构建公交都市，推进城市精明增长

Construction of Transit Metropolis, and Promotion of Urban Smart Growth

2010.5

May 2010

南京城市及交通发展
面临重要抉择

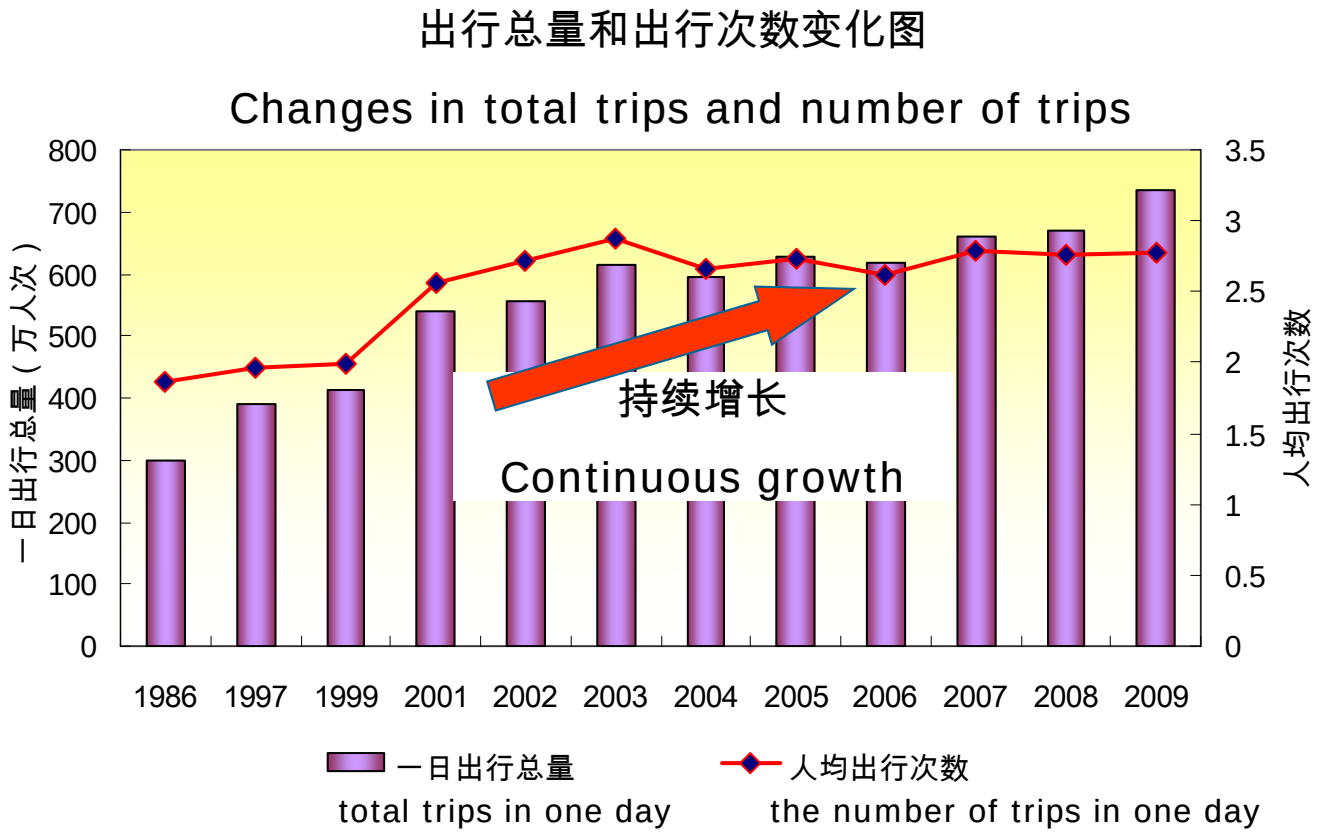
Nanjing faces an important choice for urban development and development of urban transport

