Interreg Baltic Sea Region

Co-funded by the European Union

SMART GREEN MOBILITY
SUMPs for BSR

Case Studies of small-scale experiments and data collection pilots

Experiences from the preparation phase of local pilots

SUMPs for BSR - Enhancing Effective Sustainable Urban Mobility Planning for Supporting Active Mobility in BSR Cities

Institute of Baltic Studies, October 2024

Imprint

This publication has been developed within the European project **SUMPs for BSR – Enhancing Effective Sustainable Urban Mobility Planning for Supporting Active Mobility in BSR Cities**, co-financed by Interreg Baltic Sea Region.

The project SUMPs for BSR, co-funded by the Interreg BSR programme, is supporting transition to sustainable urban mobility planning. The SUMPs for BSR consortium consist of the following partners: Union of the Baltic Cities Sustainable Cities Commission c/o City of Turku (FI), University of Gdansk (PL), Institute of Baltic Studies (EE), Cēsis Municipality (LT), City of Gdynia (PL), University and Hanseatic City of Greifswald (DE), Gävle Municipality (SE), Panevėžys City Municipality (LT).

The sole responsibility for the content of this publication lies with the authors. It does not necessarily reflect the opinion of the European Union.

Contract: SUMPs for BSR – Enhancing Effective Sustainable Urban Mobility Planning for Supporting Active Mobility in BSR Cities no. C055

Title: Case Studies of small-scale experiments and data collection pilots – Experiences from the preparation phase of local pilots, deliverable 1.2 and 1.4 of the SUMPs for BSR project

Version: October 2024

Authors: Maarja Käger & Kertu Ling, Institute of Baltic Studies.

Contributors: Oona Uusitalo, City of Turku, Finland
Madara Jenerte & Daina Tērauda, Cēsis Municipality, Latvia
Justyna Suchanek & Alicja Pawłowska, City of Gdynia, Poland
Saskia Seidel, Hanseatic and University City of Greifswald, Germany
Vasiliki Zachari, Gävle Municipality, Sweden
Indrė Juodikė & Augustas Makrickas, Panevėžys City Municipality, Lithuania

Layout: Ira Sibelius, City of Turku

Cover picture: © Adobestock / Sebastian.

How to cite: Käger, M. & Ling, K. (2024, 10). Case Studies of small-scale experiments and data collection pilots – Experiences from the preparation phase of local pilots. Deliverable 1.2 and 1.4 of the SUMPs for BSR project, co-funded by Interreg Baltic Sea Region. Institute of Baltic Studies.

Project note

SUMPs for BSR project supports cities shifting their planning practices towards people-centered sustainable urban mobility planning focusing on active mobility modes to fight the climate crisis. The project aims to increase the uptake of Sustainable Urban Mobility Plans (SUMP) as a strategic tool for sustainable mobility planning by developing tools and offering extensive capacity building for local authorities, especially in small and mid-sized BSR cities. A common framework on monitoring and evaluation for sustainable urban mobility planning will be developed to set up sound local processes suitable to smaller cities. Together with a unified model for testing and experimenting with innovative mobility solutions, it will help to evaluate the performance of the local mobility system and to provide crucial information for planning and decision making.

Contents

1. Introduction

The SUMPs for BSR project aims to increase the uptake of Sustainable Urban Mobility Plans (SUMPs) as a strategic tool for sustainable mobility planning for local authorities, especially in small and medium-sized Baltic Sea Region (BSR) cities. The focus is especially on the key topics of the project: the harmonisation of monitoring and evaluation approaches across borders for sustainable urban mobility planning, better recognition of active modes as key components of local mobility systems, and the promotion of small-scale experiments as a strategic mobility planning tool to promote active mobility. These topics have been identified as challenging for the cities in the need assessment conducted in the framework of the preceding seed money project and during the SUMPs for BSR project, both supported by the Interreg Baltic Sea Region Programme.

Small-scale experiments and data collection pilots are crucial components for advancing active mobility measures in urban areas. These approaches allow cities to test, refine, and evaluate the impacts of new initiatives before committing to large-scale implementations, which is essential in environments where resources and public support may be limited. Small-scale pilots offer a manageable way to introduce innovative mobility solutions, ensuring that any potential disruptions to traffic patterns, local businesses, or public sentiment can be addressed early. By first testing on a smaller scale, cities can gain valuable insights into what works and what does not, helping them fine-tune strategies that are scalable and replicable in broader contexts.

Data collection pilots, in particular, provide the quantitative and qualitative insights needed to make informed decisions. Active modes of transport, such as cycling and walking, have often lacked comprehensive data to support their wider implementation, making it difficult for decision-makers to justify investments in these areas. Data pilots bridge this gap by supplying accurate, real-time information about the usage patterns, preferences, and challenges associated with active modes of transport. These pilots allow cities to evaluate the effectiveness of measures such as new cycling lanes, modal filters, bicycle tracks or mobility hubs, and provide a clearer picture of their impacts on mobility, city environment, and emissions.

Furthermore, small-scale experiments and data pilots foster a culture of experimentation and adaptability in urban mobility planning. They enable cities to respond to emerging challenges in real-time, such as shifts in public behaviour or changes in environmental conditions, without having to wait for large, inflexible infrastructure projects to be completed. This agile approach not only enhances the planning process, but also builds public trust by demonstrating the tangible benefits of active mobility initiatives in a low-risk, trial environment.

Therefore, small-scale experiments and data collection pilots are vital tools for cities to strategically develop and implement active mobility measures. They help ensure that sustainable mobility interventions are grounded in solid evidence, minimize risks, and create opportunities for broader stakeholder engagement, all of which are crucial for the successful integration of active modes into urban mobility systems.

This document describes the peer review process of developing small-scale experiments and data collection pilots in the partner cities. This is followed by separate chapters that describe the project

partners´ pilots as case studies (deliverables 1.2 “Peer reviewed plans for the local pilots for collecting data on active modes” and 1.4 “Peer reviewed plans for the local small-scale measures for active mobility” of the SUMPs for BSR project). To support other cities in the region to pilot their ideas, the focus of the document is on the key elements of success and learning points from the preparation phase of the pilots.

2. Aim and process of preparing the pilots

2.1. Small-scale measures for big benefits

Implementing large-scale infrastructure measures is slow and very costly. However, improving the quality of public spaces and conditions for cycling and walking can be done locally and relatively quickly with small investments (Helsinki Region Transport 2020). Small-scale measures can also be used to test the viability of permanent solutions before expensive and extensive infrastructure changes are made. These support concentrating on smaller areas or narrower target groups to be more successful in detailed planning to avoid unforeseen obstacles. These small-scale measures or pilots can lead to unexpected solutions that can be scaled up and replicated in different areas of the city. Low-cost measures are particularly important and effective for small and medium-sized cities with limited resources.

Reducing car dependency is critical for fostering sustainable urban environments. Car-centric urban design often prioritizes vehicle traffic over the needs of residents, leading to detrimental consequences for public health and the environment. Urban areas with high automobile dependency contribute to increased greenhouse gas emissions, air pollution, and a decline in physical activity among residents, which is linked to higher rates of obesity and chronic diseases (Newman, Kenworthy 2006). By promoting alternative modes of transportation such as walking, cycling, and public transit, cities can mitigate these issues while enhancing overall liveability.

It is often challenging to introduce measures aimed at improving public space due to potential opposition from car users. Pilots can help identify new ways to encourage sustainable modes of transport and reduce car dominance. For example, implementing traffic calming measures like speed bumps, narrower streets, creating attractive urban spaces for various activities, or introducing temporary cycling lanes can significantly enhance conditions for walking and cycling. Such interventions not only improve public spaces, but also demonstrate the feasibility of more permanent solutions.

The promotion of active modes of transportation has positive impacts on citizens' health and supports the development of a more inclusive mobility system. Even minor improvements in walkability can lead to increased physical activity among residents, resulting in substantial health benefits and lower mortality rates (Helsinki Region Transport 2017).

Moreover, small-scale measures can enhance the visibility of the Sustainable Urban Mobility Planning (SUMP) process by testing controversial initiatives that may initially face public resistance. Highlighting positive environmental outcomes from these pilots can help gain public and political support for broader initiatives. Piloting also fosters agility within the public sector, enabling quicker responses to emerging transport challenges while actively involving local stakeholders in planning larger investments.

In summary, reducing car dependency through pilot projects not only addresses pressing environmental issues but also promotes healthier lifestyles and more equitable access to urban amenities. By prioritizing sustainable urban planning strategies that focus on active transportation modes, cities can create healthier, greener, and more liveable environments for all residents. (International Transport Forum 2021, Rode 2023)

2.2. Planning the small-scale active mobility experiments and data collection pilots

The first year of the SUMPs for BSR project concentrated on developing city partners´ pilot ideas. This was done bearing in mind the lacking skills and capacities of cities to adopt SUMPs, to pilot different measures to reach goals, and to monitor and evaluate the impacts of the planned actions. To support partners in developing their ideas and in collecting learning points from the preparation phase, the process described in figures 1 and 2 was used.

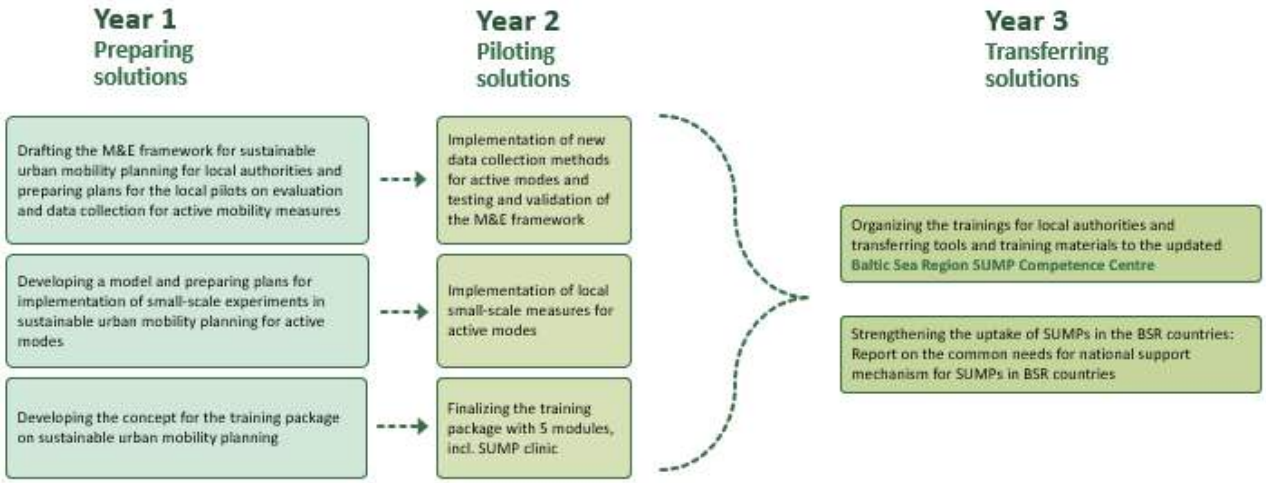

Figure 1. The process of the project

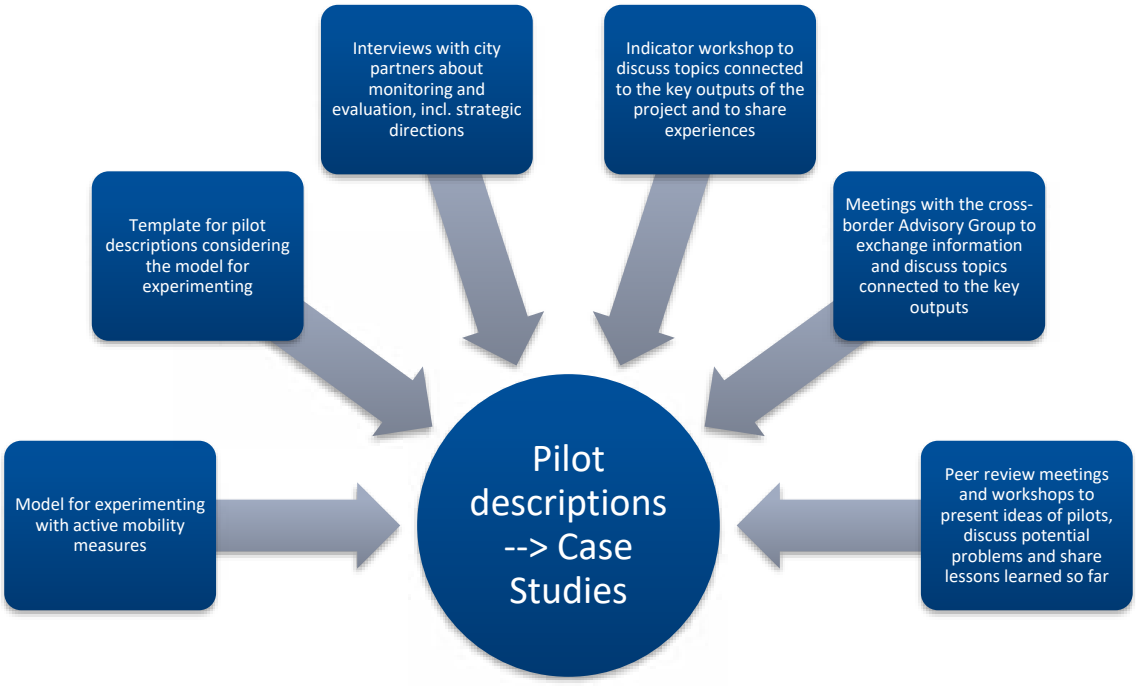

Figure 2. The process of developing pilots

The process for developing the pilots started based on the **Model for experimenting with active mobility measures** (UBC Sustainable, 2024). Pilot descriptions were modified continuously based on all activities carried out during the project. Peer review meetings were held to allow partners to share their progress, exchange ideas and solve problems together. Depending on the status of the pilot and the needs of the partners, peer reviews were held in bigger or smaller groups and had a specific topic, e.g. target groups, engagement, changing mobility habits and nudging, monitoring and evaluation of pilots, indicators, lessons learned. Some of the peer reviews were held face-to-face, some online through Teams. Sticky notes or Miro boards were used to share and group ideas (as an example, see figure 3 and 4).

