



MULTI-EXCHANGE CENTRE

设计说明

迈阿密，一个充满阳光沙滩的热带城市。其城市核心区却缺乏活力与生活气息。严重的依赖小汽车，不完善的公交系统，缺失的市中心公共空间都阻止了城市核心区的活力与生活气息。

在这样的一个背景下，我们提出不同交通工具换乘产生公共空间的策略来重新激活迈阿密的城市核心区。

对于如何解决小汽车需求，公共空间缺失以及公共交通不完善的问题。我们提出通过一个 URBAN CORE 整合不同公共交通与小汽车，加强不同交通之间的联系，创造便利的换乘来促进公共交通的使用。同时 URBAN CORE 当中多样的换乘将产生城市公共空间增强城市活力。将城市零售，商业以及超高层与 URBAN CORE 紧密相连，促进整体的效率与活力。同时通过政策鼓励加强这种模式的开发。

PROPOSAL

Miami is a tropical city with sun and beach. However, the city centre lacks urban vitality due to car-orientation, immature public transit, and lack of public space.

In that case, we hope to create public spaces through public transit interchange, so as to reactive the city center.

In order to address the problems mentioned above, we create an urban core to intergrate public transit and private cars and to strengthen the connections between them. Meanwhile, public spaces created by interchange in the urban core can also promote the urban vitality. Besides, retails, commerce and highrise are all closely connected with the urban core, provoking the efficiency and vitality. Government bonus is also used in this mode.

01	关键词研究 Key Words
02	现状分析 Analysis of Current Situation
03	概念提出 Concept
04	法规与建筑生成 Zoning and Generation
05	整体设计 Overall Design
06	节点设计 Joint Design

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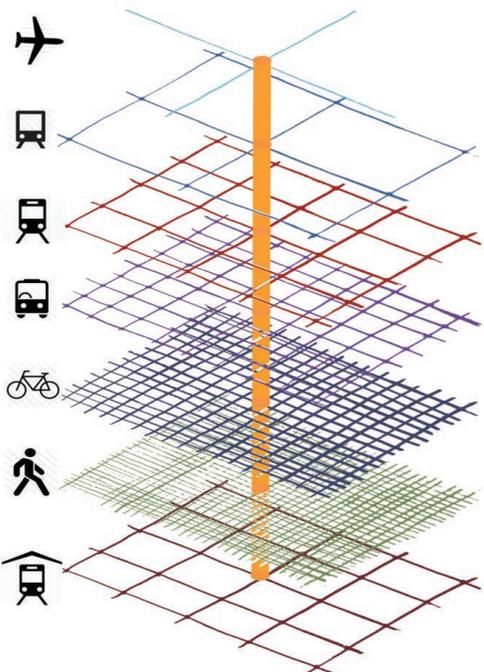
关键词一：交通换乘

第一部分：交通核心

交通系统的叠加必将产生交通核心。交通换乘核心有双刃剑的效果，它在聚焦发展区域的同时，也在增加城市扩展。

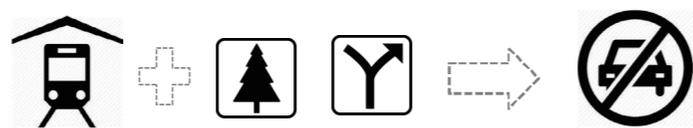
Key Words 1: Transit
Part 1 Transit Core

Transit Core must exist when transportation systems overlay. Transit core has effects, focusing development meanwhile increasing expansion.



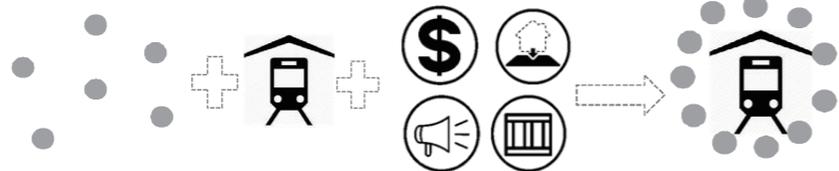
自我选择给这个话题带来极大不确定因素，但是，增加对前往换乘中心的环境的设计将增加其使用率。

Self selection brings huge uncertainty while improving environment design of the passageway to the taransit core will increasing the usage.



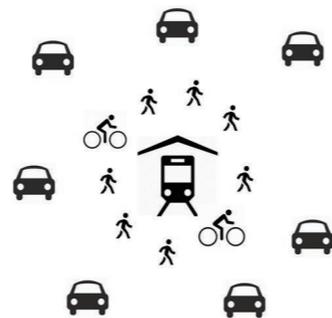
交通换乘中心并不一定能直接带来地区的快速发展，而是更多的带来了资源的再次分配。

Transit core will not always brings rapid development, but brings more resource reallocation.



针对交通方式选取问题，环境设计等方面将增加对于换乘核心的使用率；针对发展模式，政策等因素将推动换乘核心带动发展的作用

In terms of transportation selection, environment design will transit core increase utilization; in terms of development patterns, policies will promote the leading role of the core.



第二部分 促进因素

1.1 线性辐射——可达性

当步行可达性大于汽车的便捷时，人们愿意去选择使用公共交通。在交通核心 0.5 英里以内人们更愿意步行。

可达性的第二点就是建立行人导向的环境，这不仅包括了步行也包括了自行车这项零排放的交通工具。



1.1 Line—Accessibility
When accessibility is greater than automobile, people prefer public transportation, especially within 0.5 mile.

Building pedestrian-oriented environment.

