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The State Council issued the "14th Five-Year Plan"  
modern comprehensive transportation  
Notice on Development Planning of Transportation  
System  
State Development [2021] No. 27

The people's governments of all provinces, autonomous regions, and municipalities directly under the Central Government, all ministries and commissions of the State Council, and all institutions directly under the State Council:

The "14th Five-Year Plan" Modern Comprehensive Transportation System Development Plan is now issued to you, please implement it conscientiously.

State Council  
December 9, 2021

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"14th Five-Year Plan" Modern Comprehensive  
Transportation System Development Plan

Transportation is a basic, leading, and strategic industry in the national economy, an important service industry and an important part of the modern economic system, and an important support for building a new development pattern and serving the people's better life and promoting common prosperity solid guarantee. In order to speed up the construction of a strong transportation country and build a modern comprehensive transportation system, according to the "The 14th Five-Year Plan for National Economic and Social Development of the People's Republic of China and the 2035 Long-term Target Outline", "Outline for Building a Strong Transportation Country", "National Comprehensive Three-dimensional Transportation Network Planning Outline" to formulate this plan.

## Chapter 1 Development Environment

During the "13th Five-Year Plan" period, the construction of my country's comprehensive transportation system has made historic achievements, which can basically meet the requirements of economic and social development, and the people's sense of gain and satisfaction have been significantly improved. It has provided basic guarantees and played an important role in responding to the new crown pneumonia epidemic, strengthening transportation guarantees, and promoting the resumption of work and production. In the past five years, my country's transportation infrastructure network has become more and more perfect. The total mileage of the comprehensive transportation network has exceeded 6 million kilometers. The "ten vertical and ten horizontal" comprehensive transportation channels have basically been connected. The coverage rate exceeds 95%, the expressway covers more than 98% of the cities with a population of more than 200,000, and the civil transport airport covers about 92% of the prefecture-level cities. , Shanghai Yangshan Port automated terminal, Beijing-Zhangjiakou high-speed railway and other super-large transportation projects were completed and put into operation. The strategic support capacity has been continuously enhanced, the number of China-Europe trains has increased rapidly, the Beijing-Tianjin-Hebei integrated transportation network, and the comprehensive three-dimensional transportation corridor of the Yangtze River Economic Belt have been accelerated. Hundreds of backbone channels for poverty alleviation through transportation have been basically completed, and more than 1.47 million rural roads have been newly built or rebuilt. km, and more than 33,000 villages have been added to be connected to buses. All qualified towns and villages have access to hardened roads and buses. Express outlets basically cover all towns and villages. The quality of transportation services continues to improve, the proportion of high-quality passengers travels continues to increase, the punctuality rate of flights has risen sharply, the average annual growth rate of container rail-water combined transport has exceeded 20%, and the volume of express delivery business has quadrupled, ranking first in the world. New technologies and new business formats are booming. The full series of Fuxing EMUs with completely independent intellectual property rights are put into operation. The C919 passenger plane has successfully tested its flight. The ARJ21 regional passenger plane is in large-scale operation. In the forefront, the level of shipbuilding continues to improve, new business forms such as online car-hailing, shared bicycles, and online freight platforms develop rapidly, and governance capabilities continue to increase. The reform of "decentralization, control and service" continued to deepen, and key reform tasks in the fields of railways, airspace, and oil and gas pipeline networks were solidly advanced. The construction of green transportation and safe transportation is steadily advancing. New energy vehicles account for more than half of the global total. The carbon dioxide emission intensity of operating trucks and operating ships has dropped by about 8.4% and 7.1% respectively. The safety level of civil aviation and railways remains world-leading. The number of major accidents in road transportation and the number of deaths decreased by about 75% and 69% respectively.

At the same time, the problem of unbalanced and insufficient comprehensive transportation development in my country is still prominent. The layout of the comprehensive transportation network is not balanced, the structure is not

reasonable, and the connection is not smooth enough. There are obvious shortcomings in the intercity and urban (suburban) railways of key urban agglomerations and metropolitan areas. The proportion of cargo multimodal transport and passenger intermodal transport is relatively low, and the supply of customized, personalized and professional transport service products does not match the rapidly growing demand. The depth and breadth of the application of intelligent transportation technology needs to be expanded, and the independent innovation capability of some key core products and technologies is not strong. The transportation security situation is still grim, and the guarantee capacity of the industrial and supply chains is insufficient. The task of green and low-carbon development is arduous, and the promotion and application of clean energy still needs to be accelerated. The comprehensive transportation management system and mechanism need to be perfected, and the system and mechanism obstacles that restrict the free flow of elements still exist.

During the "14th Five-Year Plan" period, the situation faced by my country's comprehensive transportation development is more complex and changeable. From an international perspective, the world today is undergoing major changes unseen in a century. A new round of technological revolution and industrial transformation is in-depth development. The new crown pneumonia epidemic has impacted the global industrial chain supply chain and international logistics system, and economic globalization is facing headwinds. From a domestic perspective, my country has embarked on a new journey to comprehensively build a modern socialist country. Profound changes have taken place in the regional economic layout, national land development and protection pattern, population structure distribution, consumption demand characteristics, and factor supply patterns, which have put forward new requirements for the development of a comprehensive transportation system. , the transportation industry has entered a critical period of perfecting the facility network and making up for shortcomings accurately, a period of opportunity for promoting integrated integration and improving service quality and efficiency, and a critical period for deepening reform and innovation and transforming the development mode. It is necessary to adapt to the requirements of land and space development and protection, new-type urbanization construction, and comprehensive promotion of rural revitalization, optimize the development layout, strengthen connection and integration, and improve the regional urban-rural comprehensive transportation network according to local conditions; it is necessary to insist on innovation as the core, enhance development momentum, and promote new technological empowerment. It can improve the quality and efficiency of transportation development; it is necessary to enhance the resilience of the comprehensive transportation system, adjust the development model, integrate the concept of green development and low-carbon development requirements throughout the entire development process, and improve its own operation safety level and the ability to guarantee national strategic security; Satisfy the people's yearning for a better life and promote common prosperity as the focus, change the development path, promote equal emphasis on construction, management, maintenance and transportation, balance and coordination of facilities and services, and deep integration of transportation and economic and social development, and promote high-quality development of transportation through all-round transformation .

## Chapter II General Requirements

## Section 1 Guiding Thought

Guided by Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, fully implement the spirit of the 19th National Congress of the Communist Party of China and the previous plenary sessions of the 19th National Congress of the Communist Party of China, based on the new development stage, fully, accurately and comprehensively implement the new development concept, build a new development pattern, and adhere to the principles of the people The idea of development centered on high-quality development, with the theme of promoting high-quality development, with deepening supply-side structural reform as the main line, with reform and innovation as the fundamental driving force, to meet the people's growing needs for a better life as the fundamental purpose, and to accelerate the construction of a transportation power as the The goal is to coordinate development and safety, improve the structurally optimized and integrated facility network, expand diversified and high-quality service supply, cultivate innovation-driven, integrated and efficient development momentum, strengthen the green, safe, open and cooperative development model, and build a modern comprehensive transportation The transportation system provides strategic support for building a modern socialist country in an all-round way.

## Section 2 Basic Principles

**Serve the overall situation and be a good pioneer.** Adhere to people's transportation for the people, give full play to the role of transportation as the pioneer of China's modernization, continuously enhance the ability to guarantee the overall economic and social development and major national strategies, effectively support and lead coordinated regional development, rural revitalization and new urbanization, and provide better Transportation services that meet the needs of the people.

**System advancement, convergence and integration.** Adhere to the system concept, reasonably determine the scale, technical standards, and construction sequence of the transportation infrastructure network, fill in the gaps in the road network in the western region, optimize the network structure and functions, scientifically and rationally tap the potential of existing facilities, accurately fill in the shortcomings of China Unicom, and improve transportation. Resource allocation efficiency, promote cross-field, cross-regional, cross-industry coordinated and integrated development.

**Driven by innovation, deepen reform.** Focus on the in-depth empowerment application of new technologies, improve the level of digital and intelligent development of transportation, remove institutional barriers that restrict the high-quality development of transportation, promote the unified opening and orderly competition of the transportation market, and promote the improvement of transportation efficiency, expansion of functions, and growth. kinetic energy.

**Green transformation, safe development.** Implement the requirements of carbon peaking and carbon neutrality goals, implement the overall national security concept, strengthen the economical and intensive use of resource elements, promote the green and low-carbon transformation of transportation, strengthen the construction of operational safety and emergency response capabilities, and improve the level of international connectivity and transportation security, Ensure the safety of the industrial chain and supply chain.

### Section 3 Development Goals

By 2025, comprehensive transportation will basically achieve integrated and integrated development, substantial breakthroughs will be made in intelligence and greenization, comprehensive capabilities, service quality, operational efficiency and overall benefits will be significantly improved, and transportation development will move towards a world-class level.

**The facility network is more complete.** The utilization rate of the main frame capacity of the national comprehensive three-dimensional transportation network has been significantly improved. With the "eight vertical and eight horizontal" high-speed railway main passages as the main framework, connected by high-speed railway regional connection lines, and supplemented by some intercity railways that take into account the functions of trunk lines, the high-speed railway network with a speed of 250 kilometers and above is mainly used for 500,000 The coverage rate of cities with a population above 95% will be over 95%, and the bottleneck sections of normal-speed railways will be basically eliminated. The main lines of the national expressway network composed of 7 radial lines from the capital, 11 north-south longitudinal lines, 18 east-west horizontal lines, and regional ring lines, parallel lines, and connecting lines are basically connected, and the quality of ordinary roads has been further improved. A modern airport system with complete layout and complete functions has basically taken shape. The level of specialization and modernization of ports and terminals has been significantly improved, and important progress has been made in the construction of high-level waterway networks for inland rivers. The efficiency of transfers and installations at comprehensive transportation hubs has been further improved. The integrated transportation network of key urban agglomerations and the one-hour commuter network of metropolitan areas will be formed at an accelerated pace, and national highways along the border will be basically connected.

**Shipping services are more efficient.** The quality of transportation services has been steadily improved, "one-stop" passenger transportation and "one-order" services for freight have become more popular, customized, personalized and specialized transportation service products have become more abundant, urban traffic congestion and "difficult parking" problems have continued to be alleviated, rural areas Transportation services in border areas are more guaranteed, and qualified villages have achieved full coverage of express services. The global international transportation service network has been further improved, and the development quality of China Railway Express has been steadily improved.

**The technical equipment is more advanced.** The fifth-generation mobile communication (5G), Internet of Things, big data, cloud computing, artificial intelligence and other technologies are deeply integrated with transportation, important progress has been made in the construction of new infrastructure in the field of transportation, the digitalization rate of transportation infrastructure has increased significantly, and data is open and shared Substantial breakthroughs were made in platform integration and optimization. The promotion and application of independent advanced technology and equipment has been accelerated, the Beidou system has fully covered key areas of transportation, and the standardization rate of transportation equipment has increased significantly.

**Security is more reliable.** The transportation facilities are durable and reliable, their operation is safe and controllable, and preventive measures are in place, and the integrity rate of safety facilities continues to increase. The cross-

departmental and cross-field safety risk prevention and control system and emergency rescue system have been further improved, and the incidence of major and serious accidents has been further reduced. The transportation safety of main channels and the transportation safety of food, energy, ore and other materials are more secure, and the security assurance capabilities of the international logistics supply chain continue to improve.

The development model is more sustainable. Green production and lifestyles in the field of transportation are gradually taking shape. The proportion of bulk cargo and medium-to-long-distance cargo transport undertaken by railways and water transport has steadily increased, the proportion of green travel has increased significantly, clean and low-carbon transportation vehicles have been widely used, and energy consumption per unit of turnover has been significantly reduced. The proportion of green construction of facilities has increased significantly, the utilization efficiency of resource elements has continued to increase, and the intensity of carbon emissions has steadily decreased.

Governance capabilities are more complete. The integrated development of various transportation modes, the laws, regulations and standards in the fields of transportation infrastructure investment and financing, management, operation and maintenance are more complete, the degree of integration and development of comprehensive transportation and transportation is continuously improved, market-oriented reforms continue to deepen, and the diversified investment and financing system is more comprehensive. A sound, credit-based new regulatory mechanism is being formed at an accelerated pace.

