

MAN_07 Create a network of mobility hubs in cooperation with the regional transport association, open for multi mobility providers

Description of the measure and main outcomes expected

Under this measure rnv develops a connected mobility concept integrating shared mobility into the planning, construction, and operations of public transport stops (Fig 40). This concept will systematically incorporate existing micro-mobility services such as e-scooters, bike sharing, and car sharing, alongside active modes like walking and biking. The goal is to create seamless transitions between these modes by physically integrating them at PT stops, increasing their visibility, and therefore improving accessibility. Furthermore, this measure aims at realizing at least one pilot site in accordance with the newly developed concept.



Fig 40. Scheme of MAN_07 with preliminary work & inputs.

Preparation of the measure

Evaluate shared mobility framework & identify mobility providers & options

In a first step, all relevant documents and regulations in the field of shared and public mobility were gathered as well as actors identified. In order to achieve this, an online search was conducted to obtain relevant documents. Furthermore, existing guidelines and documents already known were gathered and reviewed. Finally, relevant agencies and organisations, such as the regional transportation authority, the state ministry of transport, and the regional approving authority were screened in order to obtain further relevant information and documents. All information gathered was then reviewed by a project team member and key results were presented and discussed among the project team

conducting the measure. Key results include a digital reference book providing all relevant information filterable in one place (see *Annex 3: MAN_07 Reference book on local/ regional shared mobility framework*). This reference book connects the original document via weblink or link to the PDF document with relevant meta information on the author, year of publishing or date of taking effect, the spatial coverage, the (binding) character etc. Combined with excerpts of the most relevant chapters and passages, a filterable table was created that allows to provide an easy and quick overview of all relevant documents on one specific topic, e.g. covering the city of Mannheim as well as bike parking. During the drafting of the concept, specific aspects hence can be cross-checked with this reference book, ensuring that all relevant political goals, focus areas, as well as guidelines and regulations are considered.

Furthermore, mobility services and providers as well as relevant actors were identified and assessed. This assessment of mobility providers included options such as bike sharing, car sharing, and ride-hailing based on criteria like service coverage, pricing models, user feedback, and technological capabilities.

Evaluate possible Mobility Hub formats, experiences, options

Step two was started alongside step one and includes regular exchange with other mobility hub operators, implementing cities and other experts in this field, both on a national as well as through UPPER and CIVITAS on a European level. Best-Practice examples are gathered, and insights and first-hand experiences are exchanged. Amongst others, the project team of MAN_07 gained detailed insights into mobility hub projects in Leipzig, Dresden, Dusseldorf, Berlin, Karlsruhe. This task will continue throughout the measure preparation and implementation. The three key results of this evaluation were the relevance of a uniform design and brand, the benefits of cooperative approaches, were different actors build uniform hubs as well as the benefit of a digital representation (MaaS-App) of the physical hubs. These insights influenced the measure design directly, e.g. regarding the incorporation of the regional VRN design or the multi-stakeholder approach chosen. Even though the digital representation is outside of the scope of this measure, contacts on the issue have been established with the VRN-team responsible for the MaaS-App. Thus, it will be assured, that any necessary data that will be needed for digital services later on, e.g. on the exact location of specific services on the spot, will be considered and collected if possible, during construction. Furthermore, many practical tips and experiences were discussed and exchanged, such as marking and signage in accordance to German road traffic act, service and operational issues ranging from faulty locks to vandalism, or details on the dimensioning on bike and scooter parking areas.

The example of mobility hubs in Dusseldorf has a focus on location in the neighbourhoods, bike park and shared mobility, but so far no PT integration (Fig 41).



Fig 41. Example of mobility hubs in Dusseldorf (Source: Connected Mobility Düsseldorf GmbH CMD)

The example of mobility hubs in Leipzig has a multi-actor approach where the PT-operator (Fig 42), a public provider for car charging points and a car sharing operator built multimodal hubs along a uniform design and approach.

