

# Research on Strategic Planning of Comprehensive Transportation System in Ningxia

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**Abstract:** The rapid development of China's economy has led to further improvement in the standard of people living and gradually increase the investment in infrastructure area in recent years. As the leading and basic industry in the economy of China, according to the development and renewal, transportation has become more closely linked to people's lives and brought great convenience. However, there are still many problems with the development of transportation in western China. In order to support the economic growth of the western region, the country has put forward the 'western development strategy' and 'the Belt and Road' development strategy, as well as, set up an inland open economy pilot zone in Ningxia Hui Autonomous Region (See the References section). The purpose aims to reduce the gap between east and west region of China. As a significant province in the west of China, Ningxia Hui Autonomous Region shoulders the important task of spurring peripheral collaborative progress. Meanwhile, it is the principal node of 'Belt and Road' strategy. Therefore, the Ningxia Hui Autonomous Region formulates a comprehensive transportation system strategic plan in accordance with the national strategy to determine additional development goals and priorities. The final result is to drive the coordinated development of the surrounding economy and change the travel quality and living standard of local people.

## 1 INTRODUCTION

With years of development, comprehensive transportation system level has a sharply improvement and always as the leading and basic industry in the domestic economy. This needs to make the corresponding strategy and plan to ensure a strong support and guide in the transitional period. Follow the national deployment, Ningxia Hui Autonomous shoulders the significant construction the inland open economy pilot zone and produce the historical mission for producing the western region open strategy. This must have a positive attitude to integrate into the national development strategy of 'Belt and Road', as well as, has put forward a higher requirement and a new task for the developing of a comprehensive transportation system in Ningxia Hui Autonomous.

The Ningxia Hui Autonomous Region will still be at the key stage of climbing, catching up and transformation in the future (See the References section). The government of the Autonomous Region provides the complete newly development

strategy and goal as a city planning and construction. The new mission, new orientation, new task and the new objective require Ningxia has a 'world vision, international standards and self-benefits' in the recent historical development period. Scientifically programmed the multi-level of modern comprehensive transportation system with 'open, convenient, highly efficient and safe' to support the implementation of the national strategy, boosting the transformation and development of the entire region, as well as, further enhancing the radiation capacity of relevant region and promoting peripheral development.

According to the development policies issued by the National and Ningxia Hui Autonomous Region, such as 'National Highway Network Plan (2013-2030)', 'the National 'Thirteenth Five-Year development Plan' for Modern Comprehensive Transportation System', 'National New Urbanization Development Plan (2014-2020)' and 'Ningxia Hui Autonomous Region Provincial Road

Network Layout Planning(2015-2050), the period of this report is planned from 2016 to 2030. Among it: the short period is 2016-2020 and the extend period is 2021-2030. As a guiding document for the development of the comprehensive transportation system in Ningxia Hui Autonomous Region in future, it is main basis of determining the spatial layout and arranging major project construction and investment of comprehensive transportation network.

## 2 MAIN BODY

### 2.1 Development Foundation of Comprehensive Transportation System in Ningxia

In recent years, Ningxia has firmly grasped the strategic opportunities such as the development of the western region of the country and actively promoted the construction of an integrated transportation system. The scale of infrastructure has continued to be expand, the layout structure has been continuously optimized, as well as, the capacity for transport services has been significantly enhanced.(Y. Chen,2008) Basic transportation modes in Ningxia include roads, railways, aviation, waterways and pipelines. The main way of passenger and freight transportation relies on roads, railways and aviation.

With the gradual improvement on the comprehensive transportation network and the acceleration of the construction of passenger and hubs, the service capabilities have been enhanced. There was a total of 483 million tons of cargo handled by various modes of transportation (including: 56.31million tons for railways, 369.94 million tons for highways, 12.7 thousand tons for civil aviation and 11.42 million tons for pipelines); the number of passengers completed was 93.71 million (of which: 6.61 million for railways, the number of highway is 84.44 million and civil aviation is 2.66 million.) Passenger throughput of civil aviation was 5.39 million passengers. Among 202 civil aviation airports nationwide, Hedong International Airport ranks 39th and the average annual growth rate of passenger throughput is 20.4% in the past 10 years. Yinchuan Air Port (National Class I) and three land ports (Yinchuan Development Zone, Hui Nong and Zhongning) also have steadily advanced.(See the References Section)

