City of Belgrade
City Administration of Belgrade
Secretariat for Public Transport

Project for Modernization of Public Urban Transport in the City of Belgrade

Project Completion Report

March 2024

Japan International Cooperation Agency (JICA)

ALMEC Corporation
Oriental Consultants Global Co., Ltd.
Nippon Koei Co., Ltd.

Exchange Rate
USD 1 = 126.4115
EUR 1 = 139.7485
RSD 1 = 1.192611

Average of JICA Rate from
November 2020 to February 2024

TABLE OF CONTENTS

APPENDICES

[1] Training list includes training materials for remote training, third country training (The Netherlands), and online session (Greater London, UK). For the third country training (Italy) and online session (Hamburg, Germany), materials were not shared in the file.

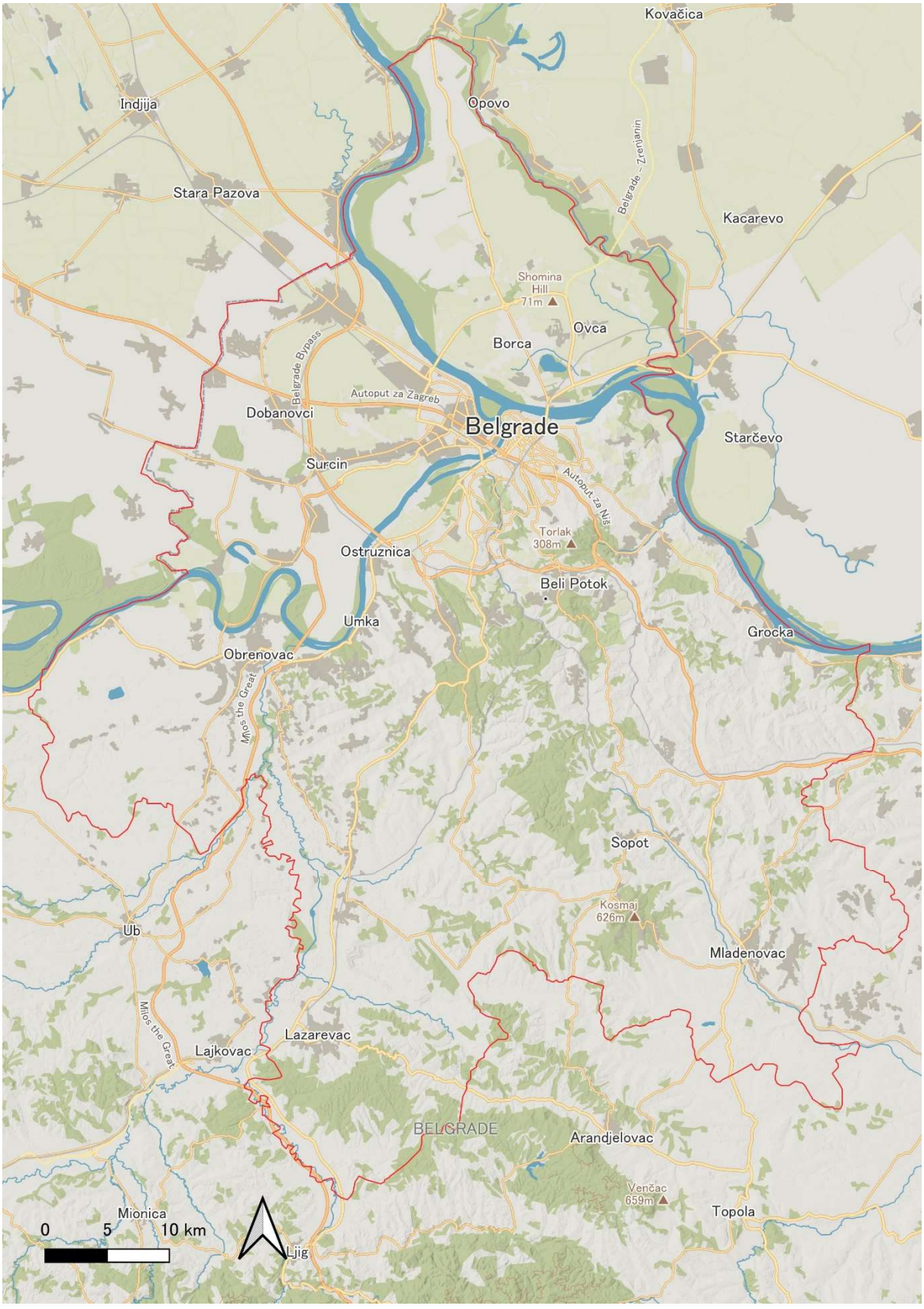
LIST OF TABLES

LIST OF FIGURES

ABBREVIATION

Abbreviation	English or *Local Language*
ADS	Activity Diary Survey
AfD	*Agence Francaise de Development*
ATAC	*Agenzia del Transporto Autoferrotranviario del Comune di Roma*
BG:Voz	(Urban railway system in Belgrade)
CMMS	Computerized Maintenance Management System
CNG	Compressed Natural Gas
C/P	Counterpart
COVID19	Corona Virus Disease of 2019
DAC	Development Assistance Committee
EBRD	European Bank for Reconstruction and Development
EU	European Union
FTTE	Faculty of Transport and Traffic Engineering
GIZ	*Deutsche Gessellschaft fur Internationale Zusammenarbeit*
GSP	*Gradsko Saobraćajno Preduzeće*
HADAG	*Hafen-Dampfschiffahrt AG*
ICT	Information and Communication Technology
IC Card	Integrated Circuit Card
JCC	Joint Coordinating Committee
JICA	Japan International Cooperation Agency
JR	Japan Railway
KPI	Key Performance Indicator
MaaS	Mobility as a Service
M/M	Minutes of Meeting
OD	Origin and Destination
ODA	Official Development Assistance
OJT	On the Job Training
PM	Person-Month
PDM	Project Design Matrix
PO	Plan of Operation
PUC	Public Utility Company
R/D	Record of Discussion
RSM	*Roma Servizi per la Mobilita*
SDG	Sustainable Development Goal
SfPT	SfPT
SfT	SfT
Smart Plan	Transport Master Plan for Belgrade
SNS	Social Networking Service
TOR	Terms of Reference
UITP	The International Association of Public Transport
WG	Working Group
SEE	Southeast Europe

MAP OF TARGET AREA



PHOTOS

Route Bus

Trolleybus

Tram

Inter-city Railway

A “Japanac” bus

Urban development in the waterfront area

Third Country Training (The Netherlands)

Third Country Training (Italy)

The First Seminar

Part 1. OUTLINE OF THE PROJECT

1.1 Project Title

Project for Modernization of Public Urban Transport in the City of Belgrade

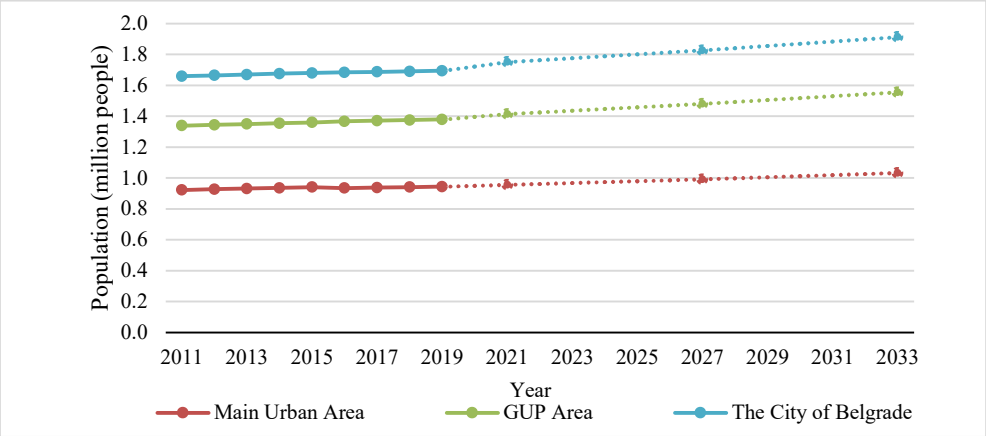
1.2 Project Period

Original schedule: November 2020 - October 2023 (36 months)

Final schedule: November 2020 - December 2023 (38 months)

1.3 Background

Belgrade is the capital and the largest city of the Republic of Serbia with 168 million inhabitants in 2022. It is administratively divided into 17 municipalities, each with its own council. The city, located at the confluence of the rivers Sava and Danube, with the central area on the right bank of the Sava River, covers the area of 3,227 km^2. In the past two decades urban development programs involved inner city waterfronts, and the developments in Novi Beograd and Zemun municipalities are remarkable. The population trend and forecast are presented in the figure below. According to the SMARTPLAN 2017, an urban transport master plan study implemented with the support of the European Bank for Reconstruction and Development (EBRD), annual population growth of over 10% continues compared to 2016 and is forecasted to grow in the future as well.



Source: Estimates of Population for the Republic of Serbia 2015 – 2019, SMARTPLAN 2017 (Forecast)

Note: Refer to the Study area map for the definition of each area.

Figure 1.3.1: Population Trend and Forecast in the City of Belgrade

Public transport in Belgrade consists of city buses, trams, and trolleybuses. Under the management of the Secretariat for Public Transport (SfPT), trams and trolleybuses are operated by Gradsko saobraćajno preduzeće (GSP ''Beograd''), a city public transport company, whilst city buses (urban and suburban) are operated by GSP and four private operators. In addition, there are urban railways (BG:Voz).

Belgrade city statistics reveal that public transport accounts for around 50% of the city's trip demand, serving an annual 826 million users on buses, trolleybuses, and trams. Among these modes, buses emerge as the primary choice for passengers, commanding a significant share of 44%, followed by trams at 2%, trolleybuses at 1.3%, and railways at 0.4%. These figures emphasize the crucial role played by buses in shaping the city's transportation dynamics.

The table below provides a summary of city public transport operations data. Buses operate on long distances and have a large number of users. Tram and trolleybus services maintain a consistently short and stable headway, while major bus routes operate with a headway of approximately 5 minutes. Despite its higher speed, urban railway (BG:Voz) services exhibit the

lengthiest headway. There is a potential to increase the number of users with the shortening of the headway. It is important to note that SMARTPLAN, while not extensively delving into management aspects, advocates for the improvement of public transport services and the necessity of planning Transit-Oriented Development (TOD).

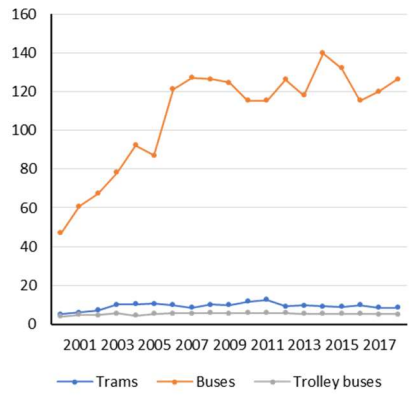
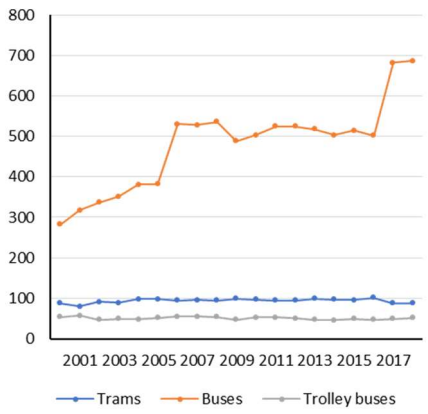
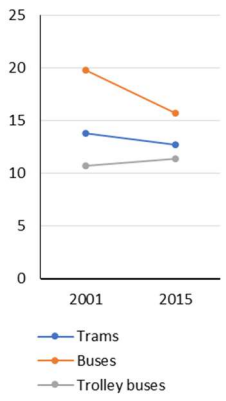
Table 1.3.1: Public Transport Data in Belgrade

	Mode Share rate*	Annual Number of Passengers (million pax)	Daily Number of Passengers per day * Distance (million pax* km) *	Number of Routes	Total Route Length (km)	Daily Passenger Density (pax/km)	Operation Interval (minute)
Bus	44%	686.3	6.2	153	2,170.8	2,866	4.1-5.4
Tram	2%	87.8	0.6	7	93.2	2,581	5.4-12.3
Trolleybus	1.3%	51.5	0.4	6	49.2	866	3.8-16
Urban Railway	0.4%	---	---	4	171.1	---	15~

Source: Belgrade Statistical Yearbook 2001 – 2018 (SMARTPLAN 2015, for data indicated with (*))

The table below summarizes a significant change in the public transport infrastructure and services over the past two decades.

Table 1.3.2: Transition of Public Transport Condition in Belgrade

		
Public Transport Service Length by Mode (million km)	Total Annual Passengers (million pax)	Average Operating Speed (km/h)
The city has strived to expand the bus network. Though service routes have been reduced for trams and trolleybuses, buses have increased in seat*km/year due to the improvement of headway and the introduction of high-capacity vehicles.	Total number of passengers correlating with the expansion of transport routes is increasing. Large fluctuations are also influenced by economic conditions. The recent leveling off trend may be attributed to the rising of the ownership rate of private cars.	Despite the efforts to expand the bus network, there is a gradual decline in the operating speed of public transport due to the insufficient road capacity and increasing traffic volume.

Source: Belgrade Statistical Yearbook 2001 – 2018 as well as SMARTPLAN 2017

Results of the Public Transport Corridor Survey analysis of the public transport average frequency, average speed, and average waiting time are summarized in Table 2.2.5. Generally, the bus service in Belgrade is good, with a moderate to high frequency of vehicle arrivals, short waiting time, and average speed (excluding stop times, etc.) of around 30 km/h and are responsible for a large modal share.

However, notable challenges persist. According to the city statistics, number of registered automobiles continues to increase at a rate of around 5% per annum, reaching 600,000 in 2019. It means that, on average, each household owns one automobile - a rate comparable to the cities in EU countries. Additionally, recent expansion of the bus network coupled with the radial network structure of roads and public transport lines, especially on the right bank of Sava River, have led to traffic congestion on the main trunk roads (such as, Vojvode Misica and Karadjordjeva streets), and buses to fall behind the schedule. This highlights the necessity for efficient operation of public transport to meet the growing demand. In particular, traffic congestion in the city center, caused

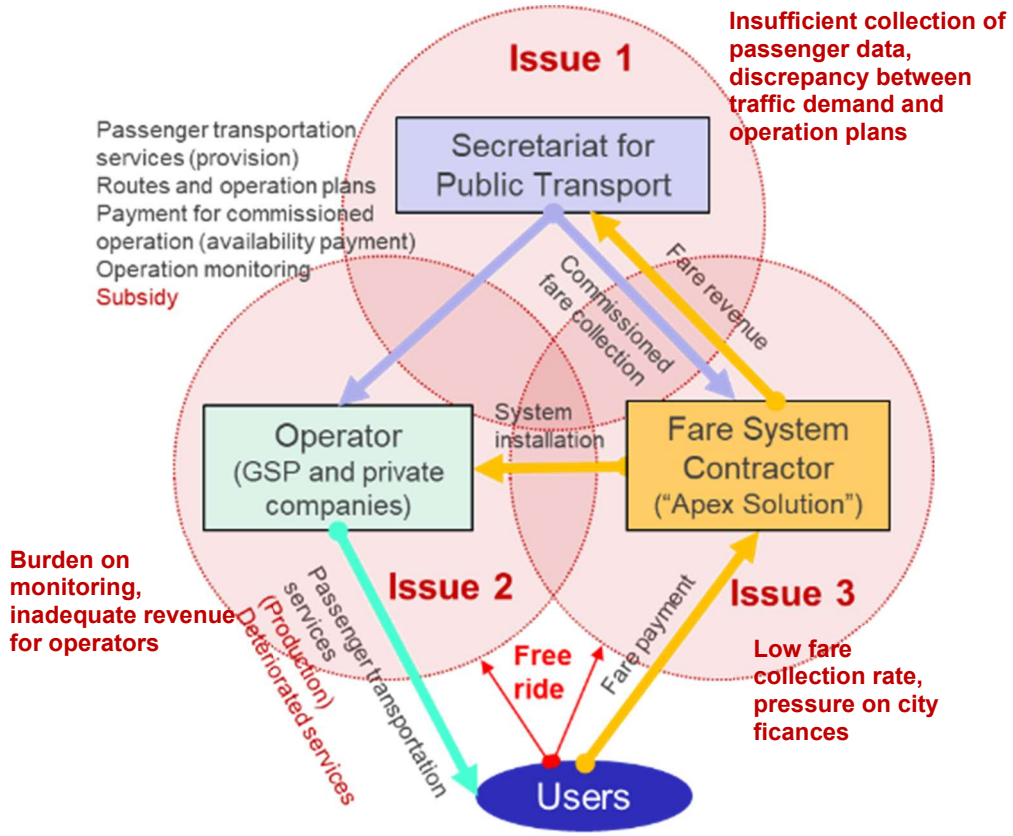
by the overlap of bus routes, results in a relatively low ridership. Simultaneously, tram routes are deprived of traffic demand, resulting in a low occupancy rate despite being a core mode with significant transport capacity. Other various user-related issues with the public transport services including overcrowding of vehicles, cleanliness, outdated vehicles, long headway (equating to long waiting times), and issues with driving manners are also shown in Table 2.2.8.

Belgrade introduced an integrated fare system for public transport including railway and suburban buses in 2004. A fare collection system using an IC card called BusPlus (provided by Apex Solution Technology, a company headquartered in Turkey that was commissioned by the city and later changed its name to Kentkart) was introduced later in 2012. However, the fare collection rate was low partly due to the fare increase (17% - 20%). This increase placed financial strain on both the city and the public transport operators. To mitigate potential disruptions or reductions in operations due to the low fare revenue, the city provided subsidies to each transport operator based on their individual financial situations. Previously, fare distribution among transport operators was based on the operated distance and the number of provided seats.

However, some media raised concerns about the unclear fare revenue distribution process, and the fact that most of the transport operator's revenue was depending on the city's subsidies. In response, the subsidy mechanism underwent a change in 2019 transitioning to the availability payment system where the operation costs are reimbursed based on the actual operation distance. Operators earn income depending on the realization of planned kilometers. At the same time, the system could not detect whether all departures were properly implemented (e.g., sudden operational change of the route due to a traffic accident, or loss of GPS signal). According to SfPT, an average of 8,000 monthly departures had to be checked manually, which is why six employees were engaged in these tasks daily.

On the other hand, with the operation cost increase for each city operator, subsidies remain essential for facility investment and fleet renewal. Turning a profit becomes challenging, leading to frequent service cancellations, particularly on suburban routes, due to the aged and malfunctioning fleet.

On the other hand, the issue of a consistently low fare collection rate has persisted over an extended period. Despite introduction of the above-mentioned BusPlus, the fare collection rate remained as low as 25%. In an effort to rectify this, GSP attempted to shift the responsibility for fare collections entirely to the drivers, but encountered intense opposition from the labor union. Consequently, the city deployed 2,000 employees to manage entrance to public transport vehicles, allowing only passengers who had paid through the IC card reader to board the vehicles. Additionally, Apex Technology frequently collaborated with the local police during the ticket inspections to enforce fines on free-riders. However, this approach has resulted in issues such as skirmishes with passengers refusing to pay. Apex Technology's campaign advocating that "routes with a higher fare collection rate should be prioritized for maintaining and improving the bus service" has also been met with resistance from the citizens. As a result, the fare collection rate remained around 30%. The financial strain on the city's resources persists, with subsidies and expenses for public transport operators accounting for 22% of the city's total budget in 2020.



Source: JICA Expert Team

Figure 1.3.2: Issues of Public Transport in Belgrade

1.4 Project Purpose and Output

1.4.1 Overall Project Goal

Sustainability of Eco-friendly public transport in Belgrade is enhanced including eco-friendly approach.

1.4.2 Project Purpose

Ability of public transport operation of SfPT is improved.

1.4.3 Expected Results

The project outline is as follows.

Output 1: The ability of strategical, tactical and operational planning of SfPT is improved.

Output 2: The ability of monitoring operators of SfPT is improved.

Output 3: The ability for planning for securing fare collection of SfPT is improved.

The outline of the activities corresponding to the above outputs is provided in the following table. Note that certain activities in item 202 have been removed following the cancellation of the ICT installation to bus stops in the pilot project (See Section 2.2.1.7 for background on the contents of the pilot project.).

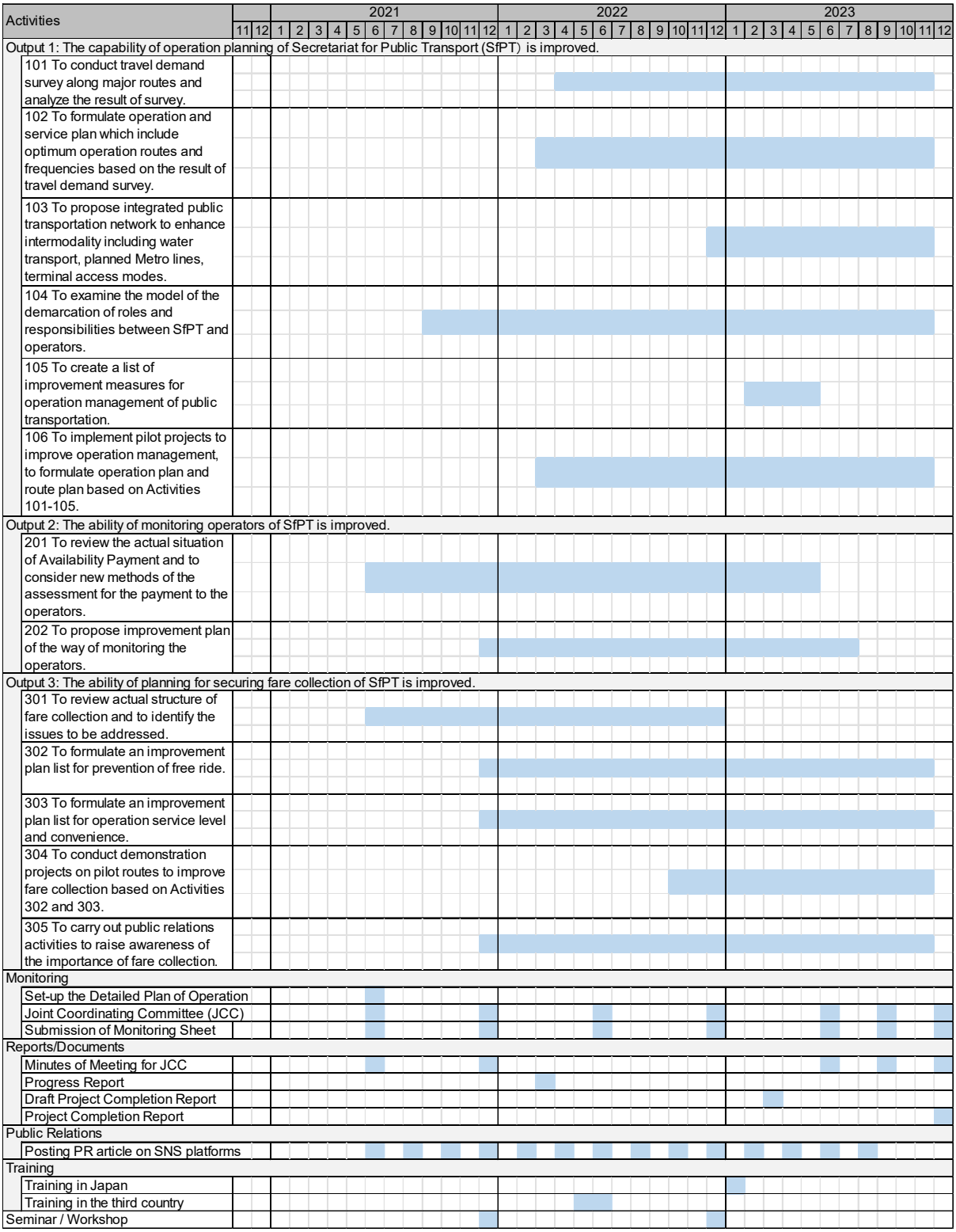
Table 1.4.1: Activities of the Project

Expected Output	Outline of Activities
Output 1: The ability of strategical, tactical and operational planning of SfPT is improved.	101 To conduct travel demand survey along major routes and implement OJT on transport demand software. 102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of travel demand survey. 103 To propose integrated public transport network to enhance intermodality including water transport, planned Metro lines, terminal access modes. 104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators. 105 To create a list of improvement measures for operation management of public transport. 106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105.
Output 2: The ability of monitoring operators of SfPT is improved.	201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators. 202 To propose improvement plan of the way of monitoring the operators.
Output 3: The ability for planning for securing fare collection of SfPT is improved.	301 To review actual structure of fare collection and to identify the issues to be addressed. 302 To formulate an improvement plan list for prevention of free ride. 303 To formulate an improvement plan list for operation service level and convenience. 304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303. 305 To carry out public relations activities to raise awareness of the importance of fare collection.

Source: JICA Expert Team

1.4.4 Project Implementation Flow

Activities in the project were carried out according to the project implementation flow shown in the figure below.

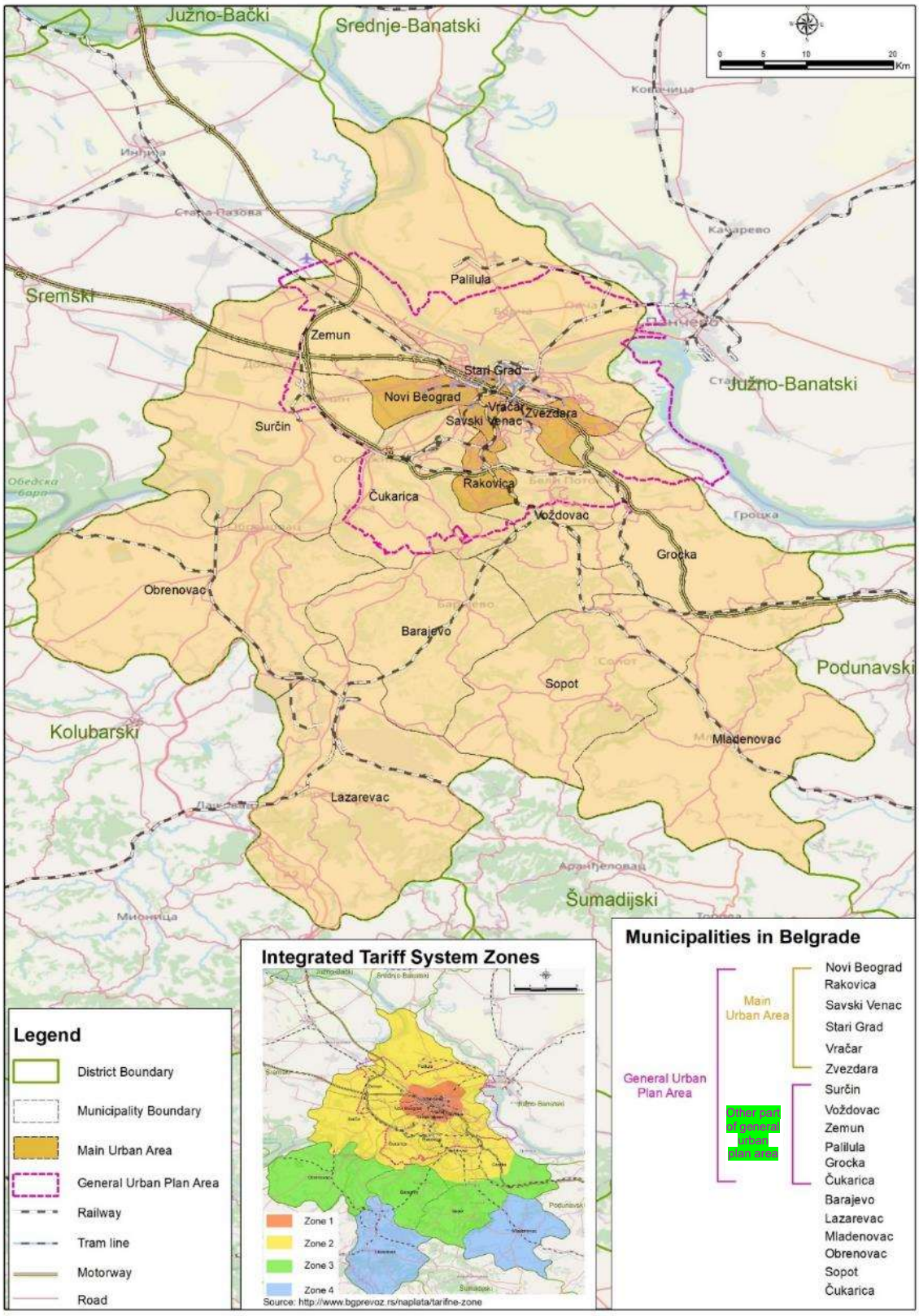


Source: JICA Expert Team

Figure 1.4.1: Project Implementation Flow

1.4.5 Project Area

The size of the Project area (the City of Belgrade) is 3,227 km², as shown in the figure below.



Source: JICA Expert Team

Figure 1.4.2: Project Area (Light Orange Area）

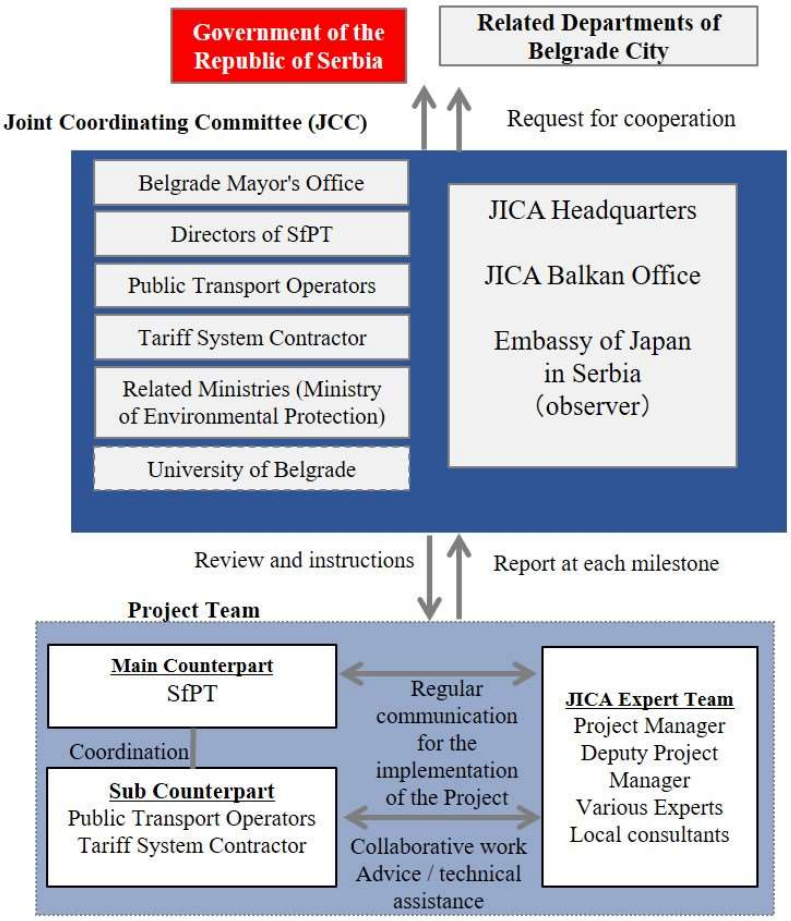
1.5 Project Organization

1.5.1 Implementation Structure

The Joint Coordinating Committee (JCC) was chaired by the Mayor's Office of Belgrade and supported by the members including SfPT, public transport operators, tariff system contractor, relevant ministries such as Ministry of Environmental Protection, and the University of Belgrade. On the Japanese side members were from JICA Headquarters, JICA Balkan office, and Embassy of Japan (observer), as shown in the figure below.

The main activity was carried out by the Project Team comprising of SfPT, the University of Belgrade, public transport operators, tariff system contractor, and the JICA Expert Team. For the project implementation, the JICA Expert Team maintained regular communication with the SfPT. Furthermore, the C/P, the experts and local consultants of the JICA Expert Team collaboratively engaged in daily work to enhance the capacity of the SfPT. Additionally, the Serbian side approved incorporation of the University of Belgrade into the structure given its extensive involvement in previous public transport studies and projects.

However, there were several changes in the JCC members during the project period, especially when the Project Director position became vacant, and after the removal of the original tariff system operator from the project implementation structure due to the sudden change in the tariff system in April 2023. This change had a negative impact on the smooth implementation of the project in terms of active involvement of the local side. (See Section 2.2.1.7 for more information on the fare collection system and Section 2.1.2 for more information on the Project Director.).



Source: JICA Expert Team

Figure 1.5.1: Organizational Diagram of Project Implementation

1.5.2 Counterparts

See Section 2.1.2 for the structure on the Serbian side.

JICA Expert Team

The members of the Expert Team are shown in the table below.

Table 1.5.1: JICA Expert Team Members

No.	Expertise	Full name	Affiliation
1	Team Leader / Public Transport 1	Sadayuki Yagi	ALMEC
2	Deputy Team Leader / Public Transport 2	Yosui Seki	ALMEC
3	Public Transport Planning	Manabu Owada	OCG
4	Operation & Operator Management	Errol Tan	ALMEC (X-terra)
5	Fare Collection / ICT System	Eijiro Otsuka	TBA
6	Pilot Project	Wataru Ozono	NK
7	Transport Survey / Database / Demand Forecast 2	Deo Nobel	ALMEC
8	Demand Forecast 1	Yang Wang	ALMEC (Vectio)
9	Financial & Economic Analysis	Yuka Kato	OCG
10	Monitoring / Evaluation / Public Relation	Shinji Terawaki	ALMEC

Source: JICA Expert Team

1.6 Implementation Policies and Methods

1.6.1 Technical Consideration

1.6.1.1 Basic Concept of Technology Transfer

Several training materials and manuals were developed as deliverables for C/P. Guidance and discussions were provided to facilitate the effective utilization of the deliverables. The activities were carried out in collaboration with experts, C/P, and local consultants. C/P was given opportunities to present and engage in discussions at regular working group meetings, JCCs, and seminars.

During the project period, a key focus was on clarifying the basic concept of technology transfer with an aim to empower C/P to independently work on the formulation and revision of the plan. The JICA Expert Team provided several training materials and manuals as inputs to the C/P, guidance, facilitated discussions, and promoted collaborative activities together with experts, C/P, and local experts. The JICA Expert Team made special efforts to create opportunities for C/P to present and discuss at regular working group meetings and JCC/seminars.

1.6.1.2 Updating Transport Survey Database

Transport surveys in this project were simplified and streamlined based on a series of transport survey databases conducted and collected in 2015 by the City of Belgrade, commissioned by the University of Belgrade. Existing technology, aligning with the original objectives of technical cooperation projects, was used to ensure that the implementation of these surveys could be easily updated by the City of Belgrade in the future. As for simplification, the field surveys were limited to only three types of surveys: (1) activity diaries, (2) public transport passenger counts and interviews, and (3) screenline surveys, all of which are necessary for the development of the transport demand forecasting model. The pedestrian count survey, conducted in the SMARTPLAN study and the cordon line survey were omitted. The decision was based on the fact that the pedestrian count survey was not considered relevant for the demand forecasting work, and the assumption that the cordon line survey results would not significantly differ from the existing transport survey. Efficiency improvements and use of existing technology were implemented with the assistance of local experts. This included surveyors' use of tablets and direct input of interview results, utilization of data from the existing automatic traffic volume detectors, and analysis of travel speeds on each road using GPS data obtained from vehicles traveling in the city.

One of the Project objectives is to provide support for the formulation and update of the demand forecasts, public transport operation plans, and public transport management plans while consolidating, updating, and performing the data maintenance. Furthermore, in addition to Activity

1, the JICA Expert Team has made efforts to enhance the management capacity of the operators as in Activity 2 and increase the fare revenue in Activity 3. Thus, it has been proposed to support enhancement of the SfPT transport database management capacity, particularly as the required database is crucial for monitoring. (A detailed technical description is provided in the Study Report and the work is described in Section 2.2 and thereafter.).

1.6.1.3 ICT Technology Utilization

At the onset of the project, the introduction of ICT technology to address public transport issues was anticipated, following a request from the Serbian side to the Japanese side. Initially, the project included pilot projects and social experiments aimed at enhancing public transport operation management and route planning, mainly related to Outcome 1. This included introduction of AI-based operation schedule generation software and passenger counting using on-board cameras and sensors. As project activities progressed, more detailed needs emerged, revealing SfPT's desire for a functionality that could enhance its ability to detect events not compliant with the current bus operation regulations. Specifically, there were reports of instances when bus drivers bypassed bus stops regardless of the requirement to do so at each bus stop and irrespective of the status of waiting passengers. Addressing this issue became a priority. Therefore, the team considered, as a pilot project related to Output 2, introduction of an operation management system that would contribute to improved monitoring of public transport operations.

During the discussions with SfPT, the JICA Expert Team proposed selecting two bus stops (four bus stops in total for round trip) to pilot the implementation of the monitoring technology. At the same time, SfPT and the JICA Expert Team discussed and reviewed the installation method, cost sharing, and specific monitoring methods. A memorandum of understanding was signed during the 2nd JCC. Several activities were subsequently implemented to prepare for the procurement of cameras for the bus stops. Unfortunately, the implementation was later cancelled due to the legal restrictions on the use of cameras in public facilities and delays in the decision-making process over equipment procurement on the SfPT side, primarily attributed to the prolonged vacancy for the project director. Consequently, no concrete ICT technology was introduced through this project.

1.6.1.4 Pilot Project Proposal for Rationalizing Operations on the Bus Corridor

The pilot project has compiled technical studies and guidance on improving the operation plan, but at the implementation and verification stage of the study results, the target routes were changed twice. This was primarily due to insufficient information provision to the residents and opposition from the local residents. Subsequently, through discussions between the two parties in July 2023, it was decided to implement and verify the third proposal, targeting the restructuring of routes 505/506 as suggested by the SfPT.

As a result, it was confirmed that although Proposals 1 and 2 were not implemented, they had a certain level of effectiveness in achieving the project goals, so the implementation outlines and study results of Proposals 1 through 3 were compiled as one of the technical deliverables. (A detailed technical description is provided in the Study Report. The work description is described in Section 2.2 and thereafter.)

1.6.2 Basic Management Directions

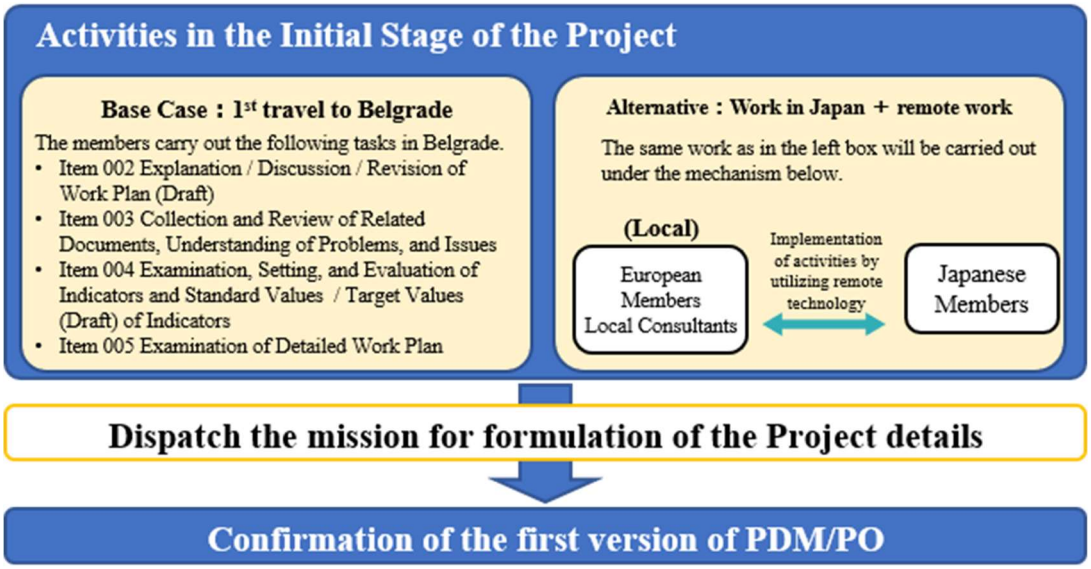
1.6.2.1 Formulating a Detailed Work Plan after Starting the Project

Considering the influence of COVID-19, JICA basic planning survey to set up the framework for this project was conducted online in June 2020. Subsequently a detailed planning survey was carried out after the project's initiation. This two-stage planning approach was adopted to minimize the influence of COVID-19 and to ensure a smooth start of the project. For this purpose, the activities shown in the figure below were carried out after the initiation of the project, and the following items were confirmed in detail during the first field trip in March 2021.

- Understanding the actual conditions of public transport operation and examining the indicators for realistic baseline survey;
- Understanding local lifestyles and attitudes towards public transport;

- Confirmation on the latest status of urban transport policy (since there is a plan for metro, the JICA Expert Team will reconfirm the overall picture of public transport development strategies including the role of surface public transport); and
- Confirmation on the organizational capacity and capability of human resources of the C/P.

Basically, while the main team members stayed in the project area and worked to prepare a detailed plan in close communication with the C/P, the policy was to efficiently implement the work of Japanese experts in Japan and that of experts in Europe using remote technology to minimize the impact of the prolonged COVID-19.



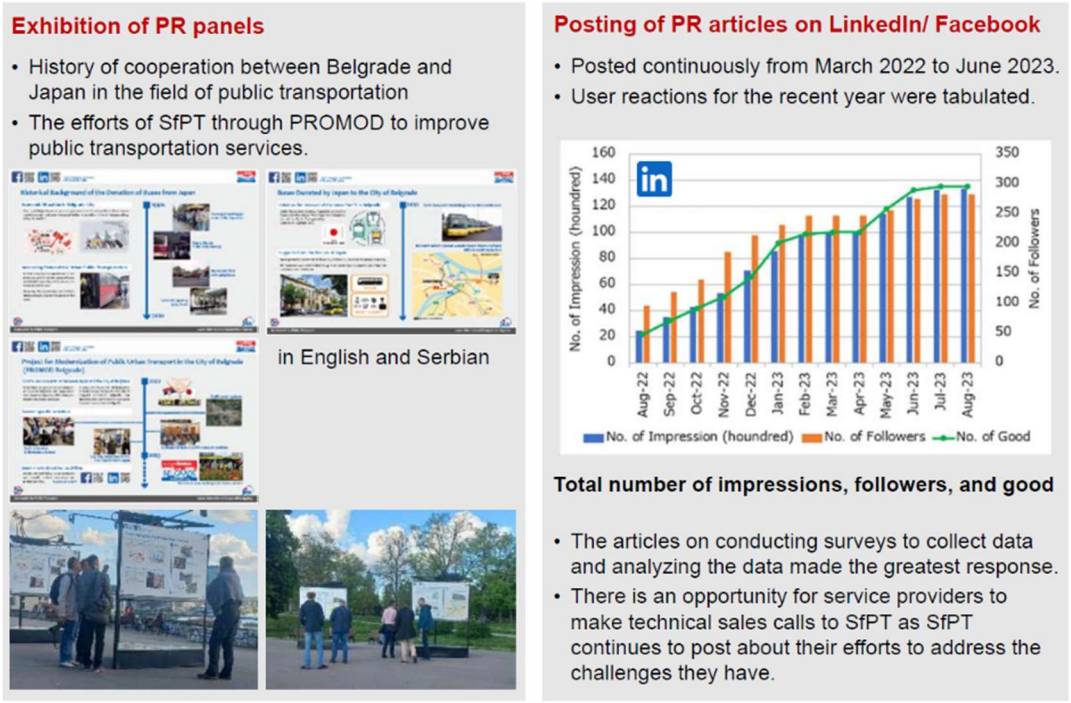
Source: JICA Expert Team

Figure 1.6.1: Alternative Activities in the Initial Stages of the Project

1.6.2.2 Public Relation Strategies in the Public Transport Sector

In order to fully demonstrate the Project output, it was important that the JICA Expert Team not only study and discuss the improvement of public transport services with the C/P and JCC only, but also to inform the public of the contents and the impact in order to make efforts to acquire public understanding about the activities and public transport policies to be implemented.

The project proposed and partially implemented the public relations strategy, as shown in the figure below, to disseminate information to the public. In disseminating information to the public, the project not only improved the convenience of public transport, but also provided information on the past cooperative relationship in the field of public transport between the City of Belgrade and JICA (an implementing agency of Japan's Official Development Assistance (ODA)).



Source: JICA Expert Team

Figure 1.6.2: Public Relation Strategies in the Public Transport Sector

1.6.2.3 Methods to Proceed with Activities Using Remote Technology

Remote technologies, such as teleconferences, webinars, and online training sessions, were effectively utilized to overcome travel restrictions imposed by COVID-19.

1.6.2.4 Learning from the Experiences of Public Transport in European Cities

The project studied the improvement of the overall public transport service level and the division of roles between the SfPT and public transport operators. It presented proposals aimed at improvement of the fare collection rate and the financial situation.

On the other hand, unlike Japan, where public transport operations are sustained by fare revenues, European countries generally rely on subsidies to operate their public transport systems. The seminar was designed to provide Belgrade with insights into the European public transport experience and to explore effective integration into its own public transport system. Further details of the seminar are provided in Section 2.1.4 and thereafter.

Moreover, through the site visits and lectures during the third country training programs, the participants also learned about public transport systems, public transport-related facilities, and the rules that have actually been introduced and operated in the European countries. The details of the training are provided in Section 2.1.3.

Part 2. RESULTS OF THE PROJECT

2.1 Results

2.1.1 Input from Japanese Side

2.1.1.1 Experts

At the beginning of the project, a team of 10 experts was dispatched to Belgrade to begin the project activities. By December 2023, the end of the project, the JICA Expert Team had invested 47.20 person-months (PM) as originally planned.

Table 2.1.1: Input of Experts as of December 2023

Name and Designation	Worked PM/ Planned PM (%)	Worked PM	Planned PM
YAGI Sadayuki, Team Leader/ Public Transport Policy 1	100.0	7.00	7.00
SEKI Yosui, Deputy Team Leader/ Public Transport Policy 2	100.0	6.50	6.50
OWADA Manabu, Public Transport Planning	100.0	4.50	4.50
Errol Tan Operation and Operator Management	100.0	4.50	4.50
OTSUKA Eijiro, Fare Collection/ ICT System	100.0	5.80	5.80
OZONO Wataru, Pilot Project	100.0	4.00	4.00
Deo Nobel Transport Survey/ Database/ Demand Forecast 2	100.0	5.40	5.40
Yang Wang, Demand Forecast 1	100.0	2.00	2.00
KATO Yuka Financial & Economic Analysis	100.0	3.50	3.50
TERAWAKI Shinji Monitoring/ Evaluation/ Public Relation	100.0	4.00	4.00
TOTAL	100.0	47.20	47.20

Source: JICA Expert Team

2.1.1.2 Equipment

The equipment listed below was purchased and used for the implementation of the project activities. Upon completion of the project, the equipment was transferred to the counterparts.

Table 2.1.2: List of the Equipment

Name	Specifications	Quantity
Laptop PC	Asus X515JA Core i3/ Memory Capacity 8GB/ SSD 256GB	4
VISUM	PTV VISUM Modeler 1k (with 2 years and 3 months Maintenance)	2
Desktop PC	LENOVO IdeaCentre 3 07IAB7 INTEL G7400 8GB 256GB 90SM0057YA + Philips 27 271V8L/00 75Hz	1
Laptop PC	Lenovo V15 G2 ITL (82KB000FYA) laptop Intel® Core™ i3 1115G4 15.6" FHD 8GB 512GB SSD Intel® UHD Graphics black	1

Source: JICA Expert Team

2.1.2 Input from Serbian Side

2.1.2.1 Counterpart Members

The following members were assigned as JCC members.

Table 2.1.3: List of JCC Members

Name	Potision	Affilication
Milan Petrović (Until June, 2022) Goran Medaković (From June, 2023~) *There was a 10-month absence of the Project Director from September 2022 to June 2023.	Project Director	Advisor to Mayor's Office, City of Belgrade
Jovica Vasiljević (Until June, 2022) Predrag Lukić (September, 2022 to May, 2023) Radovan Kremić (From July, 2023~)	Project Manager	Acting Secretary, SfPT
Slaven Tica (Until June, 2022)	member	Faculty of Transport and Traffic Engineering
Milan Petrović	member	Ministry of Construction, Transport and Infrastructure
Damir Ledenčan	member	Ministry of Construction, Transport and Infrastructure
Miodrag Krkalović	member	Ministry of Construction, Transport and Infrastructure
Marija Vuković	member	Secretariat for the Economy
Ognjen Petar Todorović	member	Secretariat for Traffic
Nataša Petrušić	member	Secretariat for Environmental Protection
Dejan Tripković	member	Secretariat for Environmental Protection
Dejan Slavković	member	Secretariat for General Affairs
Predrag Krstić	member	Urban Institute of Belgrade
Predrag Pilović	member	Urban Institute of Belgrade
Slobodan Mišanović	member	PUC GSP Belgrade
Slađana Stanković	member	PUC GSP Belgrade
Miomir Šegović	member	PUC Belgrade Metro and Train
Zoran Šarac	member	Lasta JSC, Belgrade
Drago Tošić	member	Consortium Arriva Litas
Dragiša Ivanović	member	Consortium Avala bus 500 d.o.o.
Veljko Vlahović	member	Kentkart SEE
Predrag Stojić	member	external consultant SfPT
Milomir Vidaković	member	SfPT
Dragana Popadić	member	SfPT
Jelena Jovanović	member	SfPT
Violeta Stanojević	member	SfPT
Ivanka Milošević	member	SfPT
Milan Janković	member	SfPT
Nenad Smilić	member	SfPT
Nebojša Perić	member	SfPT
Slađana Perić	member	SfPT
Filip Rojević	member	SfPT
Ivana Marković	member	SfPT
Miloš Damnjanović(Until January, 2023)	member	SfPT
Darko Zogović	member	SfPT
Jasna Vidović	member	SfPT
Katarina Petrović	member	SfPT

Source: JICA Expert Team

The following members were assigned as TWG members.

Table 2.1.4: List of TWG Members

Working Group	Name	Affiliation
1.The ability of strategical, tactical and operational planning of SfPT is improved.	Milan Janković	SfPT, WG1 leader (~December 2021)
	Nenad Smilić	SfPT, WG1 leader (January 2022~)
	Dragana Popadić	SfPT

Working Group	Name	Affiliation
	Slađana Perić	SfPT
	Nebojša Perić	SfPT
	Filip Rojević	SfPT
	Ivana Marković	SfPT
	Slobodan Mišanović	GSP
	Rajka Bodiroga	GSP
2.The ability of monitoring operators of SfPT is improved.	Jelena Jovanović	SfPT, WG2 leader (until January 2021)
	Darko Zogović	SfPT, WG2 leader (since February 2021)
	Miloš Damjanović	SfPT
	Slaviša Gajić	SfPT
	Dragana Popadić	SfPT
	Jelena Jovanović	SfPT
	Jasna Vidović	SfPT
	Ivana Marković	SfPT
	Olivera Milojković	SfPT
	Gorica Kostadinović	SP ‘‘Lasta’’ a.d.
	Stefan Filipović	Kentkart SEE
	Siniša Mladenović	GSP
	Jovan Simonović	GSP
	Miroslava Kaludjerović	GSP
3.The ability for planning for securing fare collection of SfPT is improved.	Violeta Stanojević	SfPT, WG3 leader
	Ivanka Milošević	SfPT
	Slaviša Gajić	SfPT
	Dragana Popadić	SfPT
	Katarina Petrović	SfPT
	Veljko Vlahović	Kentkart SEE
	Vladan Anđus	Kentkart SEE

Source: JICA Expert Team

2.1.2.2 Working Space

Counterparts provided the JICA Expert Team with a working space equipped with the necessary facilities.

Project Office

Office Building

Source: JICA Expert Team, Google Map

Figure 2.1.1: Working Space Provided

2.1.2.3 JCC and WG Meetings

1) JCC Meetings

1-1) The First JCC Meeting (June 2, 2021)

The Project that had been on-going since November 2020, initially as a combination of online information collection, site visits and surveys, finally held the first JCC meeting for validation of the progress of the activities and formulation of detailed plan for the Project in Belgrade on June 2, 2021.

Representatives of the SfPT, other relevant secretariats, the Ministry of Construction, Transport and Infrastructure, the University of Belgrade, public transport operators, the tariff system contractor, the Embassy of Japan in Serbia, the JICA Headquarters and JICA Balkan Office, and the JICA Expert Team attended the JCC meeting. During the meeting, the attendees engaged in lively discussions about the detailed plan based on the results achieved through the already implemented activities, and agreed on the detailed plan for the Project, as follows.

- The Project framework (Overall goal, Project purpose, Expected outputs)
- The activities and evaluation indicators to achieve project outputs and purpose.
- The JCC, Working Group members, and organizational set up for project implementation.
- Project design matrix (PDM), project operations (PO) and work plan.

Based on the above agreement, the Minutes of Meeting (M/M) were signed by the representatives of both sides of the City of Belgrade and JICA.

Group photo after the JCC

The signing of the M/M

1-2) The Second JCC Meeting (December 17, 2021)

On December 17, 2021, the Project held the second JCC in Belgrade with a focus on reporting on the progress of the activities, and the mutual confirmation of the future activity plan with the C/P.

Representatives from the Secretariat for Public Transport, the City of Belgrade, SfPT, related departments of the City of Belgrade, the University of Belgrade, public transport operators, tariff system contractors, JICA Headquarters, JICA Balkan Office and JICA Expert Team attended the meeting.

During the meeting, leaders of three working groups with members from several related organizations, including SfPT, reported on the progress of their respective activities.

Activity 1: Improvement of operation planning

Collaborative work system has been established among SfPT, PUC "Belgrade Metro and Train", and FTTE. Thus, SfPT, the JICA Expert Team and JICA acknowledged the necessity to continue working to integrate the existing model, update the transport network and make projection for target years. Despite uncertainty of the future traffic and people's travel pattern, it was confirmed that the transport surveys in the field should be conducted in Spring 2022 (February to March and/or mid-May to June) as long as the reverting trend of public transport passengers continues.

The direction to upgrade the existing bus timetable system was confirmed through a series of discussions among SfPT, the JICA Expert Team, FTTE and Kentkart. The scheme for creating timetable and schedule by area/corridor has been selected for additional scrutiny as a pilot project over the next six months. However, applicability and suitability shall be determined by the next JCC meeting.

After the JCC, the minutes of the meeting were signed by the City of Belgrade and JICA representatives.

Activity 2: Improvement of operation monitoring

SfPT, the JICA Expert Team and JICA confirmed that the issues identified during the review of the actual situation of the Availability Payment (gross cost contract) system should be a subject to further separate discussion.

The implementation policy of installing surveillance cameras at two specific bus stops and a video wall at SfPT's operations monitoring center in the pilot project was confirmed. For this activity, SfPT will coordinate with relevant agencies, share implementation costs, and confirm construction procedures. A detailed implementation plan, including measuring the effectiveness of the pilot project and public awareness activities, will also be prepared promptly after the second JCC meeting.

Activity 3: Improvement of fare collection

Based on the results of the Opinion Survey on Public Transport Fare Payment, JICA Expert Team emphasized the importance of educational activity to promote proper bus riding etiquette including fare payment, for sustainable public transport operation, and SfPT confirmed it. SfPT and the JICA Expert Team agreed to develop a detailed plan to implement the educational program as a demonstration for a selected group.

After the JCC, the minutes of the meeting (M/M) were signed by the representatives of both the City of Belgrade and JICA.

Group photo after the JCC

1-3) The Third JCC Meeting (June 30, 2022)

The Project held the third JCC in Belgrade on June 30, 2022 reporting on the progress of the activities. The C/P mutually confirmed the future activity plan.

Representatives from the SfPT, related departments of the City of Belgrade, the University of Belgrade, public transport operators, tariff system contractors, JICA Balkan Office and JICA Expert Team attended the meeting.

During the meeting, leaders of three working groups with members from several related organizations, including SfPT, reported on the progress of their respective activities.

Since the second JCC, several transport surveys including Activity Diary Survey (ADS) have been conducted, JICA Expert Team evaluated the proposal to revise bus timetable, conducted the traffic education trial activities in elementary school, and conducted third-country training such as visits to the Netherlands and Italy.

In the meeting, the following items were discussed, and JCC members confirmed that they would continue to discuss these items in view of taking concrete actions.

- Sustainable update of the traffic demand forecast model in the city of Belgrade
- Discussions on contractual arrangements with public transport operators for efficient fare collection
- Feasibility of introduction of environmentally friendly public transport services
- Organization of public consultation meetings on improving free-ride issues

- Feasibility of introduction of advanced initiatives from other European cities in Belgrade
- Providing education for elementary school students on the use of public transport

Greetings by the representatives of both sides

Explanation by WG Leader

1-4) The Fourth JCC Meeting (December 22, 2022)

The Project held the fourth JCC meeting in Belgrade on December 22, 2022, reporting on the progress of the activities. The participants confirmed the future activity plan.

Representatives from the SfPT, the Secretariat for Traffic of the City of Belgrade, Faculty of Transport and Traffic Engineering of the University of Belgrade, public transport operators, JICA Headquarters, JICA Balkan Office, and the JICA Expert Team attended the meeting.

During the meeting, leaders of three working groups with members from several related organizations, including SfPT, the members of JICA Expert Team and local expert team reported on the progress of their respective activities.

After the report, the following points were discussed in detail.

- **Transport surveys, demand forecast and public transport network planning:** result of a series of transport surveys such as Activity Diary Survey, and collaborative work on demand forecasting and public transport network planning
- **Pilot project to improve public transport operation:** implementation of a pilot project for improvement of operation and route planning for a specific public transport corridor
- **Preparation and discussion of the route restructuring plan and timetable proposal for Corridor 400:** The implementation of the restructuring plan was cancelled due to the discovery that, despite confirmed certain effects (e.g. reduced number of required vehicles, reduced number of operated kilometers, etc.) in the operation plan, an unforeseen increase in the number of drivers was required when aligned with the labor standards. Therefore, the SfPT proposed another route for reconsideration. The decision on implementation direction should be by the end of January 2023.
- **Alternative Contracting Method:** future steps based on the analyses on case studies of Bucharest, Madrid and Hamburg and the conclusions from the second seminar
- **Improvement of the operator monitoring:** possibility of utilizing a video wall at SfPT's operation control center
- **Planning for securing fare collection:** improvement plans to increase the fare collection and full-scale activities, such as demonstration project at schools

Group photo after the JCC

1-5) The Fifth JCC Meeting (September 26, 2023)

In accordance with the Record of Discussions (R/D) signed on August 7, 2020 and subsequent assignment of the JICA Expert Team, the fifth JCC meeting was held on September 26, 2023 to confirm the progress of the Project. Representatives from the SfPT, the JICA Expert Team and JICA attended the meeting.

Both sides agreed on the minutes of the meeting as summarized below, with documents submitted for the meeting annexed herewith.

Confirmation of Revised R/D: Both parties confirmed the revisions of the PDM and PO in the revised R/D, the assignment of Mr. Goran Medaković, Mayor's advisor, as Project Director, Mr. Radovan Kremić, Acting Secretary of SfPT as Project Manager, and the implementation of the Project under their good leadership.

Confirmation of the Progress of each Activity and of the Remaining Tasks: Based on the reporting of the leaders from each working group, the achievement status of outputs was confirmed. However, the following items should be completed by SfPT and the JICA Expert Team before the final JCC.

1. Preparation of the study report (Item 104) and the pilot project evaluation report (Item 106)
2. Finalization of reports on Activity 2 (Items 201 and 202)
3. Finalization of the free rides prevention plan improvement (Item 302)

Confirmation of Draft Joint Review: SfPT, JICA and the JICA Expert Team jointly evaluated development assistance using the six DAC criteria and confirmed, rating 3 based on the criteria of relevance, coherence, impact and efficiency. With respect to effectiveness and sustainability, partial achievement was confirmed. The reasons for this are as follows:

1. Effectiveness: Although it was confirmed that each activity would be accomplished, the R/D was revised after abandoning some of the activities originally planned. Therefore, the status of achievement has been rated 2.
2. Sustainability: The decisions and directives issued by the Mayor's Office and SfPT concerning public transport development were confirmed as appropriate in the discussion at the JCC and a previous meeting between Japanese side and Serbian side on September 25. Public transport reform particularly the one on the change of the fare collection system is currently in the initial stage. Therefore, the latest progress should be reviewed and confirmed again for finalizing the assessment during the final JCC.

C/P to confirm actions before the end of the Project: To accomplish the Project purpose, it was confirmed that SfPT would communicate all Mayor’s Office plans related to the enhancement of public transport to JICA Expert Team about all plans that are intended to implement to improve public transport, which aligned with the PROMOD activities, before the final JCC meeting in December 2023.

Holding Final JCC Meeting and Seminar: It was confirmed that the final JCC meeting and seminar would be held in the first week of December 2023. It was also confirmed that the Serbian side would consider how to report the project outputs to the Mayor of Belgrade.

Discussions at the JCC

1-6) The Sixth JCC Meeting (December 7, 2023)

The Project held the final JCC meeting in Belgrade on December 7, 2023. In the meeting, all activities conducted to date were reviewed and directions for after the project were confirmed.

Representatives from the SfPT, GSP, the largest public transport operator in Belgrade, the FTTE, JICA Headquarters, JICA Balkan Office, and the JICA Expert Team attended the meeting. During the meeting, leaders of the three working groups with members from several related organizations, including SfPT, and JICA Expert Team members presented the project implementation completion reports and documents for technology transfer, and mutually confirmed their contents.

The three main technology transfer activities that took place throughout the project were as follows:

The ability of strategical, tactical, and operational planning of SfPT is improved.

Through the adoption of the science-based planning theory proposed by the JICA Expert Team, the attendees confirmed that SfPT will be able to make improvements for its self-sustained development. At the same time was highlighted importance of continuous cooperation between SfPT and FTTE to implement these improvements and to effectively utilize and maintain the transport database and travel demand forecast model developed during the project.

The ability of monitoring operators of SfPT is improved.

With the aim of improving the service and sustainability of the operators, the SfPT has confirmed its commitment to continue discussions on the terms and conditions for the upcoming contract renewal proposed by the JICA Expert Team.

The ability for planning for securing fare collection of SfPT is improved.

Through the on-site and online trainings, the SfPT gained insights into diverse efforts on the improvement of public transport in Japan and other European countries and understood the characteristics of users in Belgrade through several survey results. Based on these experiences, the SfPT came up with ideas for improving fare collection in Belgrade. In addition, the SfPT demonstrated their approach for improving their services to a wide range of people in Belgrade by conducting various transport education and public relations activities in Belgrade. The attendees confirmed that these ideas will be utilized for concrete initiatives in a citizen-friendly format in the future.

Group photo after the JCC

Discussions at the JCC

2) Other Meetings

Beside regular JCC meetings during the project period, numerous discussions with working group members were also held.

Working group meetings were not conducted with all members around a table each time. The main agenda was shared with the working group leader beforehand and the leader then directly contacted relevant members facilitating targeted discussions in smaller groups. This method ensured a significant attendance of both working group leaders and members during the relevant agenda discussions, while minimizing disruption to their daily responsibilities.

In Activity 1, specific outputs during the project period were development of traffic databases, traffic demand forecasting models, as well as training to acquire skills in their operation, and the formulation of specific improvement measures for operation plans and public transport network plans. This necessitated particularly active participation of the working group members directly involved in these activities.

In Activity 2, discussions were held on several topics including the video walls and bus stops pilot project, examples of PSC contract forms from other cities presented during the 2nd seminar, on the identification of new KPIs and GSP customer satisfaction surveys, on the review of plans and schedules, on analysis of results, and implementation in Belgrade. The working group members directly involved in these matters were particularly active, as ongoing communication was necessary. Although the contract between the city and Kentkart was terminated, and the leader of Working Group 2 changed during the course of the project, the discussion on improvement measures at the working group level continued until the end of the project.

In Activity 3, were undertaken continuous discussions on the analysis of the Opinion Survey results, together with the consideration of improvement measures derived from the results, various measures for improvement of fare collection rate observed during the third country training, implementation of transportation education. Working group members directly involved in these activities was particularly active.

However, at the time of the first change of Project Manager, the core members resigned from the SfPT. leading to an inadequate handover of project-related tasks to the remaining WG members. Additionally, there was insufficient encouragement by the successor Project Manager to reestablish the organization. There were also some discussions of adding the newly established PUC “Transport Services Fare Collection” to the working group, but it was difficult for SfPT to accept the PUC “Transport Services Fare Collection” immediately after Kentkart left the working group. As mentioned above, SfPT staff had a difficulty to deal with many external factors affecting Activity 3, but with the coordination of the Project Coordinator (Ms. Dragana Popadic), who participated in all activities as a member of the working group, the project as a whole was able to continue the working group activities until the end of the project.

