GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

Project Name：GEF Large-City Congestion and Carbon Reduction Project

Concept Paper for 13th Five-Year Plan of Transportation Development

Final report of research results

（Simplified Version）

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Contents

Chapter one: role and mission of transportation industry

1 The role of transportation in the national economy

In recent years, with the development of science and technology the information age has arrived and humans began to enter the era of full circulation of goods. As one of the basic industries of the economic development in our country, transportation plays an increasingly important role in the steady development of the national economy. Meanwhile, as a service industry that beneficial to the people's livelihood, transportation gives much convenience to people. Nowadays, level of transportation industry has become an important indictor to measure the degree of modernization of a country.

Transportation is one of the basic needs and prerequisites for economic development. In modern society, since transportation is the connection for social production and service, any production is relying on transportation. The concept of transportation not only includes expenses, raw materials, and shipment, but also includes convenient communication of human and information. Only well-developed transportation systems can satisfy the transportation needs between different social economic ranges, and provide quality services for the country and people.

Transportation is the living basis and civilization symbol of modern society. It is one of the basic necessities of life (clothes, food, shelter and transportation), and it is also a crucial carrier for people travel and the cargo movement. "The road easy for travel for both passengers and cargos" represents the basic functional position and service features of transportation, it’s also a basic requirement of modern society. Changing from the rough mountain road or unsurfaced road to the flat wide roads, overpasses and tunnels, or from animal power to of the modernize transportation that includes road, rail, water, air transportation and etc., transportation development is the sign of civilization and advancement of the modern society and provide a basic guarantee for people live and work in peace.

Transportation is the pioneer, the base, and the guarantee of modern industry and

the basic security. The development of transportation industry will affect the layout of the productivity in space. Constantly improving arterials and their along road's facilities is a key factor to guide and determine the formation of the industrial layout. Meanwhile, the development of transportation industry in the national economy plays a more potential role in promoting the resources' development and the expansion of markets. Therefore, many countries, especially developed countries, have offered preferential policies of transportation development, and make it one of the national strategies to improve national economy.

Transportation is an important tool for resource allocation and Macro-control. As we know, human beings reply on water, oil, coal, gas and some other resources. However, the distribution of resources on the earth is not balanced. Variety modes of transportation have provided people with an important way to dispatch the resources in local area and the whole world, and make the country be capable of resources reallocation and macro-control.

Transportation is an important factor in the formation of urban and economic layout. The construction of basic facilities, such as the transportation corridors, directly affect the construction and development of the economic and industrial belt along the road, which can also affect the development of the national economy. And the construction of urban transportation systems, especially the planning and the construction of urban rail transit systems, directly determines the formation of urban form, the land use and the urban economic development, and further contributes to the formation of manufacturing industry centers, business centers and ports, which leads to the presents of the urban area that has plenty of tall buildings, suburban area, and outer suburbs.

2 Research outline of the "13th Five-Year" transportation plan

2.1 Development history: the microcosm of China's transportation development

2.1.1 The initial construction period of “a thousand things wait to be done”

After the economic reform, with the rapid development of China's economy and the expansion of export, the transportation capacity was insufficient. The contradiction between supply and demand was very prominent, which seriously restricts the development of social economy. China began to carry out large-scale of transportation infrastructure construction, mainly in the railway, coastal ports and national highway. Focus of railway development tendency in the construction of export channel for the northern energy base and the renovation of busy Eastern Route, as well as new port development along the coastal hub ports; At the end of the “Seventh Five-Year-Plan”, the number of national highways totaled 70, 11 million kilometers, transportation capacity has promoted at a certain extent.

2.1.2 The period of bottleneck constraints

From the beginning of 1990s, although the state continues to take active policy to promote the railway trunk, the trunk line of highway and the coastal waterways and the development of the highway. At the end of "the Ninth Five Plan, the railway bridge between the Asia and Europe Continental Bridge has been built. The length of highway has reached 16300 kilometers, water and air transportation capacity has been significantly improved. However, transportation still grew slowly, and the restricted state, contradictions of transportation supply and demand became increasingly prominent, which has become the bottleneck of a long-term control of the national economy and social development.

2.1.3 The period of basic adaptation

Since the beginning of this century, after two Five-Year-plan, the investment of

the transportation has been greatly increased, the capacity of transportation has been greatly improved, the service quality of transportation significantly improved and the overall situation of China's transportation tension eased substantially. They corporately eliminate the bottleneck. The end of "Twelfth Five-Year" period, the growth of economic and transportation basically synchronized, initially formed a smooth, efficient, safe and green transportation system, but the realization time of "basic adaptation" from "mitigation" of satisfying the national economic and social development needs would estimate to be the year of 2020.

2.1.4 High speed, widespread and comfort development period

"China’s 13th five - year- plan period" is the last 5 years of sprinting to fully build a moderately prosperous society. The transportation will enter a new stage of comprehensively improving the comprehensive transportation efficiency and quality, as well as enhancing comprehensive transportation service level. At the same time, the transportation system will also enter an advanced, rapid stage, gradually complete the stage of "basic adaptation" from "mitigation", and then grow into "generally adapt" to the national economic and social development, and "initiatively" adapt to the new economic development. In the future, China's transportation will become stereoscopic comprehensive transportation network, which initiatively adapt and lead the development of the national economy and society. It will build up Integrated Transportation network that hold the public transportation as the domination of the city, arterials as the support of regional support, high speed railway and aviation as leading and multimodal transportation as guarantee of the integrated logistics. Meanwhile, the transportation capacity and service level shall be moderately advanced, technology and information shall be applied widely and conscious of green and safe shall be universally realized. Based on the theory of facing the world and the future, it should pay attention to the transportation quality, realize the harmonious and sustainable development of people, transportation and environment.

Table 1 China's transportation development process

Stage division	Reform and opening up to the beginning of the 90's	From the beginning of the 90's to the beginning of twenty-first Century	ten years beginning of Twenty-first Century	13th Five-Year period
Stage characteristics	Initial construction period	the period of bottleneck constraints	the period of basic adaptation	high-rapid development period
Main contents and features	**Serious** shortage of transportation capacity Contradiction between supply and demand Restrict social and economic development **Large-scale infrastructure construction**	**Grow** Slowly in transportation, the contradiction between supply and demand increase a lot **Become the bottleneck**	**Investment** has increased a lot **Transportation** capacity accelerate expansion The quality of service improved significantly **Overall ease of tension, the basic elimination of bottleneck constraints**	**To** build a well off society **Pay** attention to the improvement of transportation efficiency, quality and service level **Advanced, fast, general adaptation, active adaptation**

2.2 Stage positioning: the period from passive adaptation to initiative leading

In March 2015, during the 5th meeting of the National People's Congress, Premier Li Keqiang proposed the concept that "making transportation truly lead the way in promoting development", which fully reflects the basic and leading role of transportation in each industry of the national economy. Transportation development mode aims to shift from the "catch-up" mode to "lead" mode. Reviewing the past, the construction of transportation infrastructure develops from the "bottleneck" restriction to alleviate, and to currently adapt to the demand of the society, it has been struggling to catch up with the development of socio-economic need and plays a secondary role unconsciously. In the future, we must re-understanding and positioning the role of

transportation in the national economy, make transportation take its corresponding missions, and lead the way in promoting development, and provide core competiveness for the country's development process. In the "13th Five-Year Plan" period, China should firmly grasp this opportunity, to recognize the mission of transportation industry and give full play to the role of development pioneer for stimulate economic growth, optimize industrial structure, promote the process of urbanization and promote society sustainable development.

- Stimulate economic growth

In the past thirty years, the national economy of our country has witness a strong growth, from 597.56 billion RMB in 1983 to 58801.88 billion RMB in 2013, and GDP has increased by 98 times in 30 years. Meanwhile, in response to the 1997 and 2008 financial crisis, China increased investment in transportation infrastructure construction, and it directly contributed to the building materials industry, machinery manufacturing industry, petroleum industry, and the coal industry development. It realized the expansion in the economic chain and played an important role in maintaining the stable development of economy and society.

Recently, China's economic development has entered a new stable period, transportation industry should continue to play a role in promoting and guiding economic development. Accelerating the construction of transportation infrastructure is a necessary method to develop the transportation industry, and it is an important power for the development of China's national economy. In addition, from 2006 to 2013, the annual transportation industry’s fixed asset investment can promote more than 5% of GDP growth, and strongly support the rapid development of social economy. Only if the transportation has a lead position during the development procedure, have good transportation infrastructure, and significantly improve and enhance transportation services, we can effectively reduce transportation costs, optimize the industrial layout, stimulate market activity, and promote the communication between different countries, and different regions by people,

commodities and trade development. During the critical period that China has entered the new stable status, transportation should lead the mission that making transportation truly lead the way in promoting development, provides a strong guarantee for national economic development, and ensure the stable development of society and economy.

■ Adjust and optimize industrial structure

Transportation, as one of an important industry in the tertiary industry, has been supporting the industrial structure optimization. By its very nature, transportation can promote economic development along its corridors, shorten the distance between industries, and help realize industry structure rationalization and supererogation. Since "The Seventh Five-Year Plan" period, the industrial structure has been adjusted. The first industry, which includes agriculture, forestry, fishery and animal husbandry, declines in the proportion of economic structure. Its contribution to GDP rate fell to 4.4% from 24% in 1983; the second industry (which contains the mining industry, manufacturing industry, electric power, gas and water production and supply industry and the construction industry) and the tertiary industry (which includes transportation, postal & telecommunications industry, wholesale retail, accommodation & catering industry, financial industry, the scientific, educational, cultural and health undertakings, government's public service, and many other industries) have play a more important role in the promotion of national economy. The first industry gradually transfers to the secondary industry and the tertiary industry. Meanwhile, the tertiary industry grows more rapidly in the past 30 years, which contributes 47.6% of the GDP.

In the process of China's industrial structure supererogation, development of transport, such as road transportation and intelligent logistics, have made great contribution to the increase of the tertiary industry. In addition, the transportation industry as an important part of human life, its booming also promotes the growth in many related industries. During the critical period of industry structure adjustment, transportation industry should make full use of its advantage of basic industry and

service industry, promote transportation infrastructure construction, improve transportation service level, develop to become a high-speed, large, professional and networking modern transportation system, in order to promote the economy along the corridors by supporting freight transportation, and promote the transition to the service industry and meet the global trends by encourage the development of other industries, which is fulfilled by providing convenient and high quality service and simulating travel demand.

- Power to promote the development of urbanization

Since the reforming and opening policies, China urbanization level have been quickly upgraded. according to statistics, until the end of year 2012, Urban population has reached about 711.82 million in China, which accounted for 53% of the total population. Compared with the urbanization level in 1982 (214.8 million urban populations, accounted for 21% of the total population), the city population has increased by 2.5 times in the past 30 years. According to "Northam Curve", China is at the acceleration stage. According to an estimation, from 2008 to 2020, China's urbanization rate will rise by about 11%, which means that the average annual increase of urbanization level is 0.9792% during this period, and nearly more than 14 million people per year will transfer to urban area. During the development of urbanization, transportation has driven effects to promote formulation of cities.

Development of transportation can create more job opportunities for cities, absorb a large number of rural surplus populations, and promote the development of the rural areas. At the same time, convenient transportation network can effectively become complement between industries, and further promote rapid economic development and improve the quality of lives. Transportation development also stimulates industries along transportation corridors, increases employment rates, promotes regional economic development, and improves the industrial structure. The urbanization process also includes changes in land use and geographical layout, in addition to the change of population-career and industrial structure. The morphological and characteristics of cities layout are highly related to the

development of transportation modes and changes in the transportation structure, the dominant mode of transportation affects the expansion rate and formulation of urban area. During this critical period, transportation should lead the way in promoting urban development to reduce the development disparity in urban and rural areas, to stimulate the commutation between urban and rural areas, to provide strong support for the population transfer and structural adjustment, to provide more livable urban form, and to promote the process of urbanization.

- Promote sustainable development

Transportation, which is the second biggest oil consumption after manufacture industry, is one of important areas in building resource-saving, environment friendly and sustainable development society. Under the environment of continually increasing in total energy consumption, the growth rate of the transportation energy consumption is even higher than the consumption growth rate of the whole society. After 2004, both the growth rate of the whole society energy consumption and the transportation energy consumption has slowed down. However, the trend did not continue. After the financial crisis in 2008, the energy consumption growth rate of the whole society has accelerated markedly, especially since the "12th Five-Year" period. Transportation accounts for a substantial increasing in the energy consumption proportion of the whole society, and the gap between the growth rate of the transportation consumption and the whole society consumption is expanding. Transportation industry should take the important mission of energy consumption structure adjustment. Under the condition of environmental friendly and reducing resource consumption, economic development mode transfer from previous extensive economic growth mode to intensive economic growth mode. Fuel consumption proportion in the transportation energy consumption should be reduced effectively by employing corresponding countermeasures.

3 Environment of transportation development during the "13th Five-Year" Plan period

3.1 "Four Overall" strategic layout

During the investigation in Jiangsu Province in December 2014, the General Secretary, Xi Jinping Xi first clearly proposed the blueprint called "Four comprehensives" including one strategic target which is comprehensively building a moderately prosperous society, and three strategic initiatives, i.e., comprehensively deepen the reform, comprehensively implement the rule of law, comprehensively strengthen Party discipline. The "Four comprehensives" blueprint extended the concept of transportation and made the transportation which should be the spearhead of development more important. During the National 13th Five-Year Plan period, transportation should be developed based on the "four comprehensives" blueprint as well as incorporating with the new normal of the economic development. Overall, there are four aspects should be completed for the transportation: Promote the role of spearhead for transportation in the economic development; Earnestly carry out the hard part of transportation reform; Comprehensively strengthening the legal system construction of transportation; Strengthen the building of culture against corruption the contingent of cadres.

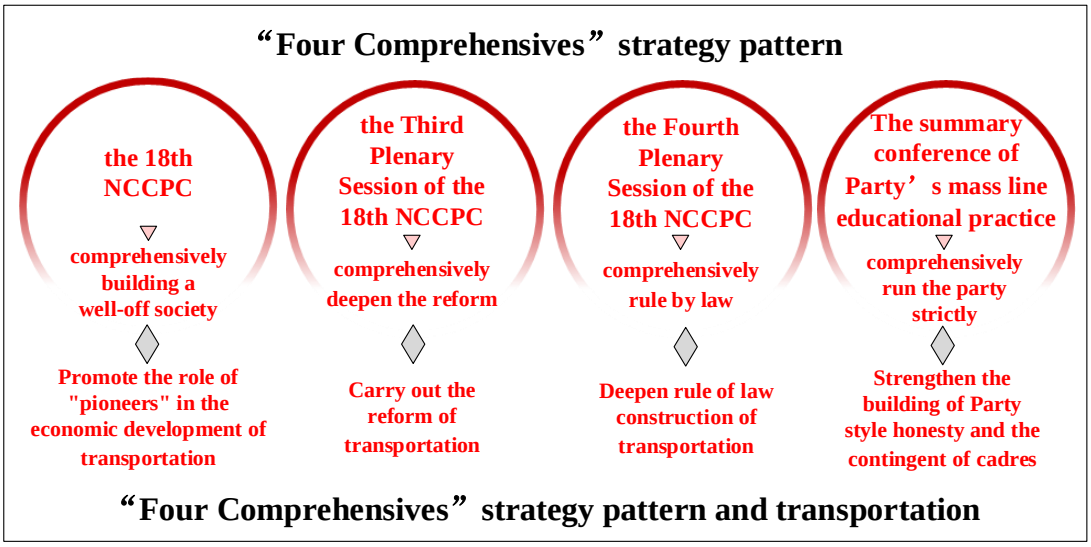


Figure 1 "Four Comprehensives" strategy pattern

3.2 Economic development of new normal

In May, 2014, the General Secretary, Xi Jinping put forward that China is in new normal of economic development when visiting Henan and the development of China is still in the period of important strategic opportunities. Thus, we need to adapt to the new normal and seize the new opportunities based on the features of China's current economic development. Also, we should deal with all kinds of challenges and risks of new normal with the version of the new history and the promotion of sustainable and healthy economic development and then create a new brilliance of Chinese economic development.

Transportation is an important link and spearhead of social and economic development. It is necessary for transportation to actively adapt to the new normal of the economic development However, the new normal can’t be easily realized since the Chinese economy now is during the alternating periods of the old and the new growth point, and the characteristic of"3 period" superposition is remarkable. The judgment of "three period" has provided an important basis for making correct transportation policy. During the13th Five-Year Plan period, we should persist in taking economic construction as the center, and enhancing play to the role of transportation infrastructure for steady growth by actively helping the digestion of steel, cement and other overcapacity which can effectively stimulate domestic demand. In terms of structural adjustment, we optimize the structures of transportation investment, transportation management and main market, etc. In terms of reform promotion, to the direction of the market reform commission basis, we need to balance the relationship between market and government, attaching great attention to the reform of the fiscal and taxation system as well as the investment and financing system.

3.3 Strategy of new urbanization

On March 16, 2014, "national new urbanization plan (2014-2020)" was officially published, which put forward the plan that in the future China will promote the people

oriented urbanization together with the objects that by 2020 the urbanization rate of permanent resident population will reach around 60% with more reasonable pattern of urbanization and more scientific urban development pattern. On February 4, 2015, the national new urbanization pilot program was carried out. 11 ministries and commissions including the National Development and Reform Commission and the State Commission Office for Public Sector Reform jointly published the “National New Urbanization Comprehensive Pilot Scheme” which officially started the new urbanization by selecting 62 cities (towns) and 2 organic towns as national comprehensive pilot areas for new urbanization.

The new urbanization process will change the inter-region, inter-city and urban-rural links of economy and transportation, resulting in changing the spatial and temporal distribution of transportation demand. To adapt to and guide the healthy development of new urbanization during the 13th Five-Year, the transportation should be developed by reducing he difference between regions, promote and guide the formation and development of urban agglomeration, strengthen small and medium-sized cities, and promote the coordinated development of large, medium-sized, and small cities, and effectively support urbanization strategy based on the "two vertical and three horizontal" strategy. Also, we should mainly promote the internal transportation links of -urban agglomeration, speed up construction for the external transportation of urban agglomerations and intercity transportation, strengthen improving external and intercity transportation for small sized city and towns, promote the urban-rural transportation integration, and build integrated transportation network of four parts including inter-regions, inter-cities, urban, and rural., Transportation should play a leading role in the new urbanization process by anchoring urban pattern, supporting urban agglomeration, and promoting adjustment of industrial structures.

