

如何在光明实现
绿色出行？

How to achieve green
commuting in Guangming?

如何在光明新区实现绿色出行？

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概要

在过去几年里，光明新区的企业和政府都在大力投建改善区内（特别是重点区域）的交通和可及性。但是，光明新区目前不同的交通出行体系（如公交、地铁等）仍旧没有实现全面互联互通。此外，光明还亟须建成设计优良的慢行交通网络，从而满足人们短距离出行的需求。光明新区在2007年被列为绿色城市。因此，光明中心区正在寻找新的路径来落实整体的绿色交通体系规划，实现64平方公里规划区域的整体改善和交通可及。目前所有交通出行体系的完善工作都应该以用户为核心，考虑用户的需求以及当地的利益，并以此为出发点，创造“绿色”归属感。我们建议，打造一条10公里长的自行车专道，实现更安全、更通达的自行车道体系；采用BRT和按需运行迷你巴士来进一步完善当前公交车体系；设计更完善、连接度更高的衔接系统，连接自行车、公交、地铁和汽车出行系统，从而实现光明新区整体连接度的提升，并为居民带来更多出行选择。在此基础之上，就能够最终改变人们对私家车的依赖。

HOW TO ACHIEVE GREEN COMMUTING IN GUANGMING?

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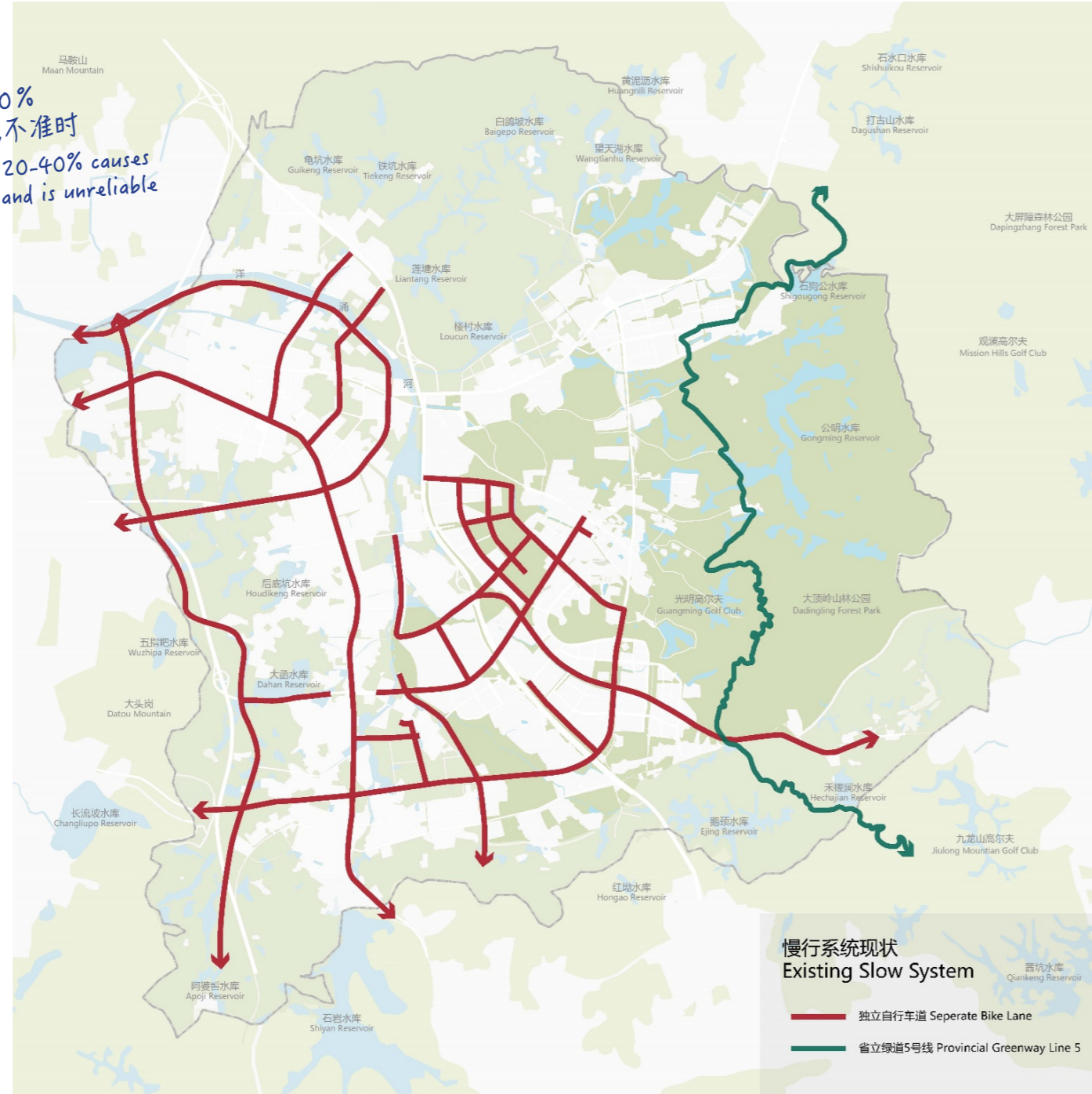
SUMMARY

