

Guangzhou's Planning Responses to Climate Change: Observations and Suggestions



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We would like to talk

- Why Planning Responses at Local Level?
- Guangzhou Planning Responses to Climate Change
- What We Have Done is Not Enough
- Suggestions for Actions at Local Level

Why Planning Responses at Local Level?

What planning can do about climate changes?

- “**Urban planning** (urban, city, and town planning) is a technical and political process concerned with the control of **the use of land** and **design of the urban environment**, including **transportation networks**, to guide and ensure the orderly development of settlements and communities.”—Wikipedia
- We can make a difference by making the land use, urban built environment better.



A GREENER, GREATER NEW YORK



The City of New York
Mayor Michael R. Bloomberg

Introduction

Land

16  Housing

28  Open Space

40  Brownfields

Water

52  Water Quality

62  Water Network

Transportation

72  Congestion

 State of Good Repair

Energy

100  Energy

Air

118  Air Quality

Climate Change

132  Climate Change

Appendices

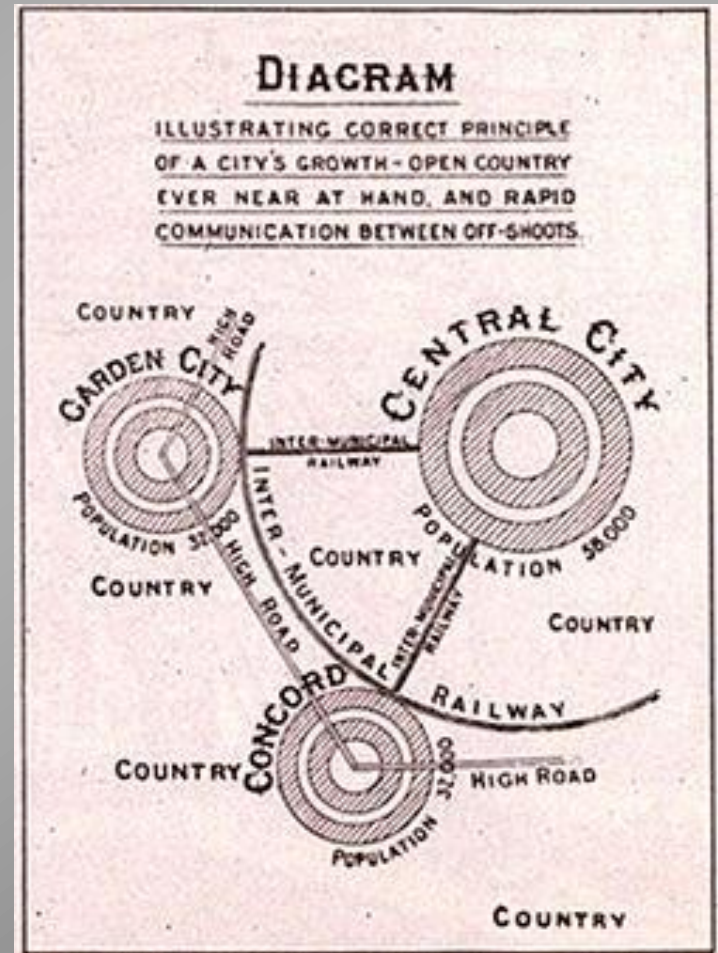
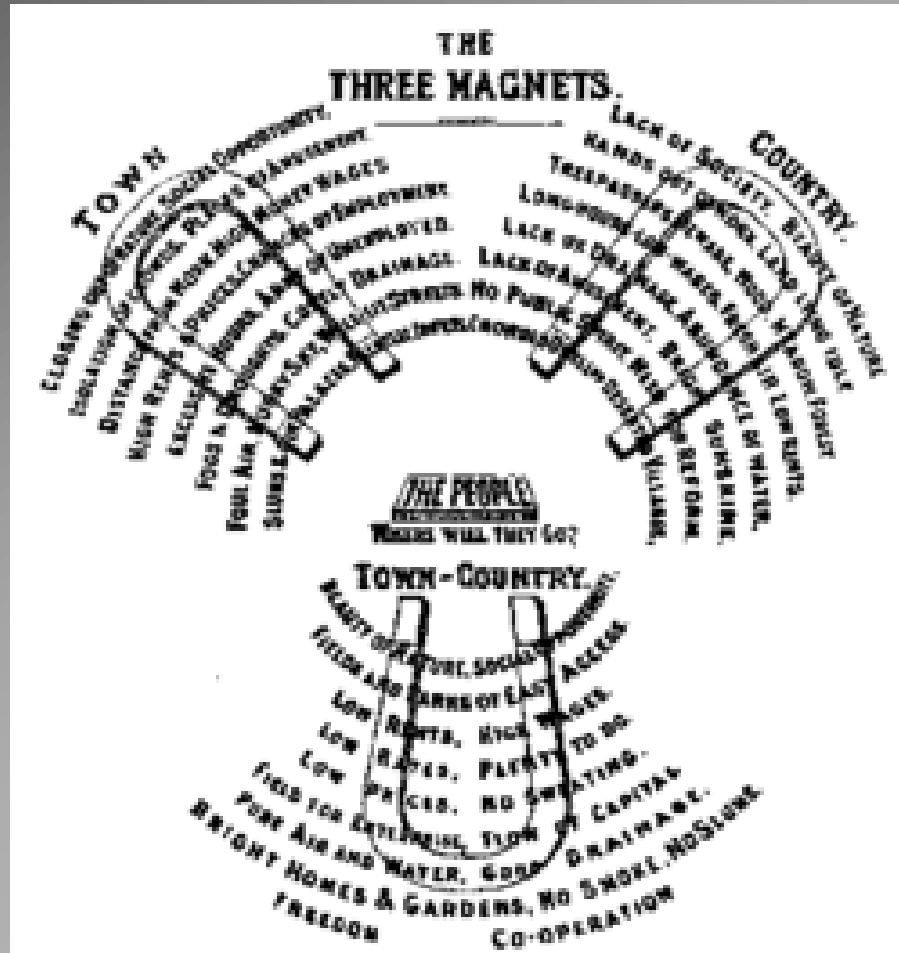


A GREENER, GREATER NEW YORK

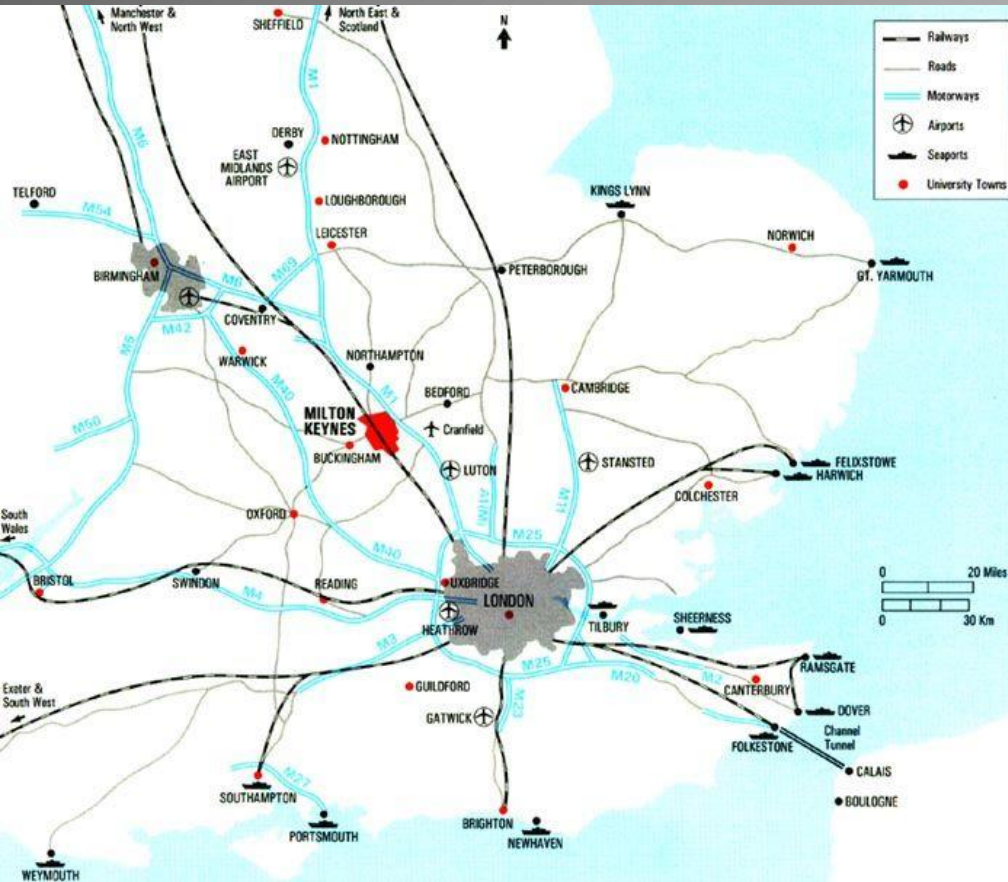
Planning has very good track records

- New-town Practices around the world
- Green Belt in Greater London
- New Urbanism in America
-

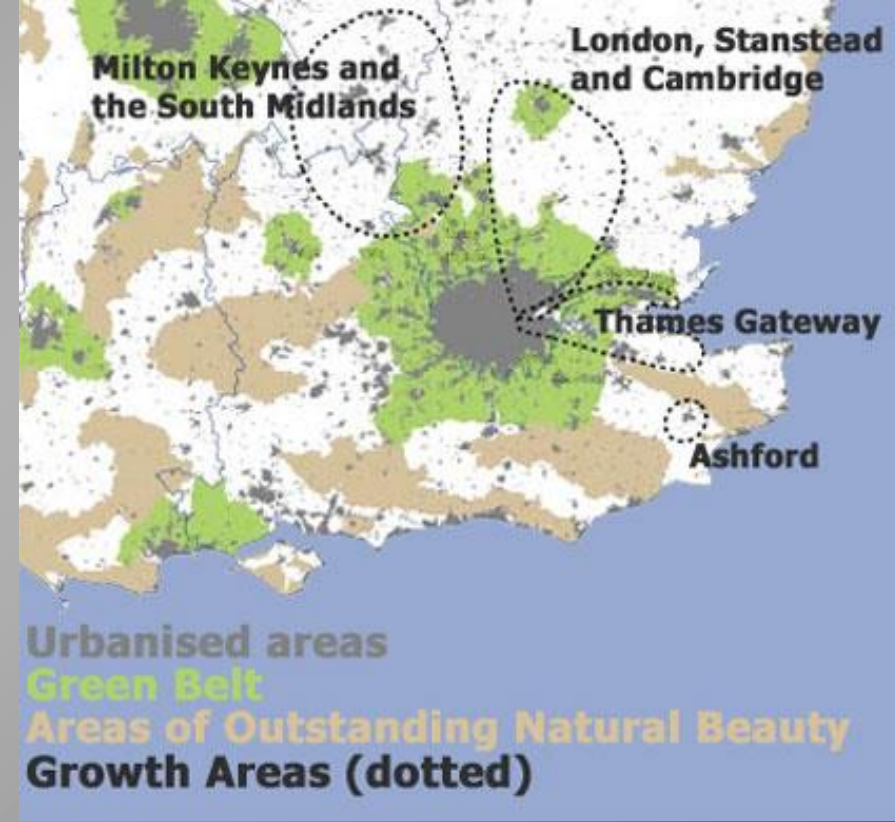
- Sir Ebenezer Howard (1902) Garden Cities of To-morrow