南京交通发展现状

Current status of transport development of Nanjing

- 交通需求不断扩大

Demand for transport is increasing continuously

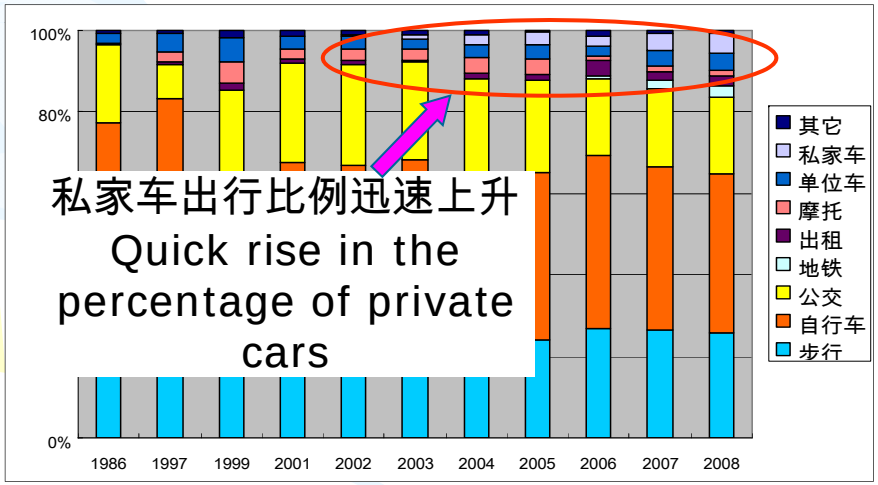


南京交通发展现状

Current status of transport development of Nanjing

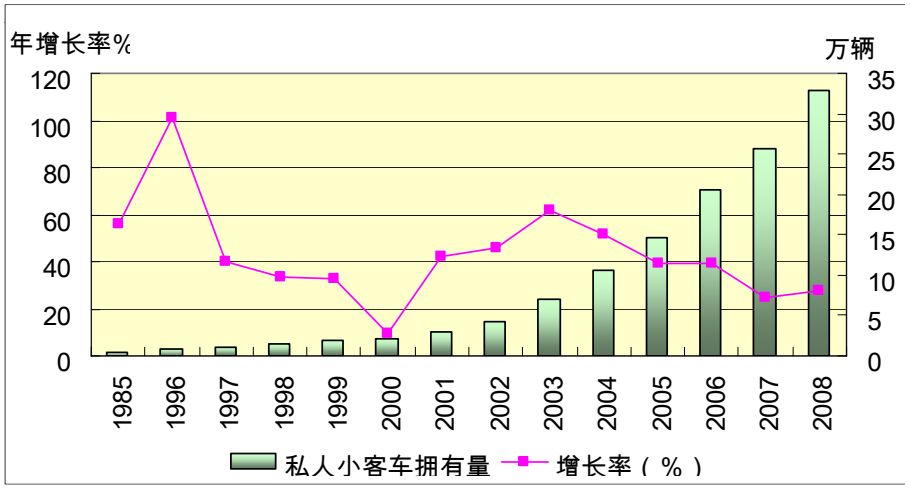
- 机动车拥有量保持高速增长，给城市交通带了严峻的交通压力

  Fast increase in number of vehicles brings about rigorous traffic pressure on urban transport



出行比例变化图

Changes in travel mode proportion



截止2009年6月，私家车拥有量已达25.7万辆，与2000年相比，增长12倍

As of June 2009, the number of private cars was 257,000; compared with 2000, a growth by 12 times.

南京迈向千万级超大城市

Nanjing will become an ultra large city with a population of 10 million

- **2030年南京都市区人口将超过1100万人；**

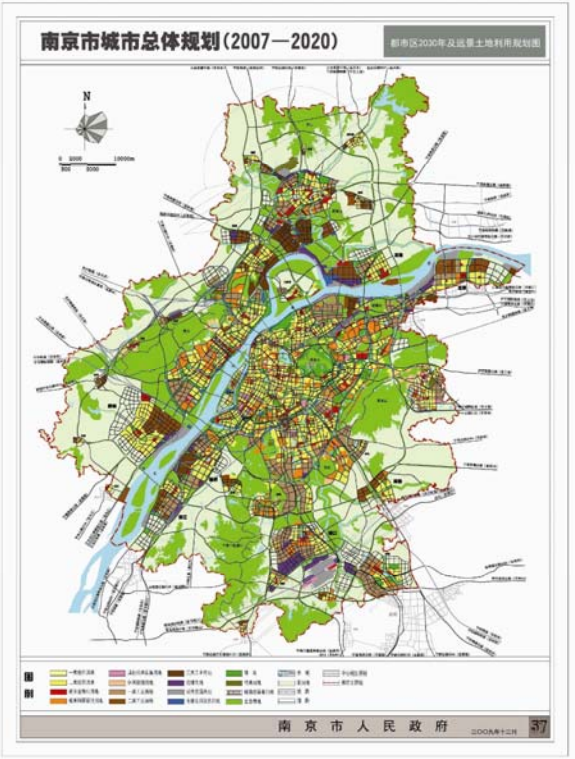
  By 2030, the population in Nanjing metropolitan area will surpass 11 million;

- **城市常住人口日均出行总量将达到3000万人次；**

  Average daily trips of the permanent residents will reach 30 million in total;

- **都市区规划范围拓展至40km半径。**

  Planned scope of the metropolitan area will be expanded to 40km-radius.



城市用地规模扩大将导致居民出行距离增加，交通方式也随之发生变化，机动化出行需求提高，**南京城市及交通发展面临重要抉择。**

The expansion of the urban land use will cause increase of the travel distance of the residents, and the transportation modes will also change along with it; the demand for motorized travel will enhance; **Nanjing faces an important choice for urban development and development of urban transport.**

世界相关城市交通模式

Transport modes of the world similar cities

机动化交通模式推动城市的拓展一般呈现两种模式：

Generally, the urban expansion promoted by motorized transport takes on two modes:

- 小汽车交通——带来空间无限蔓延及交通拥堵、环境污染等问题

  Private car transport-- with subsequent problems of unchecked sprawl of the urban space and traffic congestion and environmental pollution

- 公共交通——是大城市可持续发展的道路

  Public transport—a path of sustainable development of the large cities

城市空间布局与交通模式
Urban space layout and transport modes

城市 City	城市形态 City forms	土地利用与城市形态 Land utilization and city forms	主导交通模式 Dominant transport modes
东京 Tokyo	由单一中心向多中心发展，形成“一心七核”的城市结构 Developed from a “single center” to “multi-centers”, a city form of “one center seven cores”	轨道线路引导城市开发，围绕轨道交通站点，塑造城市活动中心 Rail lines guiding the urban development, the centers of urban activities are constructed around the rail transport stops	地铁+私铁+JR Subway + private railway + JR
伦敦 London	圈层发展、多中心长廊分散式空间形态 Distributed space form of circle development with multi-central corridors	高密度、网络化、多模式协调组合的交通体系，构筑一体化交通 Transport systems of high density, network and multi-modes in coordinated combination, constructing an integral transportation	地铁+轻轨+市郊铁路+公交 Subway + light rail + suburban railway + public bus transport
巴黎 Paris	多中心城市群、沿河带状发展 Multi-center city clusters, along-river belt-shaped development	新城的综合开发，平衡就业与居住，建设区域快速铁路RER，连接市区 Comprehensive development of new cities, making a balance between employment and housing; constructing regional expression railway to connect with the urban area	区域快轨+地铁+电车 Regional rapid rail + subway + tram
新加坡 Singapore	多中心大都会 Metropolis with multi- centers	土地开发和交通规划的紧密结合 Close combination of land development with transport planning	地铁+轻轨+公交 Subway + light rail + public bus transport