3.4 “Three national strategies”

On December 11, 2014, the Central Economic Work Conference pointed out that

we should focus on the implementation of three strategies which are “one belt and one road”, “integrated and coordinated development of Beijing, Tianjin, and Hebei”, and “Yangtze River economic belt”. The three national strategies were big decisions proposed by the Center according to transformation of the global economy and coordination of domestic and international situations based on the new normal Meanwhile, the strategies are the major breakthrough and innovation of our country's economic development in the spatial pattern and play an important role to promote economic development for a long time.

The strategy of “one belt and one road” is conducive to promote economic prosperity and regional economic cooperation, strengthen exchanges between different civilizations, promote world peace and development, and help our country to build a new pattern of all-round opening. The essential core of "One Belt and One Road" strategy is interconnection, we need to strive to enhance the level of interconnection with neighboring countries by transportation infrastructure, to accelerate the formation of regional transportation integration, and to give full play to basic, guiding and service providing role of transportation in promoting “One Belt and One Road " basic strategy. During"13th Five-Year Plan" period, the transportation should actively cooperate the requirements of " One Belt and One Road " and create facilitation of international transportation of soft environment on the planning and policy making levels, vigorously promote the construction of transportation infrastructure and promote land main channel construction on the plan implementation level, and ensure the security of international transportation as well as focus on enhancing the safety and connection maritime channels on the basic infrastructure and Unicom operation level.

The integration of transportation is the basic premise for the coordinated development of Beijing, Tianjin and Hebei. We must take the lead in building modern integrated transportation network. It is required to achieve seamless docking and three-dimensional structure where the construction of railways, highways, aviation, ports, and other transportation modes can coexist., Meanwhile, we need to accelerate

the pace of the inter-city railway construction, improve the highway network, promote the coordinated development of ports and airports, promote regional transportation infrastructure interconnectivity and transportation service integration, and improve the port transportation system. "13th Five-Year Plan" period is the crucial period of Beijing, Tianjin and Hebei coordinated development and also the key moment of creating on the planning level, and promoting the construction of transportation corridors, and building the initial transportation market. The transportation has an very important responsibility, and thus it is required to keep clear-headed for the exploration, strengthen the function of top design of Beijing, Tianjin and Hebei collaborative development, break the trade barriers, overcome the problems of administrative segmentation, optimize transportation organization, integrate transportation, and promote the realization of maximum benefits of the comprehensive transportation network.

On September 12, 2014, the state council issued "guidance about the development of the Yangtze River economic belt relying on the golden waterway". The "guidance" includes totally 47 planning advices which can be divided into eight parts such as improving the function of the Yangtze river golden waterway, construction of the comprehensive transportation corridor, transforming and upgrading industries by innovation, fully promoting new patterns of urbanization, cultivating advantages of all-round opening up, the innovation system of regional coordinated development. The state council issued "the plan of comprehensive transportation corridor for Yangtze river economic belt (2014-2020)", aiming to coordinate the construction of Yangtze River economic belt transportation infrastructure, strengthen the connection of different transportation modes, and improve the comprehensive transportation system. The guidance required to speed up the paces to build Yangtze River golden waterway, expand the scale of transportation network, optimize the structure of the transportation, strengthen cohesion freight, and improve integrated transportation capacity according to the overall deployment and strategic requirements of building a well-off society and

promoting the development of the Yangtze River economic belt Hence, the convenient, efficient, and comprehensive transportation corridor which can connect the East and West, South and North, and river and sea can be built by 2020.

3.5 “Four transportation” goal

"Four traffic" is the strategic task of current and future period proposed by the ministry of transportation based on comprehensive analysis the situation and mission, the phased characteristics of transportation development, and aims to better realize the scientific development of transportation in order to provide better service of the “two one-hundred objectives”. t The task requires to comprehensively deepen reform and focus on accelerating the development of the comprehensive transportation, intelligent transportation, the development of green transportation, safe transportation. Generally, the comprehensive transportation is the core, the intelligent transportation is the key, the green transportation is the lead, and safe transportation is the foundation. It is required that the four should complement with each other, constitute the system for promoting the development of the transportation modernization.

3.6 “Internet plus traffic”

The effective penetration and integration of the Internet industry and the traditional transportation industry is the direct embodiment of interaction of "Internet +"and the transportation. It is the key of leading integrated transportation services and industry transformation and upgrading, mainly reflecting in: creating a new mode of transportation services and industry development form; Changing the enterprise organization and industry management mode of operation, which is based on intelligent transportation, realizing the rational allocation of online resources, effective offline operation. According to statistical data, China Mobile Internet market scale reached 106.03 billion Yuan in 2013, an increase of 81.2%. The market scale is expected to approximate 500 billion Yuan in 2017. The mobile Internet has provided a good opportunity for the development of large-scale and high speed development of

mobile Internet. From the beginning of 2012, with the development of Internet and mobile technology, in transportation, the core of the automobile travel services sector has started to integrate with the Internet and have various modes of “Internet + transportation " including taxi, car, car pooling and sharing rental cars. Transportation development trend is deeply integrated with “Five thirteenth year plan "and "Internet +” that the integration can be summarized as follows. It will integrate richer more authoritative and higher quality of transportation travel service information. The big data leads and supports scientific decision-making of industries, which will be more sophisticated and intelligent. The construction and application of national networking will have remarkable results in cross regional and cross transport. The new modes of internet innovation and application will advocate new pattern of development about public entrepreneurship and innovation.

To accelerate our transportation technology progress and information construction during the "Thirteen five" period, we should develop our intelligent transportation through the “Internet plus traffic” mode and stimulate the maximum efficacy of transportation facilities by taking advantage of information technology, which can make transparent data and information, present a better relationship in the three symbols including people, vehicles and roads. Intelligent road network, intelligent trip, intelligent equipment, intelligent logistics and intelligent management could also come true.

4 Transportation development theme and planning mode during the "13th Five-Year" Plan period

4.1 Development theme: fully promote the Four Traffics development

During the period of China's 13th of five - year plan, the "Four Traffic" is an important theme of the development of China's transportation, among which, comprehensive transportation is the core, smart transportation is the pivotal, green transportation is the leading, and safe transportation is the foundation.

- Comprehensive transportation.

To accelerate the development of comprehensive transportation is the inevitable requirement that adapt to the comprehensive completion of well-off society, is an important content of the acceleration of the mode transition, the structural adjustment and the improvement of quality and efficiency, also is the only way that upgrade sustainable development of transportation. Speeding up the development of comprehensive transportation needs to co-ordinate plan highway, waterway, civil aviation and postal industry development, establish and improve the institutional-mechanisms to adapt to the comprehensive transportation system, improve service level, logistics efficiency and overall efficiency, optimize layout of the main channel and the main hub node, and co-ordinate the coordinate development of various modes of transportation in urban and rural areas, give full play of combination of efficiency and overall advantages, accelerate the construction of network facilities, advanced technology and equipment, transportation services, safe and efficient integrated transportation system.

- Intelligent transportation.

Accelerating the development of intelligent transportation is an important starting point to promote innovative transportation management, is the effective way

to enhance the service level of transportation, and also an important support to promote the transformation and development of transportation. To accelerate the development of intelligent transportation is necessary to improve the whole industry open collaborative innovation mechanism, focus on information technology to improve the management efficiency of transportation and transportation, promote the application of modern information technology in the industry, operational management and service areas, improve the supply capacity, operational efficiency, safety performance and service quality, to achieve continuous innovation of transportation development.

- Green transportation.

Accelerating the development of green transportation is the basic requirement for the construction of ecological civilization. It is an important way to change the mode of transportation development, but also the proper meaning to realize the harmonious development of transportation and resource environment. To accelerate the development of green transportation China needs to promote the construction of low-carbon transportation infrastructure, the application of energy saving and environmental protection transportation equipment and the construction of intensive and efficient transportation organization system, to promote the development of transportation into intensive connotation, and to build a green transportation system with low consumption, low emission, low pollution and high efficiency.

- Safe transportation.

Speeding up the development of safe transportation is the essential requirement of people oriented, and it is the premise of serving the people's livelihood, and also the basic condition to achieve the development of transportation science. TO accelerate the development of transportation safety, China needs to strengthen the construction of safety management system and governance capacity, improve transportation safety of plates, tubes, control ability, improve and perfect the scientific and standardized, the effective operation of production safety responsibility system,

welded enterprises and industry safety supervision chain of responsibility, and strengthen supervision and inspection, strict assessment rewards and punishments, and promote the construction of long-term mechanism for safe production, the establishment of investigation and management system and safety hazard prevention and control system to achieve sustainable transportation safety development.

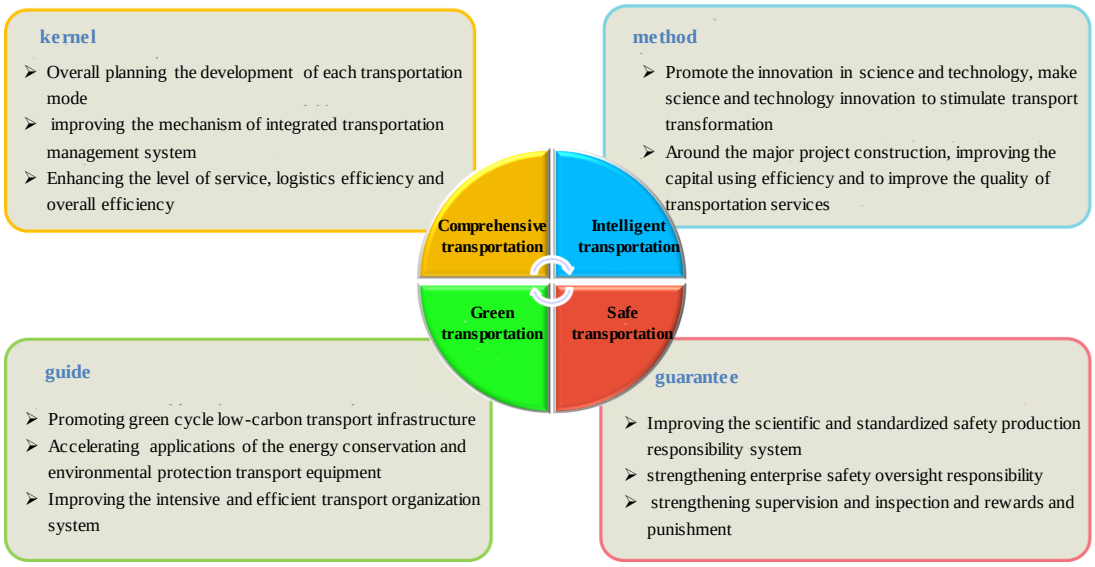


Figure 2 comprehensively promoting the construction of "four transportation"

4.2 Planning Mode: transition from the construction plan to the development plan

Comprehensive transportation system planning, construction and development with the whole process of China's economic and social development and urbanization. In the early stage, China's transportation has been in the rapid development and construction stage. Five years planning of China's transportation development has also been focused on the large-scale construction of infrastructure. Guiding ideology, development goal and target setting is closely related to transportation construction. After the completion of the plan, from the central Ministry transportation departments to the provincial and municipal transportation departments regard planning as programmer of action, accept the task, and catch the progress. In “The period of China’s 13th plan of five - year", China will enter a key stage where is important for the construction of a comprehensive transportation system, and large-scale

infrastructure construction mode has begun to transit to key facilities construction. Therefore, in “The period of China’s 13th plan of five - year", customization of transportation planning should conform to economic and social development and achieve the transformation of construction planning to development planning, keep adapting to the international and domestic economic social demand of passenger and freight transportation dynamic development.

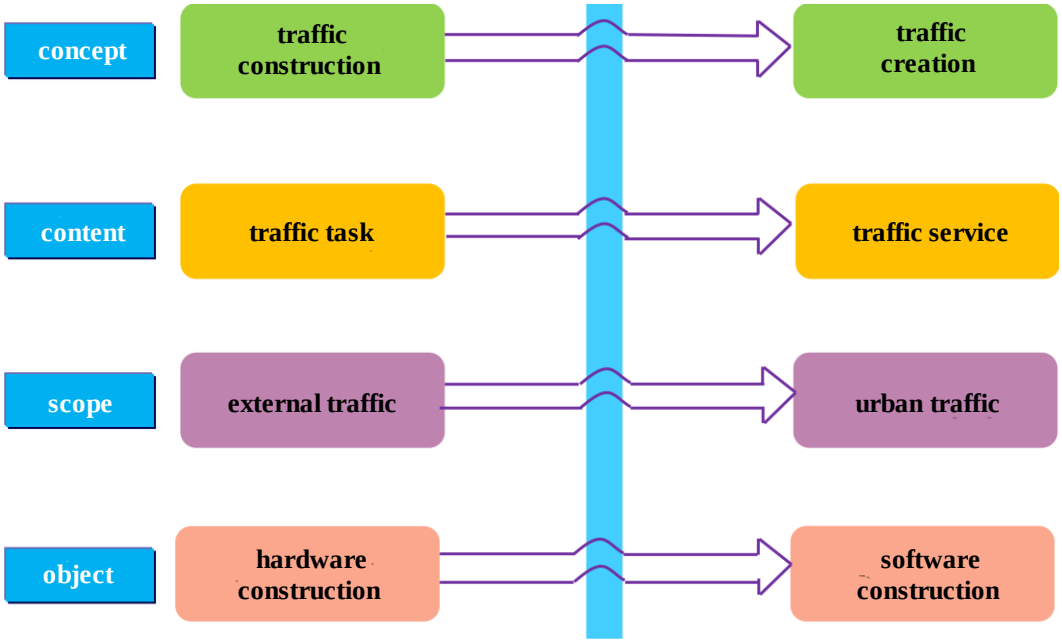


Figure 3 "The transformation of the mode of transportation planning in "13th Five Year Plan” period

Chapter two: transportation demand forecasting and analyses

1 The data source and Forecasting method

Original data are used in research report from the official figures released by the National Bureau of Statistics (NBS). According to the need of transportation demand forecasting, selected data from 2001 to 2014, include the GDP data of all the whole society and each province, mileage data of each mode of transportation infrastructure of the whole society, passenger transportation volume, passenger turnover volume, freight volume, freight turnover of the whole society and the provinces. To use the trend extrapolation and regression analysis to predict infrastructure mileage, Demand of passenger and freight volume and Investment demand.

2 Infrastructure scale prediction

The GDP growth of "13th Five-Year" period has a great influence transportation infrastructure mileage rate. The higher growth rate of GDP, the higher infrastructure mileage. Aviation operating mileage will get a boost during "13th Five-Year" period, with a high growth rate of 9%. Rail infrastructure mileage still maintain a certain growth steady growth. By 2020, it will reach 156200 km. The infrastructure mileages of pipes, highway and water transportation o maintains a growth rate of 4.65%, 2.66% and 0.23% respectively.

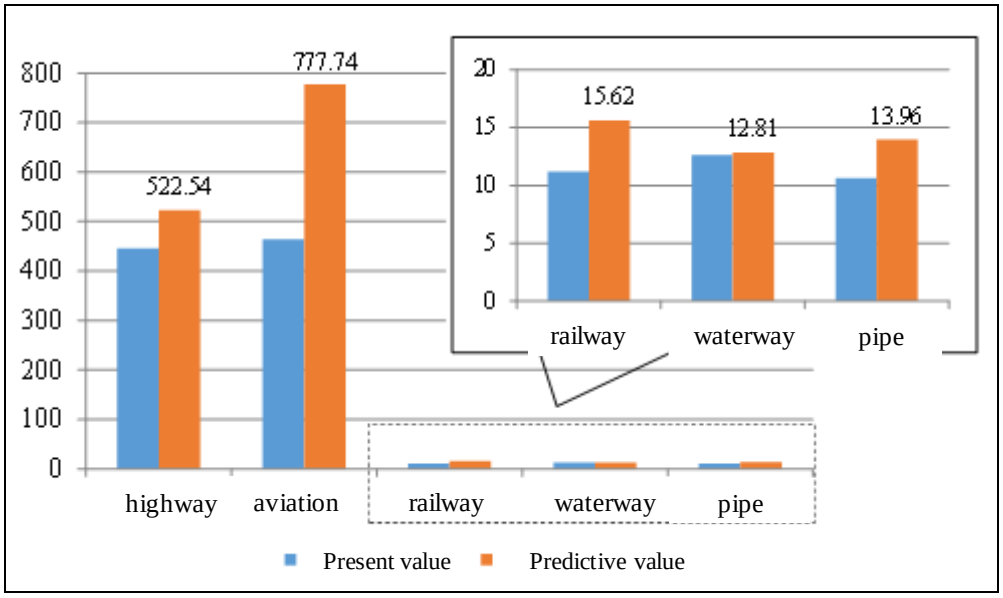


Figure 4 Infrastructure forecast

3 Demand forecasting of passenger and freight volume

As we can see from the prediction results, the passenger and freight volume and turnover has a strong correlation with GDP. With the growth of GDP, both have increased. In the aspect of the passenger transport, and during the 13th Five-Year Plan, the growth rate of the railway and air transportation in passenger is high. The average annual growth rate is more than 7%, and its proportion is increasing in the various transportation ways. But the proportion of the highway are the highest one in the various transportation ways, it beyond 90%. Throughout the data of all provinces and municipalities, the Inner Mongolia Autonomous Region and Anhui Province are the only two provinces whose average growth rate per annum are over 10%. In the four municipalities, Chongqing has the higher growth rate than the other three municipalities with 8%. However, Shanghai is the lowest growth rate cities in all the provinces and its average growth rate is only 2.68%. From the table, in 2020, Guangdong province will be millions of passenger transportation volume and the passenger transportation volume will far more than other provinces.

In the aspect of the passenger turnover, the growth rate of the civil aviation is much higher than other ways of transportation. However, in total volume, the

proportion of the highway is still the largest with 0.4988, followed by 0.2801railway, 0.2191civil aviation and 0.1400 waterway. From the view of the growth rate, the growth rate of Chongqing City, Anhui Province, Guizhou province are all beyond the 10%. Guangdong province, Anhui province, Henan province, has the more passenger turnover than other provinces. In the aspect of the freight volume, the highway freight volume still has advantages absolutely, followed by waterway, railway, pipeline and civil aviation. Compared with each province, the average growth rate in Jilin province is far higher than other provinces with the average growth rate beyond 20%. Henan province and Anhui province has an absolute advantage in the total freight volume and it's far more than other provinces. In the aspect of the freight turnover, waterway still accounts for the highest proportion, and the largest growth rate. The total turnover growth rate (more than 12%) in Chongqing, Gansu province, Guangdong province, beyond other provinces. Shanghai, Anhui province, and Guangdong province have a higher total passenger turnover than any other provinces.

