Research on Promoting Strategies of Urban Comprehensive Transportation Planning under the Background of Multiple Plans Integration

Zhong Guo\(^1\), Yixiao Yin\(^2\) and Linghong Wei\(^3\)

\(^1\)^{1,2,3\text{China Urban Sustainable Transport Research Center(CUSTReC), Beijing, 100029, China}}

574802917@qq.com

Abstract. In order to solve the problems of self-contained system, content conflict and lack of cohesion in various kinds of spatial planning, China has carried out Multiple Plans Integration works. As one of the important contents of spatial planning, how to seize the opportunity to play a greater role in the Multiple Plans Integration system is also necessary to study the key points and methods of transportation planning under the new situation. On the basis of understanding the connotation of Multiple Plans Integration, this paper puts forward the key problems to be solved in comprehensive transportation planning. On this basis, it puts forward some policy suggestions on top-level design, transportation model, performance evaluation and implementation mechanism of comprehensive transportation planning under the situation of Multiple Plans Integration, which can provide reference for the development of China's transportation planning in the direction of Multiple Plans Integration.

1. Introduction
In the traditional planning model, urban planning, land use planning, transportation planning and other planning are compiled independently. They have their own content, lack of coordination, and the phenomenon of segmentation is serious. The CPC Central Committee and the State Council attached great importance to the work of "Multiple Plans Integration" and have requested repeatedly and explicitly that "Multiple Plans Integration" be promoted. In August 2014, the National Development and Reform Commission, the Ministry of Natural Resources, the Ministry of Ecology and Environment and the Ministry of Housing and Urban-Rural Development jointly issued the Notice on the Pilot Work of "Multiple Plans Integration" in Municipalities and Counties. The "Multiple Plans Integration" refers to strengthening the connection of national economic and social development planning, urban and rural planning, land use planning, environmental protection, cultural relics protection, forest and cultivated land protection, comprehensive transportation, water resources, cultural and ecological tourism resources, social undertakings planning and other planning under the authority of the first-level government and the first-level government to ensure the consistency of important spatial parameters such as protective space, development boundary and city scale determined by "Multiple Plans Integration", and to establish a control line system on a unified spatial information platform\(^1\), in order to achieve the objectives of optimizing spatial layout, effectively allocate land resources, and improve the level of government spatial control and governance capacity.
2. Key Problems in Urban Comprehensive Transportation Planning under the Background of Multiple Plans Integration

Under the background of Multiple Plans Integration, the urban comprehensive transportation planning should focus on two major issues: Firstly, how to support the municipal planning layout and functional arrangement, that is, the connection between transportation planning and other planning issues; Secondly, how to coordinate the resource allocation and optimization of urban transportation systems, that is, the division of labor and undertaking relationship of different levels of transportation planning.

3. Policy Suggestions on Urban Comprehensive Transportation Development under the Background of Multiple Plans Integration

Under the background of Multiple Plans Integration, the development of urban comprehensive transportation should be unified from technical methods and management means so as to facilitate the development of the urban comprehensive transportation system.

3.1. Establishment of Mandatory Planning Mechanism at the Top Level of Design

Firstly, it is suggested that the Ministry of Transport, together with the Ministry of Housing and Urban-Rural Development, should promote the promulgation of the Law of the People's Republic of China on Urban Comprehensive Transport Planning, guide the competent departments of local industries to construct a comprehensive urban transportation planning system corresponding to urban planning, also promote the publication of Guidelines for the Compilation of Urban Comprehensive Transport Planning, strengthen the standardized compilation and management of urban comprehensive transportation planning, formulate a set of standards to standardize the compilation technology and management of various transportation planning projects, and focus on the integration of transportation planning and specific planning content so as to achieve a horizontal integration. According to the size and depth of the research scope, the same type of planning projects are excavated and extended to achieve a vertical penetration.

Secondly, guide the local transportation industry authorities to form a map, construct a multi-level and dynamic "big data" map of "current situation-planning-construction (management)" of urban transportation, and build a platform for urban transportation data sharing. Complete the planning in a system from project establishment and compilation to organization and implementation of the whole evaluation process. It is necessary to accomplish the correspondence with urban planning in space, adapt to social and economic development planning in time, and link up with pre-construction project managements in concrete project implementation, especially between transportation impact assessment and municipal “One-Book-and-Two-Certificate”.

3.2. Establishment of "Multiple Plans Integration" Transportation Model

It is suggested that the Ministry of Transport take the lead in promoting the establishment of a national transportation model. The comprehensive transportation model generally is a comprehensive model system, which partially modularizes urban transportation model, regional transportation model and other components. By formulating model coordinates, roads and zoning and other standards, the modular introduction of urban transportation model results can be realized. At the same time, the local "Multiple Plans Integration" transportation scale model platform should be incorporated into the overall framework of smart city construction, and become an important application of urban construction and the main basis of urban transportation dynamic planning[2]. It is suggested that each city should establish a special transportation planning model research organization to create and maintain the model. The output of the model can be used for planning, design and research, and provide supports for urban transportation development decision-making. The foundation for creating models is data. Therefore, from the data level, we should do a good job of stable and effective statistical work to ensure the convergence of relevant planning data, including basic information such as population, construction scale, development boundary, social economy, important protected areas, planning base map, etc. The construction of the model ensures that the establishment and maintenance focus on the following aspects:
The model focuses on the integration of transportation, land use and environment. Traffic models can simulate the interaction among the three, and predict the impact of different traffic policies, projects, needs and land allocation plans on travel patterns and environmental quality.