城市空间布局与交通模式
Urban space layout and transport modes

城市 City	城市形态 City forms	土地利用与城市形态 Land utilization and city forms	主导交通模式 Dominant transport modes
斯德哥尔摩 Stockholm	轨道交通沿线串珠状城市形态 Form of stringed pearls along the rail transport lines	依托城市轨道交通把市中心向外扩散的人口和社会经济活动引导到轨道沿线的新卫星城市 The people and social and economic activities are guided from the city center outward to the new satellite cities along the rail lines by relying on the rail transport	区域轨道交通+公交 Regional rail transport + public bus transport
哥本哈根 Copenhagen	“手掌型”城市形态 Form of a “hand-palm shape”	放射性的轨道交通服务，连同充分体现步行者和自行车出行者优先的街道资源分配，引导大哥本哈根地区从单中心向多中心都市的转变 With radial rail transport service, together with street resources distribution for pedestrians and bicycle travelers with priority, guiding the transformation from the single center to multi-centers in the Greater Copenhagen area	市郊轨道+地铁 Suburban rail + subway
库里蒂巴 Curitiba	星形指状 Form of a star shape	土地利用沿交通轴线走廊式开发 Land utilization is developed along the transport axis in corridor manner	快速公交 Rapid public transport

南京可借鉴的经验

Experience that can be learned by Nanjing

南京城市空间扩展表现为：

The urban space expansion of Nanjing is manifested in this pattern:

“资源点”
“Spots of resources”

↓

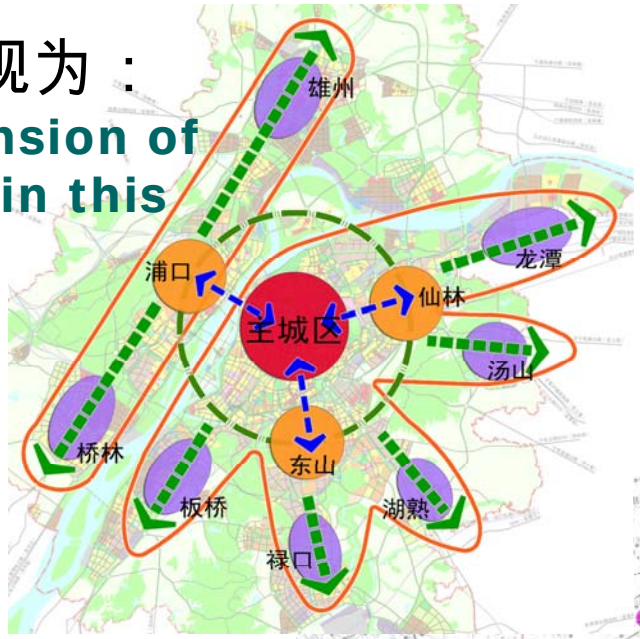
“飞地”
“Enclaves”