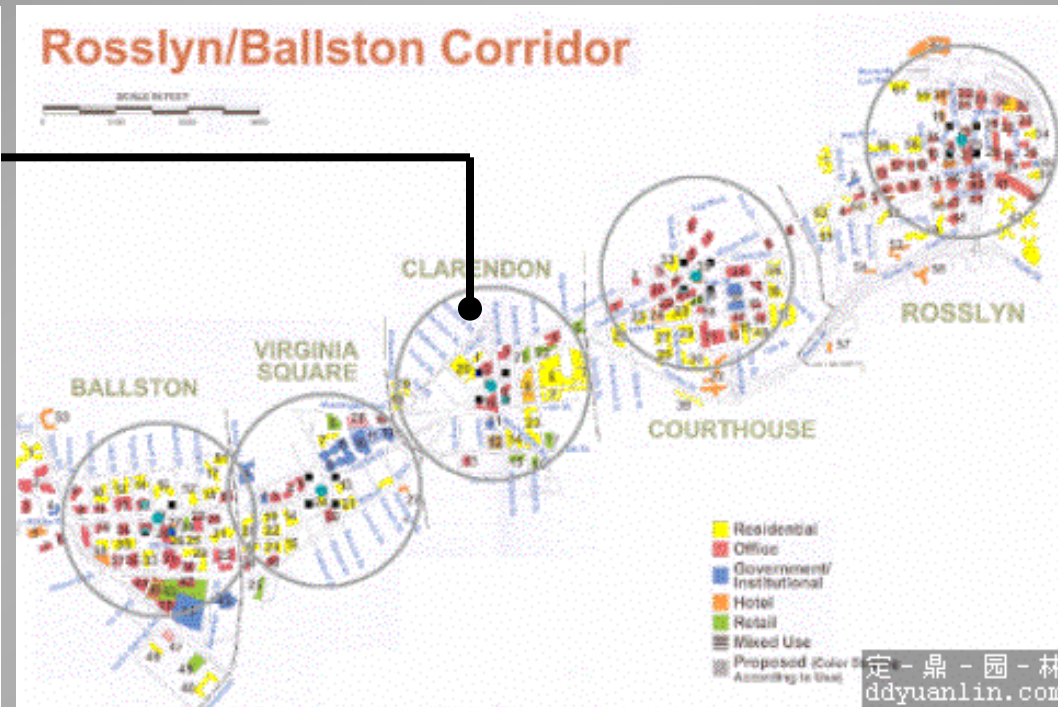
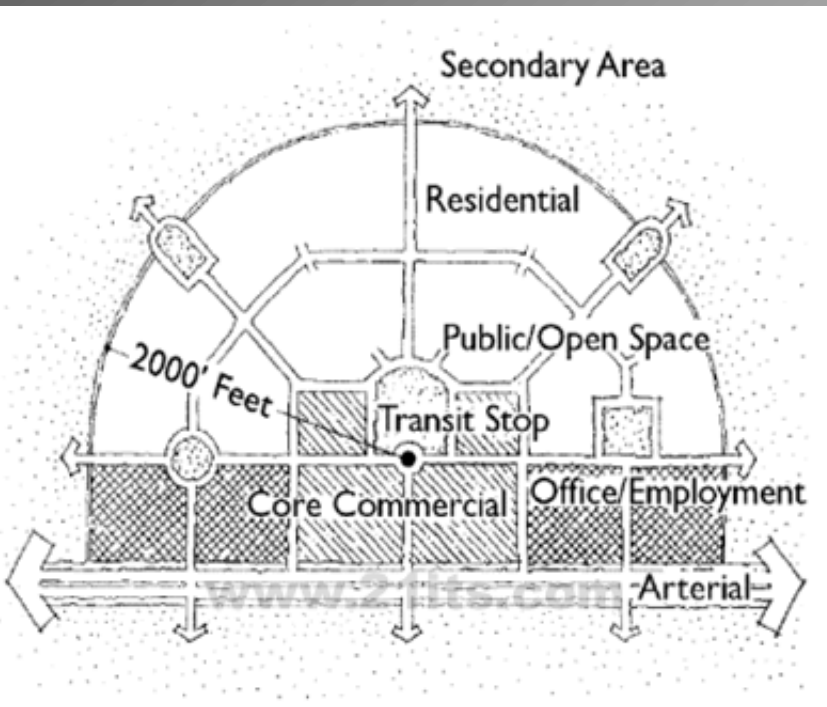
Milton Keynes: new town in Greater London



London's Greenbelt



TOD: Key concept in New Urbanism



Planning is going to local

- “*As for the space of planning, we need to privilege regional and local over national and transnational space. This leads to a **decentered view of planning**.*”
—John Friedmann (1993)
- Because of the **specificities of place**, **organized civil society** in public decision making, increasing **importance of local spaces**

Even average people can influence the city's future

- Public participation involved in planning process in many cities in China

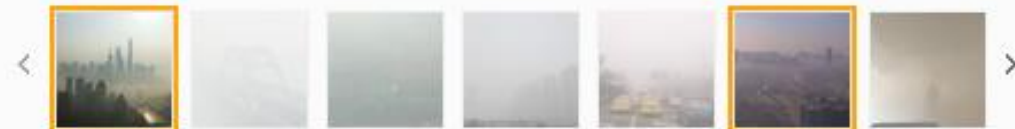


Easier to get information



央视新闻 V: 【挺住！雾霾袭击多个省区市 天上出现两个太阳😱】近日，全国多地出现雾霾，上海空气质量达重度污染；南京再发大气污染红色预警，中小学幼儿园停课；在江苏，很多建筑物连轮廓都看不清了……因雾霾过重，昨天南京甚至出现了两个太阳的“幻日”现象。预计，距离雾霾消散，还有3天！你那空气怎么样？

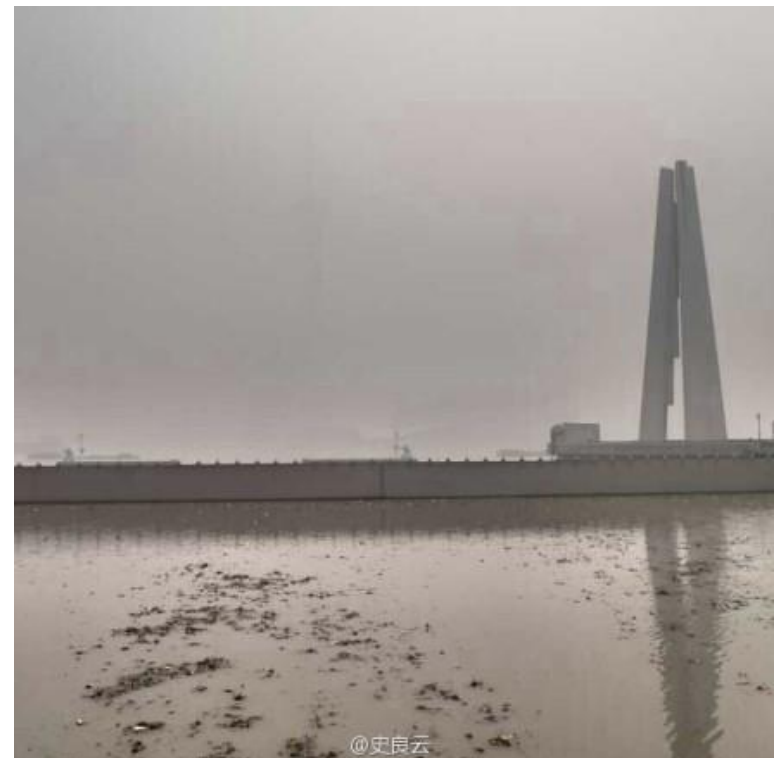
↑ 收起 | 查看大图 | 向左转 | 向右转



Even more powerful to influence



史良云：看看今天的上海空气有多脏，同一个角度对比一下就知道，左边是我上个月中在上海拍的，右边是我的朋友@OAMK大学长yudingsheng 今天才拍的🤔照片都是原图没有修过！#随手拍##雾霾##上海#

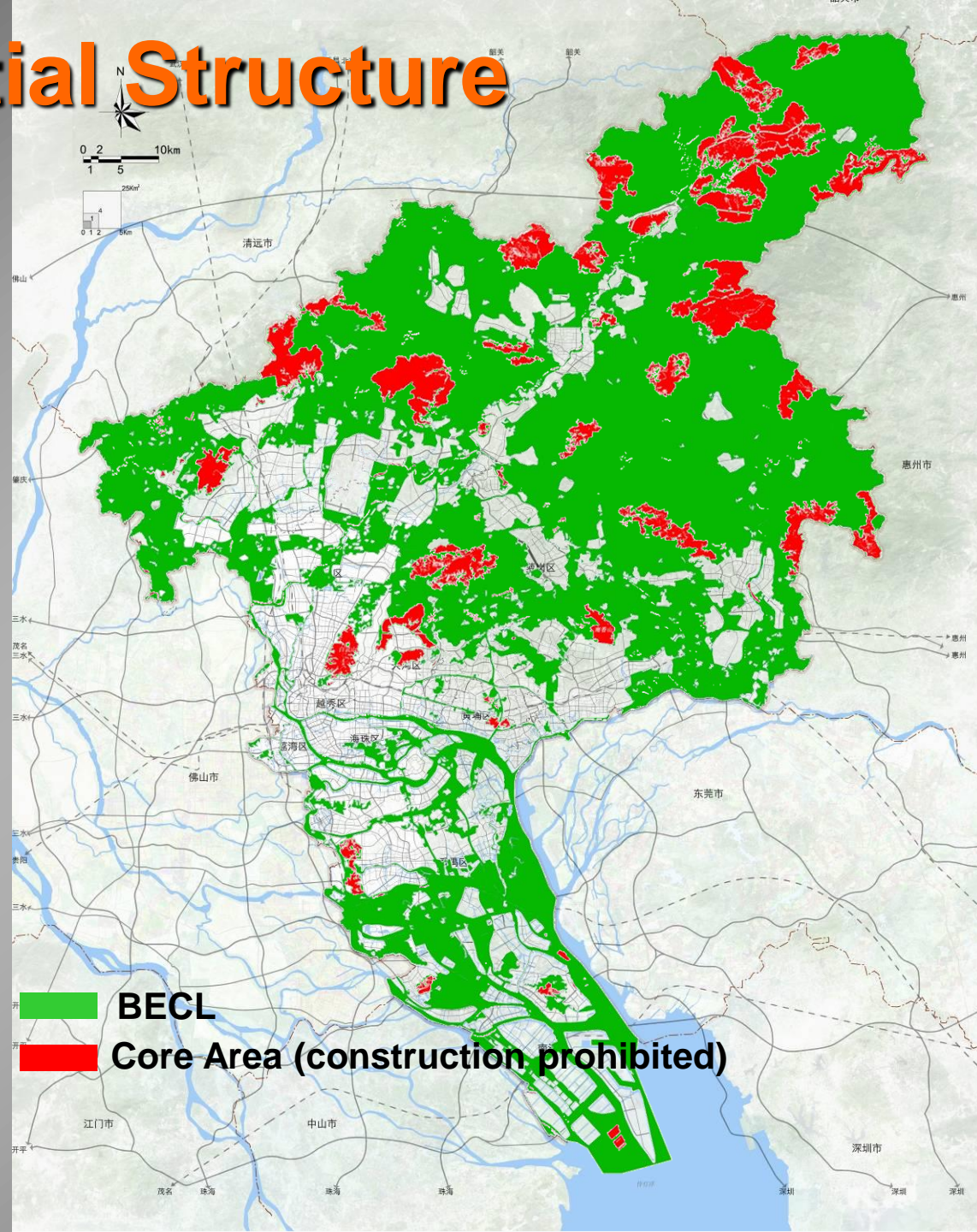


Guangzhou Planning Responses to Climate Change

- Optimised urban spatial structure
- Less manufacture, more service
- Greener transportation
- Low carbon urban design
- Guangzhou Sino-UK Low Carbon Cooperative Research Centre

Spatial Structure

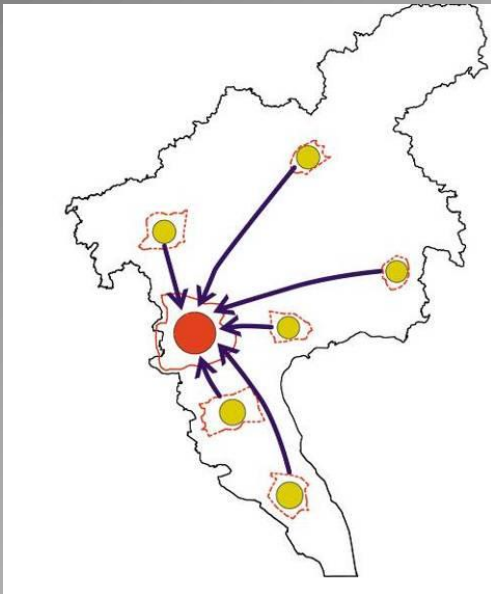
- ❖ Basic Ecological Control Line (equivalent to urban Growth Boundary)
- ❖ 5000km² within the line, 67% total area of Guangzhou