Although the comprehensive transportation system in Ningxia has made great progress, it is far distant from achieving the national strategy of

modernization and integration of comprehensive transportation systems and supporting the assimilation into the 'Belt and Road' strategy. On the one hand, this is mainly reflected the insufficient of the capacity of various modes of transport, the limited of supporting role as opening and merging into the outside world, as well as, various modes of transportation and regional development are unbalanced. The emergence of these two conditions is mainly due to the fact Ningxia, where is located in the inland hinterland and does not rely on the sea or borders. It is the lack of capacity and rapid external transportation connected with neighboring countries and advanced economies. Openness to the outside world and insufficient ability to attract radiation to periphery have affected foreign economic exchanges and cooperation. Meanwhile, there is no high-speed railway and weak infrastructure in Ningxia and the overall level of high-grade highway networks needs to improve.

On the other hand, the proportion of road transport has a high occupation in the regions comprehensive transportation. The percentage of highly efficient intensive passenger and cargo reached 90.1% and 84.5% respectively. However, the percentage of highly competent intensive passenger and freight railways accounted for total only 7.1% and 12.9%. Air traffic is even lower than those two ways (See the References section). The development speed becomes slow in the Yellow River water transport and most of the pipeline transportation is a passing mode, as well as, forming a not reasonable structure. In terms of spatial layout, there is no balance of traffic structure in the north and south region in Ningxia. Construction of traffic system in the northern region is significantly better than southern region.

### 2.2Develop Requirement of Comprehensive Transportation System in Ningxia

The development strategy of the traffic system in Ningxia Hui Autonomous Region is strong competitiveness. Then, under conditions of dual constraints on resources and the environment, the transition is depends on the mode of resource and factor input. Cultivate a new pattern of open economy, improve the progress of modern urbanization. Meanwhile, it will expand the scope of services, save on the intensive use of transportation resources, optimize the network structure and enhance the supporting support of economic and social development.

Finally, under the background of economic globalization and regional economic integration, Ningxia must actively promote the status of transportation at the regional and international level and build a comprehensive transportation hub system. Figure 2.1 indicates, on the one hand, it continued to strengthen the building external transportation hub of land and air, expand Ningxia's

radiation capabilities for the economies of Hohhot and Taiyuan and strengthen links with cities along the Silk Road such as Xi'an, Lanzhou and Urumqi. On the other hand, formed a transportation network with internal and external connections, increase the capacity and level of external transportation. Meanwhile, build bridge for competition and cooperation between international and region.

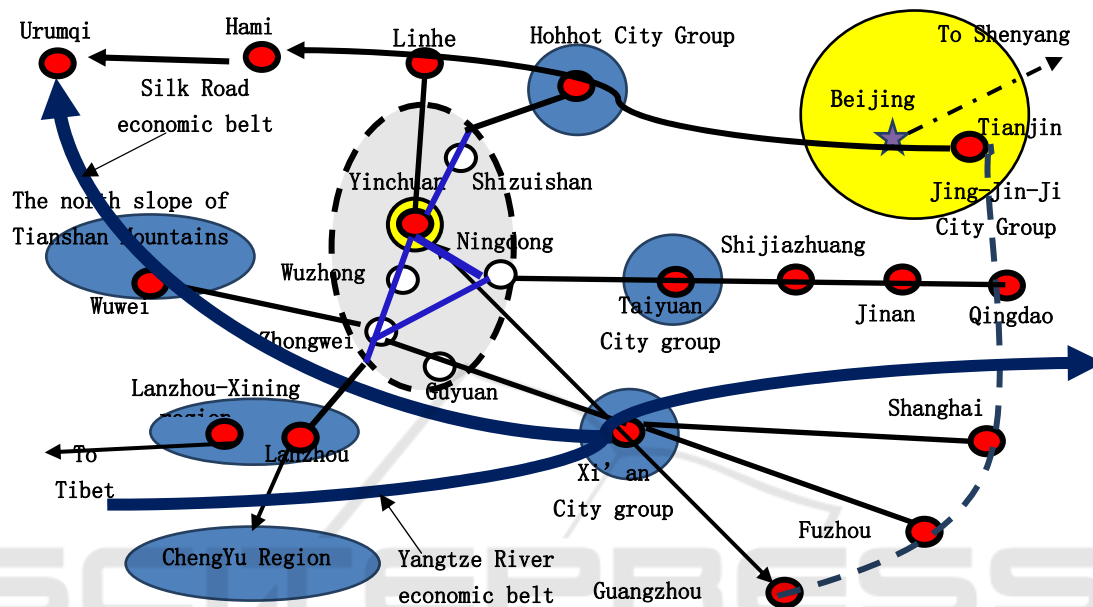


Figure 2.1 Sketch map of Ningxia's traffic layout.