Looking forward to 2035, a convenient, smooth, cost-effective, safe, reliable, green, intensive, intelligent and advanced modern high-quality national comprehensive three-dimensional transportation network will be basically completed. 3-hour coverage of major cities across the country) and the "Global 123 Express Freight Logistics Circle" (1-day domestic express delivery, 2-day delivery in neighboring countries, and 3-day delivery in major cities around the world) have been basically formed, and a transportation powerhouse has basically been built.

Column 1 Main indicators of comprehensive transportation development during the "14th Five-Year Plan" period				
category	index	2020	2025① -	Attribut es
facility network	1. Railway operating mileage (10,000 kilometers)	14.6	16.5	predictab ility
	Including: operating mileage of high-speed railway	3.8	5	predictab ility
	2. Road mileage (10,000 kilometers)	519.8	550	predictab ility
	Of which: mileage of highways built	16.1	19	predictab ility
	3. Mileage of high-grade inland waterways (10,000 kilometers)	1.61	1.85	predictab ility
	4. Number of civil transport airports (number)	241	>270	predictab ility
	5. Urban rail transit ② operating mileage (km)	6600	10000	predictab ility

Convergence	6. The rate of railway arrivals in important port areas of coastal ports (%)	59.5	>70	predictability
	7. Rail transit access rate of hub airport③ ( % )	68	80	predictability
	8. Average annual growth rate of container rail-water combined transport volume (%)	—	15	predictability
	9. Access rate of courier services in administrative villages (%)	50	>90	predictability
smart green	10. Key areas ④ Application rate of Beidou system ( % )	≥60	>95	predictability
	11. Proportion of urban new energy public transport vehicles⑤ ( % )	66.2	72	predictability
	12. Carbon dioxide emission intensity of transportation⑥Decrease rate ( % )	—	( 5 )	predictability
Safe and reliable	13. Decrease rate of death toll per 10,000 vehicles in traffic accidents of relatively large and above grades in road transport (%)	—	( 12 )	restrictive
	14. Major and above accident rate per million hours of civil aviation transport flight (times/million hours)	0	[ <0.11]	restrictive
	15. Death rate per billion ton-kilometers of railway traffic accidents (people/billion ton-kilometers)	0.17	<0.3	restrictive

Note: ① [ ] is the cumulative figure for 5 years. ② Refers to large and medium-capacity urban rail transit projects included in the urban rail transit construction plan approved by the state. ③It refers to the proportion of airports connected to rail transit among international hub airports and regional hub airports. ④ Refers to key operating vehicles, postal and express-owned mainline transport vehicles, passenger ships and dangerous goods ships that should be equipped with on-board equipment with satellite positioning functions. ⑤ Refers to the proportion of new energy public transport vehicles in all ground public transport vehicles. ⑥ Refers to the carbon dioxide emissions calculated by unit transportation turnover.

Chapter 3 Constructing a High-Quality Comprehensive Three-dimensional Transportation Network

According to the main skeleton layout of the national comprehensive three-dimensional transportation network "6 axes, 7 corridors and 8 passages", build and improve the "ten vertical and ten horizontal" comprehensive transportation channels as the backbone, the comprehensive transportation hub as the fulcrum, and the express network, trunk network, and basic network The comprehensive transportation network based on the multi-level network will accelerate the improvement of the quality and efficiency of the existing network, focus on the central and western regions to make up for the shortcomings of the network, steadily improve the depth

of accessibility, smooth the network microcirculation, and outline the "traffic meticulous painting" of a beautiful China .

Section 1 Improving the comprehensive transportation channel

Optimize the layout of comprehensive transportation channels. Build a comprehensive, three-dimensional, large-capacity, and rapid transportation axis, build a multi-mode, multi-channel, and convenient transportation corridor, and strengthen the coordination between the axis and the corridor. Improve the functions of Beijing-Shanghai, Shanghai-Kunming, Guangkun, Land Bridge, Beijing-Hong Kong, Macao and Taiwan, Heihe-Hong Kong and Macao, Ejina-Guangzhou, Qingdao-Lhasa, Xiamen-Kashgar, etc., promote the construction of sections to be connected and the expansion and transformation of bottleneck sections, and smooth the coastal and Outback access. Promote the optimal allocation and organic connection of resources in various modes of transportation within the channel.

Strengthen the construction of strategic backbone channels. Promote the construction of outbound and entry-Tibet channels, expand the traffic capacity of the four inland main channels of Gansu-Xinjiang, Qingxin, Qinghai-Tibet, and Sichuan-Tibet, steadily promote the construction of the Sichuan-Tibet Railway, accelerate the preparatory work for the Hotan-Shigatse section of the Xinjiang-Tibet Railway, and start key sections in due course The construction of the Yunnan-Tibet Railway will be promoted in an orderly manner, the layout of the air route network will be densely optimized, and a multi-directional channel layout will be constructed. Smooth passages along the river, speed up the construction of high-speed railways along the river, and optimize the functions of the large comprehensive transportation corridor along the river with high-grade waterways, trunk railways, and expressways as the backbone. Upgrade coastal passages, improve the capacity of railway passages, promote the expansion and reconstruction of busy highway sections, improve the overall efficiency of port waterways, and build large-capacity, high-quality transportation corridors. Pass through the border passages, upgrade and transform ordinary national and provincial trunk lines, promote the construction of border railways in key directions, and improve the level of safety and security. Build a new land-sea corridor in the west, give full play to the backbone role of railways in land transportation and the gateway role of ports in maritime transportation, strengthen the three routes in the east, middle and west, form a large-capacity main channel, and connect with international transportation channels.

Column 2 Strategic Backbone Corridor Construction Project
<div>1. 出疆通道。建设和田至若羌、伊宁至阿克苏、若羌至罗布泊、精河至阿拉山口增建二线等铁路，实施精河经伊宁至霍尔果斯铁路扩能改造。建成京新高速公路巴里坤至木垒段，完成国道315依吞布拉克—若羌—民丰段建设改造。</div> <div>2. 入藏通道。建设川藏铁路雅安至林芝段，推进青藏铁路格尔木至拉萨段电气化改造、日喀则至吉隆铁路等项目前期工作，适时启动新藏铁路重点路段建设。建成京藏高速公路那曲至拉萨段、雅叶高速公路拉萨至日喀则机场段，提质改造川藏公路318线、滇藏新通道西藏段（丙察察），推动国道219米林至墨脱段建设，实施川藏铁路配套公路工程。</div> <div>3. 沿江通道。建设成都重庆至上海沿江高铁。实施长江中上游干线航道等级提升工程，系统疏解三峡枢纽瓶颈制约，推进三峡翻坝转运、金沙江翻坝转运设施建设，深化三峡水运新通道前期论证。推动宁芜高速、沪渝高速武汉至黄石段、渝宜高速长寿至梁平段以及厦蓉高速、银昆高速成都至</div>



- 重庆段等高速公路扩容改造。
4. **沿海通道。**建设上海经宁波至合浦沿海高速铁路。按二级及以上标准推动沿海国道228改造，推进沈海高速火村至龙山段、福鼎至诏安段等扩容改造。
5. **沿边通道。**有序推进酒泉至额济纳等铁路建设，开展波密至然乌等铁路前期工作。推动沿边国道219、国道331待贯通和低等级路段建设改造，实现85%以上达到三级及以上标准。
6. **西部陆海新通道。**建设黄桶至百色、黔桂增建二线、南防增建二线等铁路，实施隆黄铁路隆昌至叙永段扩能改造。推动呼北高速灌阳至平乐段等国家高速公路待贯通路段建设。研究建设平陆运河。推进广西北部湾国际门户港和洋浦区域国际集装箱枢纽港建设。

第二节 建设多层次一体化综合交通枢纽

**打造综合交通枢纽集群。**建设京津冀、长三角、粤港澳大湾区、成渝地区双城经济圈等全国性综合交通枢纽集群，提升全球互联互通水平和辐射能级。培育一批辐射区域、连通全国的综合交通枢纽集群，合理组织集群服务网络，提高集群内枢纽城市协同效率。

**优化综合交通枢纽城市功能。**提升全国性综合交通枢纽的全球联通水平和资源要素配置能力，增强部分枢纽国际门户功能。优化全国性综合交通枢纽客货中转设施、集疏运网络及客运场站间快速连接系统。增强区域性综合交通枢纽的衔接转运能力，发展口岸枢纽。强化不同层级综合交通枢纽城市之间功能互补、设施连通、运行协同。

**完善综合客运枢纽系统。**优化客运场站和城市公共交通枢纽布局，鼓励同站布设，加强与城市交通系统有效衔接。对换乘潜在需求大的综合客运枢纽，做好衔接通道用地和空间预留。推动新建综合客运枢纽布局立体换乘设施，鼓励同台换乘，实施既有枢纽换乘设施便捷化改造，推动主要运输方式间便捷换乘。整合接入综合客运枢纽的不同运输方式信息资源，加强数据、时刻、运力等对接。促进综合客运枢纽站城融合，探索建立枢纽开发利益共享机制，推动枢纽与周边区域统一规划、综合开发，加强开发时序协调、服务功能共享。

**建设综合货运枢纽系统。**优先利用现有物流园区以及货运场站等设施，规划建设多种运输方式高效融合的综合货运枢纽，引导冷链物流、邮政快递、分拨配送等功能设施集中布局。完善货运枢纽的集疏运铁路、公路网络，加快建设多式联运设施，推进口岸换装转运设施扩能改造。实施邮政快递枢纽能力提升工程，加强邮政普遍服务和快递处理中心等设施建设，与铁路、公路、民航等枢纽加强统筹。推进120个左右国家物流枢纽建设。

专栏3 综合交通枢纽建设重点工程
<p>提升北京、天津、上海、广州、深圳、成都、重庆等枢纽城市的全球辐射能级。依托上海浦东、天津滨海、广州白云、成都天府等枢纽机场以及深圳西丽、重庆东站等铁路客运站，建设一批综合客运枢纽场站，推进综合客运枢纽场站间直接连通，实施北京、上海、广州、重庆等铁路枢纽优化工程，提升上海国际航运中心能级，建设天津国际航运中心，建设广州东部公铁联运枢纽、重庆陆港型物流枢纽等综合货运枢纽场站。</p> <p>增强南京、杭州、沈阳、大连、哈尔滨、青岛、厦门、郑州、武汉、海口、昆明、西安、乌鲁木齐、宁波等枢纽城市的国际门户作用。完善杭州、宁波、厦门、郑州、武汉等枢纽规划，建设南京禄口、杭州萧山、厦门翔安、昆明长水、西安咸阳、武汉西站、宁波西站、海口新海港等综合客运枢纽场站，建设大连、厦门国际航运中心和宁波舟山国家大宗商品储运基地。</p> <p>提升石家庄、太原、合肥、济南、长沙、南宁、兰州等枢纽城市全国集聚辐射功能。优化主要枢纽场站及集疏运设施布局，围绕济南遥墙、长沙黄花、南昌昌北、兰州中川等枢纽机场以及雄安站等铁路枢纽站，建设一批综合交通枢纽场站。</p>

第三节 优化综合立体交通网络

构建以高速铁路、国家高速公路、民用航空等为主体的快速网，完善以普速铁路、普通国省道、港口航道等为主体的干线网，提高基础网保障能力。

**建设现代化铁路网。**坚持客货并重、新建改建并举、高速普速协调发展，加快普速铁路建设和既有铁路扩能改造，着力消除干线瓶颈，推进既有铁路运能紧张路段能力补强，加快提高中西部地区铁路网覆盖水平。加强资源富集区、人口相对密集脱贫地区的开发性铁路和支线铁路建设。推进高速铁路主通道建设，提升沿江、沿海、呼南、京昆等重要通道以及京沪高铁辅助通道运输能力，有序建设区域连接线。综合运用新技术手段，改革创新经营管理模式，提高铁路网整体运营效率。统筹考虑运输需求和效益，合理规划建设铁路项目，严控高速铁路平行线路建设。