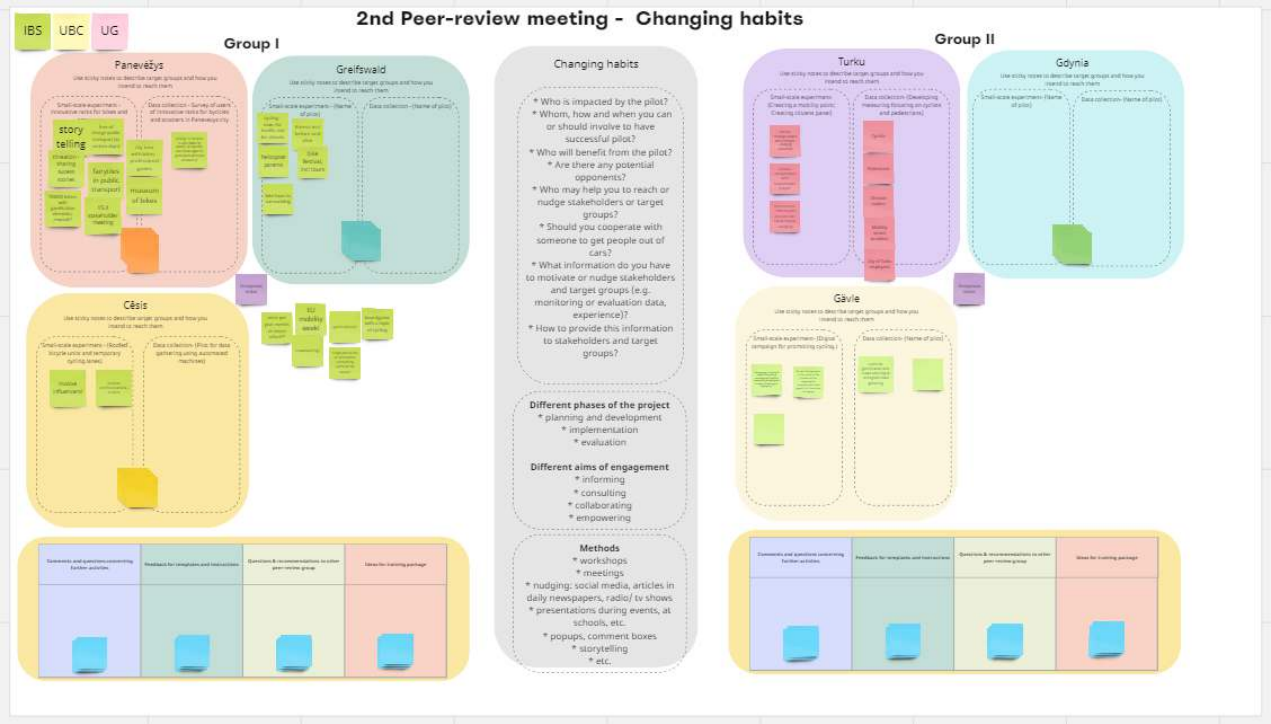

Figure 3. The 2nd Peer review meeting used Miro board to share ideas about changing mobility habits with the local pilots.

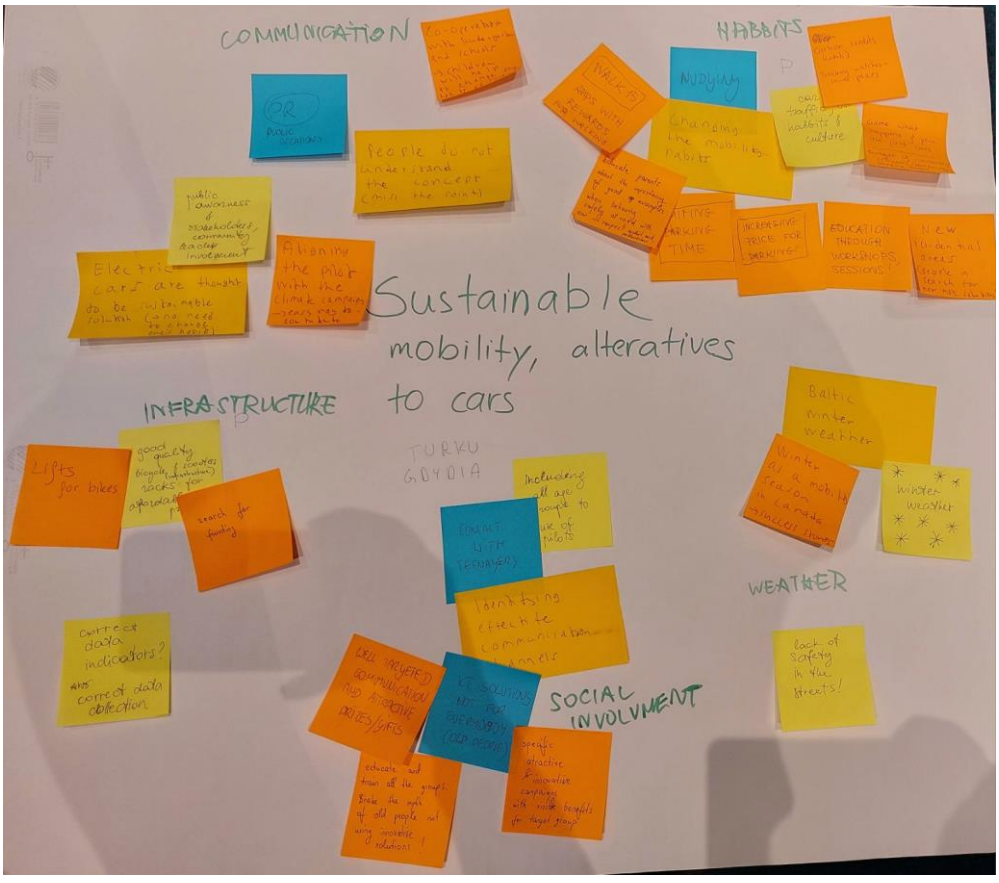

Figure 4. The 1st workshop used sticky notes to map threats and challenges of pilots.

One important part of the preparation phase was analysing and providing feedback to each other's pilot descriptions. Partners had time to ask questions from the partners and commenting on their descriptions during the meetings or between the meetings. There were also some peer review meetings where

partners had to concentrate on the descriptions of one pre-determined partner to ensure in-depth feedback.

The results of the peer review meetings were summarised in memos and based on the peer review meetings, pilot plans and descriptions were developed further. At the end of the preparation phase, the pilot descriptions were summarised as Case Studies concentrating on the learning points from the preparation phase and on aspects that are critical for the success of the pilots.

During the 2nd year of the SUMPs for BSR project (2025), the pilots presented in this document will be implemented and measured so to continue with collecting learning points in 2026 to strengthen the uptake of SUMPs in the BSR countries based on the experiences of this project. Thereby, the pilots described here will directly contribute to the main outputs of the SUMPS for BSR project. The data collection pilots contribute to O2.1 “Monitoring and evaluation framework for effective sustainable urban mobility planning”. Both, including small-scale measures on active mobility, contribute to O2.4 “Transferable training package”.

The following chapters present case studies that aim to give a short overview of the most important aspects of the prepared data collection and small-scale pilots.

3. Case Studies of small-scale experiments

To increase the capability of cities to pilot different measures that may have an effect on decreasing the usage of cars, the partner cities prepared various small-scale experiments on active mobility. An overview of the small-scale experiments on active modes is presented in table 1 and these are covered in depth in the following subchapters.

Table 1. The small-scale experiments on active modes.

Name of the partner	Content of the pilot
Cēsis	Temporary cycling lanes and roofed bicycle units near housing blocks
Gävle	Digital campaign for promoting cycling (focus on employers)
Gdynia	Testing new types of ICT solutions for transforming the main transport hub
Greifswald	Implementing a modal filter and separate traffic light green phase for bicycle traffic
Panevėžys	Innovative racks for bicycles and scooters in selected schools
Turku	Creating a mobility point in a residential district

3.1. Cycling lanes and roofed bicycle sheds in Cēsis Municipality

3.1.1. City profile

Cēsis is a picturesque city located in northern Latvia, within the Vidzeme region, and is known for its rich historical and cultural heritage. It is the third oldest city in the country, with a population of around 14,000 inhabitants in the city itself and a total of 45,000 people in the wider district. The city plays a crucial role in the region due to its proximity to other important Latvian cities, forming part of the “Vidzeme Triangle”

with Valmiera and Sigulda. The region is known for its focus on sustainable development, with one of its long-term priorities being a “Sustainable and energy-efficient economy.”

Cēsis has set ambitious environmental goals as outlined in its Sustainable Energy and Climate Action Plan (SECAP). Although Cēsis does not yet have a formal Sustainable Urban Mobility Plan (SUMP), several mobility-related goals are embedded in existing local strategies and policies.

3.1.2. Challenge

One of the main challenges facing Cēsis is the high level of car usage for short everyday trips, even within distances that could easily be covered by bicycles. This problem is compounded by the lack of secure and accessible bicycle storage in certain residential areas, particularly in apartment blocks where residents often have to store their bicycles in inconvenient places such as basements or on balconies.

Additionally, the cycling infrastructure in Cēsis is underdeveloped, with few dedicated bike lanes and limited connectivity between existing paths. Without proper infrastructure, many residents are discouraged from using bicycles as their primary mode of transport, particularly for commuting to work or school.

3.1.3. Solution

The municipality of Cēsis is launching a pilot to test the effectiveness of small-scale cycling infrastructure measures, including the installation of six roofed bicycle storage units and the creation of three temporary cycling lanes. The focus is on an area with multi-storey apartment buildings where secure bike storage is currently lacking. The roofed bicycle storage units will be installed in three neighbourhoods, with two units in each.

The installation of the sheds will take place between June 2025 and August 2025 and the sheds will remain there permanently. Temporary cycling lanes will be created from June 2025 to October 2025. The pilot will cover key areas within Cēsis as well as the nearby villages of Līvi and Priekuļi. In addition to building the bicycle storage units, temporary cycling lanes will be connected to existing infrastructure, improving overall safety and connectivity for cyclists. To enhance the connectivity of existing cycling lanes with the city centre, additional traffic safety measures will be implemented.

Figure 5. Example of a safe and easy to use roofed bicycle storage unit. Source: Cēsis Municipality.

3.1.4. Aim and expected impacts

The primary aim of this pilot is to encourage more people to use bicycles as their main mode of transportation for short trips within Cēsis and its surrounding areas. By providing secure, weather-protected bicycle storage and improving cycling infrastructure, the municipality aims to make cycling more accessible and convenient and therefore a more attractive option for residents.

The expected impacts include an increase in the number of cyclists using bicycles for daily commutes, a reduction in car usage, and a corresponding decrease in CO2 emissions.

3.1.5. Strategic relevance

This small-scale experiment is closely aligned with the strategic goals outlined in the SECAP of Cēsis. One of the key objectives of the municipality is to reduce CO2 emissions by promoting sustainable modes of transport, including cycling. By improving cycling infrastructure and providing secure storage options, the municipality aims to encourage more residents to switch from cars to bicycles, helping to achieve its climate neutrality targets by 2050. Furthermore, this pilot will contribute to the broader goals of reducing traffic congestion, improving air quality, and enhancing the quality of life for residents by promoting healthier, more sustainable transportation options.

3.1.6. Target groups and stakeholder engagement

The main target group for this pilot is the residents of multi-storey apartment buildings, as they are the ones who will benefit most directly from the installation of the roofed bicycle storage units. Another key target group is school children, as one of the primary users of bicycle storage infrastructure. Children are actively cycling around the housing block, so therefore they are likely to start using bikes as a primary mode of mobility. However, the pilot is also designed to benefit all residents of Cēsis, particularly those

who work or go to school in the city, by improving cycling infrastructure and creating temporary bike lanes.

Community engagement is a critical component of this pilot. The municipality has held public consultations with residents to gather input on the design and location of the bicycle storage units and temporary lanes. In addition, the municipality will run awareness campaigns to encourage residents to use the new infrastructure, including partnerships with local businesses and schools to promote cycling as a sustainable mode of transport.

3.1.7. Evaluation and monitoring

The pilot will be evaluated using both quantitative and qualitative methods. Bicycle counters will be installed to monitor the number of cyclists using the new infrastructure. In addition, qualitative interviews will be conducted with residents to assess their satisfaction with the bicycle storage units and the temporary cycling lanes. These interviews will provide insights into the user experience and help identify any areas for improvement.

The pilot will be monitored throughout its implementation, with data being collected before and after the infrastructure is installed. Key indicators for evaluation will include the number of cyclists using the storage units and temporary lanes, reductions in car usage, and feedback from residents on the convenience and safety of the new infrastructure.

