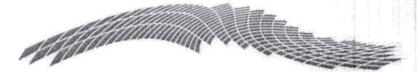
D.T2.1.2 – Tribute Action Plan Novi Sad



European Regional Development Fund - Instrument for Pre-Accession II Fund

TRIBUTE



PP7 - Novi Sad





Document Control Sheet

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D.T2.1.2. Tribute Action Plan_PP7-Novi Sad







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INDEX

0. Introduction	Error! Bookmark not defined.
Selection and definition of measures	Error! Bookmark not defined.
2. Measures to improve data collection for the development	ment of integrated transport systems
Error! Bookmark not defined.	
3. Protocol for controlling the sustainability of the imple	
ror! Bookmark not defined.	Er
4. Conclusion	Error! Bookmark not defined.

D.T2.1.2. Tribute Action Plan_PP7-Novi Sad







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0. Introduction

According to the plan under Act. T2.1 "Action Plan development", which is part of the work package WP2 T2 "Identification of Action Plans supporting the implementation of innovative and sustainable mobility measures", defined the need to create output D.T2.1.2 "Tribute Action Plan". This document shows and describes output D.T2.1.2_Tribute Action Plan_PP7-Novi Sad.

The umbrella document for the development of this action plan at the national level is the Strategy for Sustainable Urban Development of the Republic of Serbia until 2030 ("The Official Gazette of the RS", number 47/2019). At the local level, this document builds on the traffic studies and plans prepared for the needs of the City of Novi Sad, and above all on the analyzes and activities carried out and determined within the framework of the "Smart Plan" for the City of Novi Sad, which was prepared in 2019. In addition, for the purposes of developing this action plan, the results of the Pilot Project implemented under the Act point were used. T2.2 "Pilot Action implementation" of the TRIBUTE project. The following illustration shows the schematic framework and elements of creating this action plan.



Illustration 1. Schematic framework and elements of creating the action plan

This action plan foresees measures that have as their main goal the development of an integrated system of public transport in the city of Novi Sad, which is primarily based on the development of bus public transport of passengers. The secondary goal that can be achieved through the implementation of the proposed measures is the reduction of the participation of passenger cars in daily migrations by favoring and improving sustainable modes of transportation, namely public passenger transportation and cycling. In this way, the global goal

D.T2.1.2. Tribute Action Plan PP7-Novi Sad







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of reducing the level of emissions of greenhouse gases and other pollutants that are a product of traffic is achieved. In addition, by reducing the share of passenger cars in the visual distribution, that is, by reducing the number of trips made by car at the expense of trips made by public transport or by bicycle, it contributes to rational energy consumption. Namely, one average bus on the route in the city of Novi Sad carries as many passengers as 50-70 cars.

This document briefly describes concrete measures and projects, i.e. activities, by whose implementation the above-mentioned goals can be achieved to a certain extent. Each proposed measure includes previous analysis of the state of the system, as well as the analysis and evaluation of the effects after the implemented measures. In this way, it is planned to permanently monitor the implementation of activities and form an information base for further improvements of the traffic system of the city of Novi Sad. The action plan is presented through three interconnected and dependent chapters: (1) Selection and definition of measures; (2) Measures to improve data collection for the development of integrated transport systems; (3) Protocol for controlling the sustainability of the implementation of the selected measures.

D.T2.1.2. Tribute Action Plan_PP7-Novi Sad





















1. Selection and definition of measures

The proposal for measures was made on the basis of the results obtained (1) within the monitoring process of the pilot activity that was carried out in the city of Novi Sad as part of the TRIBUTE project, (2) discussions between city institutions and stakeholders during the meetings of the living laboratory of the TRIBUTE project, and (3)) based on the conclusions and proposals for measures to improve the traffic system in the City of Novi Sad, which are the result of the "Smart Plan" traffic study.