专栏4 铁路网建设重点工程
<p>1. <b>普速铁路。</b>建设柳州至广州、瑞金至梅州、温州经武夷山至吉安、定西经平凉至庆阳、太子城至锡林浩特、仙桃经洪湖至监利、太原至和顺、大理至攀枝花、乌北至准东增建二线等普速铁路，协调推进首都地区货运东、北环线铁路建设。推进富裕至加格达奇、南京至芜湖、鸦鹊岭至宜昌、天津至蓟县、汪清至图们、中卫至平凉等铁路扩能改造。</p> <p>2. <b>高速铁路。</b>建设北京经雄安新区至商丘、包头至银川、襄阳至常德、天津至新沂、西安至重庆、西安至十堰、长沙至赣州、雄安新区至忻州、太原至绥德、延安经榆林至鄂尔多斯、长春经辽源至通化、敦化至牡丹江、哈尔滨经绥化至铁力、上海经乍浦至杭州、宁波经台州经温州至福州、焦作经洛阳至平顶山、阜阳至黄冈、益阳至娄底、铜仁至吉首、邵阳至永州、南昌至九江、湛江至海安等高速铁路。</p>

**完善公路网结构功能。**提升国家高速公路网络质量，实施京沪、京港澳、京昆、长深、沪昆、连霍、包茂、福银、泉南、广昆等国家高速公路主线繁忙拥挤路段扩容改造，加快推进并行线、联络线以及待贯通路段建设。合理引导地方高速公路有序发展。加快普通国省道低等级路段提质升级，将西部地区普通国道二级及以上公路比重提高到70%，实现对重要口岸、枢纽、产业园区、旅游景区有效覆盖，强化安全设施配置。完善“四好农村路”高质量发展体系，深入开展示范创建，实现通三级及以上公路的乡镇比重达到85%左右，推动较大人口规模自然村（组）通硬化路，因地制宜推进建制村双车道公路建设和农村过窄公路拓宽改造，强化农村公路与干线公路、村内主干道衔接。推进渡改桥等便民设施建设。

专栏5 公路网建设重点工程
<p>1. <b>待贯通路段建设。</b>推进京雄等雄安新区对外高速公路以及呼北高速炉红山至慈利段、德州至上饶高速安徽段、溧阳至宁德高速黄山至千岛湖段、上海至武汉高速无为至岳西段、集宁至阿荣旗高速白音查干至乌兰浩特段、杭州湾地区环线高速杭州至宁波支线等国家高速公路待贯通路段建设。</p> <p>2. <b>瓶颈路段升级改造。</b>推进京哈高速绥中（冀辽界）至盘锦段、青兰高速涉县至冀晋界段、连霍高速忠和至茅茨段、沪昆高速昌傅至金鱼石段、荣乌高速威海至烟台段、济广高速济南至菏泽段、京港澳高速耒阳大市至宜章（湘粤界）段等高速公路繁忙路段扩容改造。推进国道210白云鄂博至固阳段、国道217阿勒泰至布尔津段、国道227贵德至大武段、国道353巨甸至维西段等升级改造及国省干线穿越城区段改移工程。</p>

**优化畅通水运设施网络。**建设京津冀、长三角、粤港澳大湾区世界级港口群，支持山东打造世界一流的海洋港口，推进东北地区沿海港口一体化发展，优化港口功能布局，推动资源整合和共享共用。有序推进沿海港口专业化码头及进出港航道等公共设施建设。适度超前建设粮食、能源、矿产资源的接卸、储存、中转设施，推进沿海沿江液化天然气码头规划建设。提升内河港口专业化、规模化水平，合理集中布局集装箱、煤炭、铁矿石、商品汽车等专业化码头。加强内河高等级航道扩能升级与畅通攻坚建设，完善长江、珠江、京杭运河和淮河等水系内河高等级航道网络，进一步提升珠三角高等级航道网出海能力，全面加强长三角、珠江—西江高等级航道网未达标段建设。推动重要支流航道和库湖区航道、内河旅游航道、便民码头建设。

Column 6 Key Projects of Water Transport Facilities Network Construction
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1. Coastal port and navigation facilities. Promoting containers in Tianjin Beijiang and Dongjiang, Qingdao Dongjiakou, Nantong Tongzhou Bay, Shanghai Yangshan, Xiamen Xiangnan, Shenzhen Yantian, Guangzhou Nansha, Shantou Guangao, Zhanjiang Baoman, Yangpu Xiaochantan, Qinzhou Dalanping, etc. Wharf works. Promote ore terminal projects such as Tangshan Jingtang, Huanghua Bulk Cargo Port Area, Rizhao Lanshan, Lianyungang Lianyun, Ningbo Zhoushan Qushan, and Fangchenggang Qisha. Promote crude oil terminal projects such as Yingkou Xianren Island, Huanghua Bulk Cargo Port Area, Yantai West Port Area, Qingdao Dongjiakou, Lianyungang Xuxu, Ningbo Zhoushan Jintang, and Xiamen Gulei. Accelerate the comprehensive development on the north side of Xiaoyang Mountain. Promote the expansion of coal transportation capacity in Caofeidian Port Area and the transformation and upgrading project of Rizhao Port. Promote the construction of Jinzhou Port, Tangshan Jingtang, Caofeidian, Rizhao Lanshan, Lianyungang Port, Ningbo Zhoushan Tiaoshaomen, the western part of Shenzhen Port, Guangzhou Port, Yangpu Port, Beibu Gulf Fangcheng Port and Qinzhou and other waterways with a capacity of 200,000 tons and above.

2. Inland port and navigation facilities. Actively promote the improvement of the channel from Fuling to Fengdu, study and promote the improvement of the channel from Yibin to Chongqing and from Yichang to Wuhan on the main line of the Yangtze River, accelerate the improvement of the key sections of the Anqing to Nanjing section, further improve the conditions of the 12.5-meter deep-water channel below Nanjing, and accelerate the improvement of the Yangtze River Estuary Regarding the conditions of the Beigang waterway, study and promote the second phase of the waterway improvement project at the South Passage of the Yangtze Estuary, and promote the direct river-sea waterway projects such as the east extension of the Dalu Line. Promote the 3,000-ton waterway regulation and ship lock expansion project of the Xijiang shipping trunk line. Carry out the waterway renovation of the Shandong section of the Beijing-Hangzhou Canal, promote the ship lock and waterway expansion project of the northern Jiangsu section, promote the Hangzhou-Ningbo Canal renovation and upgrading project, and the Changshan River Shipping Development Project. Promote the construction of the shipping project of diverting the river to the Huaihe River, carry out the improvement of the main line of the Huaihe River and the channel of the Shaying River, the reconstruction and expansion of ship locks, and promote the project of the Huaihe River to the sea. Promote the construction of hub navigation facilities such as Youjiang Baise and Hongshuihe Longtan. Promote the navigation of the suitable section of the Beijing-Hangzhou Grand Canal north of the Yellow River. Carry out preliminary research and demonstration of the Hunan-Guijiang-Guangdong Canal.

**Expand aviation network coverage.** Promote the coordinated development of regional airport groups, and build world-class airport groups such as Beijing-Tianjin-Hebei, the Yangtze River Delta, the Guangdong-Hong Kong-Macao Greater Bay Area, and Chengdu-Chongqing. Timely start the reconstruction and expansion project of hub airports with tight capacity, and strengthen the comprehensive support capabilities of hub airports. Reasonable encryption of airport layout, steady construction of feeder airports and professional cargo hub airports, and improvement of comprehensive airport cargo capacity and utilization rate. Promote the planning and construction of general airports in an orderly manner, build a regional short-distance transportation network, and explore the integrated development of general aviation and low-altitude tourism, emergency rescue, medical rescue, and police aviation. Optimize the air route network, strengthen the infrastructure

construction of military and civilian air traffic control, and promote the application of new air traffic control technologies.

Column 7Key Civil Transport Airport Construction Projects
Implementation of Guangzhou, Shenzhen, Kunming, Xi'an, Chongqing, Urumqi, Harbin and other international hub airports and Taiyuan, Shenyang, Fuzhou, Hangzhou, Ningbo, Hefei, Jinan, Wuhan, Changsha, Nanchang, Nanning, Lhasa, Lanzhou, Yinchuan, Xining and other regions Hub airport reconstruction and expansion project, construction of new airports in Hohhot, Xiamen, Dalian, and Sanya. A professional cargo airport in Ezhou will be built, and the international air cargo capacity of Tianjin, Zhengzhou and other airports will be improved. Build Jiaxing, Ruijin, Chenzhou, Xiangxi, Lishui, Shaoguan, Langzhong, Weining, Xingtai, Shuozhou, Anyang, Bozhou, Leshan, Fugu, Qianbei (Dejiang), Panzhou, Aral, Hejing and other regional airports .

Strengthen the efficient interconnection of oil and gas pipeline networks. Improve the four major oil and gas import channels in the northeast, northwest, southwest and offshore. Accelerate the construction of national trunk natural gas pipelines, improve the layout of crude oil and refined oil pipeline networks, and promote the management of hidden dangers in old pipelines in the northeast, northwest, and southwest regions. Promote the interconnection of oil and gas pipeline networks and the construction of branch pipelines, expand the coverage of natural gas pipelines in cities and counties, and radiate to qualified towns and towns along the line.

The fourth section strengthens integration and integration

Accelerate the resolution of the bottlenecks that restrict people's good travel and the efficient circulation of goods, and strengthen the organic connection of the comprehensive transportation network. Open up inter-provincial sections of roads to be passed through, strengthen the effective connection between arterial roads and urban roads, and promote the upgrading and transformation of arterial road transit sections and bottleneck roads entering and leaving cities in densely populated urban areas. Strengthen the efficient connection between hub airports and rail transit to make transfers more convenient. Strengthen the construction of collection and distribution facilities such as entering port areas, entering parks, entering factory areas, and entering large-scale agricultural product bases, and accelerate the promotion of railways entering key port areas of ports, large industrial and mining enterprises, logistics parks, and key material storage warehouses. Efficient utilization of resources, ecological environment protection, and flood control and shipping safety shall be considered as a whole, and river and sea passages shall be constructed in an orderly manner to share channel resources with various modes of transportation. Promote the interconnection of large comprehensive passenger transport hubs in megacities through rail transit. Accelerate the realization of the interconnection of closely connected comprehensive freight hubs through tie lines or dedicated channels.

Column 8Key projects of comprehensive transportation network connection
1. Port airport collection and distribution project. Improve the collection and distribution systems of ports such as Shanghai Port, Tangshan Port, Tianjin Port, Ningbo Zhoushan Port, Qingdao Port, Shenzhen Port, Fuzhou Port, and Beibu Gulf Port. Promote the

connection of Hangzhou Xiaoshan Airport, Xiamen Xiang'an Airport, Changsha Huanghua Airport, and Kunming Changshui Airport to rail transit.

2. Inter-provincial to-be-through road section unimpeded project. Orderly implement the Hebei section of the Keshiketeng-Chengde connection line of the Danxi Expressway, the Benxi-Huanren (Liaoji boundary ) section of the Benxi-Ji'an Expressway, the Lingyuan (Mengliao boundary ) -Suizhong section of the Chifeng-Suizhong Expressway, and the Ankang The construction of inter-provincial expressways such as the Chongqing-Ebeijie-Jianshi section of the Zhilaifeng Expressway, and the Xichang-Shangrila section of the Duyun-Shangri-La Expressway.

3. Traffic connection renovation project inside and outside the city. Advancing National Highway 104 , National Highway 107 , National Highway 205 , National Highway 207 , National Highway 210 , National Highway 220 , National Highway 228 , National Highway 233 , National Highway 309 , National Highway 310 , National Highway 312 , National Highway 319 , National Highway 320, National Highway 329 , National Highway 343 , National Highway 347

Upgrading and reconstruction of transit road sections in cities and towns.