In the past years, both government and companies have invested heavily in the improvement of traffic conditions, the accessibility of Guangming New Town and of key areas in particular. However, it is clear that the overall network of different mobility systems like busses and metro is still not optimally connected. Moreover, a well-designed slow traffic network to meet short travel needs is still urgently needed. Guangming New Town has been positioned as a green city ever since 2007. The Guangming New Town Center is therefore looking for new ways to implement an overall green traffic system that is imbedded into an improved, well-connected green environment throughout the planning area of 64 km². All efforts to improve the current mobility system should be user-oriented thus taking user needs and local interests as a starting point in order to create a "green" sense of belonging. We proposed to implement a more safe and better-connected bike system including a 10km long bicycle expressway. We also suggested improving the current bus system with Bus Rapid Transit and on-demand minibuses. Lastly, designing better and more connections between the bike, bus, metro and car systems should improve the overall connectivity and bring more choices of transportation to the people in Guangming New Town. Ultimately, this strategy should change the general dependency on the car.

当前问题

What are the current
problems?

超过20-40%
道路拥挤,不准时
More than 20-40% causes
congestion and is unreliable



显然,光明新区目前不同的交通出行体系(如公交、地铁等)仍旧没有实现全面互联互通。此外,公共汽车体系尚未覆盖所有的区域,可靠性不高。当前,还亟须建成设计优良的慢行交通网络,从而满足人们短距离出行的需求。在光明新区,自行车出行尚未形成风气。目前的自行车道经常被十字路口或封闭的道路打断,而自行车道沿线没有遮阴挡雨设施,还会经常受到靠站的公交车阻挡。

It is clear that the overall network of different mobility systems like buses and metro is still not optimally connected. In addition, the current bus system is not covering the whole area and is not very reliable. Furthermore, a well-designed slow traffic network to meet short travel needs is still urgently needed. Biking is currently not attractive in Guangming New Town. The existing bike system is disrupted by crossings and dead ends, and bicycle tracks lack shade and rain protection and are often blocked by parked cars.