### 2.3 Development Strategies and Goals of Comprehensive Transportation System in Ningxia

The core development of the Ningxia transportation system is intended for short-boarding and precision misconduct, as well as, to strengthen the attraction and radiation area of Yinchuan. It will pay attention to connecting peripheral areas, accelerating integration into national backbone transport networks and enhancing the quality and efficiency of service (T.J. Yang, 2017). Then, play the role fully of the former transportation officer and building a modern comprehensive transport hub system in Ningxia.

#### 2.3.1 Development strategies of Comprehensive Transportation System in Ningxia

Ningxia is close to the geometric center of Chinese territory, it is the central and eastern part of

china that connects the western region, as well as, leading to significant strategic channels in central Asia, west and other region in Asia. Meanwhile, Due to the fact that Ningxia is located on the Silk Road Economic Belt and close to the Qiteng Line and link be Beijing-Tianjin-Hebei City group, Yangtze River Delta and other central economic regions, so Ningxia has a strategic status to China. Therefore, the development of Ningxia must follow the national strategy of promoting 'Belt and Road', coordinated development of Beijing, Tianjin and Hebei city group and the Yangtze River Economic Belt. It is based on the inland open economic pilot zone, highlighting the planning and construction of large-scale foreign channels and major hubs, as well as, achieving large customs clearance and logistics.

There are for two specific strategies, one is the open integration strategy. Taking Ningxia as the fulcrum of the Silk Road Economic Belt, it shall speed up the opening to the external transportation channels and form an integrated channel to enhance to enhance Ningxia's status as an international comprehensive transportation system. Ningxia will

build an international aviation hub for central and west Asia, improve the air corridors of the Eurasian Continental Bridge and turn Ningxia into a passenger and cargo transit node with extensive influence and significant distribution center for freight transport. The other is internal linkages strategy. This strategy should speed up the integration of urbanization and regional in Ningxia, actively build a regional rapid transit network system. Scientifically and rationally allocate the traffic system and construction an intercity passenger transport backbone system between the central city and sub-city, supporting and guiding the new urbanization in the region. Support the integration of modern information technology and transportation service management as well as, realize cross-regional large-scale intelligent transportation.

### 2.3.2 Goal and Objectives of Comprehensive Transportation System in Ningxia

The overall goal is to build Ningxia into an international regional hub for Silk Road Economic Belt in 2030 and to initially establish an integrated international, modern transportation system that matches ‘Western International Logistics Center and International Regional Aviation Hub’. It will effectively enhance the comprehensive competitiveness of the region, support and guide the development of autonomous region’s economic and social, as well as, to ensure Ningxia’s status as a strategic highland opening to the west.

According to the overall goal, formulate the specific implementation objectives. As Table 2-1 shown, there are five specific objectives in each of the short and long terms. The purpose of these two objectives was to make the comprehensive transportation system in Ningxia become more consummate and to facilitate the interconnection and intercommunication of transportation networks across the country, thereby increasing the overall efficiency and reducing the cost of transportation. Meanwhile, it provides more kinds of transportation for people to travel in the radiation.

Table 2-1. The Short-term and long-term Objectives of the Development of Ningxia Comprehensive Transportation System.