Table 2.1.5: List of Meetings and Discussions

Meetings Conducted	Date	Participated Agency	Key Agenda
March 2021			
Meeting with SfPT	02-Mar-21	SfPT	Sector for Planning and Development of Public Line Transport
Meeting with SfPT	03-Mar-21	SfPT	Sector for Taxi Car Transport
On-site visit	03-Mar-21	SfPT, GSP	Bus depot of PUC GSP Belgrade (Novi Beograd) Tram depot of PUC GSP Belgrade (Novi Beograd)
Meeting with SfPT	04-Mar-21	SfPT, GSP	Sector for Public Railway and River Transport Sector for Tariff Systems and Control
Meeting with GSP HQ, On-site visit	04-Mar-21	SfPT, GSP	Trolley depot of PUC GSP Belgrade (Dorcol)
Meetings with bus operators	05-Mar-21	SfPT, Bus operators	Arriva Consortium GSTC Limited
Meetings with bus operators	08-Mar-21	SfPT, Bus operators	SP Strela SP Lastra
Meetings with SfPT	09-Mar-21	SfPT	Sector for Traffic Management Control, Schedule and Billing of SfPT (Department for Traffic

Meetings Conducted	Date	Participated Agency	Key Agenda
			Management Control, Department for Schedule and Billing)
Meeting with FTTE	09-Mar-21	SfPT, FTTE	Faculty of Transport and Traffic Engineering
Meeting with Kentkart	10-Mar-21	SfPT, Kentkart	Data collection of the ticketing system
Meeting with Belgrade Metro and Train	10-Mar-21	SfPT, Belgrade Metro and Train	Existing and projection of BG Voz network
On-line meeting with EBRD	11-Mar-21	SfPT, EBRD	Project introduction Sharing the information in transport sector
Meetings with SfPT	11-Mar-21	SfPT	Sector for Economic Affairs Sectors for Traffic Management, Control, Schedule and Billing of Transport Services
On-site visit	12-Mar-21	SfPT, Bus operators	SP Lasta Bus depot of PUC GSP Belgrade (Kosmaj)
On-site visit	15-Mar-21	SfPT, GSP	Trolleybus and tram depot of PUC GSP Belgrade (Dorcol)
Meetings with SfPT	15-Mar-21	SfPT	Undersecretary of SfPT Sector for Normative and Legal Affairs and Public Procurement
Meeting with FTTE	16-Mar-21	SfPT, FTTE	Faculty of Transport and Traffic Engineering
Meetings with SfPT	16-Mar-21	SfPT	Sector for Planning and Development of Public Line Transport Sector for Economic Affairs
Meeting with SfPT	17-Mar-21	SfPT	Undersecretary of SfPT
On-site visit	18-Mar-21	SfPT, GSP	Trolleybus and tram depot of PUC GSP Belgrade (Dorcol) Bus depot of PUC GSP Belgrade (Karaburma)
On-site visit	19-Mar-21	SfPT, Bus operator	Bus depot of Avala Consortium (PRESTO)
Meeting with Secretary of SfPT	19-Mar-21	Secretary of SfPT	Technologies to be introduced in the project
Meeting with FTTE	22-Mar-21	SfPT, FTTE	Faculty of Transport and Traffic Engineering
Meeting with Kentkart	22-Mar-21	SfPT, Kentkart	Challenges of the existing ticketing system
Meeting with SfPT	23-Mar-21	SfPT	Sector for Planning and Development of Public Line Transport
Wrap-up meeting between SfPT-JICA	24-Mar-21	SfPT	Report of initial findings and direction of the project
Meeting with SfPT	13-May-21	SfPT	Sector for Planning and Development of Public Line Transport
On-site visit	14-Mar-21	SfPT, GSP	Trolleybus and tram depot of PUC GSP Belgrade (Dorcol)
May 2021			
Meeting with SfPT	17-May-21	SfPT	Sector for Tariff Systems and Control
Meeting with Secretary of SfPT	18-Mar-21	Secretary of SfPT	Explanation of agenda of meetings
Meeting with SfPT	18-May-21	SfPT	Sector for Tariff Systems and Control
On-site visit	18-May-21	SfPT	Controller in bus
Meeting with SfPT	19-May-21	SfPT	Sector for Tariff Systems and Control
On-site visit	20-Mar-21	SfPT, GSP	Bus depot of PUC GSP Belgrade (Karaburma)
Meeting with SfPT	21-May-21	SfPT	Sector for Planning and Development of Public Line Transport
Meeting with SfT	24-May-21	SfPT	Secretariate for Traffic
Meeting with SfPT	25-May-21	SfPT	Sector for Planning and Development of Public Line Transport
Meeting with Kentkart	26-May-21	SfPT, Kentkart	Contents on new contract Operational issues on fare collection
Meeting with FTTE	27-May-21	SfPT, FTTE	Faculty of Transport and Traffic Engineering
Meeting with WG Leader	27-May-21	SfPT	Discussion on revised PDM/PO
Meeting with SfPT and FTTE	28-May-21	SfPT, FTTE	About PDM
Meeting with SfPT and FTTE	31-May-21	SfPT, FTTE	About JCC,PDM Discussion on indicators on PDM

Meetings Conducted	Date	Participated Agency	Key Agenda
June 2021			
First JCC Meeting	2-Jun-21		
Meeting with SfPT	3-Jun-21	SfPT	Signing on M/M
On-site visit	3-Jun-21	GSP	Bus depot of PUC GSP Belgrade (Karaburma)
Meeting with FTTE	4-Jun-21	FTTE	Discussion on the implementation of the field work for the transport survey
July 2021			
Meeting with SfPT	6-Jul-21	SfPT	Discussion on the overall schedule for the third trip
Meeting with SfPT	7-Jul-21	SfPT	Discussion on the direction of the opinion survey
Meeting with SfPT	8-Jul-21	SfPT	Discussion on the revised work plan, positioning of the SfT in this project
Meeting with FTTE	8-Jul-21	FTTE	Discussion on TOR for the opinion survey (in particular, characteristics of local survey respondents, survey forms, target routes) and contracts.
Meeting with SfPT	9-Jul-21	SfPT	Information and data collection on functions of the public transport operator monitoring and scheduling system (Bus Plus)
Meeting with SfPT	12-Jul-21	SfPT	Discussion on revised work plan, model for sharing roles between public and private sectors in public transport, pilot project (introduction and operation of VR technology and video wall)
Meeting with Secretariat for Environmental Protection	13-Jul-21	Secretariat for Environmental Protection, SfPT	Information collection on Air quality and noise monitoring, smartphone application BEOECO, monthly report and action plan on air quality and noise, bicycle use promotion program
Meeting with Secretariat for Traffic	13-Jul-21	Secretariat for Traffic, SfPT	Discussion and information and data collection on road traffic, intersection simulation using VISSIM, road traffic network model using VISUM, public transport priority signal system project, implementation of area traffic signal control system, bus priority lanes, traffic volume monitoring, vehicle detectors
Meeting with SfPT	14-Jul-21	SfPT	Discussion on revised work plan, opinion survey
Meeting with Belgrade Metro and Train	15-Jul-21	Belgrade Metro and Train	Discussion and information and data collection on VISUM model, water transport, future rail network
Meeting with FTTE	15-Jul-21	FTTE	Discussion on opinion survey, local consultant contract
Meeting with Kentkart	16-Jul-21	Kentkart	Information collection on the functions of the new public transport IC card "Belgrade Card", compatibility with the old card and switching and request for data of fare collection
Meeting with SfPT	16-Jul-21	SfPT	Discussions on matters to be worked on online before the fourth trip
Meeting with FTTE	19-Jul-21	FTTE	Discussion on the current status of fare collection system and identification of issues to improve the fare collection rate
Meeting with GSTC Limited	20-Jul-21	GSTC Limited	Sharing of the summary of the third trip
September 2021			
Meeting with SfPT	7-Sep-21	SfPT	Discussion on the overall schedule for the fourth trip
Meeting with SfPT	8-Sep-21	SfPT	Discussion on the details of the pilot project
Meeting with Belgrade Metro and Train	9-Sep-21	Belgrade Metro and Train	Information collection on route and operation planning
Meeting with SfPT	9-Sep-21	SfPT	Discussion on PTV VISUM training
Meeting with SfPT	10-Sep-21	SfPT	Discussion on the details of the pilot project
Meeting with SfPT	13-Sep-21	SfPT	Information collection on issues in monitoring methods and operation management systems for public transport operators
Meeting with SfPT	14-Sep-21	SfPT	Discussion on PTV VISUM training

Meetings Conducted	Date	Participated Agency	Key Agenda
Meeting with SfPT	16-Sep-21	SfPT	Information collection on operation contracts with public transport operators
Meeting with SfPT	16-Sep-21	SfPT	Discussion on the details of the pilot project
Meeting with SfPT	16-Sep-21	SfPT	Discussion on the details of the pilot project and study potential sites for the pilot project
On-site visit	17-Sep-21	PUC GSP Belgrade	PUC GSP Belgrade (Dorcol, Karaburma)
Meeting with SfPT	20-Sep-21	SfPT	Information collection on operation contracts with public transport operators
October 2021			
Meeting with FTTE	1-Oct-21	FTTE	Discussion on the opinion survey
Meeting with SfPT	5-Oct-21	SfPT	Discussion on Activity 2
Meeting with SfPT	7-Oct-21	SfPT	Discussion on the pilot project
Meeting with Keisei Bus Co.,Ltd.	11-Oct-21	Keisei Bus Co.,Ltd.	Discussion on the remote training
Meeting with Hitachi, Ltd.	13-Oct-21	Hitachi, Ltd.	Information collection on ICT solutions for public transport operation and management
Meeting with TOKYU BUS CORPORATION	15-Oct-21	TOKYU BUS CORPORATION	Discussion on the remote training
Meeting with Hitachi, Ltd.	26-Oct-21	Hitachi, Ltd.	Information collection on ICT solutions for public transport operation and management
November 2021			
Meeting with Hitachi, Ltd.	8-Nov-21	Hitachi, Ltd.	Discussion on ICT solutions for public transport operation and management
Meeting with SfPT	18-Nov-21	SfPT	Discussion regarding the schedule of interviews and site visits for the fifth round of field research
Meeting with SfPT	19-Nov-21	SfPT	Site survey of potential pilot project target sites
Meeting with SfPT	22-Nov-21	SfPT	Site survey of potential pilot project target sites
Meeting with SfPT	23-Nov-21	SfPT	Site survey of potential pilot project target sites
Meeting with SfPT	23-Nov-21	SfPT	Discussion on bus operation planning system
Meeting with SfPT	24-Nov-21	SfPT	Discussion on bus operation planning system
Meeting with FTTE, SfPT	26-Nov-21	FTTE, SfPT	Discussion on the pilot project
Meeting with Hitachi Systems, Ltd.	29-Nov-21	Hitachi Systems, Ltd.	Discussion on ICT solutions for public transport operation and management
Meeting with FTTE, SfPT	30-Nov-21	FTTE, SfPT	Discussion on bus operation planning system
December 2021			
Meeting with Kentkart	2-Dec-21	Kentkart	Timetable, operation monitoring, fare collection
Meeting with GSP driver training center	6-Dec-21	GSP	Training and licensing system
Meeting with SfPT, Hotel M	6-Dec-21	SfPT, Hotel M	Seminar
Meeting with Working Group 2	7-Dec-21	SfPT	Contract with PT operators
Meeting with Working Group 1	7-Dec-21	SfPT	Timetable, route planning
Meeting with Working Group 1	8-Dec-21	SfPT	Timetable, route planning
Meeting with Working Group 3	8-Dec-21	SfPT	Fare collection
Meeting with FTTE	8-Dec-21	FTTE	2nd JCC meeting, opinion survey
Meeting with Lastra, Strela	9-Dec-21	Lastra, Strela	Contract with PT operators
Meeting with SfPT	10-Dec-21	SfPT	Overall activities, PR activities
Meeting with Working Group 2	10-Dec-21	SfPT	Contract with PT operators
Meeting with Lasta	13-Dec-21	Lasta	Contract with PT operators
Meeting with Working Group 1, 2 and 3	15-Dec-21	SfPT	2nd JCC meeting
Meeting with SfPT	15-Dec-21	SfPT	2nd JCC meeting

Meetings Conducted	Date	Participated Agency	Key Agenda
Meeting with giz	16-Dec-21	giz	giz projects in Serbia, future collaboration possibilities
2nd JCC meeting	17-Dec-21		
Meeting with FTTE	20-Dec-21	FTTE	Transport survey
January 2022			
Meeting with SfPT	10-Jan-22	SfPT	Whole activity 2
Meeting with SfPT	31-Jan-22	SfPT	Pilot project
February 2022			
Meeting with FTTE	8-Feb-22	FTTE	Transport survey
Meeting with SfPT	9-Feb-22	SfPT	Pilot project
Meeting with FTTE	11-Feb-22	FTTE	Transport survey
Meeting with SfPT	17-Feb-22	SfPT	Pilot project
March 2022			
Meeting with SfPT	2-Mar-22	SfPT	Overall activities
Meeting with SfPT	8-Mar-22	SfPT	Overall activities, timetable
Meeting with SfPT	9-Mar-22	SfPT	Route short-circuiting, pilot project budgets
Meeting with Working Group 1, 2 and 3	14-Mar-22	SfPT	Pilot project, transport survey, remote training, training in Japan
Meeting with SfPT	14-Mar-22	SfPT	Timetable
Meeting with SfPT	16-Mar-22	SfPT	Pilot project
Meeting with Working Group 1, 2 and 3	16-Mar-22	SfPT	Traffic SUGOROKU, sightseeing map
Meeting with FTTE	18-Mar-22	FTTE	Traffic education
Meeting with Kentkart	21-Mar-22	Kentkart	Timetable, PT user data, Belgrade Card, e-payment application, electric bulletin board, ticketing system
Meeting with SfPT	22-Mar-22	SfPT	Route short-circuiting
April 2022			
Meeting with SfPT	4-Apr-22	SfPT	3rd country training, timetable, pilot project
Meeting with SfPT	12-Apr-22	SfPT	3rd country training, timetable, pilot project
Meeting with Keisei Bus Co.,Ltd.	19-Apr-22	Keisei Bus Co.,Ltd.	Remote training, driver training
Meeting with Keisei Bus Co.,Ltd.	26-Apr-22	Keisei Bus Co.,Ltd.	Driver training, operation monitoring
May 2022			
Meeting with FTTE	11-May-22	FTTE	Update of traffic demand forecast model
Meeting with BG Metro & Train	12-May-22	BG Metro & Train	Belgrade Metro
Meeting with SfPT	13-May-22	SfPT	Update of traffic demand forecast model
Meeting with SfPT	13-May-22	SfPT	Pilot project
Meeting with Keisei Bus Co.,Ltd.	16-May-22	Keisei Bus Co.,Ltd.	Remote training
Meeting with Keisei Bus Co.,Ltd.	19-May-22	Keisei Bus Co.,Ltd.	Remote training
Meeting with FTTE	19-May-22	FTTE	Transport survey, traffic demand forecast
Meeting with SfPT	20-May-22	SfPT	Proposal of traffic demand model update
Meeting with SfPT	20-May-22	SfPT	Case study on Bucharest City
June 2022			
Meeting with SfPT	21-Jun-22	SfPT	Pilot project
Meeting with SfPT	22-Jun-22	SfPT	Pilot project
Meeting with SfPT	23-Jun-22	SfPT	Whole activity 3
Meeting with FTTE	24-Jun-22	FTTE	Transport survey, traffic demand forecast model, PT user data
Meeting with SfPT	27-Jun-22	SfPT	Whole activity 1
Meeting with SfPT	27-Jun-22	SfPT	Whole activity 2
Meeting with FTTE	29-Jun-22	FTTE	Transport Survey and traffic demand forecast model
Meeting with SfPT	30-Jun-22	SfPT	Whole activity 3
3rd JCC meeting	30-Jun-22		
July 2022			
Meeting with SfPT	27-Jul-22	SfPT	Whole activity 3, First training in Japan

Meetings Conducted	Date	Participated Agency	Key Agenda
Meeting with SfPT	28-Jul-22	SfPT	Whole activity 1
Meeting with FTTE	29-Jul-22	FTTE	Transport surveys, traffic demand forecast model
August 2022			
Meeting with Tokyu Bus Corporation	1-Aug-22	Tokyu Bus Corporation	Coordination of remote training
Meeting with SfPT	4-Aug-22	SfPT	Pilot Project 1 (Introduction of ICT to Bus Stops): Confirmation of progress on equipment procurement by SfPT
October 2022			
Meeting with SfPT	6-Oct-22	SfPT	Discussions with the new Secretariat of the SfPT
Meeting with FTTE	13-Oct-22	FTTE	Transport surveys (Activity Diary Survey and Screenline Survey)
Meeting with PTV Group, BG Metro, FTTE	19-Oct-22	PTV Group, BG Metro, FTTE	Traffic demand forecast model, Activity Diary Survey
Meeting with FTTE	19-Oct-22	FTTE	Pilot Project 3 (PR and education to increase fare revenue): Selection of content, scale, and target schools for implementation of educational programs in the elementary school
Meeting with FTTE	20-Oct-22	FTTE	Database Issues from Activity Diary Survey
Meeting with FTTE	20-Oct-22	FTTE	Pilot Project 3 (PR and education to increase fare revenue): Content and scale for implementation of educational programs at Starina Novak elementary school
Meeting with SfT	21-Oct-22	SfT	Traffic volume count data, traffic demand forecast model
Meeting with Urban Planning Institute	25-Oct-22	Urban Planning Institute	Socioeconomic frames and data in traffic demand forecasting
Meeting with SfT	26-Oct-22	SfT	Use of loop coil (vehicle detector) for calibration in Traffic Demand Forecasting
Meeting with UITP, CRTM, HVV	26-Oct-22	UITP, CRTM, HVV	Second seminar
Meeting with SfPT	26-Oct-22	SfPT	Pilot Project 3 (PR and education to increase fare revenue): Implementation procedure and schedule of educational programs
Meeting with SfPT and JICA	27-Oct-22	SfPT, JICA	Introductory meeting between new secretariat of the SfPT and Officers of the JICA Headquarters
Meeting with TPBI	27-Oct-22	TPBI	Second seminar
Meeting with FTTE	28-Oct-22	FTTE	Whole activity 1 and 3
Meeting with SfPT	28-Oct-22	SfPT	Pilot Project 2 (Improvement of bus operation schedule): Confirmation of progress on coordination among stakeholders
November 2022			
Meeting with SfPT, FTTE	1-Nov-22	SfPT, FTTE	Pilot Project 2 (Improvement of bus operation schedule): Consultation on operational plans for Corridor 400
Meeting with TM Engineering (SfT's recommissioning company)	3-Nov-22	TM Engineering (SfT's recommissioning company)	Information and data collection on vehicle sensing systems
Meeting with FTTE	7-Nov-22	FTTE	Pilot Project 2 (Improvement of bus operation schedule): Consultation on operational plans for Corridor 400
Meeting with SfT	21-Nov-22	SfT	Information and data collection on vehicle count data and traffic signal systems
Meeting with SfT	23-Nov-22	SfT	Information and data collection on parking operations, parking-related infrastructure, and off-street parking policies
December 2022			
Meeting with SfPT	19-Dec-22	SfPT	Discussion on the pilot project (Corridor 400 Improvement Plan)
Meeting with SfPT	20-Dec-22	SfPT	Preliminary discussions for JCC
4th JCC Meeting	22-Dec-22		
Meeting with SfPT	23-Dec-22	SfPT	Discussions for video wall implementation

Meetings Conducted	Date	Participated Agency	Key Agenda
Site Visit	23-Dec-22		Route 57 and 87
January 2023			
Meeting with SfPT	27-Jan-23	SfPT	Preparation of educational Programs in Elementary Schools, Hearing on the Establishment of PUC "Transport Services Fare Collection"
Meeting with SfPT	27-Jan-23	SfPT	Discussion on pending issues related to the pilot project
February 2023			
Meeting with SfPT	8-Feb-23	SfPT	Discussion on change of Contract Management Personnel
Meeting with SfPT	9-Feb-23	SfPT	Discussion on KPIs
Meeting with Arriva	14-Feb-23	Arriva	Discussion on new KPIs and the possibility of introducing a computerized maintenance management system (CMMS)
Meeting with SfPT	28-Feb-23	SfPT	Discussion on integration of routes 57 and 87 (establishment of travel times, operating routes, timing of implementation)
March 2023			
Meeting with FTTE, SfPT	1-Mar-23	FTTE, SfPT	Study of future transport network (Methodology)
Meeting with SfPT	2-Mar-23	SfPT	Request for signature on the minutes of the 4th JCC, Request for selection of project director, Discussion on pending issues related to pilot projects, including procurement of video walls, invitations to Japan, and training in Japan, Hearing on the Establishment of PUC "Transport Services Fare Collection"
Meeting with FTTE, SfPT	6-Mar-23	FTTE, SfPT	Discussion on pending issues related to pilot projects, including procurement of video walls
Meeting with FTTE, SfPT	8-Mar-23	FTTE, SfPT	Study of future transport network (Project listing)
Meeting with FTTE, SfPT	15-Mar-23	FTTE, SfPT	Study of future transport network (Project selection)
Meeting with FTTE, SfPT	21-Mar-23	FTTE, SfPT	Discussion on updating traffic demand forecasting model
Meeting with SfPT	21-Mar-23	SfPT	Discussion on pending issues related to pilot projects, including procurement of video walls, Discussion of baseline indicators related for Activity 3
Meeting with SfPT	22-Mar-23	SfPT	Discussion on pending issues related to pilot projects, including procurement of video walls, invitations to Japan, and training in Japan, Hearing on the Establishment of PUC "Transport Services Fare Collection"
Meeting with FTTE, SfPT	29-Mar-23	FTTE, SfPT	Study of future transport network (Modelling work), Discussion and information collection on traffic impact assessment for the development of the central station
Meeting with SfPT	29-Mar-23	SfPT	Discussion of baseline indicators related for Activity 2
Meeting with SfPT	30-Mar-23	SfPT	Discussion of baseline indicators related for Activity 1
April 2023			
Meeting with SfPT	5-Apr-23	SfPT	Discussion of exhibit content for display panels and specifications for the travel map to promote the use of public transport
Meeting with SfPT	11-Apr-23	SfPT	Discussion on the overall public transport route and operation plan based on the current demand in 2022
Meeting with Ads company and printing company	12-Apr-23	Ads company and printing company	Confirmation of exhibit panel order details

Meetings Conducted	Date	Participated Agency	Key Agenda
Meeting with SfPT	13-Apr-23	SfPT	Discussion on pending issues related to pilot projects, including procurement of video walls, invitations to Japan, and training in Japan, and remaining tasks for the last 6 months
Site visit at the Central Station	13-Apr-23		Site observation of the current status of the planned station plaza
Meeting with FTTE, SfPT	19-Apr-23	FTTE, SfPT	Discussion on the overall public transport route and operation plan based on the current demand in 2022
Meeting with SfPT	21-Apr-23	SfPT	Discussion of the contents of the customer satisfaction survey by the GSP, Discussion on how to organize the proposals for Activity 201 and future measures
Meeting with FTTE, SfPT	25-Apr-23	FTTE, SfPT	Discussion on the overall public transport route and operation plan based on the current demand in 2022
May 2023			
Meeting with FTTE, SfPT	31-May-23	FTTE, SfPT	Discussion on the overall public transport route and operation plan based on the current demand in 2022
June 2023			
Meeting with SfPT	1-June-23	SfPT	Discussion on the revised PDM with the Project Director and the Project Manager
Meeting with SfPT	1-June-23	SfPT	Confirmation on the progress of the pilot project (line57/87)
Meeting with SfPT	2-June-23	SfPT	Discussion on the revised PDM with each Working Group leader
Meeting with GSP	2-June-23	GSP	Hearing for online questionnaire survey (customer satisfaction survey)
Meeting with SfPT	14-June-23	SfPT	OJT for traffic demand analysis
Meeting with FTTE	19-June-23	FTTE	Discussion on the conduction of user interview surveys for the purpose of evaluating pilot projects
Meeting with SfPT, GSP	20-June-23	SfPT, GSP	Trial operation of pilot project routes
Meeting with SfPT, FTTE	21-June-23	SfPT, FTTE	Discussion on the development of route and operational plans based on updated demand forecast results, confirmation on the future network modelling status by FTTE, OJT for traffic demand analysis
Meeting with SfPT	29-June-23	SfPT	Confirmation on the approval status for pilot project routes
July 2023			
Meeting with SfPT	5-July-23	SfPT	Discussion on changes in pilot project activities, partial cancellation of trainings in third country and Japan, and revision of PDM and PO with the Project Director and the Project Manager
Meeting with SfPT	19-July-23	SfPT	Confirmation on discussions on July 5 and MoM details, Discussions regarding extension of project period
August 2023			
Meeting with FTTE	18-Aug-23	FTTE	Discussion on pilot project activities (Evaluation method)
Meeting with SfPT	25-Aug-23	SfPT	Discussion on pilot project activities (Agreement with SfPT on evaluation method)
Meeting with SfPT	30-Aug-23	SfPT	Discussion on coordination and confirmation regarding signing of minutes for revised RD, draft agenda for next JCC
Meeting with FTTE	30-Aug-23	FTTE	Discussion on pilot project activities (Confirmation of the implementing schedule)
September 2023			
Meeting with FTTE, SfPT	6-Sep-23	FTTE, SfPT	Discussion of proposals for future network and VISUM model

Meetings Conducted	Date	Participated Agency	Key Agenda
Meeting with SfPT	21-Sep-23	SfPT	Preliminary discussion on the agenda of JCC meeting
Meeting with SfPT	22-Sep-23	SfPT	Preliminary briefing of JCC materials to each WG leader
Meeting with the City of Belgrade, SfPT	25-Sep-23	The City of Belgrade, SfPT	Preliminary briefing of JCC materials to the City of Belgrade
Site Visit	25-Sep-23	SfPT	Monitoring Room
5th JCC Meeting	26-Sep-23		
November 2023			
Meeting with SfPT	21-Nov-23	SfPT	Discussion on the preparation of 6th JCC meeting and seminar
December 2023			
Meeting with SfPT	1-Dec-23	SfPT	【Working Group 3】Confirmation and discussion on the technical outputs
Meeting with SfPT	6-Dec-23	SfPT	【Working Group 2】Confirmation and discussion on the technical outputs
Meeting with SfPT	7-Dec-23	SfPT	【Working Group 1】Confirmation and discussion on the technical outputs

Source: JICA Expert Team

2.1.3 Trainings

2.1.3.1 Training in Japan

1) First Training: A training session in Japan was held during the project period. Details are provided below.

The project initially envisaged two trainings in Japan in total. However, a change in the structure of the city of Belgrade led to delays in the decision-making process resulting in a change of the project scope. Consequently, only one training session was conducted in Japan. The training program in Japan, consisting of lectures, site visits, and test rides, was conducted from January 15 to 26, 2023, in Tokyo, Yokohama, Kyoto, and Osaka for seven participants.

Lectures: Participants attended lectures presented by public and private sectors. Topics of the Ministry of Land, Infrastructure, Transport, and Tourism and the Yokohama City lectures were on the role of the public sector in the field of public transport. Two private bus operators also gave lectures titled "Bus Business Operation in Japan" and "Innovation and Marketing of Bus Business."

Site Visits: The participants traveled to Kyoto and Osaka in the Kansai region and visited a bus service office, railway station facilities, and an AGT depot and its monitoring room to gain insights into diverse operational methods, transport facilities, and new mobility solutions such as autonomous buses and AI-powered on-demand buses.

The participants had an opportunity to gather valuable information about public transport. The schedule of the second training session should be discussed and confirmed at the earliest opportunity.

Table 2.1.6: Itinerary of First Training in Japan

Date	Contents
Jan 15 (Sun)	Departure from Belgrade
Jan 16 (Mon)	Arrive at Narita, move to Yokohama
Jan 17 (Tue)	Orientation by JICA
	Discussion with Expert Team (ALMEC)
Jan 18 (Wed)	Lecture: Urban transport and urban facilities (Ministry of Land, Infrastructure, Transport and Tourism)
	On-site lecture: Initiatives and Facilities in Tokyu Bus (Tokyu Bus)
Jan 19 (Thu)	Ride: Tokyo BRT
	Lecture: Public Transport Management in Japan (Michinori Holdings)
	On-site Lecture: Introduction to Basta Shinjuku (Basta Shinjuku)
Jan 20 (Fri)	Lecture: Yokohama City Urban Transport Policy (Yokohama City Urban Development Bureau)
	Lecture: Maintaining Yokohama City's Bus Transport Network and Yokohama City's Regional Transport Support Project (Yokohama City Highway Bureau)

Date	Contents
	Ride: Various Public Transport Systems in Yokohama City (Railway, Subway, Bus, Ropeway, Water Transport)
Jan 21 (Sat)	Holiday
Jan 22 (Sun)	Travel to Kyoto
Jan 23 (Mon)	Site Survey: Autonomous bus, Electric bus (Keihan Bus)
	Lecture: Initiatives of Keihan Bus (Keihan Bus)
	Site Survey: Shops inside stations、Facilities at Station Plaza（Keihan Electric Railway）
Jan 24 (Tue)	Move to Osaka
	Lecture: On-demand buses (Osaka Metro)
	Ride: Osaka AGT, On-site lecture: Nanko Inspection Depots (Osaka Metro)
	Travel to Tokyo
Jan 25 (Wed)	Courtesy visit to Embassy of Serbia in Tokyo
	Evaluation meeting
Jan 26 (Thu)	Departure from Narita, arrival in Belgrade

Source: JICA Expert Team

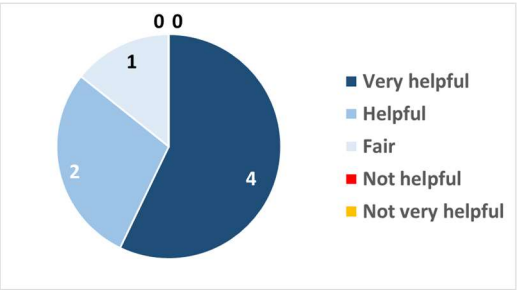
The impact of training program on participants' perspectives and skill enhancement was assessed by utilizing questionnaire survey. The results presented in the chart below outline the influence on participants' attitudes toward their future work.

Impact on participants' attitudes toward their further work

Identification of challenges: The question "What are the challenges related to public transport that you face in your daily work?" yielded following responses from the participants.

- Providing high quality service and achieving high user satisfaction.
- Providing safe transport services.
- Lack of drivers.
- Departure and arrival times delayed due to traffic congestion.
- Failure to provide users with timely information about new or temporary public transport routes.
- Limited public transport network for alternative routes.
- The economic crisis in Serbia and the resulting non-payment of fees when using public transport.
- Significant political influence in public transport management.

Usefulness of the knowledge gained from this training: The question, "Is the knowledge gained in this training useful in solving your current work problems?" received overwhelmingly positive responses from almost all participants that the knowledge acquired during the training was useful.



Source: JICA Expert Team

Figure 2.1.2: Usefulness of Knowledge Gained from Training

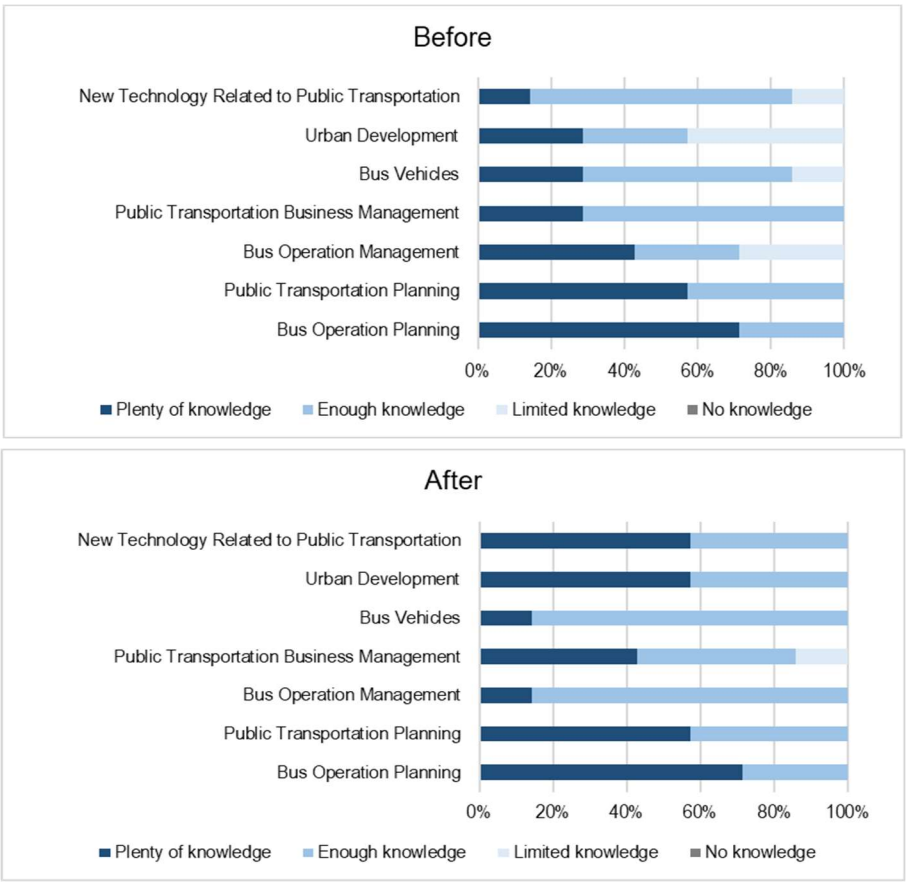
Training items considered particularly useful: The question "What items from this training do you think are particularly useful in your daily work?" yielded following responses from the participants.

- Comprehensive framework for organizing multiple transport agencies
- Fare collection systems
- Definition of procedures for changes in public transport routes and schedules, and methods for ensuring that users and stakeholders understand the changes.
- Methods of providing information to users
- Evaluating public transport route plans using scientific indicators and revising them based on the results.

Impact of the training on the participants' thinking toward their work: Based on the results of the above questionnaire, the following understanding was promoted among the participants.

- It is important not only to pay attention to immediate operational improvements, but also to periodically review the operation plan as a whole.
- It is necessary to evaluate the operation plan based on scientific indicator data such as economic efficiency and traffic demand.
- The operation plan should be understood by stakeholders, such as local governments and residents along the route, to promote its use and familiarity by the public.

Trainee Competency: The majority of participants reported that the training provided solutions to their work problems, was helpful in their daily work, and enhanced their expertise. The results indicate a high level of understanding and satisfaction, indicating that the training broadened the participants' perspectives and will be beneficial for their future work.



Source: JICA Expert Team

Figure 2.1.3: Changes in the Participants' Expertise

After the training, the respondents indicated that they had “Plenty of knowledge” or “Enough knowledge” in all areas, with the exception of public transportation business management. In particular, significant knowledge gains were observed in new technologies and urban development related to public transportation.

In terms of new technologies in public transportation the participants responded that their knowledge had improved significantly through the training, as this was an area in which they had expected Japan to be making advanced efforts before participating in the training.

However, the percentage of respondents claiming to have “Plenty of knowledge” in bus vehicles, public transportation business management, and bus operations management declined.

With regard to bus vehicles, participants had the opportunity to experienced public transport modes that are not in operation in Belgrade, such as automated operation buses and on-demand buses. They observed and heard about how these modes integrate into a comprehensive network with rail-based modes. This contributed to broadening their perspective focusing on improving operation of individual public transport modes, and thus leading them to review their self-evaluation.

In terms of public transportation business management, the concept of direct link of public transport and business is not common in Belgrade. Through the site visits and lectures at facilities such as the integrated bus terminal and station square, the participants grasped that improving transit lines and creating an environment that facilitates consumption by users at the origin and destination of their travel would lead to the promotion of public transport use. This newfound understanding likely prompted a revision in participants' self-evaluation of the public transport system, recognizing that creating an environment conducive to user spending could contribute to promoting public transportation use.

The remote training on bus fleet management conducted prior to the on-site training in Japan and complemented by an actual visit to enhance understanding of the content learned in the training program, had a declining response rate for “Plenty of knowledge”.

This decline is associated with the nature of bus fleet management, where aspects such as sales office operations, crew communication, and vehicle conditions are best understood through direct observation. Therefore, the effectiveness of the Japanese training program was notably high as it allowed participants to witness actual situations. Conversely, the remote training program highlighted the challenges we faced as a training provider in delivering detailed explanations.

2) Second Training (Cancelled): On March 22, 2023, the JICA Expert Team outlined the training plan, shown below, to Mr. Lukic explaining its contents and emphasizing the need for the city government's approval by the second week of April, 2023 if the training was to be conducted in June, the last feasible time to conduct training in Japan during the project period.

Mr. Lukic was concerned about obtaining timely approval from the Mayor's Office before discussing the training details. At the same time, insufficient coordination between the SfPT and the Mayor's Office, limited the SfPT’s ability to explain and request approval from the Mayor's Office. As a result, the training was cancelled.

Outline:

- **Takamatsu City, Kagawa Prefecture:** Home of Japan Railways Shikoku (JR Shikoku), the only one of the three JR island companies established following the privatization of the Japanese National Railways (JR in the present) that does not operate in a city with a population exceeding one million. Since its establishment, the disadvantage of independent profitability in the railway business has been pointed out, leading to the accumulation of various management innovations.
- **Matsuyama City, Ehime Prefecture:** It boasts a variety of operational transport systems, including urban railways, streetcars, bus routes and ropeways for sightseeing. The city also promotes urban development based on public transport and has a wealth of experience in road space reorganization.
- **Fukuoka City, Fukuoka Prefecture:** The city has a population comparable in size to that of Belgrade. It also has a bus-based public transport network, similar to that of Belgrade, and has a high degree of similarity.

Table 2.1.7: Themes Linked to the Three Activities on the Project

Activities	Themes
Activity 1: Enhancing the capability of operation planning	・ Public transport planning ・ Compact cities ・ Social experimentation and verification of effects
Activity 2: Improving the ability of monitoring operators	・ Role-sharing among public and private sectors ・ Regulation on public and private transport ・ Operational management ・ Training and education for drivers
Activity 3: Improving the share of fare revenue	・ Transit convenience ・ MaaS ・ Management and finance

Source: JICA Expert Team

Table 2.1.8: Proposed Training Schedule

	Date	Time	Training items	Place
1	June 11 (Sun)		*Flight (BEG - VIE)*	
2	June 12 (Mon)		*Flight (VIE - NRT)*	Tokyo
3	June 13 (Tue)	AM	Lecture: Ensuring mobility in the suburban area (Ministry of Land, Infrastructure, Transport, and Tourism)	Takamatsu
		PM	*Flight (Tokyo – Takamatsu)*	
4	June 14 (Wed)	AM	JICA orientation (JICA Shikoku)	Takamatsu
		PM1	Training orientation (JICA Expert Team)	
		PM2	Lecture: Operational management, management innovations (JR Shikoku Group)	
5	June 15 (Thu)	AM	Site visit: New Takamatsu Station building, bus terminal, and station area development (JR Shikoku Group)	Takamatsu
		PM1	Lecture: Operation of the IC card, regional cooperation as locally-oriented transport (Kotoden Group)	
		PM2	Site visit: Facilities and equipment related to the above, demonstration of IC cards (Kotoden Group)	
6	June 16 (Fri)	*AM*	*Train (Takamatsu – Matsuyama)*	Matsuyama
		PM1	Lecture: Location Normalization Plan, Regional Public Transport Network Formation Project (Matsuyama City)	
		PM2	Site visit: Development of the station plaza of Matsuyama Station, renewal of Hanazonomachi St. (Matsuyama City)	
7	June 17 (Sat)		Holiday	Matsuyama
8	June 18 (Sun)		Holiday	Matsuyama
9	June 19 (Mon)	AM	Lecture: Implementation of social experiments and verification of their effectiveness (Ehime University)	Matsuyama
		PM1	Lecture: Operation management, tourism use of public transport (Iyotetsu Group)	
		PM2	Site visit: Facilities, offices, and tourist attractions related to the above (Iyotetsu Group)	
10	June 20 (Tue)	*AM*	*Flight (Matsuyama – Fukuoka)*	Fukuoka
		PM1	Lecture: MaaS, public transport facilities, driver training (Nishitetsu Group)	
		PM2	Site visit: Facilities and office related to the above (Nishitetsu Group)	
11	June 21 (Wed)	AM	Lecture: Public transport policy, TDM (Fukuoka City)	Fukuoka
		PM	Site visit: Facilities and office related to the above (Fukuoka City)	
12	June 22 (Thu)	*AM*	*Flight (Fukuoka – Tokyo)*	Tokyo
		PM	Wrap-up meeting	
13	June 23 (Fri)		*Flight (NRT – VIE – BEG)*	

Source: JICA Expert Team

2.1.3.2 Training in Third Countries

Out of the initially planned four third-country sessions, only two were conducted due to a change of the project scope. Details are outlined below.

1) The Netherlands:

Outline: The training was held in the Netherlands from May 22 to 27, 2022.The participants attended lectures of the regional public transport authorities and public transport service operators in Amsterdam, Rotterdam and The Hague before the on-site observations of the actual operations.

Participants had an opportunity to observe seamless connection of the several intermodal transport modes, and innovative unified payment systems in Dutch cities with the reputation as the most organized in this regard.

The Netherlands is also leading the way in the transition to zero greenhouse gas emissions by promoting clean modes of transport, such as, among other things, electric buses, which are becoming more and more widespread in the country.

Participants have also learned about various guidelines from local agencies and authorities regarding planning and infrastructure development. These insights, gained through a decade of trial and error since the system was initially implemented, have proven valuable.

Participants are incorporating guidelines received during the training and continued communication with several Dutch colleagues in the development of an improvement plan for public transport in Belgrade.

Feedback from the participants indicated satisfaction with learning effective countermeasures in management of transport system and observation of good coordination between authorities and operators. Suggestions and feedbacks indicated necessity for longer discussion session so that topics of planning, contractual, financial and scheduling matters could be delved into in more detail. Furthermore, the participant expressed an interest in visiting a city with a history of free-riders to understand the efforts undertaken to tackle this issue.

Table 2.1.9: Itinerary of the Training in Third Country (The Netherlands)

Date	Contents
May 22 (Sun)	AM:
	PM: Arrival in Amsterdam
May 23 (Mon)	AM: Meeting with Vervoerregio Amsterdam
	PM: Visit of Amsterdam Central Station area
May 24 (Tue)	AM: Move to Rotterdam, Visit Rotterdam Central Station area
	PM: Meeting with Rotterdamse Elektrische Tram (RET)
May 25 (Wed)	AM: Move to The Hague, meeting with HTM Personenvervoer N.V. (HTM)
	PM: Visit public transport facilities in The Hague, move to Amsterdam
May 26 (Thu)	AM: Trial rides on public transport (GVB buses)
	PM: Trial rides on public transport (EBS buses, shared cycling)
May 27 (Fri)	AM: Trial rides on public transport (GVB trams)
	PM: Trial rides on public transport (GVB Metro), visit public transport facilities around Amsterdam
May 28 (Sat)	AM: Wrap-up
	PM: Arrive in Belgrade

Source: JICA Expert Team

Items that participants considered beneficial for future use: The following comments were made by the participants regarding the future use of the training contents in Belgrade.

- **Promoting the use of public transport:** At the outset, participants learned about various government agencies efforts to improve public transport. The city of Amsterdam adopted a comprehensive strategy, elevating operating costs for private vehicles (including parking, gasoline, and taxes) and establishing low emission zones in large areas around the city. In doing so, the city promoted walking and enhanced pedestrian rights of way, while significantly restricting the use of private vehicles. A positive spillover effect of these efforts was the expansion of bicycle use.

Implementation of these transport policies emphasizing public transport promotion and stringent control of private transport (excluding non-motorized transport) has received widespread acceptance among the public as it improves the reliability of the public transport system and expands its range of use. Even today, ongoing efforts persist in refining the system to achieve a zero-emission integrated public transport system.

In Belgrade it is also important to implement integrated measures aimed at promoting the use of the public transport system comprehensively, particularly in conjunction with the planned introduction of the Belgrade Metro.

- **Securing fare collection:** Dutch cities are places that attract tourists from all over the world. This knowledge has been utilized in each city during the development of the ticketing systems, accessible and integrated for everyone, including tourists.

  Metro adopted a closed system with tap-in/tap-out gates to ensure high fare collection rates. It is important to consider adoption of the same system for the Belgrade Metro.

  On trams and buses, as in Belgrade, one tap is sufficient for both boarding and alighting. There is a possibility of free-riders but effective enforcement plays a crucial role in addressing this issue. The Dutch enforcement officer has been given enough law enforcement authority and an immediate response system in place to involve the appropriate units. The system interconnects with control centers, communications commanders, police, firefighters, ambulances, and hospitals to support the officer's work.

  A similar system should be considered for Belgrade to improve the reliability of the public transport system.

2) Italy

Outline: The second training was conducted in Italy from June 13 to 17, 2022. Participants attended lectures of the municipal public transport authorities and operators of public transport services in Rome, Florence, and Naples, and then visited actual operation sites.

As in Belgrade, major issues in Italy were air pollution due to the increase in use of private cars, and prevalence of free rides on public transport. Participants gained valuable insights into innovations related to payment methods, boarding and alighting procedures, and ticket gates in the three Italian cities that grapple with similar issues. Additionally, they learned about the city's reexamination and planning of overall mobility, including private transport.

Participants continued discussions on development of a public transport improvement plan with several counterparts, taking into consideration insights obtained during the training.

Feedbacks from the participants underscore good experience in communicating and exchange of insights with both operators and authorities. In particular, the control center in Italy has the features that SfPT would like to introduce in Belgrade. Suggestions and feedbacks indicated necessity for longer discussion session on ticket controllers so that the participants could fully understand the role, laws, and job description of the controller. Furthermore, participants expressed an interest to adopt the ticketing system and validating machine from Italy in Belgrade. This also includes the way controller is formed and structured. Moreover, participants expressed a keen interest in adapting the ticketing system and validation machines from Italy to Belgrade. This extends to exploring the formation and structure of controllers, drawing inspiration from the Italian model.

Table 2.1.10: Itinerary of the Training in Third Country (Italy)

Date	Contents
Jun 12 (Sun)	AM:
	PM: Arrival in Rome
Jun 13 (Mon)	AM: Meeting with Roma Servizi per la Mobilità (RSM)
	PM: Visit ITS facilities of RSM
Jun 14 (Tue)	AM: Move to Florence
	PM: Meeting with Department for Infrastructure and Transport, Municipality of Florence
Jun 15 (Wed)	AM: Meeting with Agenzia del trasporto autoferrotranviario del Comune di Roma (ATAC)
	PM: Observation of systems and operations related to ticket inspection and management
Jun 16 (Thu)	AM: Move to Naples, Meeting with Azienda Napoletana Mobilità SpA (ANM)
	PM: Observation of systems and operations related to subway stations, ticket inspection and mgt.
	AM: Trial rides on ATAC public transport

Date	Contents
Jun 17 (Fri)	PM: Wrap-up
Jun 18 (Sat)	AM: Arrival in Belgrade
	PM:

Source: JICA Expert Team

Items that participants considered beneficial for future use: The following comments were made by the participants regarding the future use of the training contents in Belgrade.

The City of Rome has implemented a no-vehicle zone in the city center, potentially contributing to an increase in the share of public transport in travel. However, it is necessary to note that this share, calculated based on the tickets sales, may be inflated due to the Rome's status as a global tourist destination. Many tourists, unfamiliar with the ticket purchasing process, may be included in the count, resulting in is higher reported public transport share and potentially lower actual fare collection rates. Therefore, accurately identifying the number of users and implementing an easily understandable ticketing system remain paramount.

The boarding system is a closed system for trains and a tap-in system for boarding trams and buses, which were the same as in Amsterdam and were good examples from which the participants could obtain hints for implementation and operation in Belgrade.

Rome city officials implied that many Italian cities, including Rome, are not putting much effort to tackle the free-rider issue for a variety of reasons, though they did not explicitly say so. One of the main reasons for this may be that the country receives a huge amount of revenue from the tourism sector. Ticket inspectors are dispatched when something goes wrong, but, since many travelers speak a language that the inspectors cannot understand, it is likely that they are reluctant to strictly collect fares from tourists.

Despite these considerations, the ticketing systems in Italian cities are generally user-friendly and integrated. Concurrent activities in promoting the use of the system for tourists have been successful, leading to an increase in ticket purchases.

Therefore, while considering the challenges in Rome, Belgrade should consider a user-friendly ticketing system, an attractive type of tickets, and the application of intermodal ticketing after the opening of the Belgrade Metro.

Participants were also highly interested in the mobile applications for real-time information to users.

3) Germany (Cancelled): As of August 2021, a training program in a third country had been planned as outlined below, but due to the impact of the spread of COVID-19 and the host country's acceptance system, the program could not be implemented.

Table 2.1.11: Proposed Training Schedule in Germany (Cancelled)

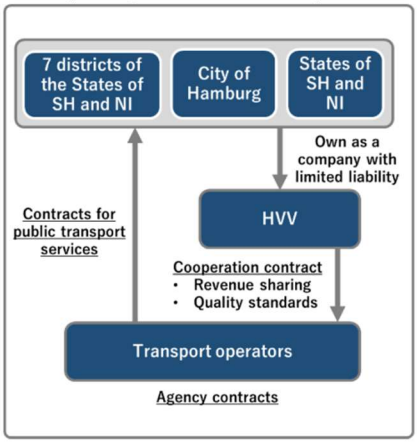
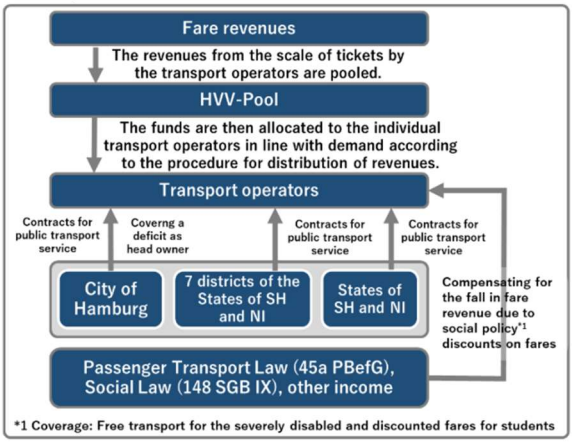
Place to visit	Hamburg, Germany
Organization to visit	Hamburger Verkehrsverbund (HVV)
Purpose	• In the city of Hamburg, the Hamburger Verkehrsverbund (HVV) is responsible for a variety of public transport-oriented tasks, including planning work for rail, bus, and urban development, sales and management of fares and tickets, as well as marketing and public relations, financing (revenue sharing and contract support). • In this training, participants will have site visits and attend lectures on ticket sales and management, bus and ferry operations, zoning concepts in the public transport network, and an R&D project on electric buses, among other operations handled by HVV, and gain knowledge on how to improve the operation of public transport in Belgrade

Source: JICA Expert Team

However, an online session was conducted together with the local organization as part of the preliminary study before the training. A summary of the session is presented in the table below.

Table 2.1.12: Overview of the Joint Online Session with the City of Hamburg, Germany

Participating organizations	• City of Belgrade: Secretariat for Public Transport (SfPT) • City of Hamburg: Hafen-Dampfschiffahrt AG Sea-tourism and Ferry service (HADAG) and Hamburger Hochbahn AG (HHA) • Japan: JICA and JICA Expert Team

Purpose	• Introduction to the project • Sharing of information on issues and future initiatives related to public transport management in both cities • Clarification of learning content in third-country training
The state of public transport in the Hamburg metropolitan area	• In the Hamburg metropolitan area (consisting of the city of Hamburg, the four districts of the state of Schleswig-Holstein (SH) and the three districts of the state of Lower Saxony (NI)), the Hamburger Verkehrsverbund (HVV) has been operating public transport based on the unified fare system in the region, as a pioneer of the unified fare system since 1967. The introduction of a unified fare system and ticket types, as well as a controlled timetable, has greatly improved not only the efficiency of the service, but also the convenience for passengers. • The HVV has a relationship with the municipalities of the Hamburg metropolitan area and the transport operators, as shown in Figures 2 and 3, and comprehensively operates and manages the various public transport services operated by the member operators, and comprising suburban railways, urban subways, buses and ferries.   **Division of roles and contractual relationships among municipalities, HVV and transport operators** • As an overarching objective to guide their actions, HVV has set future goals of 1. Multimodal transport using ICT and 2. Zero emission of greenhouse gases. As a concrete approach to the goal, by combining the journey-planning application "hvv switch" and a mobility-sharing service with existing public transport, HVV aims to go beyond being a transport service provider that only takes users from their point of origin to their destination, but also to facilitate the user experience by facilitating route searches, reservation and payment as a single service (MaaS). In conjunction, HVV is actively making the transition to electric and hydrogen vehicles in their vehicles to achieve zero emissions in the transport sector.

Source: JICA Expert Team

4) United Kingdom (Cancelled): Similar to the training in Germany, a third-country training program in the UK was not implemented. Online sessions were conducted as part of the preparation of the training program ahead of its implementation. A summary of these sessions is presented in the table below.

Table 2.1.13: Overview of the Joint Online Session with Greater London, United Kingdom

Participating organizations	• City of Belgrade: Secretariat for Public Transport (SfPT) • London: Transport for London (TfL) • Japan: JICA and JICA Expert Team
Purpose	• Introduction to the project • Sharing of information on issues and future initiatives related to public transport management in both cities • Clarification of learning content in third-country training
Efforts of TfL	Transport for London (TfL) is the public transport authority in Greater London, which consists of the City of London and 32 boroughs and is responsible for implementing transport policies and managing the integrated transport system which includes subway and buses. In this session, we collected information on bus operating plans and the system used by TfL to contract services with multiple private bus operators. **1. Bus Operating Plan:** • TfL formulates the routes, frequencies, time, and number of vehicles to be used for bus operations, and detailed operation plans are then developed by each operator. In developing the operation plan, a cost-benefit analysis is conducted using the travel time of users as an indicator. When making changes to the operating plan, other factors such as

	cost estimation, fare revenue projection, and passenger convenience are comprehensively taken into consideration. • In recent years, TfL has introduced a new system called "EVAL" to reduce the labor and cost involved in the above analysis work. This system enables them to calculate the impact on existing users and the number of new users, as well as to predict changes in waiting time and revenue, by using OD data and various indicators obtained from bus card usage records for collection and analysis. By using these advanced technologies, TfL aims to maintain the high level of user satisfaction. **2. Transport contracts with bus operators:** Buses in Greater London were originally operated directly by TfL, but since 1985 a tendering system has been in place. • As a result of the change from a gross cost contract to a net cost contract in 1995, the quality of the bus service was affected by the deterioration of the excess wait time, which is one of the evaluation indicators of the bus service. As in Belgrade, the contract with bus operators was based on availability payment (Gross Cost), and each operator was paid based on the actual distance traveled, regardless of the fare revenue. However, in 1995, the contract was changed to a Net Cost contract, through which the operator received the fare revenue directly and was therefore assuming the revenue risk in addition to the operational risk. Following the change in the contract structure, there were problems that affected the quality of the bus service, such as the deterioration of the excess wait time, which, as mentioned previously, is one of the principal evaluation indicators of the bus service. • As a result, TfL progressively reviewed their contracting methods from year 2000 and now use a quality incentive contract based on the gross cost contract. Under this contract, a bonus is paid if the service level exceeds an upper threshold, while a penalty is applied if it falls below a lower threshold. While TfL remains responsible for the fare revenue, a quality incentive contract provides financial incentives to operators to improve service levels, and as a result, customer-oriented indicators such as excess wait time have been improved. As mentioned above, this session provided many lessons learned from TfL's efforts on measures and issues that should be considered in the future to improve public transport operations in Belgrade. We will continue our activities to reflect the knowledge gained through repeated sessions and site visits from third countries to improve the public transport management in Belgrade.

Source: JICA Expert Team

2.1.3.3 Remote Training

Originally planned in person training in Japan could not be implemented due to the COVID-19 restrictions.

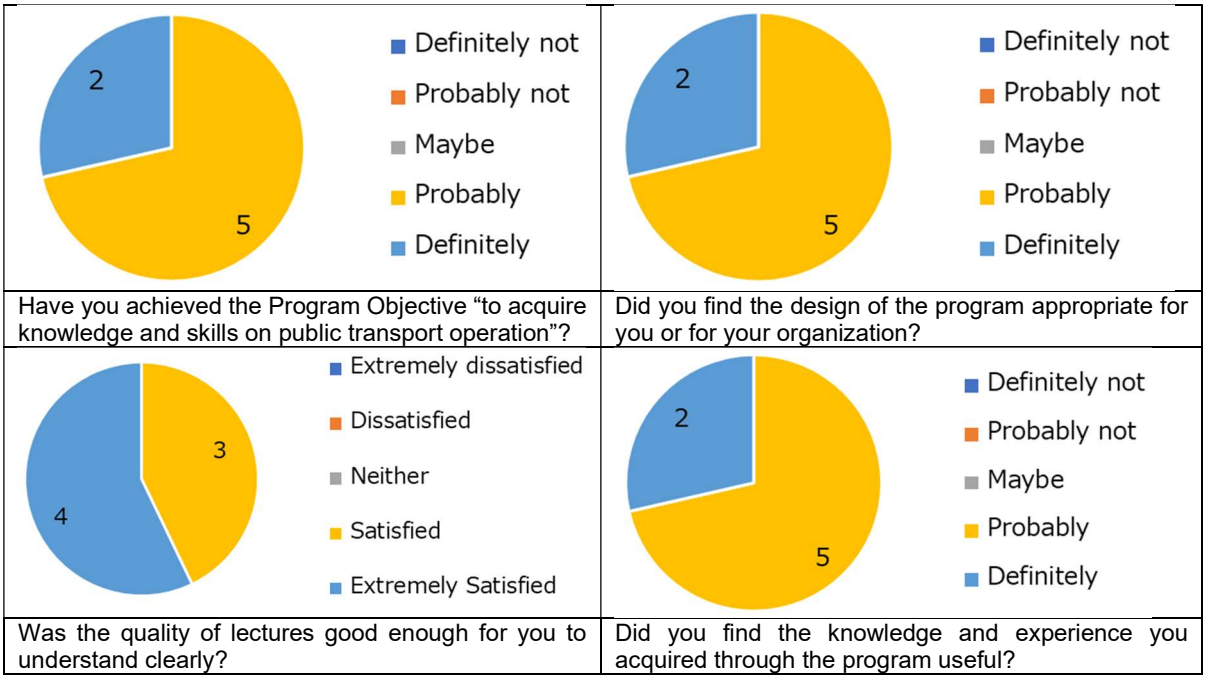
Instead, JICA Expert Team conducted six remote training sessions from April 2022 until October 2022. JICA Expert Team invited two bus operators to deliver lectures on the actual operation and situation in Japan. The outline of remote training sessions is shown in the list below. The content of the sessions was shaped through discussions and exchanges of opinions with the SfPT, GSP, and FTTE, concentrating on topics of particular interest to the recipients.

Table 2.1.14: Overview of Remote Training

	Contents	Lecturer	Date
1	● Overview of Transit Bus Services in Japan ● Introduction of Bus Operation in Japan	JICA Expert Team	08/Apr/2022
2	● Introduction of Bus Operation at Operator's Office		27Apr/2022
3	● About Keisei Bus ● Information Dissemination ● Measures to Promote Bus Usage	Keisei Bus	19/May/2022
4	● About Keisei Bus ● Information Dissemination ● Measures to Promote Bus Usage		07/Jul/2022
5	● Profile of Tokyu Bus ● Operation Plan Department in Tokyu Bus ● Operation Plan Formulation Method ● Composition of Operation Plan in Tokyu Bus ● System for Bus Operation	Tokyu Bus	05/Oct/2022
6	● Operation Management System in Japan ● Operation Management in Tokyu Bus ● Monitoring		26/Oct/2022

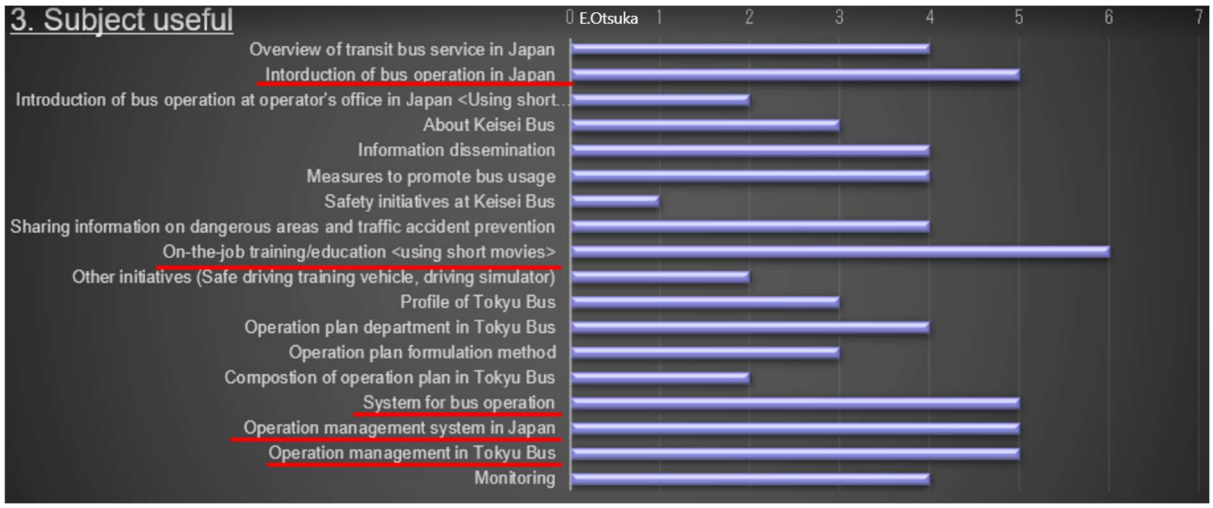
Source: JICA Expert Team

A questionnaire survey was conducted with the participants (7 respondents) after the six remote training sessions. Generally, participants indicated that the training was beneficial and contributed to an enhancement of their knowledge. The main survey items and responses are shown below.



Source: JICA Expert Team

Figure 2.1.4: Results of Questionnaire Survey



Source: JICA Expert Team

Figure 2.1.5: Topics of Particular Interest to Participants

In the questionnaire survey conducted on topics of particular interest, Japanese bus operations received significant attention, with many votes cast for on-the-job training for drivers conducted within bus operators using short movies, ICT systems for bus operations, and methods of operations management in Japan and Tokyu Bus.

2.1.4 Seminar

1) First Seminar (December 14, 2021)

The seminar attracted representatives from public transport organizations and operators in European countries, along with participants from various sectors in Serbia including public transport-related organizations, operators, companies, government, and academia. Presentations

covered diverse topics, including the current status, challenges, and future of public transport in each city. The Q&A session provided an opportunity for active discussion among the participants and sharing of knowledge and experience between countries and cities (the seminar agenda is shown in the table below).

Table 2.1.15: Agenda for the First Seminar

Program	Topic	Presenter
Introduction	Welcome speech	Mr. Goran VESIĆ, Deputy Mayor, City of Belgrade
	Opening remarks	Mr. Takahiko KATSUMATA, The Ambassador of Japan
News in Public Transport in Serbia & Belgrade	Legal framework in the field of road passenger transport in Serbia	Mr. Damir LEDENĆAN, Ministry of Construction, Transport and Infrastructure, Serbia
	The role of the Serbian Chamber of Commerce and Industry in the public transport sector	Ms. Milica DUBLJEVIĆ, Chamber of Commerce and Industry of Serbia
	Innovation and planning of public transport in Belgrade	Ms. Ivanka MILOŠEVIĆ, Secretariat for Public Transport, Belgrade, Serbia
	Overview of public transport in Belgrade to 2027 and development strategy to 2033	Prof.Dr. Slaven TICA, University of Belgrade, The Faculty of Transport and Traffic Engineering
Public Transport in the World	The latest trends in mobility and key issues for the future	Mr. Emmanuel DOMMERGUES, UITP, Brussels, Belgium
	Public transport as an essential tool for smart and sustainable mobility	Mr. Thomas GEIER, EMTA, Paris, France
	The public fast charging points program for e-vehicles in Barcelona Metropolitan Area	Ms. Silvia VALERO, Àrea Metropolitana de Barcelona, Spain
	JICA's cooperation in the public Transport sector	Ms. Miu NAKAZONO, Assistant Director, JICA,Tokyo Japan
Electro-mobility & Development Plans in Belgrade	General regulation plan of track network systems	Mr. Predrag KRISTIĆ, Urban institute Belgrade
	Metro construction and development plan	Mr. Stanko KANTAR, Public Utility Company of Belgrade Metro and Train
	Electric Vehicles in Public Transport in Belgrade	Dr. Slobodan MIŠANOVIĆ, Senior Project Manager, GSP, Belgrade, Serbia
	In-vehicle chargers for unlimited operation range and sustainable urban mobility	Dr. Jiri KOHOUT, Pilsen city transport and Chairman of the Trolleybus Committee UITP, Pilsen, Czech Republic
Closing	Closing remarks	Mr. Tomohiro ONO, Director, JICA,Tokyo Japan
	Closing speech	Dr Jovica VASILJEVIĆ, Secretary, Secretariat for Public Transport, Belgrade, Serbia

Source: JICA Expert Team

2) Second Seminar (November 24, 2022)

Public transport organizations and public transport operators from Belgium, Romania, Spain, Germany, and other European countries and cities attended the seminar. In addition, representatives from public and academic institutions of the public transport in Serbia were invited to deliver presentations on contractual relations and models between cities and public transport operators for public transport projects in their respective cities. The event provided a platform for the exchange of knowledge and experiences across different countries and cities, leading to discussions on future challenges, improvement possibilities, and suggestions for the direction of contract renewal for public transport operators in Belgrade (the seminar agenda is shown in the table below).

Table 2.1.16: Agenda for the Second Seminar

Topic		Presenter
Welcome, Introduction, and Opening Remarks		Mr. Predrag Lukić, Secretary, Secretariat for Public Transport (SfPT), Belgrade, Serbia
The Contractual Relations and Models of a Public-Private Partnership between the City and the Operators	Development of Public Transport and Different Contractual Relations Between the City and Operators in European cities	Mr. Emmanuel Dommergues, Union Internationale des Transports Publics (UITP), Brussels, Belgium
	Contracts in Public Transport in Belgrade	Ms. Yuka Kato, JICA Expert Team Mr. Darko Zogović, SfPT
	Contracts in Public Transport in Bucharest	Ms. Geanina Suditu, Transport Public Bucureşti ILFOV (TPBI), Bucharest, Romania
	Contracts in Public Transport in Madrid	Ms. Montserrat Andujar Martinez, onsorcio Regional de Transportes de Madrid (CRTM), Madrid, Spain
	Contracts in Public Transport in Hamburg	Mr. Manfred Starck, Hamburger Verkehrsverbund (HVV), Hamburg, Germany
	Interim summary	Ms. Dragana Popadić, SfPT
Panel discussion: The Contractual Relations and Models of a Public-Private Partnership between the City and the Operators	Panel discussion: The Contractual Relations and Models of a Public-Private Partnership between the City and the Operators	● Prof. Dr. Vuk Bogdanović, Faculty of Technical Sciences, University of Novi Sad, Novi Sad, Serbia ● Mr. Emmanuel Dommergues, UITP ● Ms. Geanina Suditu, Transport Public Bucharest ILFOV ● Ms. Montserrat Andujar Martinez, Consorcio Transporetes Madrid ● Mr. Manfred Starck, HVV
	Conclusion	Prof. Dr. Predrag Živanović, Faculty of Transport and Traffic Engineering, University of Belgrade, Belgrade, Serbia
Closing Remarks		Mr. Masahiro Ueki, Chief Representative, JICA Balkan Office

Source: JICA Expert Team

2.2 Achievements

2.2.1 Outputs and Indicators

2.2.1.1 Output1: The ability of strategical, tactical and operational planning of SfPT is improved.

The results of activities related to Output 1 are shown in the table below.

Table 2.2.1: Result of Output1 Activities

Activity and Work Item	Activities	Results
101 To conduct travel demand survey along major routes and implement OJT on transport demand software. Status of Achievement:100% (Completed)	• Information collection on the travel demand forecast • Confirmation on demand forecast modelling and its data • Analyzing on the traffic demand forecast model and its data • Conducting Activity Diary Survey • Updating on the traffic demand forecast model • Development of the transport network • Conducting of VISUM training	• Material for output 101.pptx Material to share the result of the tasks in Item 101 that were conducted together with SfPT on an OJT basis. • Training Course Timetable_PTV.xlsx • Session 1.pdf, Session 2.pdf, Session 3.pdf, Session 4.pdf, Session 5.pdf, Session 6.pdf Schedule and presentation slides for VISUM training
102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of travel demand survey. Status of Achievement:100% (Completed)	• Information collection on the operation planning • Identification of the issues on the current scheduling and timetable making program • Formulation on operation and service plan	• Material for output 102.pptx Material to share the result of the tasks in Item 102 that were conducted together with SfPT on an OJT basis.

103 To propose integrated public transport network to enhance intermodality including water transport, planned Metro lines, terminal access modes. Status of Achievement:100% (Completed)	• Discussion on introduction of river transport and future railway network plan • Collection of the related data and information for the discussion on the future public transport network • Proposing the future public transport network to enhance its intermodality	• 103.pptx Material to share the result of the tasks in Item 103 that were conducted together with SfPT on an OJT basis. • TechnicalProposalforPublicTransportPlan.pdf Report on the methodology and analysis to propose the future public transport plan.
104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators. Status of Achievement:100% (Completed)	• Examination on role and responsibility by SfPT and public transport operators • Information collection of good practices in European cities • Examination on the movement to other models	• Material for output 104.pptx Material to share the result of the tasks in Item 104 that were conducted together with SfPT on an OJT basis. • Report on Demarcation Models of Roles and Responsibilities.docx Full explanation of demarcation models of roles and responsibilities in public transport
105 To create a list of improvement measures for operation management of public transport. Status of Achievement:100% (Completed)	• Data collection on public transport operation and management • Examination on timetable and diagram systems	• Material for output 105.pptx Material to share the result of the tasks in Item 105 that were conducted together with SfPT on an OJT basis. (List of improvement measures is presented in slide 1.) • TEDis-Prezentacija.pptx Creation of a technical and technological analysis of the tram subsystem and proposals for measures to increase efficiency and participation in visual distribution. (Serbian) • ZUTE 01_BeoPiS BG.pptx Development of bus lanes and separate independent routes in public transport project. (Serbian)
106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105. Status of Achievement:100% (Completed)[2]	• Discussion on the initial proposal of the pilot project and its data collection • Conducting of the hearing about ICT companies • Proposing of the pilot lines based on the discussion results with the counterparts • Preparation on the implementation plan • Implementation of the pilot project	• ◆Main_Evaluation Report for Pilot Project_Output 1-6_EN.docx Description of outline, implementation, evaluation and conclusion of the three pilot projects for Item 106.

Source: JICA Expert Team

2.2.1.2 Activities related to Output 1

A summary of each activity related to Output 1 is described below. For more detailed information, see the Study Report.

(101-related)

VISUM Training: VISUM training was conducted for eight SfPT staff members enabling them to accomplish specific tasks on VISUM, such as checking the transport network, identifying particular public transport routes, obtaining simulation results, and presenting the results. However, it was recognized that a more systematic and advanced understanding of transport modeling would be necessary for more advanced tasks.

A summary of the VISUM training is shown in the table below.