1.1. The result of the monitoring of pilot activities in the City of Novi Sad

Pilot activities in the city of Novi Sad carried out as part of the TRIBUTE project aimed to promote and improve the public transport system through the improvement of the information system, as well as the integration of bus public transport with other publicly available services. Accordingly, information displays were placed at bus stops and the mobile application "EasyGoNS" was created, with Public City Transport Enterprise of Novi Sad vehicles being equipped with the necessary equipment. After the implementation of the pilot, an analysis and evaluation of the implemented activities was carried out, during which a survey of users of the mobile application and bus stop displays was conducted on a sample of a total of 786 users of the public transport system in the City of Novi Sad.

Analyzing the responses, it was determined that the application's appearance, functionality and operation, and the importance of the information provided by the application were rated by the largest number of respondents with the highest possible rating. A comprehensive analysis of the answers given in the survey, as well as a detailed analysis of the comments, objections and suggestions of users of public transport, i.e. the "EasyGoNS" mobile application, resulted in the following recommendations for further development and improvement:

- Within the mobile application, it is necessary to develop a module for the ability to pay for transportation (bus tickets).
- The "EasyGoNS" application should include all public transport lines in the territory of the City of Novi Sad.

D.T2.1.2. Tribute Action Plan PP7-Novi Sad







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• Within the mobile application "EasyGoNS", in the following steps, it is necessary to develop a module for travel planning, i.e. calculation of the optimal route and combination of modes of transportation from the selected source and destination of the trip.

As a result of these recommendations, a plan was adopted for the implementation of the first measure, i.e. the need for further development of the "EeasyGoNS" application.

1.2. Results of discussions within Living lab meetings

At the meeting of the living laboratory in the city of Novi Sad, which was held on the occasion of the formation of action plans, a constructive discussion was held between the representatives of the City of Novi Sad, the Public City Transport Company of Novi Sad and the representatives of the stakeholders present. During the discussion, opinions and ideas related to the action plan were presented, during which a measure related to the improvement of public transport services for persons with disabilities was proposed.

Namely, the idea for the development of services within public transport for persons with disabilities was implemented in the past ten-year period and met with an extremely positive reaction from the public, especially from citizens who were also users of these services. However, insufficiently good organization caused high exploitation costs that could not be covered by the defined financing model, which led to the shutdown of this service.

The cooperation of partners and stakeholders during the realization of the TRIBUTE project was recognized as a good opportunity to reactivate the service for people with disabilities within the framework of public transport in the coming period. The first step in implementation is the recognition and elimination of deficiencies from the previous period. In the next step, based on the experiences of other cities and respect for local specificities, a model will be defined that should enable the sustainable operation of this service.

1.3. Proposal of measures based on the Smart Plan

The "Smart Plan" study, which was implemented in two phases, included detailed research of the complete traffic system of the city of Novi Sad. Based on the analysis of the collected data and the developed transport model, the weak points in the transport system were defined. In accordance with the obtained results, proposed measures and action plans for the improvement of the traffic system based on the principles of sustainable mobility were given.

D.T2.1.2. Tribute Action Plan_PP7-Novi Sad







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Most of the proposed measures from the Smart Plan traffic study are in complete agreement with the goals and tasks of the City of Novi Sad as a partner of the TRIBUTE project. Accordingly, the following measures are defined as part of this action plan:

- Expansion of the pedestrian zone,
- Development and improvement of the "Park & Ride" system,
- Expansion of the bicycle roads network,
- Introduction of priority for Public City Transport Enterprise of Novi Sad vehicles at signalized intersections.

1.4 Classification of measures connected to pilot activities of the City of Novi Sad

For the purpose of forming the action plan the proposed measures were classified in two groups according to the criteria of connectivity of such measures with the pilot action and direct impact on improvement of the integral transportation system through improvement of the passenger public transport system in the City of Novi Sad.