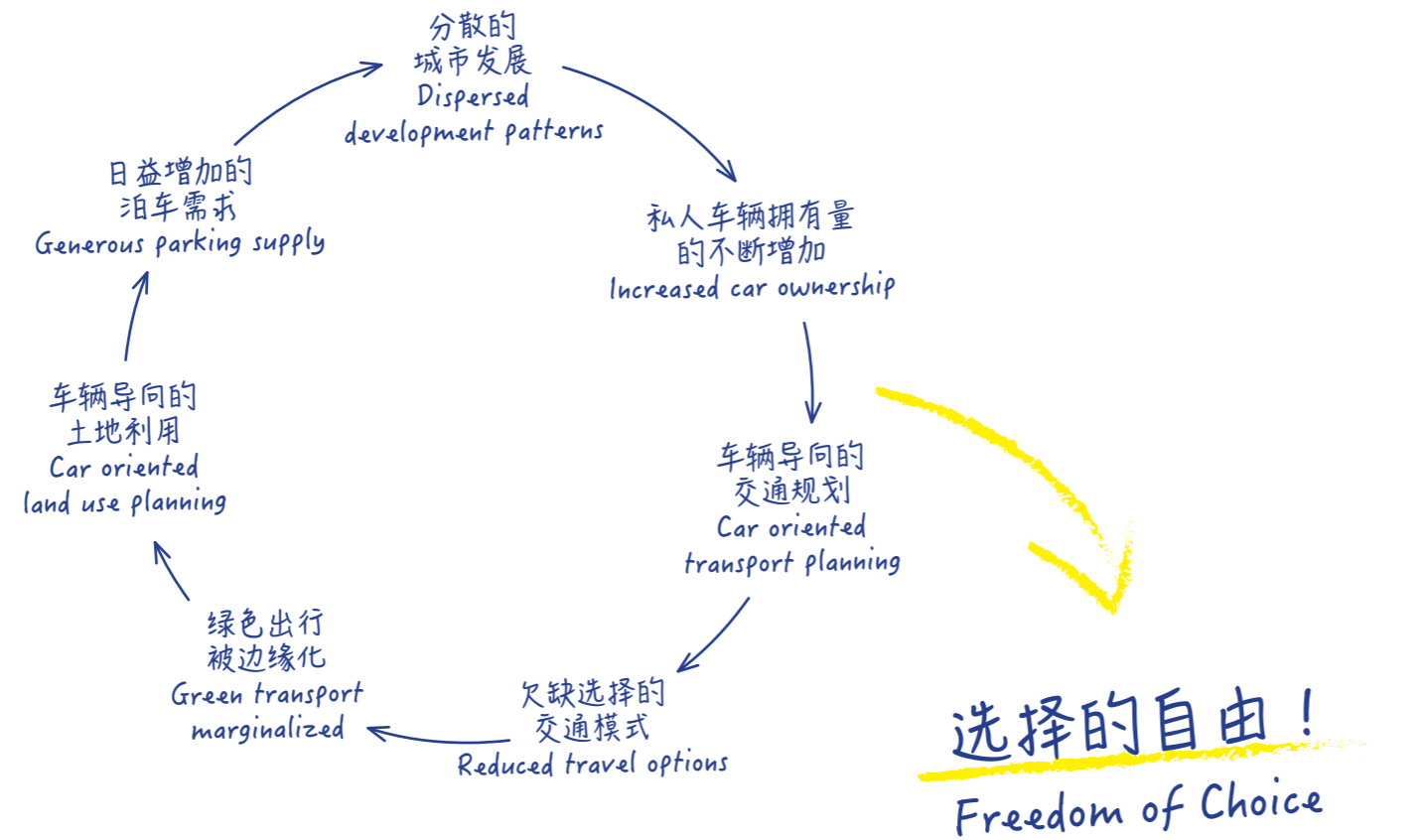


如何破除对汽车的
依赖?

How to break the car
dependency cycle?

要破除对汽车的依赖，就需要创新的交通体系。我们要为在光明新区工作和生活的人们提供更自由、更丰富的交通出行选择。而当地政府要确保能够实现这些改变，从而最终改变人们的出行行为。

Innovation in the transportation system is needed to break the car dependency cycle. It is important to create more freedom of choice in the mode of transportation to the people living and working in Guangming New Town. Government leadership is key in bringing these changes, because only that will ultimately lead to behavioral change.



- ✓ 步行 (Pedestrian)
- ✓ 自行车 (Bike)
- ✓ 公共交通 (Public Transport)
- ✓ 私人车辆 (Car)

有何可借鉴的荷兰经验?