4. Key projects across rivers and seas. Cross-sea passages such as Shenzhen-Zhongshan and Huangmaohai have been built. Construct Fuling Jiangbei, Wujiagang-Dianjunshan, Zongyang-Guichi, Jingjiang-Jiangyin, Chongming-Taicang and other road-rail dual-use river-crossing passages, as well as the reconstruction of the Long-Syria Railway Bridge across the river. Promote the construction of Qinzhou Longmen Bridge, Qinzhou-Beihai Dafengjiang Bridge and other cross-sea bridges. Timely start the construction of Shiziyang and Lianhuashan Passages at the Pearl River Estuary. Planning and research on the Shanghai-Ningbo Corridor.

Section 5 Strengthening Infrastructure Maintenance

Promote the implementation of full life cycle maintenance, strengthen normalized preventive maintenance, scientifically implement maintenance operations, strengthen maintenance project quality inspection and evaluation, strengthen maintenance management supervision and assessment, and improve the service life of infrastructure. Strengthen the maintenance and management of public facilities such as bridges and tunnels, navigable buildings, port anchorages, and runway aprons. Increase the promotion of new technologies for maintenance, build a long-term performance scientific observation network for transportation infrastructure, encourage automated and information-based inspections, improve the scientific decision-making level of management and maintenance, and promote the mechanization and standardization of maintenance. Strengthen the integrated management of railway comprehensive repair and maintenance. Develop and standardize the road maintenance market, and gradually increase the purchase of maintenance services from the public. Deepen the reform of the rural road management and maintenance system, and fully implement the road chief system for rural roads. Improve the bridge maintenance management responsibility system and working mechanism. Improve the normalized maintenance mechanism of waterways, and promote the construction of waterway maintenance bases and supporting facilities and equipment.

Chapter Four Consolidates the basic support for the coordinated development of urban and rural areas

Give full play to the supporting and leading role of transportation in the development and protection of land and space, and enhance the service guarantee

capabilities for implementing major regional strategies, promoting coordinated regional development, and comprehensively promoting rural revitalization.

## Section 1 Effectively Serving Major Regional Strategies

Build a multi-node, grid-like, and full-coverage Beijing-Tianjin-Hebei integrated comprehensive transportation network, basically build the Beijing-Tianjin-Hebei on the track, build a high-standard and high-quality external transportation network for Xiong'an New District, and strengthen Beijing's urban sub-center and central urban area. The three counties of Langfang and Langfang will be interconnected with each other, and the traffic guarantee for the Beijing Winter Olympics and Winter Paralympics will be strengthened. Relying on the golden waterway of the Yangtze River, the overall design promotes the construction of a comprehensive transportation system in the Yangtze River Economic Belt, strengthens the high-speed rail and railway freight capacity along the river, makes every effort to open up inter-provincial highway sections to be connected, and enhances the development level of river-sea combined transport and rail-water combined transport. Promote the interconnection of infrastructure in the Guangdong-Hong Kong-Macao Greater Bay Area, optimize the allocation of shipping and aviation resources, strengthen the transportation links between Hong Kong, Macao and the mainland, and support Hong Kong in enhancing its status as an international shipping and international aviation hub. Promote the higher-quality integrated development of transportation in the Yangtze River Delta region, accelerate the efficient connection and organic integration of external transportation, intercity transportation, and metropolitan traffic, coordinate the development of port, shipping, and maritime integration, and promote Shanghai, Jiangsu Province, Zhejiang Province, Anhui Province jointly builds a shipping hub that radiates to the world, accelerates the improvement of the function of Jiangsu Tongzhou Bay River-sea Linkage Demonstration Zone, and creates a new outlet for container transportation on the Yangtze River. Build a modern comprehensive transportation system with unimpeded traffic within Hainan Island, connected land and islands, and global access, build a modern comprehensive transportation hub, and steadily promote the construction of a free trade port. Construct a green, safe and convenient comprehensive transportation network in the Yellow River Basin, and strengthen the construction of large cross-regional passages.

## Section 2 Support and Lead Regional Coordinated Development

Make up for the shortcomings of the transportation infrastructure network in the western region, improve the coverage of main line railways, the smoothness of main line roads, and the equalization level of rural roads, build a one-hour traffic network in the twin-city economic circle in the Chengdu-Chongqing area, and smooth the multi-directional comprehensive transportation channels out of Sichuan and Chongqing. Improve the overall efficiency of the transportation infrastructure network in the Northeast region, further smooth the external passages, and promote the integrated opening of coastal, inland and border areas. Promote the construction of large open inland passages in the central region, enhance the functions of connecting east and west, connecting south and north, and further consolidating and upgrading the status of comprehensive transportation hubs. Build a modern comprehensive transportation system in the eastern region, accelerate the

construction of regional integrated transportation networks, improve the capacity of key transportation channels and the radiation energy level of comprehensive transportation hubs, and realize the optimization and upgrading of transportation. Improve the ability of underdeveloped areas, old revolutionary areas, and border areas to access external channels, expand the depth of network access, make up for infrastructure shortcomings in ecologically degraded areas, and strengthen the construction of transportation infrastructure that guarantees the transformation and development of resource-based areas and the transformation and upgrading of old industrial bases.

### Section 3 Consolidate the Transportation Foundation for Rural Revitalization

Coordinate the development needs of new urbanization and rural revitalization, and gradually improve the level of urban-rural transportation integration. Consolidate and expand the results of hardened roads in qualified towns and administrative villages, promote the entry of more transportation construction projects into villages and households, and encourage the integrated development of rural roads and industrial parks, tourist attractions, and key villages for rural tourism. Promote the integrated development of rural passenger, cargo and mail, continue to promote the construction of township transport service stations, integrate transportation, postal services, express delivery, supply and marketing, e-commerce and other resources, and build a new model of rural transport development with intensive functions, convenience and efficiency. Consolidate the achievements of public buses in established villages, improve the safety and service level of rural passenger transport operations, strengthen the safety supervision of rural passenger transport, and promote the establishment of a long-term and stable development mechanism for rural passenger transport. Promote the integration of rural logistics into the modern circulation system, accelerate the integration of county and rural e-commerce systems and express logistics distribution systems, build convenient and efficient two-way channels for industrial products to go to the countryside and agricultural products to go out of the village, and build a rural logistics service brand.

### Section 4 Strengthen the construction of border transportation facilities

Serve the construction of the border town system, focus on highways and airports, vigorously improve the traffic and travel conditions in border areas, and enhance the population agglomeration capacity of border towns. Make overall plans to promote the construction of national and provincial trunk roads and rural roads in border areas, comprehensively improve the main framework of national highways, promote the construction of parallel roads along the border and upgrade the quality of low-grade roads, speed up the construction of border roads, and form a border with a clear hierarchy and a reasonable structure as soon as possible. road network. Steadily promote the construction of airports in border areas, build a multi-level aviation network, and expand the coverage of air transport services. Reinforce the capacity of railway passages behind ports such as Tongjiang, Erenhot, Alashankou, Horgos, Ruili, and Mohan. Strengthen the construction of postal facilities in border natural villages to achieve universal coverage of postal services.

Column 9 Transportation infrastructure construction projects in border areas
1. Along side to side road. Build Ji'an to Huanren, Hunchun to Quanhe, Lushui to Tengchong, Milin to Yunnan-Tibetan via Medog, Chayu to Yunnan-Tibet, Qinghe to Altay via Fuyun, Bulunkou to Hongqirab, Balikun to Laoye Temple, Shache to Taxkorgan, Erenhot to Saihantala, Dahongshan to Huolezadegai, Yunnan border to Napo Pingmeng, Xichou to Funing and other border-to-border roads. Promote the construction of parallel road sections along the border roads such as Mazha-Gongzhu, Mengze-Gala, Samada-Zari, and Bianba-Jiayu, and the reconstruction and expansion of low-grade road sections.
2. border airport. Construct Taxkorgan, Pulan, Tingri, Longzi, Suifenhe, Zhaosu, Zhundong (Qitai ) and other airports, relocate and build Yanji Airport, and build about 20 general-purpose border airports such as Zanda and Yecheng .

Chapter 5 Promoting the Transportation Modernization of Urban Agglomerations and Metropolitan Areas

Deepen the new urbanization centered on people, improve the transportation network in layers and classifications, strengthen interconnection and integration, promote the coordinated operation of transportation in urban agglomerations, metropolitan areas, and cities, and promote the modernization of transportation in urban agglomerations and metropolitan areas. Improve the quality of urbanization development.

Section 1 Construction of urban agglomeration integrated transportation network

Strengthen the construction of intercity transportation in key urban agglomerations. Focusing on Beijing-Tianjin-Hebei, Yangtze River Delta, Guangdong-Hong Kong-Macao Greater Bay Area, Chengdu-Chongqing, and the middle reaches of the Yangtze River, etc., with rail transit and expressways as the backbone, improve the function of intercity transportation channels, strengthen the rapid and direct connection of core cities, and build multi-node, The networked intercity transportation network realizes 2-hour access between major cities in the urban agglomeration. Promote the construction of intercity railways and urban (suburban) railways in the Beijing-Tianjin-Hebei region, the Yangtze River Delta, and the Guangdong-Hong Kong-Macao Greater Bay Area in an overall manner, promote the construction of intercity railways and urban (suburban) railways in the Chengdu-Chongqing economic circle in an orderly manner, and strengthen cooperation with high-speed railways , general-speed railway integration, and expand the effective coverage of cities and towns with a population of more than 50,000.

Promote the construction of intercity transportation in other urban agglomerations in an orderly manner. Improve the function of intercity main corridors in Shandong Peninsula, coastal areas of Guangdong, Fujian and Zhejiang, Central Plains, Guanzhong Plain, Beibu Gulf and other urban agglomerations, and promote Harbin-Changchun, central and southern Liaoning, central Shanxi, central Guizhou, central Yunnan, Hubao, Eyu, and Lanzhou —Construction of main intercity passages in urban agglomerations such as Xining, Ningxia Yanhuang, and Tianshan North Slope. Build a multi-level rapid transportation network that effectively connects large, medium and small cities and small towns, and actively promote the use of existing railway surplus capacity to run intercity trains.



Section 2 Construct the commuter transportation network in the metropolitan area

Create a metropolitan area on the track. Build a multi-level rail transit network in the metropolitan area, promote the integration and connection of main line railways, intercity railways, urban (suburban) railways, and urban rail transit, and reasonably promote the cross-line operation of rail transit. Actively use trunk railways and intercity railways to provide commuting services, make full use of the existing railway surplus capacity to run urban (suburban) trains, increase the number of train stops and the frequency of stops at important passenger flow distribution centers, encourage public transport operations during peak hours, and improve commuting service quality. Explore the extension of rail transit in the central urban area of key metropolitan areas to surrounding cities (towns) in a reasonable system.

Improve the multi-level road traffic network. Reasonable densification of expressway passages, planning and construction of metropolitan circles and urban rings according to local conditions. Scientific layout and construction of refueling stations, bus stations, and parking facilities. Actively promote the extension of urban bus lines to surrounding towns and functional nodes, encourage adjacent cities (towns) within the metropolitan area to operate buses, and carry out the transformation of passenger lines into public transport.