The improvement of the public transportation system creates the base for good integrated transportation system since the public transportation has the potential, with minimal limitations, to meet the needs of passengers in an urban area. Also, the public transportation is a sustainable form of urban mobility and therefore the first group of measures are activities that are aimed at improving the integrated transportation system by directly impacting the system of passenger public transportation system in the City of Novi Sad. These measures are categorized as primary and, according to this action plan, include the following:

- 1. Development of "EeasiGoNS" app;
- 2. Introducing priority system for JGSP vehicles;
- 3. Improving the public transport services for persons with disabilities.

On the other hand, in order to establish a good integrated transportation system in an urban area it is not possible to develop only one segment of this system, the system of passenger public transportation in this case. Partial development may lead to significant discrepancies between the development of individual segments of the integrated transportation system leading to only minor advances at the more general level.

D.T2.1.2. Tribute Action Plan_PP7-Novi Sad







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Therefore, the development of the integrated transportation system must be harmonized at different levels of the subsystem that it is comprised of. Consequently, this action play envisages measures that are categorized as secondary that serve the purpose of indirectly effect the development of the passenger public transportation system by increasing the number of users of such system. The chosen secondary measures include the following:

- 1. Expanding the pedestrian zone. By implementing these measures, we promote alternative forms of mobility and decrease access of passenger vehicles to attractive parts of the city. The expectation is transfer part of car users that use cars to access these parts of the city to public transportation. By increasing the number of people that use the public transport system in turn may potentially increase the number of users of the mobile app that is envisaged by the TRIBUTE project.
- 2. Expanding the bike lanes. The secondary measures that is aimed at increasing the connectivity of different parts of the city with bike infrastructure and making the bike transport more attractive in terms of travel time. The development of the bike infrastructure also increases the degree of the citizens' bike mobility that, in turn, may lead to increase in the use of the "NS Bike" system which is also part of the pilot action.
- 3. Developing and introducing "Park & Ride" system. As with the previous measures, the aim is to demotivate the use of passenger cars for accessing urban parts of the town. The alternative offered is the use of public bus transportation and "NS Bike" transportation.

All the above listed measures are aimed at directly improving and harmonizing the development of the integrated passenger transportation system in cities. Some of the measures relate to direct development of public city transportation system as the primary part of the integrated system, while other measures are supposed to indirectly attribute to the development of the city public transportation and/or sustainable modes of transport. The following part of the action plan explains each of the measures in detail.

2. Measures to improve data collection for the development of integrated transport systems

The selection of measures for the improvement of data collection and the development of integrated transport systems was carried out in accordance with the framework of the development of the traffic system in the City of Novi Sad. The defined measures are aligned

D.T2.1.2. Tribute Action Plan PP7-Novi Sad







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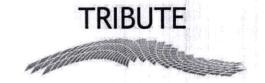






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primarily with the traffic system development activities defined in the Smart Plan of the City of Novi Sad, as well as in accordance with the planning documents of other institutions in the City of Novi Sad that participate or have jurisdiction for the development of traffic infrastructure and other systems or services related to mobility residents in this city.

This part of the document describes 6 measures, or activities, with key steps in their implementation. The stated measures are primarily aimed at improving the public transport system through integration with other parts of the traffic system of the City of Novi Sad, as well as through measures directly related to the public transport system. Through the implementation of each of the proposed measures, permanent monitoring is foreseen, which includes the collection and processing of data, and further, based on that, the improvement of the system within each proposed measure.

Development of the "EasyGoNS" application

Mobile application "EasyGoNS" is the result of the pilot of this project. This application is the part of an information system that includes information displays at the stop, as well as the infrastructure and equipment necessary for information exchange. From the user's point of view, this application is a tool for planning daily trips by public transport on the territory of the city, with the possibility of combining it with other modes of transport. In order to improve and further develop the application, the following activities are planned:

- I. Applying the application on all lines, that is, enabling the display of departure data for all stops and all urban and suburban lines in the territory of the city of Novi Sad.
- II. Development of an option that provides the possibility to pay for a bus ticket through the application and the option of planning a trip based on the optimal route and combination of modes of transportation from the selected source to the destination of the trip.
- III. In the application, it is necessary to implement a module for sending notifications to users, that is, useful information about temporary changes in the network of public transport lines, the status of ticket validity, etc.
- IV. After the implementation of all measures, it is necessary to evaluate the effects and evaluate the degree of improvement of the system.