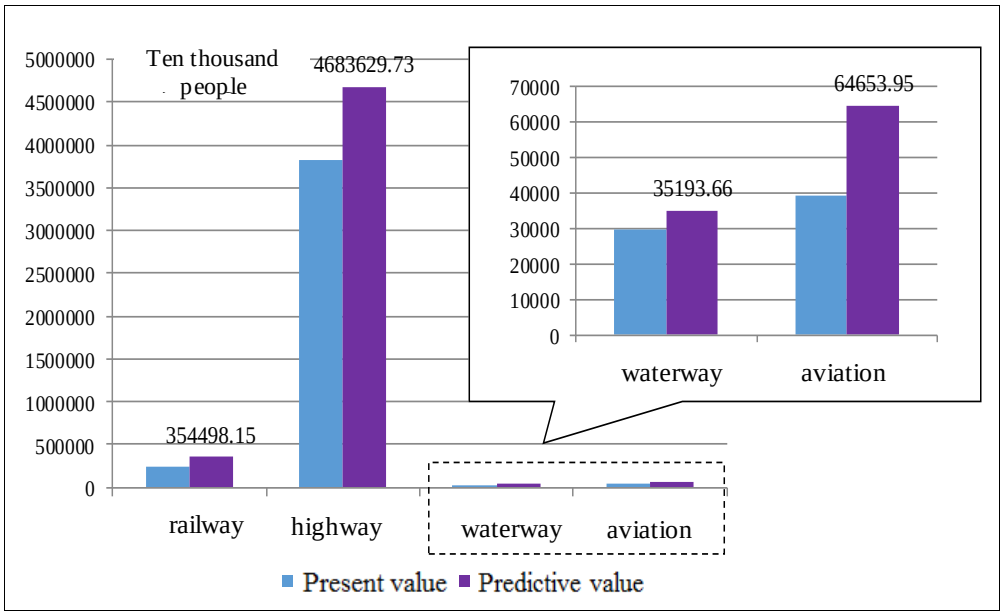


Figure 5 Volume of passenger transport

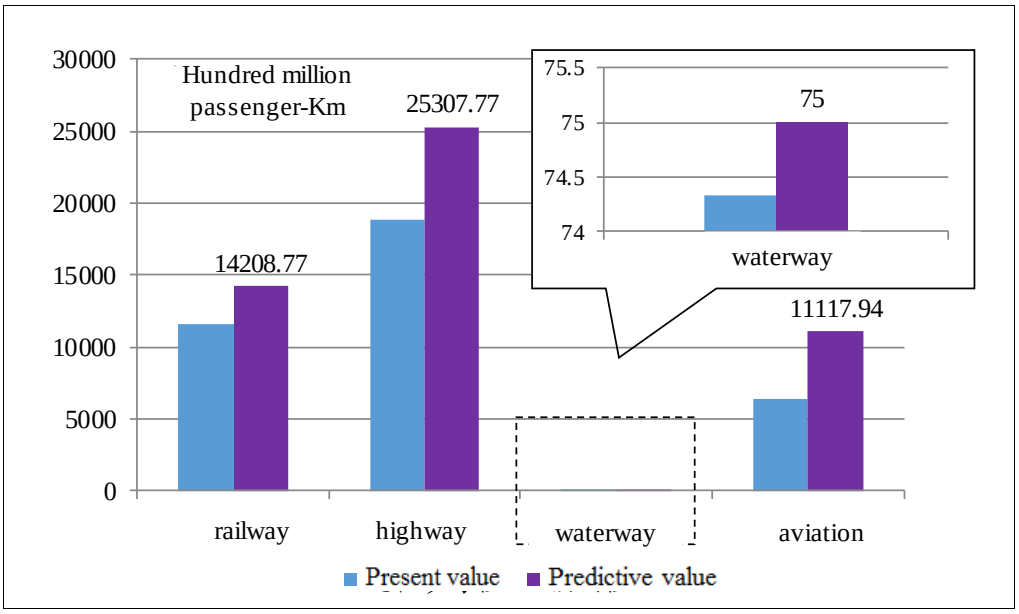
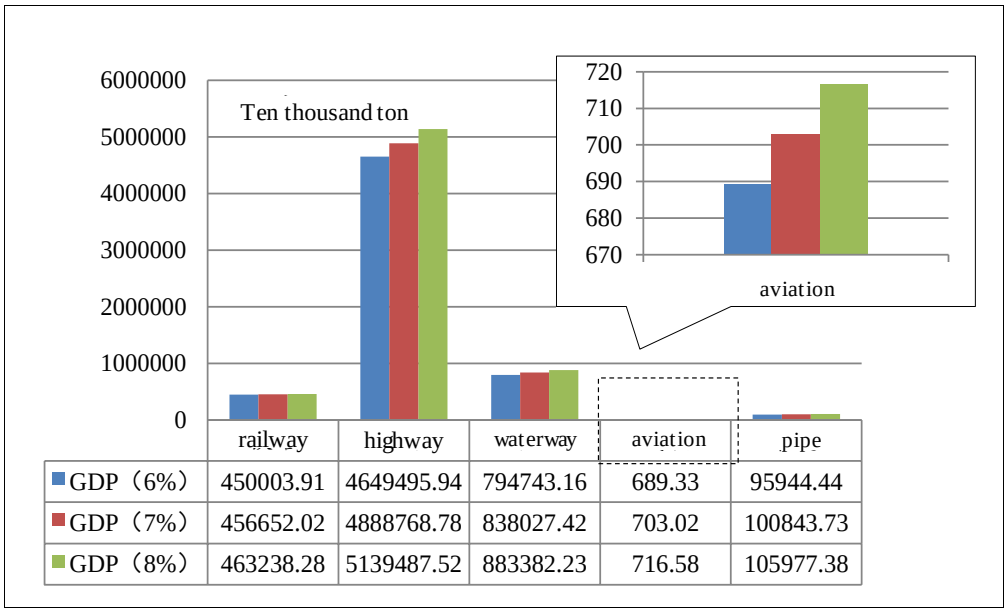
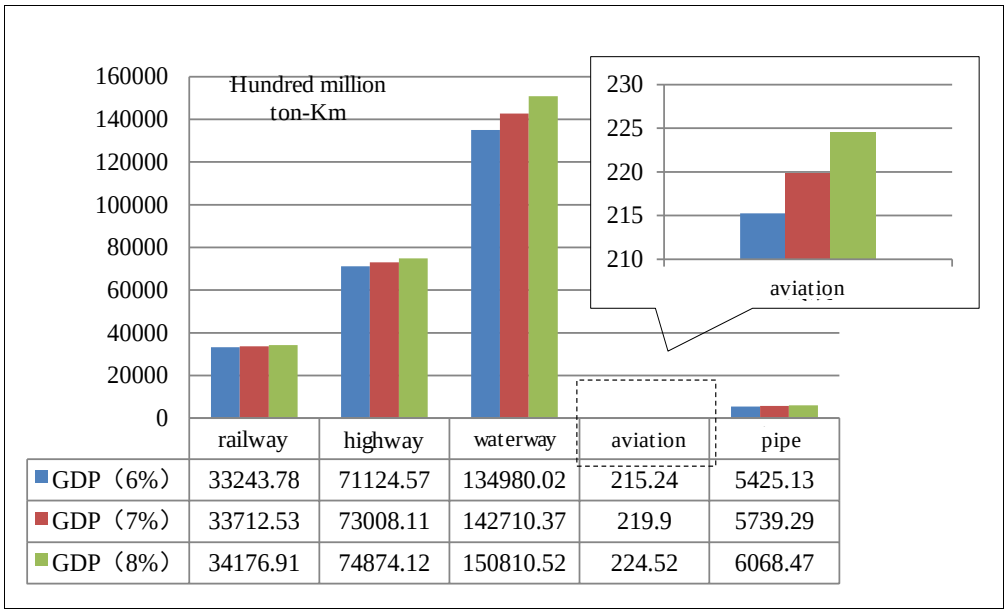


Figure 6 Passenger turnover



	railway	highway	waterway	aviation	pipe
GDP（6%）	450003.91	4649495.94	794743.16	689.33	95944.44
GDP（7%）	456652.02	4888768.78	838027.42	703.02	100843.73
GDP（8%）	463238.28	5139487.52	883382.23	716.58	105977.38

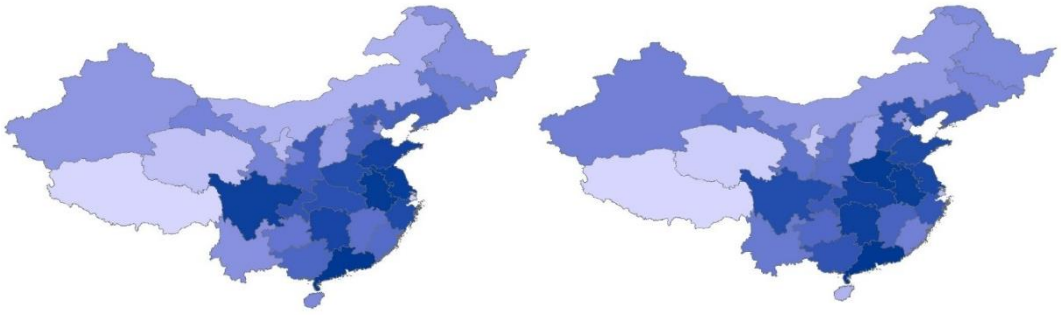
Figure 7 Volume of freight traffic



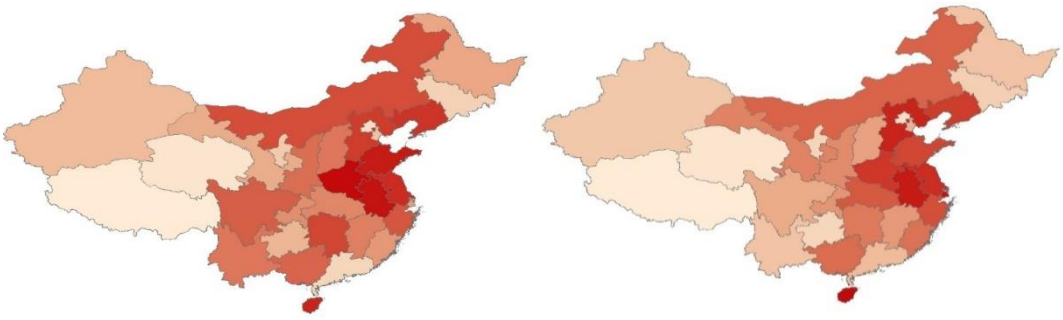
	railway	highway	waterway	aviation	pipe
GDP（6%）	33243.78	71124.57	134980.02	215.24	5425.13
GDP（7%）	33712.53	73008.11	142710.37	219.9	5739.29
GDP（8%）	34176.91	74874.12	150810.52	224.52	6068.47

Figure 8 Freight turnover

On the basis of prediction of projects, Figure 68 shows the passenger and cargo transportation volume and turnover volume distribution for in "13th Five-Year" period our country. It can be found that, during the "13th Five-Year" period, our country in the east passenger and cargo transportation volume and turnover volume remains relatively bigger advantage, but in the future, it will gradually optimize for geographic structure in China, regional differences will be reduced, the Midwest for will develop at a faster pace, in passenger and cargo transportation volume and growth for turnover will exceed the east.



(a) Passenger transportation demand forecast (b) Passenger demand forecast



(c) Freight volume demand forecast (d) Freight demand forecast

Figure 9 The distribution map of the passenger transportation volume in China in 2014

4 Investment demand forecasting

The project report, which makes use of the relationship of the infrastructure construction scale and the total transportation investment and financing, and considers the price index of investment in fixed assets increasing, forecasts the investment demand of transportation infrastructure construction during the "13th Five-Year". The growth factor of construction scale can be obtained by comparing infrastructure construction scale among the end of the "10th Five-Year", the" 11th Five-Year", the "12th Five-Year", namely, by calculating the number that infrastructure construction scale during the "13th Five-Year" is as times as that during the "12th Five-Year". Combining with the transportation infrastructure investment during the "12th Five-Year" and considering the price index of fixed assets investment rising (The escalating coefficient is 2.98 %.) during the "13th Five-Year", transportation infrastructure investment demand can be predicted during the "13th Five-Year". During the "13th Five-Year", the total investment being expected is 14.17 trillion Yuan. There into, aviation investment demand has the highest growth rate, as high as 77.1%. Rail investment demand is still maintaining a certain growth rate.

Chapter three: “13th Five-Year” period transportation development plan

1 Guiding ideology

"13th Five-Year" plan of transportation development should follow the guiding ideology: hold high the great banner of socialism with Chinese characteristics, follow the guidance of Deng Xiaoping Theory and the important thought of Three Represents, thoroughly apply the Scientific Outlook on Development,, take speeding up the transformation of the mode of transportation development, improving quality and efficiency as the main line, take improving fully the service level as the guidance, make reform and innovation as motivation, take the development of "four traffic" as domination, providing strong support and guarantee to build a well-off society in an all-round way, to be pioneers for new journey to open modernization.

2 Basic principles

Appropriately advanced, seek improvement in stability. With the synchronous development of informatization, urbanization and agricultural modernization which promoted by our country, the national transportation exists many problems such as insufficient total supply capacity, structure optimization, the low efficiency. It is the principal contradiction of the transportation development in the future which is between the development of economic and social and people's growing demand for transportation In the face of such contradictions, we should adhere to the principle of moderately ahead and seeking improvement in stability. Reasonable grasp the "degree " of appropriately exceeding development to do "four adaptation", which are between the supply capacity of transportation development and development requirements of economic and social, the financing ability and construction scale, the construction of rhythm, timing, and standard and management ability, technology innovation, equipment technology, full play on comparative advantage in all kinds of means of transportation and cohesion coordination of the current transportation organization.

When development severs as the first priority, the speed of keeping development needs to continue, and strive to achieve the appropriate advance of infrastructure configuration, and promote the building of comprehensive transportation system to improve the transportation function on the support capability and leading role in economic and social development.

Deepen reform, innovation drive. Reform is an effective ways and means to solve the social basic contradiction, emancipate and develop productive forces, promote social comprehensive progress. The all-round development and progress of transportation wouldn't keep on without the strong driving force of innovation. In "13th Five-Year" period, it should continue to deepen reform, give efforts to crack the deep contradictions, and reform should be deepened in transportation construction of key areas and crucial links. At the same time, to establish the efficiency of system and mechanism which is able to exert the function of government and market, relying on scientific and technological progress and management innovation, better play the decisive role of market allocation of transportation resources, promote the transportation industry modernization construction on management system and management ability, enhance the endogenous impetus to the healthy development of the comprehensive transportation system.

Reasonable layout, collaborative development. In "Twelfth Five-Year" period, China's transportation network has been generally formed and infrastructure construction significantly speed up. But the central and western regions development is still relatively backward, imperfect infrastructure, and the phenomenon that network structure is not reasonable still exists. Facing a new development period, therefore, take overall consideration as the basic method in the process of promoting the construction of comprehensive transportation system, adjust measures according to local conditions, adopt overall development on various mode of transportation, give full play to the comparative advantage of various transportation means and combination efficiency. Especially in strengthening function of railway and highway, and promote the various transportation means coordinated development between

regions, between cities, between urban and rural areas, urban; Reasonable layout of different regions, different levels of transportation networks, to promote coordinated development of urban and rural transportation, realize channels unblocked, hub with high efficiency, give efforts to achieve the people's livelihood in transportation.

Energy conservation, environmental protection, safe and effective. Development of green transportation is the extension of the concept of sustainable development, also is the embodiment of national ecological civilization construction strategy. Transportation system of the green development is actively respond to climate change, the concrete implementation in economical and intensive use of resources and environmental protection; The low cost of transportation and high efficiency are the embodiment of sustainable economic development. Try to apply the concept of energy conservation and emissions reduction, intensive resources to each link in infrastructure, technology and equipment, transportation service and so on; Strict safety surveillance and quality control throughout the transportation planning, design, construction and operation stages. Firmly establish a "people-oriented, safety first" concept, improving transportation safety, reliability, and sustainability.

3 Development goals

The 18th NCCPC report clearly pointed out that, China will build a well-off society in an all-round way by 2020, according to the basic policies of the state for transportation development at the present stage, the outstanding achievements of the 12th Five-Year Plan, the current development environment and development needs, the overall development goals of the "13th Five-Year" plan of transportation development are formulated. It can be summarized as: by 2020, China’ transportation should basically establish a safe, convenient, efficient, intelligent, sustainable comprehensive transportation system, including smooth convergence of infrastructure, convenient and efficient transportation services, advanced science and technology information, low-carbon green resources and environment, efficient and reliable security emergency, orderly industry management, to satisfy people's growing of high

quality and diversified transportation demand, adapt to the requirements of the national economic and social development better, support the achievement of the well-off society at a lower cost of resources and environment, and provide transportation strategy to safeguard national interests and support the expansion of international development.

In order to measure the implementation of the plan, the qualitative and quantitative indicators as the following table are studied out, including infrastructure, transportation services, technology and informationization, green transportation and safety emergency, etc.