Column 10	Key urban agglomerations and metropolitan area transportation network construction projects
<p>1. Key urban agglomeration intercity railway. Fully tap the intercity function of main line railways, promote the construction of intercity railways and regional connection lines between core cities, and build Xiong'an New Area to Shijiazhuang, Tianjin to Chengde, Suzhou to Changzhou via Wuxi, Quzhou to Lishui, Shenzhen to Huizhou, Foshan to Dongguan, etc. Intercity railways: basically complete the intercity railway network of Beijing-Tianjin-Hebei, Yangtze River Delta, Guangdong-Hong Kong-Macao Greater Bay Area and other urban agglomerations.</p> <p>2. Urban (suburban) railways in key metropolitan areas. Implement a batch of urban (suburban ) transportation function renovation projects for existing railways, and use the existing Xiaoyong Railway to run Shaoxing-Shangyu urban (suburban ) trains. Promote overall upgrading projects such as the Northeast Ring Road in Beijing, and construct urban (suburban) railways such as Shanghai Jiamin Line and its northern extension, Nanjing City Line 18 , Hangzhou-Deqing, Ningbo-Xiangshan, and Chongqing-Hechuan.</p> <p>3. Freeway loop. Promote the construction of expressway ring lines in urban areas such as Wuhan, Changchun, and Xi'an, implement reconstruction and expansion projects on congested sections of expressways, and optimize and adjust the ring expressway routes in the capital area.</p>	

Section 3 Building a Modern Urban Transportation System

Improve urban transportation infrastructure. Scientifically plan and build an urban comprehensive transportation system, accelerate the development of express and arterial transportation, daily life collection and distribution transportation, and green slow-moving transportation to achieve smooth connections. Strengthen the construction of microcirculation and branch road networks in large cities, optimize the ratio of expressways, trunk roads, secondary trunk roads, and branch roads,

speed up the construction and renovation of urban branch roads, streets and alleys and deformed intersections, optimize the supply of parking facilities by classification and zoning, and improve the utilization efficiency and efficiency of parking resources. Refine the service level, strengthen resource sharing and staggered opening. Reasonably increase the density of road networks in small and medium-sized cities, make good use of parking resources, moderately increase parking facilities, and standardize parking order. Make up for the shortcomings of urban roads and highway passenger station facilities in county towns, county-level cities, and mega-towns, steadily promote the construction of public parking facilities in old communities, hospitals, schools, and commercial clusters, and moderately increase the number of flexible and convenient road shuttles. guest site. Build a safe, continuous and comfortable urban slow-moving traffic system, improve the continuity and smoothness of non-motorized lanes and footpaths, increase non-motorized vehicle parking facilities in commercial office areas, public transportation stations, tourist attractions and other places, and improve pedestrian crossing facilities condition.

**Build a multi-mode convenient public transportation system.** In-depth implementation of the bus priority development strategy, continue to deepen the national bus city construction. Super-mega-cities will build a BRT network with rail transit as the backbone, develop urban rail transit in a scientific and orderly manner, and promote the integrated development of rail transit, conventional bus, and slow-moving traffic networks. In large cities, an urban public transport system with ground public transport as the main body should be formed, and rapid transit in important passenger flow corridors should be developed. Small and medium-sized cities should improve the efficiency of urban public transport operations, and gradually improve station coverage and service levels. Promote the linkage control of traffic lights on urban roads to ensure the priority of public transportation; promote the release of real-time public transportation operation information on electronic bus stop signs and Internet information platforms, optimize transfer guidance signs, popularize traffic one-card, mobile payment and other services, and increase the attractiveness of public transportation. force.

## Chapter VI Expanding the Supply of High-quality Transportation Services

Conform to the people's new expectations for a better life, take into account the different development trends and phased characteristics of passenger transportation and cargo transportation, take into account both basic needs and diversified needs, promote the diversified and high-quality development of transportation services, and expand the supply of economical, efficient and safe transportation service products , Gradually realize that people enjoy their travel and goods flow smoothly.

### Section 1 Improving Passenger Travel Service Quality

**Accelerate the development of passenger interline transportation.** Steadily promote the information sharing and opening up of the transportation ticketing system, improve the level of online ticket sales for road passenger transport, and popularize electronic tickets. By 2025, the coverage rate of electronic tickets at secondary and above road passenger stations will reach 99%, and inter-provincial and intercity passenger lines The coverage rate of e-tickets reached 80%, striving to

realize one-stop ticket purchase and one-ticket (certificate) passage. Optimize the cross-modal security inspection process and promote mutual recognition of security inspections. Strengthen the coordination and connection of operation information, shift schedules, and capacity arrangements between main-line transportation methods, between urban traffic and main-line transportation methods, and do a good job of "covering the bottom line" for the first and last trains. Promoting the construction of urban terminal buildings and implementing luggage check-in service. Cultivate the main body of passenger intermodal transportation, innovate integrated intermodal products, and enrich comprehensive transportation information service products.

**Develop high-quality passenger transport services.** Optimize the organization of high-speed railway transportation, expand the scope of operation of Fuxing EMUs, gradually realize the high-speed operation of high-speed railways, improve the service quality of ordinary-speed railways, and encourage the operation of evening and morning trains. Strengthen supervision, encourage and standardize the development of customized road passenger transport services. Promoting the effective connection of the main branches of the aviation service network, optimizing the allocation of flight time resources, continuously improving the flight punctuality rate, and increasing the types of air transportation services. Actively cultivate the cruise market, expand tourism products, promote the upgrading of cruise services, promote the development of yacht, cruise ship, and caravan tourism, optimize and improve self-driving travel service facilities, develop tourism distribution business relying on bus passenger stations, and cultivate new modes of transportation consumption.

**Improve the level of inclusiveness and equality in passenger transport services.** Continue to drive the public welfare "slow train", optimize the operation plan, and improve the station and train conditions. Promote the transformation of rural passenger transport into public transport in areas where conditions permit, and ensure the travel of the masses. Develop basic aviation services in remote areas, improve ferry traffic conditions, and facilitate the daily travel of people in remote areas. Improve the service level of barrier-free facilities at passenger stations, promote the application of low-floor buses and barrier-free taxis, regulate the use of scooters for the elderly and disabled, and strengthen service guarantees for groups in need and special groups.

## Section 2 Build an Efficient Freight Service System

**Build an efficient freight service network.** Improve the bulk cargo and container logistics network that is compatible with the industrial layout and consumption pattern, build large-capacity, low-cost, and high-efficiency logistics backbone channels, and ensure the seasonal transportation of important agricultural materials such as chemical fertilizers. Develop railway double-deck container transportation in an orderly manner, explore the development of customized railway direct freight trains, and make full use of spare capacity and facility capabilities to develop high-speed rail express and other railway express freight products. Promote the high-quality development of road freight, and improve the level of scale and intensification. Strengthen air cargo capacity building, cultivate and expand professional cargo fleets, optimize route and time allocation, and improve airport logistics organization efficiency and service quality. Improve the urban three-level logistics distribution network supported by logistics parks,

distribution centers, and terminal distribution stations, and strengthen the effective connection with main line transportation and regional distribution. Improve the three-level logistics service system in counties and villages, and enhance the integrated service capabilities of production, supply and marketing. Improve port customs clearance capacity and facilitation level.

**Vigorously develop multimodal transport of goods.** Promote the construction of rail-water combined transport system for bulk cargo and containers, and expand the scale of rail-water combined transport. Focusing on the trunk line of the Yangtze River and the trunk line of the Xijiang River, improve the organization level of river-sea combined transport. Accelerate the promotion of the "one order system" for multimodal transport, innovate standards and norms for mutual recognition of waybills, promote the exchange of information on international freight documents, explore international railway electronic bills of lading, and gradually popularize electronic waybills for multimodal transport of containers. Accelerate the sharing of multimodal transport information, and strengthen the convergence of standards and rules for different modes of transport. In-depth promotion of drop-and-hook transportation, innovative modes of truck leasing, trailer sharing, and customized services. Promote the sharing of containers, standardized pallets, and turnover boxes (baskets) among different modes of transportation, improve the efficiency of multimodal transport and reloading, and develop unitized logistics. Encourage railway, port and shipping, road transportation and other enterprises to become operators of multimodal transport.

**Develop specialized logistics services.** Strengthen the functions of the national backbone cold chain logistics base, improve the cold chain logistics service facilities of the comprehensive freight hub, strengthen the connection of cold chain facilities in different modes of transportation, make up for the shortcomings of collection and distribution equipment and storage facilities, promote the innovation of railway container cold chain service models, and strengthen the classification Quality supervision to improve the quality of cold chain logistics services. Promote the integration of bulk cargo storage and transportation, and promote customized services for major customers. Unify the classification standards for dangerous characteristics of goods, strengthen the standardization of goods packaging, transportation operations and transportation tools, and promote the application of intelligent storage and transportation monitoring, risk monitoring and early warning systems. Optimize the supply chain logistics organization of key manufacturing industries, and improve the service support capabilities of transportation for intelligent manufacturing and flexible manufacturing.

**Continue to promote the reduction of logistics costs.** Reduce the cost of the logistics system, optimize the procedures for handling licenses and permits, and improve the market-based flexible adjustment mechanism for railway freight prices. Reduce the cost of logistics elements and ensure the land demand for major logistics infrastructure construction. Implement logistics tax and fee reduction measures, standardize and reduce logistics charges such as port shipping, road and rail transportation, and comprehensively clean up and standardize enterprise-related charges.

### Section 3 Development of Modern Postal Express Service

**Improve delivery service quality and efficiency.** Innovating universal postal service, realizing tracking and inquiry of mail throughout the process. Carry out express

service quality brand building actions, and develop differentiated products such as air express and high-speed rail express. Promote the delivery of express delivery to villages, strengthen the sharing of delivery logistics resources in counties and villages, promote joint sorting, joint transportation, and joint collection and delivery, and basically realize the direct collection and delivery of mail express delivery in organized villages. Promote the entry of express delivery into factories, deeply embed in the value chain of the industrial chain, and develop businesses such as inbound logistics and line-side logistics. Promote express delivery to the sea, accelerate the construction of postal international delivery centers, build postal processing centers and international mail exchange bureaus (exchange stations) in Nanchang, Changsha, Chengdu, Zhengzhou, Nanning, Nanjing, Dalian, Yiwu, etc., build an international express delivery network, and promote international Facilitation of delivery services.

**Improve delivery end service.** Build a diversified and intelligent terminal service network, and promote the layout construction and resource sharing of urban and rural express service stations, intelligent collection and investment terminals, and terminal service platforms. Promote the construction of postal express service places and facilities in urban residential communities. Build a delivery logistics comprehensive service station integrating postal, express delivery, e-commerce, commerce and other functions. Promote the transportation and delivery of unmanned vehicles and drones, and steadily develop contactless delivery services. Support the development of new formats and models such as instant delivery and warehouse delivery integration.

Box 11 Actions to Improve Transportation Service Quality
<p>1. The quality of passenger transport services has been upgraded. Create a Beijing–Zhangjiakou high-speed railway passenger service demonstration line. Promote the transformation of qualified road service areas into complex service areas for transportation, ecology, tourism, and consumption, build a number of characteristic road service areas according to local conditions, and build demonstration projects for ordinary national and provincial trunk road service areas. Encourage the construction of multifunctional township comprehensive service stations. Create demonstration counties for the integration of urban and rural transportation in an orderly manner.</p> <p>2. Development of passenger interline transportation. Organize and carry out pilots of passenger interline transportation in 50 cities, carry out services such as direct baggage check-in and mutual recognition of security checks, innovate air-rail combined transport, public-air combined transport, and road-rail combined transport service models, encourage different modes of transportation to build and share facilities and equipment, and accelerate progress Combined ticketing integration, luggage service facilitation, and information resource sharing accelerate the upgrade of air-rail combined transport products.</p> <p>3. Speed up multimodal transport. Strengthen the multimodal transport function of the national logistics hub, organize and run a batch of rail-water combined transport trains, and develop truck flights connecting public and air. Guide multimodal transport operators and various transport companies to carry out cross-industry information interconnection and collaborative operations. Promote the construction of Zhoushan river-ocean combined transport service center. In-depth implementation of multimodal transport demonstration projects. Explore the operation of railway double-decker container trains.</p> <p>4. Professional freight system cultivation. Optimize the transportation organization of freight trains, gradually expand the scope of train operations, steadily</p>

promote the formation of trains into a network, and rely on qualified high-speed rail passenger trains to develop high-speed rail express business. Improve the transit efficiency of air cargo hubs and build a hub-and-spoke cargo route network. **5. Improve the quality of urban and rural freight delivery.** Improve the network of urban distribution nodes, optimize the policy of vehicle convenience, and promote the interactive sharing of information and the innovation of organizational models in the entire chain of urban distribution. Implement green freight delivery demonstration projects in about 100 cities in an orderly manner.

## Chapter 7 Accelerating the Deep Promotion and Application of Intelligent Technology

Adhere to innovation-driven development, promote the deep integration of new technologies such as the Internet, big data, artificial intelligence, and blockchain with the transportation industry, promote the application of advanced technology and equipment, and build a ubiquitous interconnected, flexible and collaborative intelligent transportation system with global competitiveness. Self-reliance and self-improvement in science and technology, laying a solid foundation for innovation and development, and enhancing the new momentum of comprehensive transportation development.