[2] At the beginning of the project, the plan was supposed to implement (1) "introduction of ICT for operation rationalization" and (2) "rationalization of route planning" as pilot projects under Activity 106. However, due to significant changes in the preconditions for (1) following the removal of Kentkart's BusPlus system, the decision was made to cancel its implementation and shift the focus solely to (2). The implementation of (2) underwent two changes and was scaled down twice at the request of SfPT. Eventually, the route plan was rationalized based on the agreed route with SfPT.

Table 2.2.2: Outline of VISUM Training

Date	Title	Purpose
Sep. 13	Session 1: From Zero to 1 on Transport Modelling	• Know procedure sequences • Handle the tool
Sep. 14 Sep. 15	Session 2: Network Model	• Know all Network Objects and basic attributes • Learn how to handle them through practice
Sep. 16 Sep. 17	Session 3: Demand Model	• Know and handle the demand objects • Modelling procedures of all 4-steps • Practices
Sep. 20 Sep. 21	Session 4: Public Transport Model	• Edit public transport network objects • Public transport assignment • Optimize PuT network in terms of transfer time • Route assessment and comparison • Learn from practices
Sep. 22	Session 5: Graphical Features	• Learn the concepts of VISUM graphical features • Edit graphic parameters • Practice
Sep. 23 Sep. 24	Session 5: Impact Model	• Know the conceptual procedure of impact evaluation • Learn the tool for impact analysis ➢ Version comparison ➢ Scenario management • Practice with a whole project
Sep. 27	Seminar on the Belgrade Model	• Demand Forecasting with VISUM in the City of Belgrade by the Faculty of Transport and Traffic Engineering, University of Belgrade, Belgrade Metro and Railway Corporation

Source: JICA Expert Team

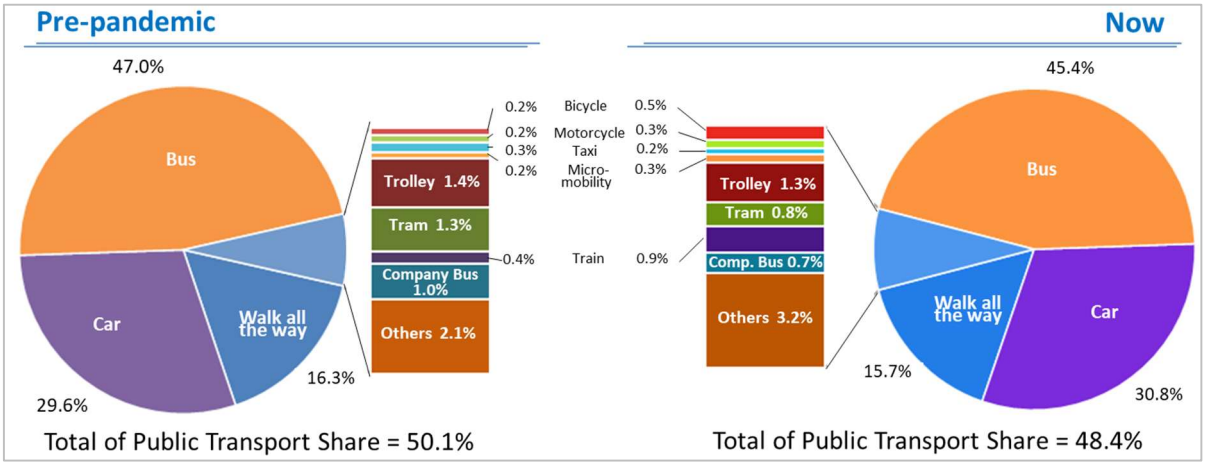
Transport Surveys: A series of transport surveys took place from mid-2022 to the end of 2022, as shown in the table below. The surveys were carried out during the second year of the project aiming to minimize the impacts of COVID-19 on traffic situation and under the optimal data collection conditions, avoiding summer and holiday periods.

Table 2.2.3: Outline of Transport Surveys

Survey Name	Survey Target
Activity Diary Survey	1,000 households selected from the targeted households (1.0-1.5% of the total population) in an existing survey conducted by the University of Belgrade on behalf of the City of Belgrade in 2015
Public Transport Corridor Survey	Passenger count survey: 12 routes selected from BG:Voz, buses, trolleybuses, and streetcars Interview survey: 5 train stations and 5 bus stops on the BG:Voz corridor
Screenline Survey	15 intersections out of 178 intersections covered in the existing study commissioned by the City of Belgrade and conducted by the University of Belgrade in 2015
Travel Speed Survey	26 major corridors in Belgrade

Source: JICA Expert Team

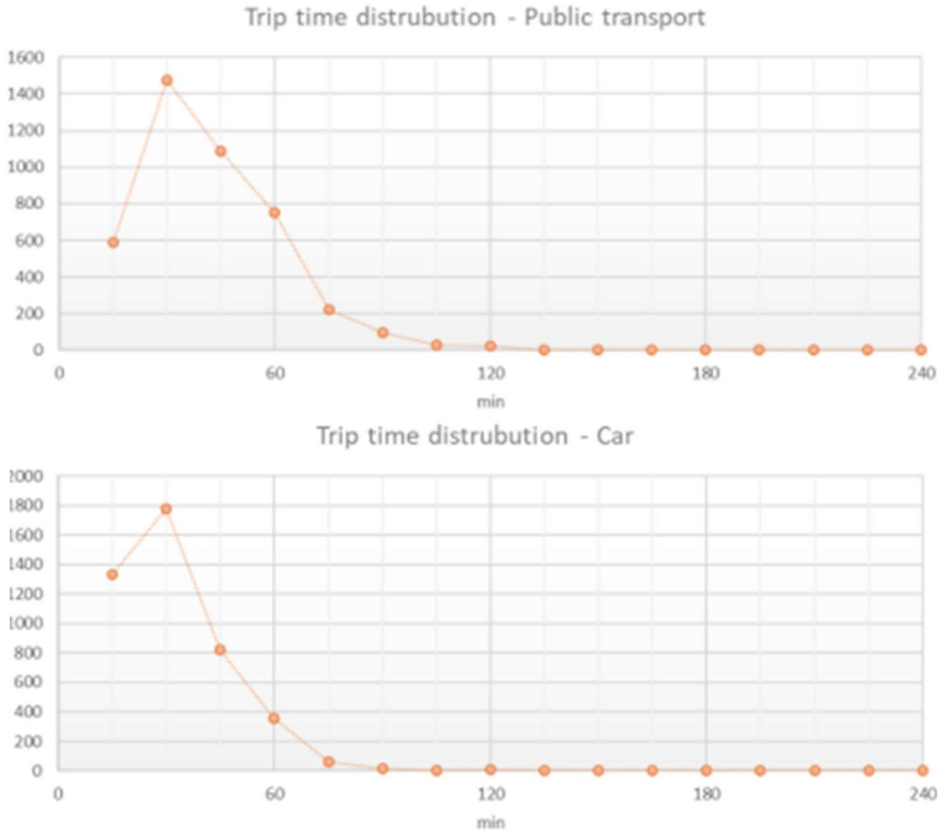
Below is an overview of the traffic trends in Belgrade observed from the obtained data.



Source: JICA Expert Team

Figure 2.2.1: Modal Share (Activity Diary Survey)

The results of the Activity Diary survey revealed that the modal share of public transport for commuting to work and school has slightly decreased compared to pre-pandemic levels, while the modal share of private cars has increased.



Source: JICA Expert Team

Figure 2.2.2: Sample Distribution by Travel Time (Public Transport Corridor Survey)

Furthermore, insight into the travel time of both public transport and private vehicles trips disclose a higher number of samples with travel times shorter than one hour, with a notable peaking around 30 minutes.

Table 2.2.4: Increase in Number of Vehicles (2015 and 2022) (Screenline Survey)

Unit: Veh/Hour in AM Peak	Car	Freight Truck	Total
PROMOD 2022	25,127	1,699	26,826
SMARTPLAN 2015	19,291	536	19,827

Source: JICA Expert Team

The results of the Screenline Survey indicate that the number of vehicles has increased by approximately 35% compared to 2015 (SMARTPLAN survey).

In addition, the results of the public transport corridor survey show the characteristics of public transport during the morning and evening peak hours by route category.

Table 2.2.5: Average Frequency, Average Speed, and Average Waiting Time on Public Transit (Public Transport Corridor Survey)

LINE	FROM 16:00 TO 17:00					
	DIRECTION A			DIRECTION B		
	Average vehicle frequency [veh/h]	Average driving speed [km/h]	Average waiting time [min]	Average vehicle frequency [veh/h]	Average driving speed [km/h]	Average waiting time [min]
7	5,53	24,13	0,75	5,06	25,19	0,86
9	5,54	25,29	0,78	5,32	25,75	0,90
16	8,18	30,50	0,64	8,56	25,50	0,70
18	6,28	27,47	0,69	5,34	23,87	0,76
23	6,31	24,49	0,72	6,68	28,57	0,71
29	12,89	15,86	0,96	11,44	19,08	0,76
31	9,73	26,85	0,82	8,12	28,81	0,75
40	6,23	26,86	0,76	5,63	30,02	0,67
56	5,92	29,18	0,98	7,75	33,12	0,65
65	5,10	28,10	0,61	4,41	26,14	0,71
88	8,12	36,89	0,56	6,78	34,96	0,60
95	6,17	30,43	0,72	5,74	28,37	0,93

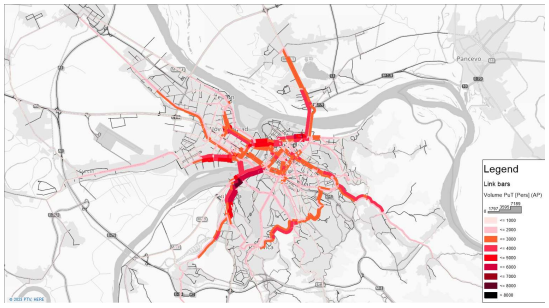
LINE	FROM 07:00 TO 08:00					
	DIRECTION A			DIRECTION B		
	Average vehicle frequency [veh/h]	Average driving speed [km/h]	Average waiting time [min]	Average vehicle frequency [veh/h]	Average driving speed [km/h]	Average waiting time [min]
7	6,94	26,84	0,69	7,28	26,23	0,70
9	7,70	26,20	0,67	6,00	27,84	0,65
16	11,90	28,62	0,68	11,74	33,91	0,59
18	7,83	37,08	0,66	7,28	33,46	0,60
23	7,54	30,85	0,66	8,26	31,07	0,69
29	17,28	22,49	0,58	15,00	20,29	0,78
31	10,53	28,57	0,60	10,81	24,79	0,89
40	6,23	31,61	0,65	5,00	30,02	0,67
56	10,60	35,03	0,54	8,68	30,30	0,78
65	8,06	32,84	0,55	6,75	32,39	0,63
88	8,91	36,89	0,56	8,54	36,29	0,69
95	10,93	34,58	0,58	8,23	31,79	0,68

Source: JICA Expert Team

In Belgrade, public transport during peak hours is in general busy, with a moderate to high frequency of vehicle arrivals, short waiting times, and fairly high average speeds.

Traffic Model Updating: SfPT staff members appointed to working with the traffic demand software and update of the traffic model changed for various reasons. Although the newly assigned staff members did not participate in the 2021 VISUM training, they brought the experience from working with similar software in their previous roles. Therefore, it was decided to provide on-the-job training to these staff members and establish a system for periodic updates of traffic demand forecasts.

In parallel, the JICA Expert Team integrated existing transport models managed by relevant agencies (BG Metro, SfT, FTTE, etc.). Below are the results of the transport model integration and the on-the-job training of VISUM to the SfPT staff.



Traffic demand model (current distribution results)

On-the-job training of VISUM to SfPT staff

Source: JICA Expert Team

Figure 2.2.3: Traffic Demand Model and On-the-job Training of VISUM to SfPT Staff

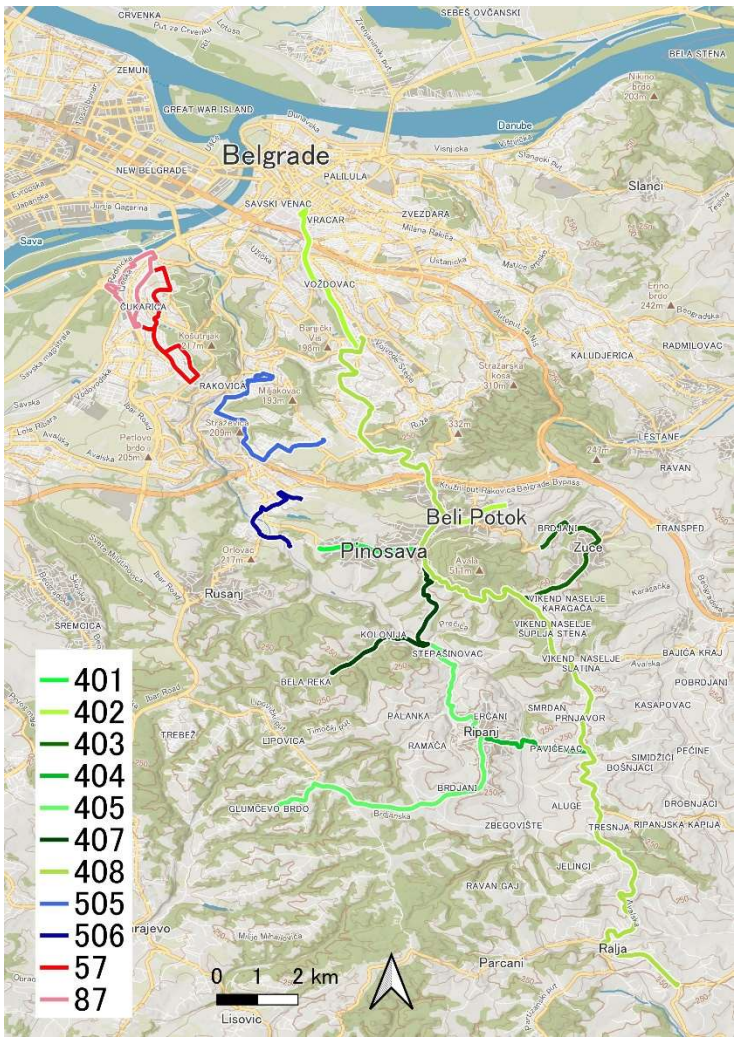
(102 related)

Study to improve operations: The JICA Expert Team examined and discussed a practical restructuring plan aimed at optimizing the bus operation, taking into consideration the actual patterns of the usage of buses by users and bus operating conditions. Several proposals, incorporating Japanese experience, were presented and discussed with SfPT. The route restructuring and operation rationalization plan was envisioned as a pilot project in Activity 1, with the intention to introduce new operation planning software.

The SfPT and the JICA Expert Team identified several user complaints related to the operation plans based on a route-by-route basis, such as inconsistent service intervals and different service intervals on different routes in sections where multiple routes overlap. In response to the need for routes and frequencies improvement, SfPT proposed development of an improved operating plan for Corridor 400, which operates in the suburbs of Belgrade and is less susceptible to traffic congestion.

In response, the JICA Expert Team presented an improved operation plan for Corridor 400. However, SfPT taking into account the concerns raised by local residents decided to explore alternative site. Although route 57/87 was suggested as an alternative, the local government did not approve improved plan leading to another postponement of implementation. Finally, in response to SfPT's proposal to enhance operations by integrating Route 506, the JICA Expert Team devised a third improvement plan, successfully implementing the pilot project.

The summary of the above-mentioned three improvement plans are presented in the 106-related section. The location of the route is shown in the figure below.



Source: JICA Expert Team

Figure 2.2.4: Location Map of the Subject Route

(103-related)

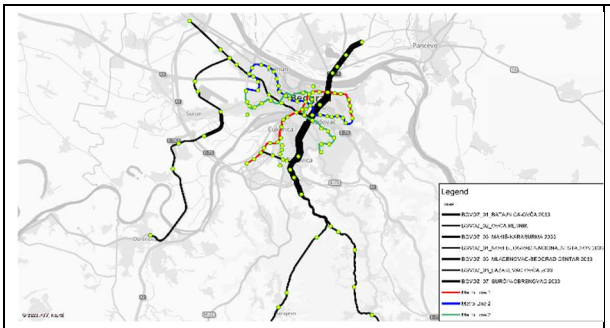
Examination of the Integrated Public Transport Plan: In addition to buses, trams, and trolleybuses, the SfPT discussed an updated mid- to long-term public transport plan that considers intermodality, including future water transport, metro, urban rail, and terminal transport modes such as walking and bicycling. The discussions confirmed the importance of aligning plans with traffic demand forecasts and the necessity of envisioning an urban transit network system based on a mass transit network of metros and urban railways, complemented by buses, trams, trolleybuses, and water transport lines as feeder routes.

Specifically, building upon the BG Metro developed future transport network model, SfPT and the FTTE jointly worked on coordination of the future planning of the transport network according to the following scenarios.

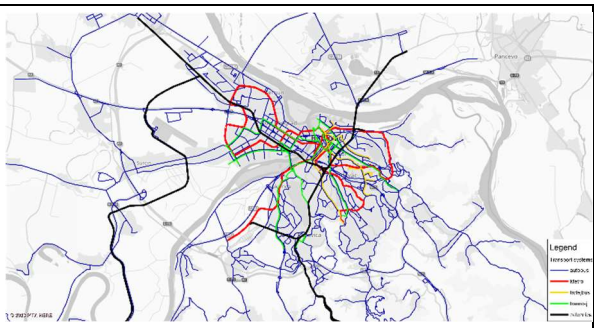
- The Metro alignment, layout, and development schedule is as planned by BG Metro in November 2022.
- Incorporating major public transit projects (the planned intercity bus terminal at Block 42, the new railway station plaza at Prokop, and the new public transit connecting the new National Stadium) into the model. The associated reallocation of buses, trolleybuses, trams, and other feeder services to metro stations is to be considered.

Based on the SMARTPLAN, the JICA Expert Team conducted discussions with SfPT on the Plan of General Regulation (PGR), and reviewed the latest MRT planning and construction status establishing the assumptions for the public transport network up to the target year of 2033. During the discussions it was agreed to exclude MRT Line 3 from the considerations. The proposed

restructuring of the existing bus routes was discussed with SfPT staff during the on-the-job training whilst utilizing the demand forecasting model developed through this project.



Metro + BG:Voz Lines



Urban Transport Network Model (Incl. Bus routes)

Source: JICA Expert Team

Figure 2.2.5: Developed Urban Transport Network Model

In addition to the reorganization of the existing bus routes described above, a proposal to strengthen the linkage between railways and buses, a reorganization of bus routes in conjunction with a plan for a station square on the north side of Belgrade Central Station, where the station and station building are currently under construction, were studied. Furthermore, a traffic impact analysis was conducted as a case study for the use of the demand forecast model.

(104-related)

A model for the division of roles between the SfPT and the operators was studied. In Belgrade, the SfPT is responsible for a wide range of public transport operations. For example, due to the SfPT's responsibility to establish operation schedules and identifying detour routes in the case of accidents, it has a strong interest in improving the monitoring of operators.

Therefore, several models of the division of roles among relevant organizations were devised for the improvement of the efficiency of the overall public transport management system in Belgrade. The advantages and disadvantages of each model were summarized and presented to the SfPT. Simultaneously, the SfPT studied the future division of roles, as a medium- to long-term roadmap for institutional reform.

In addition, the JICA Expert Team provided a lecture on the role and responsibility sharing model on the public transport operations to the SfPT underscoring six dimensions of roles and responsibilities: regulation, financing, planning, ownership, operation, and maintenance and equipment. The JICA Expert Team and SfPT discussed areas that could be improved in the current role-sharing model, based on the evolution of previous role-sharing models in public transport and trends in European cities. The SfPT and the JICA Expert Team then proceeded to examine areas wherein improvements could be made to the existing role-sharing model.

The study yielded a technical proposal outlining the process for transitioning to a model considered suitable for Belgrade. This proposal is based on the elements identified for incorporation in Belgrade.

(105-related)

The results of the public transport management improvement measures study were put into practice as part of Activity 102.

On the other hand, the following traffic management improvement measures for promoting the use of public transport were discussed with the SfPT and the SfT. The usefulness of these measures was confirmed during the fourth JCC meeting.

- Introduction of a Public Transport Priority System (PTPS) at intersections
- Expansion of the network of bus priority lanes and their partial operation as HOV lanes (High-Occupancy Vehicle lanes)
- Elimination of on-street parking that interferes with public transport

- Strengthening the enforcement of illegal parking

(106-Related)

A pilot project was conducted to implement some of the improvement measures for the development of operational and route plans, outlined in 101-105. The following improvement plans, (1) through (3), were developed for the implementation of this pilot project, with plan (3) being implemented. The details of plan (1) through (3) are outlined as follows.

(1) Improvement of the operation plan for Route 400s

1) Background: The 400 bus routes are shown in the figure to the right. It illustrates inefficiencies characterized with the overlap of up to six routes converging at certain points. Complaints from citizens further highlighted prolonged waiting times. In response, a study was initiated to revise the operation plan and timetable of each route aiming to enhance operational efficiency, and to transfer technology for revision of timetables.

2) Issue Identifications: The JICA Expert Team reviewed the operation plan developed by the SfPT and found that the operation plan was developed on a route-by-route basis. This did not consider the operating intervals across the six routes on Corridor 400.

3) Proposals: JICA Expert Team proposed the following new operation plans:

A) Shortening Routes 401 and 402: The routes run to Slavija, the center of the city. The routes, as well as the other four routes, are shortened at Vozdovac, a junction with trams and other bus routes.

B) Change of service intervals: The interval between services on six routes is adjusted to buses departing at the same time every hour.

Source: JICA Expert Team

Figure 2.2.6: Bus Routes on Corridor 400

4) Evaluation of the improved operation plan: The effects of the new operation plan are as follows:

A) Decrease in the number of buses used.

Currently, a total of 32 buses are used on Corridor 400 during peak hours, but after the review, the number of buses will be reduced to 28, a reduction of 4 buses.

B) Increase in the number of buses in operation.

Currently, there are 281 outbound and 279 inbound services, a total of 560, but after the review, there will be 304 outbound and 300 inbound services, for a total of 604, an increase of 44 services.

C) Decrease in operation distance (kilometers).

Currently, the operation distance is 12,457 km per day, but after the revision, it will be 12,109 km per day, a decrease of 347 km.

5) Conclusions: The above benefits were successfully realized, and the SfPT expressed its understanding that concept of the operation plan proposed by the JICA Expert Team is clear,

positively oriented, and highly advantageous in reducing the number of buses in operation and the number of kilometers operated. However, SfPT also noted the following issues and problems.

A) Complaints from residents about the shortening of the route

The SfPT highlighted concerns about the potential reduction in service convenience for residents due to the need to make connections. However, this issue will be inevitable considering the future opening of the Belgrade Metro, and the need to review the profitability of the SfPT project. Therefore, it is necessary to proactively engage in promoting the understanding of the change in the operation plan among residents.

B) Increase in the number of drivers required due to the legal requirement in Serbia

The SfPT emphasized the importance of avoiding an increase in expenses associated with the increase in the number of required drivers. However, the JICA Expert Team faced challenges in verifying this because the SfPT declined to provide the extent of the cost increase based on the new operation plan.

C) Provision of the standard time required for each route to operate.

The SfPT informed in advance about their rule of ensuring at least 5 minutes for turnaround time. This rule was applied as a prerequisite during the development of the operation plan.

In addition, the standard required time for operations was calculated utilizing data obtained from Kentkart's operations management system. This was used for the development of the new operation plan.

Even though JICA Expert Team requested, the SfPT did not provide information on the standard time required for bus operation at different times of the day.

3) Recommendation for the future: The SfPT should implement the improvement plan with the following four points in mind:

(A) Existing routes need to be considered not as lines, but as corridors. This involves shortening routes and discontinuation of operation on some sections. While these measures may result in a disadvantage for users in terms of increased number of connections, the introduction of a Belgrade zone fare system minimizes economic disadvantages. It is necessary to communicate the necessity of these measures and gain understanding of those affected.

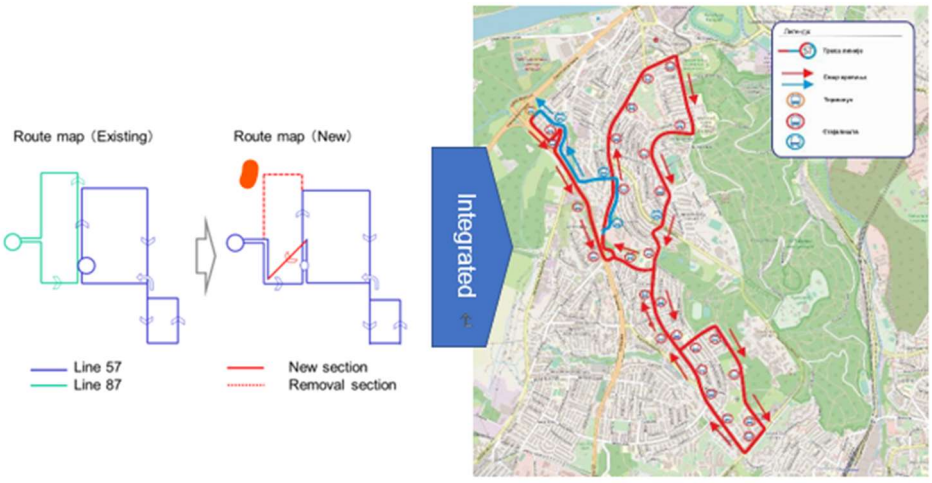
(B) Service intervals should be considered during the development of the operation plan for overlapping bus routes. This approach would allow development of pattern timetable, which would be easier for users to understand and navigate.

(C) Operational plans should be based on demand, not on the number of vehicles available.

(D) Standard times required for operation at the different times of the day should be determined. It is necessary to adjust departure times at bus stops where bus bays are installed in order to establish the necessary travel times between major bus stops.

(2) Integration and Improvement on the Route 57 and 87

1) Background: Upon receiving a request from SfPT to assess and improve route 57/87, the JICA Expert Team embarked on a study aimed at improvement of the operation plan. Currently, there are three bus vehicles operating on two routes. The team explored the feasibility of operating the route with two bus vehicles and transferred the technology.



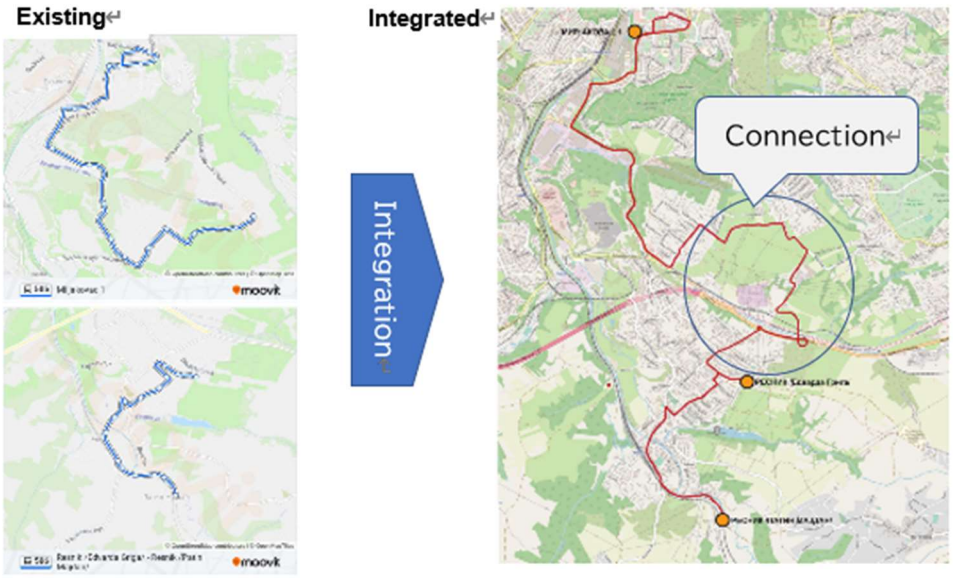
Source: JICA Expert Team

Figure 2.2.7: Proposed Consolidation of Routes 57/87

2) Conclusion: The SfPT and the JICA Expert Team discussed the prospect of utilizing two buses for operation of the lines. The SfPT expressed concerns about potential complaints from local residents who might experience longer waiting times. As a solution, the SfPT decided to implement a schedule with two buses during the summer and three buses during the winter on weekdays only.

(3) Improvement of the connectivity of Route 506

1) Background: As an alternative to the above two pilot project activities, a proposal was put forth to integrate 505/506 routes as part a pilot project. This route was considered with the aim of connecting public transport routes that had been separated by the construction of the Belgrade Bypass. This route proposal had been approved by the local government, and it has been agreed that operation commence on June 26, 2023. Therefore, this route was implemented for the evaluation as a pilot project target route.



Source: JICA Expert Team

Figure 2.2.8: Proposed Consolidation of Routes 505/506

2) Conclusion: Since the main purpose of route integration is to connect fragmented routes, no improvement in operational efficiency is expected. Therefore, a user interview survey was conducted to assess the effects of the project.

The results of the interview survey indicated that the improvement of routes received a certain level of evaluation but the frequency of operations received less favorable feedback. The survey results should be used as a reference for continuing efforts to improve the operation schedule.

3) Recommendation for the future: As a result, the studies on Corridor 400 and the lines 57/87 could not be carried out as initially planned. On the other hand, the results of these studies were used in the study for the proposed integration of routes 505/506, leading to their implementation. Therefore, it is important to continue to study the demonstration project in the future.

In addition, the study underscored the significance of establishing a continuous mechanism of external evaluations, such as interview surveys, and a necessity to explain to local governments and local residents details of the study aimed to improve the operation of the routes.

2.2.1.3 Output 2: The ability of monitoring operators of SfPT is improved.

The results of activities related to Output 2 are shown in the table below.

Table 2.2.6: Results of Output2 Activities

Activity and Work Item	Activities	Results
201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators. Status of Achievement:100% (Completed)	• Analyzing of the current operational contract in Belgrade • Conducting of the comparative analysis of current operational contracts in Belgrade with several contracts in other European countries such as Bucharest, Hamburg, and Madrid • Suggestion on improvements regarding the current operational contract and discuss its introduction	• Material for output 201.pptx Material to share the result of the tasks in Item 201 that were conducted together with SfPT on an OJT basis. • Technical Cooperation Materials for Output 2.docx Full explanation of Output 2, including Item 201 and Item 202.
202 To propose improvement plan of the way of monitoring the operators and to create basic specifications of necessary operation management system and equipment. Status of Achievement:100% (Completed)[3]	• Examination on the operation management system that contributes to the improvement of operation monitoring • Analyzing of the BusPlus system • Preparation of the scope of work on the ICT installation to bus stop in the pilot project • Examination on the association with CMMS and the introduction of specific KPIs for the renew of the contract in the future • Examination on the contents of the customer satisfaction surveys by GSP • Proposal for improving operator monitoring methods	• Material for output 202.pptx Material to share the result of the tasks in Item 202 that were conducted together with SfPT on an OJT basis.

Source: JICA Expert Team

2.2.1.4 Activities related to Output 2

A summary of each activity related to Output 2 is described below. For more detailed information, see the Study Report.

(201-related)

Review of Availability Payment: Different levels of transport performance are required from GSP and private operators, with private operators having to meet more stringent standards. This difference should diminish in the future with GSP upgrades of the fleet. Compensation for the transport performance is paid as per the Availability Payment contract.

[3] Prior to the modification of the project scope, in Activity 201 it was assumed that (1) some identified measures for improvement of the contracting method with operators would be introduced in the new contract and (2) some of the measures identified to improve the operation monitoring method would be implemented as pilot projects in Activity 202. However, the SfPT requested that implementation of Activity 201 be abandoned due to the difficulty to make major changes to the existing contract during the project period. Also, as for Activity 202, it was decided to modify the PDM to abandon its implementation during the project period, due to the suspension of procurement of necessary equipment, stemming from the absence of the project director. Instead, it was decided to propose improvement measures that could be undertaken in the future.

On the other hand, the difference in actual respective costs between GSP and private operators and the difference in cost calculation methods make it virtually impossible for GSP to reduce costs, and other private operators understand this.

During the discussions within this project, both SfPT and GSP came to a common understanding that the issue has to be addressed based on various characteristics, such as differences in route types and number of bus stops. Therefore, it was decided that the SfPT and the operators (GSP and private operators) continue to discuss the differences in the level of requirements from GSP and private operators in order to improve the situation.

Review of Public Service Contracts (PSCs): The PSCs concluded between the SfPT and the five operators have varied unit prices per kilometer primarily attributed to discrepancies in tax rates and maintenance costs for urban and suburban routes. These variations are typically determined in the bidding process.

The current operation contract identified issues such as different unit prices per kilometer, the criteria for applying penalties, perspective of realized contracted transport volume relevant for the contract disputes between SfPT and operators, but concurrently the issues for the possible improvement, too.

SWOT Analysis of Alternative Contracting Methods and New Evaluation Methods: A SWOT analysis was conducted for two cities, Sofia and Bucharest, approximately the same size as Belgrade, for which information on contract details was available. The analysis was focused on the methodology for calculation of the unit cost per kilometer, the bidding procedure, and the incentives offered to the operators.

During the second seminar, the JICA Expert Team also conducted a detailed analysis of the countries' contracts, vehicle types, and routes assessing the settings and assumptions governing the unit cost per vehicle-kilometer within the contracts. It compared Belgrade with cities such as Bucharest, Hamburg, and Madrid to validate the appropriateness of the conditions.

Finally, a SWOT analysis was conducted to assess alternative contract forms such as gross cost (i.e. availability payments) and net cost, as well as contracts with and without additional incentives for attraction of more passengers.

Discussion on New Evaluation Methods and Alternative Contracting Methods: After the second seminar, the JICA Expert Team discussed the interim report of Activity 201 with the SfPT and identified areas for improvement of the future contract with the operator.

1. Serbia's goal is to join the EU, and therefore should strive to harmonize its contracts with the European Community Regulation (1370/2007). The regulation provides guidelines for the definition of contracts and Public Service Obligation (PSO) for regional land public transport services in Europe (rail, tram, bus, metro, etc.). At the second seminar, representatives of EU countries provided insight into the harmonization.

2. Adding KPIs, especially those related to passenger satisfaction and incentives to increase fare collection would be advantageous. It was confirmed that discussions on the selection of various contract forms, including specific gross or net cost methods would continue between SfPT and operators (GSPs and private operators). They would also consider the justification and convenience of introducing KPIs as per the JICA Expert Team suggestions.

(202 related)

Analysis of the Bus Plus System: The Bus Plus system was analyzed both strategically (e.g., creation and coordination of timetables) and operationally (e.g., scheduling of stopovers as well as first stops). However, the Bus Plus system was removed in April 2023.

Implementation of an Operations Management System: Although the Bus Plus System has been removed, it was proposed that a robust CMMS (Computerized Maintenance Management System) be implemented in the future to improve the overall reliability, availability, and maintainability of the system, i.e., the RAM of the system. The reliable data obtained from a CMMS would lead to a shift from micro-management of daily operations to a more strategic and results-oriented monitoring of operations.

Improvement of Operation Monitoring: Due to the privacy protection regulations prescribing that in-vehicle cameras are used only for security-specific purposes and difficulty in procuring the necessary equipment, the consideration of pilot project on employing ICT technology for the enhanced monitoring of operation discontinued.

For an overview of the pilot project, see Section 2.2.1.7.

Consideration of Conducting a Customer Satisfaction Survey: Recognizing the potential impact of the customer satisfaction on fare collection rates, the JICA Expert Team suggested to SfPT to introduce a KPI linked to the amount paid to operators justifying it with a rationale that improved customer satisfaction can lead to greater passenger willingness to pay, alleviating the need for the City of Belgrade to increase its budget for operator payments. The JICA Expert Team proposed the SfPT that operators conduct a customer satisfaction survey once a year or every six months in order to improve fare collection rates. An action plan for implementation, setting a target response rate, sample size, and method of using the results was also proposed.

2.2.1.5 Output 3: The ability for planning for securing fare collection of SfPT is improved.

The results of activities related to Output 3 are shown in the table below.

Table 2.2.7: Results of Output 3 Activities

Activity and Work Item	Activities	Results
301 To review actual structure of fare collection and to identify the issues to be addressed. Status of Achievement:100% (Completed)	• Conducting an awareness survey on fare payment • Analysis and Discussion on an awareness survey • Identification of the issues on fare collection	• Opinion Survey on Public Transport Fare payment.docx Material to share survey results on attitudes toward free riding, the root cause of low fare collection rates
302 To formulate an improvement plan list for prevention of free ride. Status of Achievement:100% (Completed)	• Identification of various problems caused by bus stops and consider improvements • Proposing the countermeasures categorized as push and pull policies based on the survey result • Examination of the lessons learned on the third country training (The Netherlands and Italy) • Examination and discussion of teaching materials for bus drivers • Making and conducting the remote trainings • Supplemental activity: Collection of information on new fare collection companies (PUC "Transport Services Fare Collection") and seek cooperation with the PUC "Transport Services Fare Collection"	• Improvement plan list for prevention of free ride. pptx List to share the countermeasures for the prevention of free ride. • Belgrade Remote Seminar_1st~6th.pptx Materials to share the countermeasure to improve for the operation service level and convenience.
303 To formulate an improvement plan list for operation service level and convenience. Status of Achievement:100% (Completed)		
304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303. Status of Achievement:100% (Completed)[4]	• Discussion on the general contents of the demonstration project • Conducting a part of the demonstration project (Traffic SUGOROKU) • Preparation of the implementation plan of other demonstration project (Belgrade Card Usage Competition) • To implement the demonstration project on Mobility Management (MM)	• Main Evaluation Report for Demonstration Program_Output 3-4_EN.docx Description of outline, implementation, evaluation and conclusion of the demonstration program for Item 304.

[4] Initially, the plan included assessment of several fare collection measures with the intention of implementing some of them in a demonstration project. However, only traffic education activities demonstration project was implemented. (The assessed measures include (1) changing the boarding and alighting rules and ensuring that the rules are enforced after the change, (2) reallocation of facilities for aligned boarding, (3) changing on-board ticketing equipment, (4) voice notification to users, (5) training of drivers to promote proper boarding, and (6) training of ticket enforcers, all of which were offered to SfPT, but they deemed it impractical to implement them within the project's timeframe.)

305 To carry out public relations activities to raise awareness of the importance of fare collection. Status of Achievement:100% (Completed)	• Setting up of Facebook Project Page • Uploading the articles on Facebook • Making the city travel map to promote the use of the public transport • Displaying the panel on the importance of fare payment	• Folder named "PR Articles", "PR Panels", "Travel Map" Article materials uploaded to the project accounts on FB and LinkedIn. Panels exhibited at the Belgrade fortress. Preparation of the travel map to promote the use of public transport.

Source: JICA Expert Team

2.2.1.6 Activities related to Output 3

A summary of each activity related to Output 3 is described below. For more detailed information, see the Study Report.

(301-related)

Analysis of On-board Bus Ticket Sales and Operation Data: Data related to actual ticket sales were collected and analyzed. The main findings of the study were as follows:

Although sales temporarily declined due to the implementation of strict social regulations to prevent the spread of COVID-19 in March 2020, sales of monthly tickets recovered with the deregulation of COVID-19 and returned to pre-COVID-19 levels in June 2020. On the other hand, sales of other ticket types continued to decline.

In terms of the correlation between the number of vehicles in operation and the frequency of operations, both metrics increased in order to reduce the density of boarding in the vehicles, as deregulation was implemented starting in April 2020. As a result, profitability was declining together with a decline in ticket sales, sales per vehicle and frequency of operation.

Conducting the Opinion Survey on Public Transport Fare Payment: In October 2021, a survey on paying public transport fares conducted at the main stops obtained 1,267 responses. The aim of the survey was to obtain data on free riding in Belgrade. Taking into consideration COVID-19 prevention, the JICA Expert Team ensured that the survey participants complied with measures to prevent the spread and transmission of COVID-19 (e.g., wearing masks and maintaining social distance) during the survey. Analysis of collected data indicated following issues and trends:

- Percentage of free-riders by age group: Percentage of young people (especially students) is the highest by age group.
- Percentage of passengers without verified ticket: Despite holding a valid ticket, there are many people who do not touch the card to the ticket checker when boarding or exiting the bus by convention.
- On the other hand, 41% of respondents reported not holding a ticket, thus "free-riding."
- When they were asked when they last rode without paying, 48% said now (at the time of the survey).
- Furthermore, all respondents declared rides without pay. Observing the frequency, 37% said it was "infrequent" and 63% said it was "frequent." Surprisingly, nearly 80% claimed that this current situation is "acceptable" behavior.
- The main reasons given for free-riding were economic reasons and low satisfaction with public transport services.
- 39% of respondents agreed with the idea of eliminating free-riding, while 34% said they were impartial.

Analysis of Issues on Public Transport Service in the Opinion Survey: The opinion survey also examined various issues related to public transportation services from the user's perspective. As a result, the following problems with public transportation services were identified. Since multiple responses were allowed, the total number of problems identified by the 1,267 respondents was 1,963. On the other hand, there was a significant number of respondents (494) who did not identify any problems.

Table 2.2.8: Problems with Public Transport Services Identified in the Opinion Survey

Issues	Total number of respondents	Share
Crowding inside vehicles	420	21.4%
Dirtiness of vehicles	228	11.6%
Oldness of vehicles	220	11.2%
Low frequency (=long waiting time)	212	10.8%
Driving manners	155	7.9%
Inadequate air conditioning	146	7.4%
Concerns about safety (security) in vehicles	125	6.4%
Concerns about operational safety	116	5.9%
Lack of comfortability	102	5.2%
Low speed	96	4.9%
Vehicle breakdowns	82	4.2%
Others	61	3.1%
Total	1,963	100.0%

Source: JICA Expert Team

Note: Multiple response

(302-related)

Possible measures to eliminate the practice of free-riding, as inferred from the analysis of the survey, are listed in the table below.

Table 2.2.9: Push and Pull Measures

Push policy-related measures	Pull policy-related measures
● Increase of the ticket inspection frequency ● Randomize placement of ticket inspectors ● Better understanding of the use of fare revenue (i.e., clearer and more communicative law) and inclusion of the environmental concerns and Improvement of service quality, i.e., public news and ads	● Better service i.e., fleet, frequency and reliability (related to operator contract) ● Lower fare (related to operator contract) ● New fleet (related to operator contract) ● Allowance from employers ● Increase number of types of ticket (i.e., promo ticket, discount ticket, and more) ● Reward card system used at the shops along the line

Source: JICA Expert Team

(303-related)

Study on Experiences in Other European Countries: The JICA Expert Team shared with the working group a web article on the pilot operation of a bus with a ticket checker installed inside the bus in Rome, Italy since June 2018. The pilot project was implemented as a countermeasure to the major social problem of unpaid rides on buses. The article indicated that many passengers are in favor of the introduction of the system that has been generally well-received. The team confirmed intention to contact the relevant Rome department to gather insights on the current situation and issues associated with the implementation of the ticket checker system. See Section 2.1.3 Training for details of the study in Rome.

Source: JICA Expert Team

Figure 2.2.9: Bus Vehicles with On-board Turnstiles in Rome

Review of Educational Materials for Bus Drivers: The JICA Expert Team visited GSP driver training facility, the largest bus operator in Belgrade. The facility offered two main types of training.

- General training for holders of driving licenses, categories "C" and "D", as defined by the Serbian Traffic Safety Authority
- Training and education for GSP drivers (lectures and practical training using the training facilities)

Review of the above contents confirmed that the necessary materials for training and education have already been introduced. However, after careful examination of the contents of the materials, it was decided to introduce new training and education items that have been implemented in Japan.

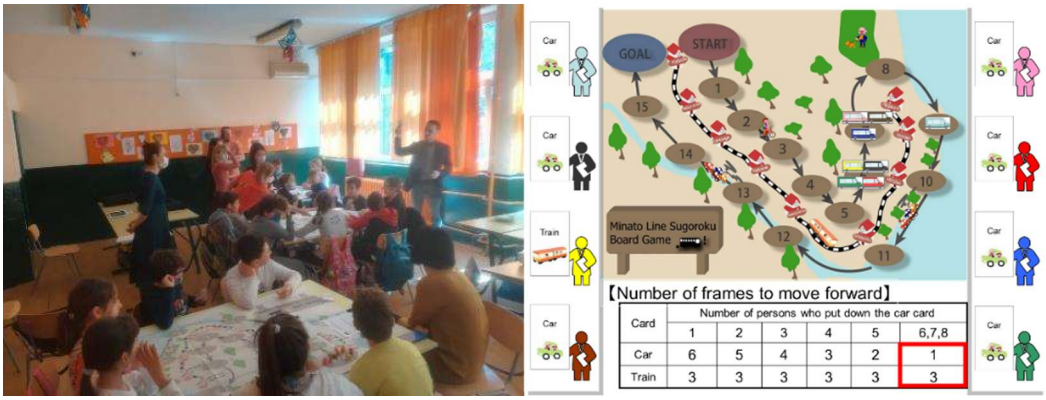
The JICA Expert Team discussed with the SfPT, FTTE, and GSP Driver Training Center the driver training contents until March 2022. Upon the SfPT's reasoning the decision was made not to introduce the training. The main reasons are as follows:

- There is no department within SfPT in charge of driver training.
- Training content may not meet European standards.

Therefore, the JICA Expert Team made the decision to present a proposal for a driver education and training program developed by Japanese bus operators as ideas that SfPT could introduce in the future, with the cooperation of an actual bus operator (Keisei Bus) at the 4th remote training session. For the contents of the said program, please refer to Section 2.1.3.

(304 related)

Consideration on Demonstration Project Implementation: In April 2022, the JICA Expert Team, with the cooperation of elementary school teachers and the FTTE, implemented a pilot project on a traffic education program "Traffic SUGOROKU" at the Starina Novak Elementary School in Belgrade.



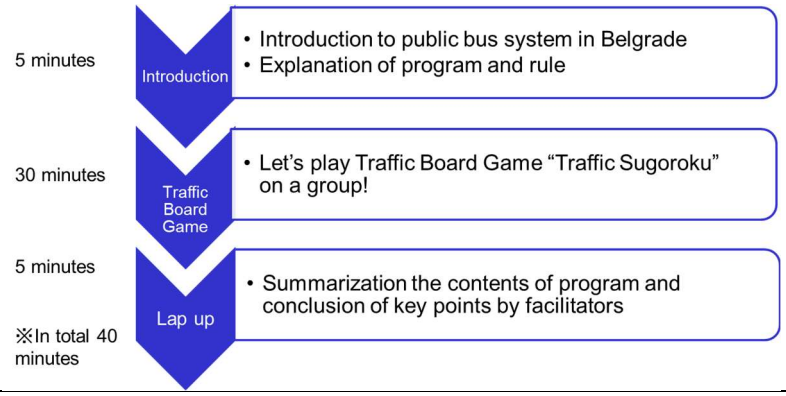
Source: JICA Expert Team

Figure 2.2.10: Trial Implementation of the Demonstration Project (Traffic SUGOROKU) in Elementary Schools

After confirming the positive effects of the pilot implementation of the above program, a plan for implementation of the full-scale demonstration project was developed, as shown in the table below.

Table 2.2.10: Implementation Plan of Demonstration Project

Background	● While private transport (Car) has their own challenges, such as high risk of traffic accidents, traffic congestion, and environmental pollution, public transport (Bus) has a role to play in ameliorating these challenges.
Purpose	● To provide elementary school students with knowledge about transport, especially the disadvantages of car use and the advantages of public transport. ● To help students understand the benefits and convenience of public transport and increase their future frequency of bus use. ● To provide students with hands-on experience using the bus to learn about waiting at bus stops, riding the bus, paying the fare, getting on and off the bus safely, and manners on the bus.

Target	● The program will be held at four elementary schools (two in the city center and two in the suburbs) for fourth grade students. ● Each class will have approximately 30 students, for a total of 4 classes (approximately 120 students).
Method	● The program is designed to correspond to one elementary school class. 

Source: JICA Expert Team

Full-scale Implementation of Demonstration Project: In January 2023, based on the results of the pilot implementation and the implementation plan, following the discussions with SfPT, FTTE, school officials, it was decided to proceed with a full-scale implementation of the demonstration project. Based on this decision, a traffic education activity was conducted in February 2023 at the Starina Novak Elementary School (4th grade, 5 classes). In this activity, students, the future leaders of Belgrade, were given the opportunity to play Traffic SUGOROKU and learn about transport, with an aim of creating opportunities for them to think independently about the social dilemma of private car use and the advantages of public transport use.

Source: JICA Expert Team

Figure 2.2.11: Full-scale Implementation of Traffic SUGOROKU in an Elementary School

In March 2023, similar activities were implemented in a total of four elementary schools located in the urban and suburban areas of Belgrade. A debriefing session in May 2023 revealed the opinions of the elementary school teachers regarding the implementation of the education program.

- Student were able to proactively participate, interacting effectively through games. Student developed an increased interest in public transport and gained an understanding of its importance.
- Teachers expressed a wish for delivery of more similar programs in the form of workshops, utilizing hands-on, real-life objects. They suggested that such activities are easier for children to understand. Holding art and literature contests in conjunction with these programs was seen as a way to generate further interest.
- Teachers recommended development of traffic etiquette materials for children (books, picture books, coloring books, etc.) including the development of traffic simulators for training purposes.
- Continuing activities on traffic would also require investment in schools. In particular, training for educators leading workshops is essential.

- Teachers proposed a project on safety and manners that would allow participants to experience specific public transport use situations with police officers and drivers.

Workshop on Mobility Management and School Education: In May 2023, a workshop was held at the University of Belgrade to (1) share the results of traffic education activities in Belgrade, (2) introduce mobility management and traffic education initiatives in Japan, and (3) exchange opinions between Serbia and Japan.

From the Japanese side, Professor Ayako Taniguchi of Tsukuba University, one of the leading experts in mobility management research, was invited to participate in a broad exchange of opinions with lecturers from the University of Belgrade and SfPT staffs. In her presentation, Professor Taniguchi introduced specific examples of mobility management activities in Japan, points to keep in mind and innovations in their implementation, and methods for measuring their effectiveness, which were perceived as very useful for improving future efforts in Belgrade.

Source: JICA Expert Team

Figure 2.2.12: Workshop on Mobility Management and School Education

(305-related)

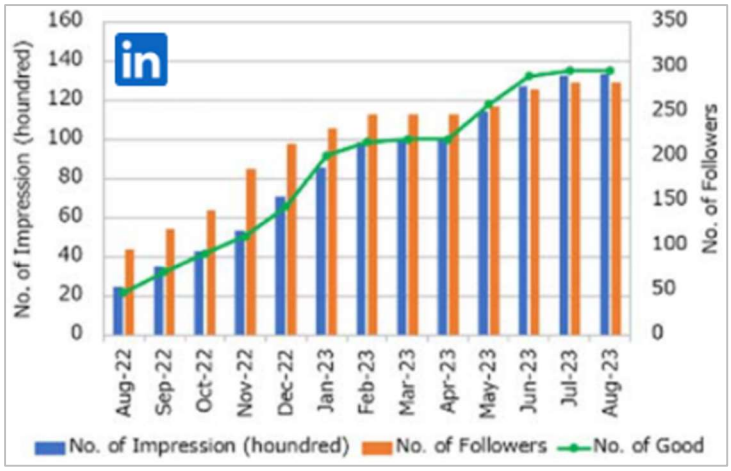
Posting of public relations articles: In response to the high rate of free riding by young people observed in the opinion survey, official accounts for the project were opened on Facebook and LinkedIn, and articles were posted. The list of articles posted is as follows.

Table 2.2.11: List of Articles Posted

Publication date	Article title
March 14, 2022	Project overview
March 22, 2022	Project implementation structure
March 23, 2022	Trial implementation of Traffic SUGOROKU
March 30, 2022	Implementation of the opinion survey
April 12, 2022	Holding an online session with Hamburg, Germany
May 6, 2022	Holding an online session with the City of London, UK
May 9, 2022	Implementation of the 1st remote training
May 18, 2022	Implementation of Traffic SUGOROKU at Elementary Schools
June 22, 2022	Implementation of 2nd and 3rd remote training
June 27, 2022	Implementation of third country training (Netherlands)
June 29, 2022	Implementation of third country training (Italy)
July 28, 2022	Holding of the 3rd JCC
August 8, 2022	Implementation of the 4th remote training
September 30, 2022	Conducting the activity diary surveys
October 31, 2022	Implementation of the 5th and 6th remote training
November 24, 2022	Holding of the second seminar
February 9, 2022	Conducting the travel speed survey
December 16, 2022	Conducting the screenline survey
December 27, 2022	Holding of the 4th JCC
January 27, 2023	Implementation of 1st training in Japan
February 28, 2023	Implementation of Demonstration Project (Traffic SUGOROKU)
April 25, 2023	Implementation of panel exhibition
May 17, 2023	Implementation of Mobility Management Workshop
June 20, 2023	Result analysis of activity diary survey

Source: JICA Expert Team

On LinkedIn, the number of impressions, followers, and likes from August 2022 to August 2023 displayed in the figure below, show a steady increase.



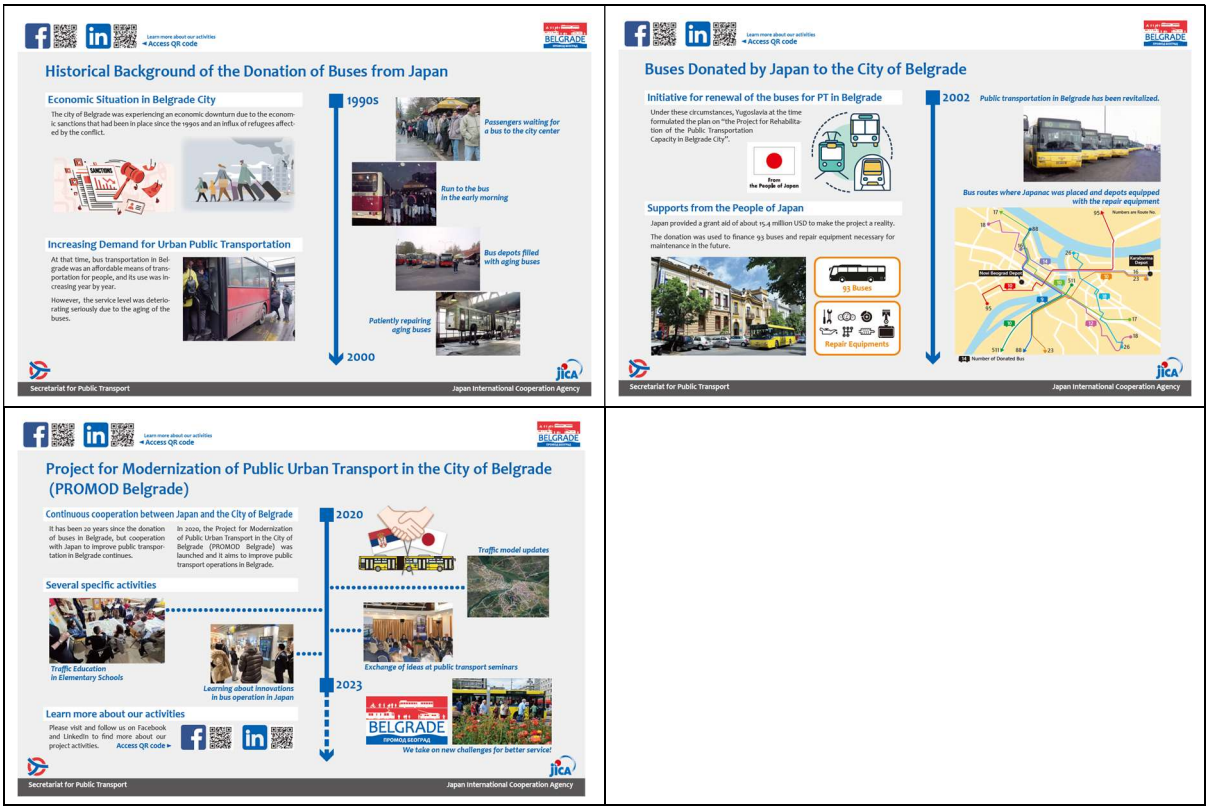
Source: JICA Expert Team

Figure 2.2.13: Number of Impressions, Followers, and Likes on LinkedIn

Panel exhibition to increase user awareness: Panels were prepared on the challenges in the field of public transport in Belgrade to date, the history of cooperation between Belgrade and Japan in the field of public transport, including the provision of "Japanac" buses, and the content of the initiatives in this project. The exhibition was displayed at the Kalemegdan Park for a month starting April 20, 2023.

Source: JICA Expert Team

Figure 2.2.14: Panel Exhibition



Source: JICA Expert Team

Figure 2.2.15: Contents of the Panels

Travel Map Creation: A travel map showing city attractions accessible by public transport was created to promote the use of public transport. Initially, the JICA Expert Team considered including information on how to purchase tickets and price lists on the travel map but discarded the idea since the institutional and application interfaces for these have been in flux for some time.

The SfPT raised concerns about the potential challenges of addressing vandalism if paper-based travel maps were distributed. It was decided to utilize sticker-based content that could be attached to shelter-type bus stops.

Finally, a sticker containing the following information was created: 1. an introduction of public transport in Belgrade, 2. QR code leading to a travel map of tourist attractions accessible by public transport, and 3. QR code guiding users to public transport routes leading to tourist attractions. Additional information can be viewed on a smartphone though QR codes. By scanning the QR code on the sticker at the bus stop with a smartphone, users can access detailed information on the tourist attractions and learn how to reach them by public transport.

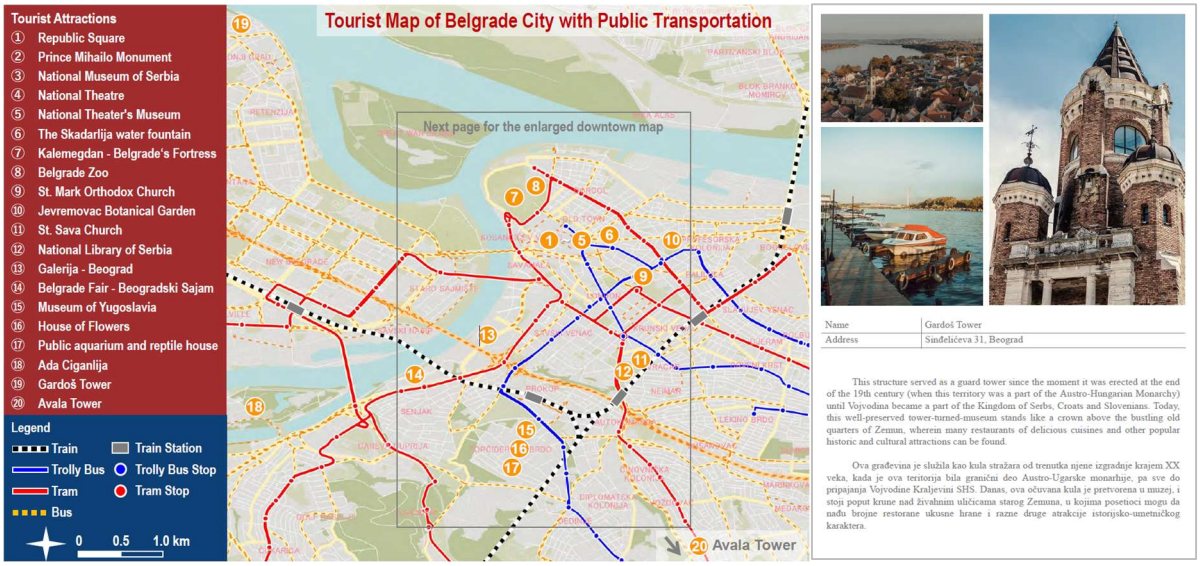
However, for the following reasons, the stickers were not posted during the project period.

This activity was initiated with the demarcation that the JICA Expert Team creates the contents, the specifications, and shoulders the costs, while the SfPT provides the procedural support necessary for implementation. However, the SfPT did not select bus stops for several months, and therefore the sticker could not be published.

The reasons for this were: there were concerns about damage to the bus stops when removing the postings, the presence of the postings might induce vandalism, and changes in fare payment methods during this period meant that the fare payment methods originally intended to be included could no longer be posted. Therefore, the SfPT had less incentive to post on the bus stops.

Source: JICA Expert Team

Figure 2.2.16: A Sticker for Travel Maps to Promote the Use of Public Transport



Source: JICA Expert Team

Figure 2.2.17: A Sample of Travel Maps and Tourist Attractions

2.2.1.7 Background on the pilot project

A history of discussions on pilot projects, trainings, and invitations from the beginning of the project to its completion is provided below.

Sep-21	● The general outline of the pilot project was drafted within six months after the first trip to Belgrade. The programs that would comprise the pilot project were discussed and reviewed with the SfPT, and the following four points were listed as candidate programs. (Regarding the changes in boarding and alighting rules and thorough implementation of the changed rules, reallocation of facilities for aligned boarding, audio notification of users, and training of ticket enforcers, it was decided not to consider these as a pilot project from the standpoint of feasibility during the project period.) (1) Optimization of timetables (2) Monitoring of public transport operations with cameras (3) Educating public transport operators (4) Publicity to increase awareness of public transport users
Oct-21	● Specific discussions were held on (1) monitoring public transport operations with cameras. The following two main issues were identified as the current situation:

	i. Users have complained that buses do not arrive and depart at bus stops in a timely manner, and that buses sometimes pass through bus stops. ii. The existing GPS monitoring system does not work well as evidence of non-compliance with bus dwell time at bus stops, and the SfPT cannot implement strict guidance, reductions, etc., based on the contract. ● As a countermeasure to the above issues, a method was proposed to install cameras at four bus stops to confirm the correct arrival and departure of buses and to assist the SfPT in monitoring bus operators. This method was considered to be effective not only in monitoring bus operations, but also in preventing non-paid boarding through the understanding of users' boarding and alighting. (The JICA Expert Team expressed their concern to the SfPT about the possibility that the introduction of cameras would further encourage micro monitoring of operators by the SfPT. However, the SfPT insisted that the introduction of cameras would be effective in terms of both operation control and free-riding, and at their strong request, the JICA Expert Team began to consider the possibility of implementing the measure.) ● The effectiveness of the introduction of the system was verified, and the possibility of introducing the system to other bus stops sequentially in the future was discussed, depending on the size of the effect.
Nov-21	● The program was discussed continuously, and the following arrangements were made. In addition, meetings were held with Japanese companies regarding the specifications of the camera to be used in Activity 202, and information gathering was initiated. (1) Optimization of timetable → Activity 106 (2) Monitoring of public transport operation with cameras → Activity 202 (3) Educating public transport operators → Activity 304 (4) Publicity to increase awareness of public transport users → Activity 305
Dec-21	● For Activity 202, SfPT led the process of obtaining equipment quotes from four companies.
Jan-22	● After discussion based on the contents of the estimate regarding Activity 202, it was decided to proceed with the following policy for future consideration. i. Costs related to civil works and O&M after installation of equipment will be budgeted by SfPT, and costs related to equipment purchase will be budgeted by JICA, but the detailed breakdown will continue to be scrutinized. ii. The SfPT expressed a desire to add an additional 360-degree camera to the Eco1 bus fleet, but due to the overall budget, the need for such a camera will continue to be discussed.
Feb-22	● For Activity 202, the quotations were reviewed and over-specified items were reviewed. ● Both parties confirmed that the installation of 360-degree cameras on the bus vehicles of the Eco1 route would not be carried out as a result of comprehensive consideration of the overall budget and the benefits to be obtained. ● In relation to Activity 304 and 305, the JICA Expert Team explained the details of the expenses for publicity and awareness-raising activities. Since the SfPT side believed they would like to implement the program without spending any budget, it was decided to proceed with the implementation with JICA bearing the expenses for this program. ● In relation to Activity 305, JICA Project Team opened an official account on Facebook and started posting publicity articles.
Mar-22	● For Activity 106, the SfPT was approached to review the timetable on routes connecting the city center with the suburban areas of the city in the south direction. After exchanging views with the University of Belgrade, it was confirmed that the six routes of the corridor 400 that operate in the area are less susceptible to road congestion and other problems, and therefore are also suitable for implementing efforts to improve the timetable. (Regarding improvements through the introduction of ICT, it was decided not to include a study on the introduction of ICT in Activity 106 because no changes could be made to the contract with Kentkart, which is in the process of implementation, and that the invitation to Japan regarding ICT had not been implemented.) ● For Activity 202, the equipment procurement schedule was reviewed together with the SfPT. ● For Activity 304, it was decided to implement as a series of remote training sessions instead as a part of pilot project. ● For Activity 305, JICA Expert Team explained the implementation plan for the Travel Map and exchanged opinions with SfPT and the University of Belgrade. It was decided that the SfPT would provide some information on the contents of the travel map and exchange opinions with SfPT again when the contents and design of the map were finalized to some extent.
	● The JICA Expert Team requested the SfPT to proceed with the selection of participants for the training in Japan and the invitation to Japan.

Apr-22	● For Activity 106 and Activity 202, it was stated in the memorandum of understanding signed by Dr. Jovica that plans and implementation procedures would be initiated for concrete implementation to date, but implementation will now be delayed due to the summer vacations in Belgrade and in anticipation of the results of the fall municipal elections.
May-22	● The JICA Expert Team made preparations for the full implementation of Activity 305. ● No progress was made on Activity 106 and Activity 202.
Jun-22	● The third JCC meeting was held, at which time Dr. Jovica explained that the procurement regarding Activity 202 is still under preparation.
Jul, Aug-22	● The JICA Expert Team prepared on activities 106, 304, and 305, but due to the summer vacations in Belgrade, it was not possible to have a meeting to discuss the proposal.
Sep-22	● Election results led to changes in the implementation structure; Dr. Jovica resigned and was replaced by Mr. Lukic; the position of the Project Director will now be vacant for the next 10 months.
Oct, Nov-22	● After the change in the implementation structure, it became difficult to receive consultation and decision-making regarding the proposal.
Dec-22	● It was clarified that the procurement process for Activity 202 had been suspended. ● At the 4th JCC meeting, the following discussions were held regarding the pilot project. i. For Activity 106, the proposed route realignment plan and timetable for Corridor 400 was confirmed to have some positive effects, such as reduction in the number of vehicles in use and operating kilometers in service, but the SfPT decided not to implement the plan because the increase in the number of required drivers was not acceptable to the SfPT. Based on the aforementioned policy, the SfPT would make a proposal for a new route, and the JICA Project Team would establish an implementation policy by the end of January 2023 based on this proposal. ii. For Activity 202, it was decided to examine the possibility of using video images provided by the police for operation management as an alternative to the introduction of cameras, for which the procurement process had not progressed. In addition, it was agreed to consider the introduction of a video wall in conjunction with the results of these studies, and to decide on whether or not to introduce a video wall by the end of January 2023, along with a specific schedule.
	● The JICA Expert Team continued to follow up the SfPT on the selection of participants for the training in Japan prior to the invitation to Japan.
Jan-23	● Following the results of the 4th JCC meeting, the JICA Expert Team prepared a revised implementation plan for the pilot project.
Feb-23	● Additional work on Activity 305, regarding exhibit panels, was discussed and an implementation plan was developed.
Mar-23	● For Activity 202, a detailed and concrete schedule was planned to be decided by the end of January 2023, but since there was no follow-up from the SfPT, the JICA Expert Team took the initiative to update the information and reconfirm the procedure. This series of procedures were decided in the minutes of the 4th JCC meeting held in December 2022, but the minutes had not actually been signed by Mr. Lukic until this month, 3 months after the JCC implementation. ● For Activity 305, traffic education activities were conducted in a total of four elementary schools located in the urban and suburban areas of Belgrade.
	● Considering the time required for visa processing for the training in Japan, it was necessary to complete the selection of participants at this stage, so the JICA Expert Team prepared and presented to the SfPT a schedule in one-day increments up to the implementation in June.
Apr-23	● For Activity 305, SfPT requested that the Travel Map not include the ticket purchase method and price list since it was announced that a new public company had been established to collect fares for public transport and the contract with Kentkart had been terminated. ● As for the exhibit panels, they were implemented as planned.
May-23	● For Activity 106 and Activity 202, JICA Expert Team conducted in-person meeting with the Mayor's Office, as further delays were not acceptable. Regarding Activity 106, JICA Expert Team requested that they work to ensure its implementation, as repeated cancellations of the plan had occurred. Regarding Activity 202, after explaining the situation, it was agreed with Mr. Lukic to formally cancel the procurement, as it was understood that the implementation schedule was not expected to improve any time soon. ● For Activity 305, input was solicited from the SfPT to select city attractions accessible by public transport to be included in the Travel Map.
	● It was agreed with Mr. Lukic that the training and invitation in Japan and third country training

	programs would be formally cancelled at this stage, as it was unlikely that the SfPT would be able to obtain approval for their staff to travel abroad.
Jun-23	● Mr. Lukic resigned as Secretary of the SfPT and was replaced by Mr. Kremic. Mr. Medakovic was appointed as Project Director, a position that had been vacant for about 10 months. Meanwhile, the Mayor's Office and SfPT have requested the cancellation of the procurement for Activity 202, which had been agreed with Mr. Lukic in May.
Jul-23	● For Activity 106, the project had not proceeded to implementation since December 2022, but after another round of discussions, it was decided to implement and verify Activity 106 with the restructuring of routes 505/506 proposed by the SfPT as an alternative. ● For Activity 202, JICA Project Team had another discussion with the Mayor's Office and SfPT, but since the project period is already six months remaining with considering the summer vacation in Serbia for 2 months, the cancellation of the procurement was justified on the grounds that the pilot project cannot be fully verified when it is implemented. It was understood that the cancellation of the procurement was a reasonable decision. It was also decided to consider the proposed revision of the PDM and PO, assuming that Activity 202 will not be implemented as a pilot project.
	● The SfPT expressed a wish to cancel the third seminar as it would be inappropriate to present the results externally due to the extended project duration and the difficulties in achieving the initial targets.
Aug-23	● A pilot project was conducted on Activity 106 based on the revised plan. ● The implementation of Activity 202 was deleted from the content of the pilot project and this change was reflected in the PDM and PO.
Sep-23	● Minutes on the revised PDM and PO were prepared and agreed upon between Mr. Kremic and the JICA Balkan Office, and it was confirmed that Activity 202 will not be implemented.
Oct-23	● For Activity 305, due to ongoing changes regarding ticket purchase methods and app interface, it was decided not to conduct using a travel map, but to compile the study as a deliverable.