Table 2 The main assessment indicators in the13th Five-Year Plan of the development of transportation

	Index
Infrastructure	The number of integrated transportation hub
	The types of transportation mode joined by hub
	The national railway operation mileage
	High speed railway operation mileage
	Double-track rate
	Proportion of electrified railway
	The ratio of road construction investment in total investment of infrastructure construction
	The overall technical situation of the rural roads
	The multimode connection rate of national highway transportation hub
	The total mileage of upgrading lanes of national or provincial highway
	The ratio of grade roads covering the cities with the population below 200 thousand
	The ratio of road infrastructure construction investment in social capital
	Road network total mileage (ten thousand kilometers)
	Highway mileage (ten thousands kilometers)
	The national mileage in highway open to transportation * (ten thousand kilometers)
	The ratio of highway covering the cities with the population below 200 thousand (%)
	Level 2 and above highway mileage
	The ratio of national road with level 2 and above** (%)
	The annual proportion of large and medium repairing engineering in national and provincial highway (%)
	The overall technical condition of the national and provincial highway

	(MQI,%)
	Total mileage of rural roads (ten thousand kilometers)
	The completion rate of national highway transportation hub for passenger and cargo transportation (%)
	The ratio of container passing capacity in the coastal port
	The guarantee rate of trunk channel line
	The adaptation degree of the coastal port capacity
	The number of coastal port deep-water berths
	Senior waterway mileage of inland waterway (ten thousand kilometers)
	Standard rate of high grade channel in inland waterways (%)
	Total improved channel mileage of level 3 and above within 5 years (kilometers)
	Aviation cargo plane fleet size
	The national civil airport transport
	The number of small and medium-sized aircraft
	The number of general aviation airport and landing points
	Total number of civil aviation airports
	The number of post office (ten thousands)
	Urban rail transit operation mileage (ten thousand kilometers)
	Total mileage of the national bus lanes (ten thousand kilometers)
	Total mileage of national non-motorway (ten thousand kilometers)
Transportation services	Urban policy coverage rate of cargo “one ticket system”, passenger transportation “one ticket system”, and information service “one-stop”
	Railway passenger volume
	Railway passenger person-kilometres
	Railway freight volume
	Railway rotation volume of freight transport
	Highway passenger satisfaction degree
	Annual average daily mileage of private cars
	Ratio of advanced bus in operation (%)
	Ratio of heavy trucks, special vehicles and van vehicles in operation (%)
	The maritime direct rate to important trade countries and regional
	The ratio of container throughout of coastal ports
	The ratio of sea-railway combined transportation at coastal ports
	The average tonnage of ocean, coastal, and inland ships (tons)
	The standardization rate of shipping form of inland river freight (%)
	The standardization rate of shipping form of the trunk line of the Yangtze River, Xijiang navigation and Jinghang canal (%)
	Trailer ratio of road transportation with dumping trailers (%)
	Bus rate of township and established village (%)

	Average running speed of national road (km/h)
	The droop rate of loading and unloading each thousand tons of goods in major coastal ports.
	On-time performance rate of civil aviation flight (%)
	Total turnover of air transport
	Passenger transportation volume
	Freight and mail transportation volume
	General aviation operation time
	Proportion of passenger person-kilometres in integrated transportation
	Number of navigable cities with international routes
	Coverage rate of township (town) post office, formed village postal station and mail forwarding station (%)
	Coverage rate of key express companies in the municipality, provincial capitals, provincial cities (%)
	Buses ownership in the city with more than 3 million populations, 1-3 million population and below 1 million populations.
	Bus station 300 meters' coverage rate in the city with more than 3 million populations, 1-3 million population and below 1 million populations (%)
	The total mileage of national bus lanes (kilometer)
	The number of large-scale passenger transit hubs which connect railway, road and urban transit.
	Urban public transportation shares rate of urban rail transit (%)
Technology and Informatization	The total standing time of transfer passengers within the hub
	Highway facilities fault detection rate
	ETC highway coverage rate
	ETC lane number
	ETC users number
	GPS installation rate of operating vehicles
	Networked ticketing coverage rate of intercity passenger
	GPS installation rate of dangerous goods transportation vehicles
	The increment of patents of road transportation enterprises
	Contributing rate of technology advancement (%)
	Monitoring coverage rate of national and provincial important sections and important segments of inland trunk channel (%)
	ETC coverage rate of the inland river route navigation lock
	EDI system coverage rate of coastal ports
	Urban data acquisition and coverage area (large, medium and small cities)
	Real time information coverage rate (VMS, etc.)
	Information accuracy
	Major research achievements
	Monitoring coverage rate of key business transportation equipment (%)

	The average coverage rate of highway electronic parking charge (%)
Green Transport	Comprehensive energy consumption of railway unit transportation workload
	The main comprehensive energy consumption of railway unit transportation workload
	Railway chemical oxygen demand
	Railway sulfur dioxide emissions
	IV/V national vehicle proportion
	Key emissions detection rate, decline rate
	The proportion of new energy vehicles
	The proportion of new energy private cars
	The unit turnover energy consumption of operating cars and the declining rate of carbon dioxide emission (%, base year:2015)
	The unit turnover energy consumption of operating ships and the declining rate of carbon dioxide emission (%, base year:2015)
	The declining rate of energy consumption per unit transportation turnover of the operating passenger and freight vehicles (%, base year:2015)
	The declining rate of energy consumption per unit transportation turnover of the operating marine and inland freight ships (%, base year:2015)
	The declining rate of energy consumption per unit transportation turnover of ocean shipping ships
	The declining rate of comprehensive energy consumption per unit throughput of port production (%, base year:2015)
	Civil aviation transportation energy consumption per ton kilometer and declining rate of carbon dioxide emissions (%, base year:2015)
	Daily utilization rate of transportation aircraft
	Fuel consumption per ton kilometer
	The declining rate of land area for unit national and provincial road (%, base year:2015)
	The increasing rate of capacity per unit length of frontage in coastal ports (%, base year:2015)
	The declining rate of emission intensity of major pollutants including TSP and COD (%, base year:2010)
Safety Emergency	The annual number of railway major accidents
	The annual number of railway major accident deaths
	The declining rate of total deaths of railway accidents (%)
	Number of major transportation accidents in road transportation
	The relationship between transportation accident mortality of road transportation and regional economy
	Number of accidents and deaths per 10 thousand kilometers for private cars
	Road emergency response time of general disaster (hours)

	Major accident rate per million hours of flight
	The 10 million flight rate of ATC accident
	The declining rate of accidents and deaths per million vehicle-kilometers for operation vehicles (annual %)
	The declining rate of accidents and deaths per million vehicle-kilometers for urban passenger transportation (annual %)
	The declining rate of accidents and deaths per million tons of port throughput (annual %)
	~~The life rescue efficiency on water~~
	The road emergency rescue arrival time under normal circumstances (hours)
	The aircraft rescue arrival time in the key coastal waters (minutes)
	~~The emergency rescue ship arrival time on the important segments of trunk lines of the Yangtze river, the Pearl river water system and Heilongjiang river system, (minutes)~~
	The emergency rescue ship arrival time on the important segment of inland water routes
	Major accident rate per million hours of air transportation (Five years accumulative total)
Note: Black font represents the transportation development planning indexes of 12th Five-Year Plan; Red font represents indexes in special planning; Blue font represents the new added indexes of 13th Five-Year Plan;	

Chapter four: the main task of transportation development plan during"13th Five-Year Plan" period

1 Develop the comprehensive transportation system concertedly, and ensure to support the full realization of a well-off society

1.1 Coordinate the transportation structure and improve the layout of transportation infrastructure

1.1.1 Key points of comprehensive transportation construction

(1) Promote the construction of international transportation comprehensive channel

"The Belt and Road" is an important strategic deployment which can coordinate the domestic and foreign, maritime and continental, and West and East. It can help China to improve the external circumstance and improve the level of the openness of economy. In the period of "13th" transportation plan, in conjunction with the countries along the line, China should also focus on determining priority areas and key projects, and promote the construction of railway, highway, water transport, aviation and other infrastructure projects under construction and new projects, build "One Belt, One Road" comprehensive transportation system all-round. It should construct smooth inside and outreach international transportation corridor, including promoting international transportation corridor construction of Maritime Silk Road Economic Zone (South), accelerating the construction of new Asia-Europe Continental Bridge economic belt (Northwest) international thoroughfare, constructing the economic zone in Mongolia and Russia (northeast) International Transportation Corridor, and accelerating the construction of China - South Asia - West Asia economic belt (southwest) international transportation corridor

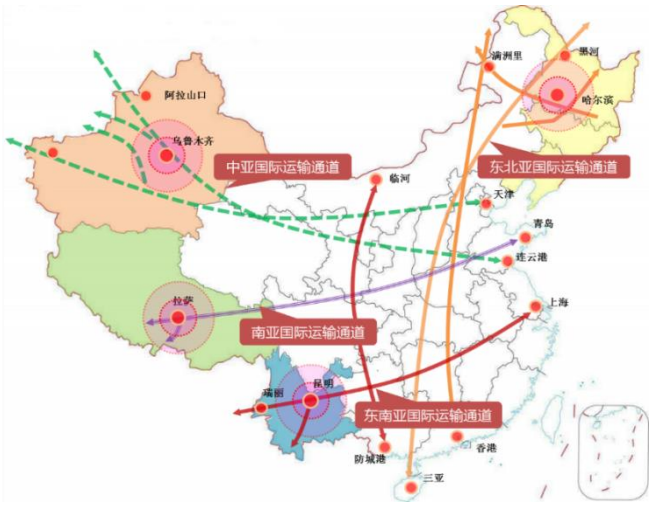


Figure 10 The key channel construction of national regional transportation during "13th Five-Year"

(2) Strengthen the construction of domestic comprehensive transportation corridors

■ Fully complete "five verticals and five horizontals" comprehensive transportation major corridors

The comprehensive transportation thoroughfare of five vertical and five horizontal connects all the municipality directly under the central government, provincial capital cities, specifically designated cities and other cities of more than 500,000 people, connects the main land, sea and air ports, and connects the regional economic center and important industrial and energy production base, providing several multiple corridors for the communication of western, middle, eastern areas and provinces, meeting the needs of the land development and national defense function. The completion of comprehensive transportation network can make railway, arterial road, inland waterway, aviation main routes, as well as oil and gas pipeline of the channel in organic link and fully connect with international transportation network, reflecting diversity and intensive of our transportation, promoting formation of the integrated transportation system on the basis of complementary advantages. In addition, the document called the comprehensive transportation network medium and long-term development planning mentioned the goal by 2020 is to build the modern comprehensive transportation network basically that has reasonable space layout, clear structure levels, fully capacity load and smooth linking to function. During the

"12th Five-Year", the framework of comprehensive transportation channel network of five verticals and five horizontals has been completed basically. Only parts of projects are still in the process of construction. Therefore, during the "13th Five-Year", to improve the comprehensive transportation infrastructure network early, we must make the unfinished projects of five verticals and five horizontals go on smoothly on the basis of supporting the strategic disposition put forward by government of new-type urbanization and "One Belt and One Road", in accordance with the thinking of developing missing road first and smoothing bottleneck road.

- Form the national backbone circulation network generally and coordination development of node cities.

In May 2015, the ministry of commerce and other 9 departments jointly issued the national circulation node layout planning (2015-2020). The planning determines the construction of national backbone circulation network channel, namely "Three vertical and five horizontal" the proposal this plan can perfect modern market system quickly and play a fundamental and guiding role of circulation industry. Then, after the completion of the eastern coastal circulation channel, development strategy space of circulation industry that connects east and west, north and south, radiates throughout the country and focuses on the Asia Pacific will be formed, promoting international competitiveness of China's circulation industry; Central Beijing-Hong Kong-Macao circulation channel connects Beijing-Tianjin-Hebei urban agglomeration, Zhongyuan urban agglomeration, in the middle reach of Yangtze river region and the pearl river delta region, contacts Hong Kong with Macao, promoting the agricultural and industrial products to move Cross-regional; The construction of western Hukun circulation channel can promote the circulation infrastructure construction in western region, connecting the Yangtze river delta region, the pearl river delta region and Beijing-Tianjin-Hebei region in the east, radiating South Asia, southeast Asia in the south; North-northwest circulation channel promotes the linkage development of circulation industry between Bohai Rim region and western region, playing the function of Eurasia land bridge, radiating central Asia, west Asia and northeast Asia

region; The new belt along Longhailan circulation channel can rely on the international railway transportation corridor, promote function of circulation and service of node cities like Zhengzhou, xi 'an, Lanzhou and Xi'ning, Urumqi, drive western region of our country to development and opening up; The construction along the Yangtze river circulation channel can use its location advantages of linking the eastern and western regions and into river and seas, driving the linkage development of the Yangtze river economic zone and the eastern, central and western regions; The construction of Shanghai-Kunming circulation channel can strengthen linkage development of circulation industry of the Yangtze river delta and coastal developed areas, the border area in southwest and the inland area of central; The construction of the west of the pearl river circulation channel can promote to form the new economic supporting belt of southwest region and south central region. So China should accelerate construction of the national backbone circulation network, take efforts to improve circulation node urban function, play a fundamental and guiding role of circulation industry better, and then release consumption potential during the "13th Five-Year".

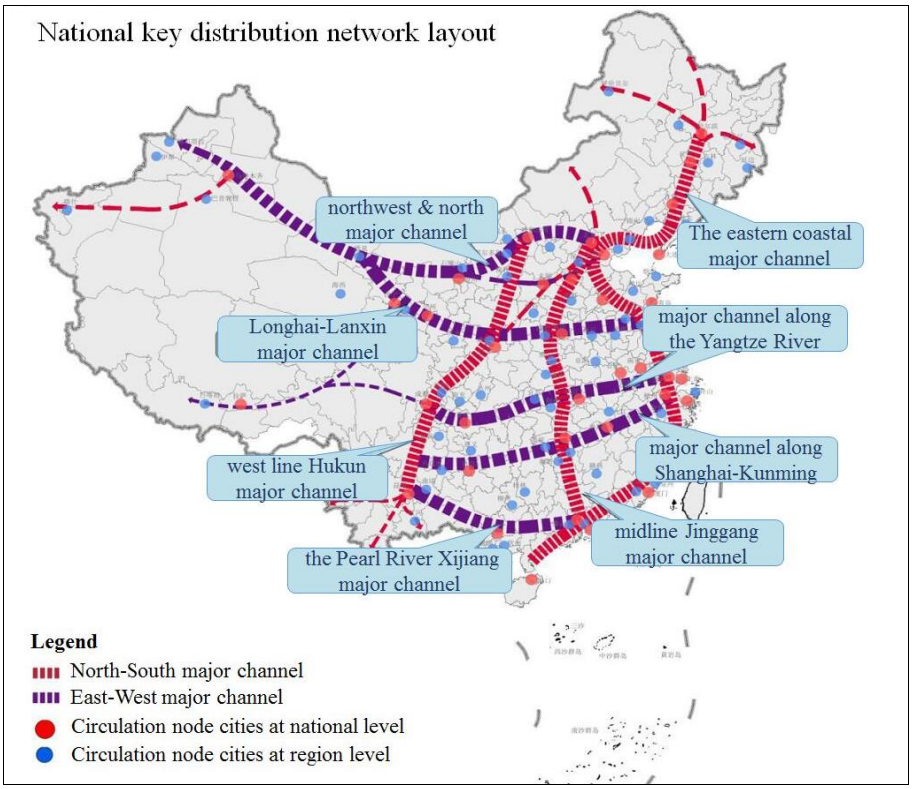


Figure 11 National key distribution network layout

■ Construction of comprehensive transportation hubs need to be strengthened

To improve integration and distribution efficiency of comprehensive hub level, it should construct railway, highway passenger stations and airports and other comprehensive hubs and perfecting hub layout and function. The key point of promoting construction of integrated transportation hub is the construction of zero distance transfer comprehensive hub and seamless connection.

1.1.2 Develop emphasis of means of transport

Railway transportation: High-speed railway network based on "four vertical and four horizontal" railway will be completed, accelerate the construction of Intercity Railway; Interregional channel construction need continue advancing, east-west channel should be basically got though, the construction of the north and the south channel should be focused on; Based on the busy line realizing separation of passenger and cargo, we should complete the interregional main new line construction and expansion of existing lines, and we should continue to strengthen coal transportation and overloading freight channel; Further strengthen to construct railway emphasis on the western region, and optimize the structure of road network; Strengthen the construction of international channels, strengthen the first Asia-Europe continental bridge period in China. China-Kyrgyzstan-Uzbekistan railway should start its construction to the second Asia-Europe continental bridge of the south channel and a new convenient channel from East Asia to central Asia, west Asia and southern Europe. Railway from Dali to Ruili should be finished, as well as the third Asia-Europe continental bridge. At the same time, the intelligence and efficiency of railway line maintenance equipment should be promoted to ensure the balanced quality, stability and security of line during"13th Five-Year Plan" period. Management departments should perform stricter maintenance management standard and update the railway maintenance equipment, and import a batch of high-tech and effective new railway maintenance equipment. The railway maintenance equipment shall be from the current large-scale mechanization development to adapt to the future of

intelligent and efficient, and it can guide the maintenance and repair by testing information in a timely manner scientific diagnosis and automation management.

Highway transportation: Based on the request of “The national highway network planning (2013-2030)”, in order to perfect highway network, according to the following thought of “implement effective connection, improving the capacity of channel, strengthening interregional contact, optimizing network”, we will complete national expressway network composed by 7 capital radiation, 11 north-south horizontal ordinates, 18 west-east line, loop line, parallel line and tie line; Focusing on supporting renovation project for Ordinary National and Provincial Highway, We should set the west area as the key point, upgrade and reconstruct congestion and transportation bottleneck Road Segment, continue to implement the unsafe bridge reconstruction project and security engineering of highway; We should continue to strengthen rural highway construction, continue to push forward rural roads “smooth engineering” and “easy access engineering”. Up to 2020, township (town) and incorporated villages which have the conditions should construct asphalt (cement) road. The national rural road mileage will be 3.95 million kilometers. Rural highway network will be constructed which set county roads as the backbone and country road as the basis, and it has connection to power road, rational layout, high service levels; the "building equal to maintenance" concept continue to be strengthened and implemented in the work of road maintenance, and infrastructure maintenance should be vigorously carried out. The weak section maintenance construction of new rural road should be strengthened.

Aviation transportation: According to "Planning of the layout of national civil airports", and in order to Optimization of the airport layout, the aviation network should be improved, in which the international hub airports and trunk airports are backbones and the regional airports are the supplements. The complementation of the functions of regional airports of Pearl River Delta, Yangtze River Delta and Beijing Tianjin and Hebei should be strengthened. By 2020, more than 80% of administrative units of the county level, the aviation service should be within the ground

transportation 100 km or 1.5 hours' drive, the population served can occupy 82% of the total population, gross domestic product (GDP) accounted for 96% of the country. At the same time, the expansion and revision of the airports should be vigorously promoted; the capacity of existing airports should be further expanded. The function of the capital airports as international hub, such as Shanghai Pudong Airport, Guangzhou airport and Kunming airport should be consolidated. The development of Harbin, Wuhan, Changsha, Chengdu, Kunming, Dalian, Chongqing and other large airports should be strengthened.