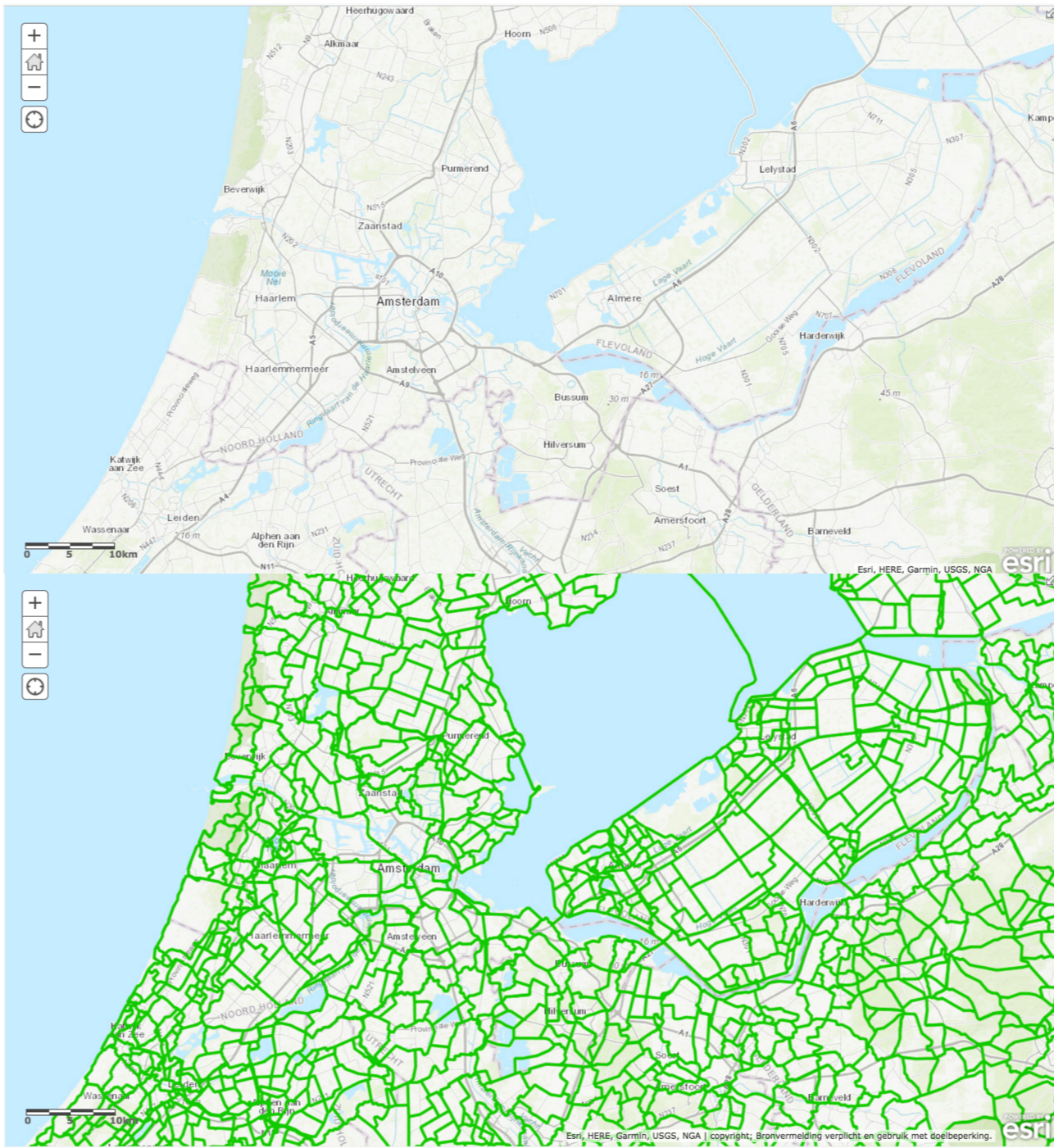
What can be learned from the Dutch?