↓

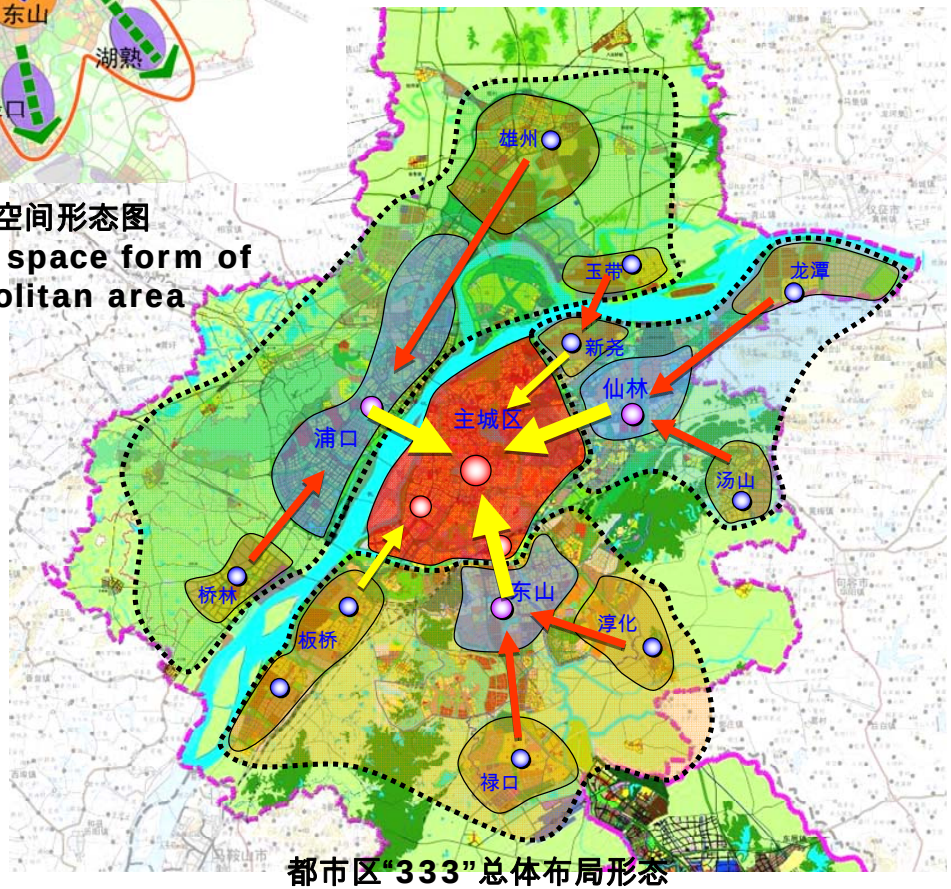
“指状”增长
“Fingers-shape” extending

↓

“指状”间被填充
Space between the “fingers” are filled up



都市区空间形态图
Diagram of space form of metropolitan area



都市区“333”总体布局形态
“333” general layout of metropolitan area

南京在新一轮都市区建设过程中，应明确的问题：

Nanjing will make clear about the following issues in the new round of urban development and construction process:

- 构建公交都市；

  Construction of transit metropolis;

- 公共交通优先从“市区公交”扩展到都市区“全域公交”；

  Public transport will be expanded with priority from “public transport in urban areas” to “full-range public transport” in the metropolitan area ;

- 对城市空间结构进行必要调整，以轨道交通节点为核心布局城市功能中心。

  Making necessary adjustment of the urban space structure, using the rail transport nodes as the cores for arranging the urban functional centers.

南京交通发展战略

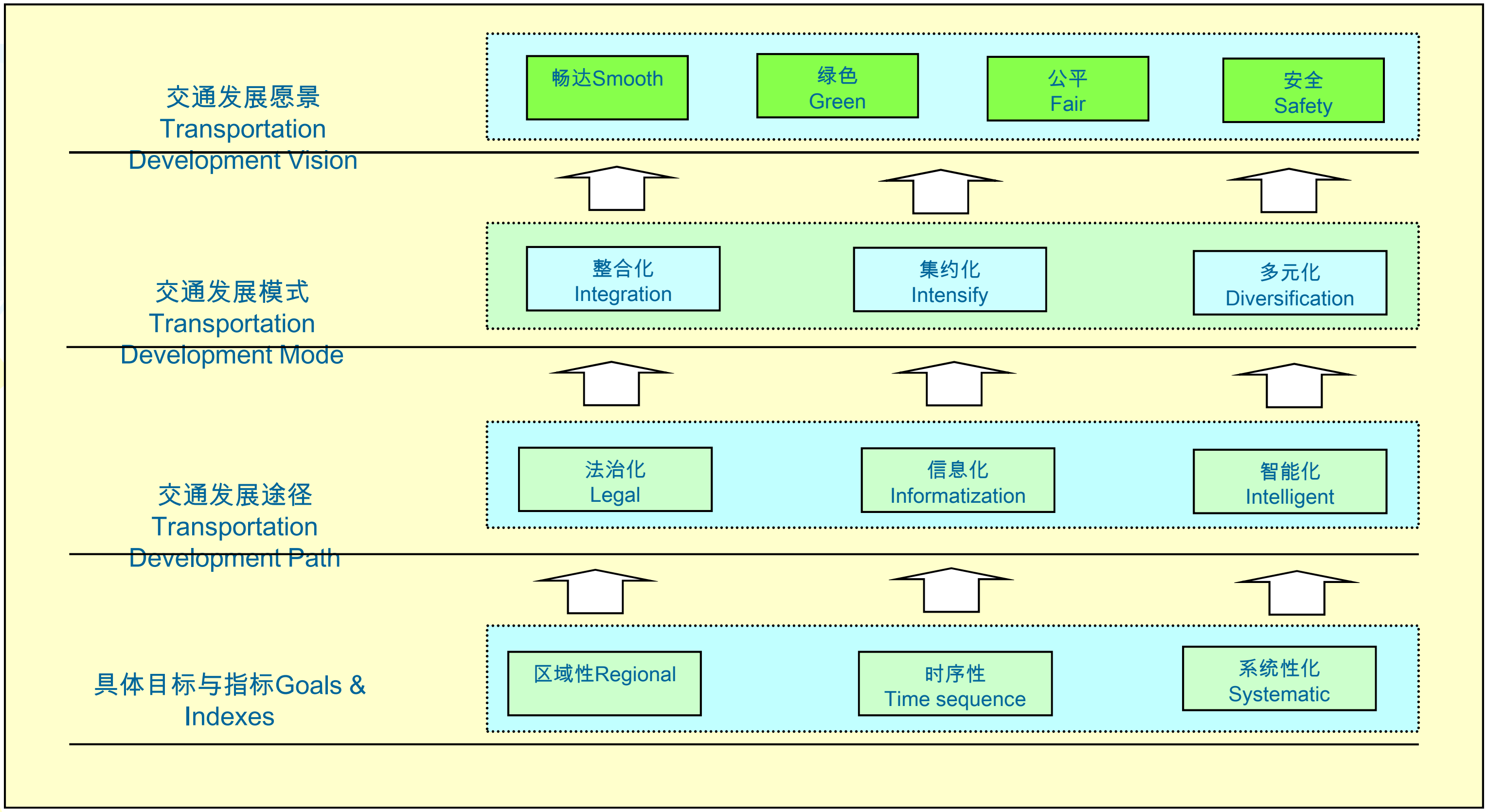
Strategy of Nanjing transport development

南京交通发展白皮书

Nanjing Transportation Development White Paper

愿景：“畅达、绿色、和谐”的现代化交通体系;

Vision: modern transport system of “being smooth, green, harmonious”