The implementation of this measure is expected in the period until 2025

D.T2.1.2. Tribute Action Plan PP7-Novi Sad







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2.2. Expansion of the pedestrian zone

In order to promote and develop alternative modes of transportation, it is planned to expand the pedestrian zone in the central part of the city of Novi Sad. This measure will create greater potential for the development of pedestrian and bicycle traffic in one of the most attractive parts of the city. In the process of implementing this measure, it is necessary to implement the following steps:

- I. Analysis of the needs for the expansion of the pedestrian zone, which will include the determined needs for the movement of the population and the opinions of the citizens of the city of Novi Sad (visitors and residents of the central city zone), as well as the preparation of the necessary technical documentation.
- II. On the basis of the data from the previous step, the realization of the activity is approached, which implies the application of construction, technical and regulatory measures that will lead to the expansion of the existing pedestrian zone.
- III. After the implementation of the previous steps, it is necessary to evaluate the effects and assess the degree of improvement of pedestrian and bicycle traffic in this part of the city.

The implementation of this measure is expected in the period until 2028

2.3. Development and introduction of the "Park & Ride" system

"Park & Ride" systems basically aim to reduce the number of passenger cars in the central parts of the city. The measure involves the construction of one or more large-capacity parking lots on the periphery of the wider city area, i.e. "Park & Ride" stations, and the functional connection of the parking lot with the central parts of the city. In the specific case, connecting "Park & Ride" stations with long parts of the city is planned using bus public transportation and the "NS bike" system.

- I. Analysis of the need and possibilities for the introduction of the "Park & Ride" system and the selection of locations.
- II. Improvement of the public transport system under the jurisdiction of Public City Transport Enterprise of Novi Sad in terms of harmonizing the network of lines and timetables with the needs and position of "Park & Ride" stations.

D.T2.1.2. Tribute Action Plan_PP7-Novi Sad







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- III. Improvement of the "NS bike" system in terms of accessibility, capacity and way of using this service and its connection with the "Park & Ride" system.
- IV. Implementation of activities using construction, technical and regulatory measures, i.e. construction of "Park & Ride" stations.
- V. Evaluation of the effects of the applied measure and assessment of the degree of improvement of public transport and bicycle traffic.

The implementation of this measure is expected in the period until 2028

Expansion of the bicycle roads network

The urban area within the boundaries of the settlement of Novi Sad has a fairly well-developed network of bicycle roads that are used for bicycle traffic on short distances - city rides. Considering the development of technology, primarily electric bicycles, conditions have been created for covering longer distances with less effort on the part of the cyclist, so the use of bicycles has become more acceptable for longer distances such as city-suburb. In order to develop infrastructure for bicycle traffic between urban and suburban settlements, the following activities should be implemented:

- I. Analysis of the needs for the expansion of the bicycle path network between the city and suburban settlements with the definition of the route, construction priorities and the preparation of technical documentation.
- II. Realization of activities using construction, technical and regulatory measures, i.e. construction of bicycle paths in accordance with defined construction priorities.
- III. Evaluation of the effects of the applied measure and evaluation of the degree of improvement of bicycle traffic.