Water transportation: Focus on building a high-level, intelligent and ecological "golden waterway". The inland shipping networks should be built completely. The Yangtze River, Pearl River, Beijing Hangzhou Grand Canal, Huaihe River, Heilongjiang River, the Songliao and other bodies of water should be improved, the layout of the Yangtze trunk line, the Xijiang shipping trunk lines, Beijing Hangzhou Grand Canal, Changjiang Delta waterway, high-grade network of the Pearl River Delta and 18 main high-grade waterways as stem lines (called as two horizontal, one vertical line, two networks and 18 lines) should be formed, The form of the waterway network of the main river that can be navigable kiloton ship and are the backbones. 1.9 million kilometers of high-grade inland waterways should be planned, including 143 km of class three and above waterways and 4800 kilometers of class four waterway; We should construct scale and specialization port, Make inland port hub play its role. Key construction projects is modern port with a large scale, advanced facilities, perfect functions and efficient service demonstration along the Yangtze river and the Xijiang shipping line; Inland port transportation system should be built completely. Capacity expansion of the three gorges hubs needs increase to exploring potential lock. The capacity expansion project of three gorges and Gezhouba and waterway regulation of the three gorges to Gezhouba hydropower dam should start; Multimodal transportation and port logistics need further development. We should strengthen the inland main port container and bulk molten iron transport, and construct perfect storage facilities in inland ports which have good location

conditions, throughput, larger, professional and outstanding features. At the same time, we should optimize the environment of the port, and develop the logistics functions to make them play a pivotal role; Harbor infrastructure construction should be improved. We grasp of the construction pace of foreign-trade crude oil discharge docks, container terminals and the north coal loading docks, the foreign-trade iron ore discharged docks, and improve the discharge capacity of the south public coal dock.

Urban transportation: The city development needs based on their transportation demand, reasonable planning the urban transportation construction process, and constructing a multi-level urban comprehensive transportation network. Cities in China because of the different geographical environment and the political and economic status, is suitable for the public transportation structure in different cities each has its own characteristics. In the urban public transportation structure generally include buses, trolley buses, trams and rapid trams, urban public transportation subway and taxi passenger transportation system. We should scientifically plan and adjust public transit network and actively develop bus rapid transit system on the ground, and we further improve the network density and stop coverage ratio, and we develop various forms of characteristic public transportation service and improve penetration and coverage of public transit network. Super city which population is more than 3 million, population density heavy, travel passenger flow huge, which means it should be construction with rail transit as the backbone, urban public trolley as the main body of urban comprehensive transportation network; Population in 100 ~ 3 million of medium-sized city, travel demand is bigger, built with conventional bus transportation as the main body, the rail transit and bus rapid transit (BRT) moderate development of urban comprehensive transportation network; The population under 1 million small cities, the residents travel volume is relatively small, establish perfect to public trolley as the main body of urban public transportation network.

1.1.3 Roundly develop urban agglomeration transportation construction, and actively adapt to the new form of transportation development

(1) Open up the transportation corridor between urban agglomerations, build the interconnectivity urban agglomeration system.

In the central working conference, proposed the strategy of urbanization pattern of "two horizontal three longitudinal", on the basis of the formed Beijing-Tianjin-Hebei, the Yangtze river delta, the Zhujiang Delta three urban agglomerations, in the Midwest and northeast affluence area, relying on market forces and state planning guide, gradually form some urban agglomeration development. Therefore, in the "13th Five-Year" plan period, we will continue to improve t pearl river delta, Yangtze river delta, Beijing-Tianjin-Hebei, and other 10 urban agglomeration almost completed at "12th Five-Year Plan" period., and develop Wuhan urban agglomeration, Jianghuai urban agglomeration of Changsha-Zhuzhou-Xiangtan urban agglomeration, Hubei urban agglomeration, Gansu agglomeration, Urumqi-Changji urban agglomeration, Guizhou urban agglomeration, Yinchuan agglomeration, Lhasa agglomeration, Taiyuan agglomeration, Shijiazhuang agglomeration, Yunnan province Poyang Lake urban agglomeration and Nanning agglomeration such as 14 urban agglomeration. We will promote the construction of urban comprehensive transportation infrastructure as a whole and focus on the construction of modern transportation network system. We should vigorously have promoted the urban agglomeration interconnectivity corridor construction and strengthen the urban agglomeration economic and transport links to make the urban agglomeration becomes the important growth pole of promoting development in the Midwest and northeast, promote national spatial equilibrium development.

(2) The urban agglomeration needs to be promoted and the intercity efficient travel needs to be realized.

During the period of "13th Five-Year", it needs rail transit and highway as the backbone, which is added with the provincial trunk highways, pushing forward the construction of the urban agglomeration in many transportation network built in Beijing-Tianjin-Hebei, the Yangtze river delta and the Zhujiang Delta urban agglomeration inter-city transportation network, promoting the construction of key

development area trunk line. The development of urban agglomeration transportation is the most important. The construction of multi-level intercity rapid transit network in urban agglomeration needs to be pushed forward. The convergence of urban agglomeration needs to be strengthened. The formation of the one-hour economic circle in the city needs to be promoted. Countries railway network, intercity railway network, city domain (suburban) railway, urban rail network integration of the passenger service system need to be built. The city, intercity passenger trains (suburban) need to be opened by the national railway passenger capacity surplus. "Four networks" and the highway network and the national provincial trunk network passenger service needs to be shared and effective. Intercity high-speed rail pricing mechanism needs to be adjusted. The peak time of the flow of the pressure of the western medicine was relieved. Part of the time of the train no load phenomenon need to be reduced. Higher travel efficiency needs to be provided.

1.1.4 The center of the construction should be tilted to the Midwest and coordinated development needs to be promoted in eastern and western regions

During the "13th Five-Year" period, strategy put forward that, promote national key infrastructure tilt to the western region. Transportation needs to be pilot industry and pillar industry for the region's economic development and speeds up the construction of a modern infrastructure system which is fully-functional, safe and highly efficient, especially as for the western regions like Gansu and Shaanxi that account for Nearly a quarter of the length of the silk road.

The construction of transportation channels within the trunk through needs to be promoted: The construction of transportation corridors connecting the Middle East region needs to be accelerated. Transportation connections between the eastern parts of the western region need to be strengthened; In particular, Bohai, the Yangtze River Delta, Pearl River Delta and other economically developed areas of transportation links. Transportation corridors across the East and West need to be built.

The level and capacity of the trunk transportation channel is improved. Communication and cooperation between the western region and the Middle East need to be strengthened. The construction of foreign transportation corridor and port highway needs to be strengthened. The land and sea transportation corridors between the ASEAN countries, South Asia, Central Asia, Northeast Asia and other countries need to be built. The western border highway needs to be built up. The opening should be promoted the western border regions. International river development and sub regional cooperation needs to be strengthened. A number of border free trade zones or special economic zones need to be established to build a new pattern opening up the West relying on the existing border crossings and the economic cooperation zone. The overall effectiveness of the western highway network needs to be played. The inter province coordination needs to be strengthened. The overall planning and construction of inter provincial transportation channel needs to be strengthened. The construction of the fast track needs to be constructed and perfected. Inter provincial broken road and bottleneck road was opened. The main frame of the inter province rapid transit corridor is constructed.

The network and the high speed target of the important economic area rate needs to be realized firstly: Transportation network is implemented first in the western region more solid economic foundation key development areas, such as the Chengdu Chongqing Economic Zone, Guangxi Beibu Gulf, and Guanzhong - Tianshui Economic Zone. Efficient and comprehensive transportation system needs to be built, highway, high-speed railway is the main, aviation and the water transportation is auxiliary. The construction of the fast track and trunk network between the core city and the surrounding area needs to be strengthened. Regional core city is the center. Transportation network from a single center to multi hub of the type of interconnection of the transformation of the Internet, the need should be realized, Strategic new heights of radiation and driving effects on the surrounding areas are needed to be realized.

1.1.5 The process of the transportation's support for the poor should be accelerated in order to promote the construction of the new socialist countryside.

In the "13th Five-Year Plan" period, to build a well-off society, to speed up the construction and perfect the rural road network, to coordinate the public transportation development of urban and rural areas, strengthen the improvement of the rural passenger public transportation system, urban public transportation and urban peripheral short class line passenger transportation integration, improve the level of urban and rural public transportation services, to meet the needs of the people safe and convenient travel, balance urban and rural development, building a harmonious society, has very important practical significance.

A new round of poverty alleviation should be played well. Transportation development foundation is weak in the contiguous poor areas, and it is short board of the development of the transportation, its development is related to the realization of the coordinated development of the regional economy and society and the goal of building a moderately prosperous society. It should be taken as the main aspect of construction. The construction of transportation infrastructure should be accelerated,

The outstanding problems that restrict the development of the poor areas should be solved combined with the development of the poor areas and characteristics. Connected inside with outside, covering urban and rural transportation infrastructure network should be accelerated to build. Poverty alleviation and development support capacity should be improved. The spatial layout, the adjustment of industrial structure, and the process of urbanization in poor areas are supported and guided on the basis of making full use of the construction of transportation infrastructure in the "Thirteen five" period.

Poverty alleviation work needs to strengthen the construction of external channels, and further optimize the layout of foreign channels, take the National highway, national regional planning to determine the key projects and the construction

of the national highway as an important aspect, comprehensively improve the capacity of the area's external access in the 13th period. National highway is an important aspect of construction. Important channel of the broken road and bottlenecks need to get through. The new national highway and the State Council approved the construction of the regional planning clear highway construction needs to be accelerated. The construction of the national highway network needs to be accelerated in poor areas contiguous. The internal highway network needs to be built.

Provincial road construction is the most important. The provincial, county broken roads need to be opened. The road network in the region needs to be improved. A number of roads will be built to connect important resource development and tourist attractions, and to play important roles in the development of economic. Regional development capacity needs to be increased. The proportion of highway two and above in the National Road and provincial roads should be increased. Highways which are grade two in the county needs to be built. The economic development' bottleneck in poor areas need to be strengthened. The construction of trunk roads in the area and its surrounding areas are needed to be strengthened. In addition, rural highway construction needs to be further strengthened. Construction of the village of the village of asphalt (cement) road construction needs to accelerate. The necessary security facilities and small and medium bridges need to be synchronized. The rural highway bridge above the bridge needs to be transformed. Connectivity between county and township needs to be strengthened. The broken road needs to be eliminated. Resources and tourism development should be further promoted. A number of road to the economic and social development in poor areas need to be built such as the exit road, travel road and resource development road.

1.2 Convenient transportation service connection

1.2.1 Public transportation service level needs to be improved.

The mechanism of the integrated transportation service needs to be improved. The integrated transportation Standardization Technical Committee needs

to be established to co-ordinate the railway, highway, waterway, civil aviation transportation policies, technical standards, improve the promotion of integrated transportation development of the relevant regulations and policies, establish a comprehensive transportation system to improve the standard of the preparation and implementation of the work., promote the transportation of a single system, passenger ticket system, information service one-stop, to achieve integrated transportation services. improve railway, highway, waterway, civil aviation and other special time in the national major holidays and other special emergency coordination mechanism, improve the comprehensive transportation system to deal with the disposal of emergencies and service capabilities integrate various transportation information resources, promote the construction of public information service platform, and promote the construction of the railway, highway, waterway, civil aviation network ticketing system, improve public travel information platform, to provide integrated and convenient integrated travel information service.

The advantages of highway short-distance passenger transport needs to be given full play, the high-speed railway and civil aviation transport potential needs to be released. Highway transportation system needs to be adjusted. The proportion of the transportation market between provinces and cities need to be reduced. A short distance passenger transportation market between the central city and the county seat and the county seat need to be developed. Long distance classes should be gradually changed to middle and short distance classes. Highway passenger transportation and High-speed Rail peak operation policies should be implemented. The transportation routes and the departure frequency between the local highway passenger station and the city high speed railway passenger station should be increased. The relationship between highway passenger transportation and other passenger transportation modes is a supplement to each other. The leading position of highway passenger transportation needs to be maintained.

The construction of high speed railway infrastructure needs to be improved. High iron construction and new urbanization need to be combined. High iron Metro needs

to be fully developed, and it connected to the surrounding cities. Multiple modes of transportation functions need to be integrated. Intercity high-speed rail line needs to be planned. The number of transfers to the tourist population needs to be reduced. The traveler's satisfaction needs to be improved. Air transportation needs to be improved. Airport industry and integrated transportation capacity needs to be improved. The regional hub needs to be built whose center is small and medium sized airports. Local highway passenger line and intercity rail line need to be connected. The transportation modes and transfer system need to be connected. High speed rail, civil aviation transportation potential needs to be released.

Passenger service quality needs to be improved. Market supervision and management needs to be strengthened. In comprehensive transportation, Application of passengers' onward transportation technology needs to be promoted. Service efficiency and quality need to be promoted. The diversified, personalized, passengers' onward transportation one-stop and extension services need to be encouraged and development. Different modes of transportation for passenger transportation service. Operation synchronization and coordinated scheduling needs to be encouraged and developed. The guidance level of the transfer to the transfer needs to be improved. Passengers and baggage from onward transportation services need to be improved. General information standard onward transportation bills need to be formulated to strengthen and standardize. "One ticket" passenger transportation needs to be gradually realized. The channel ticketing, networking ticketing, a variety of payment methods and a variety of applications need to be strengthened. Service appropriate stratification measures need to be adopted according to High-speed Rail, express, the local train service. The high quality service can drive the development of the service level of the whole industry. The management of railway transportation service personnel should be strengthened. The human service concept needs to be set up whose guide is traveling. When it comes to highway, it is important to increase the service of the passenger terminal, especially in the countryside. Highway service area management needs to be strengthened. Marketing management needs to be insisted.

Flexible market operation mechanism needs to be adopted. The necessity of highway passenger feeder station should be explored to facilitate the travel of residents near the highway. Civil aviation, reasonable increase in the number of routes, to strengthen airspace transportation control, increase air transportation control equipment and methods of investment, reduce flight delays. In water transport, strengthen policy guidance, promote the transformation and upgrading of the shipping industry, and promote the rapid development of water transportation to high-speed, comfortable direction. Vigorously develop the Strait, the island of high-speed passenger liner, passenger transportation and water transportation on the water. Urban passenger transport, development on public transportation oriented development mode, strengthen public transportation mode of cohesion and information resources sharing mechanism, realization of the passenger "zero distance transfer, actively promote the urban agglomeration or nationwide public transportation card interoperability, and standardize the management of taxi operation, crack down on illegal carpooling phenomenon. In civil aviation, we should increase the number of routes reasonably, strengthen airspace transportation control, increase air transportation control equipment and methods of investment and reduce flight delays. In water transport, we should strengthen policy guidance, promote the transformation and upgrading of the shipping industry, and promote the development of the water transportation to the high-speed, comfort. We should vigorously develop the Straits, high-speed passenger ships, RO or passenger transportation and water transportation. In the urban passenger transport, we should develop the public transportation as the direction of the development mode, strengthen the connection of the public transportation mode and the information sharing mechanism and realize the "zero distance transfer". We should actively promote the urban agglomeration or nationwide public transportation card interoperability.

Strengthen the construction of service equalization, focus on ensuring and improving people's livelihood. To improve the universal service ability, we need to change the backward areas in the western regions and rural areas as soon as possible,

improve the transportation capacity of basic public services, improve the basic travel conditions in poor areas. We should enhance the level of transportation service in poor areas so that poor people sharing transportation development results in the period of "Thirteen five". We should integrate the road network resources to rely on the infrastructure of the western region. The situation should be formed in the western region of china. Its main integrated hub is the core city, the main node is a tourist city, the main way is the intercity high-speed rail and the purpose is to attract foreign passenger demand. Its distribution center is the central city, the main source is the township, the main way is the urban and rural public transportation and the main role is to stimulate internal demand and external integration, increasing the proportion of the western region of the base. We should regulate the transportation enterprises in the western region, change the mode of operation and strengthen the management of enterprises. We should train the staff and workers. We should regulate the new hub, passenger station and train service standards, to provide high standards of quality service for passengers on the road and avoid the difference between the eastern and Western region. We should update the service standards for the construction and expansion of the site. We should build spacious, bright, comfortable car environment like high iron, to improve the quality of service in the western region, and reduce service level of the East and West regions.

1.2.2 Build a modern integrated logistics system

Optimize the way of transportation organization, reduce logistics cost. "13th Five-Year" period, therefore, increase optimize the industrial structure, improve transportation efficiency in the transportation industry. With the super-ministries reform as an opportunity to actively promote goods "comprehensive" level, strengthen regional cooperation, promote the multimodal transport, construction of modern integrated logistics system. With big data, Internet and other new technology, improve the level of informationization of logistics system, speed up the construction of logistics information sharing platform, exploration and innovation "Internets +" era of logistics industry mode of operation. We should actively develop the hot metal

transportation and public transport, and promote the coordination and cooperation with the public, iron, water, and air. We should strengthen the research on the standard of multimodal transport, the matching of equipment, and the standard of multimodal transport. We should establish cooperative relations between different departments of transportation and make it together to complete the requirements of the different distance and different time in carriage of goods. Various modes of transportation are reasonable matching in the distance, load should be. We should organize transportation, improve logistics efficiency and reduce logistics costs by the fastest speed and the most reasonable cost in the "Thirteen five" period.

Establish the national logistics park system, and expand the scope of logistics services. We should speed up the layout of the logistics park in order to form a proper, fully functional, green and efficient national logistics park network system. We should take advantage of regional logistics development. We should set up different types of logistics parks, such as freight transportation hub, business service, production service, port service, comprehensive service type according to different functional requirements. We should increase the construction of logistics parks in rural areas, and promote the development of agricultural products logistics. We should improve the professional level of equipment in the logistics park, accelerate the construction of the park information and enhance the comprehensive service ability. We should pay attention to the connection between the logistics park and the transportation hub. The logistics infrastructure should meet the needs of the multimodal transport.

Standardize the express industry development. It needs to speed up the formulate relevant laws and regulations and standard operation of express industry and management; Increase the intensity of support, attract all kinds of capital investment express areas, to speed up infrastructure construction, optimize the allocation of resources, expand the scope of services, improve service quality, enhance the international competitiveness; Comprehensive mobile Internet, Internet of things, big data and other high and new technology, optimize the service network layout, service pattern, the change to the comprehensive development of express

logistics operators; Strengthen the coordination of courier companies and railways, highways, waterways, civil aviation and other transportation enterprises, formulation and implementation of universal standard express facilities, improve strengthen transportation support capability, and be able to find a road which can realize the express industry "fast and good development.

Improve the level of logistics information, and the construction of public information platform for Logistics. We should strengthen the application of advanced information technology in the logistics fields such as Beidou Navigation System, Internet of Things, cloud computing, big data, mobile Internet, etc. We should improve the level of logistics information system and encourage the construction of the internal supply chain process of logistics enterprises. Logistics process is traceable. We should deepen the application of information technology in the transportation system, tracking, inventory control and process optimization. We should promote the construction of public service platforms of third public enterprises, consumers and government departments which can provide logistics information standard query and docking services. We should promote the establishment of the national logistics public information platform to achieve the sharing of information between different regions, logistics companies and business, transportation enterprises and government departments. We should use the sharing platform to integrate information resources such as railway, highway, waterway, civil aviation, postal, customs, inspection and quarantine, etc. We should promote the effective docking of logistics information and public service information.