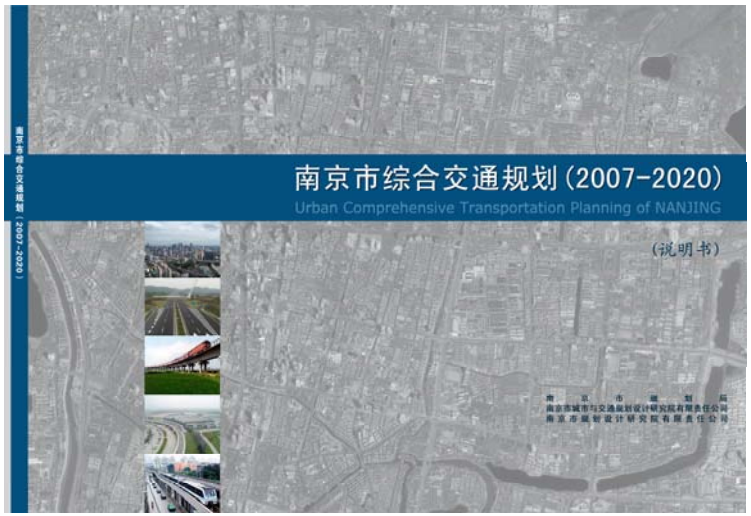


南京城乡综合交通总体规划

General planning of Nanjing urban and rural transportation

战略目标：构建国铁、城轨、路面公交等多级公交网络合一，高效率、高品质、高适应性一体化公交都市

Strategic goals: To construct transit metropolis with a multi-level public transport network by combining the national railways, the urban rail and the bus public transport into an integral one, with high efficiency, high quality, and high compatibility



南京城乡综合交通总体规划

General planning of Nanjing urban and rural transportation

- 城市规模层面：南京将来都市区人口将超过1000万人，必须构建完善的公交都市；

  City scale: Nanjing will have a population of over 10 million; perfect transit metropolis must be constructed;

- 城市性质层面：南京是著名古都，需构建公交都市，以保护古都特色和城市环境；

  City nature: Nanjing is a famous ancient city, it is necessary to construct transit metropolis to protect the characteristics and urban environment of the ancient city;

- 城市结构层面：南京规划的多心开敞、轴向组团的城市结构有利于构建公交都市；

  City structures: The planned urban structures of Nanjing with multi-centers, openings and axial clusters are advantageous for construction of transit metropolis;

- 交通模式层面：倡导的低碳交通、节能减排、高效和谐也要求构建公交都市。

  Transport modes: The currently advocated low-carbon transportation, energy-saving and emission-reduction, high inefficiency and harmony also require construction of the transit metropolis.

公交都市的内涵和发展目标

Contents of Transit Metropolis and Development Goals

南京“公交都市”的基本内涵

Basic contents of “transit metropolis” of Nanjing

- 构筑高效率、高品质、高适应性的一体化公交都市；

  To construct an integrated transit metropolis of high efficiency, high quality, and high compatibility

- 满足60%以上通勤客流公交占有率；

  To have share rate of over 60% commuter passengers by public transport;

- 85%公交单程出行45分钟以内通达；

  To realize 85% of one-way travel by public transport to arrive at the destination within 45min;

- 公交服务品质体面、舒适、可靠；

  To provide graceful, comfortable, reliable public transport service;

- 公交系统的人群适应性、地区适应性、时段适应性、票价适应性均具有较高水平；

  To achieve high level of the public transport system of crowd compatibility, regional compatibility, time interval compatibility, and the ticket price compatibility ;

- 引领城市布局、交通结构优化。

  To play a leading role in the urban layout and the transport structure optimization.

远期服务目标
Long-term service goals

- 中心城区公交客运分担率不低于30%，老城、市级中心地区、跨江与重要轴向公共交通出行比例达60%以上；

The share rate of public passenger transport in the central urban areas is no less than 30%, with over 60% of the passengers traveling by public transport in the old urban areas, the city-level central area, cross-river and important axial public transport areas;

- 高峰期间城市轨道与路面公交发车频率不大于5分钟；

Service frequency: no more than every 5min for the city rail and bus public transport in rush hours;

- 交通排污总量减少50%。

To reduce the total traffic pollution emission by 50% .

远期设施建设目标

Long-term goals of construction of “transit metropolis” facilities

- 2条以上轨道快线通往副城，市级中心地区轨道线网密度达到1.4千米/平方千米；

More than 2 lines of rapid rail transport running between the central urban area and the sub-cities; the density of the city-level rail network in the central area will reach 1.4km/km^2;

- 中心城区公交线网密度不低于4千米/平方千米；

The density of the public transport network in the central area will reach 4km/km2;

- 300米半径公交服务覆盖率达80%；

300m-radius public transport stops service coverage rate will reach 80%;

- 公交车与地铁车站换乘距离不超过150米，公交车之间换乘距离不超过80米；

Transfer distance between the public buses and the subway stations is no more than 150m; transfer distance between the public buses is no more than 80m;

- 都市区万人公交车拥有量超过13标台。

Every 10000 people will share 13 standard public transport buses in the metropolitan area.