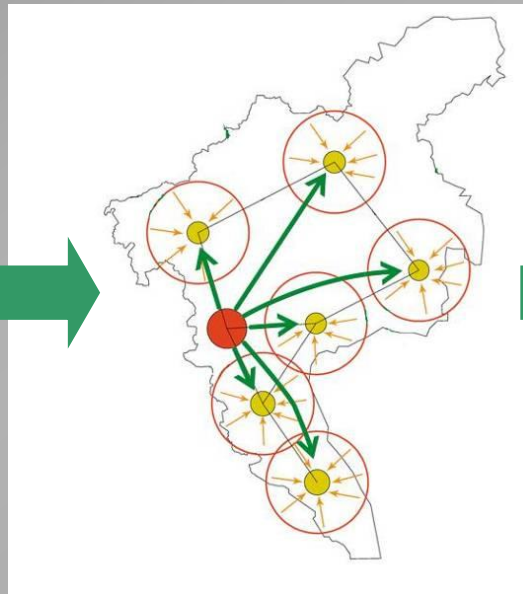
Spatial Structure

- More clusters
- Populations and functions going out

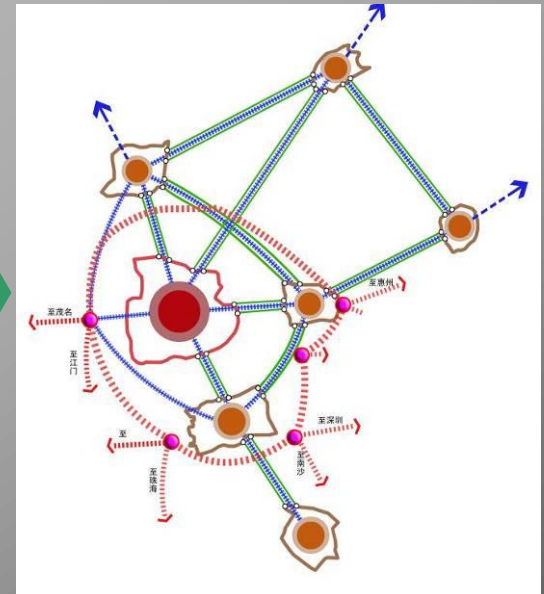
Single centre



Poly-centric

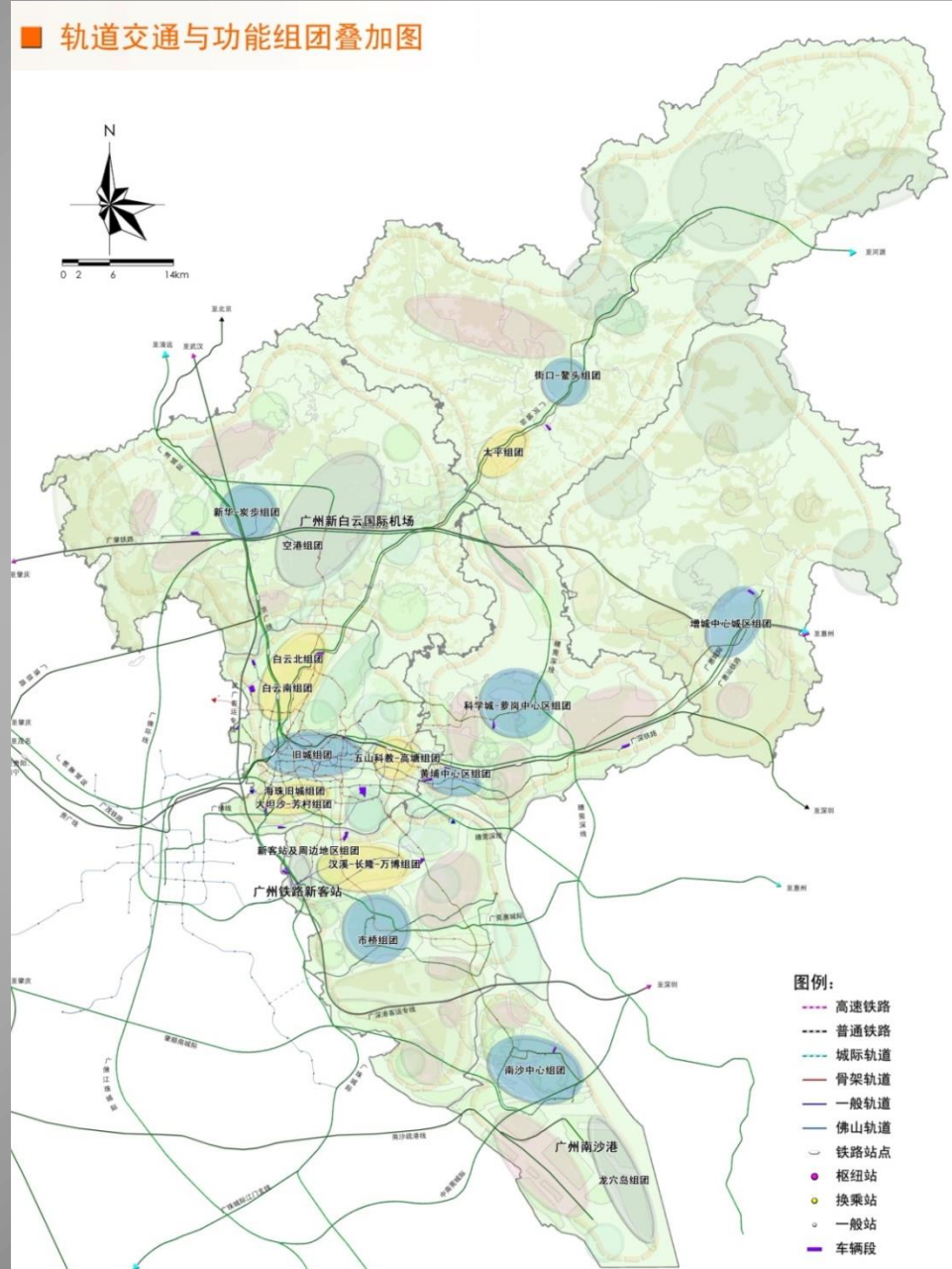


Network



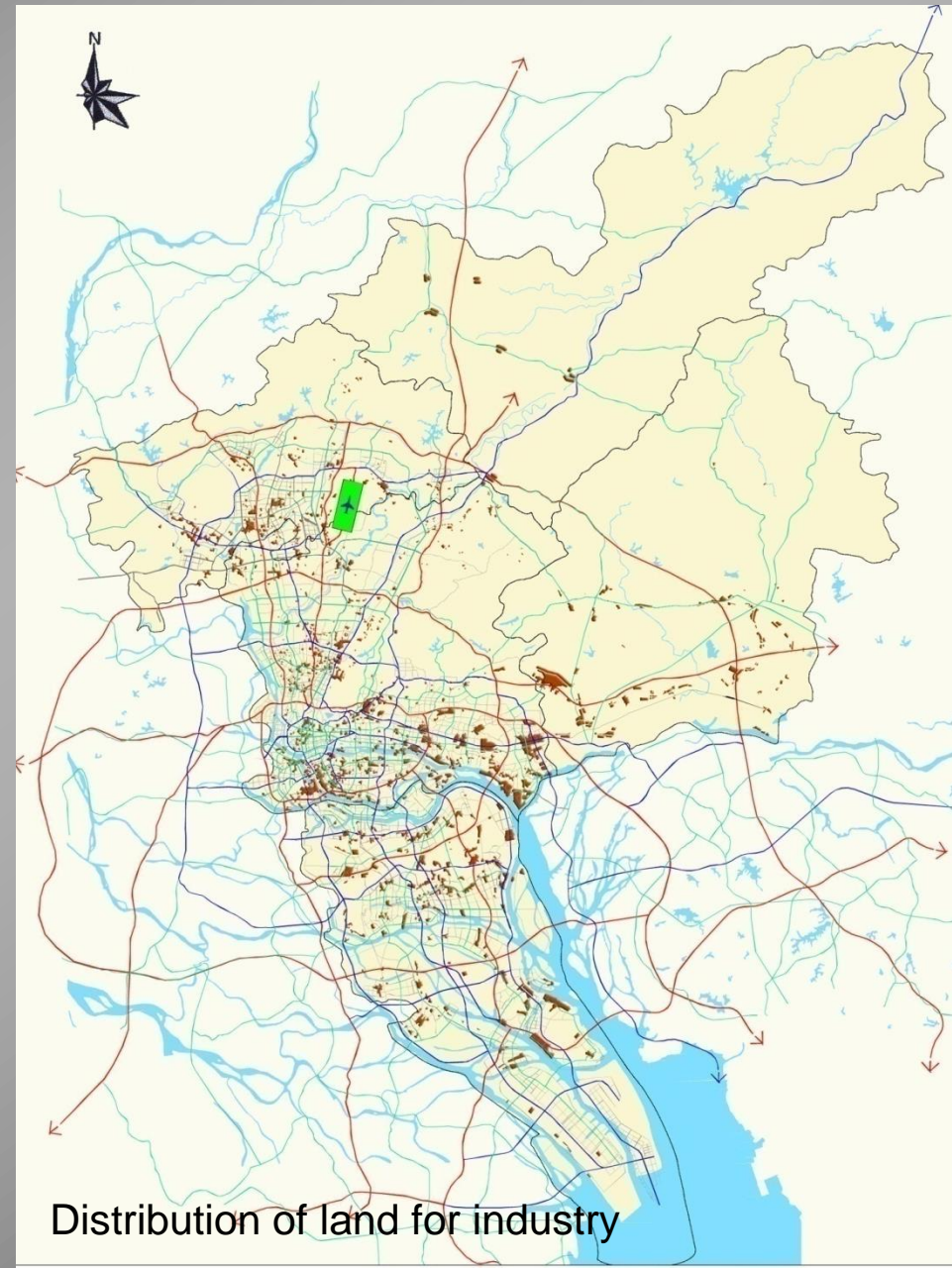
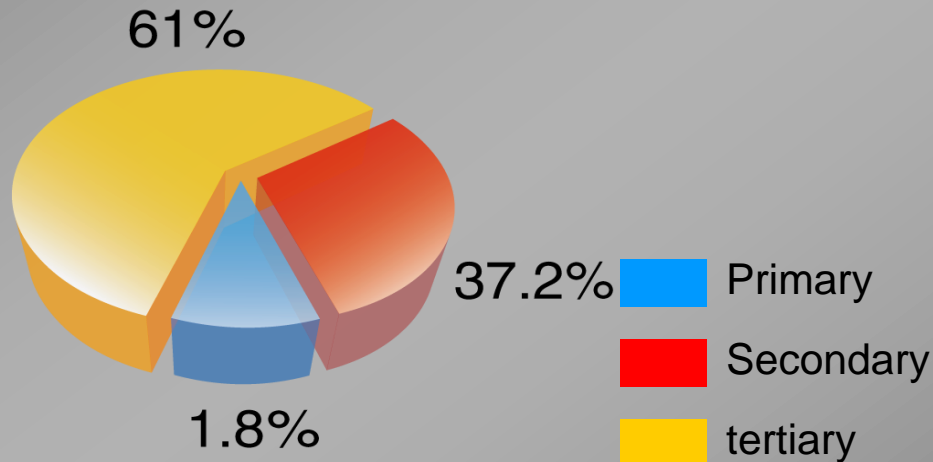
Spatial Structure