In the evaluation process, the following aspects will more specifically be reflected on:

- procurement (are the specifications good enough?),
- bicycle sheds (are the sheds appropriate for the inhabitants of multi-storey apartment buildings, are they convenient to use and are they being used?),
- cost (is the outcome worth the investments?),
- timeline (are the deadlines delayed or on time?),
- number of cyclists (will the number of cyclists increase after the sheds are in place and the temporary bicycle lanes are drawn?), and
- customer satisfaction (how many people are engaging in the project, are they satisfied?).

3.1.8. Lessons learned from the planning phase

The planning phase of this pilot revealed several important lessons. First, early and frequent engagement with the community was critical in identifying the best locations for the bicycle storage units and temporary cycling lanes. The municipality found that direct consultations with residents helped to build support for the pilot activities and ensured that the infrastructure would meet their needs. The more meetings, the better – thereby, a low number of participants does not indicate a low number of shared opinions or ideas. Regarding communication, the municipality emphasises the need to highlight local impacts as people generally seem to be more interested in how the planned activities directly affect them, not so much in the wider aims linked to the municipality's strategic goals. Reaching younger generations still poses a challenge to the municipality with plans made for representing their opinion better.

On the more technical side, Cēsis municipality highlights the need to align the building processes with local building authorities. Similarly, drawing temporary cycling lanes has to be aligned with the national road company. If the bicycle storage units are not installed on municipality-owned land, it has to be aligned with the respective housing association, if there is one.

3.2. Digital campaign to promote cycling in Gävle

3.2.1. City profile

Gävle, the 13th largest city in Sweden, is strategically located by the Baltic Sea, about two hours from Stockholm, making it a key logistics hub in Central Sweden. The city's port, the third largest container terminal in Sweden, enhances its importance within the Scandinavian–Mediterranean Transport Corridor (ScanMed Corridor), connecting urban centres in Scandinavia to Germany and Italy. Gävle's population is currently over 103,000.

Gävle's municipal development is heavily influenced by its focus on sustainability, with goals to become climate neutral by 2030 under the EU's "100 Climate-Neutral Cities by 2030" initiative. While Gävle does not have a formal Sustainable Urban Mobility Plan (SUMP), its strategic documents, including the Environmental Strategy and Traffic Plan, aim to promote sustainable transportation and align with Sweden's national goals to reduce carbon emissions.

3.2.2. Challenge

Gävle's primary challenge is that many commuters are heavily car-dependant. According to Gävle's 2018 travel survey, only 12% of trips are made by bike, with the majority of short trips under 4 km completed by car. This reliance on cars, despite available infrastructure, highlights a behavioural barrier that infrastructure alone cannot address. Moreover, recent analyses have shown that even if the city implements the currently planned measures to reach carbon neutrality, it will still have CO2 emissions of 29%-49% compared to the levels of 2017, caused mostly by the use of private cars.

3.2.3. Solution

Gävle's Digital Campaign for Cycling Promotion is scheduled from March to October 2025. The campaign will utilize a mobile app designed to reach users where they are, offering accessible incentives and tracking capabilities that can illustrate the environmental and health benefits of active commuting. The use of gamification and rewards is intended to motivate participants to change their habits gradually. Participants will be reached through companies that have signed the city's climate contract.

Figure 6. Gävle climate contract. Source: Gävle Municipality.

3.2.4. Aim and expected impacts

The campaign's primary goal is to foster a shift in commuting patterns by promoting active mobility, e.g. cycling and walking, for short-distance travel (under 4 km), thereby decreasing vehicle emissions and supporting Gävle's climate targets. For that, the campaign aims to educate and incentivize residents, particularly employees commuting to work, to consider cycling as a viable, sustainable, and enjoyable alternative to driving. Expected impacts include:

- Increased cycling rates - a higher percentage of residents will adopt cycling or walking for their commute, directly reducing the number of car trips in the city. As the pilot also aims to boost awareness of the environmental benefits of cycling, it is expected to inspire long-term changes in Gävle's commuting culture.
- Environmental and health benefits - reduced car dependency will lead to lower emissions, improved air quality, and enhanced physical well-being among participants.
- Data-driven insights - tracking travel behaviour through the app will provide valuable data for refining Gävle's active mobility initiatives.
- Community and economic impact - by engaging local retailers in the rewards system, the campaign aims to promote a cycling-friendly culture that benefits the broader community and supports local businesses.

3.2.5. Strategic relevance

The digital campaign aligns closely with Gävle's Environmental Strategy, Traffic Strategy, Plan for Cycling and Climate Plan, reinforcing the city's commitment to sustainable travel and CO2 reduction. The campaign especially supports the Traffic Strategy's goal of increasing cycling trips from 23% in 2007 to 60% in 2025, particularly for short journeys. Similarly, the Plan for Cycling aims at increasing the share of cycling by 100% by 2025 compared to the levels of 2012. Lessons from similar campaigns in Swedish cities, such as Kalmar, have informed the campaign design, providing insight into the challenges and best practices for successful implementation.

3.2.6. Target groups and stakeholder engagement

By targeting employees in companies that have signed the climate contract, the campaign focuses on workplaces where employees are likely to be receptive to sustainable commuting options. Local retailers will play a role in incentivizing participation by offering rewards, such as discounts, to those who adopt

active commuting habits. What is more, a good communication of the pilot would result in an improved cycling culture among the residents of Gävle, especially when the direct target groups of the campaign communicate the pilot to friends and family for a wider influence. Communication will be managed through Gävle's established channels, including social media, websites, and in-person events. The project team will collaborate with the city's communication department to create effective, targeted outreach strategies to maintain visibility and participation throughout the campaign.

3.2.7. Evaluation and monitoring

Evaluation will be guided by specific indicators to measure changes in travel behaviour, including:

- App usage - weekly data on user engagement, including the number of app downloads and active users.
- Commuting behaviour change - surveys and travel logs within the app will track shifts in commuting patterns, such as the percentage of trips made by bike or on foot.
- Environmental impact - data on kilometres cycled and CO2 emissions saved will be collected to measure the campaign's environmental contribution.
- Economic benefits - feedback from retailers and local businesses participating in the rewards program will assess the campaign's impact on the local economy.

These indicators will provide continuous feedback, enabling real-time adjustments to campaign incentives and communication strategies as needed. Post-campaign evaluations will also include qualitative feedback and assessment of the pilot process to refine future initiatives.

3.2.8. Lessons learned from the planning phase

Key lessons from the planning phase highlighted the need for clear, accessible communication, particularly regarding the app's functionality and user expectations. The team found it valuable to engage stakeholders early in the planning process to estimate the scale of the campaign and its possibilities. Instead of the general features of a potential application, the target groups preferred to discuss specific terms of a certain application. This led to the next step in preparing for the procurement. In the field of ICT services, many providers exist nowadays that provide similar solutions at very different price ranges. It was critical to do extended research before setting criteria for the procurement. The procurement process for selecting the mobile app provider thus highlighted the complexity of identifying the right technical specifications to meet the pilot needs. By the way, whereas in the beginning, the plan was to procure the app starting from zero, it was later decided that an existing app will be procured while maintaining the possibility of developing additional functionalities.

The communication and marketing of the mobile app is a decisive factor for the success of the pilot. A learning point is that communicating only by social media is not enough and it can also be very demanding. It is important to have a clear communication strategy and alternative methods of communication.

Gävle also discovered that setting up an adaptable reward and gamification system could ensure sustained interest among participants and that flexible communication strategies would be critical for reaching different demographics within the target audience.

Experience from other cities also underscored the need for sufficient human resources, especially for campaign promotion and stakeholder engagement. An important learning point is to include as many people internally as possible during the analysis of specific needs and setting goals for the pilot to ensure better legitimation and a sense of commitment. In case of need, consultants can be involved for dedicated communication.

3.3. Transforming Gdynia's Constitution Square with ICT solutions

3.3.1. City profile

Located along the Baltic Sea in northern Poland, Gdynia's population is approximately 242,000. The city plays a central role in the Gdansk-Gdynia-Sopot Metropolitan Area and is part of the strategic Baltic Adriatic Corridor within the European Union's TEN-T transport network. Gdynia's history as a port city has heavily influenced its urban and economic landscape. The city's reliance on road-based freight transport has increased congestion and emissions in its central areas, making sustainable transportation a key focus for its urban development strategy.

To address these challenges, Gdynia adopted its first Sustainable Urban Mobility Plan (SUMP) in 2016. By now, Gdynia presents sustainable urban mobility planning in three-levels, metropolitan, city-and district level, and is currently planning an update to the city-level SUMP.

3.3.2. Challenge

Currently, Gdynia's main transportation hub, the Constitution Square, is heavily dominated by vehicular traffic, which limits its functionality as a central transport hub and public gathering space. The city's reliance on cars, coupled with its unique port-based economy, creates a challenging environment for promoting active mobility. Gdynia's commitment to sustainable mobility requires reimagining such spaces to balance the needs of pedestrians, cyclists, and public transport users.

3.3.3. Solution

As part of its SUMP objectives, Gdynia is tackling these challenges by implementing a small-scale pilot to transform the Constitution Square into a more accessible, pedestrian-friendly space. This pilot, running from summer 2024 through autumn 2025, will test various ICT solutions. Key elements include virtual tours, interactive maps, and feedback mechanisms that allow residents and visitors to actively participate in the planning and evaluation process. The transformation of the Constitution Square will serve as a model for similar projects in other public spaces across Gdynia.

Figure 7. The current state of the Constitution Square. Source: Gdynia Municipality.

Figure 8. Future vision of the Constitution Square, designed to promote sustainable mobility and community engagement through innovative ICT tools. Source: Gdynia Municipality.

3.3.4. Aim and expected impacts

The primary aim of this pilot is to enhance Constitution Square's accessibility, functionality and usability through the deployment of innovative ICT tools that promote active and sustainable mobility. By providing interactive visualizations and gathering real-time feedback, the pilot seeks to engage more citizens to create a more user-centred space that prioritizes sustainable modes of transportation, e.g. walking and

cycling. Expected impacts include an improved pedestrian and cyclist experience, greater community engagement in the urban planning process, and increased public support for future urban mobility initiatives. If successful, the lessons learned from this pilot could inform the redevelopment of other transport hubs, thereby contributing to Gdynia's broader goals of fostering active mobility and reducing car dependency.

3.3.5. Strategic relevance

This experiment aligns closely with the city's SUMP and the National Urban Policy 2030 by supporting goals related to active mobility, public engagement, and reducing the environmental impact of transportation. The small-scale experiment is also connected to broader efforts to integrate various forms of transport and reduce the dominance of vehicular traffic in the city centre. By transforming a major transport hub, Gdynia is setting a precedent for sustainable urban development and aligning with national strategies that prioritize eco-friendly mobility solutions.

3.3.6. Target groups and stakeholder engagement

The primary target groups for this pilot include:

- Residents – by creating a more friendly environment to pedestrians and cyclists, the pilot improves the local residents' quality of life.
- Commuters – developing the transport hub will facilitate safer and easier transfers between different modes of transport.
- Tourists – revitalising the Constitution Square will make it a more attractive destination, improving the city's overall image.
- Businesses – local businesses can benefit from increased foot traffic and a more vibrant public space.
- Technology providers – the pilot offers an opportunity to test and showcase innovative ICT solutions in an urban setting.
- Local authorities – the success of the pilot supports Gdynia's broader strategic goals and provides a model for future urban projects.

Engagement methods will feature interactive virtual tours, 3D visualizations, and surveys that allow users to explore the proposed changes in the Constitution Square. These tools provide an immersive experience, enabling residents and other stakeholders to visualize the planned transformations and offer feedback. Additionally, workshops and consultations with key stakeholders will facilitate discussions on the pilot's design and goals, ensuring that the ICT solutions align with community needs. This approach emphasizes co-creation, allowing residents and visitors to feel invested in the changes made. Also, news articles and media updates, direct communication via emails and social media engagement will be used.

3.3.7. Evaluation and monitoring

Monitoring and evaluation will rely heavily on data gathered from user interactions with the ICT solutions. Key evaluation methods include:

- Online feedback forms, available on the platform hosting the virtual tour - key indicators include the number of completed forms and user satisfaction ratings. Feedback will be gathered continuously, allowing to assess satisfaction levels in real time.
- Online platform analytics, monitoring user interactions with the virtual tour – key indicators include the number of visits and user engagement metrics. This data will be reviewed regularly to assess the level of interaction and engagement with the ICT solutions.
- Traffic and space utilization data to assess changes in car dominance. Indicators include the number of parking spaces, traffic flow, and the total area allocated to vehicles before and after the implementation.

Continuous data collection through surveys and online analytics, but also through stakeholder consultations and workshops, will enable the pilot team to refine the tools and improve user experience. A baseline survey conducted in May 2024 at the Constitution Square provided initial insights into residents' preferences and needs, establishing a reference point for post-pilot assessments. This iterative evaluation process ensures that the pilot remains responsive to community feedback, making necessary adjustments to better serve the target groups.

3.3.8. Lessons learned from the planning phase

The planning phase underscored the importance of stakeholder collaboration, particularly with departments such as the City Gardener's Office and technology providers. By involving these stakeholders early, the pilot has ensured that the ICT solutions are well-integrated with Gdynia's urban planning environment. Preliminary consultations with user experience designers have also helped align the pilot with current trends in digital engagement, making it both accessible and appealing to residents.