文化改变的过程
— 荷兰的经验
Process of
cultural change



上世纪七十年代的时候，荷兰也面临着一系列问题造成的重大挑战。荷兰的城市无法再承载不断增长的交通量。当时，交通事故伤亡事件频发，全国人民开展游行抗议。随后，1973年又出现了石油危机。时任荷兰首相呼吁荷兰人利用此次危机来改变出行习惯，同时保障生活质量。于是，在1975年，荷兰各个城市开始兴建当地以及全国全覆盖的安全自行车交通网络，并且与其他公交系统车道分开，并以此对整个交通出行网络进行了大幅度的调整。

A combination of problems led to major changes in the Netherlands in the 1970s. Cities could not cope with the growth of traffic and experienced a very high number of casualties that led to national protests. Moreover, the country faced the global oil crisis in 1973. The Dutch prime minister called on the Dutch to change their habits, but still keep the same quality of life. In 1975, the national and local ambition to change the overall system led to results: cities started to experiment with extensive and safe networks of bicycle paths separated from other traffic, making the Netherlands into one of the most bicycle friendly countries in the world.

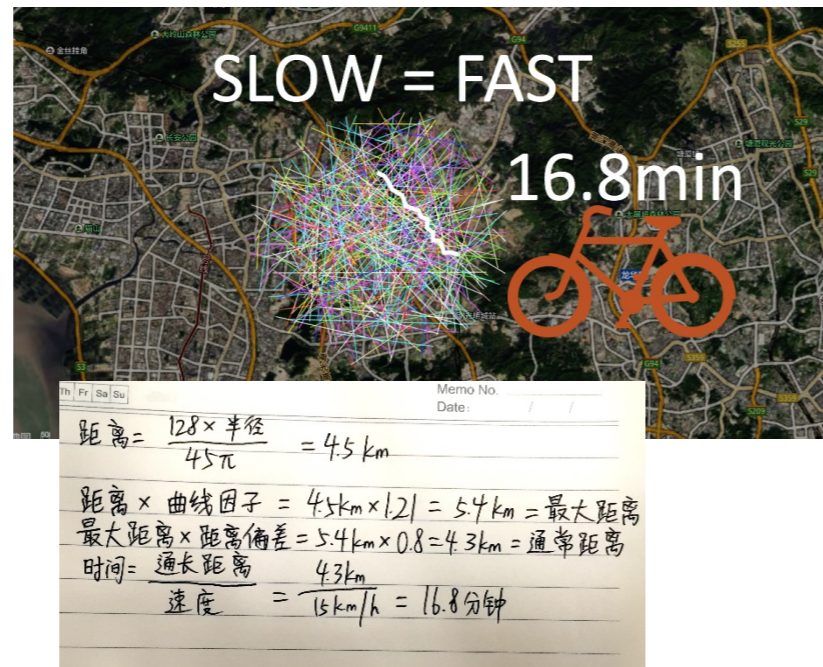
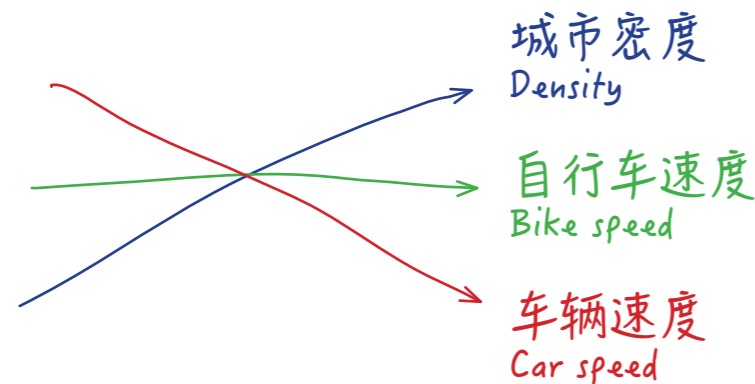


上图：荷兰的自行车干道网络通达全国 Figure: Nation-wide bike network in the Netherlands

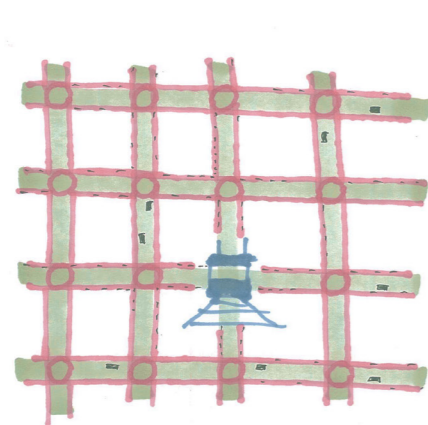
为何慢=快？
Why slow = fast?

