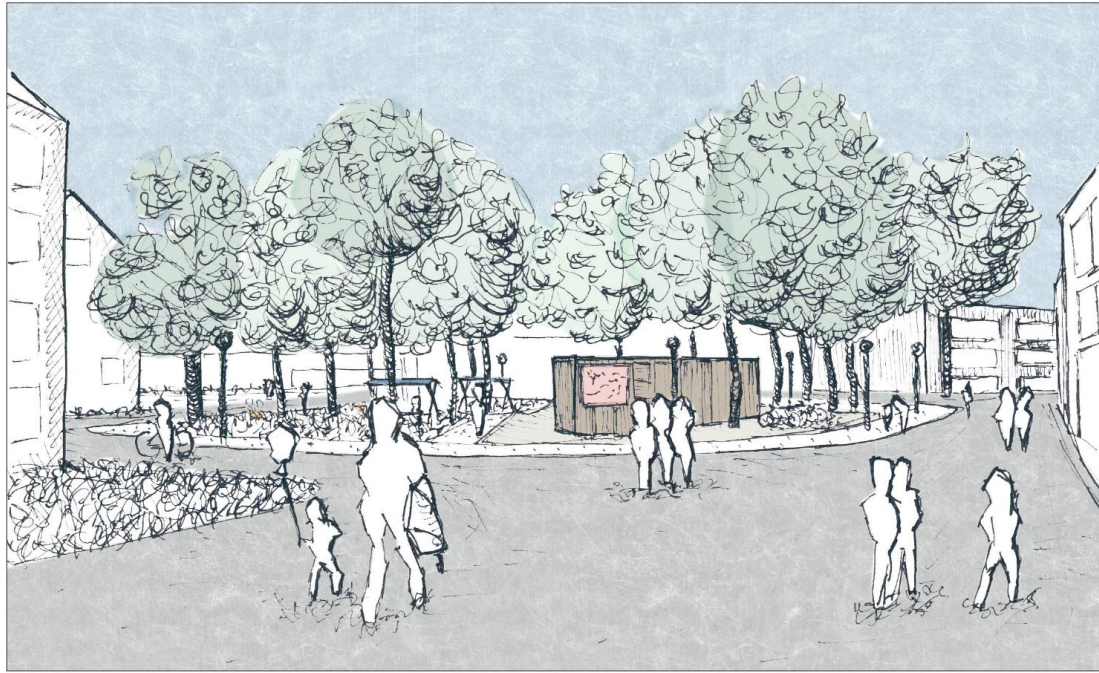
The streets around the square and leading to the square have been transformed into a shared space so that pedestrians, bicyclists and motorists can exist respectfully with each other in a common area. A buffer zone separates the square from the shared space. Furthermore, new

square lighting was installed to provide clear and safe lighting at dusk and illumination at dusk and at night.

Thus, a new attractive identification space for the neighborhood and the residents of the Kapellplatzviertel in Darmstadt is created on Woogsplatz through flexible uses and offers.







## **PART 5 – Campaign Plan**

A campaign plan was planned between the Technical University of Darmstadt, the city of Darmstadt and citizens to raise awareness among citizens on the benefits of sustainable urban mobility, inviting them to join in the project activities, in particular IO5. The campaign promotes the project and its results. The main objectives of the campaign plan are as follows:

- To disseminate the project's Outputs and results very widely in the participating city
- To promote active citizenship, by proposing and implementing interactive mechanisms for public participation on sustainable mobility (IO5 Competition)
- Stimulation of discussion and debate, leading to action among educators, civil society organizations and local government, in order to face, through joint effort, the important issues that relate to urban sustainable mobility in cities, the further establishment of SUMP and the involvement of local communities in this process.

In order to carry on with the campaign plan, graphic material in form of posters and postcards was produced to disseminate the project's results and the activities.

The posters were specifically designed to promote the activities in IO5 – the competition-, and were pasted in different public spaces of the city of Darmstadt. With this strategy, we aimed to target mainly students from the TUDa, Faculty of Architecture and Faculty of Geodesy, but also the general population of Darmstadt. This was done through the website and social media platforms of the university (e.g. Instagram Account of the Faculty of Architecture of the TUDa, with more than 2,000 followers), but also posting the printed version of the poster in different parts of the city of Darmstadt in order to reach the general population.

The postcards were designed to disseminate the project and its results to raise awareness and stimulate discussion on the topic of SUMP. The postcards were distributed on a public event in the city of Darmstadt called: Umweltbörse und Regio-Faire Messe (Environmental and Regio-Fair) organized by the city of Darmstadt on the 03.09.2022.

The fair has as objective to motivate environmentally conscious behaviour in the population. It offers clubs, associations, companies and private individuals the opportunity to present themselves and new ideas and projects (<https://www.darmstadt.de/leben-in-darmstadt/umwelt/umweltboerse>).

The project Urban SCOPE had a stand together with the city planning office of Darmstadt to disseminate the graphic material (postcards) and engage in conversation with the visitors, mainly citizens of Darmstadt. The city planning office of Darmstadt had as main topic for this event the redesign of the Lindenhof Strasse, Woogsplatz and Mühlstrasse, which forms part of the Action Plan of Urban Scope – the redesign of the Woogsplatz.



Figure 8: Posters announcing the competition.



Figure 9: Printed material disseminated at the Environmental and Regio-Fair of the city of Darmstadt

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