2.2.2 Project Purpose

2.2.2.1 Output1

The achievement status of Output 1 is shown in the table below.

Table 2.2.12: Achievement Status of Output 1

Objectively Verifiable Indicator	Means of Verification	Baseline	Status at Project Completion
1-1 The number of SfPT staff members who can use appropriate software and tools for demand forecast such as strategic models (e.g., VISUM), microsimulation (e.g., VISSIM) and cross-cutting software (e.g., GIS) is increased.	• Report of training	• 0	• A total of 18 hours of basic training was provided to eight staff members; a total of 10 hours of on-the-job training was provided to one professional staff member. Through 18 hours of training, eight SfPT staff members gained the basic knowledge to operate the traffic demand model VISUM. • The report of training was created.
1-2 The number of SfPT staff members who can formulate route plan based on demand forecast is increased. / Existing route plans and operation plans are updated.	• Report of training / Updated operation plan	• 0	• Three staff members • The Report of training was created. • The Operational plan was updated. • Study Report Part 2 was created. *At the end of the project, although the SfPT staffs had not yet reached the level of being able to draw up their own plans based on demand estimation results, they were able to understand the route plans drawn up by professional experts such as the FTTE after the training provided in the project. In

Objectively Verifiable Indicator	Means of Verification	Baseline	Status at Project Completion
			the future, it is expected that the SfPT will work with the FTTE to maintain the route plans in line with demand, and to regularly update the plans.
1-3 Proposal for sustainable middle-, and long-term plans for an Integrated public transport is created.	• Improvement proposal, and phased plan for entire public transport in Belgrade	• Past plans have not been updated.	• Proposals and plans have been created to update the route and operational plans. (The update itself was not accomplished.) • Study Report Part 1 including improvement proposal, and phased plan for entire public transport in Belgrade was created.
1-4 The current issues regarding the demarcation of roles and responsibilities between SfPT and operators are examined and the points to be approached are sorted out.	• Study report on demarcation of roles and responsibilities	• Not applicable	• Study Report Part 3 on demarcation of roles and responsibilities was created.
1-5 A list of improvement measures for operation management of public transport is created.	• Improvement plan list for operation management	• Not applicable	• Study Report Part 2 including improvement plan list was created.
1-6 Pilot projects to improve operation management, to formulate operation plan and route plan are implemented.	• Evaluation report of the pilot projects	• Not applicable	• The pilot project was implemented and the evaluation report was created.

Source: PDM

2.2.2.2 Output2

The achievement status of Output2 is shown in the table below.

Table 2.2.13: Achievement Status of Output 2

Objectively Verifiable Indicator	Means of Verification	Baseline	Status at Project Completion
2-1 Improvements or alternative measures for the new contract with operators are proposed.	• Study report including gap/SWOT analysis	• Not applicable	• Study Report Part 4 including gap/SWOT analysis was created. • Improvement measures for the new contract with operators were proposed.
2-2 Improvement measures for monitoring operators are proposed.	• Improvement proposal for measuring KPIs of operators	• Not applicable	• Study Report Part 4 including improvement proposal for measuring KPIs of operators was created.

Source: PDM

2.2.2.3 Output3

The achievement status of Output3 is shown in the table below.

Table 2.2.14: Achievement Status of Output 3

Objectively Verifiable Indicator	Means of Verification	Baseline	Status at Project Completion
3-1 Problems and issues of fare collection are extracted.	• Study report for current fare collection system	• Not applicable	• Study Report Part 5 for current fare collection system was created.
3-2 Improvement plan list for prevention of free ride is formulated.	• Improvement plan list for prevention for free ride	• Not applicable	• Study Report Part 5 including improvement plan list for prevention for free ride was created.
3-3 Improvement plan list for public transport operation service level and convenience is formulated.	• Improvement plan list for operation service level and convenience	• Not applicable	• Study Report Part 6 including improvement plan list for operation service level and convenience was created.
3-4 Demonstration projects are conducted to secure fare collection and its evaluation are carried out.	• Evaluation report of the pilot demonstration projects	• Not applicable	• Study Report Part 6 including evaluation report of the pilot demonstration projects was created.

Objectively Verifiable Indicator	Means of Verification	Baseline	Status at Project Completion
3-5 Public relations activities are carried out to raise awareness of the importance of fare payment.	• Numbers of campaign or promotion for fare collection or promotion of public transport use	• Not applicable	• 26 publicity articles were posted on the Facebook and LinkedIn platforms. • Publicity panels were exhibited at the Belgrade Fortress for one month. • Study Report Part 6 was created.

Source: PDM

2.2.2.4 Achievement of the Project Purpose

As stated in the PDM, the achievement status of the project purpose was decided using Objectively Verifiable Indicators.

Table 2.2.15: Verifiable Indicators and Achievement Status of the Project Purpose

Objectively Verifiable Indicators	Means of Verification	Baseline	Status at Project Completion
Transport survey database and demand forecast model as a base for strategical operation planning are established	• Transport survey and demand forecast model, on-the-job training, and user manual of the demand forecast	• Not applicable	• Survey database, demand model in VISUM were prepared. • The Software was installed for the future operation. • The user manual was created.
Some of measures to improve operation management of public transport and way of contract between operators are defined and proposed to be introduced into the new contract as well as existing contract renewal.	• SfPT's study report (published/unpublished)	• Not applicable	• A report on the third country training, including future improvement policies and recommendations, was created. • A leaflet on the results obtained from the project was created. • Study reports were created summarizing the analysis and recommendations obtained through the project activities.
Some of measures to secure fare collection are proposed as the City's policy.		• Not applicable	

Source: PDM

2.2.2.5 Achievement of the Overall Goal

As stated in the PDM, the achievement status of the overall goals was decided using Objectively Verifiable Indicators.

Table 2.2.16: Verifiable Indicators and Achievement Status of the Overall Goal

Objectively Verifiable Indicators	Means of Verification	Baseline	Status at Project Completion
Eco-friendly public transport system (the ratio of EV vehicles and Euro 6 compliant vehicles to all bus vehicles in Belgrade) is increased by 10%.	• New vehicle procurement and public transport rolling stock information	• 47% (Mar. 2021) (Out of total 1,120 operational buses, there were 244 EURO VI buses, 4 CNG buses, 272 trolleybuses, and 5 e-buses.)	• 57% (Nov. 2023) (100 CNG buses and 10 e-buses were added.)
The number of public transport users is maintained.	• Data on average route density by route, number of pax per route, and number of pax per kilometer	• 6,476 pax/day (Nov. 2020) (Daily number of passengers on Bus 65) * Data from Bus route 65, where Automatic Passenger Counter (APC) is installed, is used.	• 16,919 pax/day (Oct. 2022) (Daily number of passengers on Bus 65) * Using public transport corridor survey results for the same route as the APC has been removed.
Some of measures aiming at financial soundness of public transport operations are implemented.	• SfPT's study report (published/unpublished)	• Not applicable	• New fare payment system using SMS and mobile app. “Beograd Plus” has been implemented.

Source: PDM

*Since APC has been abolished, public transport corridor survey results for the same route were used.

2.3 Changes in the PDM and PO

2.3.1 Risk Changes and Mitigation

The project's results and activities required a comprehensive review in light of the alterations in the project implementing structure at Serbian side (long-term absence of the Project Director and frequent changes in the Project Manager) and changes in the public transport and fare collection systems due to the municipal elections held in 2022. As a result, the period from September 2022 to June 2023 was a period in which the direction of the project's efforts was not defined.

Project Director	• Milan Petrović (Until September, 2022) • Goran Medaković (From June, 2023) * There was a 10-month absence of the Project Director from September 2022 to June 2023.
Project Manager	• Jovica Vasiljević (Until September, 2022) • Predrag Lukić (September, 2022 to May, 2023) • Radovan Kremić (From June, 2023)

2.3.2 Response of Belgrade City Administration and SfPT

The responses of the City of Belgrade and SfPT to the above situation had a significant impact on the implementation of the Project, especially the pilot project. See Section 2.2.1.7 for the history of these responses.

2.3.3 Results of the Changes

Both parties confirmed that the following three points were changed and concluded a revised R/D in September 2023.

(1) Changes in pilot projects: the original plan to install ICT at bus stops and a video wall at the control center as pilot projects to improve operational planning changed and the procurement of the equipment was cancelled.

(2) Third country training: The third and fourth third country training sessions were cancelled.

(3) Training and invitation to Japan: The second training and invitation to Japan were cancelled.

Furthermore, as a result of the experts' field activities, surveys and analyses, remote trainings were substituted for 1 to 3 above, and continued efforts were made to achieve each output and overall goals. Additionally, to finalize the project activities based on these revisions, the project period was extended by approximately 1.5 months from the original schedule.

The reasons for the cancellation of the procurement of (1) are as follows.

Initially, once the SfPT and JICA reached an agreement on the purpose of the video wall installation, cost sharing, etc., it was mutually confirmed that the SfPT would be responsible for managing the procurement schedule. Despite setting a presumed deadline for the commencement of procurement, calculated backwards from the time needed to measure the effectiveness of the project after installation, there was still no prospect for procurement.

In addition, the SfPT, tasked with managing the procurement schedule, encountered challenges in fulfilling this responsibility. Follow-up communications from the JICA Expert Team became a regular occurrence, which repeatedly postponed the procurement date. This recurring issue is attributed to changes in the project implementation structure and decision-making processes. Furthermore, the level of understanding and priority of the project by senior management declined and was not within the control of the SfPT staffs, the working group leaders and members.

2.4 Others

2.4.1 Cross-cutting Issues such as Climate Change, Gender, Peace-building, and Poverty Reduction

Climate Change: In preparation for EU membership, Serbia has formulated a comprehensive national climate change action plan promoting projects such as wind and solar power, reducing the use of fossil fuels and promoting a shift to sustainable energy. Within the transport system sector, the aim is to achieve compatibility with the EU transport system and integrate into EU network. In Belgrade public transport, 100 new CNG buses and 10 electric buses have been procured and deployed during the project implementation period, as shown in the achievement of the project's top targets.

In addition, training trips were made to EU countries that Serbia aspires to join, to learn about initiatives to move from car-centered to people-centered urban development. (e.g. restricting private traffic from entering the city center and improving the public transport network in Florence).

Gender: In this project, three working groups were established, each group was assigned a group leader, and the group leader ensured technology transfer. The final composition of the group leaders was two males and one female; however, at the beginning of the project, two of the three group leaders were female, and the staffing was assigned according to their aptitudes. In addition, a female staff member was assigned to coordinate with the counterpart agencies as a whole, which is believed to have deepened her knowledge of collaboration with donor agencies.

In addition, one female staff member, selected from the department in charge of the project, was provided with specialized training on updating and operating the traffic demand model using VISUM, which is the core of the project.

Part 3. RESULTS OF JOINT REVIEW

3.1 Results of Evaluation Based on DAC Evaluation Criteria

Based on the observations made under the implementation and process achievement, the Project is assessed from the viewpoint of the five evaluation criteria defined by JICA, which was originally proposed by DAC (OECD), and shown in the table below.

Table 3.1.1: Definition of JICA's Project Evaluation Criteria

Criteria	Overview of evaluation perspectives	Level of evaluation
1. Relevance	・Validity with project implementation (development needs) ・Focus on "Beneficiary." Consideration for inclusiveness and equity ・Appropriateness of the project plan and logic of approach	4 levels of evaluation for each criterion
2. Coherence	・Consistency with development assistance policies of the Japanese Government and JICA ・Synergistic effect/mutual relations with JICA's other projects (technical cooperation, loans, grant aid, etc.) ・Complementarity, harmonization, and coordination with other assistance/projects in Japan, other development organizations, etc. ・Consistency with global framework (international targets, initiatives, standards, etc.)	
3. Effectiveness	・The degree of achievement of target level in target year of expected project outcome (differential results across the groups)	
4. Impact	・Positive and negative indirect and long-term effects (systems and norms, people's well-being, human rights, gender equality, and the environment)	
5. Efficiency	・Comparisons of planned and actual projects inputs, project period, and project cost	
6. Sustainability	・Outlook on sustainability of effects that are realized by the project for aspects of policy/political, institutional/organizational, technical, financial, social & environment, risk, and operation & maintenance	

Source: Project Evaluation in JICA (https://www.jica.go.jp/english/activities/evaluation/about.html)

3.1.1 Relevance

The project is highly relevant to Belgrade's Urban Development Plan, Urban Transport and Public Transport Plan, and the outputs expected from the project are essential to achieving the goals set forth in the existing plan.

Relevance with development plan

With the support of the EBRD, the city of Belgrade has developed and approved an urban transport master plan called the Belgrade SMARTPLAN[5] designed to modernize and improve the efficiency of public transport in response to the need to alleviate air pollution and traffic congestion arising from a predominantly car-dependent urban transport system. Also, the master plan underscores the importance of optimizing the operation of existing public transport as a crucial measure to modernize public transport.

Furthermore, aligning with Serbia's biggest goal to join the EU by 2025, the city of Belgrade has identified environmental conservation as one of its priority goals. As a condition for EU membership, in the transport field, in addition to introducing environmentally friendly vehicles, improving the environment and promoting the use of public transport to reduce the congestion impact on the environment are essential actions.

For this reason a program is developed to gradually introduce environmentally friendly vehicles, and conduct surveys of two metro lines with the support from AfD. This JICA project also covers these areas in Serbia and Belgrade and it is consistent with the development plan of Serbia and Belgrade.

[5] In 2017, the plan was approved as Belgrade City's official urban transport MP and named ``Belgrade SMARTPLAN.''

Relevance with development needs

Urban development, such as the redevelopment of the waterfront on the right bank of the Sava River using the former railway site, which is currently a national effort to relocate Belgrade Central Station, is accompanied by the expansion of new residential areas and commercial areas.

To improve accessibility to these redevelopment areas and intermodality between various transport modes, it is also necessary to reorganize existing public transport (buses, trams, trolleybuses) routes based on the future development of the Belgrade Metro.

This JICA project focuses on strengthening SfPT's planning capacity, and proposes an integrated public transport network. This is consistent with Belgrade's urban development needs from the perspective of improving access to redevelopment areas, promoting equal urban development strengthening a sustainable public transport system to provide convenient transport for citizens and tourists.

Relevance of the implementation plan and approach

The traffic demand forecasts used in the Belgrade SMARTPLAN were based on the results of a survey conducted in 2014-2015, so updating the database and model was a challenge. The traffic database and updated traffic demand forecasting model established in Activity 1 are core technologies for transport planning, and SfPT will continue to manage and operate the database and model with technical support from FTTE after the project is completed.

In addition, Activity 2 aims to improve the management efficiency of public transport services, and Activity 3 aims to improve fare collection.

From the perspective that prioritizes the needs of vulnerable population and fairness, public transport in the city emerges as an irreplaceable mode of transport accessible to all citizens. The provision and enhancement of public transport services represent a highly equitable initiative.

Since the above three perspectives are consistent with the requirements of the Serbian side’s, the appropriateness of the project was evaluated as (3).

3.1.2 Coherence

Relevance with the development cooperation policies of the Japanese government and JICA

This project improves the operation of public transport management in Belgrade by strengthening the planning capacity of SfPT and supports the city's goal of promoting the construction of an environmentally friendly public transport system, which is consistent with the "Environmental Protection" priority area of the Country Development Cooperation Policy for Serbia by the Japanese government.

JICA also addresses traffic congestion and air pollution caused by rapid urbanization in developing countries under “Urban and Regional Development”, one of the 20 global agendas, and sustainable urban development based on public transport is an important initiative.

Likewise, under the Global Agenda “Transport”, JICA addresses to realize a society in which all people can move safely and freely, and this project is in line with JICA's assistance policy.

Cooperation with other projects and assistance by JICA

The materials obtained through the remote training, training in Japan, and training in third countries conducted under this project were also utilized in the "Project for Formation of Sarajevo Public Transport Management and Operation Capacity Development Plan" in Bosnia and Herzegovina, with Bosnian, Croatian and Serbian being official languages.

In addition to technical cooperation with Serbia, other cooperation with Serbia includes the dispatch of participants to "Comprehensive Urban Transport" and "Urban Public Transport" training programs, and these subject-specific training programs have enabled the transfer of systematic knowledge and experience, which is difficult to cover in technical cooperation projects, and are complementary to this project. In addition, a professor from the University of Belgrade was invited as a lecturer for the "Comprehensive Urban Transport" training program in FY2022. His presentation gave helpful insights to the participants from other countries facing the same issues.

Emphasis on international frameworks and alignment with the SDGs

The EBRD, WB, AfD, and other organizations have provided support for public transport in Belgrade, and collaboration with these organizations is one of this project's features. In the seminar held in the second year of the project, presenters from the International Union of Public Transport (UITP) and various public transport-related organizations in the EU were invited to discuss proposed improvements in contracting methods with public transport operators. During the discussions, the experiences of relevant European donors, such as the EBRD and GIZ, were also shared.

The project is also in line with SDG Goal 11 "Make cities and human settlements inclusive, safe, resilient and sustainable" as it will contribute to the realization of sustainable cities and improvement of the quality of life through the improvement of public transport.

Since the above three perspectives are consistent with the Serbian side's needs, the Coherence of the project was evaluated as (3).

3.1.3 Effectiveness

The goal of the project is to improve SfPT's capacity to operate public transport. The achievement of each output is shown in the table below.

Table 3.1.2: Achievement Status of each Output

Project Purpose and Output	Indicators	Status
Project Purpose: Ability of public transport operation of SfPT is improved.	• Traffic database, updated demand forecasting model • Proposals for improvements on operators' management • Proposals for improvements to ensure fare collection	Completed
Output 1: The ability of strategical, tactical and operational planning of SfPT is improved.	• Building a traffic database, updating demand forecasting models, acquiring skills related to operational planning (creating operational timetables), etc.	Completed (Partially completed as for the pilot project)
Output 2: The ability of monitoring operators of SfPT is improved.	Acquiring knowledge on new assessment method of operator's performance, proposals on improvement plans, etc.	Completed
Output 3: The ability for planning for securing fare collection of SfPT is improved.	• Identifying actual situation on fare collection and creating proposals on improvement measures • Acquiring know-how to implement measures through demonstration projects, etc.	Completed

Source: JICA Expert Team

At the beginning of the project, it was planned to implement, evaluate, and verify some of improvement ideas considered in Output 1 through specific pilot projects. One of the pilot projects, the improvement of the operational timetable, was originally intended to improve the efficiency of the operation, and was considered for several pilot routes; however, consensus building with residents and local government was not successful, and the project was implemented in a scaled-down form on routes where the impact was considered minimal.[6] Another pilot project has also been considered for installation of a video wall in the SfPT control center to project images from bus stops and police cameras for operation management, but the project implementation structure and public transport management system were changed due to the results of the Belgrade municipal elections, and the decision-making process by the municipal government was delayed, making the project unfeasible. Some issues remained in this regard.

As described above, compared to the project design at the beginning of the project, there is a distance to the achievement of the goals. On the other hand, when valid reasons arose regarding the revision of the goals, such as political external factors or data availability over which SfPT had no control, discussions were held with SfPT regarding the revision of the project framework,

[6] At the beginning of the project, it was supposed that (1) "introduction of ICT for operation rationalization" and (2) "rationalization of route planning" would be implemented in the pilot projects under Activity 106, but since the preconditions for (1) have changed significantly with the removal of Kentkart's BusPlus system, it was decided to cancel the implementation of (1) and focus on (2). (2) was changed and scaled down twice at the request of SfPT, but finally the route plan was rationalized on the route that was agreed with SfPT.

including the PDM. Then, in the revised PDM, the outputs were generally understood to have been achieved as planned, and therefore, the effectiveness of the PDM was evaluated as "(3)".

Notes:

(3) Expected outputs were generally achieved as planned.

3.1.4 Efficiency

A comparison of project inputs, project duration, and project costs between planned and actual shows that inputs are as planned. Regarding project duration, the revised RD has been concluded with a duration of 38.5 months instead of the originally planned 37 months. The project cost is within the original plan.

From other perspectives, changes in the project implementing structure and the change of the SfPT secretary affected the efficient implementation of the project management, as various items planned during the project were changed, and the project team was forced to go through the procedure changes each time.

Based on the above, efficiency was evaluated as (3).

Notes:

(3) Project inputs, duration, and costs are generally efficient relative to outputs (guideline: over 100% to 125% of planned).

3.1.5 Impact

In terms of the status of the realization of positive and negative indirect and long-term effects and potential impacts on social norms, human rights, gender, environment, etc., there are no negative impacts from the project in either case. Therefore, the impact was evaluated as (3).

Notes:

(3) The expected impact of the project implementation was generally achieved as planned. Negative impacts in terms of social, environmental, and economic aspects are considered to be negligible."

3.1.6 Sustainability

Policies and Institutions

The improvement of public transport is consistent with the City's priority issues and SMARTPLAN priority action plans, as mentioned above, and the SfPT is expected to continue its activities under these plans after the project is completed. Therefore, the project goal of strengthening public transport management capacity will continue to be supported by the City of Belgrade and relevant institutions, and the sustainability of the project results in terms of policy development and institutional support is not considered low.

On the other hand, since last year, some of SfPT's public transport-related initiatives, such as the change of contractor for the operation management and fare collection system, have been subject to top-down decision-making by the Mayor's Office, and the structural relationship between the Mayor's Office and SfPT has a significant impact on public transport policy. It is necessary to confirm the scope of each organization's role in the future, including how SfPT's technical proposals on public transport policy, including the various plans and proposals considered in the project, will be considered by the Mayor's Office.

Operation and Implementing Structure

Major activities, such as technology transfer and pilot projects to improve public transport planning and operation timetable, as well as the implementation of a mobility management demonstration project in elementary schools, were carried out by SfPT, FTTE, and the JICA Expert Team. These activities must continue to be implemented after the project completion. After the project completion, it is expected that the project will continue to be implemented under the leadership of SfPT, in collaboration with FTTE and other related departments.

Finances

In terms of finances, sufficient budget is allocated each year for the operation of the public transport related projects. If there are no major changes in direction or changes in the budget plan for the next and subsequent years, the financial sustainability of the project would be considered "high" in our view.

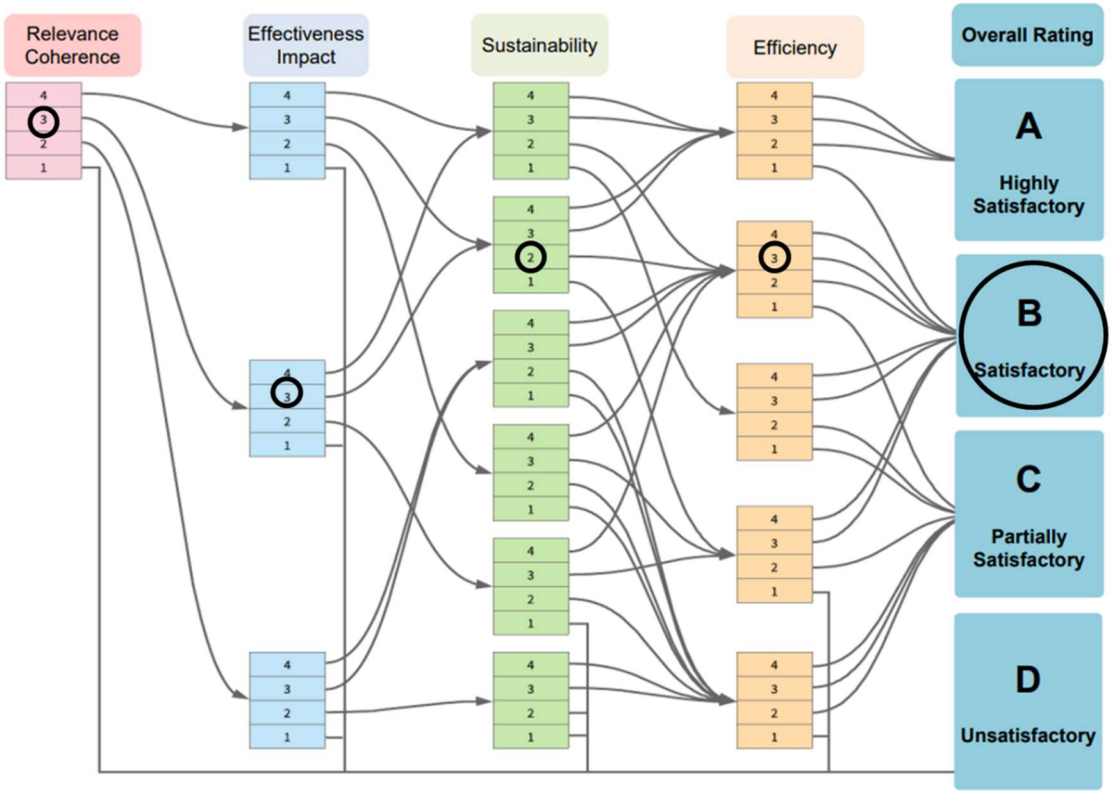
Technical Skills

With regard to the technical skills of the SfPT, the JICA Expert Team have confirmed that their knowledge and skills in developing public transport plans have been enhanced as they collaborate on a series of project activities. However, the SfPT must continue to apply the knowledge and skills learned in the project even after the project is completed.

Based on the above overall assessment, the sustainability of the project is rated as (2).

3.1.7 Rating Flowchart

The results of the overall evaluation based on the rating flowchart shown in the JICA Handbook are shown in the figure below. Appropriate implementation was confirmed in several verification items. Although there were some issues that needed to be improved in some areas, within the framework of the project design after taking external factors into consideration, the set goals are considered to have been achieved. Therefore, the overall rating was "Satisfactory".



Source: JICA Expert Team

Figure 3.1.1: Result of Rating Flowchart

3.2 Main Factors that Affected the Project Implementation and its Results

The following factors affected the project implementation.

- In order to maintain public transport services during the COVID-19 pandemic, it was necessary to dynamically develop various subsequent measures such as: to exchange and collect information with various health organizations and international organizations in the public transport sector; to give instructions to the operators to ensure safety in public transport; to introduce sanitation and disinfection equipment to public transport vehicles; to adjust the

service levels, route and operation plans during the emergency; and to make passengers wear masks and keep social distancing and safe movement inside vehicles and at stations and bus stops. It took so many human resources to take these measures, causing constraints on the C/P's time that could be devoted to this project.

- The changes in the project implementing structure by the City of Belgrade (long-term absence of the Project Director and frequent changes in the Project Manager) and changes in the public transport fare collection system due to the municipal elections in 2022 forced a review of the project goals and activities.
- As for the former, the absence of a decision-maker meant that agreed activities, including piloting and training, did not go ahead, resulting in a review of the scope. And for the latter, the public transport system itself, which had been built up over many years, underwent a major policy change as a result of the new mayor's decision, which had a significant impact on the project's preconditions.
- Among other matters that could not have been envisaged at the beginning of the project were the tendency of the Municipality of Belgrade to focus on avoiding the current public backlash caused by the decline in public transport services, rather than working towards future efficiency gains in the public transport system. The above-mentioned matters affected project activities by postponing the implementation of measures aimed at changing route plans and increasing fare revenues, or by not adopting improvement proposals.

3.3 Response to Project Risk Management

The responses to the above factors are shown in the table below.

Table 3.3.1: Background to Date and Actions Taken

Nov-20	The project was initiated with Mr. Milan Petrovic as project director and Mr. Jovica Vasiljevic as project manager.
Dec-20	The minutes for the 2nd JCC meeting were signed and the overall policy for all activities, including the pilot projects, was agreed upon. (Signer: Dr. Jovica Vasiljević, Project Manager)
Apr-22	A Memorandum of Understanding was signed regarding the specifics of the pilot project and the pilot project plan was decided, and the various procedures were initiated. (Signer: Dr. Jovica Vasiljević, Project Manager)
	Belgrade municipal elections were held.
Jun-22	The third JCC meeting was held, and the minutes were signed. At this point, it was reported that the procurement process is underway for the implementation of the pilot project. (Signer: Dr. Jovica Vasiljević, Project Manager)
Sep-22	Dr. Jovica Vasiljević resigned, and Mr. Predrag Lukić was newly appointed. In addition, the position of Project Director has become vacant, and the project implementation structure has changed significantly.
Oct-22	A meeting was held with SfPT to explain the background to Mr. Predrag Lukić and to request the early appointment of a Project Director.
Dec-22	The fourth JCC meeting was held. At this meeting, it became clear that the SfPT had changed its policy on the pilot project and that the procurement process was stalled as a result. The JICA Expert Team proposed that the pilot project be modified, and the procedure resumed in January 2023, but this did not materialize.
Mar-23	It took some time for Mr. Predrag Lukić to receive delegated signing authority from the City as Project Manager, and the Minutes of the 4th JCC meeting were signed three months after the meeting took place.
May-23	To reestablish the project implementing structure, the JICA Expert Team held a meeting with the Mayor's Office. During the meeting, the project outline and the delay in activities were explained to Mr. Miroslav Čučković, the City Manager and the JICA Expert Team requested him to appoint a Project Director as soon as possible. However, the JICA Expert Team were forced to recognize that there was little interest in the project.
	The JICA Expert Team had a meeting with SfPT and agreed with Mr. Predrag Lukić to cancel some activities such as the pilot project and training in Japan, and to change the PDM.
Jun-23	Mr. Predrag Lukić, Secretary of SfPT, resigned and Mr. Radovan Kremić was appointed as the new Secretary. The Project Manager was changed accordingly. At the same time, Mr. Goran Medaković was appointed as Project Director, a position that had been vacant for a long time. During a meeting with the newly formed Mayor's Office and SfPT, the Mayor's Office and SfPT requested the JICA Expert Team the continuation of the pilot project implementation and the extension of the project period.

Jul-23	On July 5 and 19, online meetings were held with Mr. Medaković and Mr. Kremić, including JICA headquarters. They agreed that it would be difficult to implement the pilot project using the video wall and the training in Japan. It was also confirmed that the project period would be extended by one month in consideration of the progress of the remaining tasks. In parallel, the PDM and PO were revised in consideration of the above situation.
Aug-23	A Memorandum of Understanding was exchanged and confirmed between the JICA Expert Team and Mr. Kremić regarding the above July discussions.
Sep-23	The minutes on the revised R/D were agreed between the JICA Balkan Office and Mr. Kremić, based on the contents of the Memorandum of Understanding exchanged by the JICA Expert Team in August above.

Source: JICA Expert Team

3.4 Findings from the Project

The following findings were obtained from the implementation of this project.

Findings for the Serbian side

Updating the traffic database and traffic demand forecasting model: The project conducted a series of transport surveys and updated the traffic demand forecasting model. This model was instrumental in analyzing the public transport provision and demand balance and to analyze route reorganization based on scientific data.

In addition, the SfPT staff and FTTE faculty were able to build a system of cooperation during the survey and model building process. Since the involvement of local academia is technically essential in this field, one of the important outcomes of the project was the establishment of a system in which the models developed could be used continuously in public transport planning after the project was completed.

Review and study of the diagram for efficient bus operation: Bus routes connecting the suburbs and the city center of Belgrade have been facing the problem of reduced operational efficiency in overlapping sections. To address this issue, a method to improve operational efficiency by developing a corridor-by-corridor operational plan instead of route-by-route was comprehensively studied for Corridor 400, including actual diagramming and vehicle and driver reallocation studies, and technology transfer was conducted.

However, the Corridor 400 improvement plan was not implemented for the following reasons. (1) Anticipated opposition from residents along the line, (2) The required number of drivers will increase when applied to local working conditions, and (3) Turnaround time on each route is cut too short.

In Japan, too, complaints from residents along bus routes are inevitable when bus routes are reorganized. Nevertheless, this is a matter that is being addressed with the aim of improving operational efficiency.

Organizing and Analyzing Cases of Contractual Forms between Administrations and Operators: Through training in third countries and seminars, this project conducted a comparative study of contractual forms in public transport operation in neighboring cities, Bucharest and Hamburg, and in Belgrade. One result of the project was that changes to the contracts with operators should be considered, taking into account the experiences of the mentioned cities.

Mobility Management Initiatives: In this project, a demonstration project on traffic education in elementary schools was conducted as Mobility Management activities. Specifically, the project provided elementary school students in Belgrade with lessons on traffic education using Traffic SUGOROKU to help them learn the difference between "public transport" and "private vehicles" and on the importance of using public transport.

In addition, through the traffic education activities, the project was able to deepen the understanding of Mobility Management for stakeholders such as academics, SfPT, and elementary school teachers. In connection with this activity, a workshop was held at the University of Belgrade on May 5, 2023. From the Japanese side, Professor Ayako Taniguchi of Tsukuba University, an expert in Mobility Management research, was invited to join lecturers from the University of Belgrade and SfPT staff members in a broad exchange of ideas. The University of Belgrade's presentation reported on the results of traffic education activities at elementary schools to date,

while Professor Taniguchi's presentation introduced specific examples of Mobility Management activities in Japan, points to keep in mind and innovations in their implementation, and methods for measuring their effectiveness. These contents were received as very useful inputs for considering future efforts in Belgrade.

Findings for the Japanese side

Impact of the changes on the project implementing structure and lessons learned: As mentioned above in 3.2 and 3.3, this project was significantly affected by the regime change in the Belgrade city government. As a result, especially in the second half of the project, it became extremely difficult to implement the plans and timelines established in the first half of the project.

In particular, the change of the advisor in the Mayor's Office and the Secretary of the SfPT (i.e., the Project Director and Manager of PROMOD), following the inauguration of the new Mayor, had a significant impact on the project activities. The JICA Expert Team felt that if it would take a long time for the project implementation structure to be re-established, it would have been necessary to make decisions such as suspending the project.

Furthermore, improvements related to public transport, which this project deals with, require more careful assessment of the situation, since the main premise is that the city government's ideas and structure, as well as the system of cooperation with the SfPT, are secured.

The level of concern about political influence on decision-making processes and public opposition varies widely from region to region and country to country, and Japanese experts should bear this in mind when implementing similar projects in other regions and countries in the future.

The conservative stance of the SfPT and other public administrations towards reforms and changes to the status quo can be attributed to their political focus on providing good public transport services to citizens. It is therefore, in a sense, natural to avoid policies that impose pain on citizens, the operators concerned and workers. In other words, recommendations could be made regarding improvements to the fee collection and contract structure but were difficult to implement during the project period. Such major changes would be difficult to implement unless there were major changes in circumstances that would force them to do so (e.g. when major restructuring of administrative bodies and operators is inevitable, or when restructuring of the bus route network is inevitable following the opening of the Belgrade Metro). At the stage of recognizing such a counterpart's attitude, there may have been an option to change the course of the project, for example, by making the restructuring target of the bus route network the parallel routes of the Belgrade Metro and transferring the technology for consideration to the revised target.

In addition, while the problem of free-riding should be improved from the perspective of ensuring social fairness, ideas such as strengthening the crackdown on free-riding, combined with measures such as transit discounts and lowering the fare level itself, were necessary in order to gain social consensus. In Europe, many cities provide generous subsidies from the general fund based on the idea that the operation and maintenance of public transport services should be borne not only by the beneficiaries but also by the region. It is desirable to formulate a fare policy that strikes a balance between maintaining the relative service level of the public transport system, reducing the financial burden and social fairness, while closely examining whether the current level of general financial support for public transport services in Belgrade is sustainable.

In addition, the City of Belgrade also takes into account a number of other things, as seen in the consultation on the route restructuring and timetable proposal for Corridor 400. For example, considerations for residents affected by reduced service levels, considerations for GSP labor unions (= resistance to increased workloads) and existing contracts that are not flexible (= resistance to shortening or reducing routes). In particular, with regard to changes to contracts, it can be inferred that they were political, with operators' lobbying working, and that any reforms in the direction of increased burdens on operators were not allowed. On the other hand, it is also worth remembering that significant political forces beyond the SfPT's intentions were at work, such as the sudden cancellation of Kentkart's contract for fare revenue collection. Again, the experiences of the Japanese side through this project have provided lessons for other cities when it comes to technical cooperation in the field of public transport.

Part 4. RECOMMENDATIONS FOR ACHIEVING THE OVERALL GOALS

4.1 Prospects for Achieving the Overall Goals

The project's overall goal is “Sustainability of Eco-friendly public transport in Belgrade is enhanced including eco-friendly approach," and its indicators are (1) through (3) below.

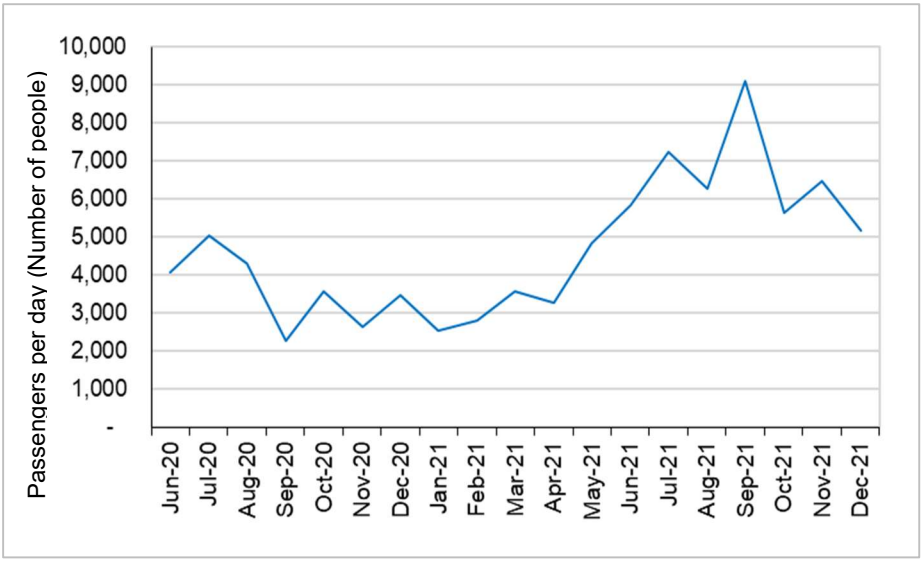
(1) Eco-friendly public transport system (the ratio of EV vehicles and Euro 6 compliant vehicles to all bus vehicles in Belgrade) is increased by 10%.

As information at the beginning of the project, GSP vehicle data obtained in March 2021, when the JICA Expert Team conducted its first study in Belgrade, showed that 47% of the total 1,120 vehicles then in operation consisted of environmentally friendly bus fleets. Meanwhile, by the end of the project, as of November 2023, an additional 100 CNG buses and 10 electric buses had replaced the old fleet, bringing the percentage of environmentally friendly vehicles in operation to 57%, a 10% increase. However, since the 10% increase at this point in time could be a just coincidence, it is important that the City of Belgrade maintain its policy of maintaining the current public transportation network and service levels, improving operations and efficiency, improving the financial health of the city's public transportation operations, and maintaining its commitment to continue environmentally friendly infrastructure renewal.

(2) The number of public transport users is maintained.

Maintaining public transport ridership is an important parameter for achieving the overall goals, however the number of public transport users is not kept tracked. For this reason, a pre- and post-project comparison of the number of passengers per day was made for the bus route 65, where an automatic passenger counting (APC) system was almost certainly installed.

According to APC data, as shown in the figure below, in November 2020, at the beginning of the project, there were 2,646 passengers per day; one year later, in November 2021, there were 6,476. However, the passenger counts by APC system was subsequently discontinued midway through the project. As an alternative, the number of passengers on the same route 65 buses was determined from a public transport corridor survey conducted in October 2022, and was 16,916 passengers per day. In October 2022, the number of daily passengers on line 65 buses was almost 6.4 times higher than in November 2020 and 2.6 times higher than in November 2021.



Source: JICA Expert Team

Figure 4.1.1: Number of Passengers Per Day on Route 65 Buses by APC System

According to the results of a transport survey conducted in 2022 during the project, the modal share of public transport is approximately 48%, which is at the same level compared to figures obtained from previous surveys (48%, a survey result of SMARTPLAN in 2015 and 49%, a survey result of SUMP in 2020), so it can be assumed that the number of public transport users is maintained. However, it is necessary to continue to monitor the number of passengers using public transportation. At least for the bus route 65, which is the most continuously monitored, regular measurement of passenger counts is needed, either at the initiative of the SfPT, the GSP, or the FTTE, which is conducting the transport survey. In addition, the modal share of public transport itself needs to be monitored for ex-post evaluation, and the SfPT, which owns and manages a series of transport databases developed by the project, including the ADS, needs to be approached to conduct a survey of actual traffic conditions.

(3) Some of measures aiming at financial soundness of public transport operations are implemented.

During the project period, in May 2023, the IC card fare payment method using Kentkart's BusPlus system was discontinued. The new fare payment methods, paper ticket and SMS fare payment, and smart phone application (Beograd Plus) developed by BusLogic (a private IT company in Serbia), were introduced and operated immediately after the discontinuation of BusPlus system in June 2023.

Information on whether fare revenues have increased as a result of this new measure was not available at the time the project was completed, but it is expected that this measure will continue to be implemented as one of the measures to improve the financial health of public transport. In doing so, it is important that each of the proposals to improve fare collection rates that have been studied and discussed in this project be implemented in the future.

4.2 Efforts on the Serbian side to achieve the overall goals

Belgrade City's ongoing efforts to achieve the overall goals with respect to indicators (1) through (3) above are described below.

(1) Eco-friendly public transport system (the ratio of EV vehicles and Euro 6 compliant vehicles to all bus vehicles in Belgrade) is increased by 10%.

Besides the 100 CNG buses and 10 electric buses that have been procured, the city of Belgrade is also in the process of procuring another 25 new trams and 300 new CNG buses. There is a possibility of obtaining assistance from the Serbian government for the new trams, in which case the procurement of 50 new trams will be completed. Meanwhile, the City continues to try to expand the number of electric buses, but no concrete plans or news have been confirmed at the end of the project.

(2) The number of public transport users is maintained.

The number of public transport users, which has been recovering since the COVID-19 pandemic, shows the important role public transport plays for the citizens of Belgrade and how important it is to maintain its soundness. To maintain it and improve the quality of public transport, various efforts continue to be made, such as improving the fare collection system, modernizing seating and other facilities on buses and trams, and digitizing and modernizing information boards at bus stops and on buses.

(3) Some of measures aiming at financial soundness of public transport operations are implemented.

While further improvement efforts are expected with respect to this indicator, in parallel the city plans to borrow 300 million EUR from commercial banks to secure public transport-related financial resources, which will also be used to improve GSP's finances.

4.3 Recommendations for the Serbian side

To achieve the objectives in the higher level, the JICA expert team compiled a set of recommendations for the future as a leaflet (Appendix 1). The following actions were then recommended to be taken. The SfPT basically agreed to the following at the end of the project. In

addition to the agreed-upon contents below, many other recommendations were also included in the leaflet and further detailed in the Study Report (Appendix 2).

Output 1: Improvement of the ability of strategical, tactical and operational planning

- Continued cooperation between SfPT, FTTE and BG Metro
- Effective use of the latest traffic database
- Regular updating and implementation of route realignment (especially the concept of corridor and area-wide analysis)

Output 2: Improvement of the ability of monitoring operators

- Formulation of direction from the Mayor's Office and SfPT for visualization of customer satisfaction and implementation of new KPIs
- Discussion and direction between Mayor's Office and SfPT on whether to continue current micro-management work

Output 3: The ability for planning for securing fare collection of SfPT is improved

- Formulation of direction for cooperation between the fare revenue-collecting PUC "Transport Services Fare Collection" and SfPT on fare collection and publicity
- Formulation of cooperation framework, budget and activities between SfPT and FTTE on measures to promote the use of public transport

On the other hand, the conservative stance of the SfPT and other public administrations towards reforms and changes is understandable with regard to avoiding policies that impose discomfort on citizens, the operators concerned and workers. As noted in 3.4, we suggested that even if major changes in policy decisions cannot be implemented immediately, consideration should continue so that reforms can be implemented in the wake of future major changes in organizational structure and the opening of the Belgrade Metro.

4.4 Monitoring plan from the end of the project to the post-evaluation

JICA conducts evaluations for ODA projects at the end of the project and assesses the relevance, effectiveness, efficiency, impact, and sustainability of each project based on international standards (DAC evaluation indicators). The results of these evaluations are described in Part 3 of this report and will be evaluated again in the ex-post evaluation. Generally, the ex-post evaluation is conducted two years after the project is completed.

JICA commits to conducting periodic monitoring of the project outputs listed below, taking into account the information provided by the SfPT, until the commencement of ex-post evaluation.

- Progress of activities contributing to the improvement of public transport
- Progress in increasing the number of public transport passengers in the city of Belgrade
- Progress in introducing environmentally friendly vehicles
- Changes in measures for fare collection (KPI due to the introduction of the new fare collection company (the PUC "Transport Services Fare Collection") announced by the City)
- Changes in measures for financial support (expenditures for public transportation out of the city's financial funds)
- Changes in other possible measures (issuance of municipal bonds, rationalization of GSP staff, financial expenditure or borrowing for renewal of GSP's vehicles, etc.)

APPENDICES

Appendix 1

List of Experts

Name	Designation
YAGI Sadayuki	Team Leader/ Public Transport Policy 1
SEKI Yosui	Deputy Team Leader/ Public Transport Policy 2
OWADA Manabu	Public Transport Planning
ERROL Tan	Operation and Operator Management
OTSUKA Eijiro	Fare Collection/ ICT System
OZONO Wataru	Pilot Project
NOBEL Deo	Transport Survey/ Database/ Demand Forecast 2
WANG Yang	Demand Forecast 1
KATO Yuka	Financial & Economic Analysis
TERAWAKI Shinji	Monitoring/ Evaluation/ Public Relation

List of Countermparts (JCC Members)

Name	Potision	Affilication
Milan Petrović (Until June, 2022) Goran Medakovic (From June, 2023~)*1	Project Director	Advisor to Mayor's Office, City of Belgrade
Jovica Vasiljević (Until June, 2022) Predrag Lukic (September, 2022 to May, 2023) Radovan Kremic (From July, 2023~)*2	Project Manager	Secretary, SfPT
Slaven Tica (~ June, 2022)	member	Faculty of Transport and Traffic Engineering
Milan Petrović	member	Ministry of Construction, Transport and Infrastructure
Damir Ledenčan	member	Ministry of Construction, Transport and Infrastructure
Miodrag Krkalović	member	Ministry of Construction, Transport and Infrastructure
Marija Vuković	member	Secretariat for the Economy
Ognjen Petar Todorović	member	Secretariat for Traffic
Nataša Petrušić	member	Secretariat for Environmental Protection
Dejan Tripković	member	Secretariat for Environmental Protection
Dejan Slavković	member	Secretariat for General Affairs
Predrag Krstić	member	Urban Institute of Belgrade
Predrag Pilović	member	Urban Institute of Belgrade
Slobodan Mišanović	member	PUC GSP Belgrade
Slađana Stanković	member	PUC GSP Belgrade
Miomir Šegović	member	PUC Belgrade Metro and Train
Zoran Šarac	member	Lasta JSC, Belgrade
Drago Tošić	member	Consortium Arriva Litas
Dragiša Ivanović	member	Consortium Avala bus 500

		d.o.o.
Veljko Vlahović	member	Kentkart SEE
Predrag Stojić	member	External consultant SfPT
Milomir Vidaković	member	SfPT
Dragana Popadić	member	SfPT
Jelena Jovanović	member	SfPT
Violeta Stanojević	member	SfPT
Ivanka Milošević	member	SfPT
Milan Janković	member	SfPT
Nenad Smilić	member	SfPT
Nebojša Perić	member	SfPT
Slađana Perić	member	SfPT
Filip Rojević	member	SfPT
Ivana Marković	member	SfPT
Miloš Damnjanović (January 2023)	member	SfPT
Darko Zogović	member	SfPT
Jasna Vidović	member	SfPT
Katarina Petrović	member	SfPT

*1There was a 10-month absence of the Project Director from September 2022 to June 2023.
*2Acting Secretary

List of Countermparts (Working Group Members)

Working Group	Name	Affiliation
1. Operation Planning	Milan Janković	SfPT, WG1 leader (~ Decemeber, 2021)
	Nenad Smilić	SfPT, WG1 leader (January, 2022~)
	Dragana Popadić	SfPT
	Slađana Perić	SfPT
	Nebojša Perić	SfPT
	Filip Rojević	SfPT
	Ivana Marković	SfPT
	Slobodan Mišanović	GSP
	Rajka Bodiroga	GSP
2. Monitoring Operators	Jelena Jovanović	SfPT, WG2 leader (~ Junuary, 2021)
	Darko Zogović	SfPT, WG2 leader (December 2021~)
	Miloš Damjanović	SfPT
	Slaviša Gajić	SfPT
	Dragana Popadić	SfPT
	Jelena Jovanović	SfPT
	Jasna Vidović	SfPT
	Ivana Marković	SfPT
	Olivera Milojković	SfPT
	Gorica Kostadinović	SP ‘’Lasta’’ a.d.
	Stefan Filipović	Kentkart SEE
	Siniša Mladenović	GSP
	Jovan Simonović	GSP
	Miroslava Kaludjerović	GSP
3. Securing Fare Collection	Violeta Stanojević	SfPT
	Ivanka Milošević	SfPT
	Slaviša Gajić	SfPT

Working Group	Name	Affiliation
	Dragana Popadić	SfPT
	Katarina Petrović	SfPT
	Veljko Vlahović	Kentkart SEE
	Vladan Anđus	Kentkart SEE

List of Trainnings

The First Training in Third Country (The Netherlands) (2022)

Date	Contents
May 22 (Sun)	AM:
	PM: Arrival in Amsterdam
May 23 (Mon)	AM: Meeting with Vervoerregio Amsterdam
	PM: Visit of Amsterdam Central Station area
May 24 (Tue)	AM: Move to Rotterdam, Visit Rotterdam Central Station area
	PM: Meeting with Rotterdamse Elektrische Tram (RET)
May 25 (Wed)	AM: Move to The Hague, meeting with HTM Personenvervoer N.V. (HTM)
	PM: Visit public transport facilities in The Hague, move to Amsterdam
May 26 (Thu)	AM: Trial rides on public transportation (GVB buses)
	PM: Trial rides on public transportation (EBS buses, shared cycling)
May 27 (Fri)	AM: Trial rides on public transportation (GVB trams)
	PM: Trial rides on public transportation (GVB Metro), visit public transportation facilities around Amsterdam
May 28 (Sat)	AM: Wrap-up
	PM: Arrive in Belgrade

The Second Training in Third Country (Italy) (2022)

Date	Contents
Jun 12 (Sun)	AM:
	PM: Arrival in Roma
Jun 13 (Mon)	AM: Meeting with Roma Servizi per la Mobilità (RSM)
	PM: Visit ITS facilities of RSM
Jun 14 (Tue)	AM: Move to Florence
	PM: Meeting with Department for Infrastructure and Transportation, Municipality of Florence
Jun 15 (Wed)	AM: Meeting with Agenzia del trasporto autoferrotranviario del Comune di Roma (ATAC)
	PM: Observation of systems and operations related to ticket inspection and management
Jun 16 (Thu)	AM: Move to Napoli, Meeting with Azienda Napoletana Mobilità SpA (ANM)
	PM: Observation of systems and operations related to subway stations, ticket inspection and management
Jun 17 (Fri)	AM: Trial rides on ATAC public transportation
	PM: Wrap-up
Jun 12 (Sun)	AM: Arrival in Belgrade
	PM:

The Training in Japan (2023)

Date	Contents
Jan 15 (Sun)	Departure from Belgrade
Jan 16 (Mon)	Arrive at Narita, move to Yokohama
Jan 17 (Tue)	Orientation by JICA
	Discussion with Project team (ALMEC)
Jan 18 (Wed)	Lecture: Urban transportation and urban facilities (Ministry of Land, Infrastructure, Transport and Tourism)
	On-site lecture: Initiatives and Facilities in Tokyu Bus (Tokyu Bus)
Jan 19 (Thu)	Ride: Tokyo BRT
	Lecture: Public Transportation Management in Japan (Michinori Holdings)
	On-site Lecture: Introduction to Basta Shinjuku (Basta Shinjuku)
Jan 20 (Fri)	Lecture: Yokohama City Urban Transportation Policy (Yokohama City Urban Development Bureau)
	Lecture: Maintaining Yokohama City's Bus Transportation Network and Yokohama City's Regional Transportation Support Project (Yokohama City Highway Bureau)
	Ride: Various Public Transportation Systems in Yokohama City (Railway, Subway, Bus, Ropeway, Water Transportation)
Jan 21 (Sat)	Holiday
Jan 22 (Sun)	Travel to Kyoto
Jan 23 (Mon)	Site Survey: Autonomous bus, Electric bus (Keihan Bus)
	Lecture: Initiatives of Keihan Bus (Keihan Bus)
	Site Survey: Shops inside stations、Facilities at Station Plaza（Keihan Electric Railway）
Jan 24 (Tue)	Move to Osaka
	Lecture: On-demand buses (Osaka Metro)
	Ride: Osaka AGT, On-site lecture: Nanko Inspection Depots (Osaka Metro)
	Travel to Tokyo
Jan 25 (Wed)	Courtesy visit to Embassy of Serbia in Tokyo
	Evaluation meeting
Jan 26 (Thu)	Departure from Narita, arrival in Belgrade

The Remote Trainings (2022)

Contents		Lecturer
Apr 8 (Fri)	Overview of Transit Bus Services in Japan Introduction of Bus Operation in Japan	JICA Expert Team
Apr 27 (Wed)	Introduction of Bus Operation at Operator’s Office	
May 19 (Thu)	About Keisei Bus Information Dissemination Measures to Promote Bus Usage	Keisei Bus
Jul 7 (Thu)	About Keisei Bus Information Dissemination Measures to Promote Bus Usage	

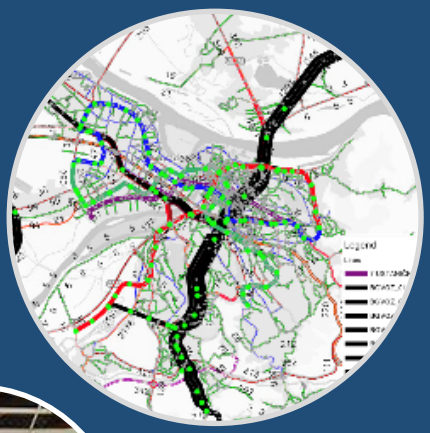
Oct 5 (Wed)	Profile of Tokyu Bus Operation Plan Department in Tokyu Bus Operation Plan Formulation Method Composition of Operation Plan in Tokyu Bus System for Bus Operation	Tokyu Bus
Oct 26 8Wed)	Operation Management System in Japan Operation Management in Tokyu Bus Monitoring	

List of Equipment

Item Name	Specifications	Quantity
Laptop PC	Asus X515JA Core i3/ Memory Capacity 8GB/ SSD 256GB	4
VISUM	PTV Visum Modeller 1k (with 2 years and 3 months Maintenance)	2
Desktop PC	LENOVO IdeaCentre 3 07IAB7 INTEL G7400 8GB 256GB 90SM0057YA + Philips 27 271V8L/00 75Hz	1
Laptop PC	Lenovo V15 G2 ITL (82KB000FYA) laptop Intel® Core™ i3 1115G4 15.6" FHD 8GB 512GB SSD Intel® UHD Graphics black	1

Project for Modernization of Public Urban Transport in the City of Belgrade

Project Summary



March 2024

ГРАДСКА УПРАВА
ГРАДА БЕОГРАДА
СЕКРЕТАРИЈАТ
ЗА ЈАВНИ ПРЕВОЗ

JICA Project Team
Secretariat for Public Transport (SfPT)

Overview of the Project

Project Outlines

Project Title	Project for Modernization of Public Urban Transport in the City of Belgrade
Overall Project Goal	Sustainability of Eco-friendly public transport in Belgrade is enhanced including eco-friendly approach.
Project Propose	Ability of public transport operation of SfPT is improved.
Expected Outputs:	1. The ability of strategical, tactical and **operational planning** of SfPT is improved. 2. The ability of **monitoring operators** of SfPT is improved. 3. The ability for planning for **securing fare collection** of SfPT is improved.
Area/ Period	The City of Belgrade, Republic of Serbia, November 2020 - December 2023 (38 months)
Main Counterpart	The City of Belgrade, Secretariat for Public Transport (SfPT)
Beneficiary	Direct: SfPT, Indirect: Belgrade citizens

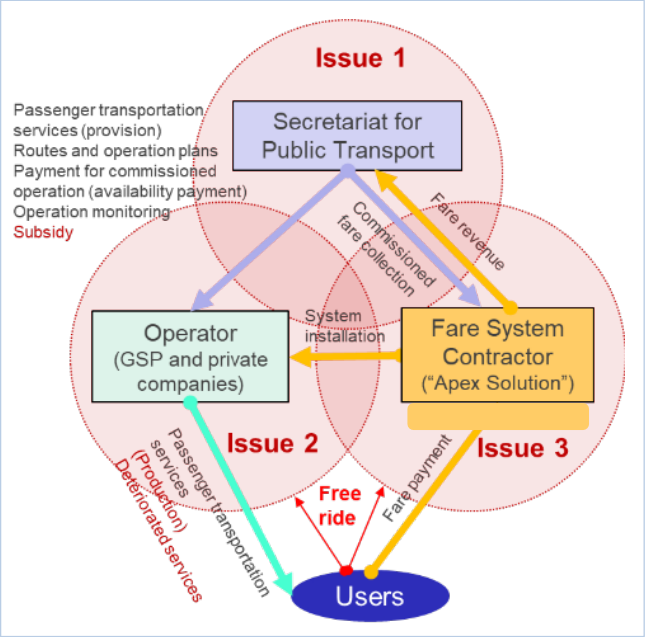
Issues on Public Transport in Belgrade

i. Insufficient collection of passenger data. A mismatch between demand and operation plan.

ii. Burden of operation monitoring. Insufficient income for the operators

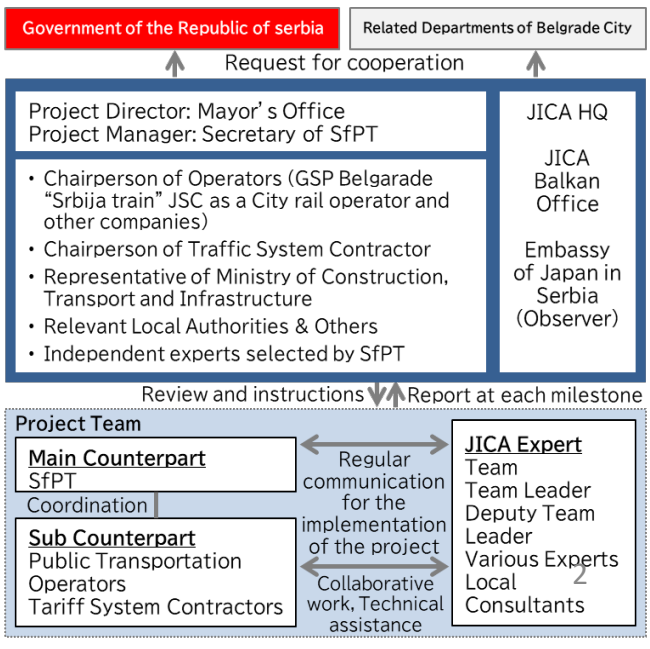
iii. Low fare collection ratio. Pressure on the finances of the city

(Public transportation will be abbreviated as PuT.)



Project Organization

- Joint Coordinating Committee is chaired by the Mayor' s Office of Belgrade and supported by the members shown in the left diagram.
- For the project implementation, the Expert Team communicate regularly with the SfPT.
- The counterparts, the experts and local consultants of the Expert Team are engaged in daily collaborative work to enhance the capacity of the SfPT.

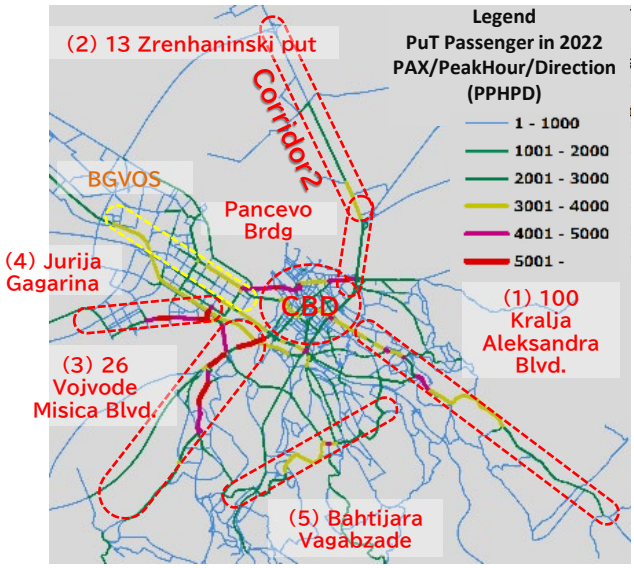


Approach 1: Improvement of Operational Planning

Formulation of Operation & Service Plans

Conducted!

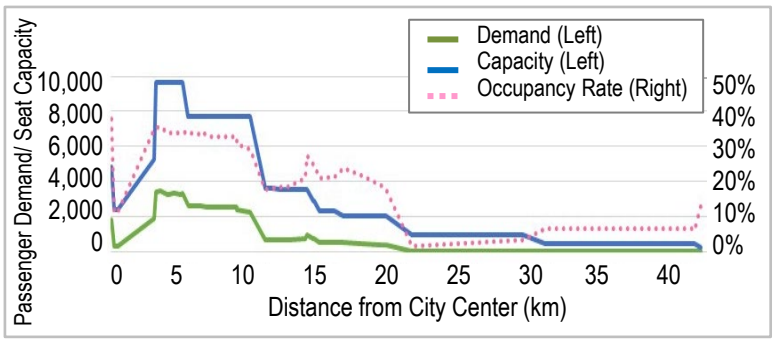
- 5 main PuT Corridors were identified with the estimated demand (> 3K PPHPD) by link.
- Metro Lines are planned along Corridors 1, 3, 4 and 5, which need to be optimized with other PuT modes in future networks.
- Corridor 2 was selected for the rationalization exercise.

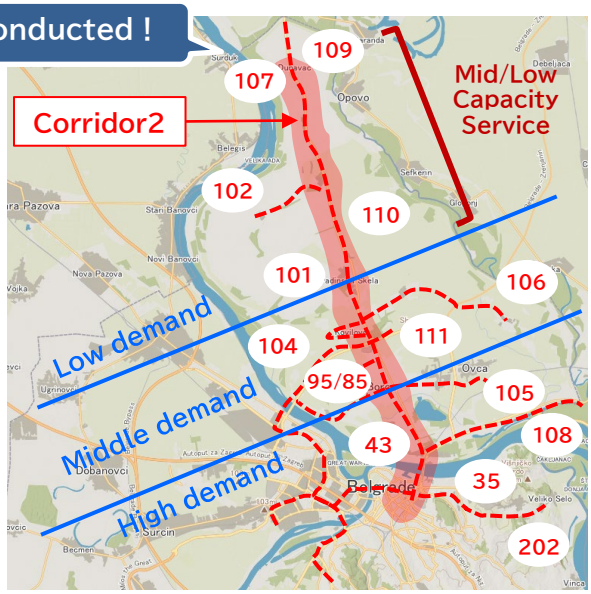


Strategic Planning to Improve PuT Service in Corridor 2

Conducted !

- PuT vehicle occupancy was selected to represent the level of service in the analysis.
- Although user convenience will be slightly reduced due to transfers, necessary measures must be taken to maintain a PuT system.

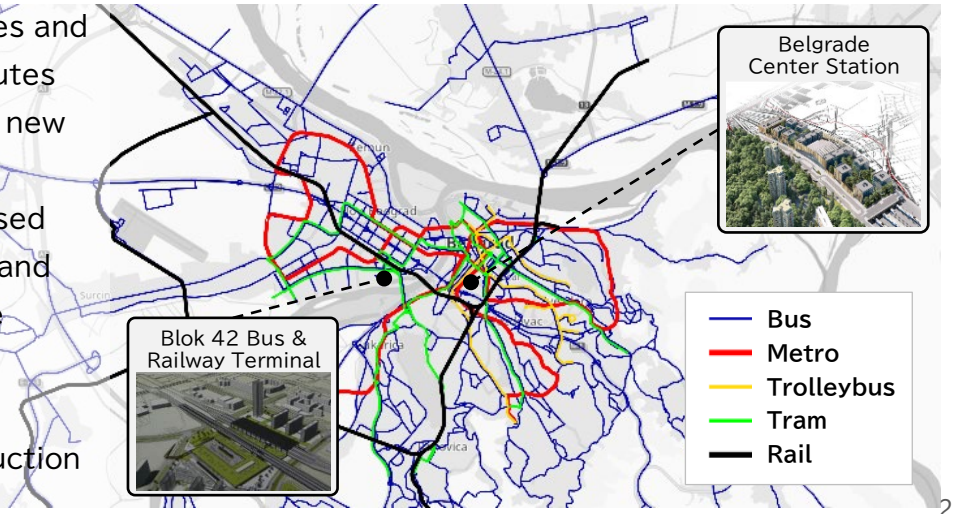




Proposed Future Integrated Public Transport Network

Proposed!