近期服务目标

Near-term service goals

- 中心城区公交客运分担率不低于20%，老城、市级中心区、跨江与重要轴向公共交通出行比例达50%以上；

The share rate of public passenger transportation in the central urban areas is no less than 20%, with over 50% of the passengers traveling by public transport in the old urban areas, the city-level central area, cross-river and important axial public transport areas;

- 高峰期间城市轨道与路面公交发车频率不大于6分钟；

Service frequency: no more than every 6min for the city rail and the bus public transport in rush hours;

- 交通排污总量减少20%。

To reduce the total emissions from public transport by 20%

近期设施建设目标

Near-term goals of construction of “transit metropolis” facilities

- 1条以上轨道快线通往副城，市级中心地区轨道线网密度达到0.9千米/平方千米；

More than 1 line of rapid rail transport running between the central urban area and the sub-cities; the density of the rail network in the city-level central area will reach 0.9km/km^2;

- 中心城区300米半径公交服务覆盖率达70%；

The 300m-radius public transport service coverage rate will reach 70% in the central city;

- 公交车与地铁车站换乘距离不超过200米，公交车之间换乘距离不超过100米；

The transfer distance between the public buses and the subway stations is no more than 200m; the transfer distance between the public buses is no more than 100m;

- 万人公交车拥有量达到12标台。

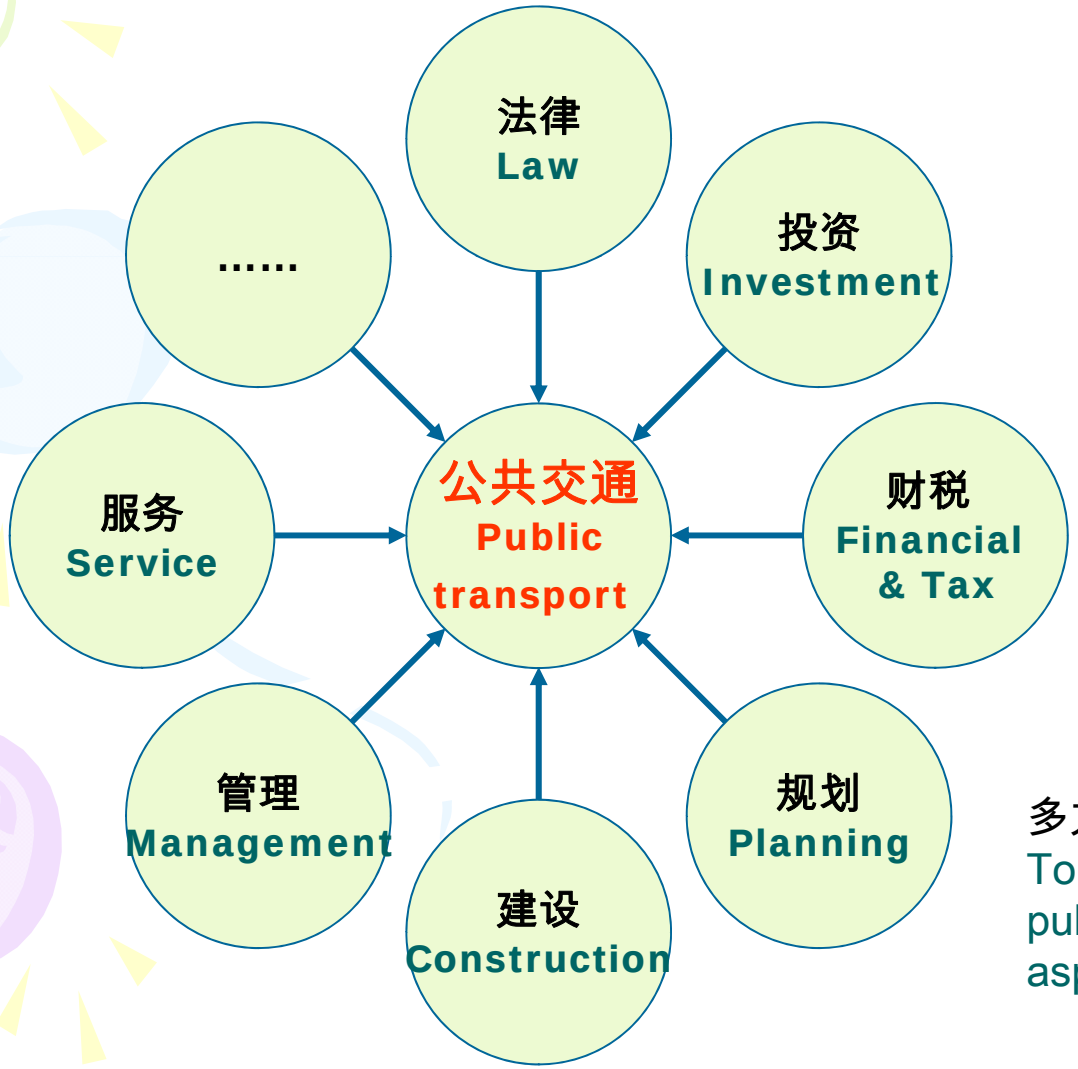
Every 10000 people will share 12 standard public transport buses in the metropolitan area.