Short term (2016-2020)	Long term (2021-2030)
Skeleton of transportation network become more complete	Basically completed the comprehensive transportation
Significant improvement in comprehensive transport channel capacity	Build an integrated foreign transport corridor
Initially build an aviation hub system with internal smooth and outer connection	Build international regional aviation hub
Initially formed a comprehensive transport hub system with ‘reasonable layout and perfect function’	To form a comprehensive transport hub system that is ‘safe, efficient and seamless connection’
Preliminary establishment of urban public transport master status	The significant improved of the level of transportation information technology and intelligence

## 2.4 Safeguards for Comprehensive Transportation System in Ningxia

First of all, Ningxia Autonomous Region increases the integration of comprehensive transportation and spatial planning, various transportation specific plans, local comprehensive transportation planning and scientifically reserve traffic corridors. It also needs to strengthen the executive and binding force of the plan. This will make overall plans for the preparatory work, progress of major construction projects and guarantee the implementation effectiveness of the plan. Next, Ningxia must have a good relationship and interpretation cooperation with province. Construction of inland open economic pilot zone in Ningxia can drive the development of the neighboring provinces, strengthen the process of regional and traffic integration, as well as, further build, share and collaborate on channel resources.

Ultimately, Ningxia not only should carry out transportation planning but also in accordance with the concept of sustainable development to reduce the impact on transportation infrastructure on resources and environment, due to improvement of protecting environment awareness and government issues the policy and regulation. The strict implementation of environmental impact assessment and soil, water

conservation assessment for the project of transportation construction, as well as, follows the ecological protection red line of management requirement, which makes the project selection and location cause the minimum harmful to the environment. This depends on the Ningxia government adhere to the principle of land intensive and economical use and improvement the efficiency of land use.

### 3 CONCLUSIONS

To sum up, in order to drive and promote the economic development, facilitate travel and improve living standard of local people in Ningxia Hui Autonomous Region, it had formulated and planned a strategy that was in line with its own development conditions in accordance with the western development and 'Belt and Road' strategy. This research report describes the background of the strategy formulation, and then, extension of the formal requirement for the formulation of the strategy. Depending on this information, further summarized two strategies of the comprehensive transportation system development in Ningxia Hui Autonomous Region. One was the opening-up integration strategy. Another was the internal linkage strategy. Then, pursued by making the refine goals.

The goals were divided into short-term and long-term objectives based on the length of time. The purpose of these two objectives was to make the comprehensive transportation system in Ningxia become more consummate and to facilitate the interconnection and intercommunication of transportation networks across the country, thereby increasing the overall efficiency and reducing the costs of transportation. Meanwhile, it provides more kinds of transportation for people to travel in radiation area. Finally, report shows the safeguards of strategic planning. Ningxia government only to comply with and maintain these safeguards are abilities to provide strong support and guarantees for the realization of the strategy and objectives, so that it can be implemented and become a reality in the future.

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### REFERENCES

1. An Interpretation of the Strategic Plan for the Comprehensive Transportation System in Ningxia Hui Autonomous Region(2016-2030), 2017 [30/10/2017], [http://www.nx.gov.cn/zwxx\\_11337/zcjd/201710/t20171030\\_539196.html](http://www.nx.gov.cn/zwxx_11337/zcjd/201710/t20171030_539196.html)
2. Notice of the State Council on Printing and Distributing the "13th Five-Year Plan" Modern Comprehensive Transportation System Development Plan, 2017 [3/2/2017] [EB/OL], [http://www.ndrc.gov.cn/zcfb/zcfbqt/201703/t20170302\\_840224.html](http://www.ndrc.gov.cn/zcfb/zcfbqt/201703/t20170302_840224.html)
3. Y. Chen,2008, Study on the Construction of Modern Comprehensive Transportation System, [M] , Research Press, chpt.1 pp.5
4. National Development and Reform Commission's Plan for Inter-City Railway Construction along the Yellow Economic Zone in Ningxia Autonomous Region(2012-2020), 2015, [21/9/2015] [EB/OL], [http://www.ndrc.gov.cn/zcfb/zcfbtz/201510/t20151013\\_754338.html](http://www.ndrc.gov.cn/zcfb/zcfbtz/201510/t20151013_754338.html)
5. Notice of the Autonomous Regional Government on Printing and Distributing the 'Ningxia Hui Autonomous Region Provincial Highway Network Layout Plan(2015-2030), 2016, [15/03/2016], [EB/OL], <http://www.nxcd.gov.cn/gk/jiaotongss/28412.htm>
6. T.J. Yang, 2017, Research on Integrated Transportation Standard System Framework in China,[J], china standardization, No.15, pp.49-53