The planning phase showed also the importance of real-time feedback: continuous feedback will be vital in refining the ICT solutions and maintaining public engagement throughout the pilot's duration. This process provides target groups with a clear indication that their input is both valued and impactful, helping to shape project outcomes.

3.4. Modal filter and separate green light phase for bicycle traffic in Greifswald

3.4.1. City profile

Greifswald, located in northeastern Germany along the Baltic Sea, is a vibrant university city with a population of approximately 60,000. The city serves as a regional hub, with significant importance in the fields of education, research, and sustainable urban development. Greifswald has made a strong commitment to reducing its carbon footprint and promoting sustainable urban mobility, with a target to achieve climate neutrality by 2035. Although the city is still in the process of developing a full Sustainable Urban Mobility Plan (SUMP), it has already implemented several key initiatives, including an integrated traffic concept for the inner city adopted in 2021.

3.4.2. Challenge

The primary challenge addressed by this pilot is the high volume of motorized traffic in Greifswald's inner city. One third of the motorized traffic in the inner city use the city centre as a shortcut (around 1,700 motor vehicles) contributing to congestion, safety risks for pedestrians and cyclists, obstruction of public transport and reduction in the quality of living and stay in the inner city. While CO2 emissions have been reduced in almost every sector, in transport sector these have increased by 27% compared to 1990.

3.4.3. Solution

The small-scale transport experiment in Greifswald involves the installation of modal filters in the inner city and the creation of a separate green light phase for bicycles at a critical intersection. The modal filters will divide the city centre into zones that can still be accessed by car but will no longer allow through traffic. Therefore, the modal filters will: prevent cars from using the inner city as a shortcut, reduce traffic noise, improve traffic safety for cyclists and pedestrians as well as improve the quality of living and staying in the inner city. The modal filter will be conducted as a temporary trial in 2025 under German road traffic law, with the possibility of becoming a permanent feature if it proves successful. Besides that, the green light phase at a busy intersection will improve bicycle traffic by separate lanes for motorized traffic, bicycle traffic and pedestrian traffic and improve traffic safety for cyclists and pedestrians at conflict-ridden areas. This pilot is part of the city's broader effort to promote active mobility and reduce reliance on motorized vehicles.

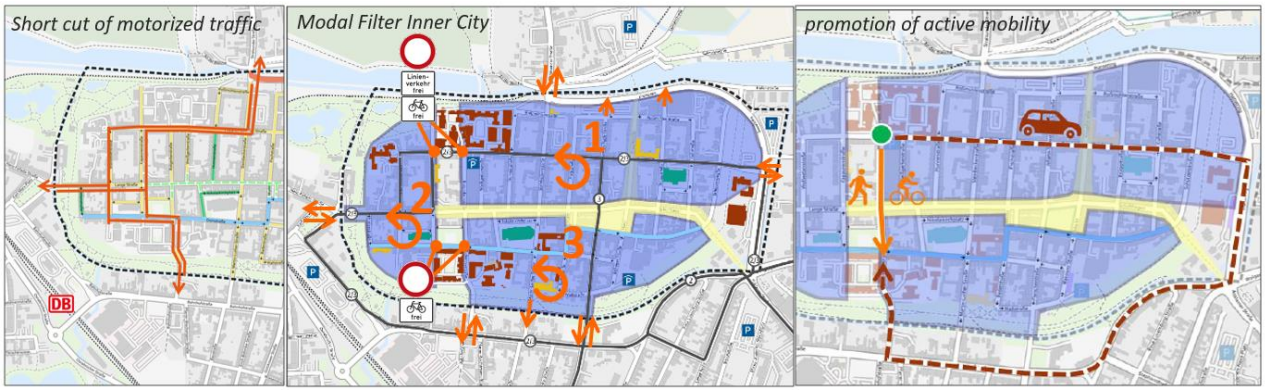

Figure 9. The planned modal filter in Greifswald. Source: Greifswald Municipality.

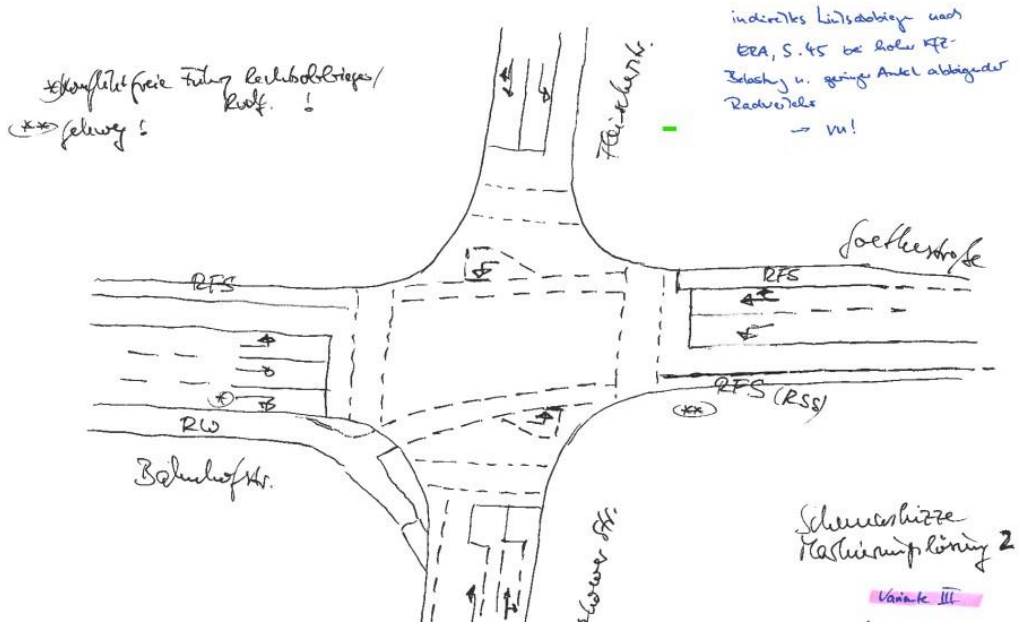

Figure 10. Intersection with separate traffic light green phase for bicycle traffic (draft). Source: Greifswald Municipality.

3.4.4. Aim and expected impacts

The pilot aims to reduce motorized traffic in the inner city by one third, making cycling and walking more attractive options by giving them the priority and making living more attractive by reducing traffic noise. The modal filters will encourage using alternative modes of transport as through traffic is not allowed. Meanwhile, the separate green light phase will reduce conflicts between motorized traffic and vulnerable road users, such as cyclists and pedestrians. Expected impacts include safer streets, reduced noise pollution, and a more attractive city centre.

3.4.5. Strategic relevance

This pilot is strategically aligned with Greifswald's goal of becoming climate-neutral by 2035 and supports the city's integrated traffic concept, which aims to prioritize non-motorized transport modes and create safer, more attractive public spaces. By reducing motorized traffic and promoting cycling and walking, the pilot also contributes to the city's broader environmental and mobility goals.

3.4.6. Target groups and stakeholder engagement

The target groups of this pilot include city residents, cyclists, pedestrians, public transport users, local business owners, civil engineering and traffic authority, police, fire protection, universities, etc. The pilot will directly benefit pedestrians and cyclists by improving safety and accessibility in the city centre. Additionally, schoolchildren, students, and the elderly, who are more vulnerable to traffic-related accidents, will benefit from safer streets. Local business owners, residents and representatives of target groups will be engaged through workshops, surveys, public meetings, street-walks, bilateral talks and presentations to ensure their concerns are addressed, and their feedback is incorporated into the project.

3.4.7. Evaluation and monitoring

The pilot will be monitored through a combination of traffic counts, noise measurements, travel time measurement, monitoring compliance with traffic regulations and effect of the modal filter and public opinion surveys. Measurements will be carried out at key locations before and after the modal filters and traffic light green phase are installed. Surveys will be conducted with residents and business owners to assess how the changes have impacted their daily lives and whether they perceive improvements in traffic safety and quality of life.

3.4.8. Lessons learned from the planning phase

The planning phase of the pilot highlighted several important lessons. First, coordination with the monument protection authority proved more challenging than anticipated, as the historic nature of the inner city required careful consideration of any changes to the streetscape. This insight is important for the public workshop: It is a good thing to point out the importance of co-operation and that expectations and wishes from public not always can be implemented. It was understood that when communicating to the public, it is good to emphasize the positive impacts, such as more space, increased safety, over the impacts considered negative, such as a detour by car.

The city also recognized the value of engaging stakeholders early and consistently to build support for the pilot: First and foremost, a clear goal must be formulated and information must be shared transparently within the administration. External stakeholders can be included only when everything has been coordinated within the administration.

3.5. Bicycle and scooter racks in Panevėžys city municipality

3.5.1. City profile

Panevėžys is the fifth largest city in Lithuania, located on the banks of the Nevėžis River. It has a population of around 98,000 and serves as an important industrial hub in the region. The city's strategic position along the Via Baltica and Rail Baltica infrastructure projects connects it to major cities like Riga and Vilnius. Panevėžys has committed to improving sustainable urban mobility, adopting a Sustainable Urban Mobility Plan (SUMP) in 2018 as part of its broader sustainable development strategy (updated in 2023).

3.5.2. Challenge

One of the primary challenges in Panevėžys is the heavy reliance on cars, with 55% of daily trips made by car (2017). This has led to increased congestion, air pollution, and noise, particularly near schools. The current low use of bicycles and scooters, despite the city's compact structure and existing cycling infrastructure, also presents a challenge. Panevėžys has the aim to cut CO2 emissions by 40% by 2030 compared to the 1990 level and attain climate neutrality by 2050.

3.5.3. Solution

Panevėžys city municipality is implementing a small-scale infrastructure pilot by installing innovative bicycle and scooter racks at 10 selected schools. These schools were chosen based on their high student numbers and strategic locations near major cycling paths and residential areas. The pilot seeks to provide secure and convenient parking options for bicycles and scooters, thereby encouraging school communities to adopt these active modes of transport for their daily commutes.

The pilot planning began with initial stakeholder meetings and site selection in early 2024. This will be followed by the procurement and installation of the racks in February-March 2025. The pilot will conclude with a thorough evaluation of the impact that the infrastructure has on student commuting behaviours and environmental quality around the schools.

Figure 11. Vision of the bicycle and scooter racks nearby the selected 10 schools. Source: Panevėžys city municipality.

3.5.4. Aim and expected impacts

The primary aim of this pilot is to provide the necessary infrastructure to support and encourage school communities to choose cycling and scooting over car travel for their commutes to and from school. By addressing the need for secure and accessible parking, the pilot aims to make active transport more viable and appealing. The expected impacts include:

- Increased use of active transport: A significant rise in the number of students using bicycles and basic or electric scooters to travel to school, which will contribute to a reduction in car traffic and associated congestion around school areas.
- Improved environmental outcomes: Lower levels of air pollution and noise around the schools as more students switch to active transport modes. This will contribute to a healthier school environment and community.
- Enhanced student health and well-being: Increased physical activity among students, leading to better health outcomes and greater awareness of sustainable transport options.

- Stronger community involvement: Strengthened ties between the municipality, schools, and local communities in promoting sustainable commuting habits and fostering a culture of active mobility.

3.5.5. Strategic relevance

This infrastructure pilot is an integral part of the city's efforts to implement the Panevėžys Sustainable Mobility Plan (2018) and the Strategic Development Plan (2021-2027). Both plans emphasize the development of infrastructure that supports non-motorized transport and promotes active commuting among residents, particularly the younger population. By installing modern bicycle and scooter racks, the pilot directly addresses the growing need for improved active transport infrastructure. It also aligns with broader regional and national goals for sustainable urban development, contributing to a reduction in greenhouse gas emissions and enhancing urban liveability.

3.5.6. Target groups and stakeholder engagement

The key target groups for the infrastructure pilot include:

- School communities: Students, teachers, and parents from the 10 selected schools. These groups will be engaged through meetings, surveys, and campaigns aimed at promoting the use of the new infrastructure.
- Wider community: Parents and children across the city, cycling enthusiasts, and local tourism and development agencies will be engaged through public events and educational workshops focusing on sustainable mobility.
- Municipal stakeholders: City officials, urban planners, and external mobility experts will collaborate to ensure that the pilot meets the city's strategic mobility goals and provides valuable insights for future projects.

Engagement activities include direct consultations with school administrations to understand specific needs, awareness campaigns to encourage active commuting, and community events to promote the benefits of using the new infrastructure. Stakeholders will be actively involved throughout the project, providing feedback and participating in workshops and public meetings.

3.5.7. Evaluation and monitoring

The pilot's success will be evaluated using a range of indicators, including:

- Result indicators: These include the number and usage rates of the installed racks across 10 schools, and the condition and maintenance of the infrastructure. The functionality of the racks will be ensured through physical inspections.
- Effect indicators: Changes in the modal share of trips to school, including increases in bicycle and scooter usage (e.g. occupancy rate of racks) and decreases in car trips. These indicators, measured through user experience surveys and observations before and after the pilot implementation, will help measure the broader impact of the pilot on commuting behaviour.
- Impact indicators: Community perceptions of the pilot, including safety and satisfaction (measured through user experience surveys before and after the pilot implementation) and changes in noise

levels. Surveys will gather feedback on the infrastructure's effectiveness and noise levels will be recorder during peak hours. These indicators will provide insights into the long-term benefits of the pilot for the community.

Data will be collected before, during and after implementing the pilot, on certain and comparable time periods. This comprehensive data collection strategy will capture seasonal variations and provide a detailed understanding of the pilot's impact over time. After implementation, the pilot process will be evaluated based on costs, interaction, communication, resourcing and overall satisfaction to support similar initiatives in the future.