推进“公交都市”的具体策略

Specific strategies of promoting “transit metropolis”

政策方面
Policies

坚持公共交通优先发展政策
Persisting in the development policy of public transport with priority



多方位为公共交通发展提供优先条件
To provide priority conditions for public transport development from all aspects

政策方面
Policies

- 加快建立和健全公共交通优先发展的法律法规；

To speed up establishment and improvement of the laws, rules and regulations concerning the development of public transport with priority;

- 加大对公共交通的投资倾斜和政策扶持力度；

To make more investment in the development of public transport and strengthen the support of policies;

- 加强公共交通体系规划与设施控制；

To strengthen planning of the public transport systems and facilities control;

- 优化公共交通线网布局与运营调度；

To optimize network of the public transport and the operation dispatch;

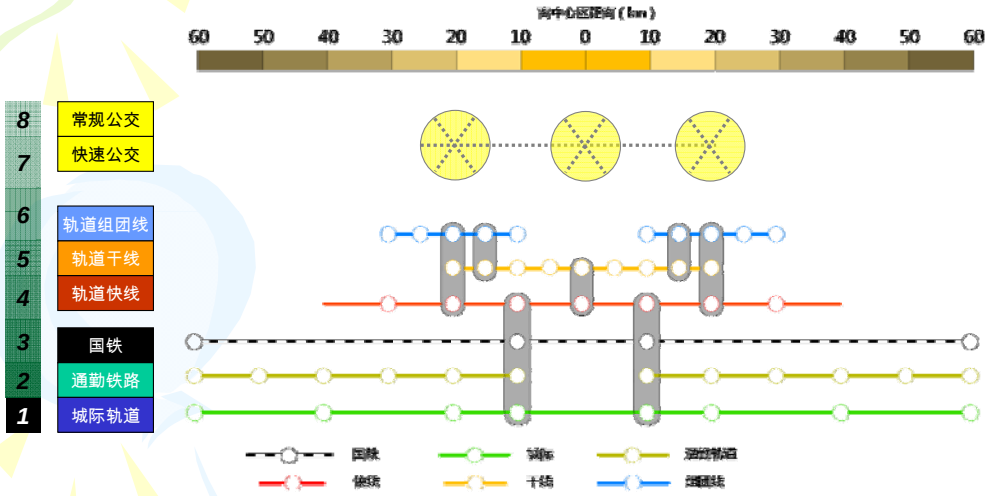
- 保障公共交通的道路优先使用权；

To guarantee the road use priority rights of the public transport;

- 积极稳妥地推进公共交通行业改革。

To carry out reforms of the public transport in a positive and steady manner.

规划引导
Planning guidance



南京“公交都市”客运交通系统构成
Composition of Nanjing “Transit Metropolis” Passenger Transport Systems

➢公共客运主走廊以轨道交通、快速公交线路为主体支撑；
The public passenger transport major corridors are mainly supported by the rail transport and rapid public transport lines;

➢客运次走廊以干线公交为支撑；
The passenger transport minor corridors are supported by trunk public transport lines;

➢围绕公共客运枢纽站点配置城市分级中心体系；
To center around the public passenger transport hub stations with urban sub-central systems;

➢客运走廊两侧用地高强度开发；
To develop the lands on both sides of the public passenger transport corridors with high intensity;

➢公共客运主走廊两侧配建停车设施供应水平适度降低，引导公交方式出行。
To construct parking facilities on both sides of the main corridors of public passenger transport, with slightly low level of service supplied so as to encourage the residents to travel by public transport.

基础设施建设——轨道交通

Infrastructure construction –Rail transit

- 分担率：在公共交通客运量中接近50%，在机动化出行方式中达30%；

Share rate: close to 50% in public passenger transport; 30% in motorized travel mode;

- 线网总规模：都市区17条线、610千米；中心城区约390千米；

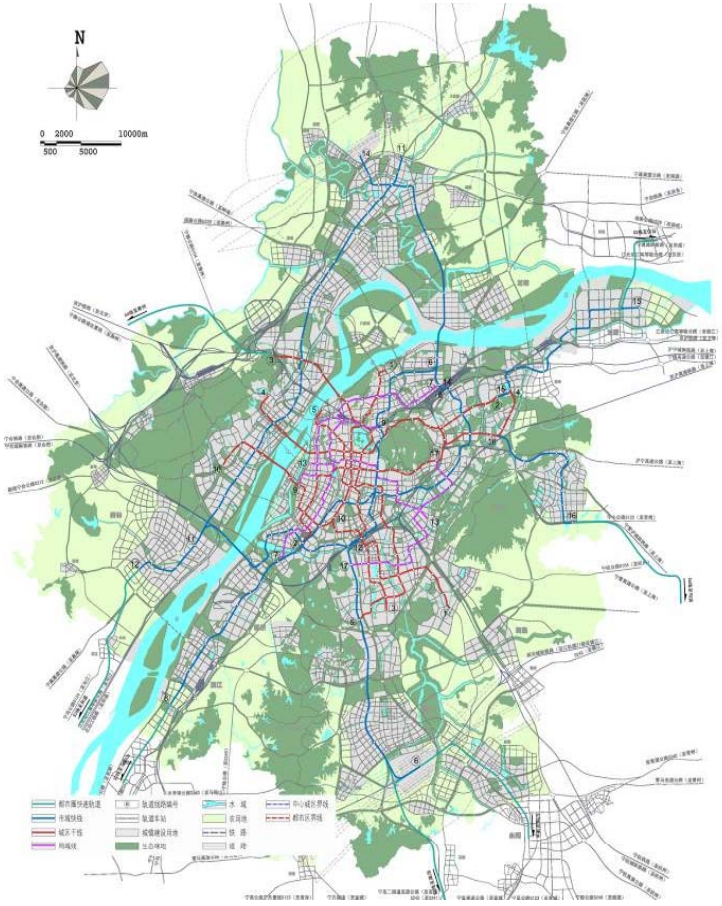
Total network scale: 17 lines in urban area, 610km; about 390km in central area;

- 线网密度：都市区0.17千米/平方千米；中心城区0.61千米/平方千米，其中老城、主城线网密度分别为1.36和0.87千米/平方千米；

Network density: 170m/km2 in urban area; 610m/km2 in central area, of which, 1.36km/ and 0.87km/km2 in the old area and in the main city area respectively;

- 站点覆盖率：老城站点600m半径覆盖率75%，主城站点800m半径覆盖率60%。

Stops coverage rate: The coverage of 600m-radius stops in the old urban area will be 75%; and the coverage of 800m-radius stops in the main urban area will be 60%.