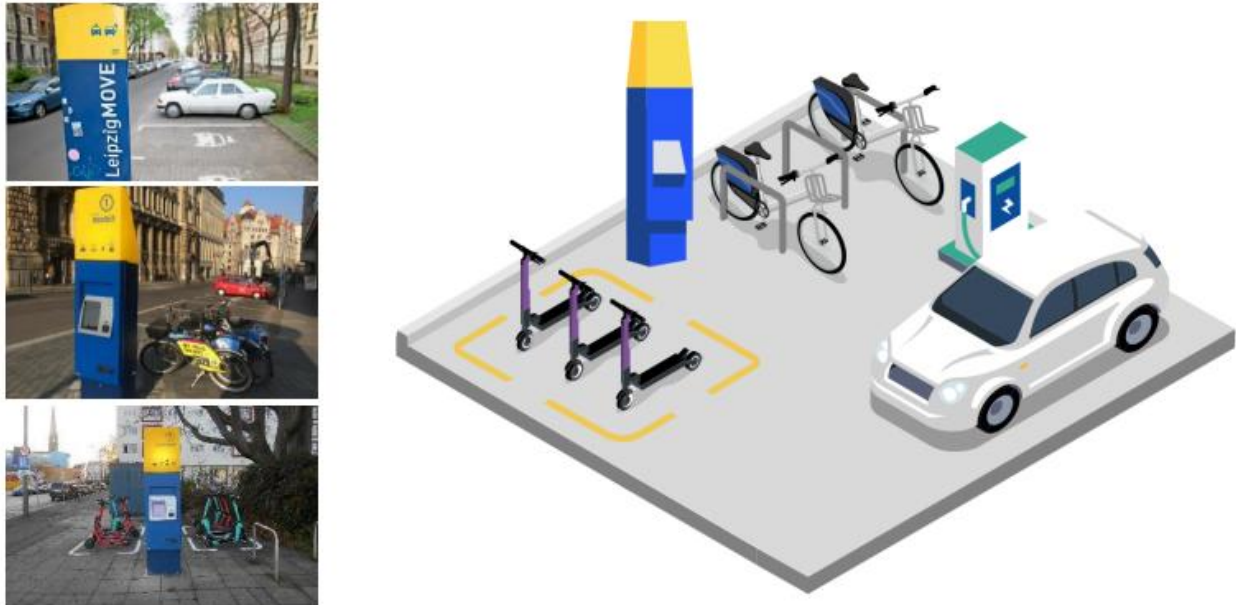


Fig 42. Example of mobility hubs in Leipzig (Source: Leipziger Verkehrsbetriebe LVB).

The example of Freiburg offers a visionary concept for rural hubs (Fig 43), combining a mobility hub with a service hub (shops, co-working, mail, market, etc.)



Fig 43. Concept for a rural, multifunctional mobility hub in Freiburg (Source: Energieagentur Regio Freiburg).

Mobility hubs in Dresden offer a unified, modular approach with brand and digital representation orchestrated by PT Operator with large scale implementation (Fig 44).



Fig 44. Schematic picture of mobility hubs in Dresden (Source: Dresdner Verkehrsbetriebe DVB).

The mobility station in Berlin presents a unified, modular approach with brand and digital representation with large number of different providers, multiple service specific digital representations and a spatially flexible set-up (Fig 45).



Fig 45. Schematic picture of mobility station in Berlin (Source: Berliner Verkehrsgesellschaft BVG).

Identify pilot site

As a third step, a pilot site was chosen to implement and test multimodal features. As lead time for construction projects is longer than a project cycle, the decision had to be taken considering the window of opportunity between the UPPER timeline, the needed time for implementation (planning, approval, and construction) as well as the measure timeline, as the concept is needed as base for the implementation as well. These constraints limit the number of options for a pilot site, thus making an easier decision, while other challenges around the pilot site arose. In the end, it was decided to use the Mannheim central station as pilot site, as it is one of the most frequented transportation hub in the city with many multimodal options already present and larger rebuilt coming up in 2025, which serves as a perfect opportunity to implement and showcase multimodal connectivity.

Mannheim central station is a railway station in Mannheim in the German state of Baden-Württemberg (Fig 46). It is the second largest traffic hub in southwestern Germany behind Stuttgart, with 658 trains a day, including 238 long-distance trains. It is also a key station in the Rhine-Neckar S-Bahn. 100,000 passengers embark, disembark or transfer between trains at the station each day. The station is located on the southern edge of central Mannheim. Travellers reach the platforms via escalators and lifts in the wings of the entrance hall, which lead to a northern and a southern subway under the tracks. The routes to the platforms have been upgraded to make them accessible for the disabled. Lifts, escalators, and a direction system for the visually impaired enable all travellers to reach the trains without assistance.

The station forecourt has stops for several tram and bus lines of Rhein-Neckar-Verkehr and the bus lines of Busverkehr Rhein-Neckar. In 2022 and 2023 construction work on an upgrade program for the forecourt started, finishing the first two phases (green and red areas) by spring 2023. For the time of the national garden show during summer of 2023 the construction was halted, and it is expected that construction work will continue in 2025 with the final phase three (blue area) of the work.