- Transit-Oriented Development
- Clusters along the transit corridors



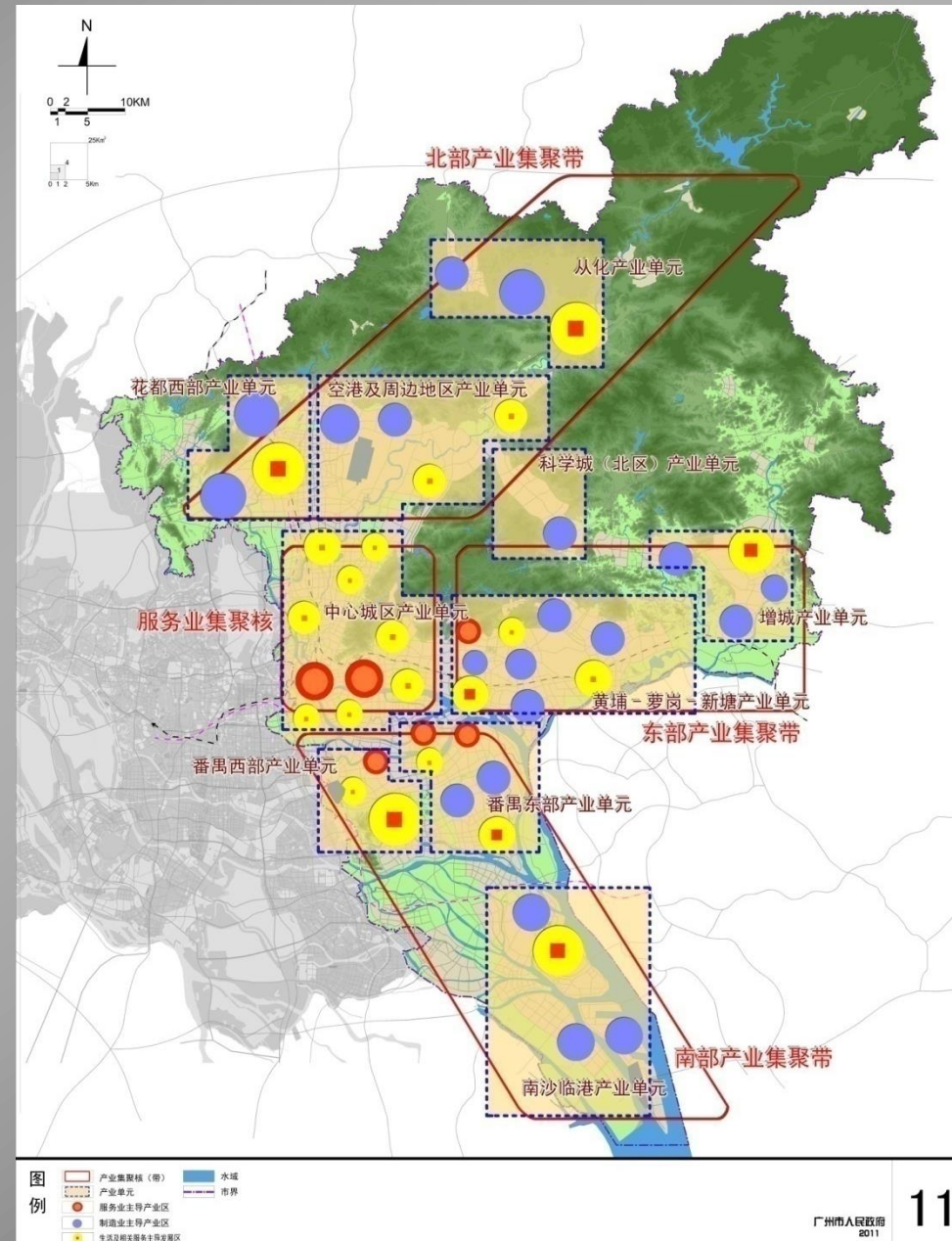
Restructure and Redistribute Industries

- In Guangzhou, manufacture is the main source of CO₂ emission.
- In 2009, CO₂ emission of manufacture accounted for 57% of total CO₂ emission in Guangzhou



Restructure and Redistribute Industries

- New Economic Geography
- Less manufacture in inner city, only tertiary industry left
- 3 proposed industry corridors in suburban area



Shut down factories in city centre, and reuse “brown field”

- In recent 3 years, 5056 factories with serious pollution and energy consumption shut down
- Several brown fields planned as part of new city centre



Regeneration of Brown Field



Glass plant



Power plant

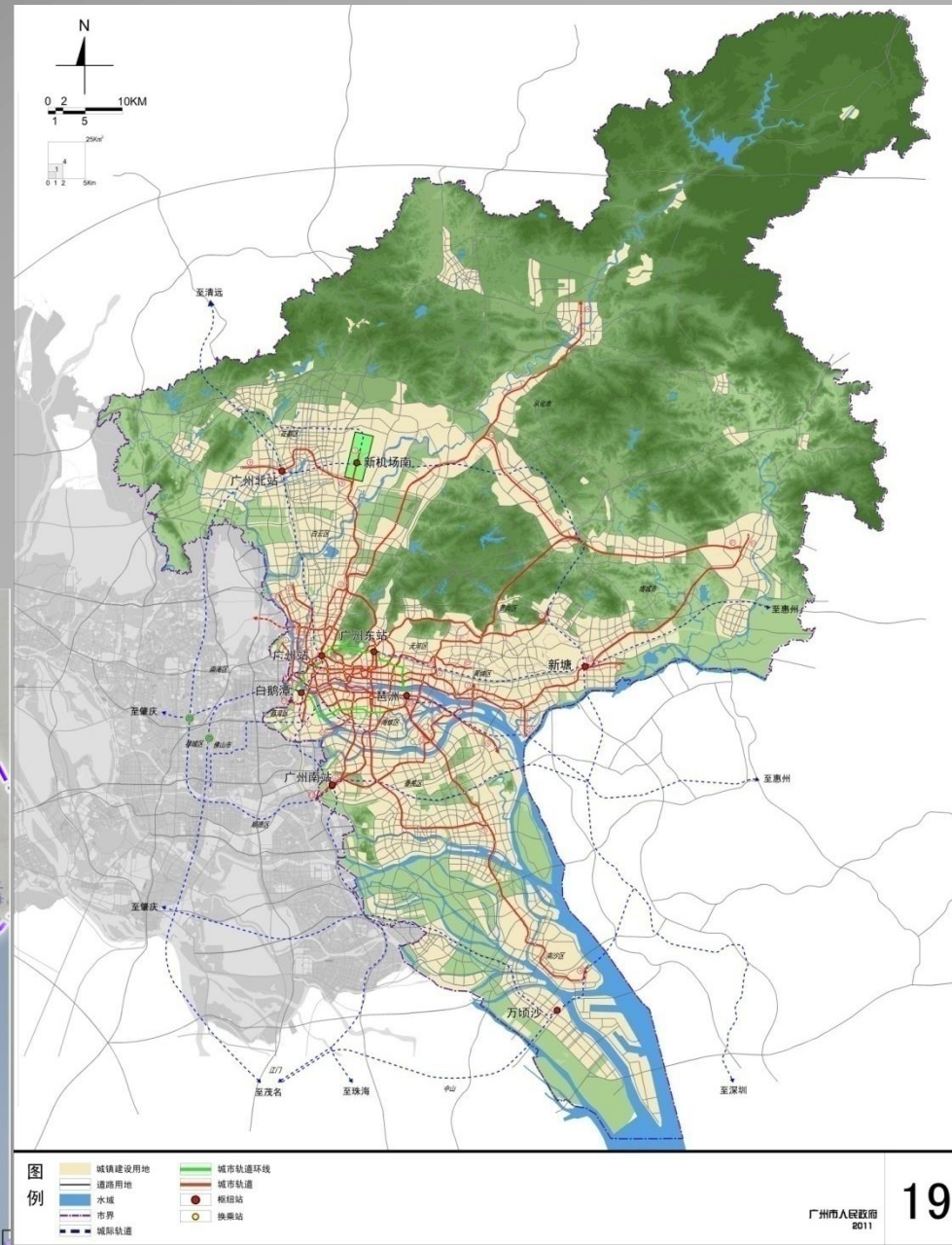
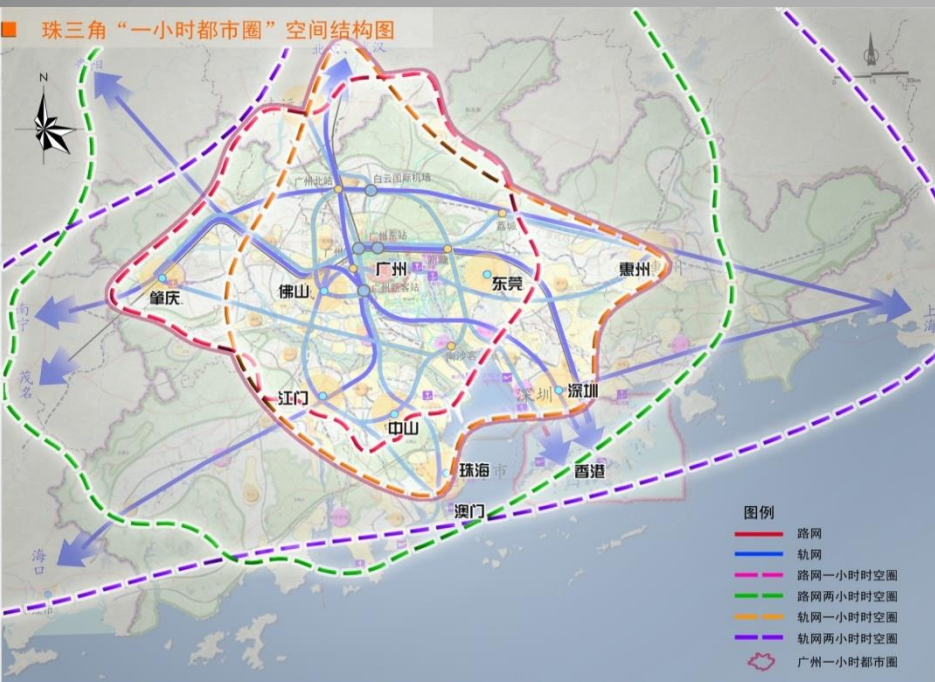
Greener Transportation

