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## Elaboration of a Coordinated Transport System in Course of Territorial Planning of Urban Areas Development

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### Abstract

The article is concerned with Saint Petersburg transport system operation and development of proposals for its optimization. Coordination principles and methods for the implementation of the main aspects of interaction of various public passenger transport (PPT) means in the context of the Saint Petersburg transport system are suggested. Performance standards for the assessment of PPT system operation are given, for which transport systems of the biggest cities shall strive.

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*Keywords:* transport system; territorial planning; urban areas; public passenger transport; transfer hubs; passenger transportation; time expenditures for transfer

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### 1. Introduction

The study relevance is determined by the necessity for improvement of regulatory, methodological, and organizational base in the field of operation coordination with regard to modern transport systems at various stages of territorial planning of urban areas. The developed standards for time expenditures of the population, passengers' travel speed and time spent in transfer hubs (TH) allow selecting transport links in the system of Saint Petersburg public passenger transport to be optimized. The practical application of the methodology for the assessment of interaction of various public passenger transport means enables efficient distribution of passenger transportation

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volumes between various public passenger transport and individual transport means. The objective of the study is the development of the main aspects related to coordination of various PPT means with consideration for modern trends in the formation of the urban transport infrastructure.

## 2. Main text

Currently, the Town Planning Code of the Russian Federation, determining territorial planning documents and sequence — from the territorial planning scheme to the city master plan, land use and development rules, planning designs for individual districts — is the legal basis for territorial planning of urban areas development.

It shall be noted that each kind of territorial planning documents corresponds to its respective form of ownership which means that all document levels are legally independent but interrelated through the mechanisms for alignment of public and private interests. On a practical level, it is an important circumstance allowing to authorities of any level (federal, regional, local) to independently develop, coordinate, and approve the required territorial planning documents according to the applicable laws. However, taking into consideration that the main territorial planning principles are systematicity and comprehensiveness, legal independence implies interrelation of territorial planning documents of various levels with regard to the content.

Territorial planning is aimed at the determination of areas purpose in respective documents, on the basis of the aggregate of social, economic, ecological and other factors, to provide the sustainable development of areas, development of the engineering, transport, and social infrastructures with consideration for the balance of interests of citizens and their groups, the Russian Federation, subjects of the Russian Federation and municipalities.

Territorial planning is to be preceded by strategic planning based on the determination of common directions, goals and tasks for urban areas development. The goals set in course of strategic planning are further projected onto a definite territory having the established land use structure, engineering, transport, and social infrastructures and other individual peculiarities.

It shall be noted that, overseas, tools for territorial planning management implemented in the form of comprehensive planning in the USA and Canada or spatial planning in Europe include elements of both territorial and strategic planning. As a result, documents determining the direction of long-term development of areas (comprehensive plan, spatial plan, community plan, municipal development plan, master plan, strategic master plan, etc.), represent large comprehensive documents containing the analysis of natural, social and economic, ecological, demographic conditions of the territory, target indices, strategic goals and development priorities as well as respective graphic documents.

The performed studies have shown that, in the context of market economy, the main document for the management of the sustainable development of urban areas is the strategic plan as the basis for the development of the master plan, representing the tool consolidating the efforts of all interested parties and determining the main parameters of the urban social and economic development.

Until recently, in Russia, in course of territorial planning, the industrial approach was frequently used, which allowed state authorities and local government accepting documents of territorial planning, aimed at meeting individual short-term objectives to the detriment of tasks regarding the complex sustainable development of urban areas.

In terms of any town, the availability of the strategic plan and master plan provides the possibility for attraction of strategic investors, access to state investment tools for the development of the engineering, transport, and social infrastructure.

Territorial and transport planning is a part of the town planning activity, and the necessity for its development is determined by the following factors of the development of transport systems in the biggest cities:

- obvious lagging of the development of the biggest urban transport systems behind the needs of the population. Transport problems hinder the development of urban areas, decrease their investment attractiveness. The low level of traffic safety is becoming a national problem;
- difficulties in gaining significant investments for modernization of transport systems, long repayment period of capital investments;
- impossibility to solve transport issues upon commissioning of one or two facilities separately from facilities managed by authorities on other levels.

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