1.3The coordination of management system and mechanism

1.3.1. Deepen the reform of the Ministry of Transport

On the national level, country should promote the introduction of guidance on accelerating the development of integrated transportation and strengthen the comprehensive transportation system, and vigorously promote the coordinated development of railway, highway, waterway, civil aviation, postal services, and fully

play a comparative advantage of various modes of transport. The state should establish and improve the coordination mechanism for the development of integrated transportation and transportation development, and the relationship between the responsibility and the work of the Department of State Bureau of the Department of State Administration of work. The state should improve the responsibility system of the relevant departments, optimize the organization and management, reasonably define and adjust to the function, handle the relationship between government and market, government and society, management and service, so as to achieve the same responsibilities, division of labor, decision-making science, smooth, strong supervision.

It should be tried to achieve the integration of the local level in many ways. we should break the administrative boundaries, departmental boundaries, geographical boundaries. We should unify all the transportation resources in the region to manage the unified organization and the unified deployment. The top priority is that we should formulate a unified policy and regulations to promote the improvement of coordination mechanism between the Department of State Bureau of the Department of State Bureau and local transportation authorities.

At the same time, we should transfer the importance of strengthening the integration of transportation, solve the problems of ideas, raise awareness, unify thinking and keep pace with the times. Each department in the region should maximize the protection of the interests of all parties in accordance with the unified market operation rules and maximize the overall interests.

We should encourage and support all over the country to increase the comprehensive transportation reform and explore, choose to have the conditions for the establishment of comprehensive transportation reform pilot area. We should support the local transportation department. Responsible for the comprehensive transportation planning, construction, management and service in this area, and to coordinate the management of local railway, highway, waterway, civil aviation, postal

services, etc., to accelerate the formation of "big traffic" management system and working mechanism. Such as the selection of Beijing, Tianjin, Hebei, Chengdu Chongqing, the Yangtze River economic belt and other regional development as a pilot. First, we should realize the space network, such as Beijing, Tianjin and Hebei region of the railway, high-speed railway, highway, highway and city railway six systems to achieve interconnection in the physical space; Secondly, we should meet the accessibility and accessibility requirements. For example, passengers will be able to find a public bus station within 500 meters, and effectively avoid the "end of the road between administrative divisions". In addition, we should also focus on the integration of transportation intelligent demand. The problem of regional transportation integration is the problem of information is not compatible. It should give fully play to the function of information system and realize the information integration. Management, control, construction of the intelligent system will contribute to the construction of a sound regional integration of traffic, including the city bus card". We should have a win-win attitude, break the administrative area, expand the development of space, the integration of resources, the establishment of a shared mechanism, and strive to achieve the balance between the input and income. We should implement the integration of planning, construction and transportation services for the infrastructure.

1.3.2. Improve the comprehensive transportation planning and preparation mechanism

We should improve the planning system, formulate a comprehensive transportation planning and implementation approach, enact a clear plan for the preparation of management requirements, dock mechanism and plan some contents. We should serve the country on " the Belt and Road ", Beijing, Tianjin and Hebei collaborative development, the Yangtze River economic belt and other strategies to establish a cross regional transportation planning coordination mechanism. We should implement national plans, policies and regulations, while promote the " Multi gauge " ". Also we ought to strengthen the coordination of special planning, such as

comprehensive transportation planning and economic and social planning, urban planning, land use, environmental protection, etc. We should explore the establishment of a multi regulatory planning system in the transportation and land, housing construction and other departments, at the same time, we also should improve the preparation of various modes of transportation planning work mechanism. While to strengthen the comprehensive transportation planning related indicators of quantitative research, we not only have to attention service and function, but also reflect regional differences.

1.3.3. Establish the coordination of regional transportation planning and unified responsible for the relevant management agencies

We should establish the management mechanism and perfect the mechanism of regional transportation system, which has an important role in promoting the development of urban agglomeration. We can select the Beijing Tianjin Hebei, Chengdu Chongqing, the Yangtze River economic belt and other regional development as pilots. We should have a win-win situation and further implement the integration of infrastructure planning, construction and transportation services. We should set up a multi - level regional development coordination management mechanism, improve the coordination of regional development, consultation mechanism, strengthen inter regional planning coordination to break the barriers of administrative divisions and support integrated development of transportation, promote the development of regional economic and social integration.

1.3.4. Further deepen the reform of administrative examination and approval system

Transportation industry should start from the reform of administrative examination and approval system and further open up the transportation construction market, the scientific definition of the transportation market access threshold, reduce transportation production and business activities and transportation qualification license. We should further increase the decentralization efforts and mobilize the

enthusiasm of the market, the release of the vitality of the market. We should clean up the non-administrative licensing matters and do a good job to cancel the approval of the work, reduce the industrial and commercial registration approval; We can also release part of the approval authority, simplify approval process; streamline the administrative approval process, optimize the approval process, improve the cross regional joint approval system, and promote the online processing and window decentralized administration, to separate approval, management and supervision. We should improve the administrative examination and approval management system; standardize the administrative examination and approval system. Planning a decentralized, long approval, statistical missing, management not in place or other issues should be avoided.

1.3.5. Standardize technical standard system, and get through industry development barriers

The establishment and unity of integration of standard system is the basic security to guarantee logistics unobstructed and industry running efficiently. At present, the transportation industry in various fields, the imperfect technical standard systems become an important obstacle of the development of traffic. The construction of modern integrated logistics system, the development of the comprehensive transportation, and the reform of the industry management system of operating mechanism put forward higher requirements for industry standard system. The implementation of the strategy of the big three strategies, including "One Belt and One Road" strategy, collaborative development strategy of the Beijing-Tianjin-Hebei region, the Yangtze river economic belt, require that it must be improved the efficiency of the transportation system and strengthened the effective connection between the different ways, and the establishment and unity of the industry standards system is the important premise.

The premise of set up comprehensive logistics system, is unified logistics standards. At present, the logistics industry standard specification is mixed and disorderly, and standards of different logistics process are different, and there is no

unity. Emerging logistics industry such as express delivery industry, cold chain logistics lack corresponding industry standards. During "13th Five-Year" period, the construction of logistics standardization should be strengthened, the common base class, public class, service class and professional class logistics work standards should be enhanced. Logistics standard system architecture matching the modern comprehensive logistics system should be established. And the implementation of the logistics standard in all industries should be intensified, and the operation level of standardization of logistics service, logistics hub, logistics facilities equipment Should be improved.

One of the important obstacles of comprehensive transportation system construction is the problem of harmonious system development, and the obstructed connection of all transportation, and low integrated service level. To solve this problem, firstly, the effective connection between different modes of transportation infrastructure must be solved, technical standards between different transportation equipment must be unified, and appropriate technology system must be set up. The standard formulation of comprehensive hub, transportation equipment, multimodal transport, information exchange etc. should be strengthened, and the top-level design of the standard system should be completed, and effective cohesion and coordinated development between different modes of transportation including highways, waterways, railways, civil aviation, postal and others should be promoted, and the level of integration of comprehensive transportation service should be improved.

Emerging market standardization construction is the premise and guarantee of emerging market norms and healthy development. In recent years, relying on the express industry rapid development of e-commerce, but because of the lack of corresponding industry standards and the technical service standards, uneven industry service quality and vicious competition between enterprises seriously have hindered the healthy development of express delivery market. The emergence of the mobile phone software with taxi and "chauffeur-driven car-on-demand" service changed the original taxi market pattern, however, there is no relevant norm standardizing

"chauffeur-driven car-on-demand" market behavior, and the frictions happen frequently between the subjects of the taxi market. General aviation gradually becomes the key field in air transportation industry construction, but the current domestic general aviation is still in its infancy, various aspects including general airport, general aircraft, and airspace use peer enterprises business and so on are the lack of a sound standard system specification, which restricts the development of general aviation. The further development of these emerging markets or new hot of the industry must be constructed based on standardization system.

2 Deepen the reform of transportation market

2.1 Accelerate innovation of the investment and financing system, deepen the reform of transportation market

The transportation industry is facing the problem of lacking investment in infrastructure construction. The huge cost of railway transportation, in accordance with the basic idea of "overall planning, diversified investment, market operating, policies supporting ", giving full play to the initiative of the central government, local governments and enterprises, permitting the local government and social capital having the ownership and the operation right of intercity railway, city domain (suburban) railway, capital source railway and railway branch, widely attracting social capital to participate in the investment in railway construction; further innovating financing channels and methods, to protect the sources of funds and reduce financing cost, strengthen capital management, prevent fund risk. Improving the railway joint venture construction management mode, standardize the joint venture railway construction and transportation management mode, and constantly improve the railway freight rate mechanism, guide and encourage the joint venture railway company to optimize the restructuring, and steadily rationalize the railway price relationship, also promote the healthy development of joint venture railway. Highway transportation in highway toll is an effective way to ease the financing of highway construction, therefore, improving the highway toll policy, speeding up the "highway toll management regulations" amendment process to establish a sound government dominating, hierarchical, multi financing highway investment and financing mode, to attract social capital, multi-channel financing and maintenance funds.

We should innovate financing ways to broaden financing ways, and promote the enterprise accounts receivable securitization in construction of the railway, highway, airport and other transportation projects, and attract social capital to participate in the profitability of the central airports, trunk airports and other airport facilities.

2.2 Gradually implement the marketization management process

Gradually release the competition on the price in railway, highway, waterway, civil aviation, postal and other competitive aspects. Adhere to the construction and maintenance being separated and set up the highway development company, expanding the provincial roads inside and outside roads development market; insisting on fair competition and reforming the investment mode of highway maintenance, to comprehensively promote the daily maintenance marketization, strengthen of highway tunnel and highway planting and custody and strengthen rural road maintenance industry management. The water transportation need to play the decisive role of the market mechanism to regulate the port charges, reduce the charges, implement market regulation on competitive service charges; deepen the reform of the water transportation maintenance system, establish and improve the conservation organizations and market a reasonable division of labor mode, and comprehensively promote the marketization reform of the course of the channel maintenance.

Improve public transport, rural passenger transportation and other public service pricing transparency, public charge items and service standards, which can accept social supervision. In addition, urban transportation should speed up the process of taxi marketization. We can take fundamental action to break the monopoly, and improve the taxi access system. During "Twelfth Five-Year Plan" period, the taxi industry has brought unprecedented opportunities and challenges by the apps such as Uber and Didi taxi, completely changing the theoretical basis of the existing taxi system. The government should accord to the demand of urban traffic, decentralization, promote the taxi market management, establish fair and equitable market rules and let the market play the decisive role, terminate the administrative monopoly power.

3 Insist on opening up new energy for transportation development

3.1 Achieve industry information sharing

During "13th Five-Year" period, it is necessary to strengthen information resources sharing, strengthen the construction of information security guarantee system, making the industry informatization, intellectualized level synchronization and information technology development synchronous, leading transportation modernization.

3.1.1 The construction of transportation data base

In the National Thirteenth Five-year Plan period, every decision about transportation should be made basing on abundant and accurate data, so the national and local governments should actively carry the construction of transportation data base forward. For local governments, every transportation department should be set a unitive standard and deploy a unitive monitoring system including electronic eye, sensor, vinometer and the other necessary equipment to monitor all-weather. Then, we gather technical data and combine them with information on weather and roads to set up local transportation data bases with a unitive standard. As for national government, transportation department should use local transportation data base to make a huge national transportation data base. Meantime, they should share the data that are not secret-related to form an intelligent transportation data sharing platform, which will also encourage enterprises to analyze the data to dig out more potential value

3.1.2 Transportation management and service informatization construction

Information technology should be taken advantage of during the process of transportation construction and transportation management. Transportation management system collect each kind of transportation flow, operate data through real-time monitoring and detect, in order that they could manage to predict the change of transportation flow and generate the best emergency measures and plans. Then we

can realize the diversification of information service, the integration of service area, the electrification and normalization of transportation bills and combined transportation service such as “one ticket per passenger” or “one bill per freight”.

In the National Thirteenth Five-year Plan period, we should remember the two key words, informatization and intelligence, aiming at speeding up the combination of modern information technology and transportation management and service, it also can promote the application of modern information technology in management, operation and service, set up new intelligent transportation information system based on big data analysis, spread intelligent public transportation management and service, city transportation operating and coordinating system, comprehensive passenger transportation junction service, electronic charging system, public going out service, transportation safety monitoring system and emergency measures in order to improve intelligent service level and improve UE on every aspect. Meanwhile, the construction of transportation intelligent scheduling of production enterprise business can realize the intelligent of city buses, long-distance passenger and freight, cargo shipping, ocean shipping and other transportation control and port, hub switched production scheduling.

3.2 Tackle key problems

We should strengthen the construction of the transportation science and technology industry innovation alliance platform, build and improve the intelligent transportation technology innovation system, increase R & D investment, in order to overcome the development of Intelligent Transportation Technology. With practical and prospective technology, it is closely combining the national and regional transportation development needs, focusing on supporting large scale road network operation state monitoring, and personalized, human transportation information services and other applications. Great efforts are made to improve the active safety and transportation efficiency as the main goal of intelligent vehicle road cooperation, dedicated short range communications and other technologies; to explore the

ecological and intelligent transportation technology, etc. Strive to foster a group of core intellectual property, international leading level, and practical technology research, provide technical support for the construction and development of intelligent transportation.

During the"13th Five-Year" period, we should rely on networking, cloud computing and other high-tech information technology development, continue innovation in transportation data collection and data mining technology, development of transportation information services based on real-time transportation data technology; attention to transportation safety, efficiency, environmental protection and application of special techniques, such as transportation of private communication, cooperative technology The formation of real-time information, integrated information service, intelligent vehicle, collaborative operation and collaboration to enhance the effectiveness of other independent intellectual property rights of the intelligent transportation technology. We should adapt to the construction of the wisdom of the traffic, and promote the development of modern transportation industry.

3.3 The construction of standardization and industrialization on intelligent transportation

We should carry the standardization and industrialization forward based on the present transportation system during the"13th Five-Year" period. There is also necessity to enhance the communication between transportation information systems through setting up a series of standards on intelligent transportation identification system, personal communication, information network, electronic charging system, public transportation card, transportation information service system and so on.

In the construction of intelligent transportation system based on, accelerating the development of intelligent transportation industry, to build the industry technology innovation system which combined with market orientation, enterprise dominant, and

industry-academia-research. Making full use of high-tech enterprises, automobile manufacturers, research institutes and other social forces to push the development of ITS. Start from the private enterprise, the government is responsible for coordination and allocation of funds and establishing intelligent transportation industry model that led by technology, application and capital.

In the field of highway ETC, transportation information services, transportation supervision, container transportation, public transportation vehicles, operating vehicle and ship dynamic monitoring and other areas, to achieve the application of intelligent transportation and industrialization.

4 Promote the development of the green circulation and low carbon transportation

During the 13th Five-Year Plan, we must put the green low-carbon transportation system development in a more prominent position and make it integrate into the development of transportation in all aspects and the whole process, with the green recycling transportation infrastructure, low carbon environmental transportation equipment, intensive and efficient transportation organization as the key areas. At the same time, we need to accelerate the implementation of green low-carbon transportation technology innovation and information construction, deepen the reform of the financing and management system of green transportation, and promote the construction of "green transportation" from the pilot demonstration to achieving a breakthrough.

4.1 Strengthen the construction of transportation infrastructure in the green cycle low-carbon requirements

For the development of green cycle low-carbon traffic, accelerate the realization of the smooth flow of transportation infrastructure, seamless convergence, and promote coordinated development of all modes of transport, highlight the overall advantages and intensive efficiency which have important position. In the process of transportation infrastructure construction, we need to strengthen energy conservation and utilization and make energy resources saving implement into the transportation infrastructure planning, design, construction, operation, maintenance and management of the whole process. In the field of urban public transportation infrastructure, we need to vigorously develop urban rail transportation, bus lanes, bus rapid transit system (BRT) and other large capacity public transportation infrastructure construction, strengthen bicycle lanes and pedestrian trails and urban slow system construction, and enhance the attractiveness of green travel. Strictly review the transportation infrastructure construction projects, reasonably determine the

construction scale, design optimization, take effective measures according to local conditions, reduce the occupation of arable land, and avoid basic farmland protection areas, strengthen the comprehensive transportation hub of the development of a comprehensive three- dimensional. In the resource recycling aspect, strengthening the comprehensive utilization of resources and recycling technology are to promote the application of water saving section material construction and operation process in order to achieve the reduction of resources. We need carry out the recycling and comprehensive utilization of waste materials, improve the level of resource reuse. In infrastructure to strengthen the protection and recovery of vegetation, topsoil collection and use, take the dump yard and sidewalks and other temporary sites of ecological restoration.

4.2 Deepen the application of energy saving and environmental protection transportation equipment

During the 13th Five-Year Plan period, we must take efforts to optimize the structure of transportation equipment, improve the proportion accounted for the high efficiency of transportation equipment, machinery and equipment, strictly implementation of transportation equipment, machinery and equipment energy consumption amount of access system. Vigorously promote the application of high energy efficiency, low emissions of transportation equipment, machinery and equipment, to speed up the elimination of high energy consumption, high emissions of old transportation equipment, machinery and equipment and improve the production efficiency and the overall efficiency of transportation equipment. In the development of energy-saving and clean energy transportation equipment aspect, we need to further promote the use of natural gas and other clean energy as fuel for transportation equipment and machinery. In addition, we need to vigorously promote the application of hybrid transportation equipment, and actively explore the application of biomass energy in transportation equipment, and promote the use of energy management contract in the use of equipment and systems, lease purchase application mode

propulsion battery-powered transportation equipment. Accelerate the development of pure electric vehicles, hybrid vehicles and ships, natural gas vehicle and ship must be sped up, and the natural gas family car, intercity buses, heavy trucks and ships need to be developed smoothly. At the same time, promote the simulation of driving and construction, loading and unloading machinery and equipment simulation of the application of the device, and actively promote the application of green maintenance equipment and technology. In the area of transportation and transportation equipment, we need to carry out the installation requirements, such as the installation requirements, the effective control of emissions and pollution, while support and encourage the use of high quality fuel, strengthen pollution prevention and treatment equipment which should be urgently disposed of.