The implementation of this measure is expected in the period until 2028

2.5. Introduction of priority for Public City Transport Enterprise of Novi Sad vehicles

In order for travel by bus to become attractive and competitive with travel by car, it is necessary to ensure that the travel time by bus is shorter, that is, that the costs of traveling by bus are lower than traveling by bus. In accordance with that, savings in travel time represent one of

D.T2.1.2. Tribute Action Plan PP7-Novi Sad







Град Нови Сад













the key elements of the justification, that is, the unjustification of using public transport vehicles. For this reason, in order to make traveling by public transport more attractive than traveling by car, it is necessary to increase the operating speed of buses. One of the measures implemented to achieve this goal is giving priority to bus traffic at signalized intersections. The implementation of this measure was conceived as a pilot project through the implementation of the following activities:

- I. Selection of the corridor served by bus line number 4, with an analysis of traffic conditions at intersections, with a special focus on the bus system.
- II. Defining priorities for public transport vehicles at intersections through light signal work programs, specification of equipment with precisely defined characteristics that enable integration with the existing system (at intersections and Public City Transport Enterprise of Novi Sad vehicles) in the city of Novi Sad.
- III. Procurement and installation of equipment at intersections and in Public City Transport Enterprise of Novi Sad vehicles with testing of equipment and devices
- IV. Evaluation of the effects of the applied measure and assessment of the degree of improvement of public transport.

The implementation of this measure is expected in the period until 2028

Improving public transport services for people with disabilities

One of the quality parameters of the public transport system is its accessibility to all citizens. Quite often, the infrastructure at the bus stops and the structural characteristics of the vehicle prevent accessibility for a certain group of people with disabilities. The aim of this measure is to create a service for people with disabilities who cannot independently use the existing public transport system through the implementation of the pilot project. The service would have the function of public transport "on demand", with a prior clear definition of the conditions for using the service. In order to implement this measure, the following steps must be taken:

I. Defining the working methods, competences and conditions of use of the public transport service for persons with disabilities in the city of Novi Sad.

D.T2.1.2. Tribute Action Plan_PP7-Novi Sad







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- II. Determining the characteristics of special vehicles adapted to persons with disabilities, aligned with the technical and organizational characteristics of the Public City Transport Enterprise of Novi Sad.
- III. Development of a platform for announcing the need for transportation with: (1) the option of providing feedback to the user, and (2) the option of creating an optimal itinerary for the set or announced requests for transportation and providing feedback to the carrier.
- IV. Evaluation of the effects of the applied measure and assessment of the degree of improvement of public transport.

The implementation of this measure is expected in the period until 2030

D.T2.1.2. Tribute Action Plan_PP7-Novi Sad







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3. Protocol for controlling the sustainability of the implementation of the selected measures

In order to ensure the implementation of the action plan, a protocol framework was defined to control the implementation of the proposed measures. The protocol defines key steps in the process of implementing measures, as well as a proposal for a hierarchical system of action by institutions, partners and stakeholders in the process of implementing plans.

- 1) Informing the City Council of the City of Novi Sad about the action plan: In order for the action plan to be legally and formally enforceable, it is necessary that the City Council of the City of Novi Sad, as an umbrella institution, to be informed about the plan as a whole or about individual measures. In this step, it is necessary to define the competent institution for the implementation of the plan. In this case, the City Administration for Traffic and Roads is proposed as the holder of the activity.
- 2) Implementation of the activities defined by the action plan through the updating of the existing plans: After the adoption of the plan as a whole, the holder of the activity is obliged to communicate with other city administrations and bodies of the City of Novi Sad that have an interest in the implementation of the proposed measures. Based on the proposed measures and the requirements they prescribe, in addition to the City Administration for Traffic and Roads, the following are proposed as indispensable members in the process of implementing the action plan:
- a. Local and Economic Development Office,
- b. Persons with Disabilities Office,
- c. City Administration for Construction Land and Investments.
- 3) **Development and realization of activities:** For the needs of development and complete realization of the proposed measures, the activity holder should foresee and provide the necessary capacities and necessary funds in the work program. Part of the measures can be implemented independently by the holder in accordance with the available technical capacities. Parts or entire measures for which the holder does not have the appropriate capacities will be implemented by hiring persons who meet the required capacities, for which it must provide adequate financial support. Potential sources of funding can be the budget of the City of Novi Sad, dedicated funds or sources of funding through calls for development

D.T2.1.2. Tribute Action Plan_PP7-Novi Sad







Град Нови Сад

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projects. Likewise, the holder of the activities can realize them in cooperation with other institutions and interested parties through their business programs.