在全球许多城市中我们都可以看到，当车流密度上升时，道路上汽车的速度就不得不放慢。但是，自行车却不会因为塞车而受到影响。为此，自行车道系统不应依附与机动车道系统，而应该成为独立管理的体系。

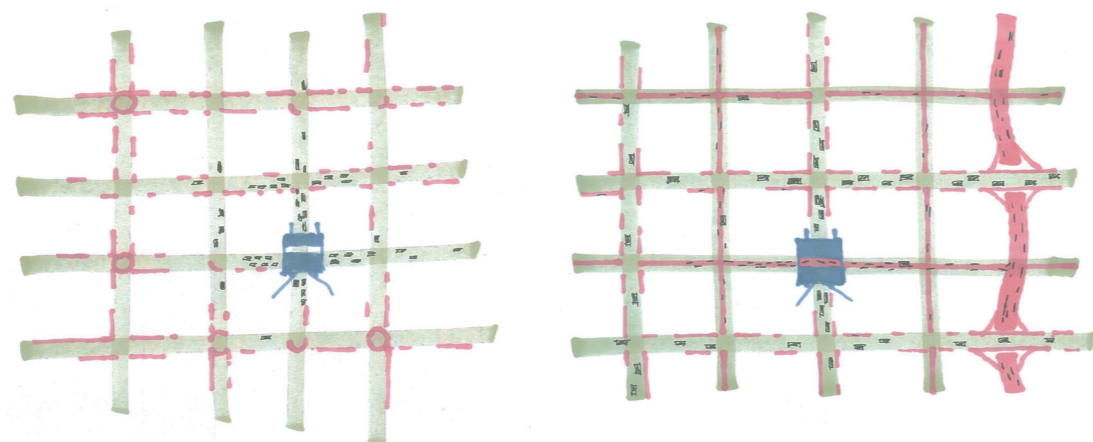
It is clear from many other cities worldwide that the overall car speed diminishes severely when density increases, while bike speed is generally not affected. Bike tracks, in that case, should no longer follow the roads, but should be decoupled from the road matrix and have their own separate networks.



荷兰理想化的汽车城市
The Dutch ideal in a city of cars



从道路矩阵中分离出来
Decoupling from the road matrix

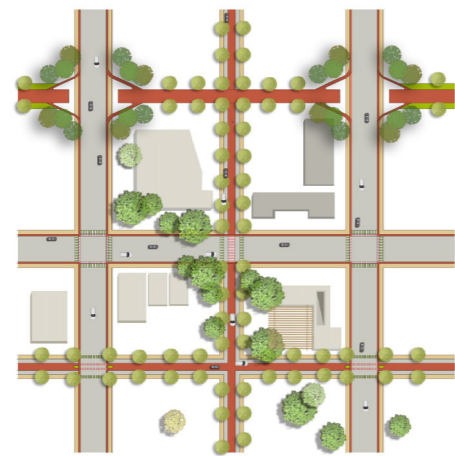


多层次自行车体系

What do we consider a multi-layered bike system?

多层次自行车体系包含了自行车快速道（动脉）、路边自行车道（毛细血管）以及慢行街道（静脉）。自行车快速道是快速的远距离连接车道，畅通无阻，只供自行车出行。同时，起伏低缓平顺，为骑行提供舒适的道路体验。慢行街道允许汽车行驶，但以自行车和行人优先，提供有限的机动车停车设施，引导汽车选择别处停车。