3.5.8. Lessons learned from the planning phase

Several important lessons have been learned during the initial planning and stakeholder engagement phases:

- Realistic communication with stakeholders: It is crucial to communicate the project's scope and expected outcomes clearly and realistically to stakeholders, in this case to the school communities. Some schools had expectations that exceeded the project's budget and scope, highlighting the need for transparent discussions early in the planning process.
- Collaboration with external experts: While collaboration with external mobility experts is beneficial, it is important to establish a clear understanding of pilot goals and methodologies from the start. Differing perspectives on data collection and infrastructure requirements can impact the pilot's early stages.
- Adapting to stakeholder feedback: Flexibility in project planning and implementation is essential to accommodate feedback from stakeholders and address their concerns effectively. Maintaining an open line of communication and being responsive to stakeholder inputs will be key to the pilot's success.

Moving forward, the project team will continue to prioritize clear communication, effective stakeholder engagement, and adaptive planning to ensure the success of the small-scale pilot and provide a valuable case example for future sustainable mobility initiatives in Panevėžys.

3.6. Mobility hub in the City of Turku

3.6.1. City profile

The City of Turku, located in Southwest Finland, is the country's sixth-largest city with a population of more than 200,000. Turku plays a crucial role as a cultural, historical, and business hub in the region. Turku is also recognized as a major port city. The city is an urban node along the Trans-European Transport Network (TEN-T), linking Finland to major cities like Helsinki and Stockholm through road, rail, and sea routes.

In Finland, there are several development plans and strategies that address mobility issues and climate neutrality, whereby the topics of SUMP are covered in the Regional Transport System Plan 2020-2024, to be updated soon. In Turku, the city-level SUMP for 2025-2029 is currently being finalized.

3.6.2. Challenge

One of the most ambitious strategic goals for Turku is to become carbon-neutral by 2029. To achieve this, one key aim is to increase the number of sustainable trips residents take within the City of Turku from 55% in 2021 to 66% in 2029. In the Pääskyvuori area, there is a high reliance on private vehicles, especially among families. The local population has been slow to adopt sustainable transportation, partly due to the absence of dedicated infrastructure. Moreover, closing down a nearby school in autumn 2024 means that children will have to commute further distances, which has raised concerns about traffic congestion and safety. These changes may support offering sustainable transportation alternatives to reduce traffic congestion in the area. However, convincing residents to change their commuting habits and try new forms of mobility remains a key challenge.

3.6.3. Solution

Turku's small-scale mobility hub pilot will provide a new mobility service to the residents of Pääskyvuori, a district with high car ownership. The hub will offer various mobility options, such as rentable e-cargo bikes, shared city bikes, e-scooter parking spots, and safe bicycle parking. The hub is scheduled to operate from September 2024 to September 2025.

Figure 12. Rentable e-cargo bikes. Source: City of Turku.

3.6.4. Aim and expected impacts

The primary aim of the mobility hub pilot is to reduce the dependency on private cars in the Pääskyvuori district by making sustainable modes of transport more accessible and convenient. The hub is expected to

encourage residents, especially families and commuters, to shift travel habits toward cycling, walking, and using shared vehicles. Additionally, the hub seeks to improve the safety and convenience of school commutes, addressing concerns raised by parents about traffic safety.

The expected impacts of the pilot include an increase in the use of shared bikes and e-cargo bikes, a reduction in traffic congestion, and greater public awareness of sustainable mobility options. A successful pilot would demonstrate that sustainable modes of transport can effectively meet the daily mobility needs of the local population.

3.6.5. Strategic relevance

The mobility hub pilot supports Turku's broader strategic goals of increasing the share of sustainable transport to 66% and reducing road traffic emissions by 50% by 2029. The hub aligns with the SUMP's objectives of promoting active mobility, reducing car dependence, and enhancing traffic safety. Additionally, this pilot contributes to Turku's participation in the EU's climate-neutral cities initiative.

3.6.6. Target groups and stakeholder engagement

The target groups for the mobility hub include local families, schoolchildren, commuters, and employees of nearby schools and businesses. The pilot has been designed with these groups in mind, and efforts have been made to involve them in the planning and implementation stages. For example, the parents of schoolchildren and other local stakeholders have been engaged through workshops and meetings to ensure that the hub meets the community's needs.

To encourage adopting the solution, the city plans to promote the hub through various channels, including local schools, social media, and community events. A survey will be conducted throughout the pilot to gather feedback and assess the hub's impact.

3.6.7. Evaluation and monitoring

The pilot's success will be measured through a combination of quantitative and qualitative data collection methods. Usage data from the shared mobility services, such as the number of bike rentals and returns on-site (incl. cargo bikes, e-scooters), will be collected monthly. Additionally, sensors installed at the hub location will monitor pedestrian and cyclist traffic, providing real-time data on mobility patterns. User feedback will be gathered through surveys and interviews from users and school staff, ensuring that the hub meets the needs of the community and challenges can be addressed during the pilot implementation and when planning future initiatives.

Manual counting will also be conducted along key routes, such as those leading to the local school, to provide additional insights into how the mobility hub is affecting traffic patterns and school commutes.

Based on experiences, feedback surveys, interviews and regular meetings with stakeholders, the questionnaires used in surveys and interviews will be edited, the locations of counters will be changed and the time and location of manual counting activities will be changed to understand the impact of the pilot.

3.6.8. Lessons learned in the planning phase

A major lesson learned during the planning phase was the importance of early stakeholder engagement and cooperation between different parties. Engaging local residents and stakeholders early in the planning process helped to ensure that the mobility hub considers the concerns of residents and is designed to meet their specific needs. Additionally, securing the necessary permits for establishing the mobility hub took longer than anticipated, highlighting the need to check the requirements with specialists from different departments within the city administration and allocate sufficient time for bureaucratic processes.

Effective communication has also been identified as a key factor in gaining public support for the pilot. Emphasizing the safety and convenience of the mobility hub, particularly for school commutes, has been essential in addressing community concerns and encouraging participation.

4. Case Studies of data collection pilots

To increase the capability of cities to collect and analyse data, increase the availability of reliable data, and understand the effectiveness of the small-scale experiments, another type of pilots concentrated on data collection. An overview of the pilots for evaluation and data collection for active mobility measures is presented in table 2 and these are covered in depth in the following subchapters.

Table 2. Pilots of data collection.

Name of the partner	Content of the pilot
Cēsis	Data gathering using automatic cyclist counting machines
Gävle	Data collection with mobile application
Gdynia	Collecting data on the transport behaviour of high school pupils through e.g. surveys, manual counting, and camera observations i.e. Intelligent Transport Systems (ITS)
Greifswald	Traffic counting, observation and surveys
Panevėžys	Using open data sources, surveys in the school communities and real-life laboratory and instrumental research
Turku	Creating a citizen panel and developing measuring focusing on cyclists and pedestrians

4.1. Automatic cyclist counting machines in Cēsis Municipality

4.1.1. City profile

Cēsis is located in northern Latvia, within the Vidzeme region, and is known for its rich historical and cultural heritage. It is the third oldest city in the country, with a population of around 14,000 inhabitants in the city itself and a total of 45,000 people in the wider district. The city plays a crucial role in the region due to its proximity to other important Latvian cities, forming part of the “Vidzeme Triangle” with Valmiera and Sigulda. The region is known for its focus on sustainable development, with one of its long-term priorities being a “Sustainable and energy-efficient economy.”

Cēsis has set ambitious environmental goals as outlined in its Sustainable Energy and Climate Action Plan (SECAP). Although Cēsis does not yet have a formal Sustainable Urban Mobility Plan (SUMP), several mobility-related goals are embedded in existing local strategies and policies.

4.1.2. Challenge

Cēsis, like many growing cities, faces significant challenges related to over-reliance on cars as the dominant mode of transportation. Currently, the majority of local trips are made by car, even when distances are short enough to be easily covered by bicycle or on foot. Cycling infrastructure in Cēsis is underdeveloped, and there is limited data on the current use of bicycles. As a result, it is difficult for the city to create data-driven policies to address these issues effectively.

The lack of reliable data on bicycle usage is a major barrier. The city does not currently have sufficient baseline data to understand how many residents cycle regularly or how well the existing infrastructure serves their needs. Without this data, it is challenging to set concrete goals for increasing cycling or reducing car usage, as well as to evaluate the impact of planned infrastructure improvements. This is crucial as the city aims to reduce its CO2 emissions by 50% by 2030 (compared to the year 2000) and achieve carbon neutrality by 2050.

4.1.3. Solution

The pilot will collect detailed quantitative and qualitative data on cycling habits and infrastructure use in key areas of Cēsis, as well as in two neighbouring villages, Līvi and Priekuļi. The data will be collected before and after implementing small scale experiments. Quantitative data will be collected through automated data gathering machines and/or video cameras using vision and machine learning that help to provide reliable and time-sensible data gathering. For qualitative information, in depth interviews with the inhabitants of the apartment buildings will be held. The “before” data will be collected from March 2025 till May 2025 and the “after” data will be collected from June 2025 till November 2025.

This pilot is part of broader activities aimed at promoting active mobility in Cēsis, specifically by increasing bicycle use among residents.

Figure 13. Cycling route from Līvi to Cēsis – one of the places where data will be gathered. Source: Cēsis Municipality.

4.1.4. Aim and expected impacts

The primary aim of the data collection pilot is to gather quantitative and qualitative information about mobility patterns in Cēsis, particularly focusing on bicycle usage. This data will be used to evaluate the success of future projects and pilots, such as the installation of roofed bicycle sheds and the creation of temporary cycling lanes. The city hopes to understand how these initiatives affect the number of cyclists and whether they contribute to reducing the reliance on cars for short trips.

Expected impacts include a more informed understanding of cycling habits in Cēsis and its surrounding villages, which will enable the municipality to make data-driven decisions in future infrastructure planning. The pilot gives valuable experience in data collection and systematising the data collected on active mobility. The pilot will also provide valuable insights into the effectiveness of specific interventions, such as bicycle storage units, in increasing the number of people using bicycles as their main mode of transport. In the long term, these efforts are expected to contribute to Cēsis' strategical goals.

4.1.5. Strategic relevance

This pilot aligns with several key strategic goals set out in the SECAP. One of the primary objectives of the municipality is to reduce CO2 emissions by encouraging the use of sustainable transport options, including cycling. By collecting detailed data on mobility patterns, the city will be able to track its progress toward achieving these goals.

Furthermore, the pilot supports the development of data-driven decision-making processes in Cēsis. Once the data is collected, it will serve as a foundation for assessing the effectiveness of future mobility projects, such as improving cycling infrastructure and reducing car usage.

4.1.6. Target groups and stakeholder engagement

The primary target groups for the data collection pilot are local residents, particularly those living in the multi-storey apartment buildings near the pilot site, as they are expected to benefit most from the installation of bicycle storage units and improved cycling lanes. By providing data on the use of the storage units and improved cycling lanes through surveys, the local residents ultimately contribute to the development of their own neighbourhoods. The data collected will also benefit urban planners and municipal decision-makers, who can use it to make more informed decisions about infrastructure improvements.

Other key stakeholders include the broader population of Cēsis, as the pilot's findings will inform decision makers and local public authority about broader efforts to make the city more cycling friendly. Engaging the community early in the planning process will be essential to ensure that the data gathered reflects the needs and preferences of residents. Public meetings and interviews will be conducted to gather qualitative insights, and regular updates will be provided to the public through local media.

4.1.7. Evaluation and monitoring

The evaluation and data collection pilot will use a combination of quantitative and qualitative methods. Automated data collection machines will be installed at key locations to count the number of cyclists over a set period. The data gathering machines will be rented or bought and they will provide reliable and time-sensitive data. This data will be supplemented by qualitative interviews with local residents, particularly those living near the planned bicycle storage units. The aim is to evaluate both the volume of bicycle traffic and the user experience of cycling infrastructure. Also, the aim of combining data collection methods is to understand pros and cons of each method.

The collected data will be evaluated for accuracy and reliability, and any challenges encountered during the data collection process will be documented. After the pilot implementation, the process will be evaluated to analyse what would need to be improved or changed, if the pilot were scaled up or repeated in other locations.

Modal split research will be carried out for Cēsis and neighbouring villages. As there are no such research conducted before, this will give valuable data for sustainable urban mobility planning.

4.1.8. Lessons learned from the planning phase

Several important lessons emerged during the planning phase of this pilot. First, the need for early and continuous engagement with the community was emphasized. Public consultations and interviews provided valuable insights into the mobility needs of residents, helping to identify the most suitable locations for data collection.

Additionally, the importance of selecting appropriate technology for data collection was highlighted. The municipality learned that more research was needed to ensure that the data collection machines could effectively distinguish between different types of users, such as cyclists, scooter riders, and pedestrians. Considerations included whether to acquire easy and fast solutions for data gathering or rather tailored solutions that could be integrated into already existing data collection processes. Finally, the planning

phase underscored the need for a clear evaluation framework to ensure that the data collected would provide meaningful insights for future decision-making.

4.2. Active mobility data collection through a mobile application in Gävle

4.2.1. City profile

Gävle, the 13th largest city in Sweden, is strategically located by the Baltic Sea, about two hours from Stockholm, making it a key logistics hub in Central Sweden. The city's port, the third largest container terminal in Sweden, enhances its importance within the Scandinavian–Mediterranean Transport Corridor (ScanMed Corridor), connecting urban centres in Scandinavia to Germany and Italy. Gävle's population is currently over 103,000.