4) Monitoring and follow-up of the implementation of the defined action plan and valorization of performance: Monitoring of the implementation of the measures is carried out by the activity holder, i.e. the City Administration for Traffic and Roads and reports on the implemented activities to all partners and interested parties participating in the implementation of the proposed measure, i.e. the action plan. In addition to the activity holder, scientific institutions will be included in the monitoring and evaluation of the effects of the implemented measures, which from their perspective and in accordance with the latest trends in the development of traffic systems in cities will evaluate the effects of the implemented measures. In addition, in the evaluation process, citizens' opinions will be examined on the extent to which the implemented activities have affected the quality of their lives or the facilitation of daily movements.

The evaluation of the effects of the measures implemented will be based on the key performance indicators (KPI) for each measure individually, which will be precisely defined before the implementation of each measure. As some of the key indicators, the following can be adopted: the total number of active users of the mobile application, the number of transported passengers in the public transport system, the participation of public transport and cycling in the modal distribution of trips, the length of the cycle network, the operating speed of the public transport system, the number of "P&R" stations, etc. depending on the observed measure.

The following illustration graphically shows the organizational chart of institutions in the process of implementing and controlling the selected measures sustainablity.

D.T2.1.2. Tribute Action Plan_PP7-Novi Sad







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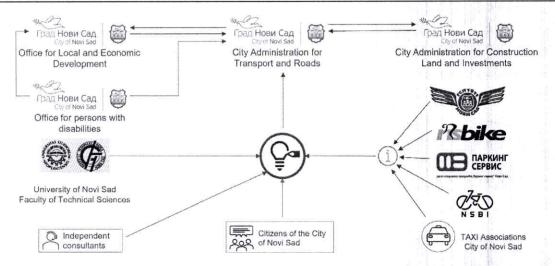


Illustration 2. Scheme of the participation of city institutions, stakeholders and citizens in the process of implementing the action plan

Conclusion

This action plan proposes 6 measures aimed at improving the public transport system through integration with other traffic systems in the city of Novi Sad, as well as through measures directly related to the public transport system. The proposal of measures was carried out based on the results of the work within the activities of the project "inTegRated and Innovative actions for sustainaBle Urban mobiliTy upgradE - TRIBUTE" as well as on the basis of previous traffic studies and plans expressed by the City of Novi Sad.

Each of the proposed measures is specifically defined, with clear goals, key activities and a period of implementation. Before the implementation of each of the proposed measures, an analysis of the state of the system will be carried out, and after the implementation, an analysis and evaluation of the effects of the implemented measures will be carried out in order to enable permanent monitoring of the implementation of activities and the formation of an information base for further improvements of the traffic system of the city of Novi Sad.

In order to ensure the implementation of the action plan, in the third point of the action plan, a protocol is defined for the control and sustainability of the implementation with key steps, from the adoption of the action plan, through the implementation of activities, to the monitoring and

D.T2.1.2. Tribute Action Plan_PP7-Novi Sad







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16







follow-up of the implementation of the defined action plan and performance evaluation. In addition, the third point shows the outline scheme of the implementation of the action plan with the responsibilities of the activity holders, partners and other stakeholders.

Created by City of Novi Sad - City Administration for Transport and Roads

Date of the signature: 30th September 2023.

Name and surname of the signatory: Suzana Savić

Position: Head of City Administration for Transport and Roads

Signature:

Stamp:

In coorporate with the Department of the Executive Bodies of the City of Novi Sad - Local Economic Development Office of the City of Novi Sad

Date of the signature: 30th September 2023.

Name and surname of the signatory: Milenko Malešev

Position: Head of Local Economic Development Office

Signature:

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