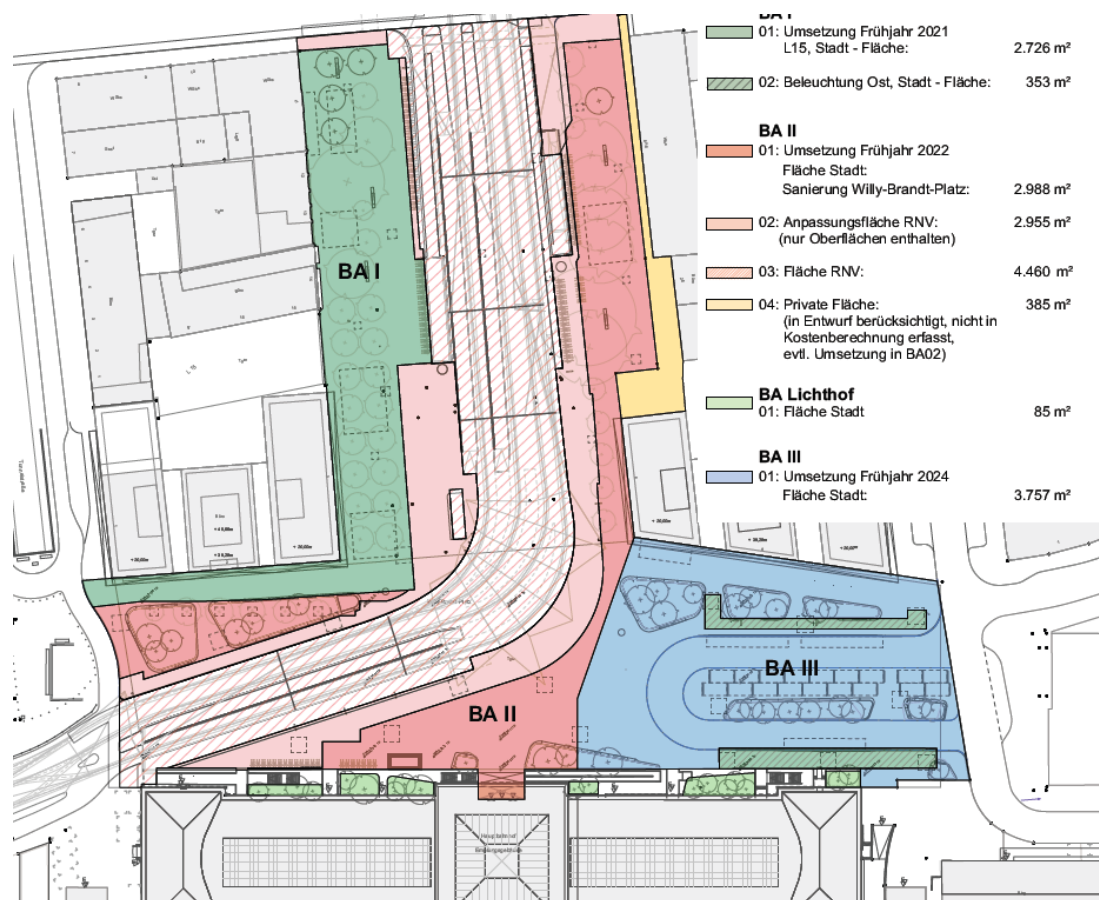


Fig 46. Site plan of Mannheim central station forecourt (Source: city of Mannheim).

Development of concept

Work on the fourth step of developing the concept just started and a first draft is to be expected by September.

Consultation with VRN and city of Mannheim on the concept

To be successful with this measure, relevant organizations, partner and stakeholders have to be consulted. The most important, central actors for this measure is the regional transport authority as well as the city of Mannheim. The Verkehrsverbund Rhein-Neckar (VRN, TA) is a transport association covering parts of the German states of Baden-Württemberg, Rhineland-Palatinate and Hesse in south-



west Germany. Founded in 1989, it initially served the Rhein Neckar Area, but has since grown beyond its borders to cover an oblong area of 10,000 km² with a population of 3 million, including Mannheim and Ludwigshafen, Heidelberg, Kaiserslautern, the entire Palatinate Forest and the northernmost parts of Baden-Württemberg. The VRN is owned by the three states, cities and rural districts whose area it serves. This step was also moved forward and the first consultation with the central actors from the city of Mannheim and the regional transport association VRN has already taken place, regular follow-ups, and a close cooperation especially regarding the pilot were agreed upon.

Challenges & Mitigations

The preparation of this measure started at an earlier point than most other measures included in the UPPER project. As this measure was not outlined in detail before the proposal, as well as due to its complex nature with multiple public and private actors involved in the topic, quite a lot of preparatory tasks had to be conducted first. This included the detailed project planning together with relevant internal experts from the infrastructure and mobility planning departments, as well as the required internal PMO and approval process along with multiple feedback loops. Work on the measure itself therefore started in April 2024. To mitigate the delay in measure preparation, the timeline of work packages within this measure have been moved forward and tasks have been parallelized, to stay on track for the implementation. Furthermore, just recently an issue with the funding of the pilot implementation arose, that is currently discussed with project management and controlling experts from all parties involved.

Next steps towards implementation

Once the concept is finalized, it will undergo review and approval by key stakeholders, including VRN (Verkehrsverbund Rhein-Neckar) and the City of Mannheim. Their feedback will be incorporated to refine and enhance the concept further. Parallely, an implementation plan will be crafted, outlining tasks, timelines, responsibilities, and budgetary considerations (T6.3). This plan ensures a systematic approach to executing the shared mobility initiative. Once all technical requirements are outlined and the overall construction process timeline is set, the procurement process will be initiated to source necessary services or equipment for the mobility infrastructure at the pilot site. Finally, securing official approval from relevant authorities is essential before proceeding with the full-scale implementation of the shared mobility framework in all future PT construction projects in the Mannheim region.