24% of CO₂ emission
in Guangzhou is from
transportation



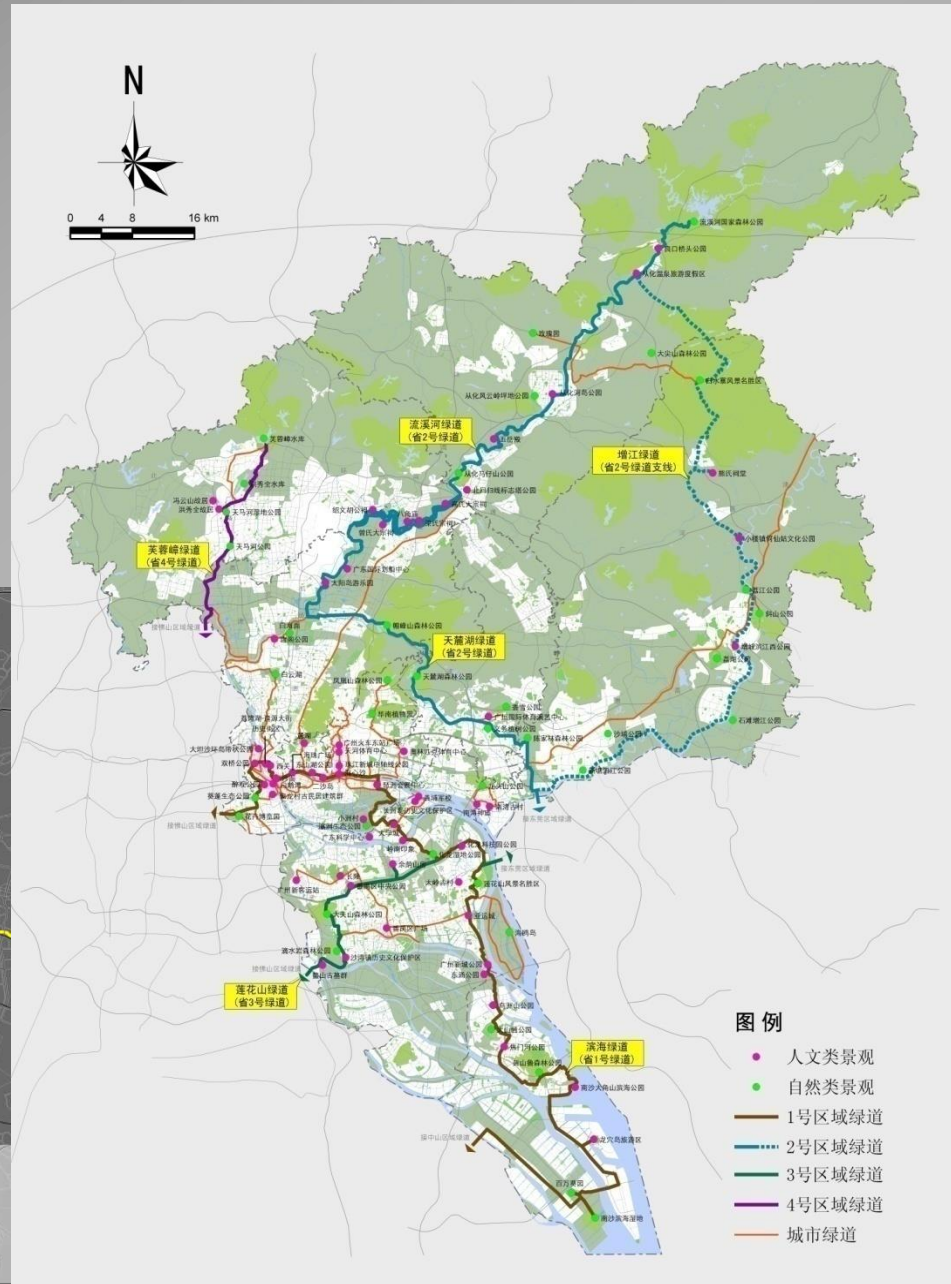
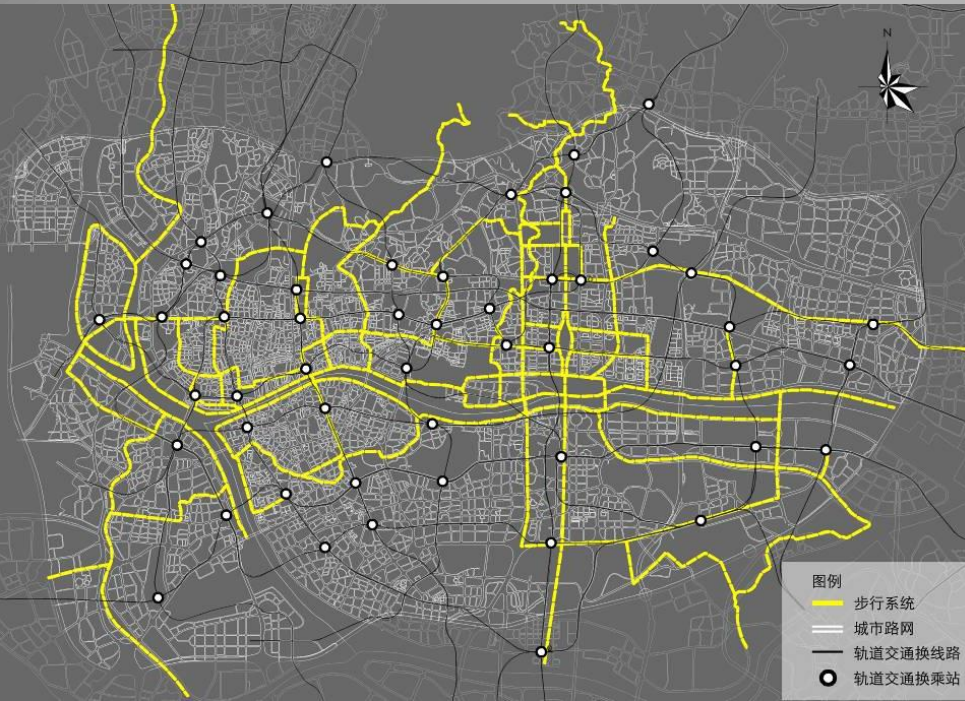
Massive Transit System

- Currently, 8 metro lines, 236km
- 2020, 20 lines, 815km; 11 Pearl River Delta intercity lines, 350km
- in one hour people can travel to every corner in Pearl River Delta from Guangzhou



Encourage cycling and walking

- 1060 km Greenway network across the city
- In city centre, pedestrian system, 230km long



Low Carbon Urban Design for a City Sub-centre

Jiahe: around the metro hub connecting line 2,3 and 14, proposed to be a new sub-centre in Guangzhou

- ❖ Area: 2.55Km²
- ❖ Residents: 4,700; Jobs: 36,000
- ❖ FAR: 1.66
- ❖ Greening Rate: 35%
- ❖ Greening area per capita: 19m²

1. layout

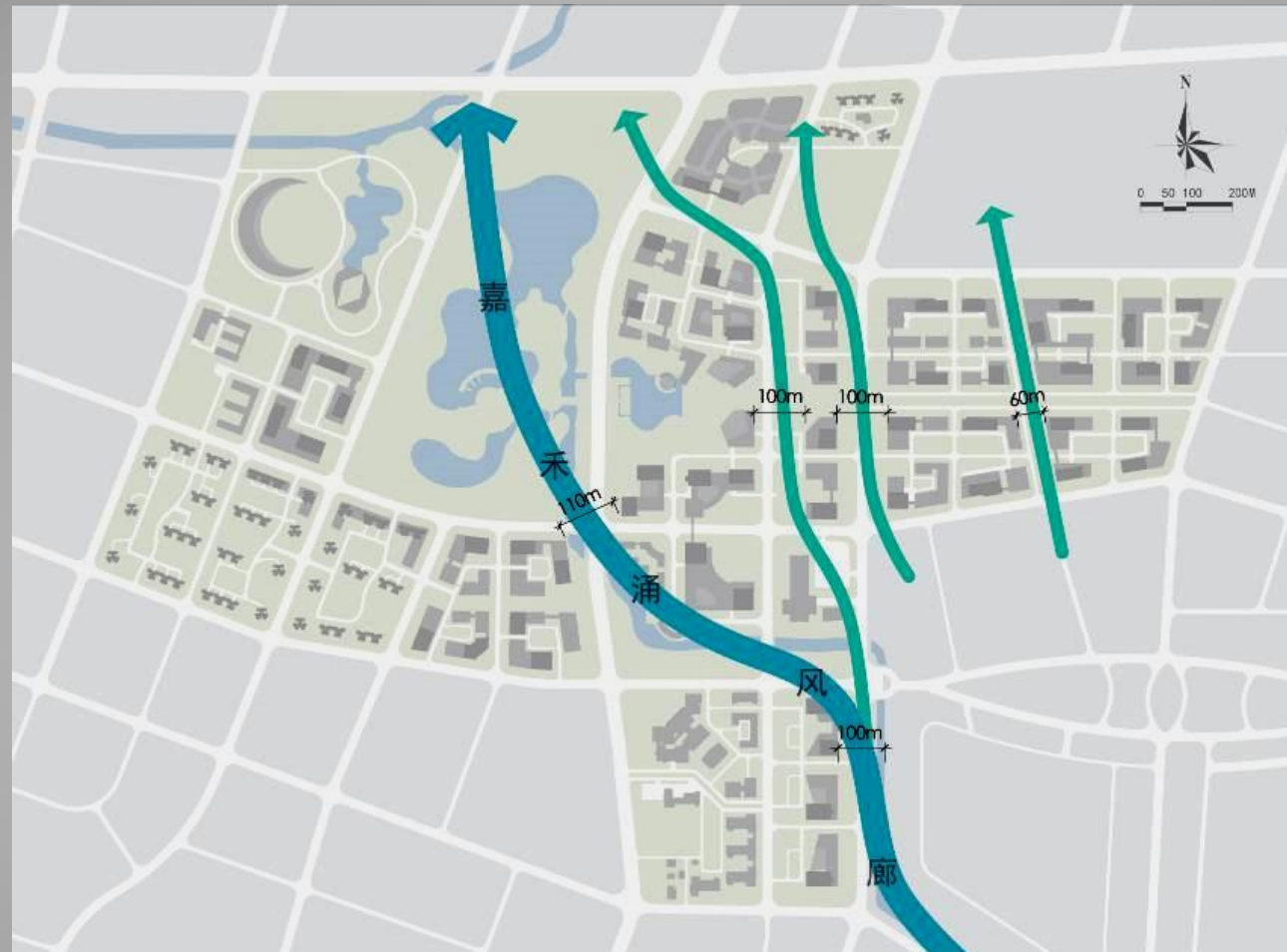
- Use wind corridors to speed up the air in order to lower the temperature.
- Main corridors: not less than 80m
- Sub corridors: not less than 40m

(1) Wind corridors

(2) scale of streets

(3) mixed land-use

(4) TOD



1. Layout

Block : 200m*200m

To encourage people to walk

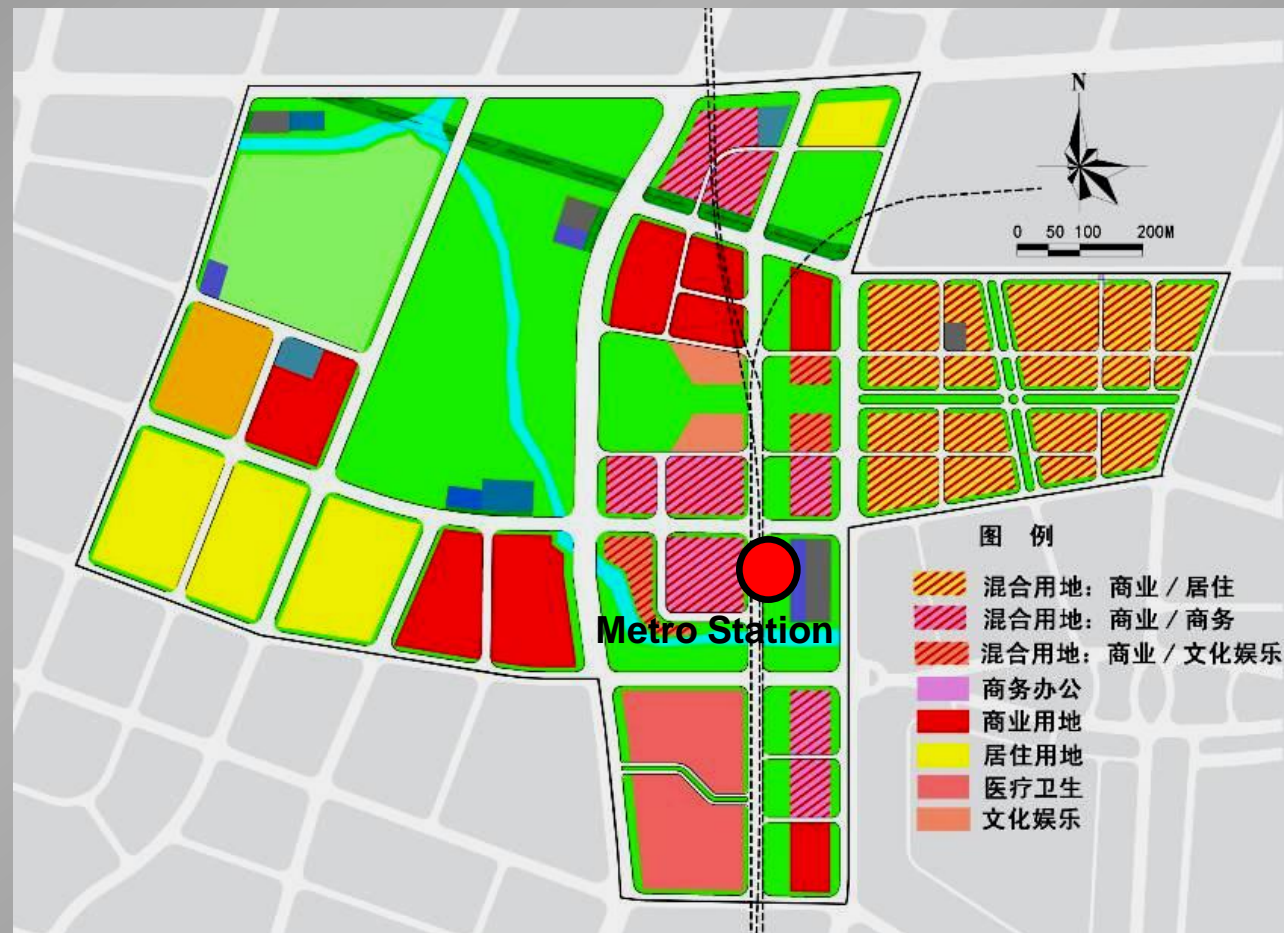
- (1) Wind corridors
- (2) scale of streets
- (3) mixed land-use
- (4) TOD