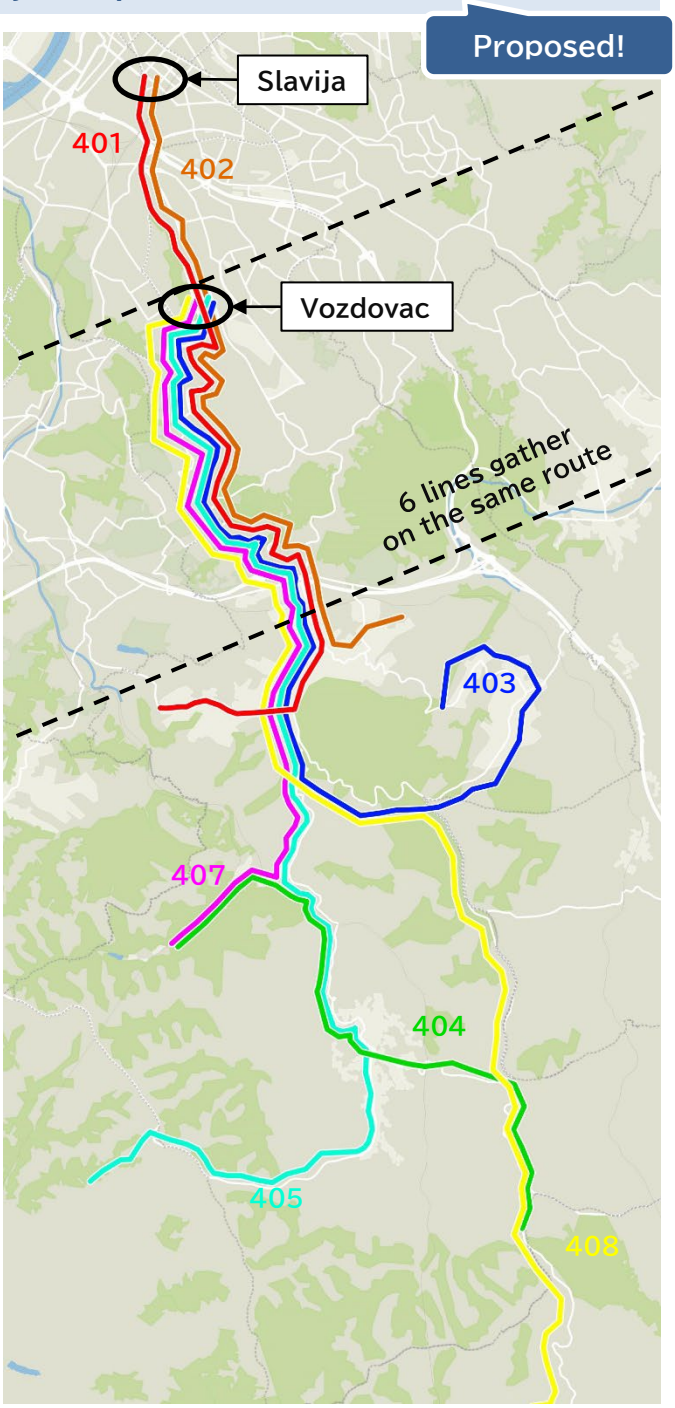
- Besides the new metro lines and commuter railways, bus routes were changed considering new multi-modal terminals.
- Future network was proposed from the viewpoint of demand and user convenience. The proposed plan should be reviewed in light of the operating cost and construction constraints, in the future.



Approach 1: Improvement of Operational Planning

Proposal of Methods to Improve Efficiency of Operations and Timetables

- Bus routes connecting suburbs and the city center are **operated inefficiently due to overlapping sections** within the city.
- To address this problem, a method was **proposed to improve operational efficiency by developing an operational plan for each corridor (not by route).** The right figure shows the proposal for Corridor 400 as a case study.



Process for proposing improvements

Complaints in Corridor 400

- **Operation interval** was **not consistent.**
- **Long waiting time** for the users.

Identification of Issues

- **Trams and several bus routes operate** between Vozdovac and Slavija in parallel.
- Shortening the route **ensures punctuality.**
- **Idea of shortening routes** should be considered anyway when Metro starts operating and reorganize bus route network.

Proposals

- **Shortening routes** in Line 401 and 402
- **Revising operation intervals** and introducing **patterned operation schedules.**
- Considering **travel time by time zone.**
- Considering **travel time between major bus stops**

Results

- **Decrease in the number of buses used (32 -> 28 buses)**
- **Increase in the number of operation (560 -> 604 operations)**
- **Decrease in the operation distance (kilometers) (minus 347km/day)**

Approach 1: Improvement of Operational Planning

Creation of Scientific Transportation Policy Evaluation Tool

Conducted!

Transport Survey Database Developed by the Project

Item	Data Title	Data Remarks	Survey Scale
Screenline Survey	• Terms of reference • Survey form • Database	• Location, sample, methodology, and field survey • Questionnaire • Traffic count and occupancy results	• 15 locations
Public Transport Corridor Survey	• Terms of reference • Survey form • Database	• Location, sample, methodology, and field survey • Questionnaire • Boarding/alighting passenger, time-distance attributes	• 12 lines of public transport
Opinion Survey	• Terms of reference • Survey form • Database	• Location, sample, methodology, and field survey • Questionnaire • Passenger interviews	• 1,276 respondents
Activity Diary Survey	• Terms of reference • Survey form • Database	• Location, sample, methodology, and field survey • Questionnaire • Demographic and trip diary information (OD included)	• 2,393 respondents from 1,016 hhs
Demand Model	• Present network • Future network	• Present network with complete attributes • Present and future population • Present and future GRDP • Synthesized population based on input variables • Future network with confirmed projects • Both database and demand model training materials	• [Software] • VISUM

Transport Demand Modeling

- The updated transport demand model can be used for the impact analysis on new urban transport policies such as;
  - ✓ Feasibility study on developing new public transport line and
  - ✓ Impact analysis on rationalization of overlapped bus routes.

Demand Model for Private Vehicle

Demand Model Training

Demand Model for Public Transport

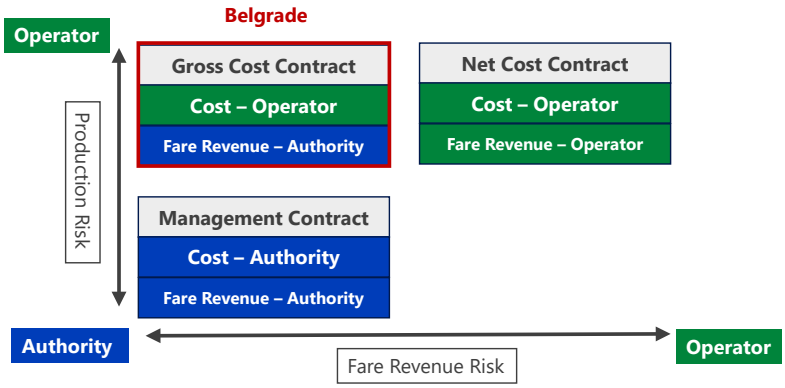
Approach 2: Improvement of Monitoring Operators

Current Contract Review and Benchmark Study

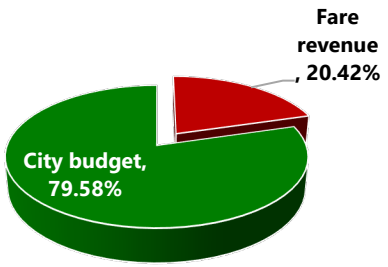
Conducted!

- The Public Service Contracts (PSCs) between SfPT and public transport operators adopt **gross cost contracts** where the operators take the **production risks** while the **fare revenue risk** is borne by SfPT.
- The benchmark study findings indicated that **both public and private operators** had the **same contract conditions.**

Result of Benchmark



Study Self-sufficiency ratio in PT funding in 2021



Major Issues Indicated from Findings

Issue 1

- Operators are **not incentivized** to increase fare revenue collection resulting in **big budgetary shortfalls** covered by the City.

Issue 2

- Gross cost contract makes meeting vehicle-km the top priority for the operators in Belgrade, resulting in some **service quality deficiencies.**

Issue 3

- Constant **micro-management** in day-to-day operation is required for SfPT staff in monitoring operator performance. Calculating operators' revenue for each timetable poses a significant workload, adding to the complexity of the monitoring process.

Approach 2: Improvement of Monitoring Operators

Proposed Actions Toward Monitoring Operators

Proposed!

- The following measures were recommended by the JICA Expert Team in order to **increase the fare revenue collection, reduce the budgetary constraints of the city,** and **reduce the workload of the SfPT** in monitoring operators' performance.
- Introduction of an incentive system in the contract linked to **additional customer-oriented KPIs** and prioritizing fare revenue increase is proposed to be included at the time of the next contract renewal.

Proposed Measures 1: Revenue Sharing

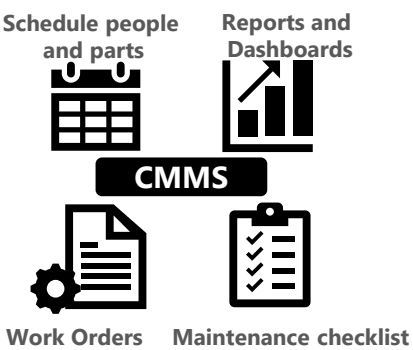
- A gradual introduction of a **revenue-sharing mechanism** in a similar fashion to **exemplary European cities** whereby the **Operator is incentivized** to share a portion of its revenue with the Authority through a cap-and-collar type scheme where once a higher threshold is reached, the Operator keeps the rest of the revenue it generates.
- Installing **Automatic Passenger Counters (APCs)** to all vehicles will be a pre-requisite for the introduction of a revenue-sharing mechanism.

Proposed Measures 2: Customer Satisfaction Survey

- Greater **customer satisfaction** and **willingness to pay** can produce fare increases, without requiring the City to increase subsidies
- Customer Satisfaction Surveys similar to GSPs to be introduced annually or semi-annually.
- However, Surveys must be guided by an **Action Plan** to fix target response rates, sample sizes, and how results will be used. Specifically:
  - ✓ Explain how remedial action will use the results
  - ✓ Assign responsibilities for actions (new department in the SfPT to monitor customer satisfaction)
  - ✓ Set the frequency of surveys

Proposed Measures 3: Management System

- The future introduction of a robust **CMMS (Computerized Maintenance Management Systems)** to help improve the overall **Reliability, Availability, and Maintainability** of the systems (i.e., the **RAMs** of the system).
- **Reliable data from CMMS and RAMs** metrics can lead to a shift from **micro-management** of day-to-day operations to a more **strategic** and **outcomes-oriented** oversight approach.



Approach 3: Securing Fare Collection

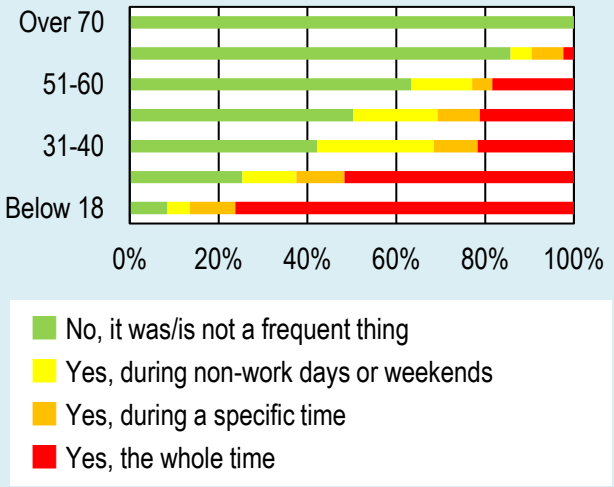
Opinion Survey on Fare Payment

Conducted!

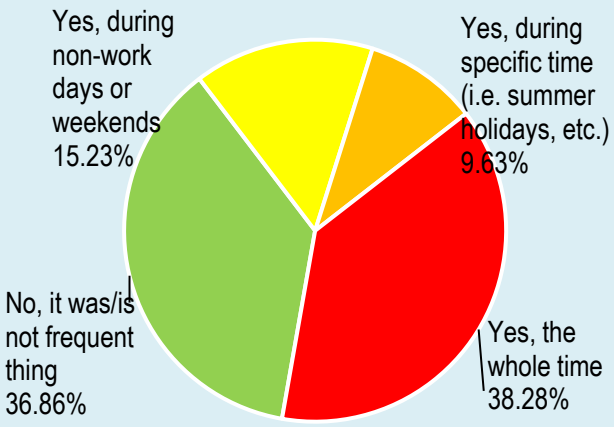
- To examine measures to improve fare collection rates, an opinion survey was conducted to understand users' attitudes towards fare payment.

Key Findings Regarding Fare Payment

- The **younger age group** of respondent users, the **higher the rate of "free-ride"** practice.



- Of the respondents who have experienced "free-ride", about **40% are habitual offenders.**

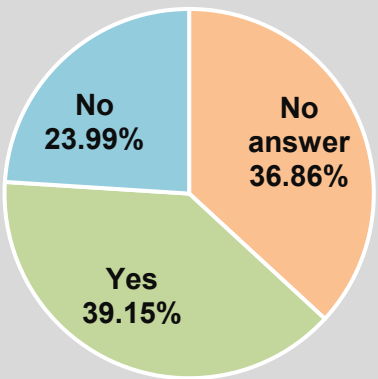


Proposed Actions Toward Securing Fare Collection

- About **40%** of respondents are **willing to change** their "free-ride" practice. And about 35% of respondents did not answer the question (did not disagree).
- In other words, this total of about 75% of respondents have **the potential to stop "free-ride",** and ultimately, to **make the social climate less conducive to "free-ride".**
- Therefore, through opinion surveys, it was considered that **measures to stop free-riding could effectively improve fare collection.**

Question:

Would you think that you will change your mind about your free-ride practices?



Approach 3: Securing Fare Collection

Countermeasures to Reduce Free-riders

Proposed!

- The following measures were suggested to stop “free-riding”, which is one of the major issue to secure fare collection in the City of Belgrade.

PUSH POLICY – Related Actions	PULL POLICY – Related Actions
• Increase the **ticket inspection** frequency. • Regulation improvement regarding the **fare revenue** (i.e., clearer and more directive law) and inclusion of environmental concerns, i.e., public news and ads. • To make clear prioritization of public transport mode (e.g.: signal prioritization, exclusive bus lane, etc.)	• **Better service** i.e., fleet, frequency and reliability (related to operator contract) • Lower fare (related to operator contract) • New fleet (related to operator contract) • Allowance from employers • Increase number of **types of ticket** (i.e., promo ticket, discount ticket, and more) • Reward card system used at the shops along the line

Conducted!

PR Activities to Raise Awareness of Users & Promotion to Use PuT

- While the above measures are expected to be considered for implementation by the SfPT in the future, several measures below were implemented during the project period to improve users’ attitudes towards fare payment and their use of public transport in the long term.
- It is also expected that these measures will continue to be conducted in conjunction with the countermeasures to reduce Free-riders described above.

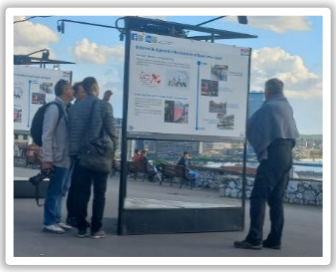
Measures Conducted	Remarks
• Driver training to improve safe driving and manners for passenger, bus usage promotion measures by operator	• By series of lecture from Japanese bus operators
• Traffic education programs in school	• Done as demonstration project
• Promotion event, information provision	• Done as project website and PR panels

Transport Education at School

- A transport education method was established using a transport board game to demonstrate the importance of PuT.

Panel Exhibition

- People’s understanding of the SfPT’s work to improve PuT services was enhanced.



LIST OF TECHNICAL OUTPUTS

List of Documents Made for Technical Cooperation

Activity	Document Name and Explanation
Overall Project *Corresponding to the achievement of Project Purpose	0-01 TMB 2022 User Manual.pdf User Manual of Transport Model of Belgrade (TMB), which was used for the on-the-job (OJT) training on transport demand analysis in June 2023. 0-02 PROMOD_ADS_Survey_Final_Report.pdf 0-03 PROMOD_Travel_Speed_Survey_Final_Report.pdf 0-04 PROMOD_Corridor_Survey_Report_2_Final_Report_ENG_Final.pdf 0-05 PROMOD_Screenline_Report_2_Final_Report_ENG_Final.pdf Reports on the transport surveys utilized in the WG1 meetings in preparation for the 4th JCC meeting in December 2022. 0-06 Folder named “Transport Survey Database” Transport survey database based on which all the analyses in the survey reports (0-02 to 0-05) were made. 0-07 Folder named “TMB 2022 Database” Transport Model of Belgrade (TMB) to be utilized as the user manual (0-01). 0-08 Leaflet (Project Summary)
Activity 1	Study Report Part 1: Findings from Transport Surveys, Demand Forecasting, and Public Transport Network Planning Study Report Part 2: Improvement of Efficiency of Public Transport Operations and Timetables Study Report Part 3: Demarcation Models of Roles and Responsibilities between the Public Transport Regulator and Operator
Activity 2	Study Report Part 4: Review of Contracts for Public Transport Operators and Improvement of the Monitoring Method
Activity 3	Study Report Part 5: Improvement Measures for Securing Fare Collection Study Report Part 6: Promotion of Public Transport Use

Activity	Document Name and Explanation
Other deliverables	0-09 Results of the Training in Third Countries Description of the training in the Netherlands (Amsterdam, Rotterdam and the Hague in March 2022) and Italy (Rome, Florence and Naples in June 2022) and the summary of the cities visited. 0-10 IZVESTAJ SA PUTA - збирни.docx Summary Report on the Training in Third Countries (the Netherlands) in May 2022 (Serbian) 0-10e IZVESTAJ SA PUTA – збирни_ENG.docx English translation of 0-10 0-11 Amsterdam-Beograd uporedo.xlsx Comparison table between Amsterdam and Belgrade (Serbian) 0-11e Amsterdam-Beograd uporedo_ENG.xlsx English translation of 0-11 0-12 IZVESTAJ SA PUTA za sekretara.docx Report to the secretary on the Training in Third Countries (Italy) in June 2022 (Serbian) 0-12e IZVESTAJ SA PUTA za sekretara_ENG.docx English translation of 0-12 0-13 Rim-Beograd polozen prikaz.xlsx Comparison table between Rome and Belgrade (Serbian) 0-13e Rim-Beograd polozen prikaz_ENG.xlsx English translation of 0-13

Item	Document Name and Explanation
Output 1: The ability of strategical, tactical and operational planning of SfPT is improved.	
101 To conduct travel demand survey along major routes and implement OJT on transport demand software.	101-1 Material for output 101.pptx Material to share the result of the tasks in Item 101 that were conducted together with SfPT on an OJT basis. 101-2 Training Course Timetable_PTV.xlsx 101-3 Session 1.pdf, 101-4 Session 2.pdf, 101-5 Session 3.pdf, 101-6 Session 4.pdf, 101-7 Session 5.pdf, 101-8 Session 6.pdf Schedule and presentation slides for VISUM training
102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of travel demand survey.	102-1 Material for output 102.pptx Material to share the result of the tasks in Item 102 that were conducted together with SfPT on an OJT basis.
103 To propose integrated public transportation network to enhance intermodality including water transport, planned Metro lines, terminal access modes.	103-1 103.pptx Material to share the result of the tasks in Item 103 that were conducted together with SfPT on an OJT basis.
104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators.	104-1 Material for output 104.pptx Material to share the result of the tasks in Item 104 that were conducted together with SfPT on an OJT basis.
105 To create a list of improvement measures for operation management of public transportation.	105-1 Material for output 105.pptx Material to share the result of the tasks in Item 105 that were conducted together with SfPT on an OJT basis. (List of improvement measures is presented in slide 1.) 105-2 TEDis-Prezentacija.pptx Creation of a technical and technological analysis of the tram subsystem and proposals for measures to increase efficiency and participation in visual distribution. (Serbian) 105-2e TEDis-Prezentacija.pptx English translation of 105-2 105-3 ZUTE 01_BeoPiS BG.pptx Development of bus lanes and separate independent routes in public transport project. (Serbian) 105-3e ZUTE 01_BeoPiS BG.pptx English translation of 105-3
106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105.	106-1◆Main_Evaluation Report for Pilot Project_Output 1-6_EN.docx Description of outline, implementation, evaluation and conclusion of the three pilot projects for Item 106.
Output 2: The ability of monitoring operators of SfPT is improved.	
201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators.	201-1 Material for output 201.pptx Material to share the result of the tasks in Item 201 that were conducted together with SfPT on an OJT basis.
202 To propose improvement plan of the way of monitoring the operators.	202-1 Material for output 202.pptx Material to share the result of the tasks in Item 202 that were conducted together with SfPT on an OJT basis.

Item	Document Name and Explanation
Output 3: The ability for planning for securing fare collection of SfPT is improved.	
301 To review actual structure of fare collection and to identify the issues to be addressed.	301-1 Opinion Survey on Public Transport Fare payment.docx Material to share survey results on attitudes toward free riding, the root cause of low fare collection rates
302 To formulate an improvement plan list for prevention of free ride.	302-1 Improvement plan list for prevention of free ride. pptx List to share the countermeasures for the prevention of free ride.
303 To formulate an improvement plan list for operation service level and convenience.	303-1 Belgrade Remote Seminar 1st~6th.pptx Materials to share the countermeasure to improve for the operation service level and convenience.
304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303.	304-1Main Evaluation Report for Demonstration Program Output 3-4 EN.docx Description of outline, implementation, evaluation and conclusion of the demonstration program for Item 304.
305 To carry out public relations activities to raise awareness of the importance of fare collection.	305-1 Folder named “PR Articles”, “PR Panels”, “Travel Map” Article materials uploaded to the project accounts on FB and LinkedIn. Panels exhibited at the Belgrade fortress. Travel map to promote the use of public transport.

MINUTES OF MEETING

THE FIRST JOINT COORDINATION COMMITTEE (JCC) MEETING

FOR

PROJECT FOR MODERNIZATION OF PUBLIC URBAN TRANSPORT

IN THE CITY OF BELGRADE

In accordance with the Record of Discussions (R/D) signed on 7th August 2020 and subsequent assignment of the JICA Project Team, the First JCC meeting was held at the University of Belgrade, Faculty of Transport and Traffic Engineering on 2nd June 2021 to set the detailed plan of the Project for Modernization of Public Urban Transport in the City of Belgrade (hereinafter referred to as "the Project). The representatives from the City of Belgrade, Secretariat for Public Transport of the Republic of Serbia (hereinafter referred to as "SfPT"), the JICA Project Team, Japan International Cooperation Agency (hereinafter referred to as "JICA") and the other JCC members attended the meeting.

Both sides agreed on the minutes of the meeting as summarized below, with documents submitted for the meeting annexed herewith.

1. The members of JCC and implementation structure of the Project

Joint Coordinating Committee (hereinafter referred to as "JCC") is established in order to facilitate inter-organizational coordination. The members of JCC are as per Annex 1. Implementation structure of the Project and the list of Working Group are described as per Annex 2.

Serbian side pointed out that involvement of counterpart from the Secretariat for Traffic in the project activities of Output 1 would be required. SfPT, the JICA Project Team and JICA agreed that appropriate counterpart personnel from the Secretariat for Traffic will be involved in Working Group 1.

JCC members have confirmed the necessity to set a social network platform or a project management platform / software for close communication between the counterpart and the JICA project team. The JICA Project Team agreed on setting this platform for the working groups.

2. The summary of the Project monitoring (November 2020 – May 2021)

The summary of the Project monitoring (November 2020 – May 2021) is as per Annex 3.

3. The detailed plan of the Project

(1) Revised Project Design Matrix (PDM) and Plan of Operation (PO)

The revised PDM is as per Annex 4 which is *Monitoring Sheet I v-1* and the revised PO is as per Annex 5 which is *Monitoring Sheet II v-1*. The PDM and PO will be used as a management tool of the Project, and it will be finalized once at the time of signing of the amendment of the Record of Discussions (R/D).

The Project Director stated the importance of public transport improvement to achieve Eco-Mobility in Belgrade in the future. This intention to make efforts toward the realization of eco-friendly public transportation is mentioned in the overall goal of this project.

(2) Revised Work Plan

The revised Work Plan is described in the form of the presentation material as per Annex 6.

The JICA project team explained that for Output 1, "to propose integrated public transportation network to enhance intermodality including water transport, planned Metro lines, and terminal access modes" for Output 3, "to formulate an improvement plan list for operation service level and convenience" should be added. JCC members agreed on these additional activities.

Regarding the activities of Output 1, the importance of accessibility to the public transportation for all the citizen was pointed out. In response to this point, SfPT, the JICA Project Team and JICA confirmed that the activities of Output 1 should include the viewpoint of accessibility.

Since the influence of COVID-19 is still remaining this year, the JICA project team also proposed that implementing a series of remote training would be effective. SfPT and JICA agreed on it.

4. Other points

(1) JCC meeting will be held twice a year and chaired by the Mayor's Office of Belgrade. The monitoring sheet will be prepared and submitted to the JCC to monitor the progress of the Project twice a year. JCC meeting accepted the first version of the monitoring sheet attached herewith.

(2) Based on the First JCC meeting, Minutes of Meeting (M/M) for R/D Amendment needs to be prepared. Once it is drafted, JICA will share SfPT to check. Then both parties will proceed the internal approval for

signing on the M/M for R/D Amendment.

Annex 1: List of members of JCC
Annex 2: Implementation structure of the Project, List of Working Group
Annex 3: Monitoring Sheet Summary v-1
Annex 4: Monitoring Sheet I (Project Design Matrix) v-1
Annex 5: Monitoring Sheet II (Plan of Operation) v-1
Annex 6: Presentation Material

June 2nd 2021
The City of Belgrade, Republic of Serbia

Mr. ONO Tomohiro

Director
Team 3, Transportation Group,
Infrastructure Management Department,
Japan International Cooperation Agency
(JICA)

Dr. Jovica VASILJEVIC

Secretary
Republic of Serbia,
The City of Belgrade,
City Administration of Belgrade,
Secretariat for Public Transport (SfPT)

Mr. YAGI Sadayuki

Head of the Project
JICA Project Team

MINUTES OF MEETING

THE SECOND JOINT COORDINATION COMMITTEE (JCC) MEETING

FOR

PROJECT FOR MODERNIZATION OF PUBLIC URBAN TRANSPORT

IN THE CITY OF BELGRADE

In accordance with the Record of Discussions (R/D) signed on 7th August 2020 and subsequent assignment of the JICA Project Team, the Second JCC meeting was held on 17th December 2021 by the representatives from The City of Belgrade, Secretariat for Public Transport of the Republic of Serbia (hereinafter referred to as "SfPT"), the JICA Project Team, Japan International Cooperation Agency (hereinafter referred to as "JICA") and the other JCC members.

In the meeting, current progress of the project were presented according to the Agenda and Presentation for the Second JCC meeting (refer to Annex 1), then both sides discussed and agreed with their points as summarized below, with documents submitted for the meeting annexed herewith.

1. The summary of the Project monitoring (November 2020 – November 2021)

The summary of the Project monitoring (November 2020 – November 2021) is as per Annex 2. The revised PDM is as per Annex 3 which is *Monitoring Sheet I v-2* and the revised PO is as per Annex 4 which is *Monitoring Sheet II v-2*.

2. The summary of discussion of the Project

(1) Activity 1

- ✓ For Activity 101, collaborative work system among SfPT, PUC "Belgrade Metro and Train", and FTTE has been established. Thus, SfPT, the JICA Project Team and JICA confirmed that further collaboration should be needed to integrate the existing model, update the transportation network and make projection for target years. Though future situation of traffic and people's travel pattern is still unforeseen, it was confirmed that the field transportation surveys should be done in Spring 2022 (February to March and/or mid-May to June) as long as the reverting trend of public transport passengers continues.
- ✓ Through Activity 102, the direction to upgrade the existing bus timetable system was confirmed based on a series of discussions among SfPT, the JICA Project Team, FTTE and Kentkart. The idea to create timetable and schedule by area/corridor has been selected for further examination as a pilot project in Activity 106 in the next six months. However, applicability and suitability shall be determined by the next JCC meeting.

(2) Activity 2

- ✓ For Activity 201, SfPT, the JICA Project Team and JICA confirmed that the

issues that have been identified in the course of the review of the actual situation of the Availability Payment (gross cost contract) system should be further discussed separately.

✓ SfPT, the JICA Project Team and JICA confirmed the initial plan of the pilot project of installation of monitoring cameras at selected bus stops and a video wall at the monitoring center. Based on the field survey and a series of discussions among SfPT, the JICA Project Team and FTTE, two sites for the pilot project, namely, Block 21 bus stop and Zeleni Venac bus stop, have been selected. In this regard, JICA and the JICA Project Team asked SfPT to make necessary arrangements with relevant agencies, to share the implementation cost with the Project, and to confirm necessary procedures for construction, and SfPT agreed on these. The detailed implementation plan of this pilot project mainly as part of Activity 202 will be prepared immediately after the Second JCC meeting.

JICA requested that the JICA Project Team and SfPT should make the detailed plan to maximize the effect of pilot project implementation and the effect of this pilot project should be properly measured and publicized to the citizens.

(3) Activity 3

✓ Based on the results of the Opinion Survey on Public Transport Fare Payment, JICA Project Team emphasized the importance of educational activity to disseminate the bus riding manners including fare payment, for sustainable public transport operation, and SfPT has confirmed it. SfPT and the JICA Project team agreed on making a detailed plan to implement the educational program as a demonstration activity in Activity 304 for a selected group.

3. Other points

(1) Training Schedule

✓ SfPT, the JICA Project Team and JICA agreed on closely monitoring the post-COVID19 situation to proceed with training in third countries. It was also confirmed that preparations for the training in Japan should also be made though the situation is still uncertain. Preparations for the online training on the detailed planning and operation of the Japanese bus business including accessibility to the public transportation for all citizens which was raised at the last JCC meeting are also under way.

(2) Importance of cooperation with other stakeholders

✓ For implementation of the Project, SfPT, the JICA Project Team and JICA once again confirmed the importance of continuing the collaboration with international donors, other cities and countries including the west Balkan region.

Annex 1: Agenda and Presentation for the Second JCC Meeting
Annex 2: Monitoring Sheet Summary v-2
Annex 3: Monitoring Sheet I (Project Design Matrix) v-2
Annex 4: Monitoring Sheet II (Plan of Operation) v-2
Annex 5: List of Attendees

December 17th 2021
The City of Belgrade, Republic of Serbia

Mr. ONO Tomohiro

Director
Team 3, Transportation Group,
Infrastructure Management Department,
Japan International Cooperation Agency
(JICA)

Dr. Jovica Vasiljevic

Secretary
The City of Belgrade, Secretariat for
Public Transport of Republic of Serbia
(SfPT)

Mr. YAGI Sadayuki

Head of the Project
JICA Project Team

Minutes of Meeting on the 3rd Joint Coordination Committee (JCC3)

Thursday, 30th June 2022, 13:00 – 15:00
Place: 20th Floor of the City Administration Building, Kraljice Marije1

The 3rd Joint Coordination Committee (JCC3) was held at the City Administration Building in Belgrade on 30th June 2022. The following items are the summary of the main points discussed in the meeting.

I. Discussion Session

- Mr. Milan, as the previous Working Group 1 leader, expressed his appreciation for the contents of the project that is knowledgeable for SfPT and therefore it has to be followed up closely by SfPT working group members. Especially regarding the city plan of the plan of construction of road, roundabout, intersection improvement, and so on, they have to be integrated to the plans that PROMOD is modeling.

- Item 101: Close involvement of SfPT working group member(s) in updating work of the demand forecast model (Slide 19)
  Response: SfPT is still unable to name specific person regarding this matter simply because everyone is busy with his/her own tasks. Furthermore, it will be discussed with the Secretary of SfPT so that such assignment can be formally done.

- Item 104: Improvement options within the contract-out model (Slide 28)
  Response: Public transport operators are currently happy with the existing contract. However, just like in the case of Naples, revenue contract could work efficiently. Such a model should be considered. Therefore, let's study further on the improvement options.

- Item 104: New public service contracts for E-Buses (Slide 32)
  Response: GSP as public operator is the only one that is currently in possession of E-Bus units (in total 15 units, currently, for the lines EKO-1 and EKO-2). They have a plan of expanding the procurement within the fiscal year of 2022 and 2023. The target is to procure the next-generation E-Bus within this timeline. Another point of relevance for presence of E-buses in the city of Belgrade is a promotional event organized by Otokar representatives, mainly focused on their prior buyers (GSP and Lasta), but other private operator representatives are invited to attend, as well. The event will be held in September this year.

- Item 201: Benchmark studies to consider the current Availability Payment and new methods of the assessment for the payment to the operators (Slide 38)
  Response: SfPT would like to further observe the result of benchmark study of Hamburg and Bucharest first.
  (Dr. Predrag) FTTE's representative at this JCC, believes that introduction of benchmarks is of considerable importance because the availability of PT to citizens of the republic of Serbia is quite low, so whatever lessons learned from this could be transferable nation-wide, for the benefit of people who rely on PT services.

Regarding the neutral auditor existence as applied in Bucharest, SfPT is still not sure about such a new way simply because it is new culture to what they have in the current conditions.
The biggest challenges in micromanagement are manual corrections made at the technical level. The items that are corrected for the purposes of monthly summaries usually arise in GPS data (among other things) due to challenges faced by vehicles due to extremes in seasons (cold weather during winter, very high temperatures during summer). Vehicle malfunctions and delays also play a part in this. This can be prevented through improvements done on the monitoring system, on-board equipment, as well as quality of vehicles themselves.
Regarding whether to seek for a way to simplify the micromanagement, SfPT needs decision from higher level (city-level) to decide if this way is allowed or not. Maybe PROMOD team can recommend it to higher authority. If it is allowed, it can be done quite easily.

- Item 302: Holding public consultation meetings regarding improvement measures for free riders (Slide 48)
  Response: SfPT can host such event. However, they will need assistance from PROMOD and academics.

- Item 302: Improvement ideas based on practice in other cities (Slide 50)
  Response: SfPT is the authority to bring such ideas to the table. Therefore, they need further and more detailed framework (including budgeting calculation) for campaign, procurement of ticket vending machines, and so on.
  Example of Germany's city authorities' ticket inspection power is deemed of particular interest. Working Group 3 leader, Mrs. Violeta, would like to see from PROMOD activities a suggestion of a document that would give powers to ticket inspectors and regulate training and licensing of ticket inspection as a potentially thorough solution to Belgrade's PT woes.

- Item 304: Proceeding project at elementary school: Belgrade card usage competition (Slide 54)
  Response: SfPT agreed to conduct such educational program.

In view of the above-mentioned points, SfPT and JICA Expert Team agreed to continue to work together.

List of Attendees

Name	Position	Affiliation
Serbia Side		
Dr. Jovica Vasiljević	Project Manager	SfPT
Mr. Nenad SMILIC	WG 1 leader / Manager of department for planning and development	SfPT
Mr. Darko ZOGOVIC	WG 2 leader / Sector for Passenger Transport Management, Timetable, Operator control – officer	SfPT
Ms. Violeta STANOJEVIC	WG 3 leader / Manager of department for Tariff systems and control	SfPT
Ms. Dragana POPADIC	Head of department for timetable and scheduling	SfPT
Mr. Milos DAMNJANOVIC	Head of the Operations Control Center	SfPT
Ms. Katarina PETROVIC	Head of Public Rail Transport Department	SfPT
Mr. Nebojsa PERIC	Head of development section	SfPT
Mr. Milan JANKOVIC	Officer (retired)	SfPT
Mr. Miomir SEGOVIC	Sector Director	Belgrade Metro and Train (BMV)
Mr. Zoran SARAC	Assistant director for traffic and suburban transport	Lasta
Mr. Dragisa IVANOVIC	Consortium's Executive director	Avala 500
Mr. Drago TOSIC	Management director	Arriva
Mr. Slobodan MISANOVIC	Project Manager	GSP "Beograd"
Ms. Sladjana STANKOVIC	Head of Development Sector	GSP "Beograd"
Ms. Natasa PETRUSIC	Head of Department of Monitoring of Environmental Protection	Secretariate for Environmental Protection (SfEP)
Mr. Damir Ledenčan	Head of the Road Transport Department	Ministry of Construction, Transport and Infrastructure
Japan Side		
Mr. Masahiro UEKI	Chief representative	JICA Balkan Office
Ms. Rumiko NOMURA	Assistant Resident Representative	JICA Balkan Office
Ms. Ksenija BANKOVIC	Program officer	JICA Balkan Office
Ms Nataša BOGOJEVIC	Program officer	JICA Balkan Office
Dr. Sadayuki YAGI	Team Leader/Public Transport 1	JICA Expert Team
Mr. Yosui SEKI	Deputy Team Leader/Public Transport 2	JICA Expert Team
Mr. Ejiro OTSUKA	Fare collection / ICT system expert	JICA Expert Team
Mr. Deo NOBEL	Demand forecast expert	JICA Expert Team
Mr. Shinji TERAWAKI	Public relations expert	JICA Expert Team
Dr. Predrag ZIVANOVIC	Local expert	JICA Expert Team (FTTE)
Mr. Goran KRISTIC	Interpreter	JICA Expert Team

MINUTES OF MEETING
THE 4th JOINT COORDINATION COMMITTEE (JCC) MEETING
FOR
PROJECT FOR MODERNIZATION OF PUBLIC URBAN TRANSPORT IN THE CITY OF BELGRADE

In accordance with the Record of Discussions (R/D) signed on 7th August 2020 and subsequent assignment of the JICA Project Team, the 4th JCC meeting was held on 22nd December 2022 to confirm the progress of the Project for Modernization of Public Urban Transport in the City of Belgrade (hereinafter referred to as "the Project"), attended by representatives from The City of Belgrade, Secretariat for Public Transport of the Republic of Serbia (hereinafter referred to as "SfPT") , the JICA Project Team and Japan International Cooperation Agency (hereinafter referred to as "JICA").
Both sides agreed on the minutes of the meeting as summarized below, with documents submitted for the meeting annexed herewith.

- **Point 1: Demand forecasting and PT network planning work (Items 101, 103)**
  Based on the request from JICA Expert Team, SfPT decided to assign one person to work with the Expert Team on the demand forecast model update from January to April 2023. The tasks include not only demand forecast modeling but also transport database management and maintenance, building the PT improvement scenarios, and planning PT lines as part of integrated PT network to be agreed on with SfPT. The Expert Team shall provide the license of the software, guidance on how to use the software, and allowance to compensate extra hours of work that may be caused by this activity.

- **Point 2: Pilot Project on Corridor 400 (Items 102, 106)**
  JICA Expert Team has reviewed the operation plan in Corridor 400, which included shortening some bus routes as well as changing headways. Although the new operation plan showed benefits in terms of reduction in the number of bus vehicles and operating kilometers as well as equalized intervals, SfPT and JICA Expert Team found it difficult to implement the proposed operation plan because of the increased number of drivers and the difficulty in organizing users' opinions due to shortening bus routes.
  [Pilot Project on Line57/87]
  SfPT proposed a feasible pilot project under Activity 1 as an alternative, SfPT and JICA Expert Team discussed and decided to be implemented in line 57/87.
  [Pilot Project on Pilot project on improving operational efficiency of the control center using video data]

During January 2023, SfPT and JICA Expert Team study the measures that contribute to the improvement of bus operation management, and decided to utilize the camera footage from police.

SfPT and JICA Project Team decided to purchase a video wall to project video footage at control center, as a part of pilot project. The cost of the video wall and accessories will be procured by SfPT and JICA's cost share. However, the following conditions have been set for the purchase due to the limitation of remaining project period:

1. JICA Project Team will start the necessary procedures after the SfPT confirms that it can start the procedure immediately
2. SfPT will complete the necessity procedures within March 2023, and complete the procurement within end of May, 2023.

It was confirmed by both parties that the purchase of a video wall will not be permitted if it deviates from above conditions.

- **Point 3: Alternative contracting method (Item 201)**

Service and gross cost contracts have been the least impacted and proved to be the most resilient against the COVID 19 patronage fall and revenue crisis. However, issues in the current contract model are pointed out by private operators, and a benchmark study on contract relations in the four cities was conducted.

The following recommendations from JICA Expert Team were confirmed.

1. Introduction of an incentive system in the contract linked with fare revenue increase.
2. Introduction of customer satisfaction survey – justifying the subjective answers is difficult, but conducting a survey would be a first step.
3. Having all operators open their accounts to a neutral auditor would be a good practice for both Authority and Operator.
4. Having regular dialogues between SfPT and Operators at a technical level would facilitate improvement of the current Public Private Partnership model.

- **Point 4: Pilot Project on Smart Bus Stop (Item 202)**

Based on the request of SfPT, preparations for the smart bus stop have been conducted for more than a year, considering the installation location and details, and demarcating with JICA Expert Team. The installation of a video wall, which has been considered as an alternative, was for micromanagement at the bus stops. Since installing a video wall alone will have limited effect in achieving the original purpose, an alternative idea has been considered.

Since the installation of the cameras at the bus stops has been canceled, it was decided the cancelation of the Pilot Project under activity 2.

- **Point 5: Improvement of fare collection (Activity 3)**
  For Improvement plans to increase the fare collection (Item 302), the following items were confirmed among the participants of JCC:

  1. As an input into the new PUC "Transport services fare collection," best practice of all the measures to increase the fare collection learnt from the third-country training is worth considering, such as tap in (and out) for every ride, closed gate system, and boarding buses from the front doors only.
  2. Institutional improvement to authorize ticket controllers to demand ID from free riders and/or detain them has been proposed. Revenue from fines shall go to the state budget and the National Fund for PT improvement as well as the PT operators.

  As for Demonstration Projects at schools to improve fare collection (Item 304), Effectiveness of this demonstration was confirmed, and it was decided to carry out the full-scale activities by SfPT and JICA Expert team with FTTE from the end of February 2023.

In view of the above-mentioned five (5) points, SfPT and JICA Project Team agreed to continue to work together.

Annex 1: List of members of JCC Meeting
Annex 2: Presentation Material
Annex 3: Monitoring Sheet Summary v-4
Annex 4: Monitoring Sheet I (Project Design Matrix) v-4
Annex 5: Monitoring Sheet II (Plan of Operation) v-4

The City of Belgrade, Republic of Serbia

Dr. YAGI Sadayuki

Head of the Project
JICA Project Team

Mr. Predrag Lukic
Secretary
The City of Belgrade, Secretariat for Public Transport of Republic of Serbia (SfPT)

MINUTES OF MEETING
THE 5th JOINT COORDINATION COMMITTEE (JCC) MEETING
FOR
PROJECT FOR MODERNIZATION OF PUBLIC URBAN TRANSPORT
IN THE CITY OF BELGRADE

In accordance with the Record of Discussions (R/D) signed on 7th August 2020 and subsequent assignment of the JICA Project Team, the 5th JCC meeting was held on 26th September 2023 to confirm the progress of the Project for Modernization of Public Urban Transport in the City of Belgrade (hereinafter referred to as "the Project"), attended by representatives from Secretariat for Public Transport of the City of Belgrade (hereinafter referred to as "SfPT") , the JICA Project Team and Japan International Cooperation Agency (hereinafter referred to as "JICA").
Both sides agreed on the minutes of the meeting as summarized below, with documents submitted for the meeting annexed herewith.

- **Point 1: Confirmation of Revised R/D**
  Both parties confirmed the revisions of the PDM and PO in the revised R/D and the assignment of Mr. Goran Medakovic, Mayor's advisor as Project Director and Mr. Radovan Kremic, Secretary of SfPT as Project Manager, and the implementation of the Project to be completed under their good leadership.
- **Point 2: Confirmation of the Progress of each Activity and its Remaining Tasks**
  Based on the report from each working group leader, the achievement status of outputs was confirmed. However, the following items will be ensured to be completed by SfPT and the Project Team before the final JCC.
  1. Preparation of the study report (Item 104) and the pilot project evaluation report (Item 106)
  2. Finalization of reports on Activity 2 (Items 201 and 202)
  3. Finalization of the improvement plan list for prevention of free rides (Item 302)
- **Point 3: Confirmation of Draft Joint Review**
  Joint evaluation using the six DAC criteria for evaluating development assistance, was conducted among SfPT, JICA and the JICA Project Team. Regarding the criteria of relevance, coherence, impact and efficiency, rating 3 was confirmed. With respect to effectiveness and sustainability, partial achievement was confirmed. The reasons for this are as follows:
  1. Effectiveness: Although it was confirmed that each activity would be accomplished, the R/D was revised after abandoning some of the activities originally planned. Therefore, the status of achievement is rated 2.
  2. Sustainability: Decisions and directives by the Mayor's Office and SfPT regarding public transportation development were confirmed as appropriate in the discussion in the JCC and the prior meeting between Japanese side and

Serbian side on Sep. 25. Public transport reform especially to change the fare collection system is currently in the initial stage. So, the latest status should be reviewed and confirmed again to finalize the rating at the timing of the final JCC.

- **Point 4: Confirmation of Actions to be taken by C/P and the JICA Project Team before the end of the Project**
  In order to achieve the project purpose and overall goals, it is necessary to clarify how the results of each working group's activities will be utilized after the project is completed. Therefore, it was confirmed that the SfPT and the JICA Project Team will clarify how the results of each working group will be utilized and what implementation structure will be feasible by the final meeting of the JCC in December 2023. This will be an important item that will be the evaluation viewpoint in the ex-post evaluation.
- **Point 5: Holding Final JCC Meeting and Seminar**
  It was confirmed that the final JCC meeting and seminar will be held in the first week of December 2023. It was also confirmed that the Serbian side would consider how to report the project outputs to the Mayor of Belgrade.

In view of the above-mentioned five (5) points, SfPT and JICA Project Team agreed to continue to work together.

Annex 1: List of members of JCC Meeting
Annex 2: Presentation Materials
Annex 3: Monitoring Sheet Summary v-5
Annex 4: Monitoring Sheet I (Project Design Matrix) v-5
Annex 5: Monitoring Sheet II (Plan of Operation) v-5

September 26th 2023
The City of Belgrade

Dr. YAGI Sadayuki

Head of the Project
JICA Project Team

Mr. Radovan Kremic

Secretary
Secretariat for Public Transport of the
City of Belgrade (SfPT)

MINUTES OF MEETING

THE 6th JOINT COORDINATION COMMITTEE (JCC) MEETING

FOR

PROJECT FOR MODERNIZATION OF PUBLIC URBAN TRANSPORT

IN THE CITY OF BELGRADE

In accordance with the Record of Discussions (R/D) signed on 7th August 2020 and subsequent assignment of the JICA Expert Team, the 6th JCC meeting was held on 7th December 2023 to confirm the output of the Project for Modernization of Public Urban Transport in the City of Belgrade (hereinafter referred to as "the Project"), attended by representatives from Secretariat for Public Transport (hereinafter referred to as "SfPT") other organizations of the City of Belgrade, the JICA Expert Team (hereinafter referred to as "JET") and Japan International Cooperation Agency (hereinafter referred to as "JICA").

Both sides agreed on the minutes of the meeting as summarized below, with documents submitted for the meeting annexed herewith.

1. Based on the report from each working group leader, completion of all the Project activities was confirmed, including the following items that were yet to be completed at the last JCC meeting on 26th September 2023.
   - The study report (Item 104: demarcation of roles and responsibilities between SfPT and operators) and the pilot project evaluation report (Item 106)
   - Reports on Activity 2 (Items 201: review of Availability Payment and 202: improvement of monitoring the operators)
   - Improvement plan list for prevention of free rides (Item 302)

   Project Completion Report as well as the documents made for technical cooperation listed in Annex 6 will be submitted to JICA by the JET by 28 December 2023, and then the Report and the documents will be delivered by JICA Balkan Office to SfPT. It was confirmed that any comments on the report should be made before the submission to JICA.

2. At the conclusion of each activity, JCC members confirmed that the following points.

(1) About Output 1 "The ability of strategical, tactical and operational planning of SfPT is improved," it was confirmed that SfPT should continue to work, recognizing the need for a planning theory based on scientific arguments in order to develop their own self-reliance. In particular, SfPT will take charge of the database and the demand forecast model, while, if necessary, collaborating with FTTE (Faculty of Transport and Traffic Engineering, University of Belgrade) for the purpose of route and operation planning as well as to update the database and the model.

(2) About Output 2 "The ability of monitoring operators of SfPT is improved," SfPT confirmed that the recommendations by the JET, which are cost effective and relatively manageable, are possible to be implemented at the timing of the next contract renewal.

(3) About Output 3 "The ability for planning for securing fare collection of SfPT is improved," various recommendations for improvement were made based on

examples from Japan and third countries. SfPT confirmed that the recommended measures, which are cost effective and relatively manageable, are possible to be implemented soon as a first step to secure the fare collection.

3. JICA expressed and JCC members acknowledged that through the Project, SfPT has worked with JET to analyze public transport issues in Belgrade. Several plans for improvement have been compiled, and these study results and tools have been handed over to SfPT. However, it is important to "implement" these plans for the future improvement of public transport in the City of Belgrade. After the Project ends, the City of Belgrade, SfPT, and related organizations shall continue to work together to make public transport system better by utilizing the reports and documents submitted through the Project.
4. JET presented recommendations to achieve the overall goal of the Project three years after the Project completion. SfPT recognized importance of the recommendations as well as those which are summarized in the Project Leaflet.
5. SfPT side appreciated JICA for all the outputs from the Project that could be utilized for improvement of public transport in the future.

Annex 1: List of members of JCC Meeting
Annex 2: Presentation Materials including Project Leaflet
Annex 3: Monitoring Sheet Summary v-6
Annex 4: Monitoring Sheet I (Project Design Matrix) v-6
Annex 5: Monitoring Sheet II (Plan of Operation) v-6
Annex 6: List of Documents Made for Technical Cooperation

December 8th 2023
The City of Belgrade

Dr. YAGI Sadayuki

Head of the Project
JET

Mr. Radovan Kremic

Secretary
Secretariat for Public Transport of the
City of Belgrade (SfPT)

ЗАПИСНИК СА САСТАНКА СА ШЕСТОГ ЗАСЕДАЊА ЗАЈЕДНИЧКОГ КООРДИНАЦИОНОГ КОМИТЕТА (JCC) ПРОЈЕКАТА МОДЕРНИЗАЦИЈЕ ЈАВНОГ ГРАДСКОГ ПРЕВОЗА У ГРАДУ БЕОГРАДУ

У складу са Документом о усаглашеним активностима (Р/Д) потписаним 7. августа 2020. и накнадним укључивањем JICA Експертског тима, 6. заседање заједничког координационог комитета (JCC) је одржано 7. децембра 2023. године. На састанку су се потврдили резултати Пројекта модернизације јавног градског превоза у граду Београду (у даљем тексту „Пројекат“), уз присуство представника Секретаријата за јавни превоз града Београда (у даљем тексту „СЈП“), других организација града Београда, Експертског тима JICA (у даљем тексту „JET“) и Јапанске агенције за међународну сарадњу (у даљем тексту, „JICA“).

Обе стране су се сложиле око записника са састанка који је резимиран у наставку и који прате документа у прилогу.

1. На основу извештаја вођа радних група, потврђен је завршетак свих пројектних активности појединачно, укључујући следеће ставке које су довршене након JCC-а који је одржан 26. септембра 2023. године.
   - Извештај о студији (Ставка 104: разграничење улога и одговорности између СЈП и превозника) и извештај процене пилот пројекта (ставка 106)
   - Извештаји о активности 2 (ставке 201: Преиспитивање садашњег модела плаћања превозника и 202: унапређења мониторинга превозника)
   - Листа планираних унапређења за спречавање превоза путника без карата (ставка 302)

   Извештај о завршетку пројекта, као и документацију за техничку сарадњу која је наведена у Анексу 6, JET ће доставити JICA-и до 28.12.2023. године, а затим ће JICA Балкан канцеларија поменути извештај и документацију доставити СЈП-у. Потврђено је да било какве приговоре на извештај треба дати пре но што документација буде достављена JICA-и.

2. Као закључак у вези сваке активности, чланови JCC-а потврдили су следеће тачке.

(1) У вези излазних резултата Активности 1 "Побољшана је способност стратешког, тактичког и оперативног планирања СЈП-а," потврђено је да СЈП треба да настави са радом, препознајући потребу за теоријом планирања заснованом на научним аргументима, како би се развили сопствени капацитети. Конкретно, СЈП ће преузети базу података и модел прогнозе потражње, док ће, по потреби, сарађивати са СФ (Саобраћајни факултет Универзитета у Београду) у циљу планирања траса и активности, као и ажурирања база података и модела.

(2) У вези излазних резултата Активности 2 "Побољшана је способност мониторинга превозника од стране СЈП-а," СЈП је потврдио да се препоручене мере, које су исплативе и релативно изводљиве, могу применити приликом обнове уговора.

(3) У вези излазних резултата Активности 3 "Побољшана је наплата прихода

од продаје карата," дате су различите препоруке за побољшање на основу примера из Јапана и трећих земаља. СЈП је потврдио да се препоручене мере, које су исплативе и релативно изводљиве, могу применити како би се обезбедила наплата карата.

3. JICA је предложила и чланови JCC-а су се сложили да је СЈП кроз пројекат радио са JET-ом на анализи проблема јавног превоза у Београду. Састављено је неколико планова за побољшање, и исти су предати СЈП-у. Треба истаћи да је корисно „спровести" ове планове за будуће унапређење јавног превоза у граду Београду. Након завршетка пројекта, СЈП и друге релевантне организације ће наставити да раде заједно на побољшању система јавног превоза коришћењем извештаја и докумената достављених кроз пројекат.
4. JET је дао препоруке за постизање општег циља Пројекта три године након завршетка Пројекта. СЈП је препознао важност препорука, као и оних које су сажете у Пројектној брошури.
5. СЈП страна изражава захвалност JICA-и на свим резултатима пројекта који ће моћи да се употребе за побољшање јавног превоза убудуће.

Анекс 1: Листа присутних на JCC заседању
Анекс 2: Презентациони материјали пројектне брошуре,
Анекс 3: Сажетак Матрице мониторинга пројекта v-6
Анекс 4: Матрица мониторинга пројекта I (Матрица дизајна пројекта) v-6
Анекс 5: Матрица мониторинга пројекта II (план рада) v-6
Анекс 6: Листа докумената у вези техничке сарадње.

8. децембра 2023. године
У Београду

Др. Садајуки ЈАГИ
(Dr. Sadayuki YAGI)
Вођа пројекта
JET

Г. Радован Кремић
Секретар
Секретаријат за јавни превоз
Градске управе града Београда
(СЈП)

.....КРАЈ ПРЕВОДА.....

Потврђујем да овај превод у потпуности одговара изворном тексту који је састављен на енглеском језику
Судски преводилац за енглески језик
Светлана Михаиловић
Именована решењем Републичког Министра за правосуђе, Београд, Србија, бр. 740-02-00262/93-01
Рег. бр. **813/23** Датум: **06.12.2023.**

Plan of Operation

Version 1.0

Dated June, 2021

Project Title: Project for Modernization of Public Urban Transport in the City of Belgrade

Inputs	Year	2020		2021											2022												2023										Remarks	**Monitoring**	
		11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10		Issue	Solution
Expert																																							
(1)Team Leader / Public Transport Policy 1	Plan																																						
	Actual																																						
(2)Deputy Team Leader / Public Transport Policy 2	Plan																																						
	Actual																																						
(3)Public Transport Planning	Plan																																						
	Actual																																						
(4)Operation & Operator Management	Plan																																						
	Actual																																						
(5)Fare Collection	Plan																																						
	Actual																																						
(6)ICT System	Plan																																						
	Actual																																						
(7)Pilot Project	Plan																																						
	Actual																																						
(8)Transport Survey / Database / Demand Forecast 2	Plan																																						
	Actual																																						
(9)Demand Forecast 1	Plan																																						
	Actual																																						
(10)Financial & Economic Analysis	Plan																																						
	Actual																																						
(11)Monitoring / Evaluation / Public Relation	Plan																																						
	Actual																																						
Training																																							
Training in Japan	Plan																																						
	Actual																																						
Training in the third country	Plan																																						
	Actual																																						
Workshop at Belgrade																																							
Seminar / Workshop	Plan																																						
	Actual																																						
	Plan																																						
	Actual																																						
Invitation to Japan																																							
Invitation	Plan																																						
	Actual																																						
	Plan																																						
	Actual																																						
Equipment																																							
	Plan																																						
	Actual																																						
	Plan																																						
	Actual																																						

Activities	Year	2020		2021											2022												2023										Responsible Organization		Achievements	Issue & Countermeasures
Sub-Activities		11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	Japan	Serbia		
Output 1: The capability of operation planning of Secretariat for Public Transport (SfPT) is improved.																																							
101 To conduct travel demand survey along major routes and analyze the result of survey.	Plan																																						
	Actual																																						
102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of travel demand survey.	Plan																																						
	Actual																																						
103 To propose integrated public transportation network to enhance intermodality including water transport, planned Metro lines, terminal access modes.	Plan																																						
	Actual																																						
104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators.	Plan																																						
	Actual																																						
105 To create a list of improvement measures for operation management of public transportation.	Plan																																						
	Actual																																						
106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105.	Plan																																						
	Actual																																						

Output 2: The ability of monitoring operators of SfPT is improved.																																								
201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators.	Plan								■	■	■	■	■																											
	Actual																																							
202 To propose improvement plan of the way of monitoring the operators and to create basic specifications of necessary operation management system and equipment.	Plan														■	■	■	■	■	■	■	■	■																	
	Actual																																							
Output 3: The ability of planning for securing fare collection of SfPT is improved.																																								
301 To review actual structure of fare collection and to identify the issues to be addressed.	Plan								■	■	■	■	■																											
	Actual																																							
302 To formulate an improvement plan list for prevention of free ride.	Plan														■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■									
	Actual																																							
303 To formulate an improvement plan list for operation service level and convenience.	Plan																																							
	Actual																																							
304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303.	Plan																								■	■	■	■	■	■	■									
	Actual																																							
305 To carry out public relations activities to raise awareness of the importance of fare collection.	Plan														■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
	Actual																																							

Duration / Phasing	Plan
	Actual

Monitoring Plan	Year	2020		2021												2022												2023										Remarks	Issue	Solution
		11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10			
Monitoring																																								
Set-up the Detailed Plan of Operation	Plan								■																															
	Actual																																							
Joint Coordinating Committee (JCC)	Plan								■						■					■					■							■				■				
	Actual																																							
Submission of Monitoring Sheet	Plan								■						■					■					■							■				■				
	Actual																																							
Monitoring Mission from Japan	Plan														■					■					■							■				■				
	Actual																																							
Joint Monitoring	Plan														■					■					■							■				■				
	Actual																																							
Post Monitoring	Plan																																							
	Actual																																							
Reports/Documents																																								
Minutes of Meeting for JCC	Plan								■						■					■					■															
	Actual																															■				■				
Progress Report	Plan														■																									
	Actual																																							
Draft Project Completion Report	Plan																								■															
	Actual																																							
Project Completion Report	Plan																																				■			
	Actual																																							
Public Relations																																								
Serbia	Plan								■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
	Actual																																							
Japan	Plan								■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
	Actual																																							

Project Design Matrix

Project Title: Project for Modernization of Public Urban Transport in the City of Belgrade
Implementing Agency: Secretariat for Public Transport (SfPT)
Target Group: SfPT, Operators, Tariff System Contractor
Period of Project: November 2020 ～ November 2023（3 years）
Project Site: The City of Belgrade

Version 1.0
Dated June, 2021

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
Overall Goal Sustainability of Eco-friendly public transport in Belgrade is enhanced including eco-friendly approach.	At 3 years after project completion <EX.> ①Eco-friendly public transportation system (the ratio of EV vehicles and Euro 6 compliant vehicles to all bus vehicles in Belgrade) is increased by 10%. ②The number of public transport users is maintained. ③Some of measures aiming at financial soundness of public transport operations are implemented.	①New vehicle procurement and public transport rolling stock fleet information ②Data on average density by route, number of passengers per route, and number of passengers per kilometer ③SfPT's report	・Environment Protection continues to be a priority issue for the City of Belgrade.		
Project Purpose Ability of public transport operation of SfPT is improved.	At the project completion <EX.> ①Public transportation is operated according to the improved operation plan at the timing of contract renewal with operators (carriers) ②Some of measures to improve operation management of public transportation and way of contract between operators are decided to introduce on the new contract. ③Some of measures to secure fare collection are introduced as the City's policy. ④Public transportation users' satisfaction with public transportation is improved by 10%.	①Operation reports, including tracking of punctual operation and % trips missed/cancelled ②③SfPT's report ④Passenger questionnaires and customer satisfaction surveys			
Outputs 1.The ability of strategical, tactical and operational planning of SfPT is improved.	At the project completion <EX.> ①The number of SfPT staff members who can use appropriate software and tools for demand forecast such as strategic models (e.g., VISUM), microsimulation (e.g., VISSIM) and cross-cutting software (e.g., GIS) is increased. ②The number of SfPT staff members who can formulate route plan based on demand forecast is increased. ③Existing route plans and operation plans are updated. ④Proposal for sustainable middle-, and long-term plans for an Integrated public transport is created. ⑤A list of improvement measures for operation management of public transportation is created. ⑥Pilot projects to improve operation management, to formulate operation plan and route plan are implemented.	①②Report of training ③Updated operation plan ④Improvement plan list for operation management ⑤Improvement proposal, and phasing plan for entire public transportation in Belgrade ⑥Evaluation report of the pilot projects	・The officers who have received technology transfer in this project do not leave. ・Demand for public transport does not drop sharply after the emergency by COVID-19. ・The need for public transport is not reduced.		
2.The ability of monitoring operators of SfPT is improved.	<EX.> ①Improvements or alternatives measures for the new contract with operators are proposed. ②Improvement measures for vehicle monitoring system are proposed.	①Study report including gap/SWOT analysis Improvement proposal for operation monitoring system, ②Operator monitoring report			
3.The ability for planning for securing fare collection of SfPT is improved.	①Problems and issues of fare collection are extracted. ②Improvement plan list for prevention for free ride is formulated ③Improvement plan list for public transportation operation service level and convenience is formulated ④Demonstration projects are conducted to secure fare collection and its evaluation are carried out ⑤Public relations activities are carried out to raise awareness of the importance of fare payment	①Study report for current fare collection system ②Improvement plan list for prevention for free ride ③Improvement plan list for operation service level and convenience ④Evaluation report of the pilot projects ⑤Numbers of campaign or promotion for fare collection			

Activities	Inputs	Important Assumption
	Japanese Side	
101 To conduct travel demand survey along major routes and implement OJT on transport demand software. 102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of travel demand survey. 103 To propose integrated public transportation network to enhance intermodality including water transport, planned Metro lines, terminal access modes. 104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators. 105 To create a list of improvement measures for operation management of public transportation. 106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105.	1.Dispatch of expert team (1)Team Leader / Public Transport Policy 1 (2)Deputy Team Leader / Public Transport Policy 2 (3)Public Transport Planning (4)Operation & Operator Management (5)Fare Collection (6)ICT System (7)Pilot Project (8)Transport Survey / Database / Demand Forecast 2 (9)Demand Forecast 1 (10)Financial & Economic Analysis (11)Monitoring / Evaluation / Public Relation	Pre-Conditions ・The priority of the City of Belgrade for this project does not decrease. ・The support and understanding from related organizations are obtained.
201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators.. 202 To propose improvement plan of the way of monitoring the operators and to create basic specifications of necessary operation management system and equipment.	2.Counterpart training in Japan and the third countries 3.Organize seminars / workshops 4.Invitation 5.Equipment (if any)
301 To review actual structure of fare collection and to identify the issues to be addressed. 302 To formulate an improvement plan list for prevention of free ride. 303 To formulate an improvement plan list for operation service level and convenience. 304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303. 305 To carry out public relations activities to raise awareness of the importance of fare collection.	6.Cost share for implementing pilot projects Serbian Side 1.Assign counterpart personnel 2.Provision of office space 3.Arrangements for seminars / workshops 4.Advisor or consultants in Belgrade (if any) 5.Interpreter (English / Serbian) 6.Cost share for implementing pilot projects	<Issues and countermeasures>

Plan of Operation

Version 2.0

Dated December, 2021

Project Title: Project for Modernization of Public Urban Transport in the City of Belgrade

Inputs	Year	2020	2021											2022											2023										Remarks	**Monitoring** Issue	Solution
		11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10			
Expert																																							
(1)Team Leader / Public Transport Policy 1	Plan																																						
	Actual																																						
(2)Deputy Team Leader / Public Transport Policy 2	Plan																																						
	Actual																																						
(3)Public Transport Planning	Plan																																						
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(4)Operation & Operator Management	Plan																																						
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(5)Fare Collection	Plan																																						
	Actual																																						
(6)ICT System	Plan																																						
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(7)Pilot Project	Plan																																						
	Actual																																						
(8)Transport Survey / Database / Demand Forecast 2	Plan																																						
	Actual																																						
(9)Demand Forecast 1	Plan																																						
	Actual																																						
(10)Financial & Economic Analysis	Plan																																						
	Actual																																						
(11)Monitoring / Evaluation / Public Relation	Plan																																						
	Actual																																						
Training																																						
Training in Japan	Plan																																						
	Actual																																						
Training in the third country	Plan																																				The 1st training in third country was postponed due to influence of COVID-19	Prior to the training in the third country, online sessions were conducted to learn about the training content in advance.
	Actual																																						
Workshop at Belgrade																																						
Seminar / Workshop	Plan																																						
	Actual																																						
Invitation to Japan																																						
Invitation	Plan																																						
	Actual																																						
Equipment																																						
	Plan																																						
	Actual																																						

Activities	Year	2020	2021											2022											2023										Responsible Organization		Achievements	Issue & Countermeasures
Sub-Activities		11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	Japan	Serbia		
Output 1: The capability of operation planning of Secretariat for Public Transport (SfPT) is improved.																																							
101 To conduct travel demand survey along major routes and analyze the result of survey.	Plan																																					•Information collection on the travel demand forecast •Confirmation on demand forecast modeling and its data •Conduct of VISUM training	
	Actual																																						
102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of travel demand survey.	Plan																																					•Information collection on the operation planning	
	Actual																																						
103 To propose integrated public transportation network to enhance intermodality including water transport, planned Metro lines, terminal access modes.	Plan																																					•Discussion on introduction of river transport and future railway network plan	
	Actual																																						

104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators.	Plan	•Examination on role and responsibility by SfPT and public transport operators •Information collection of good practices in EU cities
	Actual	
105 To create a list of improvement measures for operation management of public transportation.	Plan	•Data collection on public transport operation and management •Examination on timetable and diagram systems
	Actual	
106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105.	Plan	•Discussion on initial proposal of pilot project and its data and information collection •Discussion on pilot project contents •Hearing about ICT companies
	Actual	
Output 2: The ability of monitoring operators of SfPT is improved.		
201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators.	Plan	•Analysis of Unit price in the operational contract •Comparative analysis on existing operational contract and its alternatives
	Actual	
202 To propose improvement plan of the way of monitoring the operators and to create basic specifications of necessary operation management system and equipment.	Plan	•Examination of operation management system that contributes to improvement of operation monitoring •Analysis of BusPlus system
	Actual	
Output 3: The ability of planning for securing fare collection of SfPT is improved.		
301 To review actual structure of fare collection and to identify the issues to be addressed.	Plan	•Conducting an awareness survey on fare payment •Analysis and Discussion on an awareness survey
	Actual	
302 To formulate an improvement plan list for prevention of free ride.	Plan	•Identify various problems caused by bus stops and consider improvements •Preparation and discussion of a bus riding class plan (educational programs) •Examination and discussion of teaching materials for bus drivers
	Actual	
303 To formulate an improvement plan list for operation service level and convenience.	Plan	
	Actual	

304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303.	Plan			•Discussion on the general contents of the demonstration project	
	Actual				
305 To carry out public relations activities to raise awareness of the importance of fare collection.	Plan			•Setting up of Facebook Project Page	
	Actual				

Duration / Phasing	Plan			
	Actual			

Monitoring Plan	Year	2020	2021	2022	2023	Remarks	Issue	Solution
		11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10			
Monitoring								
Set-up the Detailed Plan of Operation	Plan						N/A	
	Actual							
Joint Coordinating Committee (JCC)	Plan						N/A	
	Actual							
Submission of Monitoring Sheet	Plan						N/A	
	Actual							
Monitoring Mission from Japan	Plan						N/A	
	Actual							
Joint Monitoring	Plan						N/A	
	Actual							
Post Monitoring	Plan						N/A	
	Actual							
Reports/Documents								
Minutes of Meeting for JCC	Plan						N/A	
	Actual							
Progress Report	Plan						N/A	
	Actual							
Draft Project Completion Report	Plan						N/A	
	Actual							
Project Completion Report	Plan						N/A	
	Actual							
Public Relations								
Serbia	Plan						N/A	
	Actual							
Japan	Plan						N/A	
	Actual							

Project Design Matrix

Project Title: Project for Modernization of Public Urban Transport in the City of Belgrade

Version 2.0

Dated November, 2021

Implementing Agency: Secretariat for Public Transport (SfPT)

Target Group: SfPT, Operators, Tariff System Contractor

Period of Project: November 2020 ～ November 2023(3 years)