远景轨道交通线网规划图

Long-term rail transit network planning map

2020年建设轨道交通线路13条（段），建设里程约470公里。

13 rail transit lines (sections) will be completed by 2020 with total construction mileage of approx 470km

基础设施建设——地面公交

Infrastructure construction – Bus public transport

构建由快线、干线、普线和支线等共同构成的多层次、高适应性、优质道路公共交通网络。

To construct multi-level, high adaptability, quality road public transport network composed of express line, trunk line, common line, lateral, etc.

- 公交线网密度：城市集中建设地区达4千米/平方千米；

Public transport network density: 4km/km^2 in concentrated urban construction area;

- 公交站点：300米半径覆盖率达80%以上；

Bus stops: 300m-radius stops covering over 80%;

- 公交车辆：不低于1.2万标台；

Buses: no less than 12000 standard buses;

- 公交专用道：主城区形成“十一横十纵八射”的公交专用道网络，总里程约216千米，设置专用道的干路比例平均为35.3%；在外围新区将形成以主城为核心放射状的公交专用道网络，约85千米。

Public transport roads: The main urban areas will be covered by “11 east-west roads, 10 north-south roads and 8 radial roads”, forming a public transport network, with a total length of about 216km; the percentage of the trunk roads that are designated with bus lane is 35.3%; a radial public transport network with the main urban area as the core will be formed in peripheral new area , with a length of about 85km.

2020年主城区公交专用道网络

Public transport lanes network in main urban area by 2020

基础设施建设——慢行交通

Infrastructure facilities construction – Slow traffic

- 结合老城历史街巷保护开辟步行和自行车专用路；

To open pedestrians and bicycles lanes in combination with protection of the historical streets and lanes in the old urban areas;

- 早晚高峰时段开辟部分自行车优先路；

To open some roads for bicycles to use with priority during the morning and afternoon rush hours;

- 发展具有现代气息和地方特色的步行街（区）；

To develop some walking streets (blocks) with modern features and local characteristics;

- 结合商业建筑空间构建立体步行交通设施。

To construct some elevated pedestrian traffic facilities in combination with the commercial construction space;

- 强化轨道交通指引和公交换乘信息标志的设置；

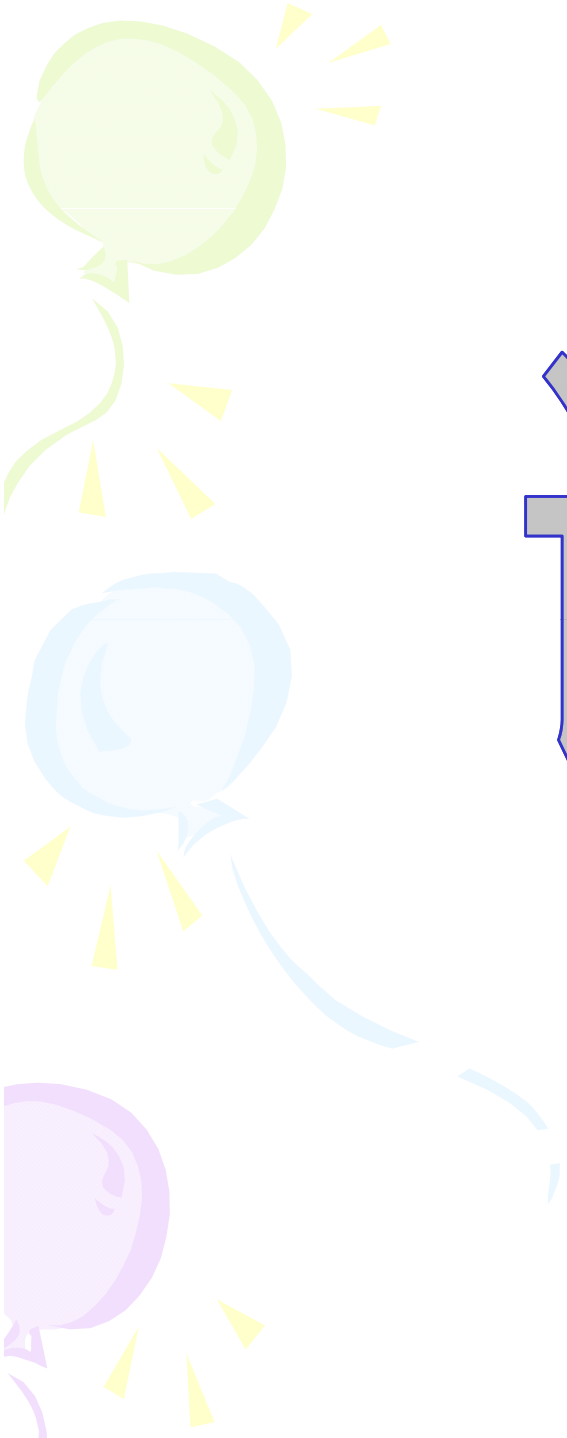
To strengthen setting of rail transit guidance and public transport transfer information signs;

- 辟设步行通道，完善行人过街设施与公共交通站点的衔接设计；

To open walking passages, to have connections of the pedestrian crossing-street facilities and the public bus stops well designed;

- 建立规模适当的非机动车公共停车场。

To build public parking lots of proper scale for non-motorized vehicles.



谢谢！

Thank you!