Gävle's municipal development is heavily influenced by its focus on sustainability, with goals to become climate neutral by 2030 under the EU's "100 Climate-Neutral Cities by 2030" initiative. While Gävle does not have a formal Sustainable Urban Mobility Plan (SUMP), its strategic documents, including the Environmental Strategy and Traffic Strategy, aim to promote sustainable transportation and align with Sweden's national goals to reduce carbon emissions.

4.2.2. Challenge

One of Gävle's significant challenges is the lack of comprehensive data on active mobility, especially in relation to short trips under 4-5 kilometres. Existing data from fixed cycling sensors by tubes provide only a limited understanding of how residents use active modes of transport. Moreover, this type of technology is accompanied with a big risk for failures, especially in case of snow during the winter. There is only one point in the city centre that gives accountable measurements. This means that the city lacks valuable information about cycling and other modes of mobility. Digital mobile applications have been used before to ask people about their travel preferences, but it seemed that not all the needed target groups were reached and the information received did not fully reflect the real situation of mobility.

Gävle faces the broader challenge of reducing car trips in line with its goal of achieving climate neutrality by 2030. Without sufficient data on walking and cycling, it is difficult to design interventions that effectively reduce car dependency. The cold climate, especially in winter, also impacts the feasibility of active travel, complicating efforts to encourage year-round cycling and walking.

4.2.3. Solution

The data collection pilot in Gävle is designed to enhance the municipality's understanding of cycling and walking behaviour. The pilot will run from March 2025 to September 2025, focusing on the use of a mobile application to gather real-life travel data from employees at companies that have signed the municipality's climate contract. Also, complementary travel surveys will be used. The pilot will specifically target trips to and from work.

This pilot is a critical step in creating a data-driven foundation to support sustainable mobility planning, including the eventual implementation of larger initiatives to encourage active mobility.

Figure 14. Location of the pilot in Gävle. Source: Gävle Municipality.

4.2.4. Aim and expected impacts

The main objective of the pilot is to improve Gävle's ability to collect and analyse data related to active mobility, particularly cycling and walking, by using GPS tracking. By using a mobile app to track travel behaviour, the municipality expects to gain valuable insights into the factors that encourage or discourage active mobility. The aim of complementary travel surveys is to evaluate the effectiveness of the mobile app and compare its data against traditional data collection methods. Therefore, the pilot will provide valuable data for refining Gävle's active mobility initiatives. The pilot will also serve as a test case to evaluate the effectiveness of digital tools in promoting sustainable travel behaviours.

Expected impacts include a better-informed approach to urban planning and mobility policy and an increased share of active mobility in daily commutes. The pilot gives valuable experience in data collection and systematising the data collected on active mobility. The data collected will play a key role in shaping future policies aimed at reducing car trips and promoting more sustainable transportation modes, including increasing the share of cycling and walking trips.

4.2.5. Strategic relevance

This pilot is strategically aligned with Gävle's long-term environmental and transportation goals. The data collected will directly contribute to the city's efforts to reduce CO2 emissions and meet its climate neutrality target by 2030. Additionally, it supports Gävle's broader urban planning initiatives, particularly the Traffic Strategy and the city's Cycling Plan, which aim to increase the modal share of cycling and walking while decreasing car dependency. The pilot's results will provide essential feedback for these strategic frameworks, ensuring that future mobility initiatives are based on accurate and comprehensive data.

4.2.6. Target groups and stakeholder engagement

The pilot will primarily target employees working at companies that have signed Gävle's climate contract. By focusing on this group for data collection, the municipality aims to foster a shift from car-based commuting to cycling and walking. The engagement process includes information sessions and meetings with participating companies and employees to ensure active participation and collaboration.

Additionally, urban planners, traffic engineers, and policymakers will benefit from the pilot as the ability to collect and analyse data increases. Also, the data collected will inform decisions about future investments in cycling infrastructure and other sustainable mobility initiatives. The data could also be valuable to other cities and regions interested in implementing similar data-driven approaches to mobility planning.

4.2.7. Evaluation and monitoring

The pilot will be closely monitored through several key indicators, including the number of app users, the distance travelled by bike or on foot, and the overall change in travel behaviour. This data will be compared with traditional methods, such as travel surveys and fixed cycling sensors, to assess the accuracy and reliability of the mobile app. The success of the pilot will also be measured by the level of participation from companies and their employees, with particular attention given to the percentage of trips that shift from car to active modes of travel.

The evaluation process will include a mid-term review to adjust the small-scale pilot as needed and an in-depth analysis of the results after its completion. The data collected will not only help evaluate the effectiveness of the mobile app but will also provide a basis for scaling up similar initiatives in the future. After the pilot has ended, the process of data collection will be evaluated in terms of the costs, resourcing, communication and engagement, to gain knowledge for scaling up or carrying out similar activities.

4.2.8. Lessons learned from the planning phase

During the planning phase, the project team identified several important lessons. First, it was a challenge to be able to understand and describe the city's needs for data. This was important to formulate Gävle's demands for the mobile application for procurement. Many applications do not have the possibility of GPS tracking, something that Gävle considers critical in order to have reliable data. With regards to the procurement process, the city learned how important it is to be well prepared by doing good research on the potential providers and solutions compared to the city's needs before the city announces the

procurement. In the beginning, Gävle planned to procure the development of the app from scratch, but it later turned out to be more reasonable to procure the further development of an existing solution.

Moreover, the planning phase underscored the importance of integrating qualitative insights from surveys alongside the quantitative data collected through the app. This combined approach is expected to provide a more nuanced understanding of travel behaviour in Gävle, informing future strategies to promote active mobility.

4.3. The preferences and transport behaviour of high school pupils in Gdynia

4.3.1. City profile

Located along the Baltic Sea in northern Poland, Gdynia's population is approximately 242,000. The city plays a central role in the Gdańsk-Gdynia-Sopot Metropolitan Area and is part of the strategic Baltic Adriatic Corridor within the European Union's TEN-T transport network. Gdynia's history as a port city has heavily influenced its urban and economic landscape. The city's reliance on road-based freight transport has increased congestion and emissions in its central areas, making sustainable transportation a key focus for its urban development strategy.

To address these challenges, Gdynia adopted its first Sustainable Urban Mobility Plan (SUMP) in 2016. By now, Gdynia presents sustainable urban mobility planning in three levels, metropolitan, city-and district level, and is currently planning an update to the city-level SUMP.

4.3.2. Challenge

As car dependency remains high in Gdynia, congestion and air pollution have increased, particularly around schools where student pick-ups and drop-offs cause localized traffic peaks. The city's layout, shaped by its port-centric economy and car-oriented design, creates additional barriers to achieving active mobility goals. While Gdynia has made significant strides in public transport and active mobility planning, there is a noted lack of data on the travel patterns, especially of younger residents, including high school students. This is expected to be one of the most critical target groups if car ownership is to be reduced: they are starting their independent lives and considering buying a private car. It is known that the manual collection of data on pedestrians and cyclists is counterproductive, but there is no capacity to use vision systems and machine learning for data collection and analysis.

4.3.3. Solution

The data collection pilot targets high school students to address a critical data gap and gather insights that will inform campaigns promoting sustainable travel and guide infrastructure improvements. Data will be collected through surveys, manual bicycle counts, ITS camera observations near schools, and existing bicycle counters. This data collection initiative is scheduled from Spring 2024 until the project's completion, initially focusing on several high schools in Gdynia, with plans to expand city-wide.

To enhance student and teacher engagement, the pilot includes in-school workshops on sustainable mobility, providing additional support for survey participation. A cargo bike with QR codes and advertisements will also visit school campuses to encourage involvement directly.

Gdynia is collaborating with various stakeholders to test a real-time pedestrian and cyclist counting technology and, with the University of Gdansk, to develop machine learning algorithms aimed at automating active mobility monitoring within ITS. This data-driven approach aligns with Gdynia's mission to adapt urban mobility policies to meet the specific needs of younger residents.

Figure 15. Intersection in Gdynia as a model space for active mobility monitoring. Source: Google Maps.

Figure 16. Example of infrastructure promoting sustainable mobility for youth in Gdynia. Source: gdyniasport.pl.

4.3.4. Aim and expected impacts

The primary aim of this pilot is to gather detailed information on high school students' transportation choices through surveys, manual counting, and counters, and to identify factors influencing these preferences. By understanding the commuting habits of younger residents, the pilot intends to craft a campaign that aligns with their expectations, promoting the use of sustainable modes like cycling and walking.

The collected data will also support Gdynia's exploration of methods for counting pedestrians and cyclists within its ITS, using vision systems and machine learning algorithms. Currently, the city's ITS does not monitor active mobility, so Gdynia plans to investigate the possibility of adding this function through algorithms that can process images from ITS cameras and data from induction loops. The information gathered in schools will serve as baseline data for validating and assessing the effectiveness of these solutions.

The pilot will also provide valuable experience in collecting and systematizing data on active mobility, creating a more robust evidence base for future sustainable mobility planning. In the long term, these findings will contribute to updates to Gdynia's Sustainable Urban Mobility Plan (SUMP), with a focus on youth mobility. This is expected to lead to an increase in active travel modes among students and a reduction in car traffic around schools, supporting the city in planning future mobility needs and implementing more effective measures for sustainable transport.

4.3.5. Strategic relevance

The data collection pilot is directly aligned with Gdynia's Sustainable Urban Mobility Plan and Strategy 2030, both of which emphasize reducing car dependency and promoting active mobility. By targeting high school students and taking a comprehensive approach to gathering data, this pilot fills a critical gap in Gdynia's transportation strategy, as previous campaigns largely focused on adult commuters. The project's outcomes will not only support infrastructure and policy adjustments in the short term but will also provide valuable insights for long-term planning. This alignment with broader urban strategies underlines the pilot's importance as a model for sustainable transport initiatives that could benefit other cities in the Baltic Sea region.

4.3.6. Target groups and stakeholder engagement

The primary target groups for this pilot are high school students and school staff, including teachers and administrators, who play a crucial role in encouraging student participation. To engage students effectively and gather a comprehensive range of data on their transportation choices, the pilot will employ multiple methods, including surveys, manual bicycle counts, ITS camera observations, and counters at selected high schools.

Meetings with school representatives, students, and other relevant stakeholders will be organized to refine strategies and optimize data collection. Surveys will provide specific information on students' transport preferences and behaviours, while social media and e-school platforms will be used to raise awareness of the campaign and encourage survey participation.

In-school workshops will further engage both students and teachers, highlighting the importance of sustainable mobility and providing guidance on completing the survey. Additionally, a dedicated mobile unit—a cargo bike equipped with QR codes and advertisements promoting the survey—will visit school campuses to enhance visibility and encourage participation.

School staff will support the data collection efforts, reinforcing campaign messages within the school community. Manual bicycle counts and ITS camera observations will also be conducted at key locations to capture additional data on active transportation behaviours. Together, these engagement and data collection methods aim to ensure robust participation and a comprehensive understanding of student mobility patterns.

4.3.7. Evaluation and monitoring

Evaluation of the pilot will focus on collecting reliable baseline and comparative data to assess the effectiveness of small scale and data collection pilots. Monitoring will include manual counts of bicycles at selected schools and manual counting from ITS video cameras at intersections close to schools (for developing its approaches to pedestrian and cyclist counting in the example of vision systems and machine learning). A small proportion of schools will have data from the city bicycle counters.

Furthermore, before-and-after surveys distributed to students to track any shifts in transportation behaviour will be conducted. These surveys will capture key indicators such as the number of students cycling to school, changes in transportation preferences, and awareness of sustainable travel options. By collecting and analysing this data, the project team will identify the small scale pilot's successes and areas for improvement. Comparing the data from different measures gives valuable information about the pros and cons of these. Feedback from students and school staff will be integral to refining the campaign approach, especially if the pilot scales up to include additional schools.

4.3.8. Lessons learned from the planning phase

The planning phase of this pilot has already yielded significant insights, particularly regarding the need for strong stakeholder collaboration. Working closely with schools has proven essential to tailoring the pilot's approach, ensuring that both students and staff feel engaged and supported. This collaboration has underscored the importance of clear communication and adaptability, especially given the diversity in school environments across Gdynia. The strategy for data collection needs to be flexible based on feedback from initial phases in order to have wider implementation potential. Early challenges included securing consistent participation across schools, which was addressed by actively involving school staff and students in the campaign's design and delivery. Additionally, the pilot shows that using advanced data analysis tools, such as machine learning, is not as easy as it is quite often expected – the work continues to engage machine learning in the counting process to enhance the accuracy of data collection and analysis.

4.4. Active mobility data collection with traffic counting, observation and surveys in Greifswald

4.4.1. City profile

Greifswald, located in northeastern Germany along the Baltic Sea, is a vibrant university city with a population of approximately 60,000. The city serves as a regional hub, with significance in the fields of education, research, and sustainable urban development. Greifswald has made a strong commitment to reducing its carbon footprint and promoting sustainable urban mobility, with a target to achieve climate neutrality by 2035. Although the city is still in the process of developing a full Sustainable Urban Mobility Plan (SUMP), it has already implemented several key initiatives, including an integrated traffic concept for the inner city adopted in 2021.