Project Site: The City of Belgrade

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
Overall Goal Sustainability of Eco-friendly public transport in Belgrade is enhanced including eco-friendly approach.	At 3 years after project completion <EX.> ①Eco-friendly public transportation system (the ratio of EV vehicles and Euro 6 compliant vehicles to all bus vehicles in Belgrade) is increased by 10%. ②The number of public transport users is maintained. ③Some of measures aiming at financial soundness of public transport operations are implemented.	①New vehicle procurement and public transport rolling stock fleet information ②Data on average density by route, number of passengers per route, and number of passengers per kilometer ③SfPT's report	・Environment Protection continues to be a priority issue for the City of Belgrade.		
Project Purpose Ability of public transport operation of SfPT is improved.	At the project completion <EX.> ①Public transportation is operated according to the improved operation plan at the timing of contract renewal with operators (carriers) ②Some of measures to improve operation management of public transportation and way of contract between operators are decided to introduce on the new contract. ③Some of measures to secure fare collection are introduced as the City's policy. ④Public transportation users' satisfaction with public transportation is improved by 10%.	①Operation reports, including tracking of punctual operation and % trips missed/cancelled ②③SfPT's report ④Passenger questionnaires and customer satisfaction surveys			
Outputs 1.The ability of strategical, tactical and operational planning of SfPT is improved.	At the project completion <EX.> ①The number of SfPT staff members who can use appropriate software and tools for demand forecast such as strategic models (e.g., VISUM), microsimulation (e.g., VISSIM) and cross-cutting software (e.g., GIS) is increased. ②The number of SfPT staff members who can formulate route plan based on demand forecast is increased. ③Existing route plans and operation plans are updated. ④Proposal for sustainable middle-, and long-term plans for an Integrated public transport is created. ⑤A list of improvement measures for operation management of public transportation is created. ⑥Pilot projects to improve operation management, to formulate operation plan and route plan are implemented.	①②Report of training ③Updated operation plan ④Improvement plan list for operation management ⑤Improvement proposal, and phasing plan for entire public transportation in Belgrade ⑥Evaluation report of the pilot projects	・The officers who have received technology transfer in this project do not leave. ・Demand for public transport does not drop sharply after the emergency by COVID-19. ・The need for public transport is not reduced.		
2.The ability of monitoring operators of SfPT is improved.	<EX.> ①Improvements or alternatives measures for the new contract with operators are proposed. ②Improvement measures for vehicle monitoring system are proposed.	①Study report including gap/SWOT analysis Improvement proposal for operation monitoring system, ②Operator monitoring report			
3.The ability for planning for securing fare collection of SfPT is improved.	①Problems and issues of fare collection are extracted. ②Improvement plan list for prevention for free ride is formulated ③Improvement plan list for public transportation operation service level and convenience is formulated ④Demonstration projects are conducted to secure fare collection and its evaluation are carried out ⑤Public relations activities are carried out to raise awareness of the importance of fare payment	①Study report for current fare collection system ②Improvement plan list for prevention for free ride ③Improvement plan list for operation service level and convenience ④Evaluation report of the pilot projects ⑤Numbers of campaign or promotion for fare collection			

Activities	Inputs	Important Assumption
	Japanese Side	
101 To conduct travel demand survey along major routes and implement OJT on transport demand software. 102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of travel demand survey. 103 To propose integrated public transportation network to enhance intermodality including water transport, planned Metro lines, terminal access modes. 104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators. 105 To create a list of improvement measures for operation management of public transportation. 106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105.	1.Dispatch of expert team (1)Team Leader / Public Transport Policy 1 (2)Deputy Team Leader / Public Transport Policy 2 (3)Public Transport Planning (4)Operation & Operator Management (5)Fare Collection (6)ICT System (7)Pilot Project (8)Transport Survey / Database / Demand Forecast 2 (9)Demand Forecast 1 (10)Financial & Economic Analysis (11)Monitoring / Evaluation / Public Relation	Pre-Conditions ・The priority of the City of Belgrade for this project does not decrease. ・The support and understanding from related organizations are obtained.
201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators.. 202 To propose improvement plan of the way of monitoring the operators and to create basic specifications of necessary operation management system and equipment.	2.Counterpart training in Japan and the third countries 3.Organize seminars / workshops 4.Invitation 5.Equipment(if any) 6.Cost share for implementing pilot projects	
301 To review actual structure of fare collection and to identify the issues to be addressed. 302 To formulate an improvement plan list for prevention of free ride. 303 To formulate an improvement plan list for operation service level and convenience. 304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303. 305 To carry out public relations activities to raise awareness of the importance of fare collection.	Serbian Side 1.Assign counterpart personnel 2.Provision of office space 3.Arrangements for seminars / workshops 4.Advisor or consultants in Belgrade (if any) 5.Interpreter(English / Serbian) 6.Cost share for implementing pilot projects	<Issues and countermeasures>

Plan of Operation

Version 3.0
Dated June, 2022

Project Title: Project for Modernization of Public Urban Transport in the City of Belgrade

Inputs	Year	2020		2021												2022												2023										Remarks	Monitoring	
		11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10		Issue	Solution
Expert																																							
(1)Team Leader / Public Transport Policy 1	Plan																																						
	Actual																																						
(2)Deputy Team Leader / Public Transport Policy 2	Plan																																						
	Actual																																						
(3)Public Transport Planning	Plan																																						
	Actual																																						
(4)Operation & Operator Management	Plan																																						
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(5)Fare Collection	Plan																																						
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(6)ICT System	Plan																																						
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(7)Pilot Project	Plan																																						
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(8)Transport Survey / Database / Demand Forecast 2	Plan																																						
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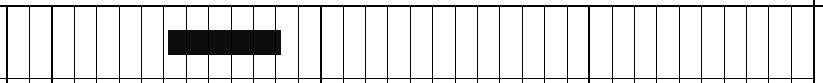
(9)Demand Forecast 1	Plan																																						
	Actual																																						
(10)Financial & Economic Analysis	Plan																																						
	Actual																																						
(11)Monitoring / Evaluation / Public Relation	Plan																																						
	Actual																																						
Training																																							
Training in Japan	Plan																																						
	Actual																																						
Training in the third country	Plan																																					The 1st and 2nd trainings in third country was postponed due to the pandemic, however 3rd and 4th ones were conducted first.	Prior to the training in the third country, online sessions were conducted to learn about the training content in advance.
	Actual																																						
Workshop at Belgrade																																							
Seminar / Workshop	Plan																																						
	Actual																																						
Invitation to Japan																																							
Invitation	Plan																																						
	Actual																																						
Equipment																																							
	Plan																																						
	Actual																																						

Activities	Year	2020		2021												2022												2023										Responsible Organization		Achievements	Issue & Countermeasures
Sub-Activities		11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	Japan	Serbia		
Output 1: The capability of operation planning of Secretariat for Public Transport (SfPT) is improved.																																								
101 To conduct travel demand survey along major routes and analyze the result of survey.	Plan																																							• Information collection on the traffic demand forecast • Analyzing on the traffic demand forecast model and its data • Conducting Activity Diary Survey • Preparation to update on the traffic demand forecast model • Preparation to update on the transport network development	
	Actual																																								

102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of travel demand survey.	Plan		• Information collection on the operation planning • Identification of the issues on the current scheduling and timetable making program
	Actual		
103 To propose integrated public transportation network to enhance intermodality including water transport, planned Metro lines, terminal access modes.	Plan		• Discussion on introduction of river transport and future railway network plan
	Actual		
104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators.	Plan		• Examination on role and responsibility by SfPT and public transport operators • Information collection of good practices in European cities • Examination on the movement to other models
	Actual		
105 To create a list of improvement measures for operation management of public transportation.	Plan		• Data collection on public transport operation and management at the site • Examination on timetable and diagram systems
	Actual		
106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105.	Plan		• Discussion on initial proposal of pilot project and its data collection • Hearing about ICT companies • Discussion on the implementation plan of pilot project
	Actual		
Output 2: The ability of monitoring operators of SfPT is improved.			
201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators.	Plan		• Analysis of Unit price in the operational contract • Comparative analysis on existing operational contracts in Belgrade, Bucharest and Hamburg and its alternatives
	Actual		
202 To propose improvement plan of the way of monitoring the operators and to create basic specifications of necessary operation management system and equipment.	Plan		• Examination of operation management system that contributes to improvement of operation monitoring • Analysis of BusPlus system • Preparation on scope of work on smart bus stop pilot project • Preparation on the implementation of smart bus stop pilot project
	Actual		

Output 3: The ability of planning for securing fare collection of SfPT is improved.						
301 To review actual structure of fare collection and to identify the issues to be addressed.	Plan				• Conducting the opinion survey on fare payment • Analysis the data got from the survey • Identification of the issues on fare collection	
	Actual					
302 To formulate an improvement plan list for prevention of free ride.	Plan				• Proposing the countermeasures categorized as push and pull policies based on the survey result • Examination of the lessons learned on the third country training (The Netherlands and Italy)	
	Actual					
303 To formulate an improvement plan list for operation service level and convenience.	Plan				• Examination and discussion of teaching materials for bus drivers • Making the plan for the remote trainings • Conducting the remote trainings	
	Actual					
304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303.	Plan				• Discussion on the contents of the demonstration project • Conducting a part of the demonstration project (Traffic Sugoroku) • Preparation of the implementation plan of other demonstration project (Belgrade Card Usage Competition)	
	Actual					
305 To carry out public relations activities to raise awareness of the importance of fare collection.	Plan				• Setting up of Facebook Project Page • Uploading the articles on Facebook • Making the city travel map to promote the use of the public transport • Displaying the panel on the importance of fare payment	
	Actual					

Duration / Phasing				Remarks	Issue	Solution
	Plan					
	Actual					

Monitoring Plan	Year	2020		2021										2022												2023										Remarks	Issue	Solution
		11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10			
Monitoring																																								
Set-up the Detailed Plan of Operation	Plan																																						N/A	
	Actual																																							
Joint Coordinating Committee (JCC)	Plan																																						N/A	
	Actual																																							
Submission of Monitoring Sheet	Plan																																						N/A	
	Actual																																							
Monitoring Mission from Japan	Plan																																						N/A	
	Actual																																							
Joint Monitoring	Plan																																						N/A	
	Actual																																							
Post Monitoring	Plan																																						N/A	
	Actual																																							
Reports/Documents																																							
Minutes of Meeting for JCC	Plan																																						N/A	
	Actual																																							
Progress Report	Plan																																						N/A	
	Actual																																							
Draft Project Completion Report	Plan																																						N/A	
	Actual																																							
Project Completion Report	Plan																																						N/A	
	Actual																																							
Public Relations																																							
Serbia	Plan																																						N/A	
	Actual																																							
Japan	Plan																																						N/A	
	Actual																																							

Project Design Matrix

Project Title: Project for Modernization of Public Urban Transport in the City of Belgrade

Version 3.0

Dated June, 2022

Implementing Agency: Secretariat for Public Transport (SfPT)

Target Group: SfPT, Operators, Tariff System Contractor

Period of Project: November 2020 ～ November 2023（3 years）

Project Site: The City of Belgrade

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
Overall Goal Sustainability of Eco-friendly public transport in Belgrade is enhanced including eco-friendly approach.	At 3 years after project completion <EX.> ①Eco-friendly public transportation system (the ratio of EV vehicles and Euro 6 compliant vehicles to all bus vehicles in Belgrade) is increased by 10%. ②The number of public transport users is maintained. ③Some of measures aiming at financial soundness of public transport operations are implemented.	①New vehicle procurement and public transport rolling stock fleet information ②Data on average density by route, number of passengers per route, and number of passengers per kilometer ③SfPT's report	・Environment Protection continues to be a priority issue for the City of Belgrade.		
Project Purpose Ability of public transport operation of SfPT is improved.	At the project completion <EX.> ①Public transportation is operated according to the improved operation plan at the timing of contract renewal with operators (carriers) ②Some of measures to improve operation management of public transportation and way of contract between operators are decided to introduce on the new contract. ③Some of measures to secure fare collection are introduced as the City's policy. ④Public transportation users' satisfaction with public transportation is improved by 10%.	①Operation reports, including tracking of punctual operation and % trips missed/cancelled ②③SfPT's report ④Passenger questionnaires and customer satisfaction surveys			
Outputs 1.The ability of strategical, tactical and operational planning of SfPT is improved.	At the project completion <EX.> ①The number of SfPT staff members who can use appropriate software and tools for demand forecast such as strategic models (e.g., VISUM), microsimulation (e.g., VISSIM) and cross-cutting software (e.g., GIS) is increased. ②The number of SfPT staff members who can formulate route plan based on demand forecast is increased. ③Existing route plans and operation plans are updated. ④Proposal for sustainable middle-, and long-term plans for an Integrated public transport is created. ⑤A list of improvement measures for operation management of public transportation is created. ⑥Pilot projects to improve operation management, to formulate operation plan and route plan are	①②Report of training ③Updated operation plan ④Improvement plan list for operation management ⑤Improvement proposal, and phasing plan for entire public transportation in Belgrade ⑥Evaluation report of the pilot projects	・The officers who have received technology transfer in this project do not leave. ・Demand for public transport does not drop sharply after the emergency by COVID-19. ・The need for public transport is not reduced.		
2.The ability of monitoring operators of SfPT is improved.	<EX.> ①Improvements or alternatives measures for the new contract with operators are proposed. ②Improvement measures for vehicle monitoring system are proposed.	①Study report including gap/SWOT analysis Improvement proposal for operation monitoring system, ②Operator monitoring report			
3.The ability for planning for securing fare collection of SfPT is improved.	①Problems and issues of fare collection are extracted. ②Improvement plan list for prevention for free ride is formulated ③Improvement plan list for public transportation operation service level and convenience is formulated ④Demonstration projects are conducted to secure fare collection and its evaluation are carried out ⑤Public relations activities are carried out to raise awareness of the importance of fare payment	①Study report for current fare collection system ②Improvement plan list for prevention for free ride ③Improvement plan list for operation service level and convenience ④Evaluation report of the pilot projects ⑤Numbers of campaign or promotion for fare collection			

Activities	Inputs	Important Assumption
	Japanese Side	
101 To conduct travel demand survey along major routes and implement OJT on transport demand software. 102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of travel demand survey. 103 To propose integrated public transportation network to enhance intermodality including water transport, planned Metro lines, terminal access modes. 104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators. 105 To create a list of improvement measures for operation management of public transportation. 106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105.	1.Dispatch of expert team (1)Team Leader / Public Transport Policy 1 (2)Deputy Team Leader / Public Transport Policy 2 (3)Public Transport Planning (4)Operation & Operator Management (5)Fare Collection (6)ICT System (7)Pilot Project (8)Transport Survey / Database / Demand Forecast 2 (9)Demand Forecast 1 (10)Financial & Economic Analysis (11)Monitoring / Evaluation / Public Relation	Pre-Conditions ・The priority of the City of Belgrade for this project does not decrease. ・The support and understanding from related organizations are obtained.
201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators.. 202 To propose improvement plan of the way of monitoring the operators and to create basic specifications of necessary operation management system and equipment.	2.Counterpart training in Japan and the third countries 3.Organize seminars / workshops 4.Invitation 5.Equipment (if any)	
301 To review actual structure of fare collection and to identify the issues to be addressed. 302 To formulate an improvement plan list for prevention of free ride. 303 To formulate an improvement plan list for operation service level and convenience. 304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303. 305 To carry out public relations activities to raise awareness of the importance of fare collection.	6.Cost share for implementing pilot projects Serbian Side 1.Assign counterpart personnel 2.Provision of office space 3.Arrangements for seminars / workshops 4.Advisor or consultants in Belgrade (if any) 5.Interpreter (English / Serbian) 6.Cost share for implementing pilot projects	<Issues and countermeasures>

Plan of Operation

Version 4.0
Dated Decmber, 2022

Project Title: Project for Modernization of Public Urban Transport in the City of Belgrade

Inputs		Year	2020		2021												2022												2023										Remarks	Monitoring	
			11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10		Issue	Solution
Expert																																								
(1)Team Leader / Public Transport Policy 1	Plan																																							
	Actual																																							
(2)Deputy Team Leader / Public Transport Policy 2	Plan																																							
	Actual																																							
(3)Public Transport Planning	Plan																																							
	Actual																																							
(4)Operation & Operator Management	Plan																																							
	Actual																																							
(5)Fare Collection	Plan																																							
	Actual																																							
(6)ICT System	Plan																																							
	Actual																																							
(7)Pilot Project	Plan																																							
	Actual																																							
(8)Transport Survey / Database / Demand Forecast 2	Plan																																							
	Actual																																							
(9)Demand Forecast 1	Plan																																							
	Actual																																							
(10)Financial & Economic Analysis	Plan																																							
	Actual																																							
(11)Monitoring / Evaluation / Public Relation	Plan																																							
	Actual																																							
Training																																							
Training in Japan	Plan																																						The remaining project period is less than a year, but there are two more Training in Japan sessions. (One is confirmed to take place in January 2023.)	The remaining training
	Actual																																							
Training in the third country	Plan																																						The remaining project period is less than a year, but there are two more Training in Third countries.	The remaining training schedule was confirmed.
	Actual																																							
Workshop at Belgrade																																							
Seminar / Workshop	Plan																																							
	Actual																																							
Invitation to Japan																																							
Invitation	Plan																																						The remaining project period is less than a year, but there is an invitation to Japan.	The remaining training
	Actual																																							
Equipment																																							
	Plan																																							
	Actual																																							

Activities / Sub-Activities	Year	2020	2021	2022	2023	Responsible Organization		Achievements	Issue & Countermeasures
		11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10	Japan	Serbia		
Output 1: The capability of operation planning of Secretariat for Public Transport (SfPT) is improved.									
101 To conduct travel demand survey along major routes and analyze the result of survey.	Plan							• Completed to examine the current model and its data. • Completed conducting traffic surveys (Activity Diary Survey, Travel Speed Data Analysis, Screenline Survey, Public Transport Corridor Survey)	SfPT members will be assigned to work on traffic demand forecasting for technical transfer.
	Actual								
102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of travel demand survey.	Plan							• Completed to collect and analyze the information and data on operational plans	
	Actual								
103 To propose integrated public transportation network to enhance intermodality including water transport, planned Metro lines, terminal access modes.	Plan							• Continue to discuss future public transport plans in light of the other existing public transport routes and overall travel demand	
	Actual								
104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators.	Plan							• Completed compiling the Pros & Cons through the good practices of the role and responsibility among PT organizations in European cities •Completed and recommendation was presented to SfPT	
	Actual								
105 To create a list of improvement measures for operation management of public transportation.	Plan							• Collected the data on PTPS traffic lights, bus priority lane system, parking system • Start to discuss how to improve the existing system	
	Actual								
106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105.	Plan							• Completed to propose the pilot lines • Continue to discuss the implementation plan and implement the plan at the target lines	Continue to support SfPT to modify the idea to implement the pilot project to solve the issues of unequal and inefficient operation and route planning
	Actual								

Output 2: The ability of monitoring operators of SfPT is improved.				
201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators.	Plan		• Completed to analyze the contracts in several cities comparatively	Confirm the feasibility of implementing some of the improvements indicated by the results of the review of contracts with public transit operators and some examples of several cities.
	Actual			
202 To propose improvement plan of the way of monitoring the operators and to create basic specifications of necessary operation management system and equipment.	Plan		• Since the pilot project on smart bus stops was canceled due to the city government's decision, other case studies will be presented for possible future implementation.	The SfPT's decision changed the contents of the pilot project on improving operational management. The proposed changes by both of SfPT and JICA Expert Team will be discussed and feasibility confirmed as soon as possible.
	Actual			
Output 3: The ability of planning for securing fare collection of SfPT is improved.				
301 To review actual structure of fare collection and to identify the issues to be addressed.	Plan		• Continue to discuss how the SfPT disseminates the identified issues to the citizens	
	Actual			
302 To formulate an improvement plan list for prevention of free ride.	Plan		• Completed to discuss for further introduction of the possible measures • Completed to discuss for further introduction to Belgrade	Discuss and identify feasibility of improvement measures to reduce free ride.
	Actual			
303 To formulate an improvement plan list for operation service level and convenience.	Plan		• Completed to conduct the training • Completed through the remote training	
	Actual			
304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303.	Plan		• Completed conducting the demonstration project (Traffic Sugoroku)	Discuss and schedule the implementation of a pilot project on transportation education.
	Actual			
305 To carry out public relations activities to raise awareness of the importance of fare collection.	Plan		• Continue to upload the articles • Drafted the map and continue to discuss its dissemination plan • Drafted the panel contents and proceed its installation	
	Actual			

Duration / Phasing	Plan			
	Actual			

Monitoring Plan	Year	2020		2021												2022												2023										Remarks	Issue	Solution
		11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10			
Monitoring																																								
Set-up the Detailed Plan of Operation	Plan																																						N/A	
	Actual																																							
Joint Coordinating Committee (JCC)	Plan																																						N/A	
	Actual																																							
Submission of Monitoring Sheet	Plan																																						N/A	
	Actual																																							
Monitoring Mission from Japan	Plan																																						N/A	
	Actual																																							
Joint Monitoring	Plan																																						N/A	
	Actual																																							
Post Monitoring	Plan																																						N/A	
	Actual																																							
Reports/Documents																																							
Minutes of Meeting for JCC	Plan																																						N/A	
	Actual																																							
Progress Report	Plan																																						N/A	
	Actual																																							
Draft Project Completion Report	Plan																																						N/A	
	Actual																																							
Project Completion Report	Plan																																						N/A	
	Actual																																							
Public Relations																																							
Serbia	Plan																																						N/A	
	Actual																																							
Japan	Plan																																						N/A	
	Actual																																							

Project Design Matrix

Project Title: Project for Modernization of Public Urban Transport in the City of Belgrade

Version 4.0

Dated December, 2022

Implementing Agency: Secretariat for Public Transport (SfPT)

Target Group: SfPT, Operators, Tariff System Contractor

Period of Project: November 2020 - November 2023(3 years)

Project Site: The City of Belgrade

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
Overall Goal Sustainability of Eco-friendly public transport in Belgrade is enhanced including eco-friendly approach.	At 3 years after project completion <EX.> ①Eco-friendly public transportation system (the ratio of EV vehicles and Euro 6 compliant vehicles to all bus vehicles in Belgrade) is increased by 10%. ②The number of public transport users is maintained. ③Some of measures aiming at financial soundness of public transport operations are implemented.	①New vehicle procurement and public transport rolling stock fleet information ②Data on average density by route, number of passengers per route, and number of passengers per kilometer ③SfPT's report	・Environment Protection continues to be a priority issue for the City of Belgrade.		
Project Purpose Ability of public transport operation of SfPT is improved.	At the project completion <EX.> ①Public transportation is operated according to the improved operation plan at the timing of contract renewal with operators (carriers) ②Some of measures to improve operation management of public transportation and way of contract between operators are decided to introduce on the new contract. ③Some of measures to secure fare collection are introduced as the City's policy. ④Public transportation users' satisfaction with public transportation is improved by 10%.	①Operation reports, including tracking of punctual operation and % trips missed/cancelled ②③SfPT's report ④Passenger questionnaires and customer satisfaction surveys			
Outputs 1.The ability of strategical, tactical and operational planning of SfPT is improved.	At the project completion <EX.> ①The number of SfPT staff members who can use appropriate software and tools for demand forecast such as strategic models (e.g., VISUM), microsimulation (e.g., VISSIM) and cross-cutting software (e.g., GIS) is increased. ②The number of SfPT staff members who can formulate route plan based on demand forecast is increased. ③Existing route plans and operation plans are updated. ④Proposal for sustainable middle-, and long-term plans for an Integrated public transport is created. ⑤A list of improvement measures for operation management of public transportation is created. ⑥Pilot projects to improve operation management, to formulate operation plan and route plan are implemented.	①②Report of training ③Updated operation plan ④Improvement plan list for operation management ⑤Improvement proposal, and phasing plan for entire public transportation in Belgrade ⑥Evaluation report of the pilot projects	・The officers who have received technology transfer in this project do not leave. ・Demand for public transport does not drop sharply after the emergency by COVID-19. ・The need for public transport is not reduced.	①Series of training were provided.	
2.The ability of monitoring operators of SfPT is improved.	<EX.> ①Improvements or alternatives measures for the new contract with operators are proposed. ②Improvement measures for vehicle monitoring system are proposed.	①Study report including gap/SWOT analysis Improvement proposal for operation monitoring system, ②Operator monitoring report		①Study Report was prepared.	
3.The ability for planning for securing fare collection of SfPT is improved.	①Problems and issues of fare collection are extracted. ②Improvement plan list for prevention for free ride is formulated ③Improvement plan list for public transportation operation service level and convenience is formulated ④Demonstration projects are conducted to secure fare collection and its evaluation are carried out ⑤Public relations activities are carried out to raise awareness of the importance of fare payment	①Study report for current fare collection system ②Improvement plan list for prevention for free ride ③Improvement plan list for operation service level and convenience ④Evaluation report of the pilot projects ⑤Numbers of campaign or promotion for fare collection		①Study Report was prepared. ②③ Improvement plan lists were prepared.	

Activities	Inputs	Important Assumption
	Japanese Side	
101 To conduct travel demand survey along major routes and implement OJT on transport demand software. 102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of travel demand survey. 103 To propose integrated public transportation network to enhance intermodality including water transport, planned Metro lines, terminal access modes. 104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators. 105 To create a list of improvement measures for operation management of public transportation. 106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105.	1.Dispatch of expert team (1)Team Leader / Public Transport Policy 1 (2)Deputy Team Leader / Public Transport Policy 2 (3)Public Transport Planning (4)Operation & Operator Management (5)Fare Collection (6)ICT System (7)Pilot Project (8)Transport Survey / Database / Demand Forecast 2 (9)Demand Forecast 1 (10)Financial & Economic Analysis (11)Monitoring / Evaluation / Public Relation	Pre-Conditions ・The priority of the City of Belgrade for this project does not decrease. ・The support and understanding from related organizations are obtained.
201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators.. 202 To propose improvement plan of the way of monitoring the operators and to create basic specifications of necessary operation management system and equipment.	2.Counterpart training in Japan and the third countries 3.Organize seminars / workshops 4.Invitation 5.Equipment(if any)	
301 To review actual structure of fare collection and to identify the issues to be addressed. 302 To formulate an improvement plan list for prevention of free ride. 303 To formulate an improvement plan list for operation service level and convenience. 304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303. 305 To carry out public relations activities to raise awareness of the importance of fare collection.	6.Cost share for implementing pilot projects Serbian Side 1.Assign counterpart personnel 2.Provision of office space 3.Arrangements for seminars / workshops 4.Advisor or consultants in Belgrade (if any) 5.Interpreter(English / Serbian) 6.Cost share for implementing pilot projects	<Issues and countermeasures>

Plan of Operation

Version 5.0
Dated September, 2023

Project Title: Project for Modernization of Public Urban Transport in the City of Belgrade

Inputs	Year	2020		2021											2022												2023												Remarks	Monitoring	
		11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12		Issue	Solution
Expert																																									
(1)Team Leader / Public Transport Policy 1	Plan																																									
	Actual																																									
(2)Deputy Team Leader / Public Transport Policy 2	Plan																																									
	Actual																																									
(3)Public Transport Planning	Plan																																									
	Actual																																									
(4)Operation & Operator Management	Plan																																									
	Actual																																									
(5)Fare Collection	Plan																																									
	Actual																																									
(6)ICT System	Plan																																									
	Actual																																									
(7)Pilot Project	Plan																																									
	Actual																																									
(8)Transport Survey / Database / Demand Forecast 2	Plan																																									
	Actual																																									
(9)Demand Forecast 1	Plan																																									
	Actual																																									
(10)Financial & Economic Analysis	Plan																																									
	Actual																																									
(11)Monitoring / Evaluation / Public Relation	Plan																																									
	Actual																																									
Training																																									
Training in Japan	Plan																																									
	Actual																																									
Training in the third country	Plan																																									
	Actual																																									
Workshop at Belgrade																																									
Seminar / Workshop	Plan																																									
	Actual																																									
Invitation to Japan																																									
Invitation	Plan																																									
	Actual																																									
Equipment																																									
	Plan																																									
	Actual																																									

Activities / Sub-Activities		Year	2020		2021												2022												2023												Responsible Organization		Achievements	Issue & Countermeasures
			11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	Japan	Serbia		
Output 1: The capability of operation planning of Secretariat for Public Transport (SfPT) is improved.																																										
101 To conduct travel demand survey along major routes and analyze the result of survey.	Plan																																										
	Actual																																										
102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of travel demand survey.	Plan																																										
	Actual																																										
103 To propose integrated public transportation network to enhance intermodality including water transport, planned Metro lines, terminal access modes.	Plan																																										
	Actual																																										
104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators.	Plan																																										
	Actual																																										
105 To create a list of improvement measures for operation management of public transportation.	Plan																																										
	Actual																																										
106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105.	Plan																																										
	Actual																																										
Output 2: The ability of monitoring operators of SfPT is improved.																																											
201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators.	Plan																																										
	Actual																																										
202 To propose improvement plan of the way of monitoring the operators	Plan																																										
	Actual																																										
Output 3: The ability of planning for securing fare collection of SfPT is improved.																																										
301 To review actual structure of fare collection and to identify the issues to be addressed.	Plan																																										
	Actual																																										
302 To formulate an improvement plan list for prevention of free ride.	Plan																																										
	Actual																																										
303 To formulate an improvement plan list for operation service level and convenience.	Plan																																										
	Actual																																										
304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303.	Plan																																										
	Actual																																										
305 To carry out public relations activities to raise awareness of the importance of fare collection.	Plan																																										
	Actual																																										
Duration / Phasing	Plan																																										
	Actual																																										

Monitoring Plan	Year	2020		2021											2022												2023												Remarks	Issue	Solution
		11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12			
Monitoring																																									
Set-up the Detailed Plan of Operation	Plan																																								N/A	
	Actual																																									
Joint Coordinating Committee (JCC)	Plan																																								N/A	
	Actual																																									
Submission of Monitoring Sheet	Plan																																								N/A	
	Actual																																									
Monitoring Mission from Japan	Plan																																								N/A	
	Actual																																									
Joint Monitoring	Plan																																								N/A	
	Actual																																									
Post Monitoring	Plan																																								N/A	
	Actual																																									
Reports/Documents																																									
Minutes of Meeting for JCC	Plan																																								N/A	
	Actual																																									
Progress Report	Plan																																								N/A	
	Actual																																									
Draft Project Completion Report	Plan																																								N/A	
	Actual																																									
Project Completion Report	Plan																																								N/A	
	Actual																																									
Public Relations																																									
Serbia	Plan																																								N/A	
	Actual																																									
Japan	Plan																																								N/A	
	Actual																																									

Project Design Matrix

Project Title: Project for Modernization of Public Urban Transport in the City of Belgrade

Implementing Agency: Secretariat for Public Transport (SfPT)

Target Group: SfPT, Operators, Tariff System Contractor

Period of Project: November 2020 ～ December 2023

Project Site: The City of Belgrade

Version 5.0

Dated September, 2023

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
Overall Goal Sustainability of Eco-friendly public transport in Belgrade is enhanced including eco-friendly approach.	At 3 years after project completion ~~<EX.>~~ ①Eco-friendly public transportation system (the ratio of EV vehicles and Euro 6 compliant vehicles to all bus vehicles in Belgrade) is increased by 10%. ②The number of public transport users is maintained. ③Some of measures aiming at financial soundness of public transport operations are implemented.	①New vehicle procurement and public transport rolling stock fleet information ②Data on average density by route, number of passengers per route, and number of passengers per kilometer ③SfPT's **study** report **(both published/unpublished)**	・Environment Protection continues to be a priority issue for the City of Belgrade.		**①There may have been some impacts from the COVID-19 pandemic and worldwide price escalation.** **③At least one measure should be implemented at 3 years after the project completion.**
Project Purpose Ability of public transport operation of SfPT is improved.	At the project completion ~~<EX.>~~ **①Transport survey database and demand forecast model as a base for strategical operation planning are established.** ~~Public transportation is operated according to the improved operation plan at the timing of contract renewal with operators (carriers).~~ ②Some of measures to improve operation management of public transportation and way of contract between operators are ~~decided to introduce on~~ **defined and proposed to be introduced into the new contract as well as existing contract renewal.** ③Some of measures to secure fare collection are ~~introduced~~ **proposed** as the City's policy. ~~④Public transportation users' satisfaction with public transportation is improved by 10%.~~	**①Transport surveys and demand forecast model, On-the-job trainning (OJT) & users' manual on demand forecast.** ~~Operation reports, including tracking of punctual operation and % trips missed/cancelled~~ ②③SfPT's **study** report **(both published/unpublished)** ~~④Passenger questionnaires and customer satisfaction surveys~~			
Outputs 1.The ability of strategical, tactical and operational planning of SfPT is improved.	At the project completion ~~<EX.>~~ ①The number of SfPT staff members who can use appropriate software and tools for demand forecast such as strategic models (e.g., VISUM), microsimulation (e.g., VISSIM) and cross-cutting software (e.g., GIS) is increased. ②The number of SfPT staff members who can formulate route plan based on demand forecast is increased. **/ Existing route plans and operation plans are updated.** **③Proposal for sustainable middle-, and long-term plans for an Integrated public transport is created.** **④The current issues regarding the demarcation of roles and responsibilities between SfPT and operators are examined and the points to be approached are sorted out.** ⑤A list of improvement measures for operation management of public transportation is created. ⑥Pilot projects to improve operation management, to formulate operation plan and route plan are implemented.	①Report of training ②Report of training **/ Updated operation plan** **③Improvement proposal, and phased plan for entire public transportation in Belgrade** **④Study report on demarcation of roles and responsibilities** **⑤Improvement plan list for operation management** ⑥Evaluation report of the pilot projects	・The officers who have received technology transfer in this project do not leave. ・Demand for public transport does not drop sharply after the emergency by COVID-19. ・The need for public transport is not reduced.		**⑥The pilot project is for revision and optimization of the timetable.**
2.The ability of monitoring operators of SfPT is improved.	~~<EX.>~~ ①Improvements or alternatives measures for the new contract with operators are proposed. ②Improvement measures for ~~vehicle monitoring system~~ **monitoring operators** are proposed.	①Study report including gap/SWOT analysis Improvement proposal for **the new contract with operators.** ~~operation monitoring system~~ ②~~Operator monitoring report~~ **Improvement proposal for measuring KPIs of operators**			
3.The ability for planning for securing fare collection of SfPT is improved.	①Problems and issues of fare collection are extracted. ②Improvement plan list for prevention for free ride is formulated ③Improvement plan list for public transportation operation service level and convenience is formulated ④Demonstration projects are conducted to secure fare collection and its evaluation are carried out ⑤Public relations activities are carried out to raise awareness of the importance of fare payment	①Study report for current fare collection system ②Improvement plan list for prevention for free ride ③Improvement plan list for operation service level and convenience ④Evaluation report of the ~~pilot~~ **demonstration** projects ⑤Numbers of campaign or promotion for fare collection **or promotion of public transport use**			**⑤ "campaign or promotion" means traffic educational activity.**

Activities	Inputs	Important Assumption
101 To conduct travel demand survey along major routes and implement OJT on transport demand software. 102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of travel demand survey. 103 To propose integrated public transportation network to enhance intermodality including water transport, planned Metro lines, terminal access modes. 104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators. 105 To create a list of improvement measures for operation management of public transportation. 106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105. 201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators.. 202 To propose improvement plan of the way of monitoring the operators ~~and to create basic specifications of necessary operation management system and equipment~~ 301 To review actual structure of fare collection and to identify the issues to be addressed. 302 To formulate an improvement plan list for prevention of free ride. 303 To formulate an improvement plan list for operation service level and convenience. 304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303. 305 To carry out public relations activities to raise awareness of the importance of fare collection.	**Japanese Side** 1.Dispatch of expert team (1)Team Leader / Public Transport Policy 1 (2)Deputy Team Leader / Public Transport Policy 2 (3)Public Transport Planning (4)Operation & Operator Management (5)Fare Collection (6)ICT System (7)Pilot Project (8)Transport Survey / Database / Demand Forecast 2 (9)Demand Forecast 1 (10)Financial & Economic Analysis (11)Monitoring / Evaluation / Public Relation 2.Counterpart training in Japan and the third countries 3.Organize seminars / workshops 4.Invitation 5.Equipment(if any) 6.Cost share for implementing pilot projects **Serbian Side** 1.Assign counterpart personnel 2.Provision of office space 3.Arrangements for seminars / workshops 4.Advisor or consultants in Belgrade (if any) 5.Interpreter(English / Serbian) 6.Cost share for implementing pilot projects	**Pre-Conditions** ・The priority of the City of Belgrade for this project does not decrease. ・The support and understanding from related organizations are obtained. **<Issues and countermeasures>** **Procurement of equipment and part of training in Japan and third countries were delayed and had to be canceled, but the original plan of utilizing the equipment and all the information and knowledge already obtained from the carried-out training should be compiled.**

Plan of Operation

Version 6.0

Dated December, 2023

Project Title: Project for Modernization of Public Urban Transport in the City of Belgrade

Inputs	Year	2020		2021											2022												2023												Remarks	Monitoring	
		11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12		Issue	Solution
Expert																																									
(1)Team Leader / Public Transport Policy 1	Plan																																								
	Actual																																								
(2)Deputy Team Leader / Public Transport Policy 2	Plan																																								
	Actual																																								
(3)Public Transport Planning	Plan																																								
	Actual																																								
(4)Operation & Operator Management	Plan																																								
	Actual																																								
(5)Fare Collection	Plan																																								
	Actual																																								
(6)ICT System	Plan																																								
	Actual																																								
(7)Pilot Project	Plan																																								
	Actual																																								
(8)Transport Survey / Database / Demand Forecast 2	Plan																																								
	Actual																																								
(9)Demand Forecast 1	Plan																																								
	Actual																																								
(10)Financial & Economic Analysis	Plan																																								
	Actual																																								
(11)Monitoring / Evaluation / Public Relation	Plan																																								
	Actual																																								
Training																																								
Training in Japan	Plan																																								
	Actual																																								
Training in the third country	Plan																																								
	Actual																																								
Workshop at Belgrade																																								
Seminar / Workshop	Plan																																							No seminar was held.	The leaflet was prepared for external dissemination of results.
	Actual																																								
Invitation to Japan																																								
Invitation	Plan																																								
	Actual																																								
Equipment																																								
	Plan																																								
	Actual																																								

Activities / Sub-Activities		Year	2020		2021												2022												2023												Responsible Organization		Achievements	Issue & Countermeasures
			11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	Japan	Serbia		
Output 1: The capability of operation planning of Secretariat for Public Transport (SfPT) is improved.																																										
101 To conduct travel demand survey along major routes and analyze the result of survey.	Plan																																										
	Actual																																										
102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of travel demand survey.	Plan																																										
	Actual																																										
103 To propose integrated public transportation network to enhance intermodality including water transport, planned Metro lines, terminal access modes.	Plan																																										
	Actual																																										
104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators.	Plan																																										
	Actual																																										
105 To create a list of improvement measures for operation management of public transportation.	Plan																																										
	Actual																																										
106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105.	Plan																																										
	Actual																																										
Output 2: The ability of monitoring operators of SfPT is improved.																																											
201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators.	Plan																																										
	Actual																																										
202 To propose improvement plan of the way of monitoring the operators	Plan																																										
	Actual																																										
Output 3: The ability of planning for securing fare collection of SfPT is improved.																																										
301 To review actual structure of fare collection and to identify the issues to be addressed.	Plan																																										
	Actual																																										
302 To formulate an improvement plan list for prevention of free ride.	Plan																																										
	Actual																																										
303 To formulate an improvement plan list for operation service level and convenience.	Plan																																										
	Actual																																										
304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303.	Plan																																										
	Actual																																										
305 To carry out public relations activities to raise awareness of the importance of fare collection.	Plan																																										
	Actual																																										
Duration / Phasing	Plan																																										
	Actual																																										

Monitoring Plan	Year	2020		2021											2022												2023												Remarks	Issue	Solution
		11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12			
Monitoring																																									
Set-up the Detailed Plan of Operation	Plan																																								N/A	
	Actual																																									
Joint Coordinating Committee (JCC)	Plan																																								N/A	
	Actual																																									
Submission of Monitoring Sheet	Plan																																								N/A	
	Actual																																									
Monitoring Mission from Japan	Plan																																								N/A	
	Actual																																									
Joint Monitoring	Plan																																								N/A	
	Actual																																									
Post Monitoring	Plan																																								N/A	
	Actual																																									
Reports/Documents																																									
Minutes of Meeting for JCC	Plan																																								N/A	
	Actual																																									
Progress Report	Plan																																								N/A	
	Actual																																									
Draft Project Completion Report	Plan																																								N/A	
	Actual																																									
Project Completion Report	Plan																																								N/A	
	Actual																																									
Public Relations																																									
Serbia	Plan																																								N/A	
	Actual																																									
Japan	Plan																																								N/A	
	Actual																																									

Project Design Matrix

Project Title: Project for Modernization of Public Urban Transport in the City of Belgrade
Implementing Agency: Secretariat for Public Transport (SfPT)
Target Group: SfPT, Operators, Tariff System Contractor
Period of Project: November 2020 ～ December 2023
Project Site: The City of Belgrade

Version 6.0
Dated December, 2023

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Achievement	Remarks
Overall Goal Sustainability of Eco-friendly public transport in Belgrade is enhanced including eco-friendly approach.	At 3 years after project completion ①Eco-friendly public transportation system (the ratio of EV vehicles and Euro 6 compliant vehicles to all bus vehicles in Belgrade) is increased by 10%. ②The number of public transport users is maintained. ③Some of measures aiming at financial soundness of public transport operations are implemented.	①New vehicle procurement and public transport rolling stock fleet information ②Data on average density by route, number of passengers per route, and number of passengers per kilometer ③SfPT's study report **(both published/unpublished)**		**①There may have been some impacts from the COVID-19 pandemic and worldwide price escalation.** **③At least one measure should be implemented at 3 years after the project completion.**
Project Purpose Ability of public transport operation of SfPT is improved.	At the project completion **①Transport survey database and demand forecast model as a base for strategical operation planning are established.** ②Some of measures to improve operation management of public transportation and way of contract between operators are **defined and proposed to be introduced into the new contract as well as existing contract renewal.** ③Some of measures to secure fare collection are **proposed** as the City's policy.	**①Transport surveys and demand forecast model, On-the-job trainning (OJT) & users' manual on demand forecast.** **②③**SfPT's study report **(both published/unpublished)**	**①Survey database, demand model in VISUM and the User manual were prepared,** **①The Software was installed for the future operation.** **②③Report on the training in the Netherland and Italy and the summary of the cities visited were created.**	
Outputs	At the project completion			
1.The ability of strategical, tactical and operational planning of SfPT is improved.	①The number of SfPT staff members who can use appropriate software and tools for demand forecast such as strategic models (e.g., VISUM), microsimulation (e.g., VISSIM) and cross-cutting software (e.g., GIS) is increased. ②The number of SfPT staff members who can formulate route plan based on demand forecast is increased. **/ Existing route plans and operation plans are updated.** **③Proposal for sustainable middle-, and long-term plans for an Integrated public transport is created.** **④The current issues regarding the demarcation of roles and responsibilities between SfPT and operators are examined and the points to be approached are sorted out.** ⑤A list of improvement measures for operation management of public transportation is created.	①Report of training ②Report of training **/ Updated operation plan** **③Improvement proposal, and phased plan for entire public transportation in Belgrade** **④Study report on demarcation of roles and responsibilities** **⑤Improvement plan list for operation management** ⑥Evaluation report of the pilot projects	**①A total of 18 hours of basic training was provided to eight relevant staff members; a total of 10 hours of on-the-job training was provided to one professional staff member.** **①The report of trainning was created.** **②The Report of trainning was created.** **②The Operation plan was updated.** **③Proposals and plans have been developed to update the route and operational plans. (The update itself was not accomplished.)** **④Study report on demarcation of roles and responsibilities was created.** **⑤Improvement plan list for operation management was created.** **⑥The pilot project was conducted and an evaluation report was prepared.**	**⑥The pilot project is for revision and optimization of the timetable.**
2.The ability of monitoring operators of SfPT is improved.	①Improvements or alternatives measures for the new contract with operators are proposed. ②Improvement measures for **monitoring operators** are proposed.	①Study report including gap/SWOT analysis Improvement proposal for **the new contract with operators.** **②Improvement proposal for measuring KPIs of operators**	**①Study report including gap/SWOT analysis was created.** **①Improvement proposal for the new contract with operators was created.** **②Improvement proposal for measuring KPIs of operators was created.**	
3.The ability for planning for securing fare collection of SfPT is improved.	①Problems and issues of fare collection are extracted. ②Improvement plan list for prevention for free ride is formulated ③Improvement plan list for public transportation operation service level and convenience is formulated ④Demonstration projects are conducted to secure fare collection and its evaluation are carried out ⑤Public relations activities are carried out to raise awareness of the importance of fare payment	①Study report for current fare collection system ②Improvement plan list for prevention for free ride ③Improvement plan list for operation service level and convenience ④Evaluation report of the ~~pilot~~ **demonstration** projects ⑤Numbers of campaign or promotion for fare collection **or promotion of public transport use**	**①Study report for current fare collection system was created.** **②Improvement plan list for prevention for free ride was created.** **③Improvement plan list for operation service level and convenience was created.** **④Evaluation report of the pilot demonstration projects was created.** **⑤26 publicity articles were posted on Facebook and LinkedIn platforms.** **⑤Publicity panels were exhibited at the Belgrade ⑤Fortress for one month.** **The travel map was created**	**⑤ "campaign or promotion" means traffic educational activity.**

Activities	Inputs
	Japanese Side
101 To conduct travel demand survey along major routes and implement OJT on transport demand software. 102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of trave l demand survey. 103 To propose integrated public transportation network to enhance intermodality including water transport, planned Metro lines, terminal access modes. 104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators. 105 To create a list of improvement measures for operation management of public transportation. 106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105. 201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators. 202 To propose improvement plan of the way of monitoring the operators. 301 To review actual structure of fare collection and to identify the issues to be addressed. 302 To formulate an improvement plan list for prevention of free ride. 303 To formulate an improvement plan list for operation service level and convenience. 304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303. 305 To carry out public relations activities to raise awareness of the importance of fare collection.	1.Dispatch of expert team (1)Team Leader / Public Transport Policy 1 (2)Deputy Team Leader / Public Transport Policy 2 (3)Public Transport Planning (4)Operation & Operator Management (5)Fare Collection (6)ICT System (7)Pilot Project (8)Transport Survey / Database / Demand Forecast 2 (9)Demand Forecast 1 (10)Financial & Economic Analysis (11)Monitoring / Evaluation / Public Relation 2.Counterpart training in Japan and the third countries 3.Organize seminars / workshops 4.Invitation 5.Equipment（if any） 6.Cost share for implementing pilot projects
	Serbian Side
	1.Assign counterpart personnel 2.Provision of office space 3.Arrangements for seminars / workshops 4.Advisor or consultants in Belgrade (if any) 5.Interpreter（English / Serbian） 6.Cost share for implementing pilot projects

RECORD OF DISCUSSIONS

FOR

PROJECT FOR MODERNIZATION OF PUBLIC URBAN TRANSPORT IN THE CITY OF BELGRADE

AGREED UPON BETWEEN

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
AND
THE CITY OF BELGRADE, SECRETARIAT FOR PUBLIC TRANSPORT (SfPT)

Dated 7th August, 2020

Based on the minutes of meetings on the Basic Planning Survey on the Project for Modernization of Public Urban Transport in the City of Belgrade (hereinafter referred to as "the Project") signed on June 26th 2020 between the City of Belgrade, Secretariat for Public Transport of Republic of Serbia (hereinafter referred to as "the Counterpart") and the Japan International Cooperation Agency (hereinafter referred to as "JICA"), JICA held a series of discussions with the Counterpart and relevant organizations to develop a basic plan of the Project.

The purpose of this record of discussions (hereinafter referred to as "the R/D") is to establish a mutual agreement for its implementation by both parties and to agree on the basic plan of the Project as described in the followings and the Annexes, which will be implemented within the framework of the Agreement on Technical Cooperation signed on *November 30th 2005* (hereinafter referred to as "the Agreement") and the Note Verbales exchanged on *June 22th 2020* between the Government of Japan and the Government of Republic of Serbia.

The Counterpart will be responsible for the implementation of the Project in cooperation with JICA, coordinate with other relevant organizations and ensure that the self-reliant operation of the Project is sustained during and after the implementation period in order to contribute toward social and economic development of Republic of Serbia.

Both parties also agreed that the Project will be implemented in accordance with the "Basic Principles for Technical Cooperation" published in December 2016 (hereinafter referred to as "the BP"), unless other arrangements are agreed in the R/D.

The R/D is delivered at the city of Belgrade as of the day and year first above written. The R/D may be amended by a minutes of meetings between both parties, except the plan of operation to be modified in monitoring sheets. The minutes of meetings will be signed by authorized persons of each side who may be different from the signers of the R/D.

For

Japan International Cooperation Agency(JICA)

Mr. TAKEICHI Jiro
Chief Representative
JICA Balkan Office

For

The City of Belgrade, Secretariat for Public Transport of Republic of Serbia (SfPT)

Dr. Jovica Vasiljevic
Secretary
The City of Belgrade, Secretariat for Public Transport of Republic of Serbia (SfPT)

Annex 1

MAIN POINTS DISCUSSED

1. Environmental and Social Considerations

With regard to the Section 10.1 of the Basic Principal, the Project is likely to have minimal adverse impact on the environment and society under the 'JICA Guidelines for Environmental and Social Considerations (April 2010)'.

2. Background

As the capital of Republic of Serbia, Belgrade has been the administrative, cultural, educational center as well as the center of other socio-economic activities that attract many citizens to live in. The city area has been expanding and the population of the city is gradually growing (1.57 million in 2002, 1.75 million in 2019).

The main modes of daily trips in Belgrade are public transport (47.9%), private car (25.7%) and walking (23.8%). In addition, out of the public transport, buses, trams and trolleybuses play an important role for the mobility of the citizen of Belgrade.

Since the first operation of public transport has started, the facility and equipment have been upgraded whenever the city's budget allowed. However, because of the rapid expansion of its area, population growth and the lack of the sufficient budget, the infrastructure is not matching to the ideal level today.

Under the situation, one of the challenges in the public transport in Belgrade is that current operation plan does not always match the actual trip demand. The city, as administrator, presents the operational plan to the Operators, however the plan needs to be supported by the statistical evidence of passenger data on each lines.

The second one is that the cost related to the public transport is increasing pressure on the city's finances by low fare collection that is one of the biggest reason.

Third challenge is that vehicles have not been replaced by new models and existing vehicles are being overused because of lack of the budgets.

Nowadays, the city has been making its best effort to provide sufficient public transport service by trying to adopt new ICT technology for operation management and then aiming to shift eco-friendly system as much as they can. However, as mentioned above, it will not difficult to solve those problems fundamentally unless financial resources are secured by efficient operation and improving the fare revenue.

Therefore, the city realizes that the efficient operation plan based on actual trip demand and improvement of fare revenue urgently required.

3. Title of the Project

Both sides agreed that the title of the Project will be changed to "Project for Modernization of Public Urban Transport in the City of Belgrade". Amendment of the Project title shall be formally approved through diplomatic channel between Government of Japan and Government of Republic of Serbia.

4. Target Area

Both sides agreed that the target area of the Project would be the City of Belgrade.

5. The Concept of the Project

Both sides agreed that the concept of the Project would be:

(1) Technology transfer and capacity building in the form of such as co-working, on-the-job training and seminar with respect to the plan and operation of public transport for officials of the Secretariat of Public Transport and concerned stakeholders such as public transport operators.

(2) Joint working or collaboration work among the Counterpart, JICA and relevant authorities. The Counterpart agreed to provision its utmost effort toward successful delivery of the Project. Both sides also agreed that the provision of necessary data by the Counterpart and the participation by the Counterpart in the part of preparation, supervision and analysis on the collected data of the data survey is necessary for the successful delivery of the Project.

6. Project Description

Details of the Project are described in Project Design Matrix (Annex 2) and Plan of Operation (Annex 3).

7. Implementation Structure

Implementation structure of the Project is described in Annex 4. The roles and assignments of relevant organizations are as follows:

(1) The Counterpart

(a) Project Director

Mr. Milan Petrovic, Advisor, Deputy Mayor's office, will be responsible for overall administration and implementation of the Project.

(b) Project Manager

Dr. Jovica Vasiljevic, Secretary of SfPT will be responsible for managerial and technical matters of the Project.

(2) JICA Experts

The JICA Experts will give necessary technical guidance, advice and recommendations on any matters pertaining to the implementation of the Project.

(3) Joint Coordinating Committee

Joint Coordinating Committee (hereinafter referred to as "JCC") will be established in order to facilitate inter-organizational coordination. JCC will be held at least once a year and whenever deems it necessary. Initially, JICA proposes and requests SfPT call JCC every six month for smooth implementation and monitoring of the Project. JCC will review the progress, revise the overall plan when necessary, approve work plan and exchange opinions on major issues that arise during the implementation of the Project. A list of proposed members of JCC is shown in Annex 5.

8. Input by the Counterpart

The Counterpart will take necessary measures to provide at its own expense.

(1) Assignment of the members of the Serbian side in Annex 5;

(2) Suitable office space with necessary equipment for JICA Experts;

(3) Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the equipment provided by JICA;
(4) Information as well as support in obtaining medical service and safety for JICA Experts;
(5) Credentials or identification cards for JICA Experts, if necessary;
(6) Available data (including maps and photographs) and information related to the Project;
(7) Running expenses necessary for the implementation of the Project in Republic of Serbia;
(8) Expenses necessary for operation and maintenance of the equipment.
(9) Advisor, local consultants and interpreter in Belgrade if required.
(10) Cost share for the implementing pilot project.

9. Project Office

JICA requested provision of the Project Office in the Counterpart's building or a convenient place close to the Counterpart for smooth and efficient implementation of the Project. The Counterpart agreed to the provision of the Project Office in the Counterpart's building or a convenient place.

10. Signer of R/D

Both sides confirmed that the signer of R/D would be the Counterpart, who is in charge of overall coordination of relevant departments and agencies of the Project and the Chief Representative of JICA Balkan Office.

11. Monitoring and Evaluation

JICA and the Counterpart will jointly and regularly monitor the progress of the Project through the Monitoring Sheets based on the Project Design Matrix (PDM) and Plan of Operation (PO). The Monitoring Sheets will be drafted by the Project Manager of Serbian side and Chief Technical Advisor of JICA Expert team and reviewed by JCC Member every six (6) months. Also, the Project Completion Report will be drawn up three (3) months before the termination of the Project.

JICA explained and the Counterpart agreed that the Project Completion Report of the Project is open to the public at the WEB site of JICA.

JICA will conduct the following evaluations and surveys to verify sustainability and impact of the Project and draw lessons. The Counterpart is requested to provide necessary support for them.

(1)Ex-post evaluation three (3) years after the project completion, in principle
(2)Follow-up surveys on necessity basis

12. Promotion of Public Relations

Both sides agreed that in order to promote public support for the Project, the Counterpart will act appropriately to make the Project widely known to the people of Republic of Serbia.

13. Information Sharing with Other Donor Agencies and Neighboring Countries

Activities and output of the Project will be properly shared with other donor agencies through seminars and consultations in order to attain support for realizing recommendation of the Project.
Both sides agreed that, attaining consent of the Counterpart, JICA can invite relevant officials of neighboring countries to seminars under the Project in order to share experiences and activate public transport in the region.
Both sides also agreed that the gender issues shall be appropriately considered during the Project, if necessary.

14. Mutual Consultation

Both sides agreed that JICA and the Counterpart will consult each other whenever any major issues arise in the course of Project implementation.

15. Amendments

Both sides confirmed that the R/D can be amended based on the minutes of meetings between JICA and the Counterpart. The minutes of meetings shall be signed by authorized persons of each side who may be different from the signers of the R/D.

16. Mutual Understanding

JICA and the Counterpart are expected to work jointly and closely toward successful delivery of the Project.

17. Misconduct

Both sides agreed that all related personnel and organization shall keep the highest ethic and prevent any corrupt or fraudulent practices in the employment of the Project.
If JICA receives information related to suspected corrupt or fraudulent practices in the implementation of the Project, the counterpart and relevant organizations will provide JICA with such information as JICA may reasonably request, including information related to any concerned official of the government and/or public organizations of the Republic of Serbia.
The Counterpart and relevant organizations will not, unfairly or unfavorably treat the person and/or company which provided the information related to suspected corrupt or fraudulent practices in the implementation of the Project.

Project Design Matrix

Annex 2

Project Title: Project for Modernization of Public Urban Transport in the City of Belgrade

Implementing Agency: Secretariat for Public Transport (SfPT)

Target Group: SfPT, Operators, Tariff System Contractor

Period of Project: October 2020 ~ September 2023(3 years) *Tentative

Project Site: The City of Belgrade

Version 0.1

Dated 19th, June,2020

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
Overall Goal Sustainability of eco-friendly public transport system in Belgrade is enhanced	3 years after project completion, a The number of electric bus vehicles is increased by ●% of 2021 b. The number of environment-friendly vehicles is increased by ●% of 2021 c. The number of policies implemented for promoting eco-friendly public transport system is increased of2021	Annual report			
Project Purpose Efficient operation of public transport based on actual demand and improvement of fare revenue in Belgrade are realized	At the time of project completion, a The amount of compensation to the operating cost of the city's budget is reduced by ●% of 2021 b.The fare revenue is increased by ●% of 2021 c.Passengers' satisfaction with public transportation is improved by ●% of 2021	Annual report Financial report Passenger survey / questionnaire	*Environment Protection continues to be a priority issue for the City of Belgrade		
Outputs 1 The capability of operation planning of Secretariat for Public Transport (SfPT) is improved	By the project completion, 1-1 The current issues regarding the demarcation of roles and responsibilities between SfPT and operators are examined and the points to be approached are sorted out 1-2 Trip demand survey along major routes is conducted and the result of survey is analyzed 1-3 Operation and service plan including optimum operation routes and frequencies based on the result of trip demand survey is formulated 1-4 The method and procedure to allocate operation routes to the operators appropriately are proposed 1-5 The improvement plan for operation management is proposed 1-6 The improvement plan is implemented as pilot projects	Study report Survey report for trip demand Operation plan Study report Improvement proposal Evaluation report of the pilot projects	*The officers who have received technology transfer in this project do not leave *Demand for public transport does not drop sharply after the emergency by COVID-19 *The need for public transport is not reduced		
2 The ability of monitoring operators of SfPT is improved	2-1 The actual situation of Availability Payment is reviewed and new methods of the assessment for the payment to the operators is proposed 2-2 Improvement plan of the way of monitoring the operators is proposed and basic specifications of necessary operation management system and equipment is created	Study report Improvement proposal / Requirements specification			
3 The share of fare revenue in public transport funding is improved	3-1 The share of fare revenue in public transport funding is improved by ●% 3-2 The person who ride without paying is reduced by ●%	Financial report Survey data			

Activities	Inputs	Important Assumption
1-1 To examine the model of the demarcation of roles and responsibilities between SfPT and operators 1-2 To conduct trip demand survey along major routes and analyze the result of survey 1-3 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of trip demand survey 1-4 To propose method and procedure to allocate operation routes to the operators appropriately 1-5 To propose improvement plan for operation management such as controlling bus priority lane 1-6 To utilize the latest operation support system on a pilot basis in the implementation of Activity No.1-1 to 1-5 above (e.g. image sensor that can count the number of passengers, time table creation software, etc.) 2-1 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators 2-2 To propose improvement plan of the way of monitoring the operators and to create basic specifications of necessary operation management system and equipment 3-1 To review actual structure of fare collection and to identify the issues to be addressed 3-2 To conduct social experiments on pilot routes to improve fare collection (e.g. introducing inspectors, streamlining passengers' flow when passengers use validators in getting on and off, and etc.) 3-3 To review the results of activity 3-2 and to propose the improvement plan for fare collection 3-4 To create basic specifications of necessary fare collection system and equipment for improving efficiency 3-5 To implement public relations enlightening importance of fare payment	**Japanese Side** 1 Dispatch of expert team (1) Chief Technical Advisor (Team Head) (2)Operation Planning, Transport Policy Planning (3)Monitoring, Operator Management (4)Planning for Fare Collection System (5)Analysis and Survey 2 Counterpart training in Japan and the third countries 3 Organize seminars / workshops 4 Invitation 5 Equipment (if any) 6 Cost share for implementing pilot projects **Serbian Side** 1 Assign counterpart personnel 2 Provision of office space 3 Arrangements for seminars / workshops 4 Advisor or consultants in Belgrade (if any) 5 Interpreter (English / Serbian) 6 Cost share for implementing pilot projects	**Pre-Conditions** *The priority of the City of Belgrade for this project does not decrease *The support and understanding from related organizations are obtained <Issues and countermeasures>

Tentative Plan of Operation

Annex 3

Version 9.1
Dated 15th, June,2020

Project Title: Project for Modernization of Public Urban Transport in the City of Belgrade

Inputs	Year 2020	2021	2022	2023	Remarks	Monitoring: Issue	Monitoring: Solution
Expert							
Chief Technical Advisor (Team Head)	Plan / Actual						
Operation Planning, Transport Policy Planning	Plan / Actual						
Monitoring, Operator Management	Plan / Actual						
Planning for Fare Collection System	Plan / Actual						
Analysis and Survey	Plan / Actual						
Training							
Training in Japan	Plan / Actual						
Training in the third country	Plan / Actual						
Workshop at Belgrade							
Seminar / Workshop	Plan / Actual						
	Plan / Actual						
Invitation to Japan							
Invitation	Plan / Actual						
	Plan / Actual						
Equipment							
	Plan / Actual						
	Plan / Actual						

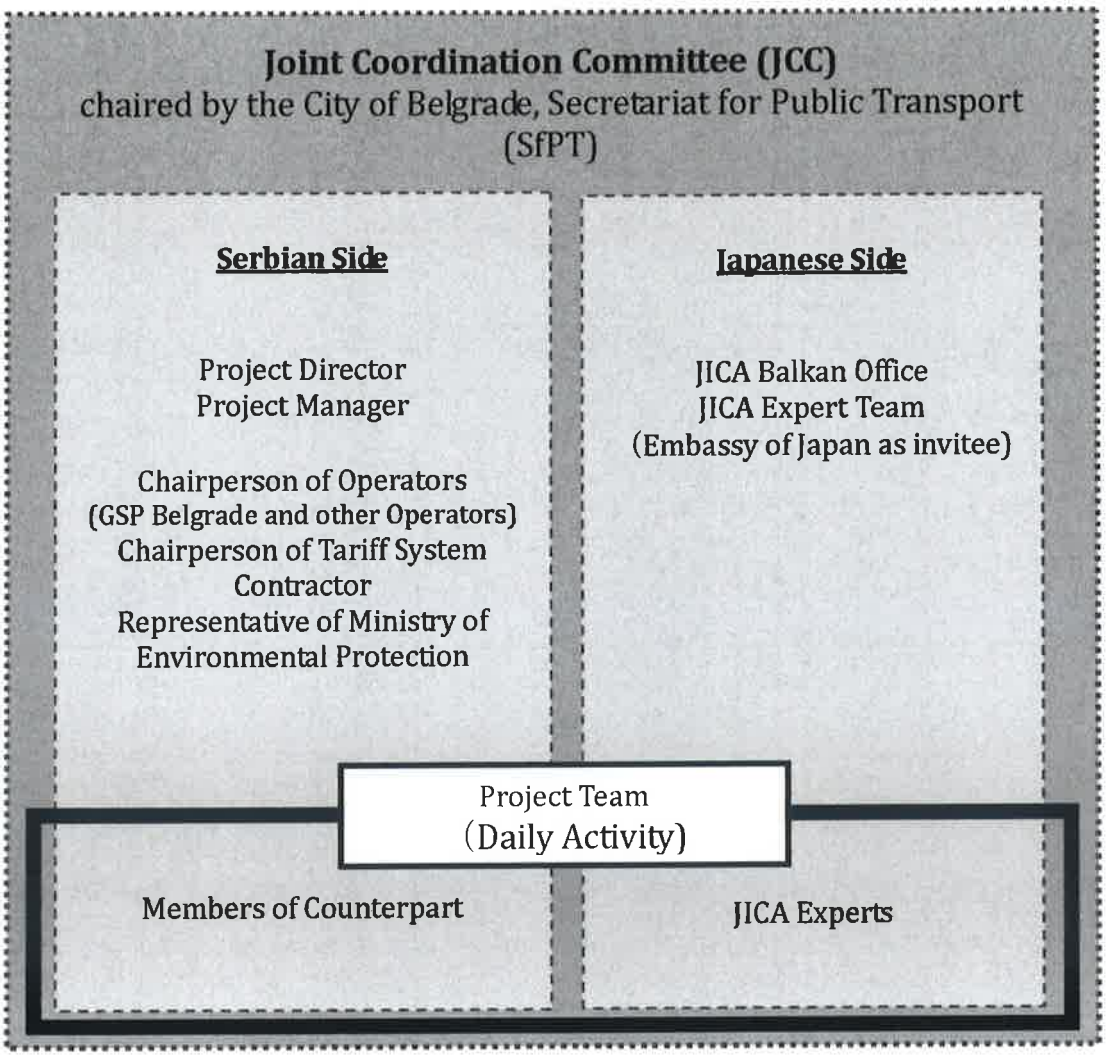
Budget is around 40 M/M in total expert team

The timing when each expert does the activity is planned at the beginning of the project

Activities / Sub-Activities	Year 2020	2021	2022	2023	Responsible Organization: Japan	Responsible Organization: Serbia	Achievements	Issue & Countermeasures
Output 1: The capability of operation planning of Secretariat for Public Transport (SPT) is improved.								
1-1 To examine the model of the demarcation of roles and responsibilities between SPT and operators	Plan / Actual							
1-2 To conduct trip demand survey along major routes and analyze the result of survey	Plan / Actual							
1-3 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of trip demand survey	Plan / Actual							
1-4 To propose method and procedure to allocate operation routes to the operators appropriately	Plan / Actual							
1-5 To propose improvement plan for operation management such as combining bus priority lane	Plan / Actual							
1-6 To utilize the latest operation support system on a pilot basis in the implementation of Activity No.1-1 to 1-5 above (e.g. image sensor that can count the number of passengers, navigation system, etc.)	Plan / Actual							
Output 2: The ability of monitoring operators of SPT is improved.								
2-1 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators	Plan / Actual							
2-2 To propose improvement plan of the way of monitoring the operators and to create basic specifications of necessary operation management system and equipment	Plan / Actual							
Output 3: The share of fare revenue in public transport funding is improved.								
3-1 To review actual structure of fare collection and to identify the issues to be addressed	Plan / Actual							
3-2 To conduct social experiments on pilot routes to improve fare collection (e.g. introducing inspectors, streamlining passengers' flow when passengers use card/tokens in getting on and off, and etc.)	Plan / Actual							
3-3 To review the results of activity 3-2 and to propose the improvement plan for fare collection	Plan / Actual							
3-4 To create basic specifications of necessary fare collection system and equipment for improved efficiency	Plan / Actual							
3-5 To implement public relations enlightening importance of fare payment	Plan / Actual							
	Plan / Actual							
Duration / Phasing	Plan / Actual							

Monitoring Plan	Year 2020	2021	2022	2023	Remarks	Issue	Solution
Monitoring							
Set-up the Detailed Plan of Operation	Plan / Actual						
Joint Coordinating Committee (JCC)	Plan / Actual						
Submission of Monitoring Sheet	Plan / Actual						
Monitoring Mission from Japan	Plan / Actual						
Joint Monitoring	Plan / Actual						
Post Monitoring	Plan / Actual						
Reports/Documents							
Minutes of Meeting for JCC	Plan / Actual						
Project Completion Report	Plan / Actual						
Public Relations							
Serbia	Plan / Actual						
Japan	Plan / Actual						

Annex 4


Joint Coordination Committee (JCC)
chaired by the City of Belgrade, Secretariat for Public Transport (SfPT)
Serbian Side
Project Director
Project Manager
Chairperson of Operators
(GSP Belgrade and other Operators)
Chairperson of Tariff System Contractor
Representative of Ministry of Environmental Protection
Japanese Side
JICA Balkan Office
JICA Expert Team
(Embassy of Japan as invitee)
Project Team
(Daily Activity)
Members of Counterpart
JICA Experts

Annex 5

List of Proposed Members of Joint Coordination Committee for Project for Modernization of Public Urban Transport in the City of Belgrade.