4.3 Accelerate the construction of the organization system of intensive and efficient transportation

In transportation structure optimization, according to the principle of "appropriate to water just use water, appropriate to road just use road, appropriate to air just use air", we need improve the transportation energy intensity of lower railway, waterway transportation in the comprehensive transportation, promote the efficient organization and smooth connection between the railway, highway, waterway, civil aviation and urban transportation, etc., in order to form a convenient, safe, economical and efficient integrated transportation system. In the optimization of passenger organization aspect, promoting the construction of transportation organization of passenger transportation enterprise platform, guided passenger transportation enterprises to implement large-scale, intensive management, strengthening of transportation routes, flights, accommodation and other shared resources, promoting transportation links, scrolling, as well as advanced passenger transportation organization. Besides, we should vigorously promote the interline ticketing, booking network, telephone booking and other convenient ticketing system and information service, so as to improve passenger load factor. In the development of green logistics

and modern logistics aspect, we should give enough play to the comparative advantages of various modes of transport, vigorously promote the development of roll transport, piggyback transport, multimodal transport, container transportation, reduce unit turnover volume of freight transportation energy consumption and carbon emissions. We should focus on the development of specialized transportation and third party logistics, while guide the development of the transportation of goods to the network, large-scale, intensive and efficient development, optimize the freight transportation organization, and improve the freight rate. In the construction of urban logistics distribution system, the establishment of the center of the distribution of goods, goods distribution center is improving the efficiency of urban logistics distribution, which relying on the comprehensive transportation system, it can also improve the postal and courier service network, and improve the efficiency of resource integration.

4.4 Speed up the scientific and technological innovation of low carbon transportation in the green circulation

In the construction of scientific research capacity of low carbon transportation in the green circulation, we need to strengthen the research on the technology innovation and service system of the green cycle low-carbon laboratory, technology research and development center, technical service center, and support the construction of scientific research ability. In the construction of green cycle low-carbon transportation personnel aspect, it has the need to build a sufficient number, reasonable structure, excellent quality of the green low-carbon transportation professional team, with a major scientific research projects as the basis, with the focus of the laboratory as the base, to promote scientific research personnel training. In green cycle low carbon transportation technology development aspects, speed up advance based on real networking of intelligent transportation key technology development and the application, and transportation pollution accident emergency reaction and pollution control of key technology research and the model, major technology special research,

achieved major technology breakthrough, vigorously advance transportation energy resources save, and new energy using, and ecological environmental protection, field key technology, and advanced applies technology and products development, focuses on strengthening industry ecological protection and repair technology, the new energy car battery technology, energy consumption monitoring, application technology of biomass energy, waste gas purification, noise reduction, sewage treatment, garbage collection technology and industry air pollution control policy and technology, and Low carbon transportation policies and technologies, industry technology innovations in technology in environmental monitoring system.

5 Enhance transportation safety and emergency response capability

"Security" is the eternal theme in the transportation, the construction of the "safe transportation" will still be the precondition of the construction of the transportation industry. During the "13th Five-Year" Plan period transportation development must uphold the "people-oriented, safety first" principle and overall strengthen transportation safety management and emergency response to protect the work.

5.1 Promote the construction of "safe transportation"

Comprehensively promote " safe road", "safe car and ship", "safe harbor station", "safe ferry", "safe site" etc., construction works; According to the notice that promulgated by the Ministry of transportation about building demonstrative work of the sturdily development of "safe transportation", we must strengthen the construction guidance of 28 demonstration units about "safe transportation". Supervising and guiding demonstrative units to form a complete system in order to explore the operation mechanism, and guide the construction of “safe transportation”. Taking example by the construction experience of "the safe site" to accelerate research to develop and improve the construction of "safe roads, safe travel, safe harbor station, safe ferry appraisal index.

5.2 Strengthen the management of transportation safety operation

In national level, we should establish the National Transportation Safety Board and strengthen its organization and leadership, strengthen the responsibility to implement, and continuously promote China's transportation safety work steadily forward. At the same time, we call on all parts of the country to establish a sound and comprehensive transportation safety committee, to strengthen the transportation safety work, and constantly improve and perfect the work mechanism of social management in our country. Under the leadership of the government, strictly for all regions and all departments and enterprises complete the annual accident control indicators for the inspection and more serious transportation accident investigation and accountability,

to ensure the steady development of China's transportation industry.

The important work includes:

We need carry out "pornography rule violations" and "safe year of road transportation" activities, increase the management of road dangerous goods transportation enterprise, comprehensively promote the implementation of the standardization of the management of the highway truck, overload unified standards, regulate the transportation of goods production, effectively improve the loading rate, reduce vehicle frequency, save fuel, reduce emissions, reduce the probability of the accident, guaranteeing the safety of road goods transportation. At the same time, vigorously implement the highway safety, life protection and dangerous bridge reconstruction project, we should improve highway transportation daily monitoring system and dangerous goods transportation vehicles, long-distance passenger vehicle monitoring network, a large bridge, tunnel to achieve 100% regular health monitoring, focusing on the construction of the tunnel excavation led to the collapse of the accident risk, road, two passengers a dangerous and other illegal behavior; Strengthen rural transportation safety management, carry out the transportation safety publicity and education activities, establish "household management" and be strict with minors to drive an electric motorcycle, formulate corresponding punishment measures.

Continue to carry out the "water transportation safety hazards investigation special management action ", "ferry safety management of special rectification actions" and "water transportation pornography rule violations special action" and continue to deepen the "life jacket life vests" action. Carry out China and South Korea passenger liner, river ferry, the Yangtze River dangerous chemicals transportation and the Three Gorges passenger special rectification work, increase water "four key ship" and other violations of punishment, pay close attention to key areas, pay close attention to" days, people, ship and save "keys linked.

5.3 Strengthen the construction of emergency system for transportation

Actively promote the interoperability of railway, highway, water transport, aviation and other industry emergency information resources to build a comprehensive emergency linkage mechanism to co-ordinate the transport, and further improve the comprehensive transportation emergency plan system, emergency command system, emergency monitoring and warning system. Strengthen the emergency material reserve and rescue center system construction, improve the highway emergency rescue network, in order to develop and improve the emergency response plan for the city public transportation. Further improve the railway emergency management system, improve the emergency rescue plan, and promote the construction of the national railway emergency rescue base. Improve the salvage system base layout, strengthen the fast salvage of human life, the massive oil spill that clear, large tonnage and deep sea rescue and salvage equipment construction, enhance the ability of maritime search and rescue, building a modern salvage system.

At the same time, strengthen safety emergency drills, according to the relevant contingency plans to carry out emergency drills, and effectively improve the safety and emergency response capacity. Deepen exchanges and cooperation with countries, regions and international organizations in the area of transportation security and emergency response, and to establish a mechanism for the initial establishment of the relevant security emergency coordination linkage with neighboring countries and regions. Using a variety of platforms, transportation emergency communication and capacity-building, strengthen communication and sharing of information.

5.4 Improve the study of transportation safety technique

During the "13th Five-Year" Period, transportation safety technology, transportation emergency technology and infrastructure security technology and system security technology will be the key point of the development of the

transportation industry safety technology field. The key security technologies including transportation infrastructure security detection, assessment, disaster prevention and repair technology, dangerous goods transportation and emergency disposal technology, the urban road passenger transportation network monitoring and intelligent car collaborative technology, the ship in distress search and rescue, large depth of saturation diving, rescue and salvage operations technology, emergency disposal technology of the ship etc. need to be tackled.

5.5 Promote the construction of transportation safety laws

The following three aspects should be focused on during" 13th Five-Year Plan " period: first is to formulate and perfect the regulations for guaranteeing transportation safety, make doing everything according to the law realizable; the second is to strictly enforce the law, abide by the laws, be strict in enforcing the law, make all of the violators be prosecuted; the third is to create public opinion in the whole society, and fully carry out transportation safety propaganda work, improve the legal idea of the broad masses of people, make everyone understand the law and be law-abiding.

Chapter five: risk factors and countermeasures for the transportation development of the “13th Five-Year Plan” period

1 Risk of international and domestic politics and economic environment and the solutions

1.1 Risk of the international situation changes in the process of "One belt one road" strategy implementation

"One belt one road" strategy, with the upgrading and transformation of contemporary China's economic industry, will not only enhance China's Great-power status, but also help to further enhance the openness of China's society and consolidate the results of China's social reform. However, at the same time, we must recognize the risks in the opportunity, as well as the potential obstacles to the progress of the project, the damage, and the loss of the interests of the project. The factors such as turbulent countries and regions and spillover effects, domestic political situation changes, interest groups’ divergence, the threat of religious extremism, terrorism and separatism, geopolitical disputes and territorial disputes, effect of areas outside force would cause the international political unrest risk. The factors such as exchange rate fluctuations and debt risks; risk of financial returns would cause the international economic risk. The factors such as religious and cultural differences, differences in the legal system would cause the international culture risk. In the implementation process of the strategy “One belt one road”, we must be fully prepared for the risks that may be encountered.

1.2 The downside risks of the domestic economy in the new state of economy

The Chinese central bank has conducted two comprehensive deposit-reserve ratio reductions one oriented reduction of deposit-reserve ratio and cut the interest rate three times during the first half of 2015 in order to focus on the stability of economic growth. With the stimulation of policies, the situation of social capital and financing conditions has been improved. But the phenomenon that economic downturn exacerbated the monetary policy to transmit obstruction still exists and the effect of policy is still non-significant. China has experienced stock market crash again, resulting in the deposit continually flows into the stock market and the exacerbation of the currency's false flow. For the bond market there is some diversion effect during the stock market boom. The stock crash causes the market risk aversion and the fall in bond market, resulting in a lower demand for bonds in a long time. Therefore, the volatility in stock market will not only generate strong turbulence to the financial operation and serious impacts to the distribution of social monetary funds, the financing of real economy and the bond market, but also a center of financial risk.

Meanwhile, the enormous bond issuance from local government will increase the supplying pressure to the bond market and produce a crowding-out effect to other financing subjects. The exchange bond debt issued by non-market local government has transferred the loans with high interest from commercial banks to the bonds with low interest issued by local governments which significantly reducing the benefit of banks. Concerning about the examination pressure, the commercial banks will reduce the configuration of government debt, financial bonds and other interest-rate bonds. Thus the demand for interest-rate debt is affected by the crowding-out effect. The fund of commercial banks is occupied by the bonds publicly issued by local government bonds affecting the bank's ability to purchase the credit debt and capacity of lending loans. The fluctuations in domestic macro-control will certainly bring new impact on transportation development. With a tight construction funds to the

transportation and the deep economic contradictions, the difficulty of maintaining a steady and rapid development of transportation will increase.

1.3 Countermeasures and suggestions

1.3.1 Adapt to the new state of economic development and create a stable monetary and financial environment

Adhering to the basis of maintaining stability, being actively adapted to the new status of economic development, maintain the continuity and stability of policies and continue to implement prudent monetary policy, timely adjust the economic structure to create an appropriate monetary and financial environment for economy structural adjustment and upgrade. With the tight combination of the monetary policy and the deepening of reform, the decisive role of the market can be more fully played in the resource allocation.

Strengthen the construction of infrastructure, provide an efficient financing market for economic adjustment, transformation and upgrade. Strengthen the market supervision to exert the function of the company's credit bonds inter-ministerial coordination, strengthen supervision and coordination to further information disclosure and construction of credit rating and other market-oriented constraint to regulate trading behavior of market, preventing financial risks and promoting the safety and efficiency of the financial operation and the specification of economic development.

1.3.2 Assess the political risk in international cooperation reasonably and actively participate in the building of international security cooperation mechanism and system

In the process of international cooperation, it is necessary to strengthen collecting the information of cooperated countries and conduct the proactive risk assessment studies. In the process of being international, the Chinese enterprises are supposed to get rid of excessive dependence on the nation, enhance the capacity of

organizing to protect them and the ability to negotiate with the local community with the assistance of the relevant departments, organize the social organizations such as civil chambers of commerce, associations with overseas investors.

At the same time, Chinese government should actively participate to improve and construct international and regional multilateral or bilateral security cooperation organizations such as WTO, G7, APEC, IMF, Shanghai Cooperation Organization and ASEAN, making full use of the chance of participating in high-level forum to clarify the duty to bear, reflecting the interests of China by making use of international rules and procedural arrangements. Plus, deepening the right to speak and influence power on international affairs gradually and create a favorable international political environment for China's development and security.

1.3.3 Establish the agreement in bilateral and multilateral trade and investment, enhance the function of international financing investment and financing cooperation and coordination

The international cooperation in the One Belt and One Road projects requires to advance the projects which are advantageous to countries along the Belt region and the Road region combining with diplomacy. Seeking a peaceful development in peaceable cooperation, and obtaining more recognition, closeness and support from these countries. It requires the establishment of appropriate investment and trade facilitation agreement under the multilateral system.

At the same time, establishing Asian Infrastructure Investment Bank and the Silk Road Fund, as well as promoting the establishment of BRICS Development Bank, the OECD Development Bank to provide long-term financing tools in respond of the changes of the strategic layout.

1.3.4 Strengthen the study to the culture, traditions and trade habit of cooperated countries.

Constructing the Silk Road economic belt need to respect the culture of the countries along the "belt" and the "line" and promote the exchange of people's will and public opinion, strengthen the civil interaction and cooperation on the condition of protecting the cultural diversity.

2 Finance risk of supporting infrastructure construction and operation and maintenance.

2.1 Low degree of marketization of railway financing and the serious shortage in funding

The serious shortage in funding of Railway transportation. According to the Long-term Railway Network Planning issued by the State Council, the annual average cost of railway constructing will be 130 billion Yuan in China by 2020 while the available investment from the nation is only five or six hundred million Yuan and the gap is great.

The imbalance in financing component. During the "Twelfth Five Years" Plan period, the proportion of the financing structure of railway was seriously imbalanced, specifically in the following four aspects. The first one is the imbalance between indirect financing and direct financing. The second one is the imbalance between endogenous and exogenous capital funding. The third one is the imbalance between equity capital and debt capital. The last one is the imbalance in the structure of debt, which refers to the various proportions of debt. If the pattern of financing and the reform of being market-oriented cannot be accelerated and be innovative during the Thirteenth Five-year Plan period, the introduction of social capital will be put off and the burden of government's debt will be increased. On the one hand it will cause a great pressure and a big risk of being in debt to government; it will also affect the development of railway construction directly.

The low marketing degree in railway financing and the unreasonable pricing system. During the Twelfth Five-year Plan period, the railway companies is not the actual Market Entity due to its dual identity of being a government department and being a business company in China. So the social capital investment cannot be poured into the railway companies and the foreign investment cannot be participated into its equity holding, which leads to a negative result of being difficult to carry out their

own capital, it can only raise the necessary funds through the market and undertake the huge investment risks. If the fair market mechanism and system, the operating environment and the price mechanism and system for social investors to enter cannot be established and the price of rail transportation cannot get rid of nation's control during the Thirteenth Five-year Plan period, it will make market price be distorted and pricing power of private capital for railway products and services be missing. The market mechanism in allocating resources will be missing in the railway industry and it will seriously hinder the impediment of the healthy development of the railway enterprises and operations.

2.2 The increasing highway debt scale and the large debt risk for government

The unreasonable financing structure in Highway and the large debt risk for government. The financing channel of toll road main including the highway in China is single, relying on bank loans and local financing. The statistics show that the percentage of national investment in highway construction funds is about 12.9% and the bank loans and local financing's proportion is about 82%. The unreasonable financing structure leads to difficulty in controlling the risk.

The highway's operation and management mechanism and system is unreasonable and the risk of social investment is large. It is the government that holds the right to charge the highway and the social capital lack of chance to spread their voice. The pricing system and financing risks are closely related deciding the profit of highway enterprises, leading to a separation of the power and duty. It is hard to control the earning level for the public investment that aiming to make profit. The increase of the risk in repaying turn a further hinder to the introduction of social capital. And considering the characteristic of highway, the construction needs huge funds with a long payback period, which undertakes strong risks.

The scale and burden of the debt are large and heavy and the financing ways

are not effective. With the continuous development of highway construction, the enlargement of debt and the cumulative risk of repayment will impact the financing of newly constructed highway. Nowadays, part of a highway construction loans has already been stripped as bad debts by commercial banks. For the purpose of reducing risk and increasing profitability, commercial banks begin to reduce loans lending to the road sector, which will directly affect the scale of investment during the Thirteenth Five-year Plan period. Especially for highway that charging for welfare will face a great risk of being short of funding.

2.3 The imperfection of financing mechanism and system of port, and narrow channels of financing

The imperfection of financing mechanism and system of port. After the decentralization of local port management system, local governments set up the authorities concerned on the management for ports. The former port authority substantially restructured to the company enterprises, which the government and enterprises has been isolated to a certain extent. However, the fact is the port enterprises are still holding a large number of public affairs which make it difficult to guarantee the promise of the investment for the local government where the port located in. Meanwhile, with the power of appointment and removal, the local government is the one that forcing the leaders of port enterprises to solve such a tough issue. It is incapable to supervise and criticize the behavior of local government above and it is unable to promote the development of the port city and its hinterland.

The Investors are relatively simple and channels of financing are narrow. During the Twelfth Five-year Plan period, China's Port Law also stipulated the responsibilities of the government on investment and financing activities in the port management, established the scope and the main body of the port's investment in public infrastructure. But in fact it is difficult for local governments to assume the investment responsibility in the construction of port's infrastructure. On the one hand it is limited by local financial resources and it has its objective reasons as well, the

port has certain character of being regional while it is unmatched that the responsibility of constructing the public infrastructure is undertaking by the local governments. It is exactly the unclear division of responsibilities between governments and enterprises and the impact of invests big and long payback period that make the unwillingness of civil capital to invest the port projects.

2.4 The funding gap of the investment in Civil Aviation was large and the investment subject was single

The capital source of airport construction is lacking. In general, the airport construction fund demand is huge, which by the local government, civil aviation development fund and credit and enterprise investment to solve together. A third of them by the civil aviation administration, a third funded by local government and a third is the self-financing of airport. Although since the "12th Five-Year", China's private investment in the field of civil aviation is growing rapidly, the financing channels are still narrow and the internal financing ability is bad with the over-reliance on government funds or a lot of loans. It led to the civil aviation heavy debt burden. Though the airport is barely able to build, there is the risk that put into operation the huge financial costs needs to be paid and it will increase the operating costs.