4.4.2. Challenge

Greifswald's inner city faces significant challenges related to motorized traffic. To understand the impact of modal filters and the separate green light phase for bicycles at a busy intersection on the traffic patterns and people’s behaviour, accurate and comprehensive data collection is needed. The availability of information reflecting the impact of the small-scale experiment is important in deciding whether and how to modify pilots and how to extend these to other regions to decrease the use of private cars in the city.

4.4.3. Solution

The data collection pilot will take place from 2024 to 2026 and it is a critical component of Greifswald's broader strategy to promote sustainable urban mobility. The pilot will gather essential data before and after the implementation of a small-scale transport experiment involving the installation of modal filters and a separate green light phase for bicycles. Data will be collected by using different measures:

- counting of motorized traffic, bicycle traffic and pedestrians with a traffic counter,
- surveys of residents, business owners and delivery services (standardized, analogue or digital and if needed, as an interview),
- measurement of noise,
- measurement of travel time (extension of routes for motorized traffic after implementing the modal filter),
- traffic jam lengths,
- manual on-site survey during the experiment about the effectiveness of the modal filter and use of the free street space.

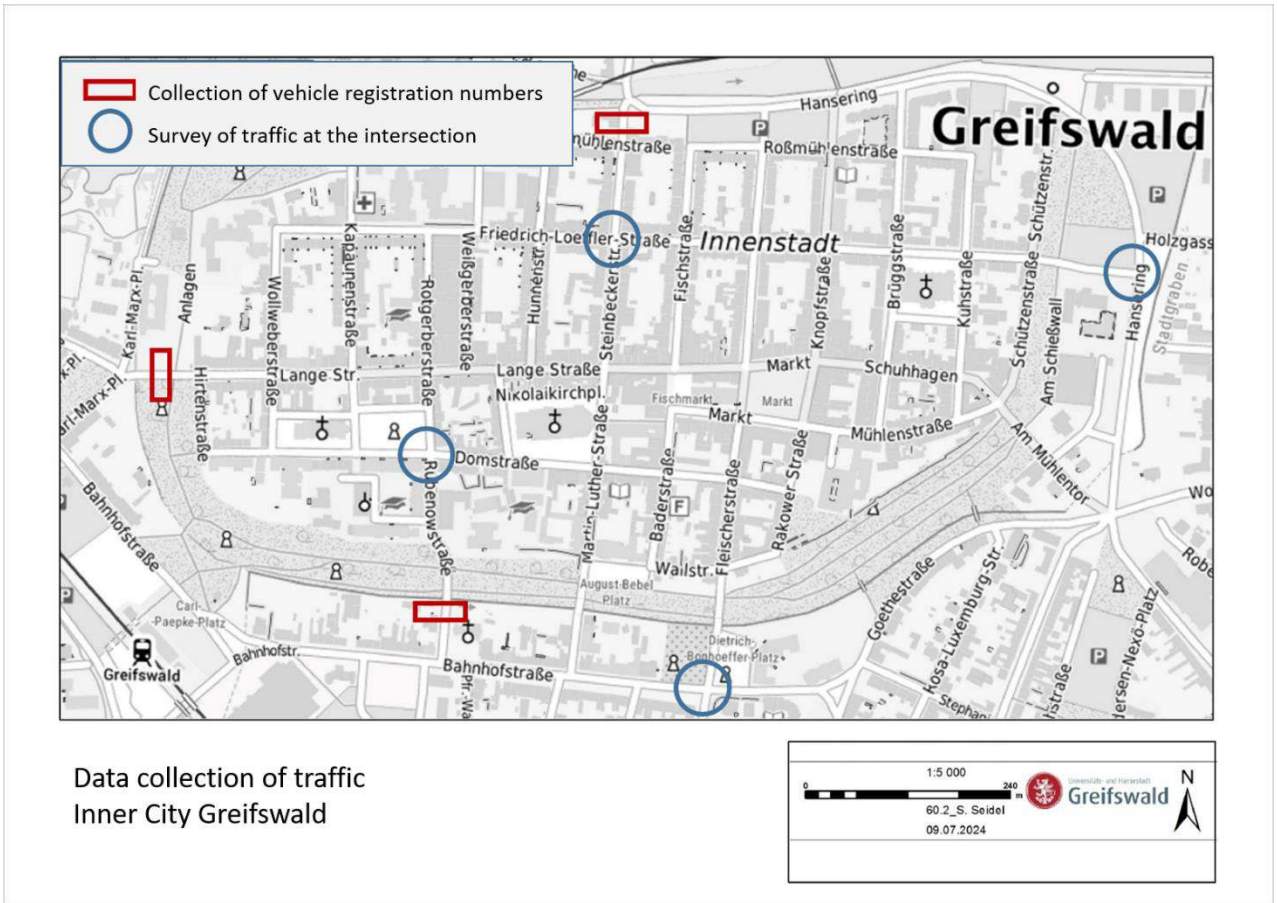

Figure 17. Plan for collecting traffic data in Greifswald with a traffic counter. Source: Greifswald Municipality.

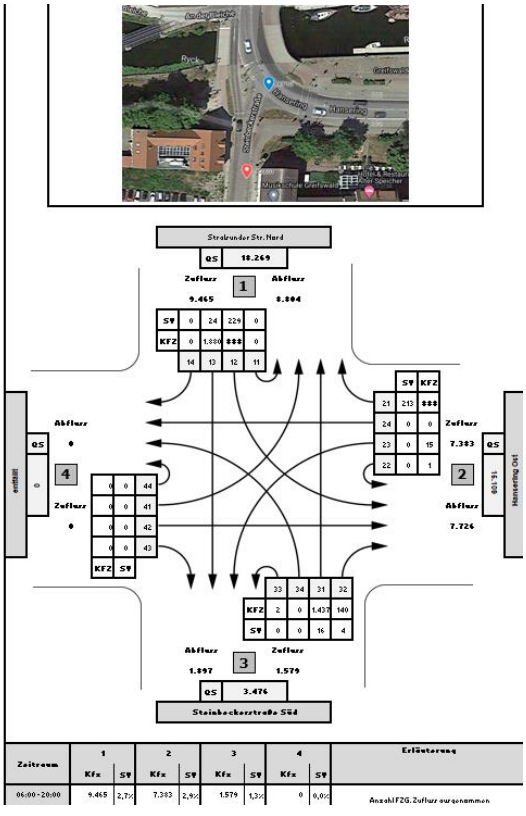

Figure 18. Traffic counter in the new intersection. Source: Greifswald Municipality.

4.4.4. Aim and expected impacts

The primary aim of the data collection pilot is to evaluate the effectiveness of the small-scale transport experiment and provide evidence-based insights to guide future urban mobility policies. By collecting traffic data before and after the interventions, the city aims to determine whether the modal filters and the green light phase for bicycles achieve their intended goals, such as reducing motorized traffic by one-third and making walking and cycling more attractive options for residents and visitors. The pilot also increases the city's capability of using different measures for data collection and analyses.

4.4.5. Strategic relevance

This pilot is strategically aligned with Greifswald's overarching goal of becoming climate-neutral by 2035. It also supports the city's integrated traffic concept, which prioritizes active mobility and aims to create a safer, more liveable city centre by reducing car traffic and promoting cycling and walking. The data collected will inform future transport policy decisions, including the potential expansion of the modal filter system and other traffic calming measures.

4.4.6. Target groups and stakeholder engagement

The key target groups for the data collection pilot include city officials, urban planners, and local decision-makers, who will use the data to assess the success of the transport interventions and make future policy recommendations. Residents and business owners in the city centre are also critical stakeholders, and their feedback through surveys and interviews will provide valuable insights into how the interventions affect daily life and economic activity. Public engagement efforts, including workshops and information sessions, will ensure transparency and foster community support.

4.4.7. Evaluation and monitoring

The small-scale pilot will be evaluated through a comprehensive monitoring framework that includes traffic counts, noise measurements, and travel time assessments. Data will be collected on motorized traffic, bicycle traffic, and pedestrian movement at key locations before and after the modal filters are installed. Surveys will also be conducted to gauge public opinion on the interventions and assess changes in mobility behaviour. The results and descriptions of this data collection will be analysed and compared to the earlier data and manual spot tests to understand the reliability of the collected data. By combining different data, it is expected that it is possible to determine whether the small-scale experiment should be made permanent and expanded or scaled up to other locations.

4.4.8. Lessons learned from the planning phase

Several lessons have been learned during the planning phase of the data collection pilot. The planning process highlighted the need for efficient coordination among city departments and external partners, such as traffic monitoring agencies, to ensure the smooth implementation of the pilot.

In discussions with other cities with similar projects, it became clear that one key takeaway is the importance of clear communication with stakeholders, particularly residents and business owners, who may have concerns about the potential impact of traffic restrictions on accessibility and parking. Early

engagement with these groups through surveys and workshops will help address some of these concerns and foster greater community buy-in.

4.5. Open data sources, surveys and real-life laboratory and instrumental research for active mobility in Panevėžys city municipality

4.5.1. City profile

Panevėžys is the fifth largest city in Lithuania, located on the banks of the Nevėžis River. It has a population of around 98,000 and serves as an important industrial hub in the region. The city's strategic position along the Via Baltica and Rail Baltica infrastructure projects connects it to major cities like Riga and Vilnius. Panevėžys has committed to improving sustainable urban mobility, adopting a Sustainable Urban Mobility Plan (SUMP) in 2018 as part of its broader sustainable development strategy (updated in 2023).

4.5.2. Challenge

The main issue faced by Panevėžys is the lack of sufficient and up-to-date data on active mobility. While the city has developed a SUMP, data on key indicators such as the modal split and the use of infrastructure for bicycles and scooters are lacking. Also, the city does not yet collaborate with external entities to gather data and information regarding the functioning of the transportation system. This gap hinders effective monitoring and evaluation of sustainable mobility initiatives, limiting the city's ability to make informed policy decisions.

4.5.3. Solution

Panevėžys city municipality is launching a data collection pilot as part of its ongoing efforts to support and enhance sustainable urban mobility. The pilot will be implemented in connection to the small-scale pilot in 10 strategically selected schools across the city, chosen based on their high student numbers and proximity to key cycling paths and main roads. The data will be collected during four designated periods: April-May 2024, September-October 2024, April-May 2025, and September-October 2025. This systematic approach will allow for a detailed understanding of student commuting behaviours and the utilization of new bicycle and scooter racks.

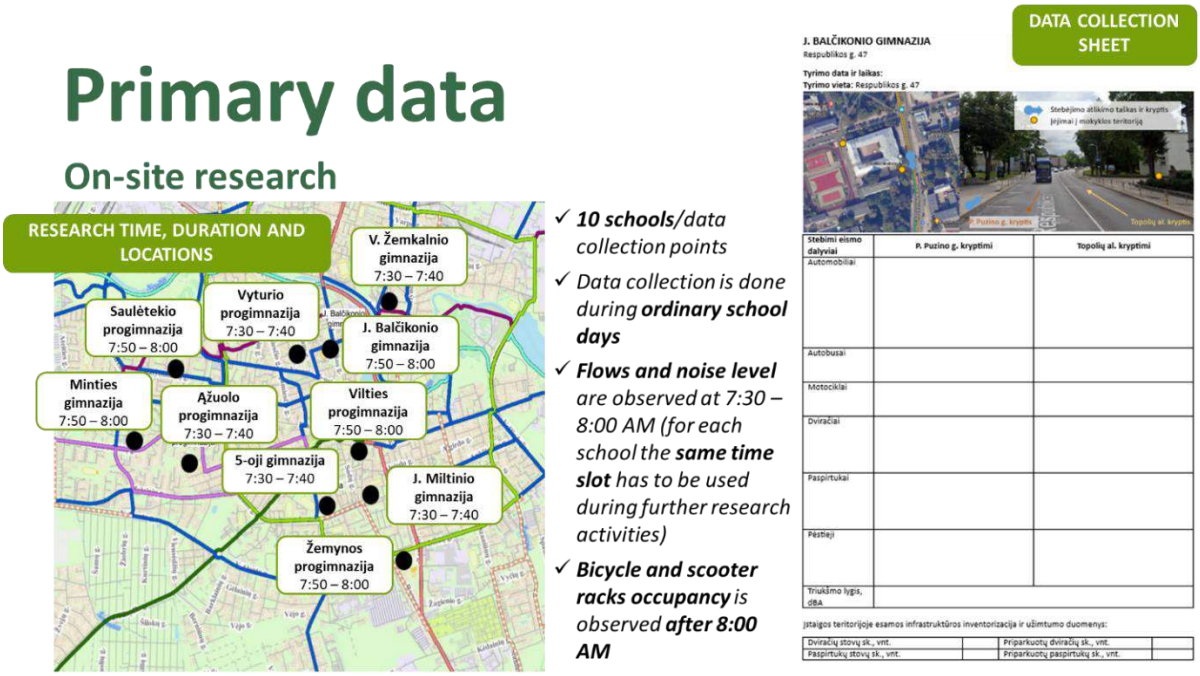

Figure 19. Example of a primary on site research data collection sheet. Source: Panevėžys city municipality.

4.5.4. Aim and expected impacts

In its small-scale pilot, Panevėžys will install bicycle and scooter racks in selected school environments. The data collection pilot is a crucial step in enabling the municipality to monitor the impact of the infrastructure improvements on students' commuting patterns, thereby supporting informed decision-making for future mobility planning and policy development. This data will also be used to identify further improvement areas in the city's mobility strategies. Expected impacts of the pilot include:

- Improved capability in data collection: The pilot gives valuable experience in data collection and systematising the data collected on active mobility.
- Enhanced data-driven decision-making: The pilot will fill existing gaps in the collection of mobility data and provide robust data for updating the SUMP, enabling the municipality to make evidence-based decisions on future infrastructure investments and policy adjustments.
- Strengthened community engagement: By involving school communities and other stakeholders in the data collection process, the aim is to foster a culture of sustainable commuting and strengthen community ties.