### Section 1 Promoting the Intelligent Upgrade of Infrastructure

**Improve the facility digital perception system.** Promote the digital transformation and upgrading of existing facilities, and strengthen the simultaneous planning and construction of new facilities and perception networks. Build a facility operation status awareness system, strengthen the digital perception monitoring coverage of important passages and hubs, and enhance the all-weather and full-cycle operation status monitoring and active early warning capabilities of key road sections and important nodes.

**Build a facilities and equipment information interaction network.** Steadily promote the coverage of 5G and other network communication facilities, and improve the coverage, real-time and reliability of information transmission in the transportation field. Carry out pilot demonstrations of 5G-based application scenarios and industrial ecology in the field of intelligent transportation. Promote the deployment and application of the Internet of Vehicles, and support the construction of an intelligent management system that integrates "vehicle-road-traffic management" cooperation. Create a new generation of rail transit mobile communication and aviation communication systems, research and promote the compatibility and interoperability of multi-level rail transit signal systems, and simultaneously optimize the mobile Internet access conditions for trains and aircraft. Improve the informatization level of postal confidential communications.

**Integrate and optimize the comprehensive transportation information platform.** Improve the supervision and service functions of the comprehensive transportation information platform, and promote the construction of autonomous driving supervision platforms in qualified areas. Build a global shipping service network based on blockchain

technology. Optimize and integrate the civil aviation data information platform. Improve the capacity integration capabilities of the logistics information platform, strengthen smart cloud supply chain management and smart logistics big data applications, and accurately match supply and demand. Build an urban traffic smart management platform in an orderly manner, and strengthen the refined management of urban traffic.

<div>Column <b>12</b>Digital and Networked Upgrading Project of Transportation Infrastructure</div> <div><div><div><div>1. Smart Railway.</div><div>Implement a new generation of railway mobile communication private network project. Select high-speed railway lines to carry out intelligent upgrades. Promote the application of intelligent construction technology on the Sichuan-Tibet Railway. Carry out the intelligent upgrade and transformation of the railway dispatching command system.</div></div><div><div>2. Smart Highway.</div><div>Construct Jingxiong, Hangzhou Shaoyong and other smart expressway projects. Deepen the expanded application of the expressway electronic toll collection system ( ETC ) in multiple scenarios. Build a smart highway service area. Steadily promote the construction of a smart road network cloud control platform integrating monitoring, scheduling, management and control, emergency response, and service functions.</div></div><div><div>3. Smart port.</div><div>Promote the intelligent transformation of existing container terminals in Dalian Port, Tianjin Port, Qingdao Port, Shanghai Port, Ningbo Zhoushan Port, Xiamen Port, Shenzhen Port, Guangzhou Port and other ports. Build a new generation of automated terminals such as Tianjin Beijiagang Section C , Shenzhen Haixing, Guangzhou Nansha Phase IV, and Qinzhou. In the " Yangshan Port Area - Donghai Bridge - Lingang Logistics Park " , a pilot project of automatic driving for collection and distribution was carried out.</div></div><div><div>4. Smart shipping.</div><div>Improve the electronic waterway map of high-level inland waterways, implement the digital waterway service capacity improvement project for the Yangtze River trunk line and the Xijiang River shipping trunk line, pilot the construction and application of intelligent navigation marks, and carry out digital waterway smart service integration in typical sections of the Yangtze River trunk line such as the Three Gorges Dam area. Build the digital waterway of the Beijing-Hangzhou Canal. Promote the construction of smart waterways such as Fujiang River and Xinjiang River. Promote the intelligent upgrade of ship locks and strengthen the joint dispatch of cascade ship locks. Improve the ship-shore and ship communication systems, and enhance the ship-shore coordination ability during the whole process of ship navigation. Develop shipboard terminals that apply electronic charts and electronic waterway charts.</div></div><div><div>5. Smart civil aviation.</div><div>Focusing on smart travel, smart logistics, smart operation and smart supervision, implement capacity tapping and upgrading projects, promote the smart upgrade of hub airports, and build a civil aviation smart operation management system.</div></div></div><div><div>6. Smart city rail transit.</div><div>Promote the research and development of independent train operation control systems, and promote the interconnection between different rail transit signal systems and conditional lines. Construct systems such as smart crew service, networked smart transportation organization and dispatch, smart energy management, and smart operation and maintenance. Promote the application of smart security checks, mobile payment and other technologies.</div></div><div><div>7. Integrated transportation information platform.</div><div>Improve the functions of the comprehensive transportation information platform, and promote the integrated construction of the</div></div></div>
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local transportation big data center and the comprehensive transportation information platform. Implement the optimization and upgrading projects of railway 12306 and 95306 platforms. Promote the application of imported container blockchain electronic delivery platform. Build Zhengzhou and other aviation logistics public information platforms. Research and build a comprehensive supervision service platform for unmanned aircraft.

## Section 2 Promoting the Application of Advanced Transportation Equipment

**Promote the popularization and application of the Beidou system.** Improve the infrastructure of the Beidou system for transportation, improve the Beidou ground-based augmentation network, and improve the service level of Beidou short messages. Steadily promote the application of the Beidou system in the fields of railways, highways, waterways, general aviation, urban public transportation, global maritime shipping, and international road transportation, promote the layout and construction of train operation control systems that integrate Beidou technology, and carry out demonstrations of the industrialization of Beidou in the civil aviation industry.

**Promote advanced and applicable transportation equipment.** Carry out research and development and application of CR450 high-speed Chinese standard EMUs and pedigree Chinese standard subway trains, and promote heavy-duty railway transportation technology and equipment. Improve the research and development capabilities of large-scale liquefied natural gas carriers, polar ships, and large cruise ships, and promote the research and development of new equipment such as underwater robots, deep-diving equipment, deep-sea semi-submersible salvage cranes, and large-scale deep-sea multi-functional rescue ships. Promote green smart ships, promote the application of individual smart ship technologies such as ship autonomous navigation, and promote the overall technical application of shore-based collaborative systems, security systems and remote control systems for ship smart navigation. Strengthen the construction of airworthiness certification capabilities, promote the demonstration operation of C919 passenger aircraft and the serial development of ARJ21 regional passenger aircraft, and promote the application of Xinzhou 700 regional passenger aircraft, AG600 amphibious aircraft, heavy helicopters, plateau large-load UAVs, etc. Promote the development of intelligent storage and distribution facilities and equipment.

**Improve the standardization level of equipment.** Promote the application of lightweight trailers, carry out special treatment of atmospheric pressure liquid dangerous goods tankers, and steadily carry out the treatment of ultra-long flatbed semi-trailers and ultra-long container semi-trailers. Promote the standardization of inland river ship types, promote river-sea direct ship types, Three Gorges ship types, energy-saving and environmentally friendly ship types, and develop standard ship types for Yangtze River cruise transportation. Promote the research and development of vehicle-mounted rapid security inspection equipment. Consolidate and enhance the competitiveness of the entire industrial chain in the fields of high-speed rail and ships, and create Chinese standards and Chinese brands in the fields of rail transit, aerospace and other technical equipment.

## Section 3 Innovative Operation and Management Model



Oriented to meet individualized and high-quality travel needs, promote the digitalization of the whole process of service, support market entities to integrate resources, provide "one-stop" travel services, and create a smoothly connected service chain. Steadily develop travel services such as autonomous driving and vehicle-road coordination, encourage autonomous driving to be tested and applied in limited areas such as ports and logistics parks, and promote the development of smart buses, smart parking, and smart security checks. Guide and regulate the healthy development of online car-hailing, shared bicycles, car time-sharing leasing, and online freight platforms to prevent disorderly expansion. Accelerate the development of new models and formats of "Internet +" efficient logistics. Strengthen high-definition observation of deep-sea targets and high-precision maritime space-time services. Improve transportation government services and supervision capabilities, improve digital and information-based supervision methods, strengthen off-site supervision, credit supervision, and joint supervision, and realize the nationwide network operation of the supervision system.

#### Section 4 Consolidate the Foundation for Innovation and Development

**Promote self-reliance and self-improvement in transportation technology.** Strengthen the research and development of key core technologies in the field of transportation, accelerate the research and development of key components such as bearings, wire-controlled chassis, basic technology platforms, and software and hardware systems, and promote the realization of independent controllability and industrialization. Strengthen forward-looking and strategic technology research reserves in the field of transportation, strengthen technology research and development in the fields of intelligent networked vehicles, autonomous driving, vehicle-road coordination, autonomous ship navigation, and ship-shore coordination, and carry out research and demonstration of high-speed magnetic levitation technology. Strengthen the research and development of construction technologies for lines, long-span bridges, and ultra-long tunnels under complex environmental conditions, as well as the research and development of high-performance engineering materials. Strengthen the research and development of key technologies for high-lift and large-tonnage ship lifts.

**Cultivate the transportation technology innovation ecosystem.** Promote the deep integration of government, industry, university and research in the field of transportation. Encourage advantageous enterprises to integrate the resources of the transportation technology industry chain, cultivate the transportation technology industry ecosystem through open data, open platforms, and open scenarios, and build a transportation technology industry incubation base. Strengthen the construction of key scientific research platforms in the industry, promote the construction of key laboratories and technological innovation centers, and cultivate national scientific and technological innovation bases.

**Strengthen data openness and sharing.** Strengthen the hierarchical and classified management of transportation data. Further improve the opening and sharing mechanism and exchange channels of transportation data resources, formulate data resource opening system specifications, and promote the compliant opening and sharing of data resources with mature conditions. Strengthen the security management and control of transportation data, improve the data classification and classification security protection system, formulate security standards for intelligent transportation data applications, standardize the collection,

processing and use of data sources, and strengthen the protection of important data and personal information.

## Chapter 8 Comprehensively Promote Green and Low-Carbon Transformation

Adhere to the concept that green water and green mountains are golden mountains and silver mountains, adhere to the ecological priority, comprehensively promote the green and low-carbon transformation of the whole life cycle of transportation planning, design, construction, operation and maintenance, and jointly promote pollution reduction and carbon reduction to form a long-term mechanism for green and low-carbon development , making transportation more environmentally friendly and travel more low-carbon.

### Section 1 Optimizing and Adjusting the Transportation Structure

Deeply promote the adjustment of the transportation structure, and gradually build a medium and long-distance freight system dominated by railways and ships. Accelerate the construction of special railway lines, and promote the transportation of bulk goods and medium and long-distance goods by "road-to-rail" and "road-to-water". Optimize the "door-to-door" logistics service network, encourage the development of urban and rural logistics joint distribution, unified distribution, centralized distribution, time-sharing distribution and other intensive distribution models, increase the proportion of green transportation for industrial and mining enterprises, and expand the supply of road-rail combined transportation services for urban production and living materials.

### Section 2 Promotion of Low Carbon Facilities and Equipment

Plan and build a convenient, efficient and moderately advanced charging and swapping network, focus on promoting the construction of charging facilities and equipment in transportation hub stations, parking facilities, road service areas, etc. energy storage facilities. Promote the low-carbon and diversified development of transportation energy use, actively promote new energy and clean energy transportation vehicles, steadily promote the electrification of railways, promote the use of clean energy by inland ships, and further reduce the energy consumption of transportation vehicles. Continue to promote the construction of shore power facilities at ports and terminals, the construction of alternative facilities for aircraft auxiliary power units at airports, promote the transformation of ship power receiving facilities, and continuously increase the utilization rate of shore power.

### Section 3 Strengthen Pollution Prevention and Control in Key Areas

Implement the ship air pollutant emission control area system. Promote the effective connection between port receiving facilities for ship pollutants and urban public transshipment and disposal facilities, and improve the electronic bill supervision system. Improve the long-term mechanism for the prevention and control of ship and port pollution in the Yangtze River Economic Belt. Carry out comprehensive treatment of sewage and dust in the port area, promote the recycling of production and domestic sewage and rainwater, and improve the windproof and dust

suppression facilities for dry bulk cargo terminal yards. Carry out transportation noise pollution control, properly handle the noise impact of large airports, and actively eliminate existing noise pollution.