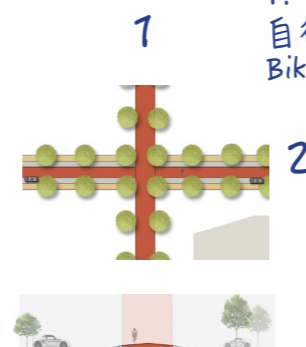
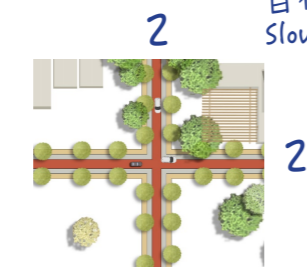
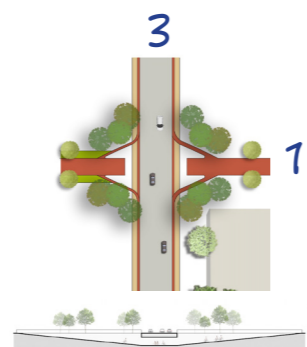
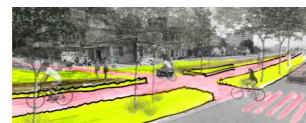
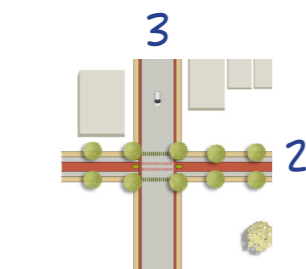
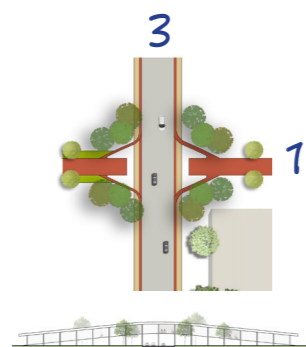
A multi-layered bike system consists of bike expressways (arteries), roadside bike paths (capillaries) and traffic-calmed streets (veins). A bike expressway is a fast and long distance connection. It is continuous, without obstacles, for bikes only and comfortable because of easy curves and ramps. Roadside bike paths are safe, separated bike lanes along the larger roads for medium distance trips. Traffic-calmed or slow streets are accessible for cars, but bikes and pedestrians have priority and parking is limited. It means parking is solved somewhere else.



1. 自行车快速道 (动脉)
Bike expressway (Arteries)

3. 路边自行车道 (毛细血管)
Road-side bike paths (Capillaries)

2. 交通平静的街道 (静脉)
Traffic calmed streets (Veins)



1:
自行车专用快速道
Bike expressway

2:
自行车优先街道
Slow streets

3:
常规自行车道
Bike lanes



Bicycle Expressway Network
自行车快速道网络

Bicycle Expressway Network
自行车快速道网络

Bicycle Expressway Network
自行车快速道网络

Provincial Greenway #5
省绿道5号

Provincial Greenway #5
省绿道5号

Provincial Greenway #5
省绿道5号

Bicycle Expressway (Type I)
自行车专用快速道

Bicycle Expressway (Type I)
自行车专用快速道

Green Streets (Type II)
自行车优先街道

Green Streets (Type II)
自行车优先街道

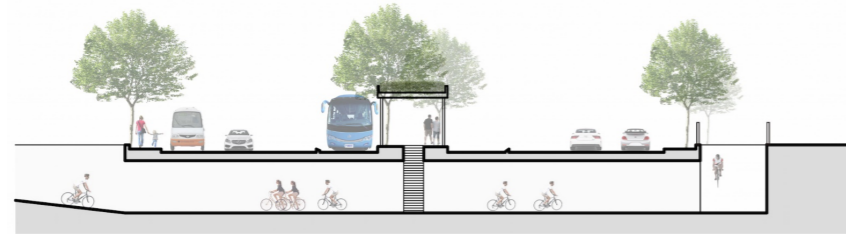


如何改善当前公交车系统？

How to improve the current bus system?

我们提出通过引入BRT车道和按需迷你巴士服务来完善当前公交车体系，有效覆盖整个区域，并提供可靠的公交出行服务。

We proposed improving the current bus system with a Bus Rapid Transit loop and an on-demand minibus service to cover the area more extensively and have a more reliable system.



互联互通的多层次交通体系

What do we consider a connected multi-layered system?