4.5.5. Strategic relevance

The data collection pilot is strategically aligned with the Panevėžys Sustainable Mobility Plan (2018) and the city's Strategic Development Plan (2021-2027). Both plans emphasize the need for sustainable mobility options and a reduction in car dependency. The pilot addresses the current lack of detailed mobility data, which is essential for the effective implementation and evaluation of the SUMP. This initiative also reflects the municipality's commitment to creating a more liveable urban environment and enhancing the quality of life for its residents through improved mobility options.

4.5.6. Target groups and stakeholder engagement

The key target groups for this pilot include:

- Municipal stakeholders: City officials and urban planners will 1) learn about different aspects of data collection 2) use the data collected to refine mobility strategies and make informed decisions regarding future infrastructure investments.
- School communities: Students, teachers, and parents from the selected schools will be actively involved in providing data through surveys and monitoring activities. By providing data, this group will ultimately benefit from improvements in commuting conditions and environmental quality around schools.
- Cycling and sustainable transport advocates: Local cycling groups and environmental organizations are engaged to support the promotion of active commuting and to provide feedback on the pilot's implementation.

Engagement activities include regular meetings with school administrations, workshops with students and parents, and public awareness campaigns. The involvement of external experts ensures that the pilot leverages best practices in data collection and stakeholder engagement, providing a solid foundation for the successful implementation of the pilot.

4.5.7. Evaluation and monitoring

The pilot will be evaluated using a comprehensive set of indicators that are categorized into three main types:

- Result indicators: These include the number and condition of new bicycle and scooter racks, as well as their usage rates. These indicators will help assess the immediate outcomes of the infrastructure installation.
- Effect indicators: These measure changes in commuting behaviour, such as the modal split of trips to school and the flow rates of pedestrians, cyclists, and scooter users. They will provide insights into the broader effects of the pilot on mobility patterns.
- Impact indicators: These include changes in community perceptions of the pilot, as well as environmental impacts like air quality and noise levels around schools. These indicators will help assess the long-term benefits of the pilot for the community.

Data will be collected through on-site observations, surveys, and laboratory analyses during the four designated data collection periods. The findings will be used to update the SUMP and guide future mobility planning efforts.

After the implementation, the pilot process will be evaluated based on costs, interaction, communication, resourcing and overall satisfaction to support similar initiatives in the future.

4.5.8. Lessons learned from the planning phase

Several key lessons have emerged during the planning phase of the pilot:

- Clear communication is key: Clear and practical communication of project goals and methodologies is essential for effective stakeholder engagement. Initial discussions with stakeholders revealed a need for better alignment between the technical aspects of data collection and the practical concerns of school communities.
- Challenges in establishing baseline data: The lack of a robust baseline for mobility data posed a significant challenge. Establishing a clear and comprehensive data collection framework early in the project is crucial to ensure accurate monitoring and evaluation.
- Stakeholder expectations: Managing stakeholder expectations is critical. Some stakeholders expected more immediate and tangible benefits from the pilot, highlighting the need for transparent discussions about project timelines and outcomes.

Moving forward, the project team plans to prioritize user-friendly engagement methods and maintain continuous feedback loops with stakeholders to adapt the pilot to emerging needs and insights. This adaptive approach will be key to the pilot's success and its ability to provide valuable insights for future mobility planning in Panevėžys.

4.6. Citizens panel and data collection for active mobility in the City of Turku

4.6.1. City profile

The City of Turku, located in Southwest Finland, is the country's sixth-largest city with a population of more than 200,000. Turku plays a crucial role as a cultural, historical, and business hub in the region. Turku is also recognized as a major port city. The city is an urban node along the Trans-European Transport Network (TEN-T), linking Finland to major cities like Helsinki and Stockholm through road, rail, and sea routes.

In Finland, there are several development plans and strategies that address mobility issues and climate neutrality, whereby the topics of SUMP are covered in the Regional Transport System Plan 2020-2024, to be updated soon. In Turku, the city-level SUMP for 2025-2029 is currently being finalized.

4.6.2. Challenge

Turku faces several challenges in shifting its transportation landscape towards more sustainable options. The data collection pilot addresses two key challenges: improving the city's ability to measure and monitor active mobility and engaging the public in mobility planning to increase sustainable transport. Technologically, one of the challenges is deploying sensors that function reliably under diverse conditions, including extreme weather such as dark winter days and heavy snowfall, both of which are typical in Finland. Additionally, ensuring public and stakeholder participation in the planned citizens' panel poses another challenge, particularly in maintaining their consistent engagement throughout the pilot period.

4.6.3. Solution

In line with its climate and mobility objectives, the City of Turku has initiated a data collection pilot focusing on cyclists and pedestrians. The pilot will employ two primary methods: installing sensors across

key locations to monitor pedestrian and cycling traffic, and establishing a citizens' panel to gain insights from the public regarding mobility needs and experiences. The pilot is scheduled to run from autumn 2024 until 2026.

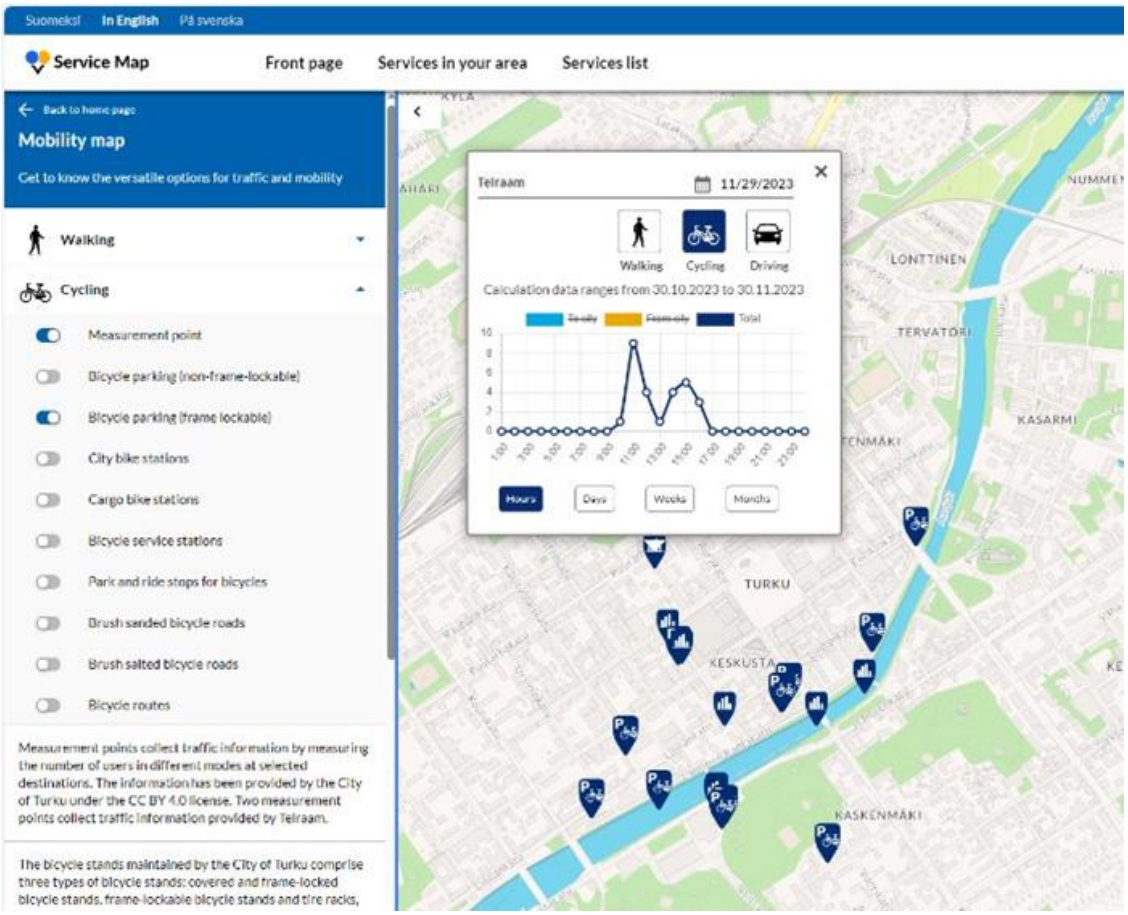

Figure 20. Traffic monitoring in Turku. Source: City of Turku.

4.6.4. Aim and expected impacts

The key aims of the pilot are to increase the city's capability in data collection and generate reliable data to evaluate and improve the city's SUMP. The pilot will provide quantitative data from sensors, allowing the city to track pedestrian and cyclist activity in real-time. This information will inform the city's decision-making, enabling it to implement mobility measures more effectively. Additionally, the citizens' panel will provide qualitative feedback, ensuring that the mobility strategies developed under the SUMP address the real needs of residents and gain their acceptance.

Expected impacts include better-informed policies and mobility plans that reflect the needs of pedestrians and cyclists, as well as improved public awareness and acceptance of sustainable transport modes. Data collected from this pilot will also help mobility operators to enhance their services, such as bike-sharing programs, by understanding user behaviour and demand patterns.

4.6.5. Strategic relevance

This pilot plays a crucial role in supporting Turku's broader climate goals. It aligns with the city's commitment to the EU's mission for climate-neutral and smart cities and is directly linked to the SUMP, a

key element in achieving the city's carbon-neutrality target by 2029. By enhancing data collection on non-motorized transportation modes, the pilot supports in shifting the city's modal share towards more sustainable options.

The data collection pilot also aligns with Turku's Climate Plan 2029, which outlines concrete steps for reducing CO2 emissions, particularly from transport. Road traffic is a significant source of emissions in the city, and promoting active mobility is critical for reaching the goal of reducing these emissions by 50%. The pilot gives a better understanding about the share of sustainable trips in the city, done by walking, cycling, and public transport, as the aim is to increase them to 66% of all trips taken within the City of Turku by 2029.

4.6.6. Target groups and stakeholder engagement

The pilot is designed to engage multiple target groups, including residents, cyclists, pedestrians, decision-makers, and mobility operators. The citizens' panel will bring together various stakeholders, such as community representatives and city officials, to discuss and provide feedback on mobility-related issues. Events and workshops will also be held to gather insights from specific neighbourhoods.

In addition, data from the sensors will be available for public access, enabling citizens to monitor real-time traffic conditions and plan their travel routes accordingly. This will be particularly beneficial for commuters and families looking for efficient and sustainable travel options.

4.6.7. Evaluation and monitoring

The pilot will employ a comprehensive monitoring system involving both quantitative and qualitative data collection. The primary method of evaluation will be through the use of sensors installed across the city, which will monitor pedestrian and cyclist traffic. To ensure data accuracy and increase the capability of analysing the collected data, manual counts will be performed at key locations. The citizens' panel will provide qualitative feedback, and surveys and interviews will be conducted to capture user opinions and satisfaction levels.

This data will be analysed to assess the pilot's impact on Turku's mobility patterns and inform future adjustments to the SUMP. Indicators such as modal share and peak travel times will be used to measure progress toward the city's sustainability goals. The results of the pilots will be evaluated to assess the lessons learned and improvement potential for planning future initiatives.

4.6.8. Lessons learned in the planning phase

One significant lesson from the planning phase is the need for consistent engagement with stakeholders. Engaging the right stakeholders and maintaining their involvement throughout the pilot was more challenging than expected due to competing priorities and schedules. Additionally, early citizen engagement at local events provided valuable insights into mobility issues that were previously not considered by the city planners, emphasizing the importance of public consultation in the early stages of project planning.

Sources

Helsinki Region Transport (2017). Liikennejärjestelmän terveysvaikutukset – mistä on kyse? <https://www.hsl.fi/sites/default/files/uploads/liikennejarjestelman_terveysvaikutusken_-esiselvitys_tyoversio_2.1.2017.pdf>

Helsinki Region Transport (2020). Kokeilukulttuurin hyödyntäminen jalankulun ja pyöräliikenteen ympäristön nopeassa parantamisessa –esiselvitys toimintamallista. <https://www.hsl.fi/sites/default/files/uploads/nopeat_kokeilut_raportti.pdf>

International Transport Forum (2021). Reversing Car Dependency: Summary and Conclusions. ITF roundtable reports, No 181. OECD Publishing, Paris. <https://www.itf-oecd.org/sites/default/files/docs/reversing-car-dependency.pdf>

Newman, P., Kenworthy, J. (2006). Urban Design to Reduce Automobile Dependence. Opolis Vol. 2, No. 1, pp. 35-52. <https://escholarship.org/content/qt2b76f089/qt2b76f089_noSplash_1de8507331fbc0a95a34063408211ccf.pdf>

Rode, P. (2023). Overcoming urban car dependence. London School of Economics and Political Science. <https://www.lse.ac.uk/research/research-for-the-world/politics/urban-transport-ltn-policy>

UBC Sustainable (Union of the Baltic Cities Sustainable Cities Commission) (2024). Model for experimenting with active mobility measures. Deliverable 1.3. of the SUMPs for BSR project <https://interreg-baltic.eu/wp-content/uploads/2024/10/D-1.3-Model-for-experimenting-with-active-mobility-measures_final.pdf>