Section 4 Comprehensively Improve Resource Utilization Efficiency

Promote the coordinated development of transportation and other infrastructure to create a composite infrastructure corridor. Coordinate and intensively utilize resources such as comprehensive transportation corridors, bridge locations, land, shorelines, etc., to improve the comprehensive utilization rate of national land space. Promote scientific route selection and site selection, promote land-saving technologies, strengthen water and soil erosion protection and ecological protection design, give priority to avoiding land spaces with important ecological functions or sensitive and fragile ecological environments, and try to avoid areas where noise-sensitive buildings are concentrated. Promote the reduction, standardization and recycling of express packaging. Promote resource utilization of waste facilities and materials.

Section 5 Improving Carbon Emission Control Policies

Implement green and low-carbon transformation actions in transportation. Research and formulate statistical methods and accounting rules for carbon emissions in the field of transportation, strengthen basic statistical accounting of carbon emissions, establish a transportation carbon emission monitoring platform, and promote the construction of near-zero carbon transportation demonstration zones. Establish a green and low-carbon transportation incentive and restraint mechanism, and improve traffic management, parking management and other measures by category.

Box 13 Actions for Green and Low-Carbon Development of Transportation
<div>1. Network construction of charging and swapping facilities. Improve the layout of urban and rural public charging and swapping networks, actively build intercity charging networks and supporting facilities for fast charging stations in expressway service areas, and achieve a high coverage rate of fast charging stations in expressway service areas in national ecological civilization pilot areas and key areas for air pollution prevention and control 80% and no less than 60% in other regions . Vigorously promote the integrated construction of parking lots and charging facilities to realize the interconnection of parking and charging data information.</div> <div>2. Promotion of new energy and clean energy transportation equipment. Promote the electrification of urban public service vehicles and vehicles in ports and airports, and add or update ground buses, urban logistics distribution, postal express delivery, rental, official business, sanitation and other vehicles in cities with a population of more than one million (except for severe cold areas) with electric vehicles The proportion is not less than 80% . Carry out construction of liquefied natural gas refueling stations on the Yangtze River trunk line, the Beijing-Hangzhou Canal, and the Xijiang shipping trunk line.</div> <div>3. Pollution control of vehicles and ships with excessive emissions. Establish and improve a closed-loop management mechanism for vehicle emissions. Accelerate the elimination of old cars with high energy consumption and high emissions, comprehensively improve the energy efficiency of ship design and operation, and encourage the purchase of low energy</div>

consumption and low emission transportation equipment. 4. Green transportation infrastructure construction. Promote the green transformation of existing transportation facilities, and accelerate the construction and use of shore power facilities for ports and ships and electric facilities and equipment for airports. Promote the comprehensive improvement project of modern green shipping on the Beijing-Hangzhou Canal. 5. The construction of a near-zero carbon transportation demonstration zone. Select ecological function areas, industrial and mining areas, towns, port areas, airports, highway service areas, transportation hubs and stations with mature conditions, build near-zero carbon transportation demonstration areas, give priority to the development of public transportation, advocate green travel, and promote new energy transportation means of transport.

## Chapter IX Improving Security Emergency Support Capabilities

Adhere to the overall national security concept, implement the national security strategy, maintain and shape national security, integrate security development into all fields and links of comprehensive transportation, firmly guard the bottom line of security, consolidate the foundation of security development, and improve emergency response support capabilities, Build a strong national security barrier.

### Section 1 Improving the anti-risk ability of the transportation network

Strengthen traffic infrastructure safety risk assessment and hierarchical and classified management and control, strengthen the identification of major risk sources and the whole process of dynamic monitoring and analysis, forecast and early warning, build meteorological monitoring and early warning systems in important passages, hubs, and shipping areas, and improve the ability of transportation infrastructure to adapt to climate change . Steadily increase the ratio of multi-path connections in key areas such as disaster-prone areas, major industries, and energy bases, improve emergency traffic evacuation, rescue, and refuge channel systems, and enhance the resilience of the transportation network. Strengthen the network security protection of key information infrastructure and important information systems in the field of transportation, and promote the independent control of information system facilities and equipment.

### Section 2 Maintenance of Intrinsic Safety of Facilities and Equipment

Establish and improve the infrastructure asset management system, strictly control the quality of facilities and equipment products at the source, reasonably arrange the construction cycle, and promote high-quality construction and fine management. Strengthen the construction of traffic safety facilities, and promote the simultaneous design, construction and operation of safety supporting facilities, key target prevention facilities and main projects. Strengthen the early warning, protection and monitoring of high-speed railways that combine civil defense, physical defense, and technical defense, and strengthen the construction of railway disaster prevention and risk prevention facilities. Standardize the

establishment of urban road traffic safety facilities and traffic management facilities. Focusing on water and cliffs, hidden danger intersections, traffic signs and markings, etc., strengthen the investigation and rectification of hidden dangers in rural roads, bridges and tunnels, and provide safety facilities. Improve the safety supporting facilities of water transportation projects and the anti-ship collision facilities of bridges.

### Section 3 Strengthen Safety Production Management

Improve working mechanisms such as hierarchical management and control of enterprise safety risks, hidden danger investigation and management, technical investigation of accidents and major dangers, strengthen statistical analysis of production safety accidents, and strengthen supervision, inspection and law enforcement. Comprehensively utilize scientific and technological means to carry out risk dynamic monitoring, early warning, analysis and judgment. Implement the main responsibility of enterprise safety production, and strengthen the supervision and management responsibility of safety production. Strengthen the improvement of the safety environment along the railway, strengthen the management of the entire chain of civil aviation operation safety, strengthen the safety management of urban rail transit operation protection areas, and strengthen the safety supervision and emergency management of delivery channels. Strengthen the operation safety of facilities and equipment, improve the supervision mechanism for the production and modification of trucks, and prevent illegally modified trucks from leaving the factory. Strengthen the supervision of the source of cargo loading, and prohibit overloaded vehicles from leaving the field (station) and driving on the road. Improve the transportation network of hazardous chemicals, optimize transportation control measures, and strengthen the management of key locations such as ports, tunnels, and gates and dams. Optimize the working environment for professional drivers, couriers, and crew members, and strengthen the quality management of motor vehicle driver training.

### Section 4 Strengthening Safety and Emergency Guarantees

Improve the comprehensive transportation emergency management system and mechanism, improve the emergency coordination mechanism and emergency plan system, and strengthen the construction of transportation dispatching and emergency command platforms. Promote the construction of regional highway emergency equipment and material reserve centers. Strengthen water traffic safety supervision, navigation support, rescue and salvage capacity building, improve coastal and inland river oil spill emergency equipment libraries, and build a land, sea, air and space integrated water transportation safety guarantee system. Build an emergency drill center for urban rail transit. Build an aviation emergency service network with backbone aviation logistics enterprises as the main body. Build a maritime supervision and command system. On the basis of carrying out the investigation of hidden dangers in the underground space of urban transportation infrastructure, low-lying areas, key sections, important points, and key facilities, establish and improve the risk ledger and list of disaster hidden dangers, and make up for shortcomings such as facilities, equipment, and emergency rescue materials. Continue to improve the emergency response plan, improve the emergency response mechanism, and improve the ability to deal with extreme weather. Strengthen the

construction of emergency professional teams and volunteer teams, and enrich the national emergency transportation reserves. Improve the non-traditional security emergency command system and emergency transportation organization for responding to major epidemics, preventing and responding to terrorist attacks, and ensuring information security.

Column 14Key Projects for Improving Comprehensive Transportation Safety Emergency Response Capabilities
<p>1. Critical infrastructure security protection. Carry out safety inspections and reinforcement actions for facilities such as old railways, old hub stations, shipping hubs, and large navigable buildings, and continue to promote special actions for the renovation of dangerous old bridges. Build a traffic infrastructure structural health monitoring system, implement key information infrastructure protection construction and renovation projects, and build a network security risk monitoring and situational awareness platform. Carry out monitoring of the operation of major transportation infrastructure on the Qinghai-Tibet Plateau.</p> <p>2. Emergency support capacity building. Build a comprehensive command and dispatch platform for emergency transportation based on big data. Construct traffic safety emergency satellite system project and optimize integrated navigation service function. Steadily promote the use of life jackets and lifeboats (rafts) with Beidou satellite emergency position display functions, focusing on law enforcement boats, professional rescue ships, and state-owned shipping enterprise ocean-going transport ships, ro-ro passenger ships, and passenger ferries . Organize comprehensive and special emergency drills. Construct postal delivery channel safety supervision "Green Shield "project (phase 2 ) and postal confidential communication project. Promote the application of advanced safety emergency equipment in the field of transportation. 3.The water rescue capability has been improved. Strengthen water cruising search and rescue, deep sea and polar rescue, and pollution prevention emergency capacity building, improve the layout of emergency rescue bases in coastal and South China Sea areas, and build comprehensive water emergency rescue bases for the Yangtze River and Xijiang shipping lines.</p>

Chapter 10 Promoting High-Level Opening-up and Cooperation

Adhere to open cooperation, promote interconnection, strengthen the "hard connectivity" of infrastructure and the "soft connectivity" of rules and regulations, ensure the security of international logistics supply chains, improve the efficiency and level of domestic large cycles, and create new advantages for participating in international cooperation and competition.

Section 1 Promoting Infrastructure Interconnection

Create an all-round, multi-level, and composite "Belt and Road" infrastructure network, actively promote the interconnection of infrastructure with neighboring countries, and promote the construction of port railways, port roads, and border river waterways. Strengthen the construction of large land transport channels in key directions such as Russia, Mongolia, Southeast Asia, South Asia, and Central Asia, and support Tibet in building an important channel open to South Asia. Further improve the maritime strategic channel, plan to build the Asia-Europe land-

sea trade channel, the Northeast land-sea trade channel, and make up for the shortcomings of infrastructure along the route.

## Section 2 Further smooth international transportation

Give full play to the demonstration effect of the China-Singapore interconnection project, strengthen consultation and cooperation with neighboring countries, continue to promote the improvement of quality and efficiency of rail-sea combined transport in the Western Land-Sea New Corridor, and promote the development of cross-border trains. Optimize the network layout of international shipping routes, improve the efficiency of China-Korea land-sea combined transport, promote the healthy development of China-Europe land-sea express line, and expand the influence of the "Silk Road Shipping" brand. Stabilize the surrounding air transportation markets in Southeast Asia and Northeast Asia, expand the intercontinental route network in Europe, North America, Oceania and other regions in an orderly manner, and build the "Air Silk Road". Steadily expand the scope of signing and implementing the International Road Transport Facilitation Agreement. Optimize international intermodal transport organization and transit services, and improve the overseas transshipment service network.

## Section 3 Promoting the high-quality development of China Railway Express

Upgrade and transform the China-Europe Express Railway Port and the "stuck neck" section behind it, and accelerate the upgrading of technical equipment and information construction. Accelerate the construction of the China-Europe train assembly center, promote the unified waybill of the China-Europe train and the mixed transportation of domestic and foreign trade goods, improve the efficiency of cargo source gathering and train operation, and expand the scope of planned railway freight train operations. Improve the assessment and evaluation system of China Railway Express, improve the industry self-discipline mechanism, consolidate and maintain the brand image, and strengthen risk prevention and control. Promote the convergence and unification of international rail transport rules, explore the establishment of new rules for the joint development of trade and finance, and promote the establishment of an intergovernmental cooperation mechanism for China-Europe freight trains.

## Section 4 Deepening Exchanges and Cooperation in Multiple Fields

Actively integrate with international rules and standards, and coordinate and promote the docking of transportation tools, loading units, reloading and transshipment equipment, operating procedures, safety rules, service specifications, and information data. Support enterprises to participate in the construction of transportation infrastructure along the "Belt and Road" and international transportation market cooperation, and promote the new model of international production capacity cooperation in which transportation, industrial parks and cities are integrated in the development and construction. Establish a China International Innovation and Knowledge Center for Sustainable Transport. Strengthen exchanges and cooperation in the fields of deep-sea navigation guarantee, search and rescue and salvage, automatic driving, and scientific and technological talents, build a world-class ship inspection organization, and

actively participate in the global governance of international aviation and shipping industries to reduce emissions.