Construction of Collaborative Platform Based on Unified Standards. Unified technical standards include unified land use classification standards and unified data format. Establishing basic database mainly includes original data, basic map and spatial integration.

It is necessary to conduct the comprehensive urban traffic survey regularly in order to obtain complete model input data, improve the system of data resource collection, sharing, utilization and confidentiality, and use big data, cloud computing and other technologies to enhance data acquisition capabilities.

The land use and transportation network model and the performance evaluation model of the transportation system based on GIS are used to allocate the transportation network quantitatively and evaluate the operation status of the transportation system.

3.3. Improving the Performance Evaluation System of Transportation Projects

Based on the national traffic model, it is suggested to explore the establishment of the overall performance objectives of the ministerial-urban transport projects, and to formulate the sub-goals at different time stages according to the overall objectives. After defining the target, according to the "4E" (Economy, Effectiveness, Efficiency, and Equity) evaluation criteria[3], the index system of performance evaluation is established from four aspects: economic benefit, functional benefit, management benefit and public benefit. Traffic projects are tracked, monitored and evaluated in performance from the whole process of planning, investment, construction, implementation and operation. Indicators in the indicator system need to be as good as possible, reduce human interfaces, and provide a complete evaluation report for the results of performance evaluation at each stage. According to the performance objectives and evaluation methods of MPO in the United States, only those projects that meet the performance targets in the planning period can be funded.

3.4. Establishment of the Coordination Mechanism of "Multiple Plans Integration"

In view of the situation of "Multiple Plans Integration" in China, it is necessary for achieving the goal of establishing a unified spatial planning system to deepen the "Multiple Plans Integration" and strengthen the integration and coordination of special planning such as urban comprehensive transportation planning on the basis of completing the "One Map" compilation. From the national level, it is necessary for building a national traffic model to set up a working group composed of the Ministry of Transport, the Ministry of Housing and Urban-Rural Development, the Ministry of Natural Resources, the National Development and Reform Commission and other ministries. When formulating the coordination mechanism for special planning at the urban level, we should make full use of the achievements and platforms of "multi-integration" to clarify the main body of coordination and formulate coordination standards from the perspective of overall development. For conditional cities, municipal governments issued normative documents to guarantee the coordination of special planning.

(1) Organizational mechanism: it is necessary to establish a top-down supervision and coordination mechanism such as multi-party participation in the form of a work coordination leadership group.

(2) Collaboration process: After the implementation of "Multiple Plans Integration", if there is a change in planning, it must be applied in accordance with the "Six-Step" process of application, audit, adjustment, filing, updating and implementation, and be managed by the relevant institutions.

3.5. Improving the Implementation Mechanism to Guarantee the Implementation of Planning

According to the principle of "that taking the lead in compilation should organize the implementation", we should strengthen the evaluation of planning implementation, clarify and implement the responsibility of the main body of implementation, establish a dynamic adjustment mechanism, improve the monitoring and evaluation of planning implementation, and enhance the effectiveness of planning implementation.
(1) Strengthening the Evaluation of Planning Implementation

It is necessary to adopt the mode of "City Government Leading, Traffic Planning + Action Plan Decomposition and Implementation", incorporate the planning implementation evaluation into the prescribed procedures, and clarify the requirements of the planning implementation evaluation. Traffic planning departments organize annual monitoring, analysis, summary and evaluation of planning implementation, encourage the third-party evaluation and strengthen the application of evaluation results. According to the urban traffic development goal and index system, it is necessary to quantize the planning evaluation results, form an evaluation report and submit to the municipal government for examination and approval. This paper studies incentives for urban traffic planning to achieve planning objectives by means of rewards and punishments such as policies and finance.

(2) Establishment of Dynamic Planning Adjustment Mechanism

It is necessary to guarantee the authority and seriousness of the planning. Without the approval of legal procedures, do not adjust or change any planning content at will. Strengthen the rationality and validity of the planning, set the revision conditions of the planning adjustment according to the results of the planning evaluation, construct a dynamic renewal system of "compilation-implementation-evaluation-adjustment" for planning, and establish a fixed number of years to carry out planning evaluation and updating work.

(3) Improving the Supervision and Assessment Mechanism of Planning Implementation

To establish and improve the supervision and assessment mechanism for planning implementation, planning departments should take planning preparation and implementation as an important part of government information disclosure, timely announce the progress of work, and consciously accept the supervision of the NPC, auditing departments and the public. They bring the implementation into the assessment and evaluation system of the municipal government, leading groups of relevant departments and leading cadres, and explore the mechanism of linking the results of planning implementation assessment with the performance of the subject being assessed.

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