互相联系的
多层次系统
Multi-layered system
connected



最后，我们提出设计更完善、连接度更高的衔接系统，有效衔接自行车、公交、地铁和汽车出行系统。应打造多模式交通室内枢纽，在步行距离之内，衔接多功能长途汽车站与高铁站、地铁站、BRT、自行车快速道。

Designing better and more connections between the bike, bus, metro and car systems should improve the overall connectivity. A multi-functional long distance bus station should be connected to the high-speed railway station, metro, BRT, and bike expressway by means of a multi-modal transport hub that is roofed over and offers short walking distances.

光明的亮点在哪里？

What could be a showcase for Guangming?

我们建议，打造一条连接中山大学新校区与光明中心区、高铁站的10公里自行车快速道。在部分区域架高车道，安装遮阳防雨设施和太阳能板；部分区域则保持与路面平齐，或建成地下通道。道路两旁种植绿化树木，用以遮阴。一旦建成，这将成为绿色出行的典范。

We proposed a bike expressway of 10 kilometers length to connect the new Sun Yat Sen University with the Guangming Center and high-speed railway station. It can be an icon for green commuting, partly raised and roofed over with solar panels, and partly on the ground with underground passages and embedded in greening with trees for shadow.



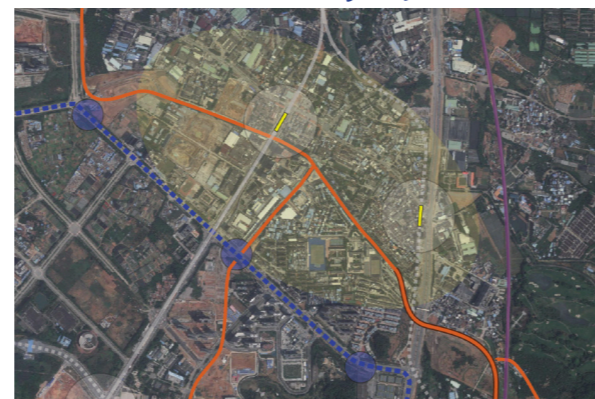
厦门
Xiamen



自行车快速道网络
Bike expressway

Bicycle Expressway Network
自行车快速道网络

高铁火车站
High-speed railway station



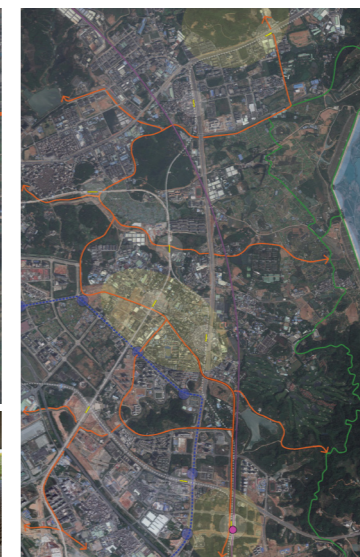
通往光明城中心的连接点
Connection to Guangming center



河心路
He Xin Road



通向IT谷的通道
Connection to IT Valley



如何实现光明绿色出行的目标？

How to achieve green commuting in Guangming?

| 道路系统 Cars | 公共交通系统 Public transport | 慢行系统 Slow system |
|-----------------------------|---|--------------------------------------|
| 主干道 Main roads | 长距离高容量 Long distance, large volume subway | |
| 支干道 Regular branch roads | 中距离中容量 专用巴士道/ BRT Medium distance bus / BRT | 沿城市道路的自行车道 Bike lanes along roads |
| | 短距离 微巴 Short distance minibus | 沿街自行车道 Bike lanes along streets |



| 道路系统 Cars | 公共交通系统 Public transport | 慢行系统 Slow system |
|---------------------------------|---|-------------------------------------|
| 主干道 Main roads | 长距离高容量 Long distance, large volume subway | 自行车专用快速道 Bike expressway |
| 支干道 Regular branch roads | 中距离中容量 专用巴士道/ BRT Medium distance bus / BRT | 自行车优先道路 Green streets |
| 自行车优先道路 Limited access roads | 短距离 微巴 Short distance minibus | 沿道路自行车道 Bike lanes along streets |