Section 5 Guarantee the Security of the International Logistics Supply Chain

Efforts will be made to form a transportation network that integrates land, sea and air, strengthen the connection between supply and demand and the coordination of transportation capacity, and improve the national logistics supply chain support capability. Pragmatically promote cooperation with ASEAN countries and countries along important shipping routes, strengthen international maritime cooperation, cooperate with countries along the Maritime Silk Road to promote the construction and operation of overseas ports, build a modern ocean shipping fleet, and maintain the safety and smoothness of important international shipping routes. Strengthen the capacity of international air cargo, improve the allocation efficiency of key resources such as air rights and time slots, support airlines in building an international cargo route network, build an aviation logistics enterprise with global competitiveness, and improve the global responsiveness of aviation logistics. Cultivate and expand logistics enterprises with international competitiveness, and steadily promote the construction of overseas distribution centers and terminal delivery distribution networks. Improve the information service level of the international logistics supply chain, and do a good job of docking logistics information with foreign trade enterprises.

Box 15 Actions to Improve International Transport Competitiveness
<p>1. <b>Promote international connectivity.</b> Carry out capacity expansion and transformation of Manzhouli, Erenhot, Alashankou, Horgos and other railway port stations, build railways from Dali to Ruili and Yuxi to Mohan, and promote the expansion and transformation of railways from Jiamusi to Tongjiang (Fuyuan) . Construct highways from Wuqia to Kangsu, and Bole to Alashankou, and carry out construction and reconstruction of roads at ports such as Hongshanzui and Wulastai. Promote the construction of waterways for international rivers such as Heilongjiang, Yalu River, and Tumen River. Promote cooperation in the construction and operation of overseas ports such as Piraeus Port in Greece, Khalifa Port in the United Arab Emirates, and Kuala Tanjung Port in Indonesia.</p> <p>2. <b>Be an excellent brand of China Railway Express.</b> Construct demonstration projects of China-Europe train assembly centers in Chengdu, Chongqing, Zhengzhou, Xi'an, Urumqi, etc., integrate train operation platforms, strengthen the unified brand of China-Europe trains, and create star transportation products. Promote the expansion and transformation of the China-Europe Railway Express transportation channel and ports, and promote the construction of overseas strategic transfer stations. Promote the SMGS / SMGS waybill, improve the China International Freight Forwarders Association bill of lading, and gradually expand the scope of application. Revise the evaluation indicators for the high-quality development of China Railway Express.</p> <p>3. <b>Expand the international services of the Western Land-Sea New Corridor.</b> Create a brand of train transportation in the Western Land-Sea New Corridor, and formulate a high-quality development index system for trains. Promote the construction of the Chongqing West Land-Sea New Corridor Logistics and Operation Organization Center, the Chengdu Commercial Logistics Center, the Guangxi China - ASEAN Multimodal Transport Alliance Base and Service Center, and lay out the construction of logistics hubs and ports along the route. To optimize and strengthen Beibu Gulf Port and Yangpu Port, and strengthen comprehensive services such as</p>



international ship registration, bonded fuel supply, and shipping finance. Promote the materialization of international railway waybills and the "one order system" for sea-rail combined transport . 4. Improve the independent controllability of the international logistics supply chain.

Support domestic airlines to increase the introduction and transformation of all-cargo aircraft, expand the size of the cargo fleet, and develop all-cargo aircraft transportation. Optimize the allocation of flight time resources at air cargo hub airports. Cultivate a group of leading enterprises in the logistics supply chain with global competitiveness, guide enterprises to optimize the distribution of logistics nodes at home and abroad, gradually build a safe and reliable international logistics facility network, and achieve coordinated development with manufacturing, international trade and other enterprises.

## Chapter 11 Strengthening Modern Governance Capacity Building

Unswervingly promote reform, focus on the deep-seated contradictions that restrict the high-quality development of comprehensive transportation, optimize and improve the management system, operating mechanism, laws and regulations and standard systems, build a high-level talent team, promote the modernization of governance capabilities, and continue to strengthen comprehensive transportation Develop drive and vitality.

### Section 1 Deepen Reform in Key Areas

Further clarify the relationship between the government and enterprises in the railway industry, promote the market-oriented reform of the competitive links in the railway industry, promote the independent construction and operation of intercity railways and urban (suburban) railways in qualified localities, promote the joint-stock reform of national railway enterprises and the listing of high-quality assets, and improve the railway industry. Fee settlement and income distribution rules. Promote the reform of the road toll system and maintenance system, and promote differentiated toll collection on expressways. Continue to promote the reform of the air traffic control system, improve the joint operation mechanism of military and civilian air traffic control, implement classified and refined management of airspace resources, optimize the national air route network, and deepen the reform of low-altitude airspace management. Realize the separate operation of postal universal service business and competitive business. Study and improve the shipping management system and mechanism of Xijiang shipping trunk line and boundary river. Deepen the reform of comprehensive administrative law enforcement in transportation. Build an all-factor water traffic management system, optimize and improve the maritime supervision mechanism and model.

### Section 2 Promoting the Formation of a Unified Open Market

Establish and improve the integrated development mechanism of transportation in urban agglomerations. Implement a fair competition review system, and standardize subsidy policies for China Railway Express, Hong Kong Airlines, and international civil aviation routes. Establish a new credit-based supervision mechanism,

strengthen credit information sharing and disclosure, risk monitoring, and safety management, and promote pre-existing credit commitments, in-process credit evaluations, hierarchical and classified supervision, post-event rewards and punishments, and credit restoration. Explore the establishment of a fault-tolerant system for innovative development of transportation. Standardize the price management of new forms of transportation and new models, improve the price formation mechanism for parade taxis, and deepen the market-oriented reform of road passenger transport prices.

### Section 3 Innovating the Investment and Financing System and Mechanism

Fully implement the reform plan for the division of central and local fiscal powers and expenditure responsibilities in the field of transportation, optimize the debt structure, and prevent and resolve hidden debt risks of local governments. Improve long-term financing channels that match project funding needs and deadlines. Stabilize and improve the special fund policy for transportation, continue to support the maintenance of transportation infrastructure through channels such as transfer payments for the reform of refined oil taxes and fees, and optimize and improve the fund policy to support the development of postal services and water transportation. Improve the special bond system for toll roads. Support qualified project implementers to carry out market-based financing through the issuance of corporate bonds and other channels, steadily promote the pilot project of real estate investment trust funds (REITs) in the infrastructure field, standardize the development of government and social capital cooperation models, support development finance, policy finance, Social capital participates in the construction of transportation infrastructure in accordance with laws and regulations, and social capital is encouraged to set up multimodal transport and other industrial investment funds. Relying on the national online approval and supervision platform for investment projects, strengthen interim and ex-post supervision.

### Section 4 Improving laws, regulations and standards

Accelerate the construction of laws, regulations and standard systems that adapt to the modern comprehensive transportation system. Research, formulate and revise laws and regulations related to highways, railways, civil aviation, and comprehensive transportation, and promote the effective connection of various systems. Build a standard system and statistical system for the high-quality development of comprehensive transportation, and improve technical standards such as comprehensive transportation hubs, passenger interline transportation, multimodal cargo transportation, intelligent transportation, green transportation, traffic safety emergency, barrier-free transportation, and new formats and models. Strengthen the connection of various standards. Promote the integration of multimodal transport service rules for dangerous goods and the mutual recognition of test results. Strengthen the construction of quality technology infrastructure such as measurement, standards, certification and accreditation, and inspection and testing, and strengthen quality supervision and management.

### Section 5 Strengthen the Talent Team and the Construction of Traffic Civilization

Build a new type of think tank alliance for transportation, optimize the leading talent discovery mechanism and project team selection mechanism, deepen the reform of scientific research funding management, improve the talent evaluation system, vigorously train and employ strategic scientists, and create a large-scale young scientific and technological talent team. Strengthen the cultivation of innovative, applied and skilled talents, expand the team of high-skilled talents, and train a large number of outstanding engineers. Strengthen the construction of the soft power of transportation culture, promote the construction of high-quality transportation cultural projects, deepen the construction of transportation cultural and museum projects, and improve the civilized quality of traffic participants. Strengthen the construction of all-media communication capabilities in transportation and transportation, and enhance the communication, guidance, influence, and credibility of transportation and government media. Further strictly enforce discipline, improve work style, improve the ability and level of the transportation law enforcement team, and strictly regulate, fair and civilized law enforcement. Innovate new mechanisms and methods for the publicity and education of the rule of law, implement the responsibility system for popularizing the law, and cultivate a culture of the rule of law in traffic.

## Chapter Twelve Strengthening Plan Implementation Guarantee

Adhere to the party's overall leadership over the development of transportation, strengthen organizational coordination, element support, supervision and guidance, give play to the leading role of pilot demonstrations, and ensure the effective, orderly and effective implementation of the plan.

### Section 1 Strengthening the Party's Overall Leadership

Persist in arming the minds of party members and cadres with Xi Jinping's socialist ideology with Chinese characteristics in the new era, conscientiously implement the decisions and deployments of the Party Central Committee and the State Council, strengthen the "four consciousnesses", strengthen the "four self-confidence", and achieve "two safeguards". Give full play to the leadership and core role of the party in overseeing the overall situation and coordinating all parties, and strengthen the party's leadership in all fields, aspects, and links of transportation development. Strengthen the construction of grassroots party organizations in the transportation industry, guide the majority of party members to play a vanguard and exemplary role, and build grassroots party organizations into a strong battle fortress for the development of a transportation power.

### Section 2 Strengthening Organization and Coordination

All relevant departments should improve their ideological understanding, improve supporting policies and measures in accordance with the division of responsibilities, strengthen departmental coordination, strengthen the linkage between the upper and lower levels, and do a good job in the connection between this plan and the national economic and social development plan and the comprehensive planning of land space and river basins. Special plans for railways, highways, water transport, civil aviation, and postal services will be implemented in conjunction with this plan, and the construction of major engineering projects

will be solidly promoted. Local people's governments at all levels should closely integrate the development reality, refine the main objectives and key tasks determined in this plan, and do a good job in the implementation of the connection between the local comprehensive transportation development plan and this plan.

### Section 3 Promoting Pilot Demonstration

Focusing on first-class facilities, first-class technology, first-class management, and first-class service, optimize the allocation of resources in the cross-regional comprehensive transportation channel, new infrastructure in the field of transportation, international comprehensive transportation hub clusters, urban agglomerations and urban-rural transportation integration, "four good rural roads" "In terms of high-quality development, integrated development of transportation and tourism, standardization of facilities and equipment service management, reform of investment and financing system and model innovation, construction of international logistics supply chain, green and low-carbon transportation development, etc., orderly promote the pilot demonstration of building a strong transportation country, and establish and improve pilot projects. Achievement summary and system promotion mechanism, relying on funds such as car purchase tax to increase support for pilot demonstration projects.

### Section 4 Strengthening Element Guarantees

Strengthen funding policy guarantees, arrange government investment to actively support the construction of transportation infrastructure, and include eligible projects into the scope of local government bond support. Increase maintenance capital investment, fully guide diversified capital to participate in transportation development, and form a sustainable capital investment mechanism that pays equal attention to construction and maintenance. Explore diversified support policies such as hub land comprehensive development. Improve the coordinated promotion mechanism for major cross-departmental and cross-regional projects. Make good use of the overall coordination mechanism for supplementing cultivated land across regions, strengthen the guarantee of resource elements such as land use, sea use, and energy use for key projects, and do a good job in the reservation and supply of resource elements.

### Section 5 Do a good job of supervision and guidance

Establish and improve the evaluation system for major plans, major policies, and major projects in the field of transportation, and conduct social stability risk assessments for major decisions as required. Strengthen planning implementation and post-event supervision and dynamic monitoring and analysis, carry out mid-term evaluation and post-evaluation of construction projects in a timely manner, supervise and guide the implementation of planning, and dynamically adjust when necessary to ensure that the planning is effective.

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