The proposed chairperson and the members of JCC are as follows.

(1) Project Team
1) Project Director, Mr. Milan Petrovic - Advisor, Deputy Mayor's office
2) Project Manager, Dr. Jovica Vasiljevic - Secretary of SfPT
3) JICA Experts
4) Personnel from the Counterpart
5) Others whom are to be agreed by the Counterpart and JICA

(2) Other members from Republic of Serbia
1) Public Transport Operation Companies, e.g. GSP Belgrade and other Operators.
2) Tariff System Contractor
3) Relevant local authorities
4) Ministry of Environmental Protection
5) Other persons that Serbian side might consider necessary (experts etc.)

(3) Other members from Japanese side:
1) Chief Representative, representative and staff of JICA Balkan Office
2) Staff from JICA Headquarters
3) Staff from the Embassy of Japan
4) Other persons that Japanese side might consider necessary

TO JCC Members

PROJECT MONITORING SHEET

Project Title : _____

Version of the Sheet: Ver.●● (Term: Month, Year - Month, Year) _____

Project Manager: _____

Chief Advisor: _____

Submission Date: _____

I. Summary

1 Progress

1-1 Progress of Inputs
1-2 Progress of Activities
1-3 Achievement of Output
1-4 Achievement of the Project Purpose
1-5 Changes of Risks and Actions for Mitigation
1-6 Progress of Actions undertaken by JICA
1-7 Progress of Actions undertaken by Gov. of ●●
1-8 Progress of Environmental and Social Considerations (if applicable)
1-9 Progress of Considerations on Gender/Peace Building/Poverty Reduction (if applicable)
1-10 Other remarkable/considerable issues related/affect to the project (such as other JICA's projects, activities of counterparts, other donors, private sectors, NGOs etc.)

2 Delay of Work Schedule and/or Problems (if any)

2-1 Detail
2-2 Cause
2-3 Action to be taken
2-4 Roles of Responsible Persons/Organization (JICA, Gov. of●●,etc.)

3 Modification of the Project Implementation Plan

3-1 PO
3-2 Other modifications on detailed implementation plan
(Remarks: The amendment of R/D and PDM (title of the project, duration, project site(s), target group(s), implementation structure, overall goal, project purpose, outputs, activities, and input) should be authorized by JICA HDQs. If the project team deems it necessary to modify any part of R/D and PDM, the team may propose the draft.)

4 Preparation of Gov. of●● toward after completion of the Project

II. Project Monitoring Sheet I & II (PDM & PO) *as Attached*

Contents of the Project Completion Report

I. Basic Information of the Project

1. Country
2. Title of the Project
3. Duration of the Project (Planned and Actual)
4. Background (from Record of Discussions(R/D))
5. Overall Goal and Project Purpose (from Record of Discussions(R/D))
6. Implementing Agency

II. Results of the Project

1. Results of the Project
1-1 Input by the Japanese side (Planned and Actual)
1-2 Input by the Serbian side (Planned and Actual)
1-3 Activities (Planned and Actual)
2. Achievements of the Project
2-1 Outputs and indicators
(Target values and actual values achieved at completion)
2-2 Project Purpose and indicators
(Target values and actual values achieved at completion)
3. History of PDM Modification
4. Others
4-1 Results of Environmental and Social Considerations (if applicable)
4-2 Results of Considerations on Gender/Peace Building/Poverty Reduction (if applicable)

III. Results of Joint Review

1. Results of Review based on DAC Evaluation Criteria
2. Key Factors Affecting Implementation and Outcomes
3. Evaluation on the results of the Project Risk Management
4. Lessons Learnt

IV. For the Achievement of Overall Goals after the Project Completion

1. **Prospects to achieve Overall Goal**
2. **Plan of Operation and Implementation Structure of the** Serbian **side to achieve Overall Goal**
3. **Recommendations for the** Serbian **side**
4. **Monitoring Plan from the end of the Project to Ex-post Evaluation**

ANNEX 1: Results of the Project
(List of Dispatched Experts, List of Counterparts, List of Trainings, etc.)
ANNEX 2: List of Products (Report, Manuals, Handbooks, etc.) Produced by the Project
ANNEX 3: PDM (All versions of PDM)
ANNEX 4: R/D, M/M, Minutes of JCC (copy) (*)
ANNEX 5: Monitoring Sheet (copy) (*)

Separate Volume: Copy of Products Produced by the Project

BASIC PRINCIPLES

FOR

TECHNICAL COOPERATION

December, 2016

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

Basic Principles for Technical Cooperation
Table of Contents

Basic Principles for Technical Cooperation

I. Introduction

Section 1.1 Introduction

The purpose of the Basic Principles for Technical Cooperation (hereinafter referred to as "the BP") is to set forth the basic principles generally applicable to Technical Cooperation Project and Technical Cooperation for Development Planning implemented jointly by the Japan International Cooperation Agency and the implementing agency of the recipient country (hereinafter referred to as "Technical Cooperation"), which consists of the record of discussions (hereinafter referred to as "the R/D") agreed upon between the Japan International Cooperation Agency (hereinafter referred to as "JICA") and the implementing agency of the recipient country (hereinafter referred to as "the Counterpart").

Section 1.2 Inconsistency with the R/D

If any contents of the BP is inconsistent with any contents of the R/D, such contents of the R/D will prevail.

II. Definition of Technical Cooperation

Section 2.1 Technical Cooperation

Technical Cooperation supports human resource development, research and development, technology dissemination and the development of institutional frameworks essential for the development of economies and societies in the recipient country.

Section 2.2 Technical Cooperation Project

Technical Cooperation Project refers to a systematic and comprehensive project implementation to attain certain outcomes within certain time period, in which input includes, but not limited to, the dispatch of members of JICA missions and/or JICA experts, acceptance of training participants, and/or provision of equipment from JICA.

Section 2.3 Technical Cooperation for Development Planning

In Technical Cooperation for Development Planning, JICA conducts necessary studies to support the recipient country to formulate policies and master plans, by dispatching members of JICA missions. Based on the results of this cooperation, the recipient country is expected to formulate plans for sector/regional development or rehabilitation/reconstruction by utilizing the results, to implement plans by raising funds from international organizations and others, and/or to carry out the recommended organizational/institutional reforms and other proposed activities.

III. Implementation Structure

Section 3.1 Project Team

Project team will work together for implementing Technical Cooperation. Its members include, but not limited to, Project Director, Project Manager, personnel from the Counterpart, members of JICA missions, JICA experts, and/or other members to be determined by both parties (hereinafter referred to as "the Project Team"). Details are described in the R/D.

Section 3.2 Roles of Project Team Members

General roles of members of the Project Team are as follows. Roles for other members will be determined by both parties for specific Technical Cooperation.

(1) Project Director

The project director, appointed from the Counterpart, will be responsible for the overall implementation and coordination of Technical Cooperation.

(2) Project Manager

The project manager, appointed from the Counterpart, will manage Technical Cooperation on a regular basis, and be responsible for administrative and technical matters of Technical Cooperation.

(3) Members of JICA Missions

The members of JICA missions will conduct studies regarding Technical Cooperation in cooperation with the Counterpart.

(4) JICA Experts

The JICA experts will give necessary technical guidance, advice and recommendations to the Counterpart on any matters pertaining to the implementation of Technical Cooperation.

Section 3.3 Joint Coordinating Committee

Joint Coordinating Committee (hereinafter referred to as "JCC") will be established in order to manage Technical Cooperation, and its proposed members are listed in the R/D. JCC will be held at least once a year and whenever deems it necessary and plays vital roles for implementing Technical Cooperation as follows.

(1) JCC for Technical Cooperation Project

Main tasks are 1) to review the progress, 2) to revise the overall plan when necessary, 3) to approve an annual work plan, 4) to suggest modifications of the framework (including the Project Design Matrix (hereinafter referred to as "PDM") and the Plan of Operation (hereinafter referred to as "PO") for Technical Cooperation Project), 5) to conduct evaluation of Technical Cooperation Project, and 6) to exchange opinions on major issues that arise during the implementation of Technical Cooperation Project.

(2) JCC for Technical Cooperation for Development Planning

Main tasks are to discuss on the progress and major issues that arise during the implementation of Technical Cooperation for Development Planning.

IV. Undertakings of the Counterpart

Section 4.1 Grant of Privileges, Exemptions, Benefits to JICA, the members of JICA missions and the JICA experts

The Counterpart and the government of the recipient country will take necessary measures to grant JICA, the members of JICA missions and the JICA experts privileges, exemptions and benefits in accordance with international agreements concluded between the government of Japan and the government of the recipient country.

Section 4.2 Provision of Conveniences for the members of JICA missions and the JICA experts

The Counterpart and the government of the recipient country will take necessary measures to provide conveniences listed hereto at its own expense;

(1) Information as well as support in acquiring suitable furnished accommodation for the JICA experts and their families;
(2) Information as well as support in obtaining medical service for the members of JICA missions, the JICA experts and their families; and
(3) Credentials or identification cards as necessary to the members of JICA missions and the JICA experts.

Section 4.3 Provision of Services, Facilities and Local-Cost Bearing for the Technical Cooperation

The Counterpart and the government of the recipient country will take necessary measures to provide services, facilities and local-cost bearing listed hereto at its own expense;

(1) Services of the Counterpart's personnel;
(2) Suitable office space for the Project Team with necessary equipment;
(3) Running expenses necessary for the implementation of Technical Cooperation;
(4) Expenses necessary for transportation within the recipient country of the equipment provided by JICA for Technical Cooperation Project as well as for the installation, operation and maintenance thereof;
(5) Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of Technical Cooperation other than those prepared and provided by JICA;
(6) Travel allowances for the Project Team for official travel within the recipient country; and
(7) Available data (including maps and photographs) and information

related to Technical Cooperation.

V. Reporting

Section 5.1 Reporting for Technical Cooperation Project

The Project Team will prepare the Project Completion Report three (3) months before the completion of Technical Cooperation Project.

Section 5.2 Reporting for Technical Cooperation for Development Planning

The Project Team will prepare and submit the following reports to the Counterpart. Details, such as the language of the reports, will be determined based on mutual consultation.

(1) Inception Report at the commencement of the work period in the recipient country
(2) Interim Report at the middle of the work period in the recipient country
(3) Draft Final Report at the end of the work period in the recipient country
(4) Final Report within one (1) month after the receipt of the comments on the Draft Final Report

VI. Monitoring and Evaluation

Section 6.1 Regular Monitoring and Evaluation for Technical Cooperation Project

The Project Team will jointly and regularly monitor the progress of Technical Cooperation Project through the monitoring sheets based on PDM and PO every six (6) months, while JCC will conduct overall evaluations of Technical Cooperation Project.

Section 6.2 Ex-post Evaluations

JICA will conduct the following ex-post evaluations and surveys to verify sustainability and impact of Technical Cooperation and draw lessons. The Counterpart will make best efforts to provide necessary support for them.

(1) Ex-post evaluation three (3) years after the completion of Technical Cooperation, in principle
(2) Follow-up surveys, as necessary

VII. Ownership of Equipment, Machinery, and Materials

Section 7.1 Equipment, Machinery, and Materials provided by JICA

The equipment, machinery and materials provided by JICA will become the property of the Counterpart or competent authorities of the recipient country upon being delivered to the Counterpart or the authorities.

Section 7.2 Equipment, Machinery, and Materials owned by JICA

The equipment, machinery and materials prepared by JICA for the performance of duties of the members of JICA missions and the JICA experts will remain the property of JICA unless a separate arrangement is agreed between JICA and the Counterpart or competent authorities of the recipient country.

VIII. Construction of Pilot Facility

Section 8.1 Ownership of Pilot Facility

When a pilot facility is constructed in Technical Cooperation, based on a separate arrangement to be agreed between the relevant parties, JICA will provide necessary services for constructing the pilot facility for Technical Cooperation throughout the implementation period. Upon the completion of the construction, the pilot facility will become a property of the Counterpart or competent authorities of the recipient country. The Counterpart or the authorities will ensure proper and effective operation and maintenance of the pilot facility.

Section 8.2 Safety Management of Construction

JICA and the Counterpart will assure safety management of the construction in accordance with 'the Guidance for the Management of Safety for Construction Works in Japanese ODA Projects'.

IX. Public Relations

Section 9.1 Promotion of Public Support

For the purpose of promoting support for Technical Cooperation, JICA and the Counterpart will take appropriate measures to make Technical Cooperation widely known to the people of Japan and the recipient country.

X. Environmental and Social Considerations

Section 10.1 Policy

JICA and the Counterpart abide by 'JICA Guidelines for Environmental and Social Considerations (April, 2010)' in order to ensure that appropriate considerations will be made for the environmental and social impacts of Technical Cooperation.

XI. Miscellaneous

Section 11.1 Misconduct

All related personnel and organizations will keep the highest ethics and prevent any corrupt or fraudulent practices in the implementation of Technical Cooperation.

If JICA or the Counterpart receives information related to suspected corrupt or fraudulent practices in the implementation of Technical Cooperation, JICA and the Counterpart will cooperate to take appropriate measures against such practices and provide the other party with such information as the other party may reasonably request, including information related to any concerned personnel of the contractor, consultant, government and/or public organizations.

JICA and the Counterpart will not, unfairly or unfavorably treat the person and/or organization which provided the information related to suspected corrupt or fraudulent practices in the implementation of Technical Cooperation.

Section 11.2 Mutual Consultation

JICA and the Counterpart will consult each other whenever any issues arise in the course of implementation of Technical Cooperation.

MINUTES OF MEETINGS
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
THE CITY OF BELGRADE, SECRETARIAT FOR PUBLIC TRANSPORT (SfPT)
FOR
AMENDMENT OF THE RECORD OF DISCUSSIONS
ON
THE PROJECT FOR MODERNIZATION OF PUBLIC URBAN TRANSPORT
IN THE CITY OF BELGRADE

The Japan International Cooperation Agency (hereinafter referred to as "JICA") and The City of Belgrade, Secretariat for Public Transport (hereinafter referred to as "SfPT") hereby agree that the Record of Discussions on the Project for Modernization of Public Urban Transport in the City of Belgrade signed on 7th August 2020 will be amended as follows;

1. Main Points Discussed – R/D Annex 1

Before	Amended Version
6. Project Description Details of the Project are described in Project Design Matrix (PDM Ver 1.0 as per Annex 2) and Plan of Operation (PO Ver 1.0 as per Annex 3).	6. Project Description Details of the Project are described in Project Design Matrix (PDM Ver 5.0 as per Annex 2) and Plan of Operation (PO Ver 5.0 as per Annex 3). The duration of the Project is from 13th November 2020 to 29th December 2023.
7. Implementation Structure (1) Project Director, Mr. Milan Petrovic (2) Project Manager, Dr. Jovica Vasiljevic	7. Implementation Structure (1) Project Director, Mr. Goran Medakovic, Mayor's advisor, will be responsible for overall administration and implementation of the Project. (2) Project Manager, Mr. Radovan Kremic, Secretary of SfPT will be responsible for managerial and technical matters

	of the Project.

Reason:

- The project started in November 2020, but with the municipal election in April 2022, the structure of the counterpart (the City of Belgrade and SfPT) changed significantly, which affected the project's activities. In July 2023, a new project director and manager were finally assigned, and SfPT, JET and JICA once again reached an agreement on the revised project framework and project period based on the changes that have been taken place.

2. Project Design Matrix (PDM) – R/D Annex 2

Before	Amended Version
Period of Project November 2020 - November 2023	**Period of Project** November 2020 - December 2023
Project Purpose / Objective Verifiable Indicators ① Public transportation is operated according to the improved operation plan at the timing of contract renewal with operators (carriers) ②Some of measures to improve operation management of public transportation and way of contract between operators are decided to introduce on the new contract. ③ Some of measures to secure fare collection are introduced as the City's policy. ④Public transportation users' satisfaction with public transportation is improved by 10%.	**Project Purpose / Objective Verifiable Indicators** ①Transport survey database and demand forecast model as a base for strategical operation planning are established. ②Some of measures to improve operation management of public transportation and way of contract between operators are defined and proposed to be introduced into the new contract as well as existing contract renewal. ③ Some of measures to secure fare collection are proposed as the City's policy.
Outputs-2 / Objective Verifiable Indicators ①Improvements or alternatives measures for the new contract with operators are proposed. ② Improvement measures for vehicle	**Outputs-2 / Objective Verifiable Indicators** ① Improvements or alternatives measures for the new contract with operators are proposed. ② Improvement measures for monitoring

monitoring system are proposed. **Activities 202** To propose improvement plan of the way of monitoring the operators and to create basic specifications of necessary operation management system and equipment. ***Details are PDM Ver 1.0 as per Annex 2**	operators are proposed. **Activities 202** To propose improvement plan of the way of monitoring the operators. ***Details are PDM Ver 5.0 as per Annex 2**
Reason: As mentioned above, considering the changes in the structure and the situation surrounding public transportation in the City of Belgrade, the project scope including project purpose, activities and indicators was discussed again and agreed among the project team.	

2. Plan of Operation (PO) – R/D Annex 3

Before	Amended Version
Period of Project November 2020 - November 2023 **Activities 202** To propose improvement plan of the way of monitoring the operators and to create basic specifications of necessary operation management system and equipment. **Details are PO Ver 1.0 as per Annex 3**	**Period of Project** November 2020 - December 2023 **Activities 202** To propose improvement plan of the way of monitoring the operators. **Details are PDM Ver 5.0 as per Annex 3**
Reason: same as above.	

This amendment will become effective as of 8th September 2023.

Annex 1 : Record of Discussions (signed on 7th August 2020) and Minutes of Meetings for RD Amendment (signed on 2nd August 2021)
Annex 2 : Revised PDM ver. 5.0
Annex 3 : Revised PO ver. 5.0
Annex 4 : Minutes of Meetings between SfPT and JICA Project Team (singed on 5th July

2023)

Belgrade, 8th September 2023

Mr. UEKI Masahiro
Chief Representative
JICA Balkan Office

Mr. Radovan Kremic
Secretary
The City of Belgrade, Secretariat for Public Transport of Republic of Serbia (SfPT)

Project Design Matrix

Annex 2 PDM©

Project Title: Project for Modernization of Public Urban Transport in the City of Belgrade

Implementing Agency: Secretariat for Public Transport (SfPT)

Target Group: SfPT, Operators, Tariff System Contractor

Period of Project: November 2020 ~ December 2023

Project Site: The City of Belgrade

Version 5.0

Dated Sep, 2023

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
Overall Goal Sustainability of Eco-friendly public transport in Belgrade is enhanced including eco-friendly approach.	At 3 years after project completion <EX.> ①Eco-friendly public transportation system (the ratio of EV vehicles and Euro 6 compliant vehicles to all bus vehicles in Belgrade) is increased by 10%. ②The number of public transport users is maintained. ③Some of measures aiming at financial soundness of public transport operations are implemented.	①New vehicle procurement and public transport rolling stock fleet information ②Data on average density by route, number of passengers per route, and number of passengers per kilometer ③SfPT's study report (both published/unpublished)	・Environment Protection continues to be a priority issue for the City of Belgrade.		①There may have been some impacts from the COVID-19 pandemic and worldwide price escalation. ③At least one measure should be implemented at 3 years after the project completion.
Project Purpose Ability of public transport operation of SfPT is improved.	At the project completion <EX.> ①Transport survey database and demand forecast model as a base for strategical operation planning are established. ~~Public transportation is operated according to the improved operation plan at the timing of contract renewal with operators (carriers)~~ ②Some of measures to improve operation management of public transportation and way of contract between operators are ~~decided to introduce on~~ defined and proposed to be introduced into the new contract as well as existing contract renewal. ③Some of measures to secure fare collection are ~~introduced~~ proposed as the City's policy. ~~④Public transportation users' satisfaction with public transportation is improved by 10%.~~	①Transport surveys and demand forecast model, On-the-job trainning (OJT) & users' manual on demand forecast. ~~Operation reports, including tracking of punctual operation and % trips missed/cancelled~~ ②③SfPT's study report (both published/unpublished) ~~④Passenger questionnaires and customer satisfaction surveys~~			
Outputs 1.The ability of strategical, tactical and operational planning of SfPT is improved.	At the project completion <EX.> ①The number of SfPT staff members who can use appropriate software and tools for demand forecast such as strategic models (e.g., VISUM), microsimulation (e.g., VISSIM) and cross-cutting software (e.g., GIS) is increased. ②The number of SfPT staff members who can formulate route plan based on demand forecast is increased. ③Existing route plans and operation plans are updated. ④Proposal for sustainable middle-, and long-term plans for an Integrated public transport is created. ⑤A list of improvement measures for operation management of public transportation is created. ⑥Pilot projects to improve operation management, to formulate operation plan and route plan are implemented.	①②Report of training ③Updated operation plan ④Improvement plan list for operation management ⑤Improvement proposal, and phasing plan for entire public transportation in Belgrade ⑥Evaluation report of the pilot projects	・The officers who have received technology transfer in this project do not leave. ・Demand for public transport does not drop sharply after the emergency by COVID-19. ・The need for public transport is not reduced.		⑥The pilot project is for revision and optimization of the timetable.
2.The ability of monitoring operators of SfPT is improved.	<EX.> ①Improvements or alternatives measures for the new contract with operators are proposed. ②Improvement measures for ~~vehicle monitoring system~~ monitoring operators are proposed.	①Study report including gap/SWOT analysis Improvement proposal for the new contract with operators. ~~operation monitoring system~~ ②~~Operator monitoring report~~ Improvement proposal for measuring KPIs of operators			
3.The ability for planning for securing fare collection of SfPT is improved.	①Problems and issues of fare collection are extracted. ②Improvement plan list for prevention for free ride is formulated ③Improvement plan list for public transportation operation service level and convenience is formulated ④Demonstration projects are conducted to secure fare collection and its evaluation are carried out ⑤Public relations activities are carried out to raise awareness of the importance of fare payment	①Study report for current fare collection system ②Improvement plan list for prevention for free ride ③Improvement plan list for operation service level and convenience ④Evaluation report of the ~~pilot~~ demonstration projects ⑤Numbers of campaign or promotion for fare collection or promotion of public transport use			⑤ "campaign or promotion" means traffic educational activity.

Activities

101 To conduct travel demand survey along major routes and implement OJT on transport demand software.
102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of travel demand survey.
103 To propose integrated public transportation network to enhance intermodality including water transport, planned Metro lines, terminal access modes.
104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators.
105 To create a list of improvement measures for operation management of public transportation.
106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105.

201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators..
202 To propose improvement plan of the way of monitoring the operators ~~and to create basic specifications of necessary operation management system and equipment.~~

301 To review actual structure of fare collection and to identify the issues to be addressed.
302 To formulate an improvement plan list for prevention of free ride.
303 To formulate an improvement plan list for operation service level and convenience.
304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303.
305 To carry out public relations activities to raise awareness of the importance of fare collection.

Inputs

Japanese Side

1.Dispatch of expert team
(1)Team Leader / Public Transport Policy 1
(2)Deputy Team Leader / Public Transport Policy 2
(3)Public Transport Planning
(4)Operation & Operator Management
(5)Fare Collection
(6)ICT System
(7)Pilot Project
(8)Transport Survey / Database / Demand Forecast 2
(9)Demand Forecast 1
(10)Financial & Economic Analysis
(11)Monitoring / Evaluation / Public Relation
2.Counterpart training in Japan and the third countries
3.Organize seminars / workshops
4.Invitation
5.Equipment (if any)
6.Cost share for implementing pilot projects

Serbian Side

1.Assign counterpart personnel
2.Provision of office space
3.Arrangements for seminars / workshops
4.Advisor or consultants in Belgrade (if any)
5.Interpreter (English / Serbian)
6.Cost share for implementing pilot projects

Important Assumption

Pre-Conditions

・The priority of the City of Belgrade for this project does not decrease.
・The support and understanding from related organizations are obtained.

<Issues and countermeasures>

Procurement of equipment and part of training in Japan and third countries were delayed and had to be canceled, but the original plan of utilizing the equipment and all the information and knowledge already obtained from the carried-out training should be compiled.

Annex 3

Project Title: Project for Modernization of Public Urban Transport in the City of Belgrade
Implementing Agency: Secretariat for Public Transport (SfPT)
Target Group: SfPT, Operators, Tariff System Contractor
Period of Project: November 2020 ~ December 2023
Project Site: The City of Belgrade

Plan of Operation

Version 5.0
Dated Sep, 2023

Inputs	Year	2020	2021	2022	2023	Remarks	Monitoring: Issue	Monitoring: Solution
		11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12			
Expert								
(1)Team Leader / Public Transport Policy 1	Plan / Actual							
(2)Deputy Team Leader / Public Transport Policy 2	Plan / Actual							
(3)Public Transport Planning	Plan / Actual							
(4)Operation & Operator Management	Plan / Actual							
(5)Fare Collection	Plan / Actual							
(6)ICT System	Plan / Actual							
(7)Pilot Project	Plan / Actual							
(8)Transport Survey / Database / Demand Forecast 2	Plan / Actual							
(9)Demand Forecast 1	Plan / Actual							
(10)Financial & Economic Analysis	Plan / Actual							
(11)Monitoring / Evaluation / Public Relation	Plan / Actual							
Training								
Training in Japan	Plan / Actual							
Training in the third country	Plan / Actual							
Workshop at Belgrade								
Seminar / Workshop	Plan / Actual							
Invitation to Japan								
Invitation	Plan / Actual							
Equipment								
	Plan / Actual							

Activities	Year	2020	2021	2022	2023	Responsible Organization: Japan	Responsible Organization: Serbia	Achievements	Issue & Countermeasures
Sub-Activities		11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12				
Output 1: The capability of operation planning of Secretariat for Public Transport (SfPT) is improved.									
101 To conduct travel demand survey along major routes and analyze the result of survey.	Plan / Actual								
102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of travel demand survey.	Plan / Actual								
103 To propose integrated public transportation network to enhance intermodality including water transport, planned Metro lines, terminal access modes.	Plan / Actual								
104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators.	Plan / Actual								
105 To create a list of improvement measures for operation management of public transportation.	Plan / Actual								
106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105.	Plan / Actual								
Output 2: The ability of monitoring operators of SfPT is improved.									
201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators.	Plan / Actual								
202 To propose improvement plan of the way of monitoring the operators ~~and to create basic specifications of necessary operation management system and equipment.~~	Plan / Actual								
Output 3: The ability of planning for securing fare collection of SfPT is improved.									
301 To review actual structure of fare collection and to identify the issues to be addressed.	Plan / Actual								
302 To formulate an improvement plan list for prevention of free ride.	Plan / Actual								
303 To formulate an improvement plan list for operation service level and convenience.	Plan / Actual								
304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303.	Plan / Actual								
305 To carry out public relations activities to raise awareness of the importance of fare collection.	Plan / Actual								

Duration / Phasing	
	Plan / Actual

Monitoring Plan	Year	2020	2021	2022	2023	Remarks
		11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	
Monitoring						
Set-up the Detailed Plan of Operation	Plan / Actual					
Joint Coordinating Committee (JCC)	Plan / Actual					
Submission of Monitoring Sheet	Plan / Actual					
Monitoring Mission from Japan	Plan / Actual					
Joint Monitoring	Plan / Actual					
Post Monitoring	Plan / Actual					
Reports/Documents						
Minutes of Meeting for JCC	Plan / Actual					
Progress Report	Plan / Actual					
Draft Project Completion Report	Plan / Actual					
Project Completion Report	Plan / Actual					
Public Relations						
Serbia	Plan / Actual					
Japan	Plan / Actual					

PROJECT MONITORING SHEET

Project Title: Project for Modernization of Public Urban Transport in the City of Belgrade

Version of the Sheet: Ver. 1（Term: November 2020 – May 2021）

Name: Dr. Sadayuki YAGI

Title: Team Leader/ Public Transport 1

Submission Date: June 2021

I. Summary

1 Progress

1.1 Progress of Inputs

1.1.1 Experts

Table 1: Input of Experts as of May 2021

Name and Designation	Worked MM/ Planned MM (%)	Worked MM	Planned MM
YAGI Sadayuki Team Leader/ Public Transport Policy 1	21.23	1.38	6.50
SEKI Yosui Deputy Team Leader/ Public Transport Policy 2	12.77	0.83	6.50
OWADA Manabu Public Transport Planning	0.00	0.00	4.00
Errol Tan Operation and Operator Management	17.50	0.70	4.00
OTSUKA Eijiro Fare Collection	34.80	0.87	2.50
TBD ICT System	0.00	0.00	2.50
OZONO Wataru Pilot Project	0.00	0.00	4.00
Deo Nobel Transport Survey/ Database/ Demand Forecast 2	30.00	0.90	3.00
Yang Wang Demand Forecast 1	0.00	0.00	2.00
KATO Yuka Financial & Economic Analysis	0.00	0.00	3.50
TERAWAKI Shinji Monitoring/ Evaluation/ Public Relation	25.71	0.90	3.50
TOTAL	13.29	5.58	42.00

1.2 Progress of Activities

1.2.1 Overall Activities

Joint Coordinating Committee (JCC) meeting and meetings with the counterparts were held during the period.

Table 2: Joint Coordinating Committee Meeting and Meetings with C/P

Meetings Conducted	Date	Participated Agency	Key Agenda
Meeting with JICA Balkan Office	01-Mar-21	JICA Balkan Office, JICA Project team	Courtesy call
Meeting with Secretary of SfPT	02-Mar-21	Secretary of SfPT, JICA Project team	Courtesy call
Meeting with SfPT	02-Mar-21	SfPT, JICA Project team	Sector for Planning and Development of Public Line Transport
Meeting with SfPT	03-Mar-21	SfPT, JICA Project team	Sector for Taxi Car Transport
On-site visit	03-Mar-21	SfPT, GSP, JICA Project team	Bus depot of PUC GSP Belgrade (Novi Beograd) Tram depot of PUC GSP Belgrade (Novi Beograd)
Meeting with SfPT	04-Mar-21	SfPT, GSP, JICA Project team	Sector for Public Railway and River Transport Sector for Tariff Systems and Control
Meeting with GSP HQ, On-site visit	04-Mar-21	SfPT, GSP, JICA Project team	Trolley depot of PUC GSP Belgrade (Dorcol)
Meetings with bus operators	05-Mar-21	SfPT, Bus operators, JICA Project team	Arriva Consortium GSTC Limited
Meetings with bus operators	08-Mar-21	SfPT, Bus operators, JICA Project team	SP Strela SP Lastra
Meetings with SfPT	09-Mar-21	SfPT, JICA Project team	Sector for Traffic Management Control, Schedule and Billing of SfPT (Department for Traffic Management Control, Department for Schedule and Billing)
Meeting with Univ. of Belgrade	09-Mar-21	SfPT, Univ. of BG, JICA Project team	Faculty of Transport and Traffic Engineering
Meeting with Kentkart	10-Mar-21	SfPT, Kentkart, JICA Project team	Data collection of the ticketing system
Meeting with Belgrade Metro and Train	10-Mar-21	SfPT, Belgrade Metro and Train, JICA Project team	Existing and projection of BG Voz network
Courtesy call to Embassy of Japan	10-Mar-21	Embassy of Japan, JICA Balkan Office, JICA Project team	Courtesy call
On-line meeting with EBRD	11-Mar-21	SfPT, EBRD, JICA Project team	Project introduction Sharing the information in transport sector
Meetings with SfPT	11-Mar-21	SfPT, JICA Project team	Sector for Economic Affairs Sectors for Traffic Management, Control, Schedule and Billing of Transport Services
On-site visit	12-Mar-21	SfPT, Bus operators, JICA Project team	SP Lasta Bus depot of PUC GSP Belgrade (Kosmaj)
On-site visit	15-Mar-21	SfPT, GSP, JICA Project team	Trollybus and tram depot of PUC GSP Belgrade (Dorcol)

Meetings Conducted	Date	Participated Agency	Key Agenda
Meetings with SfPT	15-Mar-21	SfPT, JICA Project team	Under secretary of SfPT Sector for Normative and Legal Affairs and Public Procurement
Meeting with Univ. of Belgrade	16-Mar-21	SfPT, Univ. of BG, JICA Project team	Faculty of Transport and Traffic Engineering
Meetings with SfPT	16-Mar-21	SfPT, JICA Project team	Sector for Planning and Development of Public Line Transport Sector for Economic Affairs
Meeting with SfPT	17-Mar-21	SfPT, JICA Project team	Under secretary of SfPT
On-site visit	18-Mar-21	SfPT, GSP, JICA Project team	Trollybus and tram depot of PUC GSP Belgrade (Dorcol) Bus depot of PUC GSP Belgrade (Karaburma)
On-site visit	19-Mar-21	SfPT, Bus operator, JICA Project team	Bus depot of Avala Consortium (PRESTO)
Meeting with Secretary of SfPT	19-Mar-21	Secretary of SfPT, JICA Project team	Technologies to be introduced in the project
Meeting with Univ. of Belgrade	22-Mar-21	SfPT, Univ. of BG, JICA Project team	Faculty of Transport and Traffic Engineering
Meeting with Kentkart	22-Mar-21	SfPT, Kentkart, JICA Project team	Challenges of the existing ticketing system
Meeting with SfPT	23-Mar-21	SfPT, JICA Project team	Sector for Planning and Development of Public Line Transport
Wrap-up meeting between SfPT-JICA	24-Mar-21	SfPT, JICA Project team	Report of initial findings and direction of the project
Meeting with SfPT	13-May-21	SfPT, JICA Project team	Sector for Planning and Development of Public Line Transport
On-site visit	14-Mar-21	SfPT, GSP, JICA Project team	Trollybus and tram depot of PUC GSP Belgrade (Dorcol)
Meeting with JICA Balkan Office	14-Mar-21	JICA Balkan Office, JICA Project team	Report of initial findings and direction of the project
Meeting with SfPT	17-May-21	SfPT, JICA Project team	Sector for Tariff Systems and Control
Meeting with Secretary of SfPT	18-Mar-21	Secretary of SfPT, JICA Project team	Explanation of agenda of meetings
Meeting with SfPT	18-May-21	SfPT, JICA Project team	Sector for Tariff Systems and Control
On-site visit	18-May-21	SfPT, JICA Project team	Controller in bus
Meeting with SfPT	19-May-21	SfPT, JICA Project team	Sector for Tariff Systems and Control
On-site visit	20-Mar-21	SfPT, GSP, JICA Project team	Bus depot of PUC GSP Belgrade (Karaburma)
Meeting with SfPT	21-May-21	SfPT, JICA Project team	Sector for Planning and Development of Public Line Transport
Meeting with SfT	24-May-21	SfPT, JICA Project team	Secretariate for Traffic
Meeting with SfPT	25-May-21	SfPT, JICA Project team	Sector for Planning and Development of Public Line Transport
Meeting with Kentkart	26-May-21	SfPT, Kentkart, JICA Project team	Contents on new contract Operational issues on fare collection

Meetings Conducted	Date	Participated Agency	Key Agenda
Meeting with Univ. of Belgrade	27-May-21	SfPT, Univ. of BG, JICA Project team	Faculty of Transport and Traffic Engineering
Meeting with WG Leader	27-May-21	SfPT, JICA Project team	Discussion on revised PDM/PO
Meeting with Ministry of Construction, Transportation and Infrastructure)	28-May-21	SfPT, MoCTI, JICA Project team	Courtesy call Introduction of Project
Meeting with SfPT and Univ. of Belgrade	28-May-21	SfPT, Univ. of BG, JICA Project team	About PDM
Meeting with SfPT and Univ. of Belgrade	31-May-21	SfPT, Univ. of BG, JICA Project team	About JCC,PDM Discussion on indicators on PDM
First JCC Meeting	2-Jun-21	SfPT, City of Belgrade, Univ. of Belgrade, Ministry of Construction,Transport and Infrastructure, Bus Operators, Kentkart, JICA	1) Explanation of Work Plan (Draft) 2) Set-up the Detailed Plan of Operation 3)Signing on the Minutes of Meeting for JCC 4)Confirmation of the undertakings by both of Serbian and Japanese side

1.2.2 Output 1: The ability of strategical, tactical and operational planning of SfPT is improved.

The progress of Output 1 activities is shown in the table below.

Table 3: Progress of Output 1 Activities

Activity and Work Item	Activities	Progress	Activity for the Next 6 Months
101 To conduct travel demand survey along major routes and implement OJT on transport demand software.	- Collected the information for the travel demand forecast	Working	Continue the activities
102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of travel demand survey.			
103 To propose integrated public transportation network to enhance intermodality including water transport, planned Metro lines, terminal access modes.			
104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators.			
105 To create a list of improvement measures for operation management of public transportation.			

Activity and Work Item	Activities	Progress	Activity for the Next 6 Months
106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105.			

1.2.3 Output 2: The ability of monitoring operators of SfPT is improved.

The progress of Output 2 activities is shown in the table below.

Table 4: Progress of Output 2 Activities

Activity and Work Item	Activities	Progress	Activity for the Next 6 Months
201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators.	- Reviewed the current documents - Conducted the interviews to relevant organizations	Working	Continue the activities
202 To propose improvement plan of the way of monitoring the operators and to create basic specifications of necessary operation management system and equipment.			

1.2.4 Output 3: The ability for planning for securing fare collection of SfPT is improved.

The progress of Output 3 activities is shown in the table below.

Table 5: Progress of Output 3 Activities

Activity and Work Item	Activities	Progress	Activity for the Next 6 Months
301 To review actual structure of fare collection and to identify the issues to be addressed.	- Reviewed the current documents - Conducted the interviews to relevant organizations - Site observation with CPs	Working	Continue the activities
302 To formulate an improvement plan list for prevention of free ride.			
303 To formulate an improvement plan list for operation service level and convenience.			
304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303.			
305 To carry out public relations activities to raise awareness of the importance of fare collection.			

1.3 Achievement of Output

1.3.1 Output 1

Achievement status of Output 1 is as follows.

Table 6: Progress of Output 1 Activities

Objectively Verifiable Indicator	Baseline	Current Status
1-1 The number of SfPT staff members who can use appropriate software and tools for demand forecast such as strategic models (e.g., VISUM), microsimulation (e.g., VISSIM) and cross-cutting software (e.g., GIS) is increased.	- To be measured	
1-2 The number of SfPT staff members who can formulate route plan based on demand forecast is increased.	- To be measured	
1-3 Existing route plans and operation plans are updated.	- Not updated yet	
1-4 Proposal for sustainable middle-, and long-term plans for an Integrated public transport is created.	- Not created yet	
1-5 A list of improvement measures for operation management of public transportation is created.	- Not created yet	
1-6 Pilot projects to improve operation management, to formulate operation plan and route plan are implemented.	- Not implemented yet	

1.3.2 Output 2

Achievement status of Output 2 is as follows.

Table 7: Progress of Output 2 Activities

Objectively Verifiable Indicator	Baseline	Current Status
2-1 Improvements or alternatives measures for the new contract with operators are proposed.	- Not proposed yet	
2-2 Improvement measures for vehicle monitoring system are proposed.	- Not proposed yet	

1.3.3 Output 3

Achievement status of Output 3 is as follows.

Table 8: Progress of Output 3 Activities

Objectively Verifiable Indicator	Baseline	Current Status
3-1 Problems and issues of fare collection are extracted.	- To be measured	
3-2 Improvement plan list for prevention for free ride is formulated.	- Not formulated yet	
3-3 Improvement plan list for public transportation operation service level and convenience is formulated.	- Not formulated yet	
3-4 Demonstration projects are conducted to secure fare collection and its evaluation are carried out.	- Not carried out yet	
3-5 Public relations activities are carried out to raise awareness of the importance of fare payment.	- Not carried out yet	

1.4 Achievement of the Project Purpose

Also stated in PDM, the achievement of the project purpose shall be evaluated using verifiable indicators.

Table 9: Verifiable Indicators and Current Status

Objectively Verifiable Indicator	Baseline	Current Status
Public transportation is operated according to the improved operation plan at the timing of contract renewal with operators (carriers).	- To be measured	
Some of measures to improve operation management of public transportation and way of contract between operators are decided to introduce on the new contract.	- To be measured	
Some of measures to secure fare collection are introduced as the City's policy.	- To be measured	
Public transportation users' satisfaction with public transportation is improved by 10%.	- To be measured	

Source: PDM 1.0

1.5 Changes of Risks and Actions for Mitigation

N/A

1.6 Progress of Actions undertaken by JICA

N/A

1.7 Progress of Actions undertaken by SfPT

N/A

1.8 Progress of Environmental and Social Considerations (if applicable)

N/A

1.9 Progress of Considerations on Gender/Peace Building/Poverty Reduction (if applicable)

It was confirmed that the activities will be carried out in consideration on gender, peace building and poverty reduction, in 1st JCC on June 2, 2021.

1.10 Other remarkable/considerable issues related/affect to the project (such as other JICA's projects, activities of counterparts, other donors, private sectors, NGOs etc.)

N/A

2 Delay of Work Schedule and/or Problems (if any)

The timing of 1st JCC meeting was delayed due to influence of COVID-19, from April to June 2021.

2.1 Detail

N/A

2.2 Cause

N/A

2.3 Action to be taken

N/A

2.4 Roles of Responsible Persons/Organization (JICA, SfPT etc.)

N/A

3 Modification of the Project Implementation Plan

N/A

3.1 PO

N/A

3.2 Other modifications on detailed implementation plan

(Remarks: The amendment of R/D and PDM (title of the project, duration, project site(s), target

group(s), implementation structure, overall goal, project purpose, outputs, activities, and input) should be authorized by JICA HDQs. If the project team deems it necessary to modify any part of R/D and PDM, the team may propose the draft.)

N/A

4 Preparation of SfPT toward after completion of the Project

N/A

II. Project Monitoring Sheet I (PDM) & II (PO)

As attached.

PROJECT MONITORING SHEET

Project Title: Project for Modernization of Public Urban Transport in the City of Belgrade

Version of the Sheet: Ver. 2（Term: November 2020 – November 2021）

Name: Dr. Sadayuki YAGI

Title: Team Leader/ Public Transport 1

Submission Date: December 2021

I. Summary

1 Progress

1.1 Progress of Inputs

1.1.1 Experts

Table 1: Input of Experts as of November 2021

Name and Designation	Worked MM/ Planned MM (%)	Worked MM	Planned MM
YAGI Sadayuki Team Leader/ Public Transport Policy 1	28.86	2.02	7.00
SEKI Yosui Deputy Team Leader/ Public Transport Policy 2	24.62	1.60	6.50
OWADA Manabu Public Transport Planning	12.67	0.57	4.50
Errol Tan Operation and Operator Management	15.56	0.70	4.50
OTSUKA Eijiro Fare Collection	31.78	1.43	4.50
TBD ICT System	0.00	0.00	2.50
OZONO Wataru Pilot Project	0.00	0.00	4.00
Deo Nobel Transport Survey/ Database/ Demand Forecast 2	40.75	1.63	4.00
Yang Wang Demand Forecast 1	33.50	0.67	2.00
KATO Yuka Financial & Economic Analysis	26.57	0.93	3.50
TERAWAKI Shinji Monitoring/ Evaluation/ Public Relation	23.25	0.93	4.00
TOTAL	28.86	10.48	47.00

1.2 Progress of Activities

1.2.1 Overall Activities

Joint Coordinating Committee (JCC) meeting and meetings with the counterparts were held during the period.

Table 2: Joint Coordinating Committee Meeting and Meetings with C/P

Meetings Conducted	Date	Participated Agency	Key Agenda
Meeting with JICA Balkan Office	01-Mar-21	JICA Balkan Office, JICA Project team	Courtesy call
Meeting with Secretary of SfPT	02-Mar-21	Secretary of SfPT, JICA Project team	Courtesy call
Meeting with SfPT	02-Mar-21	SfPT, JICA Project team	Information collection on Sector for Planning and Development of Public Line Transport
Meeting with SfPT	03-Mar-21	SfPT, JICA Project team	Information collection on Sector for Taxi Car Transport
On-site visit	03-Mar-21	SfPT, GSP, JICA Project team	Information collection on Bus depot of PUC GSP Belgrade (Novi Beograd), Tram depot of PUC GSP Belgrade (Novi Beograd)
Meeting with SfPT	04-Mar-21	SfPT, GSP, JICA Project team	Information collection on Sector for Public Railway and River Transport, Sector for Tariff Systems and Control
Meeting with GSP HQ, On-site visit	04-Mar-21	SfPT, GSP, JICA Project team	Information collection on Trolley depot of PUC GSP Belgrade (Dorcol)
Meetings with bus operators	05-Mar-21	SfPT, Bus operators, JICA Project team	Information collection on Arriva Consortium, GSTC Limited
Meetings with bus operators	08-Mar-21	SfPT, Bus operators, JICA Project team	Information collection on SP Strela, SP Lastra
Meetings with SfPT	09-Mar-21	SfPT, JICA Project team	Information collection on Sector for Traffic Management Control, Schedule and Billing of SfPT (Department for Traffic Management Control, Department for Schedule and Billing)
Meeting with Univ. of Belgrade	09-Mar-21	SfPT, Univ. of BG, JICA Project team	Information collection on the previous projects conducted by Faculty of Transport and Traffic Engineering
Meeting with Kentkart	10-Mar-21	SfPT, Kentkart, JICA Project team	Information collection on the ticketing system
Meeting with Belgrade Metro and Train	10-Mar-21	SfPT, Belgrade Metro and Train, JICA Project team	Information collection on existing and projection of BG Voz network
Courtesy call to Embassy of Japan	10-Mar-21	Embassy of Japan, JICA Balkan Office, JICA Project team	Courtesy call
On-line meeting with EBRD	11-Mar-21	SfPT, EBRD, JICA Project team	Project introduction, Sharing the information in transport sector
Meetings with SfPT	11-Mar-21	SfPT, JICA Project team	Information collection on Sector for Economic Affairs, Sectors for Traffic Management, Control, Schedule and Billing of Transport Services
On-site visit	12-Mar-21	SfPT, Bus operators, JICA Project team	Information collection on SP Lasta, Bus depot of PUC GSP Belgrade (Kosmaj)

Meetings Conducted	Date	Participated Agency	Key Agenda
On-site visit	15-Mar-21	SfPT, GSP, JICA Project team	Information collection on Trolleybus and tram depot of PUC GSP Belgrade (Dorcol)
Meetings with SfPT	15-Mar-21	SfPT, JICA Project team	Information collection on Sector for Normative and Legal Affairs and Public Procurement
Meeting with Univ. of Belgrade	16-Mar-21	SfPT, Univ. of BG, JICA Project team	Discussion on general activities
Meetings with SfPT	16-Mar-21	SfPT, JICA Project team	Information collection on Sector for Planning and Development of Public Line Transport, Sector for Economic Affairs
Meeting with SfPT	17-Mar-21	SfPT, JICA Project team	Discussion on general activities
On-site visit	18-Mar-21	SfPT, GSP, JICA Project team	Information collection on Trolleybus and tram depot of PUC GSP Belgrade (Dorcol), Bus depot of PUC GSP Belgrade (Karaburma)
On-site visit	19-Mar-21	SfPT, Bus operator, JICA Project team	Information collection on Bus depot of Avala Consortium (PRESTO)
Meeting with Secretary of SfPT	19-Mar-21	Secretary of SfPT, JICA Project team	Sharing technologies to be introduced in the project
Meeting with Univ. of Belgrade	22-Mar-21	SfPT, Univ. of BG, JICA Project team	Discussion on general activities
Meeting with Kentkart	22-Mar-21	SfPT, Kentkart, JICA Project team	Discussion on challenges of the existing ticketing system
Meeting with SfPT	23-Mar-21	SfPT, JICA Project team	Information collection on Sector for Planning and Development of Public Line Transport
Wrap-up meeting between SfPT-JICA	24-Mar-21	SfPT, JICA Project team	Report of initial findings and direction of the project
Meeting with SfPT	13-May-21	SfPT, JICA Project team	Information collection on Sector for Planning and Development of Public Line Transport
On-site visit	14-Mar-21	SfPT, GSP, JICA Project team	Information collection on Trolleybus and tram depot of PUC GSP Belgrade (Dorcol)
Meeting with SfPT	17-May-21	SfPT, JICA Project team	Information collection on Sector for Tariff Systems and Control
Meeting with SfPT	18-Mar-21	Secretary of SfPT, JICA Project team	Discussion on general activities
Meeting with SfPT	18-May-21	SfPT, JICA Project team	Information collection on Sector for Tariff Systems and Control
On-site visit	18-May-21	SfPT, JICA Project team	Information collection on controller in bus
Meeting with SfPT	19-May-21	SfPT, JICA Project team	Information collection on Sector for Tariff Systems and Control
On-site visit	20-Mar-21	SfPT, GSP, JICA Project team	Information collection on bus depot of PUC GSP Belgrade (Karaburma)
Meeting with SfPT	21-May-21	SfPT, JICA Project team	Information collection on Sector for Planning and Development of Public Line Transport
Meeting with SfT	24-May-21	SfPT, JICA Project team	Information collection on the mandate of SfT

Meetings Conducted	Date	Participated Agency	Key Agenda
Meeting with SfPT	25-May-21	SfPT, JICA Project team	Information collection on Sector for Planning and Development of Public Line Transport
Meeting with Kentkart	26-May-21	SfPT, Kentkart, JICA Project team	Information collection and discussion on new contract, operational issues on fare collection
Meeting with Univ. of Belgrade	27-May-21	SfPT, Univ. of BG, JICA Project team	General Discussion
Meeting with WG Leader	27-May-21	SfPT, JICA Project team	Discussion on revised PDM/PO
Meeting with Ministry of Construction, Transportation and Infrastructure)	28-May-21	SfPT, MoCTI, JICA Project team	Courtesy call, Introduction of Project
Meeting with SfPT and Univ. of Belgrade	28-May-21	SfPT, Univ. of BG, JICA Project team	Discussion on PDM
Meeting with SfPT and Univ. of Belgrade	31-May-21	SfPT, Univ. of BG, JICA Project team	Discussion on JCC,PDM, indicators on PDM
First JCC Meeting	2-Jun-21	SfPT, City of Belgrade, Univ. of Belgrade, Ministry of Construction,Transport and Infrastructure, Bus Operators, Kentkart, JICA	1) Explanation of Work Plan (Draft) 2) Set-up the Detailed Plan of Operation 3)Signing on the Minutes of Meeting for JCC 4)Confirmation of the undertakings by both of Serbian and Japanese side
Meeting with SfPT	3-Jun-21	SfPT, JICA Project team	Signing on M/M
On-site visit	3-Jun-21	GSP, JICA Project Team	Bus depot of PUC GSP Belgrade (Karaburma)
Meeting with Univ. of Belgrade	4-Jun-21	Univ. of BG, JICA Project Team	Discussion on the implementation of the field work for the traffic survey
Meeting with SfPT	6-Jul-21	SfPT, JICA Project team	Discussion on the overall schedule for the third trip
Meeting with SfPT	7-Jul-21	SfPT, JICA HQ, JICA Project team	Discussion on the direction of the opinion survey
Meeting with SfPT	8-Jul-21	SfPT, JICA Project team	Discussion on the revised work plan, positioning of the SfT in this project
Meeting with Univ. of Belgrade	8-Jul-21	Univ. of BG, JICA Project Team	Discussion on TOR for the opinion survey (in particular, characteristics of local survey respondents, survey forms, target routes) and contracts.
Meeting with SfPT	9-Jul-21	SfPT, JICA Project team	Information and data collection on functions of the public transport operator monitoring and scheduling system (Bus Plus)
Meeting with SfPT	12-Jul-21	SfPT, JICA Project team	Discussion on revised work plan, model for sharing roles between public and private sectors in public transportation, pilot project (introduction and operation of VR technology and video wall)
Meeting with Secretariat for Environmental Protection	13-Jul-21	Secretariat for Environmental Protection, SfPT, JICA Project Team	Information collection on Air quality and noise monitoring, smartphone application BEOECO, monthly report and action plan on air quality and noise, bicycle use promotion program
Meeting with Secretariat for Traffic	13-Jul-21	Secretariat for Traffic, SfPT, JICA Project Team	Discussion and information and data collection on road traffic, intersection simulation using VISSIM, road traffic network model using VISUM, public transport priority signal

Meetings Conducted	Date	Participated Agency	Key Agenda
			system project, implementation of area traffic signal control system, bus priority lanes, traffic volume monitoring, vehicle detectors
Meeting with SfPT	14-Jul-21	SfPT, JICA Project team	Discussion on revised work plan, opinion survey
Meeting with Belgrade Metro and Train	15-Jul-21	Belgrade Metro and Train, JICA Project	Discussion and information and data collection on VISUM model, water transportation, future rail network
Meeting with Univ. of Belgrade	15-Jul-21	Univ. of Belgrade, JICA Project Team	Discussion on opinion survey, local consultant contract
Meeting with Kentkart	16-Jul-21	Kentkart, JICA Project Team	Information collection on the functions of the new public transportation IC card "Belgrade Card", compatibility with the old card and switching and request for data of fare collection
Meeting with SfPT	16-Jul-21	SfPT, JICA Project team	Discussions on matters to be worked on online before the fourth trip
Meeting with Univ. of Belgrade	19-Jul-21	Univ. of Belgrade, JICA Project Team	Discussion on the current status of fare collection system and identification of issues to improve the fare collection rate
Meeting with GSTC Limited	20-Jul-21	GSTC Limited, JICA Project Team	Sharing of the summary of the third trip
Meeting with SfPT	7-Sep-21	SfPT, JICA Project team	Discussion on the overall schedule for the forth trip
Meeting with SfPT	8-Sep-21	SfPT, JICA Project team	Discussion on the details of the pilot project
Meeting with Belgrade Metro and Train	9-Sep-21	Belgrade Metro and Train, JICA Project team	Information collection on route and operation planning
Meeting with SfPT	9-Sep-21	SfPT, JICA Project team	Discussion on PTV VISUM training
Meeting with SfPT	10-Sep-21	SfPT, JICA Project team	Discussion on the details of the pilot project
Meeting with SfPT	13-Sep-21	SfPT, JICA Project team	Information collection on issues in monitoring methods and operation management systems for public transport operators
Meeting with SfPT	14-Sep-21	SfPT, JICA Project team	Discussion on PTV VISUM training
Meeting with SfPT	16-Sep-21	SfPT, JICA Project team	Information collection on operation contracts with public transportation operators
Meeting with SfPT	16-Sep-21	SfPT, JICA Project team	Discussion on the details of the pilot project
Meeting with SfPT	16-Sep-21	SfPT, JICA Project team	Discussion on the details of the pilot project and study potential sites for the pilot project
On-site visit	17-Sep-21	PUC GSP Belgrade, JICA Project team	PUC GSP Belgrade (Dorcol, Karaburma)
Meeting with SfPT	20-Sep-21	SfPT, JICA Project team	Information collection on operation contracts with public transportation operators
Meeting with Univ. of Belgrade, Belgrade Metro and Train	20-Sep-21	Univ. of Belgrade, JICA Project team	Discussion on the policy for the use of VISUM in Belgrade and information collection on operating contracts with public transport operators

Meetings Conducted	Date	Participated Agency	Key Agenda
Meeting with SfPT	22-Sep-21	SfPT, JICA Project team	Discussion on types of contracts with public transport operators and their advantages and disadvantages
Meeting with Belgrade Metro and Train	23-Sep-21	Belgrade Metro and Train, JICA Project team	Discussion on integration multiple transportation modes
Meeting with Univ. of Belgrade	24-Sep-21	Univ. of Belgrade, JICA Project team	Discussion on updating the traffic demand forecasting model
Meeting with Arriva Consortium	25-Sep-21	Arriva Consortium, JICA Project team	Information collection on operating costs and operating contracts
Meeting with SfPT	27-Sep-21	SfPT, JICA Project team	Discussion on the details of the pilot project
Meeting with Avala Consortium	28-Sep-21	Avala Consortium, JICA Project team	Information collection on operating costs and operating contracts
Meeting with SfPT	28-Sep-21	SfPT, JICA Project team	Information collection on monitoring operations at the operation control center
Meeting with SfPT	29-Sep-21	SfPT, JICA Project team	Information collection on the provisions and effectiveness of transportation services in contracts with transportation operators
Meeting with SfPT	29-Sep-21	SfPT, JICA Project team	Information collection on communication with public transport users
Meeting with GSTC Limited	29-Sep-21	GSTC Limited, JICA Project team	Discussion on contracts with public transport operators in various countries
Meeting with Belgrade Metro and Train, PUC GSP Belgrade (Dorcol)	30-Sep-21	Belgrade Metro and Train, PUC GSP Belgrade, JICA Project Team	Information collection on operating costs and operating contracts
Meeting with Univ. of Belgrade	1-Oct-21	Univ. of Belgrade, JICA Project team	Discussion on opinion survey
Meeting with SfPT	5-Oct-21	SfPT, JICA Project team	Discussion on the whole activity 2
Meeting with SfPT	7-Oct-21	SfPT, JICA Project team	Discussion on the details of the pilot project
Meeting with SfPT	18-Nov-21	SfPT, JICA Project team	Discussion on the overall schedule for the fifth trip
On-site visit	19-Nov-21	SfPT, JICA Project team	Site survey of potential pilot project sites
On-site visit	22-Nov-21	SfPT, JICA Project team	Site survey of potential pilot project sites
On-site visit	23-Nov-21	SfPT, JICA Project team	Site survey of potential pilot project sites
Meeting with SfPT	23-Nov-21	SfPT, JICA Project team	Discussion on bus operation planning system
Meeting with SfPT	24-Nov-21	SfPT, JICA Project team	Discussion on bus operation planning system
Meeting with Univ. of Belgrade, SfPT	26-Nov-21	Univ. of Belgrade, SfPT, JICA Project team	Discussion on the details of the pilot project

1.2.2 Output 1: The ability of strategical, tactical and operational planning of SfPT is improved.

The progress of Output 1 activities is shown in the table below.

Table 3: Progress of Output 1 Activities

Activity and Work Item	Activities	Progress	Activity for the Next 6 Months
101 To conduct travel demand survey along major routes and implement OJT on transport demand software.	• Information collection on the travel demand forecast • Confirmation on demand forecast modeling and its data • Conduct of VISUM training	• On-going • On-going • Completed	• Continue and analyze the information • Continue and analyze the data • Discuss for the possibility of 2nd sessions
102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of travel demand survey.	• Information collection on the operation planning	• On-going	• Continue and analyze the information and data
103 To propose integrated public transportation network to enhance intermodality including water transport, planned Metro lines, terminal access modes.	• Discussion on introduction of river transport and future railway network plan	• On-going	• Continue to discuss
104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators.	• Examination on role and responsibility by SfPT and public transport operators • Information collection of good practices in EU cities	• On-going • On-going	• Continue to examine • Continue and analyze the information
105 To create a list of improvement measures for operation management of public transportation.	• Data collection on public transport operation and management • Examination on timetable and diagram systems	• On-going • On-going	• Continue and analyze the data • Continue to examine
106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105.	• Discussion on initial proposal of pilot project and its data and information collection • Discussion on pilot project contents • Hearing about ICT companies	• On-going • On-going • On-going	• Continue to discuss • Continue to discuss • Continue to discuss

1.2.3 Output 2: The ability of monitoring operators of SfPT is improved.

The progress of Output 2 activities is shown in the table below.

Table 4: Progress of Output 2 Activities

Activity and Work Item	Activities	Progress	Activity for the Next 6 Months
201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators.	• Analysis of Unit price in the operational contract • Comparative analysis on existing operational contract and its alternatives	• On-going • On-going	• Continue to analyze the information • Continue to analyze the information
202 To propose improvement plan of the way of monitoring the operators and to create basic specifications of necessary operation management system and equipment.	• Examination of operation management system that contributes to improvement of operation monitoring • Analysis of BusPlus system	• On-going • On-going	• Continue to examine • Continue to analyze

1.2.4 Output 3: The ability for planning for securing fare collection of SfPT is improved.

The progress of Output 3 activities is shown in the table below.

Table 5: Progress of Output 3 Activities

Activity and Work Item	Activities	Progress	Activity for the Next 6 Months
301 To review actual structure of fare collection and to identify the issues to be addressed.	• Conducting an awareness survey on fare payment • Analysis and Discussion on an awareness survey	• Completed • On-going	• None • Continue to analyze
302 To formulate an improvement plan list for prevention of free ride.	• Identify various problems caused by bus stops and consider improvements • Preparation and discussion of a bus riding class plan (educational programs) • Examination and discussion of teaching materials for bus drivers	• On-going • On-going • On-going	• Continue to analyze • Continue to discuss • Continue to discuss
303 To formulate an improvement plan list for operation service level and convenience.			
304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303.	• Discussion on the general contents of the demonstration project	• On-going	• Continue to discuss
305 To carry out public relations activities to raise awareness of the importance of fare collection.	• Setting up of Facebook Project Page	• Completed	• Launch the information dissemination

1.3 Achievement of Output

1.3.1 Output 1

Achievement status of Output 1 is as follows.

Table 6: Progress of Output 1 Activities

Objectively Verifiable Indicator	Baseline	Current Status
1-1 The number of SfPT staff members who can use appropriate software and tools for demand forecast such as strategic models (e.g., VISUM), microsimulation (e.g., VISSIM) and cross-cutting software (e.g., GIS) is increased.	• To be measured	• Through 12 hours training, 8 SfPT staff members gained basic knowledge to operate the strategic model VISUM.
1-2 The number of SfPT staff members who can formulate route plan based on demand forecast is increased.	• To be measured	• -
1-3 Existing route plans and operation plans are updated.	• Not updated yet	• -
1-4 Proposal for sustainable middle-, and long-term plans for an Integrated public transport is created.	• Not created yet	• -
1-5 A list of improvement measures for operation management of public transportation is created.	• Not created yet	• -
1-6 Pilot projects to improve operation management, to formulate operation plan and route plan are implemented.	• Not implemented yet	• Under discussion on the contents of the pilot project

1.3.2 Output 2

Achievement status of Output 2 is as follows.

Table 7: Progress of Output 2 Activities

Objectively Verifiable Indicator	Baseline	Current Status
2-1 Improvements or alternatives measures for the new contract with operators are proposed.	• Not proposed yet	• Under discussion on the improvement options
2-2 Improvement measures for vehicle monitoring system are proposed.	• Not proposed yet	• Under examination of the related systems

1.3.3 Output 3

Achievement status of Output 3 is as follows.

Table 8: Progress of Output 3 Activities

Objectively Verifiable Indicator	Baseline	Current Status
3-1 Problems and issues of fare collection are extracted.	• To be measured	• Under analysis of the related information
3-2 Improvement plan list for prevention for free ride is formulated.	• Not formulated yet	• -
3-3 Improvement plan list for public transportation operation service level and convenience is formulated.	• Not formulated yet	• -
3-4 Demonstration projects are conducted to secure fare collection and its evaluation are carried out.	• Not carried out yet	• Under discussion on the contents of the demonstration project
3-5 Public relations activities are carried out to raise awareness of the importance of fare payment.	• Not carried out yet	• Under discussion on the methodology

1.4 Achievement of the Project Purpose

Also stated in PDM, the achievement of the project purpose shall be evaluated using verifiable indicators.

Table 9: Verifiable Indicators and Current Status

Objectively Verifiable Indicator	Baseline	Current Status
Public transportation is operated according to the improved operation plan at the timing of contract renewal with operators (carriers).	• To be measured	• Under discussion on the improvement of the operation plan.
Some of measures to improve operation management of public transportation and way of contract between operators are decided to introduce on the new contract.	• To be measured	• -
Some of measures to secure fare collection are introduced as the City's policy.	• To be measured	• -
Public transportation users' satisfaction with public transportation is improved by 10%.	• To be measured	• -

Source: PDM 1.0

1.5 Changes of Risks and Actions for Mitigation

N/A

1.6 Progress of Actions undertaken by JICA

N/A

1.7 Progress of Actions undertaken by SfPT

N/A

1.8 Progress of Environmental and Social Considerations (if applicable)

N/A

1.9 Progress of Considerations on Gender/Peace Building/Poverty Reduction (if applicable)

It was confirmed that the activities will be carried out in consideration on gender, peace building and poverty reduction, in 1st JCC on June 2, 2021.

1.10 Other remarkable/considerable issues related/affect to the project (such as other JICA's projects, activities of counterparts, other donors, private sectors, NGOs etc.)

N/A

2 Delay of Work Schedule and/or Problems (if any)

The timing of 2nd JCC meeting was delayed due to influence of COVID-19, from October to December 2021.

The timing of 1st training in third country scheduled in October 2021 was postponed due to influence of COVID-19.

2.1 Detail

N/A

2.2 Cause

N/A

2.3 Action to be taken

N/A

2.4 Roles of Responsible Persons/Organization (JICA, SfPT etc.)

N/A

3 Modification of the Project Implementation Plan

N/A

3.1 PO

N/A

3.2 Other modifications on detailed implementation plan

(Remarks: The amendment of R/D and PDM (title of the project, duration, project site(s), target group(s), implementation structure, overall goal, project purpose, outputs, activities, and input) should be authorized by JICA HDQs. If the project team deems it necessary to modify any part of R/D and PDM, the team may propose the draft.)

N/A

4 Preparation of SfPT toward after completion of the Project

N/A

II. Project Monitoring Sheet I (PDM) & II (PO)

As attached.

PROJECT MONITORING SHEET

Project Title: Project for Modernization of Public Urban Transport in the City of Belgrade

Version of the Sheet: Ver. 3（Term: December 2021 – June 2022）

Name: Dr. Sadayuki YAGI

Title: Team Leader/ Public Transport 1

Submission Date: June 2022

I. Summary

1 Progress

1.1 Progress of Inputs

1.1.1 Experts

Table 1: Input of Experts as of June 2022

Name and Designation	Worked MM/ Planned MM (%)	Worked MM	Planned MM
YAGI Sadayuki Team Leader/ Public Transport Policy 1	49.76	3.48	7.00
SEKI Yosui Deputy Team Leader/ Public Transport Policy 2	49.49	3.22	6.50
OWADA Manabu Public Transport Planning	16.30	0.73	4.50
Errol Tan Operation and Operator Management	22.96	1.03	4.50
OTSUKA Eijiro Fare Collection	88.22	3.97	4.50
OTSUKA Eijiro ICT System	0.00	0.00	1.30
OZONO Wataru Pilot Project	16.67	0.67	4.00
Deo Nobel Transport Survey/ Database/ Demand Forecast 2	67.28	3.63	5.40
Yang Wang Demand Forecast 1	53.33	1.07	2.00
KATO Yuka Financial & Economic Analysis	48.57	1.70	3.50
TERAWAKI Shinji Monitoring/ Evaluation/ Public Relation	54.17	2.17	4.00
TOTAL	45.91	21.67	47.20

1.2 Progress of Activities

1.2.1 Overall Activities

Joint Coordinating Committee (JCC) meeting and meetings with the counterparts were held during the period (December 2021-June 2022).