The development of civil aviation enterprise runs into the capital bottleneck, and financing channel is single. Aviation as a capital-intensive industry, the plane is worth the hundreds of billions RMB. The plane funds of civil aviation enterprise are mainly external financing, especially based on debt financing. At present, there is not one airline can fully use of its own funds to buy aircraft, they all finance by one of foreign loans, issuing stocks and bonds, leasing methods or the combination. Appears to be an acceptable part of the operating performance of private airlines, in fact, too much of them depend on route subsidies income, which becomes the main source of profits. It means that once subsidies earnings are lost, private airlines will face pressure to survive, and collapse and being consolidated during the period of may

occur at any time.

2.5 Strategies

(1) Reformation of railway investment and financing mechanism

Establish a railway management mechanism with "dispersion of government and enterprise" and a railway operation mechanism with dispersion of network and transportation. It is the top priority to achieve "dispersion of government and enterprise" in railway, it should follow the requirement of modern enterprise institution. International experiences show that strict economic regulations seriously hinder rather than promote the development of the railway. Only government release the economic regulation in railway transportation and let market competition play a greater role can make railway business more vigorous. Dispersion of network and transportation actually is an establishment of a competitive mechanism which disperses railway network and transportation. In this operation mode, important railway line and trunk railway are monopoly operated by central government, branches are monopoly operated by local government, while passenger and freight transportation can be operated by various properties' capital. Because of no burden of infrastructure, it lowers the barrier to enter railway transportation business and make it possible for private capitals' entry.

Widen the financing channel and innovate financing mode. Make good use of railway development funding platform, attract participation of social capital, expand the size of funds, and support the railway construction during 13th Five-Year Plan. Effectively promote public-private partnership model, open ownership and management rights of intercity railway, the City and suburban railway to social capital liberalization, and ensure the voices and decision-making rights which social investors participate in railway projects at the same time. Make full use of the integrated railway land development policy to support railway transportation by developing income.

Establish railway financing support and compensate mechanism. First,

improve railway financing policies. Irrational regulations and policies should be eliminated as soon as possible to establish a railway polices system corresponding to the operating of market. Second, aim at the status that external capitals are underutilized and unwilling to invest railway construction, the government must formulate scientific, rational and attractive railway financing support and compensate mechanism according to the actual demand of railway financing and different economic characteristics and railway development status.

(2) Reformation of investment and financing mechanism in highway transportation

Establish a dedicated highway fund, strengthen force of government investment. It can use vehicle purchase tax and vehicle tax as the national highway dedicated fund to construct and maintain national trunk highway network. It can use fuel tax income and internalization of external revenue income (For example, the highway construction can add value to land along, it may provide a certain percentage of extract transportation construction funds) as the local highway dedicated fund to construct and maintain provincial level and the level below provincial highway network. Meanwhile, States may also consider to issue road construction bond wavily. It can not only open up the channels of insurance, pension funds and other investment road projects, but also raise sufficient funds.

Toll road layout should be reasonable; management should be strengthened. July 21, 2015, revised version of "toll road management regulations" issued by the Ministry of Transportation put forward that, governmental toll highway system implement “unify borrowing and returning”, the period of toll is determined by network actual repayment, no longer limited by specific period. But the management to toll road should be strengthened, system security should be improved, dynamic and transparent continuous supervision should be realistic, and layout, number and fees should be reasonable.

Promote investment to general highway construction and maintenances;

seek more funds for general highway infrastructure. It is necessary gradually increase the proportion of financial investment, reduce the proportion of bank loan funds On one hand, tax reformation should be further promoted, and increase the proportion of transfer payments from central to local, to ensure a stable source of local financial funds. On the other hand, local authorities should innovate systems and policies, expand the sources of funds for general highway construction.

Construct multiple financing modes and extensively absorb social funds. On one hand, check the guiding role of government funding for its construction led by government and local authorities. Satisfy the financial needs of freeway construction and maintenance by national budgets investment, dedicated funding or franchising. On the other hand, when national budget is tight, it may consider highway as enterprise management by franchising to absorb social funds. Choose relatively investing modes by the status and function that highway be in national economic and social development.

(3) Reformation of investment and financing mechanism in port.

Improve the extent of marketization, innovate investment and financing mechanisms. First, establish a market-oriented concept of port investment and operations, deal with short and long term interests in port construction and development, improve investment and financing environment, attract more social capital investment in ports, so that more investors can involve in port operations. Local governments can levy long-term taxes to ease the financial pressure on the government, achieve win-win situation between the government and enterprises. Secondly, to solve the localization and function of government business issues, government investment in port public infrastructure must be in place, and release existing public infrastructure assets from port enterprise to assume responsibility for maintaining port public infrastructure. Improve quality of port operating asset and profitability ability to attract social capital investment in port.

(4) Reformation of investment and financing mechanism in air

transportation.

Optimize ownership structure, and actively introduce mixed-ownership economy. Firstly, the border between the government and the market should be clarified, guiding orderly competition in air market. On one hand, it should be insisted that Public ownership is in the dominant position and plays a leading role in the civil aviation market subjects. In the civil aviation development of regional aviation, commuter aviation and other poor and remote areas, air transportation level is relatively backward; we should use policies and subsidies etc. to actively guide the development of public ownership airlines, and create civil aviation social benefits. On the other hand, for trunk airlines and transportation between hubs which are of adequate competitions, it should let the market to play a decisive role in the allocation of resources, so that the non-public economic entities can fairly and freely compete, to ensure the match between the availability and cost in aviation resources. Secondly, the state-owned assets management system should be consummate, and the state-owned capital authorized business model should be reformed.

Moderately guiding private capital to participate in the competition for the civil aviation establishes a "win-win" mechanism. We should support private capital to participate in civil aviation market in the form of shares or wholly-owned. We should encourage private capitals participate and invest civil branches passenger transportation, commuting airport construction, commuting operation, air logistics, civil service security, etc. We should form a benign competition environment based on the real consumer needs with the mixed ownership enterprise formed in domestic civil air transportation.

Guide airport enterprise to the bond market financing. “New Nine Articles” proposes that the bond market should be actively developed in conformity with the requirements of the appropriate management of investors, to improve cross-market listing in different varieties of bonds and independent custody transfer mechanisms and facilitate the smooth flow of cross-market bonds. If the license cross-holdings

become reality, airport enterprises can make use of standardized industrial trust fund and civil aviation private equity funds, to broaden the issuance scope of corporate bond and species, and contribute to qualifying airport corporate bonds to the "new three board" listed transactions, letting creditor participate the mergers and acquisitions. Besides, airport companies can make use of standardized commercial banks, stock institutions, insurance asset management institutions to securitize the real estate, making the airport asset flow to meet the funding needs of the airport expansion.

3 Environmental protection requirements, land resource constraints risk and solutions

3.1 Traffic technology development cannot meet the requirements of environmental protection

During the 13th Five-Year Plan, the development of China's transportation industry faces enormous risks and challenges. The development of transportation industry not only occupies land, energy and capital, but also causes different degrees of damage to the environment. Transportation can cause great damage to the ecological environment in the process of construction and operation. The construction of transportation infrastructure can affect soil and water, vegetation, animals living environment, people's living environment and human landscape, and it also pollute the atmosphere, water quality and bring the noise, which is contrary to the requirement of the sustainable development of the transportation and environment. CPC Central Committee, State Council made it clear to vigorously develop the green economy, and actively develop the low carbon economy and circular economy, and add tackling climate change into economic and social development plan, and have made solemn statement to the world that by 2020, the CO_2 emission per unit of GDP decreased by 40% to 45% than that in 2005. Under the background of vigorously accelerating the construction of ecological civilization and building the beautiful China, the transportation industry is facing tremendous pressure in terms of energy-saving and emission-reduction. Lower energy consumption, higher transportation equipment pollution emission standards, more stringent transportation infrastructure environmental assessment and more emphasis on ecological protection have become the significant risks and uncertainties of the transportation industry will continue to maintain the rapid growth in the 13th Five-Year Plan.

3.2 The pressure of energy shortage restricts the speed of

transportation development

The growth rate of energy production lags behind the growth rate of energy consumption. Energy has become a "bottleneck" problem constraining national economic development.

The energy consumption target was submitted in National Energy Development Strategy Action Plan (2014-2020) that total primary energy consumption should be controlled in 4.8 billion tons of standard coal in 2020. After the manufacturing industry, the transportation industry is the second largest energy consumption industry. During the 12th Five-Year Plan, China civilian car ownership increased from 90.86 million in 2010 to 264 million in 2014. The continuous rise in the amount of car ownership has led to the increasing oil consumption in China. And during the 12th Five-Year Plan, transportation has taken a series of measures to reduce the energy consumption, however, the current overall situation of the development mode of transportation has not been fundamentally changed. During the 13th Five-Year Plan, the pressure of energy shortage will remain an important factor restricting the transportation development. Transportation infrastructure and production must meet the demands, reduce energy consumption, and explore the "resource-saving" development model.

3.3 Transportation construction further intensify land resource usage

The development of transportation industry needs a lot of land resources. The construction of railway and highway infrastructure, passenger and freight station, port and shipping docks, airports and transportation service area takes up a lot of land resources. Urban road generally accounts for at least 1/5 of the urban area; one kilometer of railway construction covers about 4.4-6.0 hectares; and six-lane highway covers 8.2 hectares per kilometer. Land resources shortage is China's basic national conditions and the development of transportation industry faced serious constraints of land resources and stricter construction policy. At present, China is implementing the

strictest land management system in line with national conditions, strictly controlling the construction land increment including transportation industry. With the rapid development of social economy and the acceleration of urbanization, the demand of land for transportation construction will be further expanded. The situation of vast population and limited farmland and the limited and continuous reduction trend of land resources has been a serious challenge to the construction of transportation infrastructure, and has become an important constraint for the development of the transportation industry.

3.4 Countermeasures and suggestions

(1) Reduce the damage of infrastructure construction on the environment

Before the construction of transportation infrastructure construction, the analysis of water quality, soil, animal and plant survival environment and geological structure should be carefully made. The use of environmental quality asphalt and scrap asphalt recycling technology are promoted. And the vegetation restoration should be strengthened after construction of transportation infrastructure. Different restoration measures are proposed according to the environmental characteristics of the project area. It should take greatest effort to reduce the damage of the transportation infrastructure construction on the surrounding natural landscape, and take preventive measures to protect and restore the natural landscape. It should clear the environmental responsibility of the builders to promote the protection, recovery, compensation, construction and other measures to maintain the ecological environment function.

- Deepen technology research of low carbon, environmental protection and energy saving

The development pace of pure electric vehicles, hybrid vehicles and ships, and natural gas vehicles and ships, should be accelerated; the development pace of natural family car, intercity buses, heavy trucks and boats, should be maintained; and the use

of energy-saving vehicle and vessel should be vigorously promoted. Meanwhile, green transportation technologies, including the battery technology of new energy automotive, energy consumption monitoring, the application technology of biomass energy, exhaust gas purification, noise reduction, waste water treatment, the recycling technology of transportation building material, the emergency technology of hazardous chemicals leak of marine oil spill, and the dust control technology of bulk handling, are the focus of research in the future. It should increase the investment of green transportation technology, establish the incentives system of technological innovation to give full play to the innovation potential of millions of people.

■ Coordinate the transportation development and land intensive use

Policies should be seeking to establish paid use system of land for transportation projects, improve the unified planning system of transportation infrastructure, establish land development and comprehensive transportation system, and actively promote the establishment of the comprehensive transportation system to coordinate the development of various modes of transportation. Under the premise of transportation land meeting the transportation function, the development of ground and underground space of transportation infrastructure should be encouraged, and the configuration of the use right for ground and underground construction land should be improved. From the perspective of the comprehensive transportation system, transportation intensive land use can be realized by adjusting the transportation structure and promoting the development of the railway, inland, pipeline and other transportation modes of occupying less land resources.

■ Establish and improve the green low-carbon energy detection system

The formulation and implementation of fuel consumption and emissions limits standard system of operating vehicles, ships and key transportation equipment should be accelerated. The detection and supervision management should be strengthened, and the system of the low carbon transportation statistical monitoring and evaluation should be established. The transportation pollution and energy consumption statistical

monitoring system should be improved. The detection of transportation network system should be established quickly to study and establish the evaluation index system of transportation environment pollution and energy consumption.

4 The risk of inadequate laws and regulations and institutional mechanisms

4.1 The imperfect transportation laws

At present, transportation is in a new stage of transformation, upgrading and accelerating development. However, during the development process, there are some important problems, such as imperfect legal system, imperfect standard and so on. At the present stage in China, the lack of clear multimodal transportation laws and regulations to regulate the legal status and legal responsibility of multimodal transportation operator, will result in difficultly achieving the unity and join of multimodal transportation contracts, bills, standards and norms. In highway traffic, some laws and regulations may no longer be applicable to the current actual situation, especially the highway toll management regulations and the maintenance, and the management measures of rural roads. In urban traffic, although it has been promoting the development of public transportation priority, the "Urban Public Transportation Ordinance" has not yet promulgated to explicate the public transportation priority and the policy support guide, regulate the hardware security, operational management, safety and emergency protection of the urban public transportation. Mobile Internet travel services in urban transportation develops rapidly, but there are many hidden dangers in the deep integration process of the “Internet + transportation”, such as the taxi industry reform and designated car management. For water transportation, in the 13th Five-Year Plan period, the "heavy construction, light management and maintenance" phenomenon of inland waterway will be very serious without the comprehensive maritime transportation safety laws and regulations, maritime emergency and safety-related regulations, and the imperfect management and conservation regulations. For air transportation, how to set up the airspace and how to use the airspace between the military and civil aviation, there are still no explicit provisions. In the 13th Five-Year Plan period, if there are still no exact provisions for the problem of military and civilian aviation domain designation, rationality of the

military and civilian aviation domain designation will be difficult to be guaranteed. At the same, there will be serious impact on the normal rate and economic benefits of airlines flights.

China's transportation standards are imperfect, as in the emerging field of modern logistics, integrated hub, inter-city railway, general airport, urban distribution, etc., which is especially prominent in terms of the standards of construction, management, facilities and equipment, and information and services. In the 13th Five-Year Plan period, that China’s transportation equipment field still lack a sound truck models and relevant carrying cell technology standard, will be difficult to realize the unified standards of railways, highways and waterways containers and the standardization of loading tools, facilities, logistics equipment. At the same time, comprehensive transportation information resources standardization is undeveloped, which leads it difficult to realize the standardization of comprehensive transportation information management and service, generates barriers in sharing resources, and affects the level of integration of comprehensive transportation. The low adoption rate of international standard, especially the docking inappropriate technical standards between China and neighboring countries, such as that in railway gauge, axle load of vehicle, emission standards, improper loads, highway signs, information platform, will slow down the pace of the construction of the international transportation corridor, and hinder the development of China's foreign transportation business.

4.2 The difficulty to place the law enforcement

The transportation administrative law enforcement system is a distributed system of law enforcement, and transportation administrative law enforcement agencies are set by industry and professional. The enforcement is fragmented and decentralized. The transportation enforcement institutions include government departments, mechanisms authorized by laws, and regulations and associated agencies; also include fixed permanent establishment and temporary agencies, even include administrative organs, public institutions and enterprises, which leads that the management main

body of transportation administrative law enforcement is confusion, and transportation law enforcement has been in troubles of enforcement policies from different departments, bull management, upper and lower dislocation and overlapping responsibilities. In the decentralized system of transportation enforcement, transportation enforcement agencies dispersed in transportation inspectors, highway management, road transport, port and shipping management, maritime safety and other departments. In the 12th Five-Year Plan period, China's transportation departments have made a lot of effort, but this law enforcement management model has been entrenched. The system reform of transportation administrative law enforcement is not easy. Changing the situation of "fragmented and decentralized law enforcement" is still a problem that needs to be resolved.

4.3 Law enforcement behavior is not standardized, and the problem of law enforcement issues is extrusive

Existing laws and regulations are short of feasibility, standardization and the detailed nature. There are no strict requirements and uniform standards for a particular way of enforcement procedures and instruments. So that there is not form a unified transportation legal environment. In addition, due to that the officers are lack of understanding on laws and regulations, the law enforcement responsibility consciousness is not strong, and the level of administrative law enforcement is not high, which lead to the existence of deviation in the standards execution. Besides, the law enforcement behavior is not standardized, and the program is not in place are appeared. Even individual also appeared erroneous application of administrative punishment, administrative capacity is not strong and other issues. It has formed a kind of adverse ethos that law enforcement officers in law enforcement do human case, and do not pay attention to carry out the publicity and education of transportation laws and regulations to the parties.

At the same time, due to the unreasonable institutions, imperfect management system and the staff expansion in transportation management agency, some

administrative law enforcement department's lack of funds, and arbitrary fines appear to compensate for the lack of funds and income. The punishment escrow phenomenon is serious. In addition, it is difficult to supervise the transportation administrative law enforcement because of the particularity of the enforcement. If a comprehensive report, check and restraint mechanism cannot be established, it will inevitably lead to that the competent departments of transportation supervise ineffectively to the subordinate administrative law enforcement subject. Subordinate also has a wide discretion power in the process of law enforcement to produce self-serving behavior, and superior leaderships difficultly find and correct it.

4.4 Countermeasures and suggestions

The system of transportation laws and regulations and transportation standards are improved. The improvement of the laws and regulations of the comprehensive transportation system are accelerated. Some laws such as "The opinions on the establishment of comprehensive transportation regulatory framework" and" Comprehensive transportation promotion law" and "Multimodal transportation law" are developed and implemented. Some existing laws and regulations such as "Railway law", "Highway law", "The toll road management regulations", "Road transportation regulations", "Maritime transportation safety law," "Maritime law" are studied and revised. The promulgation of laws and regulations, such as "Waterway law" and "Urban public transportation ordinance", are highly promoted. Measures must be taken to overall plan the transportation standards system, and do well on standards of top-level design. The vacancies are filled through the revision of existing standards and the development of new standards. The relevant safety production standards are improved, and the sound system of Transportation Standards are built focusing on transportation infrastructure construction and operation, transportation equipment and facilities, production operations, conservation and management of safety production and other aspects.

Enhance transportation legal capacity, and increase law enforcement efforts.

It needs to strictly implement administration according to the law, strengthen legal education and professional training, and advance transportation affairs open, improve the administrative decision-making mechanism, promote the performance of management and supervision and improve the hotline, Internet and other platform capabilities for serving the people. The transportation market supervision should be strengthened, all kinds of illegal behavior should be strictly investigated and dealt. The rule of law thinking is strengthened, the government departments under the rule of law are created, and the "three basis" construction are promoted. The efficiency and standardization of law enforcement are improved; the process of administrative reconsideration case is standardized. The complaint letters and visits should be actively guided into the judicial resolution, improving administrative capacity.