1. layout

- Land uses around the metro hub mixed up
- Residential, commercial, offices, entertainment etc, could be integrated in one single block to shorten travel distance

- (1) Wind corridors
- (2) scale of streets
- (3) mixed land-use
- (4) TOD



1. Layout

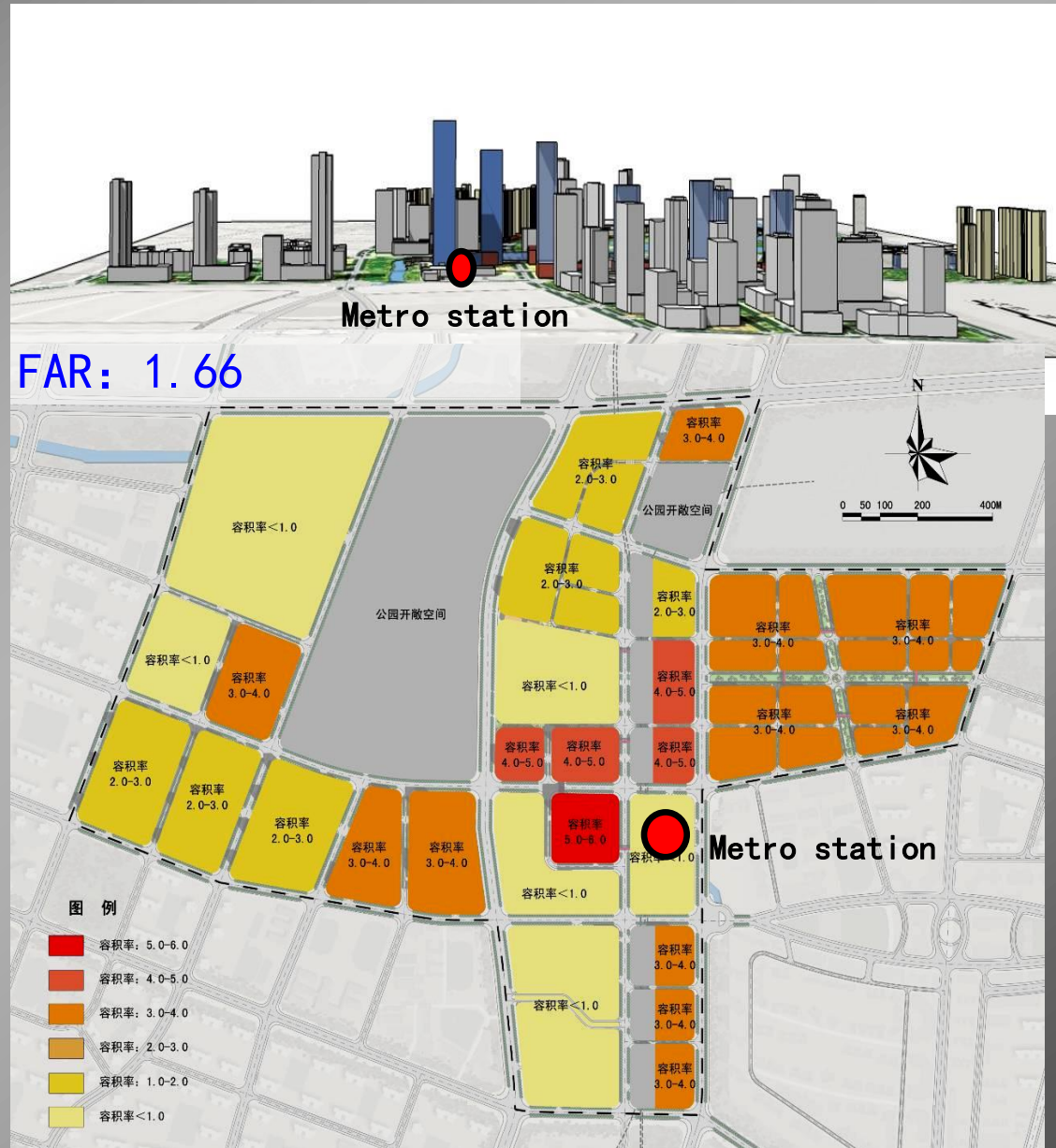
FAR of blocks around the metro station would be higher than others accordingly

(1) Wind corridors

(2) scale of streets

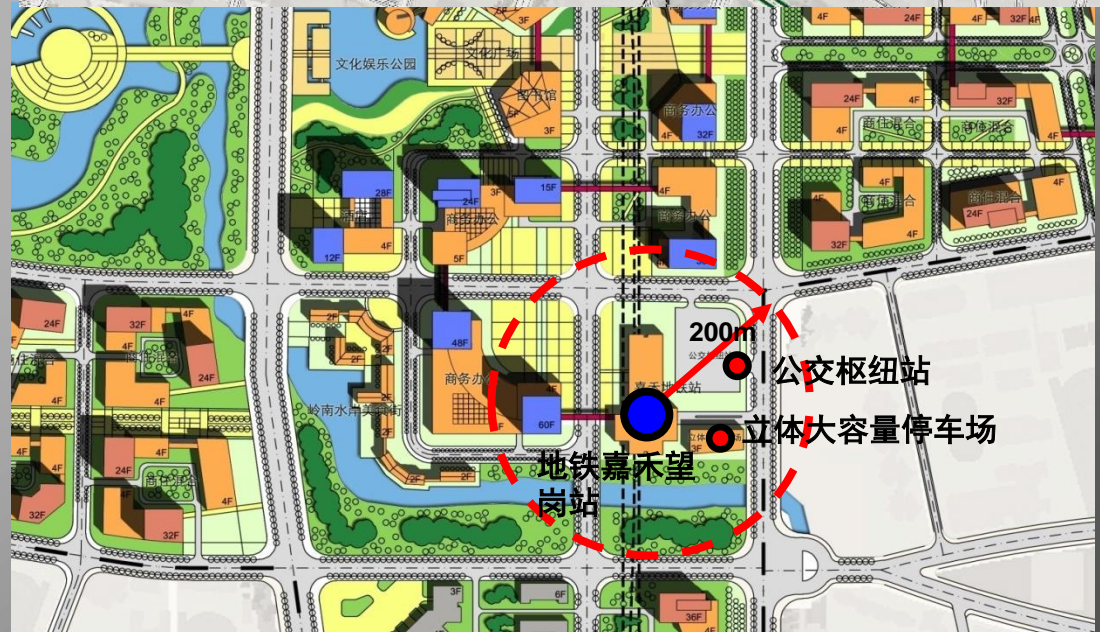
(3) mixed land-use

(4) TOD



2.Transport

- (1) multi-mode transport integration
- (2) encourage walking and cycling



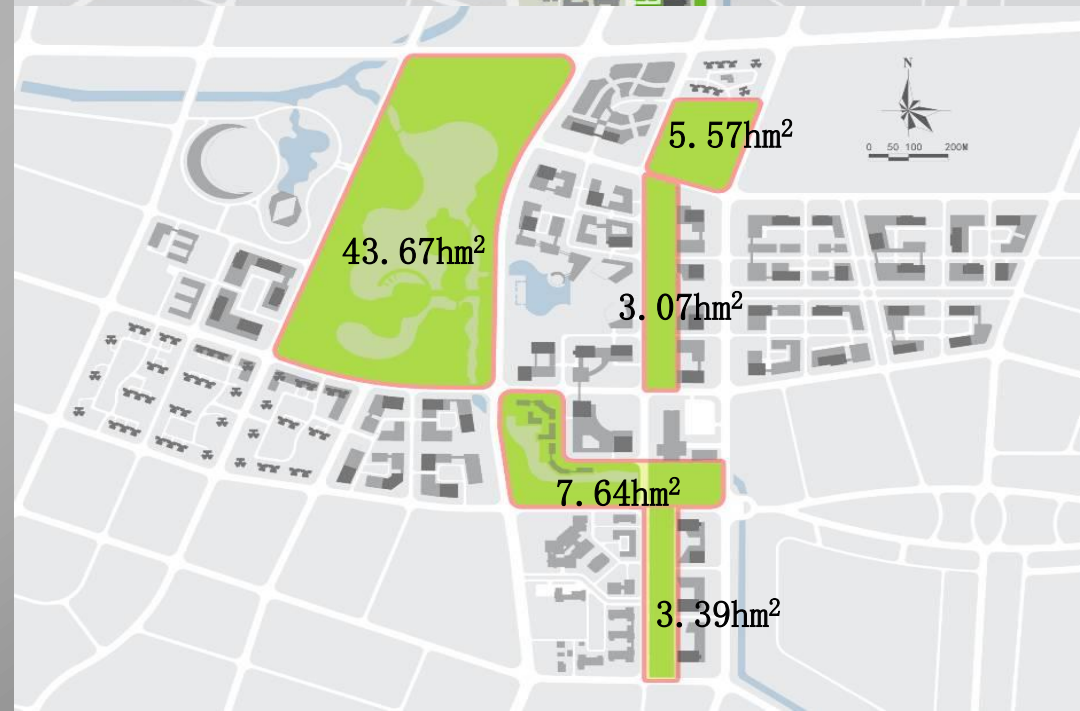
3. Open space

Greening rate: 45%

Green per capita: 19m²

(1) fix carbon

(2) "cool" island effect



Design guidance

广州市白云新城北部延伸区核心区城市设计导则



地块指标控制一览表

地块编码	土地使用性质代码	土地使用性质	强制性控制指标				设施配套	引导性控制指标			备注	
			建筑密度 (%)	建筑限高 (米)	容积率	绿地率 (%)		地块面积 (平方米)	建筑面积 (平方米)	人口规模 (人)		停车位 (个)
A-01	C2/C3	商业用地	30	10	0.50	30	—	20259	32414	—	—	规划: 风貌控制范围
A-02	C2/C3	商业用地	40	250	6.00	30	—	31161	186966	—	—	规划
A-03	U2	交通设施用地	40	—	—	30	公交首末站、停车场	25770	—	—	1325	现状保留
A-04	G1	公共绿地	—	—	—	—	—	4582	—	—	—	规划: 风貌控制范围
A-05	G1	公共绿地	—	—	—	—	—	3515	—	—	—	规划: 风貌控制范围
A-06	E1	水域	—	—	—	—	—	8676	—	—	—	规划: 风貌控制范围
A-07	G1	公共绿地	—	—	—	—	—	22291	—	—	—	规划: 风貌控制范围
A-08	E1	水域	—	—	—	—	—	3398	—	—	—	规划: 风貌控制范围
A-09	G1	公共绿地	—	—	—	—	—	12195	—	—	—	规划: 风貌控制范围
A-10	G1	公共绿地	—	—	—	—	—	1534	—	—	—	规划: 风貌控制范围
A-11	G1	公共绿地	—	—	—	—	—	8809	—	—	—	规划: 风貌控制范围

注:

- 1.对绿地、特殊用地、市政设施、交通设施及公共服务设施中的医疗设施用地、体育设施用地、和用地面积,但其建筑容量控制指标按有关专业技术标准、规范规定执行,在本规划导则中以“—”表示。
- 2.重点对城市重要景观节点、山体周边、沿江、机场等特殊控制要求的地块提出具体建筑高度控制要求,其它一般地区暂不限制,并在本规划导则中以“—”表示。
- 3.社会停车场(库)标明用地面积与车位数量,其他容积率、绿地率、建筑密度等指标不予控制,并在本规划导则中以“—”表示。
- 4.建筑配建停车位数量按照广州市现行相关技术标准要求进行配置,并在本规划导则中以“—”表示。

空间形态



总平面规划意向



建筑高度



建筑与空间意向



城市设计指引

空间形态

- 1.节点: A-02地块是A街区的核心空间,应形成开敞空间,并考虑周围建筑的渗透与联系。
- 2.界面:沿广场及滨水绿化的建筑立面宜重点处理,其尺度应重点注重人性化的尺度;界面空间以裙楼进行规整,底部部分应注意人性化尺度。