Table 2: Joint Coordinating Committee Meeting and Meetings with C/P

Date	Meeting Conducted	Key Agenda
02 December 2021	Meeting with Kentkart	Timetable, operaton monitoring, fare collection
06 December 2021	Meeting with GSP driver training center	Training and licensing system
06 December 2021	Meeting with SfPT, Hotel M	Seminar
07 December 2021	Meeting with Working Group 2	Contract with PT operators
07 December 2021	Meeting with Working Group 1	Timetable, line planning
08 December 2021	Meeting with Working Group 1	Timetable, line planning
08 December 2021	Meeting with Working Group 3	Fare collection
08 December 2021	Meeting with FTTE	2nd JCC meeting, opinon survey
09 December 2021	Meeting with Lastra, Strela	Contract with PT operators
10 December 2021	Meeting with SfPT	Overall activities, PR activities
10 December 2021	Meeting with Working Group 2	Contract with PT operators
13 December 2021	Meeting with Lasta	Contract with PT operators
15 December 2021	Meeting with Working Group 1, 2 and 3	2nd JCC meeting
15 December 2021	Meeting with SfPT	2nd JCC meeting
16 December 2021	Meeting with giz	giz projects in Serbia, future collaboration possibilities
17 December 2021	2nd JCC meeting	
20 December 2021	Meeting with FTTE	Traffic survey
10 January 2022	Meeting with SfPT	Whole activity 2
31 January 2022	Meeting with SfPT	Pilot project
08 February 2022	Meeting with FTTE	Traffic survey
09 February 2022	Meeting with SfPT	Pilot project
11 February 2022	Meeting with FTTE	Traffic survey
17 February 2022	Meeting with SfPT	Pilot project
02 March 2022	Meeting with SfPT	Overall activities
08 March 2022	Meeting with SfPT	Overall activities, timetable
09 March 2022	Meeting with SfPT	Route short-circuiting, pilot project budgets
14 March 2022	Meeting with Working Group 1, 2 and 3	Pilot project, traffic survey, remote training, training in Japan

Date	Meeting Conducted	Key Agenda
14 March 2022	Meeting with SfPT	Timetable
16 March 2022	Meeting with SfPT	Pilot project
16 March 2022	Meeting with Working Group 1, 2 and 3	Traffic Sugoroku, sightseeing map
18 March 2022	Meeting with FTTE	Traffic education
21 March 2022	Meeting with Kentkart	Timetable, PT user data, Belgrade Card, e-payment application, electric bulletin board, ticketing system
22 March 2022	Meeting with SfPT	Route short-circuiting
04 April 2022	Meeting with SfPT	3rd country training, timetable, pilot project
12 April 2022	Meeting with SfPT	3rd country training, timetable, pilot project
19 April 2022	Meeting with Keisei Bus Co.,Ltd.	Remote training, driver training
26 April 2022	Meeting with Keisei Bus Co.,Ltd.	Driver training, operation monitoring
11 May 2022	Meeting with FTTE	Update of traffic demand forecast model
12 May 2022	Meeting with BG Metro & Train	Belgrade Metro
13 May 2022	Meeting with SfPT	Update of traffic demand forecast model
13 May 2022	Meeting with SfPT	Pilot project
16 May 2022	Meeting with Keisei Bus Co.,Ltd.	Remote training
19 May 2022	Meeting with Keisei Bus Co.,Ltd.	Remote training
19 May 2022	Meeting with FTTE	Traffic survey, traffic demand forecast
20 May 2022	Meeting with SfPT	Proposal of traffic demand model update
20 May 2022	Meeting with SfPT	Case study on Bucharest City
21 June 2022	Meeting with SfPT	Pilot project
22 June 2022	Meeting with SfPT	Pilot project
23 June 2022	Meeting with SfPT	Whole activity 3
24 June 2022	Meeting with FTTE	Traffic survey, traffic demand forecast model, PT user data
27 June 2022	Meeting with SfPT	Whole activity 1
27 June 2022	Meeting with SfPT	Whole activity 2
29 June 2022	Meeting with FTTE	Traffic Survey and traffic demand forecast model
30 June 2022	Meeting with SfPT	Whole activity 3
30 June 2022	3rd JCC meeting	

1.2.2 Output 1: The ability of strategical, tactical and operational planning of SfPT is improved.

The progress of Output 1 activities is shown in the table below.

Table 3: Progress of Output 1 Activities

Activity and Work Item	Activities	Progress	Activity for the Next 6 Months
101 To Conduct Travel Demand Survey along Major Routes and Implement OJT on Transport Demand Software	Information collection on the traffic demand forecast	Completed	
	Analyzing on the traffic demand forecast model and its data	On-going	Continue to collect hourly passenger counting data and urban planning data, as well as validate the GPS data for model calibration.
	Conducting Activity Diary Survey	On-going	Analyze the data and finalize reporting
	Preparation to update on the traffic demand forecast model	On-going	Continue to develop the four-step traffic demand model.
	Preparation to update on the transport network development	On-going	Continue to update the network based on the most probable scenario.
	Overall Progress: 30%		
102 To Formulate Operation and Service Plans which include Optimum Operation Routes and Frequencies based on the Result of Travel Demand Survey	Information collection on the operation planning	On-going	Continue and analyze the information and data
	Identification of the issues on the current scheduling and timetable making program	On-going	Continue to discuss the issues to be resolved
	Overall Progress: 40%		
103 To Propose Entire Public Transport Network to Enhance Intermodality Including Water Transport, Planned Metro Lines, and Terminal Access Modes	Discussion on introduction of river transport and future railway network plan	On-going	Continue to discuss for the future plan
	Overall Progress: 20%		
104 To Examine the Model of the Demarcation of Roles and Responsibilities between SfPT and Operators	Examination on role and responsibility by SfPT and public transport operators	On-going	Finalize the good practices of the role and responsibility among PT organizations in European cities
	Information collection of good practices in European cities	On-going	
	Examination on the movement to other models	On-going	Continue to discuss about the movement to other models
	Overall Progress: 40%		
105 To Create List of Improvement Measures for Operation Management of Public Transportation	Data collection on public transport operation and management at the site	On-going	Continue to analyze the data
	Examination on timetable and diagram systems	On-going	Start to discuss how to improve the existing system
	Overall Progress: 20%		
106 To Implement Pilot Projects to Improve Operation Management, to Formulate Operation Plan and Route Plan based on Activities 101-105	Discussion on initial proposal of pilot project and its data collection	Completed	
	Hearing about ICT companies	Completed	Start to examine ICT technologies to be introduced
	Discussion on the implementation plan of pilot project	On-going	Continue to discuss the implementation plan and implement the plan at the target lines
	Overall Progress: 30%		

1.2.3 Output 2: The ability of monitoring operators of SfPT is improved.

The progress of Output 2 activities is shown in the table below.

Table 4: Progress of Output 2 Activities

Activity and Work Item	Activities	Progress	Activity for the Next 6 Months
201 Reviewing the Actual Situation of Availability Payments and Examining New Assessment Methods	Analysis of Unit price in the operational contract	Completed	
	Comparative analysis on existing operational contracts in Belgrade, Bucharest and Hamburg and its alternatives	On-going	Continue to comparative analysis
	Overall Progress: 30%		
202 Improvement of Methods of Monitoring Operation Status and Formulation of Basic Specifications of Necessary Operation Management System	Examination of operation management system that contributes to improvement of operation monitoring	Completed	
	Analysis of BusPlus system	Completed	
	Preparation on scope of work on smart bus stop pilot project	Completed	
	Preparation on the implementation of smart bus stop pilot project	On-going	Continue to discuss the implementation plan and procurement of required equipment and its installation
	Overall Progress: 30%		

1.2.4 Output 3: The ability for planning for securing fare collection of SfPT is improved.

The progress of Output 3 activities is shown in the table below.

Table 5: Progress of Output 3 Activities

Activity and Work Item	Activities	Progress	Activity for the Next 6 Months
301 Review of Actual Structure of Fare Collection and to Identify the Issues to be Addressed	Conducting the opinion survey on fare payment	Completed	
	Analysis the data got from the survey	Completed	
	Identification of the issues on fare collection	On-going	Discuss how SfPT would disseminate the identified issues to the citizens
	Overall Progress: 40%		
302 Formulation of the List of Improvement Plan for Prevention of Free Ride	Proposing the countermeasures categorized as push and pull policies based on the survey result	Completed	Discuss to narrow down possible measures to be implemented
	Examination of the lessons learned on the third country training (The Netherlands and Italy)	On-going	Continue to discuss for further introduction to Belgrade
303 Formulation of an Improvement Plan List for the Operation Service Level and Convenience	Examination and discussion of teaching materials for bus drivers	Completed	To be introduced in the remote training
	Making the plan for the remote trainings	Completed	
	Conducting the remote trainings	On-going	Continue to conduct the trainings
	Overall Progress: 40%		
304 To Conduct of Demonstration Projects on Pilot Routes to Improve Fare Collection based on Activities 302 and 303	Discussion on the contents of the demonstration project	On-going	Continue to make the detailed contents
	Conducting a part of the demonstration project (Traffic Sugoroku)	On-going	Continue to discuss about the scaling-up Traffic Sugoroku
	Preparation of the implementation plan of other demonstration project (Belgrade Card Usage Competition)	On-going	Continue to discuss the detailed implementation plan
	Overall Progress: 40%		
305 To Carry Out Public Relation Activities to Raise Awareness of the Importance of Fare Collection	Setting up of Facebook Project Page	Completed	
	Uploading the articles on Facebook	On-going	Launch the information dissemination
	Making the city travel map to promote the use of the public transport	On-going	Discuss about the detailed contents on the draft map
	Displaying the panel on the importance of fare payment	On-going	Discuss about the detailed contents and the installation plan
	Overall Progress: 40%		

1.3 Achievement of Output

1.3.1 Output 1

Achievement status of Output 1 is as follows.

Table 6: Progress of Output 1 Activities

Objectively Verifiable Indicator	Baseline	Current Status
1-1 The number of SfPT staff members who can use appropriate software and tools for demand forecast such as strategic models, microsimulation and cross-cutting software is increased.	• Number of staffs who can update and operate the transportation network model using VISUM, etc. (to be established around May 2022)	• Through 12 hours training, 8 SfPT staffs gained basic knowledge to operate the strategic model VISUM.
1-2 The number of SfPT staff members who can formulate route plan based on demand forecast is increased.	• Number of staffs who can formulate route plan based on demand forecast (to be established around May 2022)	• Not done yet.
1-3 Existing route plans and operation plans are updated.	• Not updated yet	• Under discussion on the contents of route plans and operation plans.
1-4 Proposal for sustainable middle-, and long-term plans for an Integrated public transport is created.	• Not created yet	• Under discussion on the middle and long-term plans.
1-5 A list of improvement measures for operation management of public transportation is created.	• Not created yet	• Under discussion on the contents of the list of improvement measures for operation management of public transportation
1-6 Pilot projects to improve operation management, to formulate operation plan and route plan are implemented.	• Not implemented yet	• Under discussion on the contents of the pilot project in Corridor 400

1.3.2 Output 2

Achievement status of Output 2 is as follows.

Table 7: Progress of Output 2 Activities

Objectively Verifiable Indicator	Baseline	Current Status
2-1 Improvements or alternatives measures for the new contract with operators are proposed.	• Not proposed yet	• Under discussion on the improvement options
2-2 Improvement measures for vehicle monitoring system are proposed.	• Not proposed yet	• Under examination of the related systems

1.3.3 Output 3

Achievement status of Output 3 is as follows.

Table 8: Progress of Output 3 Activities

Objectively Verifiable Indicator	Baseline	Current Status
3-1 Problems and issues of fare collection are extracted.	• To be measured	• Under analysis of the related information
3-2 Improvement plan list for prevention for free ride is formulated.	• Not formulated yet	• Under discussion on the content of the improvement plan list for prevention for free ride
3-3 Improvement plan list for public transportation operation service level and convenience is formulated.	• Not formulated yet	• Under discussion on the contents of the improvement plan list for public transportation operation
3-4 Demonstration projects are conducted to secure fare collection and its evaluation are carried out.	• Not carried out yet	• Under discussion on the contents of the demonstration project • Conducted trial school education acticity
3-5 Public relations activities are carried out to raise awareness of the importance of fare payment.	• Not carried out yet	• Under discussion on the methodology

1.4 Achievement of the Project Purpose

Also stated in PDM, the achievement of the project purpose shall be evaluated using verifiable indicators.

Table 9: Verifiable Indicators and Current Status

Objectively Verifiable Indicator	Baseline	Current Status
Public transportation is operated according to the improved operation plan at the timing of contract renewal with operators (carriers).	• To be measured	• Under discussion on the improvement of the operation plan.
Some of measures to improve operation management of public transportation and way of contract between operators are decided to introduce on the new contract.	• To be measured	• Under discussion on the way of contract between operators and SfPT.
Some of measures to secure fare collection are introduced as the City's policy.	• To be measured	• Under discussion on the measures to secure fare collection.
Public transportation users' satisfaction with public transportation is improved by 10%.	• To be measured	• Under discussion on the measures to increase user's satisfaction.

Source: PDM 1.0

1.5 Changes of Risks and Actions for Mitigation

N/A

1.6 Progress of Actions undertaken by JICA

SfPT, JICA and JICA Project Team agreed to amend the programs and its cost sharing on pilot project in the MM signed on April 14, 2022.

1.7 Progress of Actions undertaken by SfPT

SfPT, JICA and JICA Project Team agreed to amend the programs and its cost sharing on pilot project in the MM signed on April 14, 2022.

1.8 Progress of Environmental and Social Considerations (if applicable)

N/A

1.9 Progress of Considerations on Gender/Peace Building/Poverty Reduction (if applicable)

With regard to the activities related to gender consideration identified in the first JCC held on June 2, 2021, the second JCC held on December 17, 2021, will take the following policy to understand the actual situation. Throughout the project period, the ratio of men to women among public transport users, SfPT staff, and bus operator staff will be monitored to consider whether there are any inequalities in the public transport sector in terms of use and working style.

1.10 Other remarkable/considerable issues related/affect to the project (such as other JICA's projects, activities of counterparts, other donors, private sectors, NGOs etc.)

Continue discussions with C/P to invite external speakers from European public transportation-related organizations to conduct future seminars in the same format as the seminar conducted on December 14, 2021.

2 Delay of Work Schedule and/or Problems (if any)

2.1 Detail

The timing of 1st training in Japan was postponed, however it would be conducted in September to October 2022.
The timing of 1st and 2nd training in third countries was postponed, however 3rd and 4th training in third countries were conducted in May and June 2022.

2.2 Cause

Due to Covid-19.

2.3 Action to be taken

The training program would be prepared to ensure a smooth start of the training when international travel becomes available.

2.4 Roles of Responsible Persons/Organization (JICA, SfPT etc.)

JICA Project Team prepares the plan and schedule of the seminars and training programs.
SfPT discusses how they implement the seminars and training programs.
JICA provides the travel information for the training in Japan.

3 Modification of the Project Implementation Plan

None

3.1 PO

None

3.2 Other modifications on detailed implementation plan

(Remarks: The amendment of R/D and PDM (title of the project, duration, project site(s), target group(s), implementation structure, overall goal, project purpose, outputs, activities, and input) should be authorized by JICA HQs. If the project team deems it necessary to modify any part of R/D and PDM, the team may propose the draft.)
None

4 Preparation of SfPT toward after completion of the Project

None

II. Project Monitoring Sheet I (PDM) & II (PO)

As attached.

PROJECT MONITORING SHEET

Project Title: Project for Modernization of Public Urban Transport in the City of Belgrade

Version of the Sheet: Ver. 4（Term: July 2022 – November 2022）

Name: Dr. Sadayuki YAGI

Title: Team Leader/ Public Transport 1

Submission Date: December 2022

I. Summary

1 Progress

1.1 Progress of Inputs

1.1.1 Experts

Table 1: Input of Experts as of November 2022

Name and Designation	Worked MM/ Planned MM (%)	Worked MM	Planned MM
YAGI Sadayuki Team Leader/ Public Transport Policy 1	60.71	4.25	7.00
SEKI Yosui Deputy Team Leader/ Public Transport Policy 2	56.67	3.68	6.50
OWADA Manabu Public Transport Planning	30.37	1.37	4.50
Errol Tan Operation and Operator Management	25.93	1.17	4.50
OTSUKA Eijiro Fare Collection	89.63	4.03	4.50
OTSUKA Eijiro ICT System	0.00	0.00	1.30
OZONO Wataru Pilot Project	16.67	0.67	4.00
Deo Nobel Transport Survey/ Database/ Demand Forecast 2	90.12	4.87	5.40
Yang Wang Demand Forecast 1	75.00	1.50	2.00
KATO Yuka Financial & Economic Analysis	77.14	2.70	3.50
TERAWAKI Shinji Monitoring/ Evaluation/ Public Relation	56.67	2.27	4.00
TOTAL	56.14	26.51	47.20

1.2 Progress of Activities

1.2.1 Overall Activities

Joint Coordinating Committee (JCC) meeting and meetings with the counterparts were held during the period July 2022 – November 2022).

Table 2: Joint Coordinating Committee Meeting and Meetings with C/P

Date	Meeting Conducted	Key Agenda
July		
27 July 2022	Meeting with SfPT	Whole activity 3, First training in Japan
28 July 2022	Meeting with SfPT	Whole activity 1
29 July 2022	Meeting with FTTE	Traffic surveys, traffic demand forecast model
August		
1 August 2022	Meeting with Tokyu Bus Corporation	Coordination of remote training
4 August 2022	Meeting with SfPT	Pilot Project 1 (Introduction of Smart Bus Stops): Confirmation of progress on equipment procurement by SfPT
September		
October		
6 October 2022	Meeting with SfPT	Discussions with the new Secretariat of the SfPT
13 October 2022	Meeting with FTTE	Traffic surveys (Activity Diary Survey and Screenline Survey)
19 October 2022	Meeting with PTV Group, BG Metro, FTTE	Traffic demand forecast model, Activity Diary Survey
19 October 2022	Meeting with FTTE	Pilot Project 3 (PR and education to increase fare revenue): Selection of content, scale, and target schools for implementation of educational programs in the elementary school
20 October 2022	Meeting with FTTE	Database Issues from Activity Diary Survey
20 October 2022	Meeting with FTTE	Pilot Project 3 (PR and education to increase fare revenue): Content and scale for implementation of educational programs at Starina Novak elementary school
21 October 2022	Meeting with SfT	Traffic volume count data, traffic demand forecast model
25 October 2022	Meeting with urban Planning Institute	Socioeconomic frames and data in traffic demand forecasting
26 October 2022	Meeting with SfT	Use of loop coil (vehicle detector) for calibration in Traffic Demand Forecasting
26 October 2022	Meeting with UITP, CRTM, HVV	Second seminar
26 October 2022	Meeting with SfPT	Pilot Project 3 (PR and education to increase fare revenue): Implementation procedure and schedule of educational programs
27 October 2022	Meeting with SfPT and JICA	Introductory meeting between new secretariat of the SfPT and Officers of the JICA Headquarters
27 October 2022	Meeting with TPBI	Second seminar
28 October 2022	Meeting with FTTE	Whole activity 1 and 3
28 October 2022	Meeting with SfPT	Pilot Project 2 (Improvement of bus operation schedule): Confirmation of progress on coordination among stakeholders
November		
1 November 2022	Meeting with SfPT, FTTE	Pilot Project 2 (Improvement of bus operation schedule): Consultation on operational plans for Corridor 400
3 November 2022	Meeting with TM Engineering (SfT's recommissioning company)	Information and data collection on vehicle sensing systems
7 November 2022	Meeting with FTTE	Pilot Project 2 (Improvement of bus operation schedule): Consultation on operational plans for Corridor 400
21 November 2022	Meeting with SfT	Information and data collection on vehicle count data and traffic signal systems
23 November 2022	Meeting with SfT	Information and data collection on parking operations, parking-related infrastructure, and off-street parking policies

1.2.2 Output 1: The ability of strategical, tactical and operational planning of SfPT is improved.

The progress of Output 1 activities is shown in the table below.

Table 3: Progress of Output 1 Activities

Activity and Work Item	Activities	Progress	Activity for the Next 6 Months
101 Trip Demand Survey on the Major Routes and Demand Analyze	To collect information on the traffic demand forecast	Completed	• Completed by the last JCC meeting
	To analyze the traffic demand forecast model and its data	Completed	• Completed to examine the current model and its data.
	To conduct traffic surveys	Completed	• Completed conducting traffic surveys (Activity Diary Survey, Travel Speed Data Analysis, Screenline Survey, Public Transport Corridor Survey)
	To update the traffic demand forecast model	On-going	• Calibrate the current model with the data obtained from various traffic surveys
	To prepare to update on the transport network development	On-going	• Update the transport network based on the most probable scenario
	Overall Progress: 60%		
102 To Formulate Operation and Service Plans which include Optimum Operation Routes and Frequencies based on the Result of the Travel Demand Survey	To collect the information and analyze the operation planning	Completed	• Completed to collect and analyze the information and data on operational plans
	To identify the issues with the current scheduling and timetable-making program	On-going	• Continued to discuss how to implement the proposed operation plans
	Overall Progress: 80%		
103 To Propose an Entire Public Transport Network to Enhance Intermodality Including Water Transport, Planned Metro Lines, and Terminal Access Modes	To discuss the introduction of river transport and the future railway network plan	On-going	• Continue to discuss future bus route plans in light of the existence of other public transportation routes and overall traffic demand
	Overall Progress: 40%		
104 To Examine the Model of the Demarcation of Roles and Responsibilities between SfPT and Operators	To examine the role and responsibility of SfPT and public transport operators	Completed	• Completed compiling the Pros & Cons through the good practices of the role and responsibility among PT organizations in European cities
	To collect Information collection of good practices in European cities	Completed	
	To examine the movement to other models	Completed	• Completed and recommendation was presented at the last JCC meeting
	Overall Progress: 100%		
105 To Create List of Improvement Measures for Operation Management of Public Transportation	To collect the data and analyze public transport operation and management at the site	On-going	• Collected the data on PTPS traffic lights, bus priority lane system, parking system • Continue to analyze the data
	To examine the improvement plans	On-going	• Start to discuss how to improve the existing system
	Overall Progress: 40%		
106 To Implement Pilot Projects to Improve Operation Management, to Formulate Operation Plan and Route Plan based on Activities 101-105	To discuss the initial proposal of the pilot project and its data collection	Completed	• Completed by last JCC meeting
	To conduct the hearing about ICT companies	Completed	• Completed by last JCC meeting
	To propose the pilot lines based on the discussion results with the counterparts	On-going	• Prepared to propose the pilot lines
	To discuss on the implementation plan of the pilot project	On-going	• Continue to discuss the implementation plan and implement the plan at the target lines
	Overall Progress: 40%		

1.2.3 Output 2: The ability of monitoring operators of SfPT is improved.

The progress of Output 2 activities is shown in the table below.

Table 4: Progress of Output 2 Activities

Activity and Work Item	Activities	Progress	Activity for the Next 6 Months
201 Reviewing the Actual Situation of Availability Payments and Examining New Assessment Methods	To analyze the current operational contract in Belgrade	Completed	• Completed by the last JCC meeting
	To conduct the comparative analysis of current operational contracts in Belgrade with several contracts in other European countries such as Bucharest, Hamburg, and Madrid	Completed	• Completed to analyze the contracts in several cities comparatively
	To suggest improvements regarding the current operational contract and discuss its introduction	On-going	• Continue to discuss the applicability
	Overall Progress: 80%		
202 Improvement of Methods of Monitoring Operation Status and Formulation of Basic Specifications of Necessary Operation Management System	To examine the operation management system that contributes to the improvement of operation monitoring	Completed	• Completed by the last JCC meeting
	To analyze BusPlus system	Completed	• Completed by the last JCC meeting
	To prepare the scope of work on the smart bus stop pilot project	Completed	• Completed by the last JCC meeting
	To prepare the implementation of the smart bus stop pilot project	On-going	• Since the pilot project on smart bus stops was canceled due to the city government's decision, other case studies will be presented for possible future implementation.
	Overall Progress: 50%		

1.2.4 Output 3: The ability for planning for securing fare collection of SfPT is improved.

The progress of Output 3 activities is shown in the table below.

Table 5: Progress of Output 3 Activities

Activity and Work Item	Activities	Progress	Activity for the Next 6 Months
301 Review of Actual Structure of Fare Collection and Identify the Issues to be Addressed	To conduct the opinion survey on fare payment	Completed	• Completed by the last JCC meeting
	To analyze the data got from the survey	Completed	• Completed by the last JCC meeting
	To identify the issues in fare collection	Completed	• Completed but the city government has decided not to disseminate the identified issues to the citizens
	Overall Progress: 100%		
302 Formulation of the List of Improvement Plans for the Prevention of Free Ride	To propose the countermeasures categorized as push and pull policies based on the survey result	Completed	• Completed to discuss for further introduction of the possible measures
	To examine the lessons learned on the third country training (The Netherlands and Italy)	Completed	• Completed to discuss for further introduction to Belgrade
	Overall Progress: 100%		
303 Formulation of an Improvement Plan List for the Operation Service Level and Convenience	To conduct the remote training	Completed	• Completed to conduct the training
	To discuss the applicability of teaching materials for bus drivers	Completed	• Completed through the remote training
	To formulate the list based on the discussion above	On-going	• Continue to formulate the list
	Overall Progress: 70%		
304 To Conduct Demonstration Projects on Pilot Routes to Improve Fare Collection based on Activities 302 and 303	To discuss the contents of the demonstration project	Completed	• Completed to make the detailed plan
	To conduct a part of the demonstration project (Traffic Sugoroku)	Completed	• Completed conducting the project
	To prepare the implementation plan for another demonstration project (Belgrade Card Usage Competition)	On-going	• Completed to prepare the plan and proceed to the implementation
	Overall Progress: 50%		
305 To Carry Out Public Relation Activities to Raise Awareness of the Importance of Fare Collection	To set up the official page on Facebook and LinkedIn	Completed	• Completed by the last JCC meeting
	To upload the articles on the platform above	On-going	• Continue to upload the articles
	To prepare the city travel map to promote the use of the public transport	On-going	• Drafted the map and continue to discuss its dissemination plan
	To display the panel on the importance of fare payment	On-going	• Drafted the panel contents and proceed its installation
	Overall Progress: 60%		

1.3 Achievement of Output

1.3.1 Output 1

Achievement status of Output 1 is as follows.

Table 6: Progress of Output 1 Activities

Objectively Verifiable Indicator	Baseline	Current Status
1-1 The number of SfPT staff members who can use appropriate software and tools for demand forecast such as strategic models, microsimulation and cross-cutting software is increased.	• Number of staffs who can update and operate the transportation network model using VISUM, etc. (to be established around May 2022)	• Through 12 hours training, 8 SfPT staffs gained basic knowledge to operate the strategic model VISUM.
1-2 The number of SfPT staff members who can formulate route plan based on demand forecast is increased.	• Number of staffs who can formulate route plan based on demand forecast (to be established around May 2022)	• Not done yet.
1-3 Existing route plans and operation plans are updated.	• Not updated yet	• Under discussion on the contents of route plans and operation plans.
1-4 Proposal for sustainable middle-, and long-term plans for an Integrated public transport is created.	• Not created yet	• Under discussion on the middle and long-term plans.
1-5 A list of improvement measures for operation management of public transportation is created.	• Not created yet	• Under discussion on the contents of the list of improvement measures for operation management of public transportation
1-6 Pilot projects to improve operation management, to formulate operation plan and route plan are implemented.	• Not implemented yet	• Under discussion on the contents of the pilot project in Corridor 400

1.3.2 Output 2

Achievement status of Output 2 is as follows.

Table 7: Progress of Output 2 Activities

Objectively Verifiable Indicator	Baseline	Current Status
2-1 Improvements or alternatives measures for the new contract with operators are proposed.	• Not proposed yet	• Under discussion on the improvement options
2-2 Improvement measures for vehicle monitoring system are proposed.	• Not proposed yet	• Under examination of the related systems

1.3.3 Output 3

Achievement status of Output 3 is as follows.

Table 8: Progress of Output 3 Activities

Objectively Verifiable Indicator	Baseline	Current Status
3-1 Problems and issues of fare collection are extracted.	• To be measured	• Under analysis of the related information
3-2 Improvement plan list for prevention for free ride is formulated.	• Not formulated yet	• Under discussion on the content of the improvement plan list for prevention for free ride
3-3 Improvement plan list for public transportation operation service level and convenience is formulated.	• Not formulated yet	• Under discussion on the contents of the improvement plan list for public transportation operation
3-4 Demonstration projects are conducted to secure fare collection and its evaluation are carried out.	• Not carried out yet	• Under discussion on the contents of the demonstration project • Conducted trial school education activity
3-5 Public relations activities are carried out to raise awareness of the importance of fare payment.	• Not carried out yet	• Under discussion on the methodology

1.4 Achievement of the Project Purpose

Also stated in PDM, the achievement of the project purpose shall be evaluated using verifiable indicators.

Table 9: Verifiable Indicators and Current Status

Objectively Verifiable Indicator	Baseline	Current Status
Public transportation is operated according to the improved operation plan at the timing of contract renewal with operators (carriers).	• To be measured	• Under discussion on the improvement of the operation plan.
Some of measures to improve operation management of public transportation and way of contract between operators are decided to introduce on the new contract.	• To be measured	• Under discussion on the way of contract between operators and SfPT.
Some of measures to secure fare collection are introduced as the City's policy.	• To be measured	• Under discussion on the measures to secure fare collection.
Public transportation users' satisfaction with public transportation is improved by 10%.	• To be measured	• Under discussion on the measures to increase user's satisfaction.

Source: PDM 1.0

1.5 Changes of Risks and Actions for Mitigation

N/A

1.6 Progress of Actions undertaken by JICA

SfPT, JICA and JICA Project Team agreed to amend the programs and its cost sharing on pilot project in the MM signed on April 14, 2022.

1.7 Progress of Actions undertaken by SfPT

SfPT, JICA and JICA Project Team agreed to amend the programs and its cost sharing on pilot project in the MM signed on April 14, 2022.

1.8 Progress of Environmental and Social Considerations (if applicable)

N/A

1.9 Progress of Considerations on Gender/Peace Building/Poverty Reduction (if applicable)

With regard to the activities related to gender consideration identified in the first JCC held on June 2, 2021, the second JCC held on December 17, 2021, took the following policy to understand the actual situation. Throughout the project period, the ratio of men to women among public transport users, SfPT staff, and bus operator staff will be monitored to consider whether there are any inequalities in the public transport sector in terms of use and working style.

1.10 Other remarkable/considerable issues related/affect to the project (such as other JICA's projects, activities of counterparts, other donors, private sectors, NGOs etc.)

Continue discussions with C/P to invite external speakers from European public transportation-related organizations to conduct future seminars in the same format as the seminars conducted on December 14, 2021 and November 24, 2022.

2 Delay of Work Schedule and/or Problems (if any)

2.1 Detail

The timing of 1st training in Japan scheduled for September to October 2022 was postponed; however, it will be conducted in January 2023.
The timing of 1st and 2nd training in third countries was postponed; however, 3rd and 4th training in third countries were conducted in May and June 2022.

2.2 Cause

Due to Covid-19.

2.3 Action to be taken

The training program can be prepared now that international travel has become available.

2.4 Roles of Responsible Persons/Organization (JICA, SfPT etc.)

JICA Project Team prepares the plan and schedule of the seminars and training programs.
SfPT discusses how they implement the seminars and training programs.
JICA provides the travel information for the training in Japan.

3 Modification of the Project Implementation Plan

None

3.1 PO

None

3.2 Other modifications on detailed implementation plan

(Remarks: The amendment of R/D and PDM (title of the project, duration, project site(s), target group(s), implementation structure, overall goal, project purpose, outputs, activities, and input) should be authorized by JICA HQs. If the project team deems it necessary to modify any part of R/D and PDM, the team may propose the draft.)
None

4 Preparation of SfPT toward after completion of the Project

None

II. Project Monitoring Sheet I (PDM) & II (PO)

As attached.

PROJECT MONITORING SHEET

Title: Project for Modernization of Public Urban Transport in the City of Belgrade

Version of the Sheet: Ver. 5（Term: January 2023 – August 2023）

Name: Dr. Sadayuki YAGI

Title: Team Leader/ Public Transport 1

Submission Date: September 2023

I. Summary

1 Progress

1.1 Progress of Inputs

Table 1: Input of Experts as of August 2023

Name and Designation	Worked MM/ Planned MM (%)	Worked MM	Planned MM
YAGI Sadayuki Team Leader/ Public Transport Policy 1	84.3	5.90	7.00
SEKI Yosui Deputy Team Leader/ Public Transport Policy 2	87.2	5.67	6.50
OWADA Manabu Public Transport Planning	85.0	3.03	3.57
Errol Tan Operation and Operator Management	90.4	3.62	4.00
OTSUKA Eijiro Fare Collection	98.5	4.43	4.50
OTSUKA Eijiro ICT System	71.8	0.93	1.30
OZONO Wataru Pilot Project	91.7	3.67	4.00
Deo Nobel Transport Survey/ Database/ Demand Forecast 2	96.6	5.53	5.73
Yang Wang Demand Forecast 1	100.1	3.43	3.43
KATO Yuka Financial & Economic Analysis	82.9	2.90	3.50
TERAWAKI Shinji Monitoring/ Evaluation/ Public Relation	79.5	2.92	3.67
TOTAL	**89.05**	**42.03**	**47.20**

1.2 Progress of Activities

1.2.1 Overall Activities

Meetings with the counterparts were held during the period (January 2023 – August 2023).

Table 2: Meetings with C/P

Date	Meeting Conducted	Key Agenda
January		
27-Jan-2023	Meeting with SfPT	Preparation of educational Programs in Elementary Schools, Hearing on the Establishment of PUC
27-Jan-2023	Meeting with SfPT	Discussion on pending issues related to the pilot project
February		
8-Feb-2023	Meeting with SfPT	Discussion on change of Contract Management Personnel
9-Feb-2023	Meeting with SfPT	Discussion on KPIs
14-Feb-2023	Meeting with Arriva	Discussion on new KPIs and the possibility of introducing a computerized maintenance management system (CMMS)
28-Feb-2023	Meeting with SfPT	Discussion on integration of routes 57 and 87 (establishment of travel times, operating routes, timing of implementation)
March		
1-Mar-2023	Meeting with FTTE, SfPT	Study of future transportation network (Methodology)
2-Mar-2023	Meeting with SfPT	Request for signature on the minutes of the 4th JCC, Request for selection of project director, Discussion on pending issues related to pilot projects, including procurement of video walls, invitations to Japan, and training in Japan, Hearing on the Establishment of PUC
6-Mar-2023	Meeting with FTTE, SfPT	Discussion on pending issues related to pilot projects, including procurement of video walls
8-Mar-2023	Meeting with FTTE, SfPT	Study of future transportation network (Project listing)
15-Mar-2023	Meeting with FTTE, SfPT	Study of future transportation network (Project selection)
21-Mar-2023	Meeting with FTTE, SfPT	Discussion on updating traffic demand forecasting model
21-Mar-2023	Meeting with SfPT	Discussion on pending issues related to pilot projects, including procurement of video walls, Discussion of baseline indicators related for Activity 3
22-Mar-2023	Meeting with SfPT	Discussion on pending issues related to pilot projects, including procurement of video walls, invitations to Japan, and training in Japan, Hearing on the Establishment of PUC
29-Mar-2023	Meeting with FTTE, SfPT	Study of future transportation network (Modeling work), Discussion and information collection on traffic impact assessment for the development of the central station
29-Mar-2023	Meeting with SfPT	Discussion of baseline indicators related for Activity 2
30-Mar-2023	Meeting with SfPT	Discussion of baseline indicators related for Activity 1
April		
5-Apr-2023	Meeting with SfPT	Discussion of exhibit content for display panels and specifications for the travel map to promote the use of public transportation
11-Apr-2023	Meeting with SfPT	Discussion on the overall public transportation route and operation plan based on the current demand in 2022
12-Apr-2023	Meeting with Ads company and printing company	Confirmation of exhibit panel order details
13-Apr-2023	Meeting with SfPT	Discussion on pending issues related to pilot projects, including procurement of video walls, invitations to Japan, and training in Japan, and remaining tasks for the last 6 months
13-Apr-2023	Site visit at the Central Station	Site observation of the current status of the planned station plaza
19-Apr-2023	Meeting with FTTE, SfPT	Discussion on the overall public transportation route and operation plan based on the current demand in 2022
21-Apr-2023	Meeting with SfPT	Discussion of the contents of the customer satisfaction survey by the GSP, Discussion on how to organize the proposals for Activity 201 and future measures
25-Apr-2023	Meeting with FTTE, SfPT	Discussion on the overall public transportation route and operation plan based on the current demand in 2022
May		
31-May-2023	Meeting with FTTE, SfPT	Discussion on the overall public transportation route and operation plan based on the current demand in 2022
June		
1-June-2023	Meeting with SfPT	Discussion on the revised PDM with the Project Director and the Project Manager
1-June-2023	Meeting with SfPT	Confirmation on the progress of the pilot project (line57/87)
2-June-2023	Meeting with SfPT	Discussion on the revised PDM with each Working Group leader
2-June-2023	Meeting with GSP	Hearing for online questionnaire survey (customer satisfaction survey)

Date	Meeting Conducted	Key Agenda
14-June-2023	Meeting with SfPT	OJT for traffic demand analysis
19-June-2023	Meeting with FTTE	Discussion on the conduction of user interview surveys for the purpose of evaluating pilot projects
20-June-2023	Meeting with SfPT, GSP	Trial operation of pilot project routes
21-June-2023	Meeting with SfPT, FTTE	Discussion on the development of route and operational plans based on updated demand forecast results, confirmation on the future network modeling status by FTTE, OJT for traffic demand analysis
29-June-2023	Meeting with SfPT	Confirmation on the approval status for pilot project routes
July		
5-July-2023	Meeting with SfPT	Discussion on changes in pilot project activities, partial cancellation of trainings in third country and Japan, and revision of PDM and PO with the Project Director and the Project Manager
19-July-2023	Meeting with SfPT	Confirmation on discussions on July 5 and MoM details, Discussions regarding extension of project period
August		
18-August-2023	Meeting with FTTE	Discussion on pilot project activities (Evaluation method)
25-August-2023	Meeting with SfPT	Discussion on pilot project activities (Agreement with SfPT on evaluation method)
30-August-2023	Meeting with SfPT	Discussion on coordination and confirmation regarding signing of minutes for revised RD, draft agenda for next JCC
30-August-2023	Meeting with FTTE	Discussion on pilot project activities (Confirmation of the implementing schedule)

1.2.2 Output 1: The ability of strategical, tactical and operational planning of SfPT is improved.

Table 3: Progress of Output 1 Activities

Activity and Work Item	Activities	Progress	Activity for the Next 6 Months
101 To conduct travel demand survey along major routes and analyze the result of survey.	To collect information on the traffic demand forecast	Completed	Completed by the last JCC meeting
	To analyze the traffic demand forecast model and its data	Completed	Completed to examine the current model and its data.
	To conduct traffic surveys	Completed	Completed conducting traffic surveys (Activity Diary Survey, Travel Speed Data Analysis, Screenline Survey, Public Transport Corridor Survey)
	To update the traffic demand forecast model	On-going	Calibrate the current model with the data obtained from various traffic surveys and information collected from the related organizations
	To update on the transport network development	On-going	Update the transport network based on the most probable scenario Prepare the analysis manual
	Overall Progress: 90%		
102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of travel demand survey.	To collect the information and analyze the operation planning	Completed	Completed to collect and analyze the information and data on operational plans
	To identify the issues with the current scheduling and timetable-making program	Completed	Completed to discuss how to implement the proposed operation plans
	To formulate operation and service plan	On-going	Finalizing to formulate with feedback from 106
	Overall Progress: 90%		
103 To propose integrated public transportation network to enhance intermodality including water transport, planned Metro lines, terminal access modes.	To collect the related data and information for the discussion on the future public transport network	Completed	Completed to collect the data and information on the development plan of the railway station, examine the connectivity of public transport modes, analyze the future traffic network in 2033 based on BG Metro Model
	To propose the future public transport network to enhance its intermodality	On-going	Continue to discuss future bus route plans in light of the existence of other public transportation routes and overall traffic demand
	Overall Progress: 90%		
104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators.	To examine the role and responsibility of SfPT and public transport operators	Completed	Completed compiling the Pros & Cons through the good practices of the role and responsibility among PT organizations in European cities
	To collect Information collection of good practices in European cities	Completed	
	To examine the movement to other models	Completed	Completed and recommendation was presented at the 3rd JCC meeting
	Overall Progress:90% (Finalizing the report)		
105 To create a list of improvement measures for operation management of public transportation.	To collect the data and analyze public transport operation and management at the site	Completed	Collected the data and information on PTPS traffic lights, bus priority lane system, parking system etc. and analyzed the data and information collected
	To examine the improvement plans	Completed	Listed up the improvement plans based on the examination result of the data and information collected
	Overall Progress: 100%		
106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105.	To discuss the initial proposal of the pilot project and its data collection	Completed	Completed by last JCC meeting
	To conduct the hearing about ICT companies	Completed	Completed by last JCC meeting
	To propose the pilot lines based on the discussion results with the counterparts	Completed	Proposed the pilot lines (57 and 87) and the pilot project plan
	To prepare the implementation plan	Completed	Completed to prepare the implementation plan
	To implementation the pilot project	On-going	Continue to coordinate the implementation schedule and implement the plan at the target lines
	Overall Progress: 70%		

1.2.4 Output 2: The ability of monitoring operators of SfPT is improved.

Table 4: Progress of Output 2 Activities

Activity and Work Item	Activities	Progress	Activity for the Next 6 Months
201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators.	To analyze the current operational contract in Belgrade	Completed	Completed by the last JCC meeting
	To conduct the comparative analysis of current operational contracts in Belgrade with several contracts in other European countries such as Bucharest, Hamburg, and Madrid	Completed	Completed to analyze the contracts in several cities comparatively
	To suggest improvements regarding the current operational contract and discuss its introduction	Completed	Completed to suggest improvements after the discussion on its applicability
	Overall Progress: 90% (Finalizing the report)		
202 To propose improvement plan of the way of monitoring the operators.	To examine the operation management system that contributes to the improvement of operation monitoring	Completed	Completed by the last JCC meeting
	To analyze BusPlus system	Completed	Completed by the last JCC meeting
	To prepare the scope of work on the smart bus stop pilot project	Completed	Completed by the last JCC meeting
	To examine the association with CMMS and the introduction of specific KPIs for the renew of the contract in the future	Completed	Continue to examine the potentials to be reflected on the future contract
	To examine the contents of the customer satisfaction surveys by GSP	Completed	Continue to examine the survey contents
	To propose for improving operator monitoring methods	Completed	Completed to propose the improvements of the operator monitoring methods
	Overall Progress: 90% (Finalizing the report)		

1.2.5 Output 3: The ability for planning for securing fare collection of SfPT is improved.

Table 5: Progress of Output 3 Activities

Activity and Work Item	Activities	Progress	Activity for the Next 6 Months
301 To review actual structure of fare collection and to identify the issues to be addressed.	To conduct the opinion survey on fare payment	Completed	Completed by the last JCC meeting
	To analyze the data got from the survey	Completed	Completed by the last JCC meeting
	To identify the issues in fare collection	Completed	Completed but the city government has decided not to disseminate the identified issues to the citizens
	Overall Progress: 100%		
302 To formulate an improvement plan list for prevention of free ride.	To propose the countermeasures categorized as push and pull policies based on the survey result	Completed	Completed to discuss for further introduction of the possible measures
	To examine the lessons learned on the third country training (The Netherlands and Italy)	Completed	Completed to discuss for further introduction to Belgrade
	Supplemental activity: To collect information on new fare collection companies (PUC) and seek cooperation with the PUC	On-going	Recommend ways to improve fee collection through collaboration with the PUC within the scope of the PROMOD Project
	Overall Progress: 90%		
303 To formulate an improvement plan list for operation service level and convenience.	To conduct the remote training	Completed	Completed to conduct the training
	To discuss the applicability of teaching materials for bus drivers	Completed	Completed through the remote training
	To formulate the list based on the discussion above	On-going	Continue to compile the proposed plan list
	Overall Progress: 90%		
304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303.	To discuss the contents of the demonstration project	Completed	Completed to make the detailed plan
	To conduct a part of the demonstration project (Traffic Sugoroku)	Completed	Completed conducting the project
	To implement the demonstration project on Mobility Management (MM)	On-going	Continue to implement the project and continue to prepare its report
	Overall Progress: 80%		
305 To carry out public relations activities to raise awareness of the importance of fare collection.	To set up the official page on Facebook and LinkedIn	Completed	• Completed by the last JCC meeting
	To upload the articles on the platform above	On-going	• Continue to upload the articles
	To utilize the city travel map to promote the use of the public transport	On-going	• Continue to finalize the travel map and prepare its dissemination
	To display the panel on the importance of fare payment	Completed	• Completed the panel exhibition
	Overall Progress: 80%		

1.3 Achievement of Output

1.3.1 Output 1

Table 6: Achievement status of Output 1

Objectively Verifiable Indicator	Means of Verification	Baseline	Current Status
1-1 The number of SfPT staff members who can use appropriate software and tools for demand forecast such as strategic models (e.g., VISUM), microsimulation (e.g., VISSIM) and cross-cutting software (e.g., GIS) is increased.	• Report of training	• Not applicable	• A total of 18 hours of basic training was provided to eight relevant staff members; a total of 10 hours of on-the-job training was provided to one professional staff member.
1-2 The number of SfPT staff members who can formulate route plan based on demand forecast is increased. / Existing route plans and operation plans are updated.	• Report of training • Updated operation and service plan	• Not applicable	• Prepared the operation and service plan
1-3 Proposal for sustainable middle-, and long-term plans for an Integrated public transport is created.	• Improvement proposal, and phasing plan for entire public transportation in Belgrade	• Not applicable	• Prepared the proposal
1-4 The current issues regarding the demarcation of roles and responsibilities between SfPT and operators are examined and the points to be approached are sorted out.	• Study report on demarcation of roles and responsibilities	• Not applicable	• Examined the study and finalizing the report
1-5 A list of improvement measures for operation management of public transportation is created.	• Improvement plan list for operation management	• Not applicable	• Drafted the list
1-6 Pilot projects to improve operation management, to formulate operation plan and route plan are implemented.	• Evaluation report of the pilot projects	• Not applicable	• Implemented the pilot project • Finalizing the evaluation report

1.3.2 Output 2

Table 7: Achievement status of Output 2

Objectively Verifiable Indicator	Means of Verification	Baseline	Current Status
2-1 Improvements or alternative measures for the new contract with operators are proposed.	• Study report including gap/SWOT analysis • Improvement proposal for the new contract with operators.	• Not applicable	• Implemented a series of study • Finalizing the report
2-2 Improvement measures for monitoring operators are proposed.	• Improvement proposal for measuring KPIs of operators	• Not applicable	• Prepared KPIs • Finalizing the report

1.3.3 Output 3

Table 8: Achievement status of Output 3

Objectively Verifiable Indicator	Means of Verification	Baseline	Current Status
3-1 Problems and issues of fare collection are extracted.	• Study report for current fare collection system	• Not applicable	• Conducted the survey and report
3-2 Improvement plan list for prevention for free ride is formulated.	• Improvement plan list for prevention for free ride	• Not applicable	• Collection of reference cases through training programs • Prepared the lists
3-3 Improvement plan list for public transportation operation service level and convenience is formulated.	• Improvement plan list for operation service level and convenience	• Not applicable	

Objectively Verifiable Indicator	Means of Verification	Baseline	Current Status
3-4 Demonstration projects are conducted to secure fare collection and its evaluation are carried out.	• Evaluation report of the demonstration projects	• Not applicable	• Conducted the demonstration project and the report • Conducted WS
3-5 Public relations activities are carried out to raise awareness of the importance of fare payment.	• Numbers of campaign or promotion for fare collection or promotion of public transport use	• Not applicable	• Conducted the materials

1.4 Achievement of the Project Purpose

Table 9: Verifiable Indicators and Current Status

Objectively Verifiable Indicators	Means of Verification	Baseline	Current Status
Transport survey database and demand forecast model as a base for strategical operation planning are established	• Transport surveys and demand forecast model, On-the-job training (OJT) & users' manual on demand forecast	• Not applicable	• Survey database, demand model, and manuals are established.
Some of measures to improve operation management of public transportation and way of contract between operators are defined and proposed to be introduced into the new contract as well as existing contract renewal.	• SfPT's study report (both published / unpublished)	• Not applicable	• Discussed in the 2nd seminar.
Some of measures to secure fare collection are proposed as the City's policy.		• Not applicable	• PUC was established in May 2023.

1.5 Achievement of the Overall Goal

Table 10: Verifiable Indicators and Current Status

Objectively Verifiable Indicators	Means of Verification	Baseline	Current Status
Eco-friendly public transportation system (the ratio of EV vehicles and Euro 6 compliant vehicles to all bus vehicles in Belgrade) is increased by 10%.	• New vehicle procurement and public transport rolling stock fleet information	• Ratio at the start of the project (2020)	• Checking the latest data
The number of public transport users is maintained.	• Data on average density by route, number of passengers per route, and number of passengers per kilometer	• 704.6 million pax (2020)	• Checking the latest data
Some of measures aiming at financial soundness of public transport operations are implemented.	• SfPT's study report (both published/unpublished)	• Not applicable	• Checking with SfPT

1.6 Changes of Risks and Actions for Mitigation

a. Modification of Planned Activities

Due to the change in Belgrade city government, which was accompanied by the change in the positions of Project Director and Project Manager, there were delays in already agreed upon timings of study trips to Japan and third countries, as well as in procurement of a video wall for the pilot project for Activity 1.

At the end of May 2023, the Serbian side informed JICA that they were ready to accelerate Pilot Project activities and requested an extension of the Project for 3 to 6 months in order to have at least some of those activities (the study trips and video wall procurement) implemented past the previously agreed upon deadline. In response to this request, JICA and JICA Project Team decided to cancel those activities; instead, they proposed the following

countermeasures and confirmed with SfPT:

- Implementation of pilot project without the video wall, and
- Compilation of lessons learned from various training activities already implemented.

b. Improving operation of the existing bus lines as part of the Pilot Project

Due to potential disagreements from the local communities regarding the proposed merger of bus lines 57 and 87, it has been decided to include the merger of bus lines 505 and 506 as an alternative which also has similar initial conditions and goals. SfPT confirmed the consensus of the local community on the 505/506 route change. JICA and JICA expert team confirmed that this line would be the target of the Pilot Project and requested the continued initiative by SfPT for smooth implementation.

Since a series of technical studies and discussions with WG members and FTTE regarding the improvement of timetables for buses lines in the 400s and 57/87 are useful knowledge for further work by SfPT in near future, it was confirmed that all those should be compiled as output of the Pilot Project.

c. Modification of Project Period

By the original end of the Project (i.e., November 10, 2023), it is necessary to carry out various activities such as confirmation of each output and report, holding the seminar and the final JCC meeting. JICA explained that this is the last time to confirm the project period and make a decision on the extension of the Project period. JICA Expert Team suggested that the project period should be set in such a way that there is enough time to carry out the rest of the activities. JICA Expert Team proposed the following schedule, which was confirmed by JICA and SfPT.

- 5th JCC meeting: 3rd week of September 2023
- Final JCC meeting/Seminar: November or early December 2023
- Submission of Final Reports: December 2023

It was confirmed that the results of the Pilot Project regarding timetable changes on lines 505/506 will be reported at the 5th JCC meeting.

d. Conformation of Overall Goal, Project Purpose and Objectively Verifiable Indicators

In JICA's technical cooperation projects, it is necessary to confirm the status of project outcomes before the end of the project. In this project, an ex-post evaluation will be conducted in order to check whether the Overall Goal and the Project Purpose have been achieved three (3) years after the completion of the Project. The viewpoints on project evaluation will be the following six (6) items: a) Relevance, b) Coherence, c) Effectiveness, d) Impact, e) Efficiency,

and f) Sustainability.

Since it is a project that utilizes public funds in Japan, there is also accountability to Japanese side, and the success or failure of the project is measured by the achievement status of the overall goals and project goals. This evaluation will have an impact on the future relationship between JICA and the city of Belgrade (including consideration of the implementation of new projects).

Modifications in objectively verifiable indicators were confirmed (refer to Revised Project Monitoring Sheet I (PDM) & II (PO)). Means of verification were also modified accordingly and should be compiled to incorporate them into the technical cooperation materials.

e. Modification of PO

Based on the above understanding, PO was revised as shown in Revised Project Monitoring Sheet I (PDM) & II (PO).

f. Others

Overall, the organizational structure for carrying out various activities as planned (i.e., who will take the lead and proceed with each activity) and the necessary process on the SfPT side were confirmed by both parties.

1.7 Progress of Environmental and Social Considerations (if applicable)

Not applicable.

1.8 Considerations on Gender/Peace Building/Poverty Reduction (if applicable)

Not applicable.

1.9 Other remarkable/considerable issues related/affect to the project (such as other JICA's projects, activities of counterparts, other donors, private sectors, NGOs etc.)

Not applicable.

2 Delay of Work Schedule and/or Problems (if any)

As stated in 1.6.

3 Modification of the Project Implementation Plan

See attached PDM and PO for modifications to the Project Implementation Plan. Deletions are struck through in the appropriate section, and additions or revisions are highlighted in red color in the appropriate section.

4 Preparation of SfPT toward after completion of the Project

None at present.

II. Project Monitoring Sheet I (PDM) & II (PO)

As attached.

PROJECT MONITORING SHEET

Title: Project for Modernization of Public Urban Transport in the City of Belgrade

Version of the Sheet: Ver. 6（Term: September 2023 – December 2023）

Name: Dr. Sadayuki YAGI

Title: Team Leader/ Public Transport 1

Submission Date: December 2023

I. Summary

1 Progress

1.1 Progress of Inputs

Table 1: Input of Experts as of December 2023

Name and Designation	Worked MM/ Planned MM (%)	Worked MM	Planned MM
YAGI Sadayuki Team Leader/ Public Transport Policy 1	100.0	7.00	7.00
SEKI Yosui Deputy Team Leader/ Public Transport Policy 2	100.0	6.50	6.50
OWADA Manabu Public Transport Planning	100.0	3.57	3.57
Errol Tan Operation and Operator Management	100.0	4.00	4.00
OTSUKA Eijiro Fare Collection /ICT System	100.0	5.80	5.80
OZONO Wataru Pilot Project	100.0	4.00	4.00
Deo Nobel Transport Survey/ Database/ Demand Forecast 2	100.0	5.73	5.73
Yang Wang Demand Forecast 1	100.0	3.43	3.43
KATO Yuka Financial & Economic Analysis	100.0	3.50	3.50
TERAWAKI Shinji Monitoring/ Evaluation/ Public Relation	100.0	3.67	3.67
TOTAL	100.0	**47.20**	**47.20**

1.2 Progress of Activities

1.2.1 Overall Activities

Meetings with the counterparts were held during the period (September 2023 – December 2023).

Table 2: Meetings with C/P

September 2023			
Meeting with FTTE, SfPT	6-Sep-23	FTTE, SfPT	Discussion of proposals for future network and VISUM model
Meeting with SfPT	21-Sep-23	SfPT	Preliminary discussion on the agenda of JCC meeting
Meeting with SfPT	22-Sep-23	SfPT	Preliminary briefing of JCC materials to each WG leader
Meeting with the City of Belgrade, SfPT	25-Sep-23	The City of Belgrade, SfPT	Preliminary briefing of JCC materials to the City of Belgrade
Site Visit	25-Sep-23	SfPT	Monitoring Room
5th JCC Meeting	26-Sep-23		
November 2023			
Meeting with SfPT	21-Nov-23	SfPT	Discussion on the preparation of 6th JCC meeting and seminar
December 2023			

Meeting with SfPT	1-Dec-23	SfPT	【Working Group 3】Confirmation and discussion on the technical outputs
Meeting with SfPT	6-Dec-23	SfPT	【Working Group 2】Confirmation and discussion on the technical outputs
Meeting with SfPT	7-Dec-23	SfPT	【Working Group 1】Confirmation and discussion on the technical outputs

1.2.2 Output 1: The ability of strategical, tactical and operational planning of SfPT is improved.

Table 3: Progress of Output 1 Activities

Activity and Work Item	Activities	Results
101 To conduct travel demand survey along major routes and implement OJT on transport demand software.	• Information collection on the travel demand forecast • Confirmation on demand forecast modeling and its data • Analyzing on the traffic demand forecast model and its data • Conducting Activity Diary Survey • Updating on the traffic demand forecast model • Development of the transport network • Conducting of VISUM training	• Material for output 101.pptx Material to share the result of the tasks in Item 101 that were conducted together with SfPT on an OJT basis. • Training Course Timetable_PTV.xlsx • Session 1.pdf, Session 2.pdf, Session 3.pdf, Session 4.pdf, Session 5.pdf, Session 6.pdf Schedule and presentation slides for VISUM training
	Overall Progress: 100%	
102 To formulate operation and service plan which include optimum operation routes and frequencies based on the result of travel demand survey.	• Information collection on the operation planning • Identification of the issues on the current scheduling and timetable making program • Formulation on operation and service plan	• Material for output 102.pptx Material to share the result of the tasks in Item 102 that were conducted together with SfPT on an OJT basis.
	Overall Progress: 100%	
103 To propose integrated public transportation network to enhance intermodality including water transport, planned Metro lines, terminal access modes.	• Discussion on introduction of river transport and future railway network plan • Collection of the related data and information for the discussion on the future public transport network • Proposing the future public transport network to enhance its intermodality	• 103.pptx Material to share the result of the tasks in Item 103 that were conducted together with SfPT on an OJT basis. • TechnicalProposalforPublicTransportPlan.pdf Report on the methodology and analysis to propose the future public transport plan.
	Overall Progress: 100%	
104 To examine the model of the demarcation of roles and responsibilities between SfPT and operators.	• Examination on role and responsibility by SfPT and public transport operators • Information collection of good practices in European cities • Examination on the movement to other models	• Material for output 104.pptx Material to share the result of the tasks in Item 104 that were conducted together with SfPT on an OJT basis. • Report on Demarcation Models of Roles and Responsibilities.docx Full explanation of demarcation models of roles and responsibilities in public transport
	Overall Progress: 100%	
105 To create a list of improvement measures for operation management of public transportation.	• Data collection on public transport operation and management • Examination on timetable and diagram systems	• Material for output 105.pptx Material to share the result of the tasks in Item 105 that were conducted together with SfPT on an OJT basis. (List of improvement measures is presented in slide 1.) • TEDis-Prezentacija.pptx Creation of a technical and technological analysis of the tram subsystem and proposals for measures to increase efficiency and participation in visual distribution. (Serbian) • ZUTE 01_BeoPiS BG.pptx Development of bus lanes and separate independent routes in public transport project. (Serbian)
	Overall Progress: 100%	
106 To implement pilot projects to improve operation management, to formulate operation plan and route plan based on Activities 101-105.	• Discussion on the initial proposal of the pilot project and its data collection • Conducting of the hearing about ICT companies • Proposing of the pilot lines based on the discussion results with the counterparts	• ◆Main_Evaluation Report for Pilot Project_Output 1-6_EN.docx Description of outline, implementation, evaluation and conclusion of the three pilot projects for Item 106.

Activity and Work Item	Activities	Results
	• Preparation on the implementation plan • Implementation of the pilot project	
	Overall Progress: 100%	

1.2.3 Output 2: The ability of monitoring operators of SfPT is improved.

Table 4: Progress of Output 2 Activities

Activity and Work Item	Activities	Results
201 To review the actual situation of Availability Payment and to consider new methods of the assessment for the payment to the operators.	• Analyzing of the current operational contract in Belgrade • Conducting of the comparative analysis of current operational contracts in Belgrade with several contracts in other European countries such as Bucharest, Hamburg, and Madrid • Suggestion on improvements regarding the current operational contract and discuss its introduction	• Material for output 201.pptx Material to share the result of the tasks in Item 201 that were conducted together with SfPT on an OJT basis. • Technical Cooperation Materials for Output 2.docx Full explanation of Output 2, including Item 201 and Item 202.
	Overall Progress: 100%	
202 To propose improvement plan of the way of monitoring the operators and to create basic specifications of necessary operation management system and equipment.	• Examination on the operation management system that contributes to the improvement of operation monitoring • Analyzing of BusPlus system • Preparation of the scope of work on the smart bus stop pilot project • Examination on the association with CMMS and the introduction of specific KPIs for the renew of the contract in the future • Examination on the contents of the customer satisfaction surveys by GSP • Proposal for improving operator monitoring methods	• Material for output 202.pptx Material to share the result of the tasks in Item 202 that were conducted together with SfPT on an OJT basis.
	Overall Progress: 100%	

1.2.4 Output 3: The ability for planning for securing fare collection of SfPT is improved.

Table 5: Progress of Output 3 Activities

Activity and Work Item	Activities	Results
301 To review actual structure of fare collection and to identify the issues to be addressed.	• Conducting an awareness survey on fare payment • Analysis and Discussion on an awareness survey • Identification of the issues on fare collection	• Opinion Survey on Public Transport Fare payment.docx Material to share survey results on attitudes toward free riding, the root cause of low fare collection rates
	Overall Progress: 100%	
302 To formulate an improvement plan list for prevention of free ride. 303 To formulate an improvement plan list for operation service level and convenience.	• Identification of various problems caused by bus stops and consider improvements • Proposing the countermeasures categorized as push and pull policies based on the survey result • Examination of the lessons learned on the third country training (The Netherlands and Italy) • Examination and discussion of teaching materials for bus drivers • Making and conducting the remote trainings • Supplemental activity: Collection of information on new fare collection companies (PUC) and seek cooperation with the PUC	• Improvement plan list for prevention of free ride. pptx List to share the countermeasures for the prevention of free ride. • Belgrade Remote Seminar_1st~6th.pptx Materials to share the countermeasure to improve for the operation service level and convenience.
	Overall Progress: 100%	
304 To conduct demonstration projects on pilot routes to improve fare collection based on Activities 302 and 303.	• Discussion on the general contents of the demonstration project • Conducting a part of the demonstration project (Traffic Sugoroku) • Preparation of the implementation plan of other demonstration project (Belgrade Card Usage Competition) • To implement the demonstration project on Mobility Management (MM)	• Main Evaluation Report for Demonstration Program_Output 3-4_EN.docx Description of outline, implementation, evaluation and conclusion of the demonstration program for Item 304.
	Overall Progress: 100%	

Activity and Work Item	Activities	Results
305 To carry out public relations activities to raise awareness of the importance of fare collection.	• Setting up of Facebook Project Page • Uploading the articles on Facebook • Making the city travel map to promote the use of the public transport • Displaying the panel on the importance of fare payment	• Folder named "PR Articles", "PR Panels", "Travel Map" Article materials uploaded to the project accounts on FB and LinkedIn. Panels exhibited at the Belgrade fortress. Travel map to promote the use of public transport.
	Overall Progress: 100%	

1.3 Achievement of Output

1.3.1 Output 1

Table 6: Achievement status of Output 1

Objectively Verifiable Indicator	Means of Verification	Baseline	Status at Project Completion
1-1 The number of SfPT staff members who can use appropriate software and tools for demand forecast such as strategic models (e.g., VISUM), microsimulation (e.g., VISSIM) and cross-cutting software (e.g., GIS) is increased.	• Report of training	• Not applicable	• A total of 18 hours of basic training was provided to eight relevant staff members; a total of 10 hours of on-the-job training was provided to one professional staff member.
1-2 The number of SfPT staff members who can formulate route plan based on demand forecast is increased. / Existing route plans and operation plans are updated.	• Report of training / Updated operation plan	• Not applicable	• The operation and service plan were prepared.
1-3 Proposal for sustainable middle-, and long-term plans for an Integrated public transport is created.	• Improvement proposal, and phased plan for entire public transportation in Belgrade	• Not applicable	• The proposals and the plan were prepared.
1-4 The current issues regarding the demarcation of roles and responsibilities between SfPT and operators are examined and the points to be approached are sorted out.	• Study report on demarcation of roles and responsibilities	• Not applicable	• The report was prepared.
1-5 A list of improvement measures for operation management of public transportation is created.	• Improvement plan list for operation management	• Not applicable	• The list was prepared.
1-6 Pilot projects to improve operation management, to formulate operation plan and route plan are implemented.	• Evaluation report of the pilot projects	• Not applicable	• The pilot project was implemented. • The evaluation report was made.

1.3.2 Output 2

Table 7: Achievement status of Output 2

Objectively Verifiable Indicator	Means of Verification	Baseline	Status at Project Completion
2-1 Improvements or alternative measures for the new contract with operators are proposed.	• Study report including gap/SWOT analysis	• Not applicable	• A series of studies were made. • The report was prepared.
2-2 Improvement measures for monitoring operators are proposed.	• Improvement proposal for measuring KPIs of operators	• Not applicable	• KPIs were proposed. • The report was prepared.

1.3.3 Output 3

Table 8: Achievement status of Output 3

Objectively Verifiable Indicator	Means of Verification	Baseline	Status at Project Completion
3-1 Problems and issues of fare collection are extracted.	• Study report including gap/SWOT analysis	• Not applicable	• The survey was conducted and the report was prepared.
3-2 Improvement plan list for prevention for free ride is formulated.	• Improvement proposal for measuring KPIs of operators	• Not applicable	• Reference cases through training programs were collected. • The list was prepared.
3-3 Improvement plan list for public transportation operation service level and convenience is formulated.	• Study report including gap/SWOT analysis	• Not applicable	

Objectively Verifiable Indicator	Means of Verification	Baseline	Status at Project Completion
3-4 Demonstration projects are conducted to secure fare collection and its evaluation are carried out.	• Improvement proposal for measuring KPIs of operators	• Not applicable	• The demonstration project was conducted and the report was prepared.
3-5 Public relations activities are carried out to raise awareness of the importance of fare payment.	• Study report including gap/SWOT analysis	• Not applicable	• The public relations materials were made.

1.4 Achievement of the Project Purpose

Table 9: Verifiable Indicators and Current Status

Objectively Verifiable Indicators	Means of Verification	Baseline	Status at Project Completion
Transport survey database and demand forecast model as a base for strategical operation planning are established	• Transport survey and demand forecast model, on-the-job training, and user manual of the demand forecast	• Not applicable	• Survey database, demand model in VISUM and the User manual were prepared, • The Software was installed.
Some of measures to improve operation management of public transportation and way of contract between operators are defined and proposed to be introduced into the new contract as well as existing contract renewal.	• SfPT's study report (published/unpublished)	• Not applicable	• Report on the training in the Netherlands (Amsterdam, Rotterdam and the Hague in March 2022) and Italy (Rome, Florence and Naples in June 2022) and the summary of the cities visited. • PUC for transport fare collection was established in May 2023.
Some of measures to secure fare collection are proposed as the City's policy.		• Not applicable	

1.5 Achievement of the Overall Goal

Table 10: Verifiable Indicators and Current Status

Objectively Verifiable Indicators	Means of Verification	Baseline	Status at Project Completion
Eco-friendly public transportation system (the ratio of EV vehicles and Euro 6 compliant vehicles to all bus vehicles in Belgrade) is increased by 10%.	• New vehicle procurement and public transport rolling stock information	• 47% (Mar. 2021) (Out of total 1,120 operational buses, there were 244 EURO VI buses, 4 CNG buses, 272 trolleybuses, and 5 e-buses.)	• 57% (Nov. 2023) (100 CNG buses and 10 e-buses were added.)
The number of public transport users is maintained.	• Data on average route density by route, number of pax per route, and number of pax per kilometer	• 2,646 pax/day (Nov. 2020) (Daily number of passengers on Bus 65) * Data from Bus line 65, where Automatic Passenger Counter (APC) is installed, is used.	• 16,919 pax/day (Oct. 2022) (Daily number of passengers on Bus 65) * Using public transport corridor survey results for the same route as the APC has been removed.
Some of measures aiming at financial soundness of public transport operations are implemented.	• SfPT's study report (published/unpublished)	• Not applicable	• New fare payment system using SMS and mobile app. “Beograd Plus” have been implemented.

1.6 Changes of Risks and Actions for Mitigation

a. Modification of Planned Activities

Due to changes in the project implementing structure of Belgrade side (long-term absence of the Project Director and frequent changes in the Project Manager) and changes in the public transportation and fare collection system resulting from the municipal elections in 2022, there was a need to review the project's results and activities.

b. Response by the City of Belgrade and SfPT

In response to the above situation, in July 2023, we discussed with the newly assigned Project Director and Project Manager the results and activities for the remainder of the project.

c. Result of Changes

The following three changes were confirmed and revised R/Ds were signed in September 2023.

(i) Change in pilot project: The original plan was to consider the installation of a video wall in the control center as a pilot project to improve operational planning, but the procurement of this project was cancelled.

(ii) Third Country Training: The third and fourth sessions of the third country training program were cancelled.

(iii) The training in Japan and the invitation to Japan: The second training in Japan and invitation to Japan were cancelled.

The above items (i) through (iii) were substituted to the use of online training based on the results of the experts' previous field activities and survey analysis and continued to work toward the achievement of each outcome and project goal.

In addition, the project duration was extended by approximately 1.5 months in order to conclude the project activities in light of these changes.

1.7 Progress of Environmental and Social Considerations (if applicable)

Not applicable.

1.8 Considerations on Gender/Peace Building/Poverty Reduction (if applicable)

Not applicable.

II. Project Monitoring Sheet I (PDM) & II (PO)

As attached.