建筑体量与色彩

- 1.A-01地块建筑宜为岭南水乡传统建筑形式,并形成沿街连续界面;颜色宜为灰色或白色。
- 2.A-02地块建筑裙楼宜强化水平横线、塔楼宜强化垂直竖线;塔楼应直接坐落与地面而不是裙楼上,以强化塔楼形象;裙楼宜为白色或浅黄色,塔楼玻璃幕墙为浅灰,金属幕墙为银灰色。
- 3.A-03地块地铁站宜采用鲜艳、明快的颜色,以增强标识性。

环境设计

- 1.广告牌设置:应符合《广州市户外广告设置技术标准》的相关规定,同时强调夜间广告照明效果,增强商业气氛。
- 2.室外停车场:室外停车场需有70%以上的绿化覆盖率。
- 3.灯光照明:裙房强调建筑内部的透射光,结合霓虹灯、庭院灯、草坪灯营造繁荣活跃的商业气氛;建筑塔楼宜强调建筑主体的泛光照明。

低碳设计指引

低碳空间布局

- 1.规划A-01、A-02为功能混合用地,打造商业零售、餐饮、文化娱乐、商务办公、旅馆、居住等多功能混合街区。
- 3.A-02地块塔楼布局应错位布置,保证街区良好的自然通风状况。

低碳交通组织

- 1.规划A-03地块以地铁嘉禾望岗站为核心,配套公交首末站、立体式停车场,实现200m范围内地铁、公交、出租车等公共交通的无缝换乘。
- 2.A-02地块应设置步行天桥连接A-03地块及其北侧地块。

低碳生态绿化

- 1.规划A-03地块设计上应用固碳效率较高的岭南乡土物种,结合乔木、灌木与草坪,构建丰富的绿化层次,形成高碳汇绿地。

低碳市政设施

- 1.规划街区外围干道使用风光互补路灯与LED照明灯,实现减少污染与提高能效。

低碳绿色建筑

- 1.A-02地块上的建筑应符合《绿色建筑评价标准》的相关要求。
- 2.建筑朝向应为南北向,利于采光与日照需求。

Guangzhou Sino-UK Low Carbon Cooperative Research Centre



- Established in April, 2011
- Platform for low carbon researches based in Guangzhou

**What We Have Done is Not Enough:
some comments**

Plans are just plans

- Actually, climate change is not local governments' priority, but GDP, jobs.....
- The reason they do is to respond central government's slogan and policies
- Implementation would be a problem

4 forces for local governments to cope with climate change



Source: The Climate Group(2011), Cities are part of The Clean Revolution

中国对低碳经济和气候变化问题的认同

2007年9月，中国国家主席胡锦涛在亚太经合组织（APEC）第15次领导人会议上，郑重提出了四项建议，明确主张“发展低碳经济”、研发和推广“低碳能源技术”、“增加碳汇”、“促进碳吸收技术发展”。

2008年6月，胡锦涛在第六次中央政治局集体学习上强调坚定不移地走可持续发展道路，全面加强应对气候变化能力建设。

2008年“两会”，全国政协委员吴晓青明确将“低碳经济”提到议题上来。他建议应尽快发展低碳经济，并着手开展技术攻关和试点研究。

2009年12月，中央经济工作会议为2010年中国经济定下基调：把推动低碳行业发展作为促进经济发展模式转变的一项策略。

2010年2月，在第十九次中央政治局集体学习会议上，胡锦涛又一次强调要把应对气候变化作为中国经济社会发展的重大战略和加快经济发展方式转变与经济结构调整的重大机遇。

2010年3月全国两会，政协一号提案指向低碳经济。温家宝总理在《政府工作报告》中指出“要积极应对气候变化。大力开发低碳技术，推广高效节能技术，积极发展新能源和可再生能源，加强智能电网建设”和“努力建设以低碳排放为特征的产业体系和消费模式”。

2010年6月，国家发改委首次透漏国家战略新兴产业七大方向：节能环保、新一代信息技术、生物、高端装备制造、新能源、新材料、新能源汽车。

资料来源：气候组织根据资料整理

- Former president Hu suggested low-carbon economy on APEC in 2007
- More related policies released to promote relevant industry

Decision made by Third Plenary Session of 18th CPC Central Committee

- ...We have to promote market economy, democratic politics, advanced culture, harmonious society and ecological civilisation...



What are real problems of climate change

- Local governments don't know what causes climate change
- So what they respond could not be really effective
- On the other hand, if the plans are really good, how can we know? Any scientific way to judge or evaluate it?

Regarding to weather info, we have lots of accesses everyday, even air quality



Climate Change is far away, until the extreme weather hits



Rainstorm in Chengdu



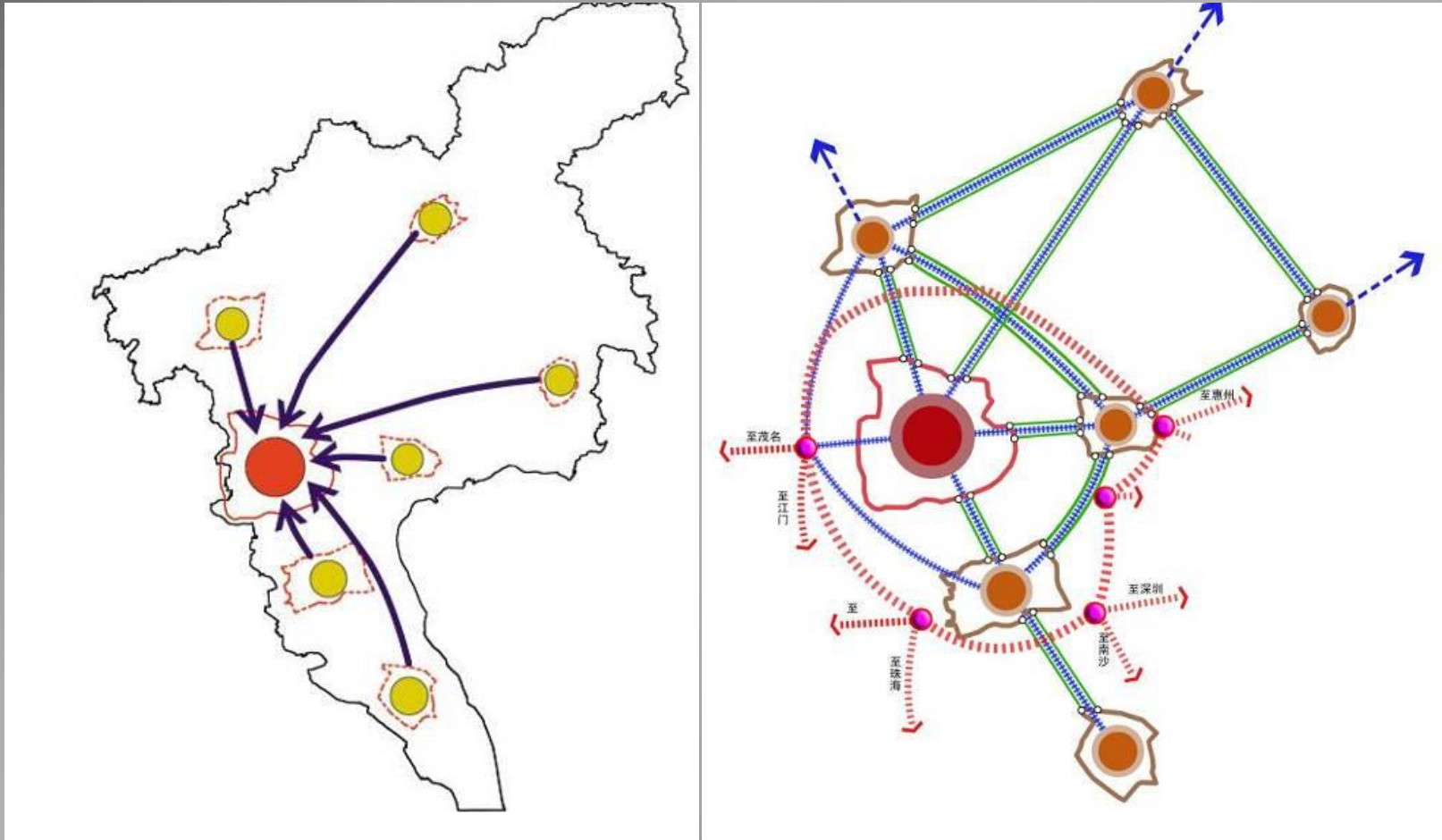
Heat Wave in Shanghai



Baidu 百科

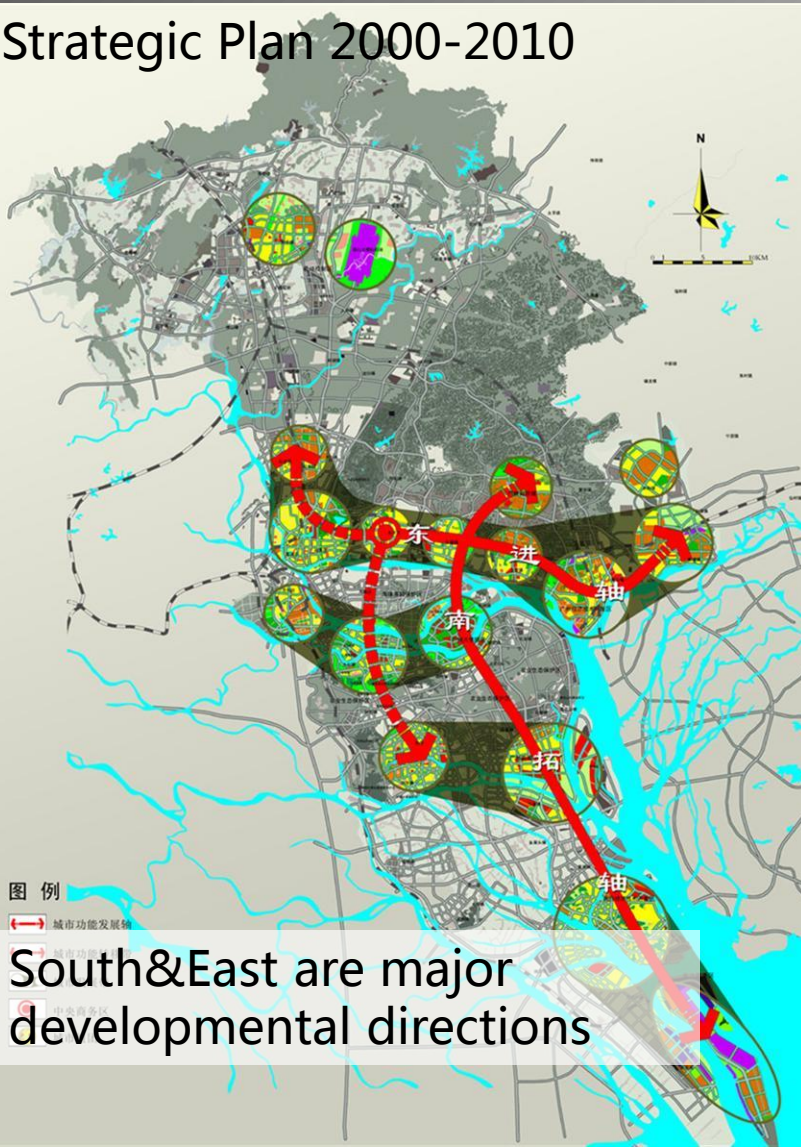
Wild Fire in Australia

Which plan is more low-carbon and how much. Is that worth it?

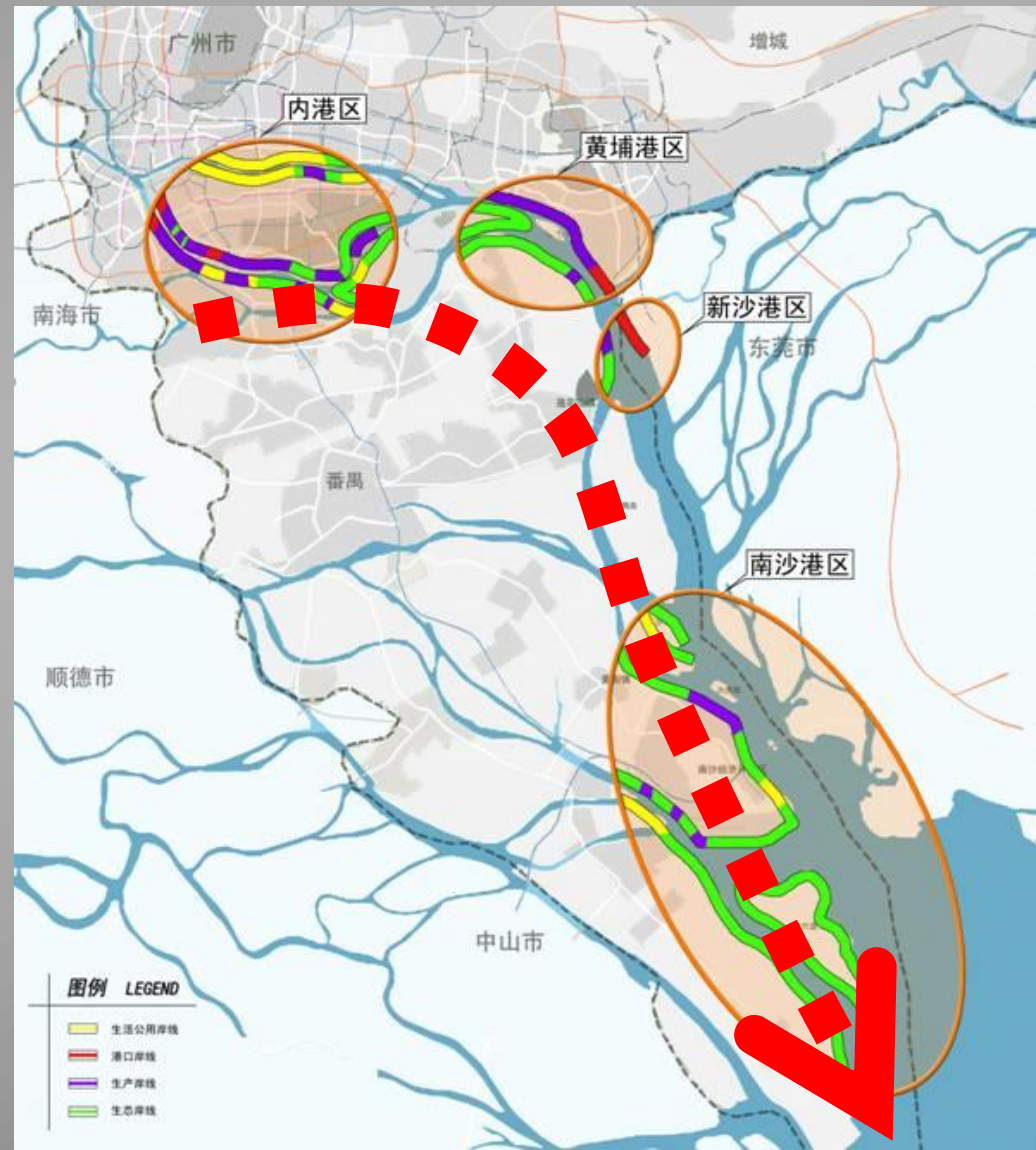


Coast is prone to climate related risks, but close to businesses

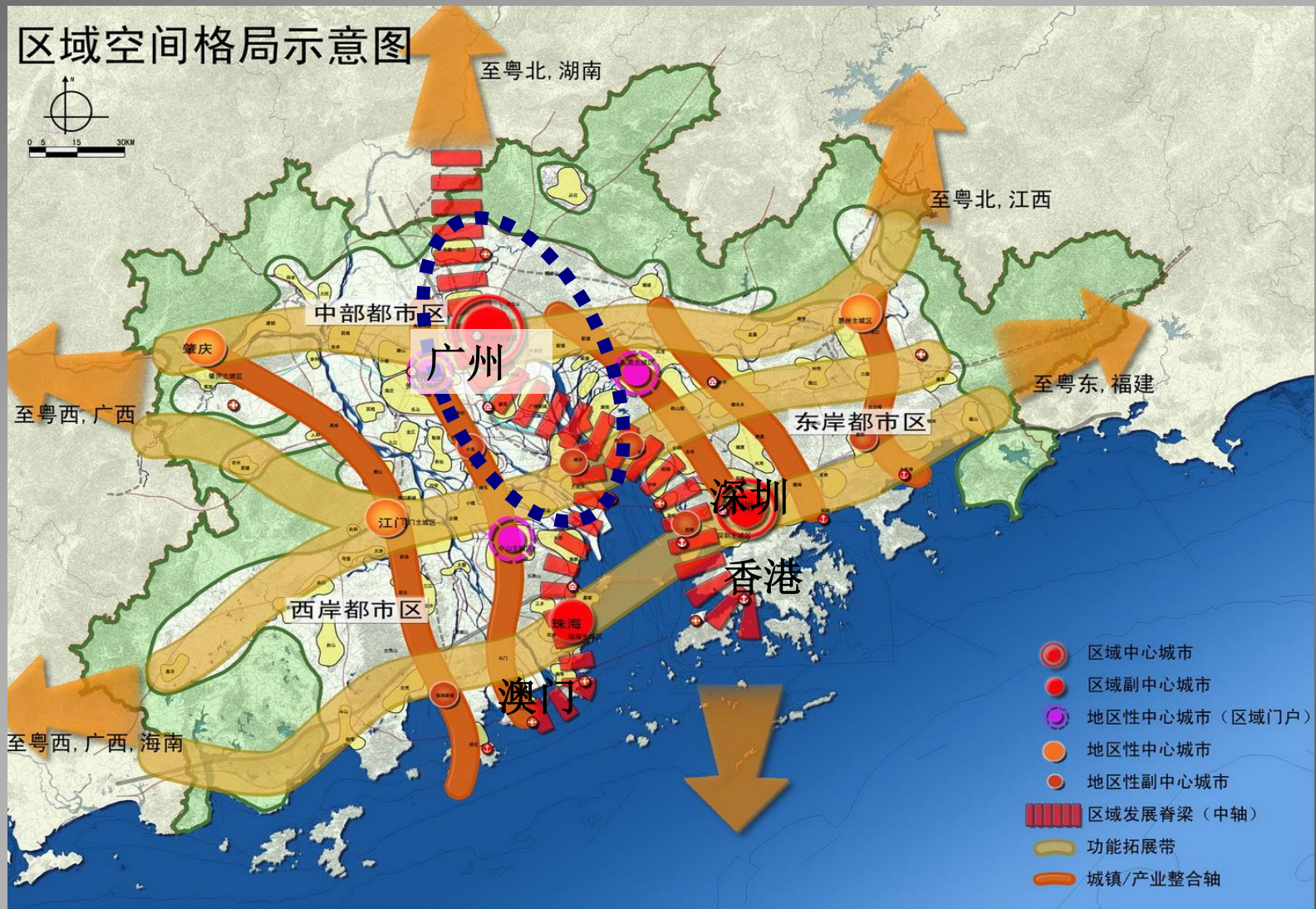
Strategic Plan 2000-2010



South&East are major
developmental directions



Manufacture moving out, but in and out connected



Suggestions for Actions at Local Level

The Longest Day



If Your Pictures Aren't Good Enough, You're Not Close Enough
--Robert Capa

- We must **be close**
- We must **be close** to problems

Scientists tell the local what the reality is and what could be effective

The logo for The Weather Channel, featuring the words "The Weather Channel" in white, bold, sans-serif font stacked vertically on a dark blue square background.

**The
Weather
Channel**

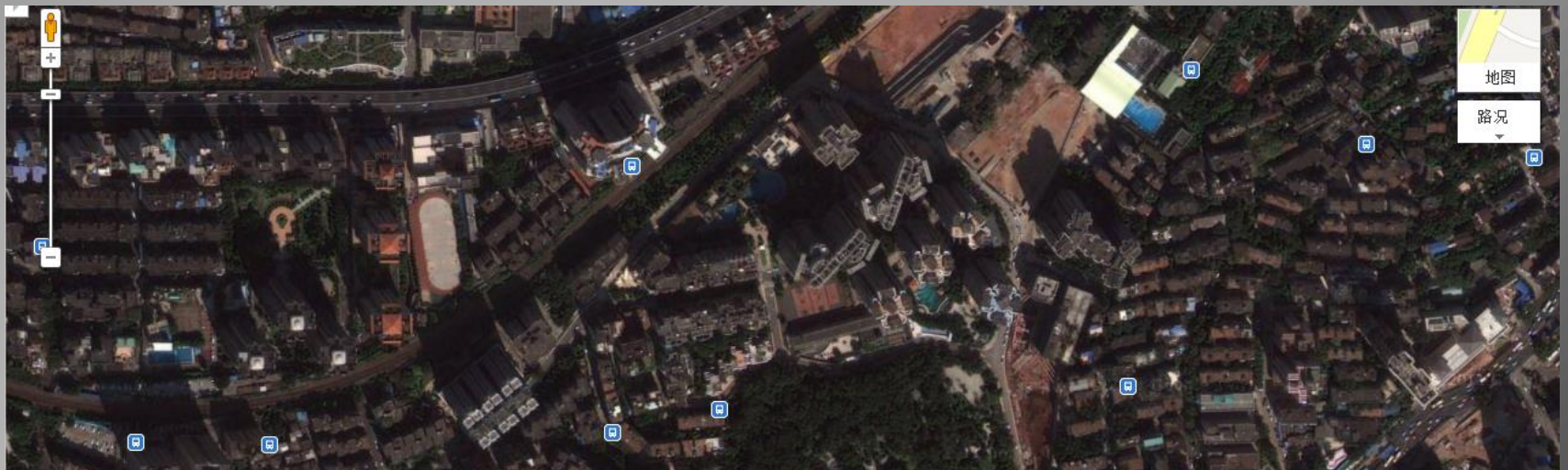
We already have this

The logo for The Climate Channel, featuring the words "The Climate Channel" in white, bold, sans-serif font stacked vertically on a medium blue square background.

**The
Climate
Channel**

We need this too

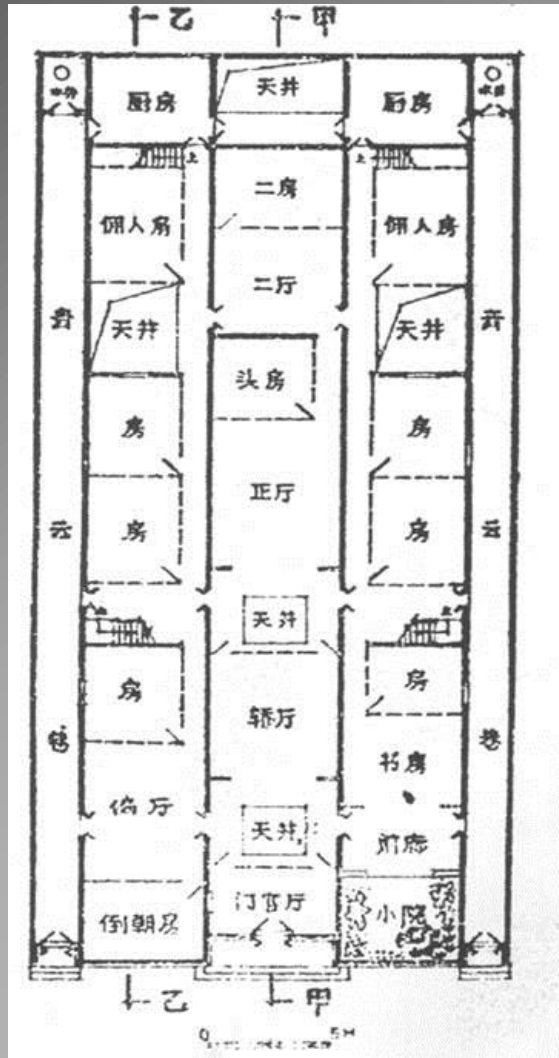
From bird views to streets and communities



Find the ways to evaluate the plans more wisely with more numbers

- How much green we need?
- How dense is acceptable?
- What extent can we depend on vehicles?
- How much power can be generated by sun or wind?

Everyone do their own part, more localised ways to reduce CO2 emission



Let's work together
Thanks for your time

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