1.2 面域辐射——混合土地使用

核心本身向外延伸的整个“面域”有较好的资源配置。核心本身能够带动周边产业的发展，多功能混合的使用也会使得核心成为区域活力源，吸引更多人加入核心，使用公共交通。

同时混合土地使用会增加整个交通网的有效性。每个核心本身就可以作为整个出行中的起点或者终点，更促进整个交通网的多向流动，提高效率。

另外，居住密度的提高能够逐渐对换乘核心的使用；但是人群阶层混合度与换乘核心使用率成反比。如果工作地点离换乘核心少于一英里将会提高使用率；自由上班时间也能提高使用率。

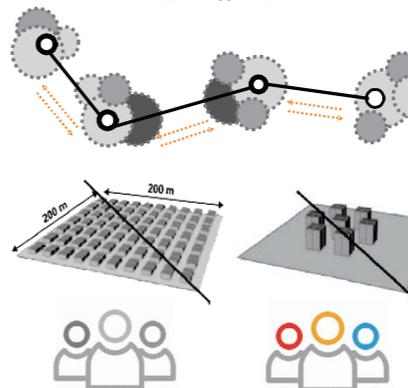


1.2 Region—mixed land use

The core region with mixed land use can drive the development of peripheral industries. Mixed land use can make the core a better energy source.

Meanwhile mixed land use will improve efficiency. The core will become the start or end in every trip to form multidirectional flows.

Moreover, increasing residential density and less class mixed will promote the core. If the distance to workplace is less than 1 mile, the utilization rate will increase.



2 法律法规

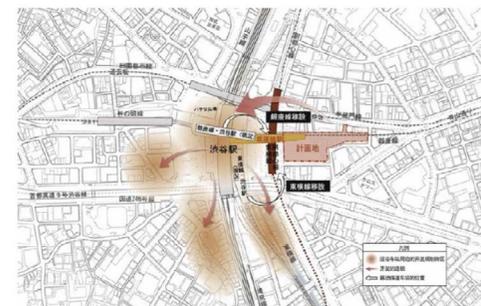
法律法规来自于影响规划的交通法和相关的土地使用法规。积极的交通政策和合理的土地规划可以使得发展效率大幅提升；而相关的经济政策如房价，机动车和非机动车设施及环境的营造，都会对发展起到相应的影响。



2 Law & policy
The effect comes from Public traffic laws and land use law, which can increase the efficiency. And also related policies like real estate, vehicle price, will also make a difference.

关键词一：交通换乘

第二部分：案例分析 1——东京涩谷站
Keyword 1: Transit Interchange
Part 2: Case Study 1——Hirakie, Tokyo



1.1 城市位置：

- 位于东京市中心，8条城市轨道交通的汇聚核心
- 商业、办公、文化的复合地区，年轻人的聚集地
- “生活、文化信息的传播平台”

1.2 多层步行网络

运用了城市核的理念，将城市不同标高的轨道交通连接汇入核心之内，形成网状的立体步行体系，最后引入到高层的不同层级之内。

1.3 垂直公共系统

- 城市核心通过水平步行流线分散和纵向流线轴空间提高了换乘的效率，又为城市提供回游空间。
- 综合性文化交流空间有效地激活高层区域垂直空间的活力。

1.1 Location:

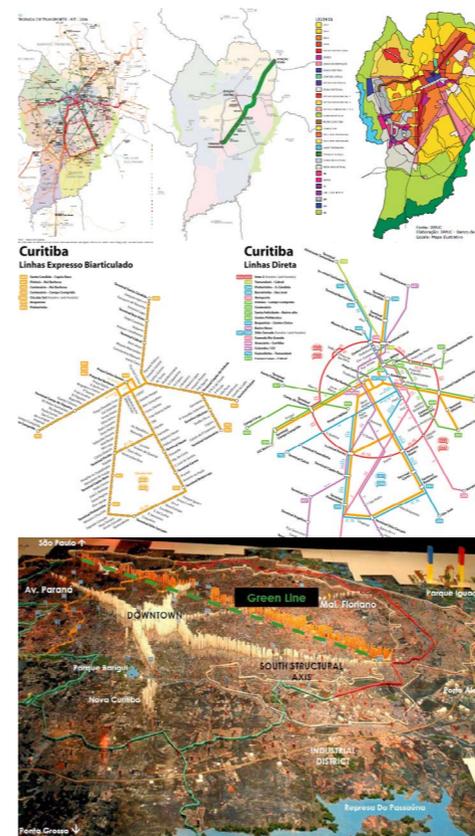
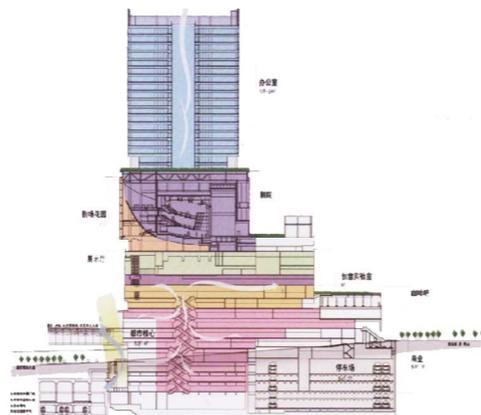
- City centre of Tokyo, the combination of 8 city railways
- Composite region: Commerce + Office + Culture
- "Stage for Information Exchange in life and culture"

1.2 Volumetric Walking Network

The "Urban Core" connects the walkways of public railway of different levels and attracts people into different floors.

1.3 Vertical Public System

- The urban core horizontally and vertically improves the interchange efficiency, but also provides the city with a place to stop.
- The Art Exchange Space vrtically promotes the vigor in high part of the building.

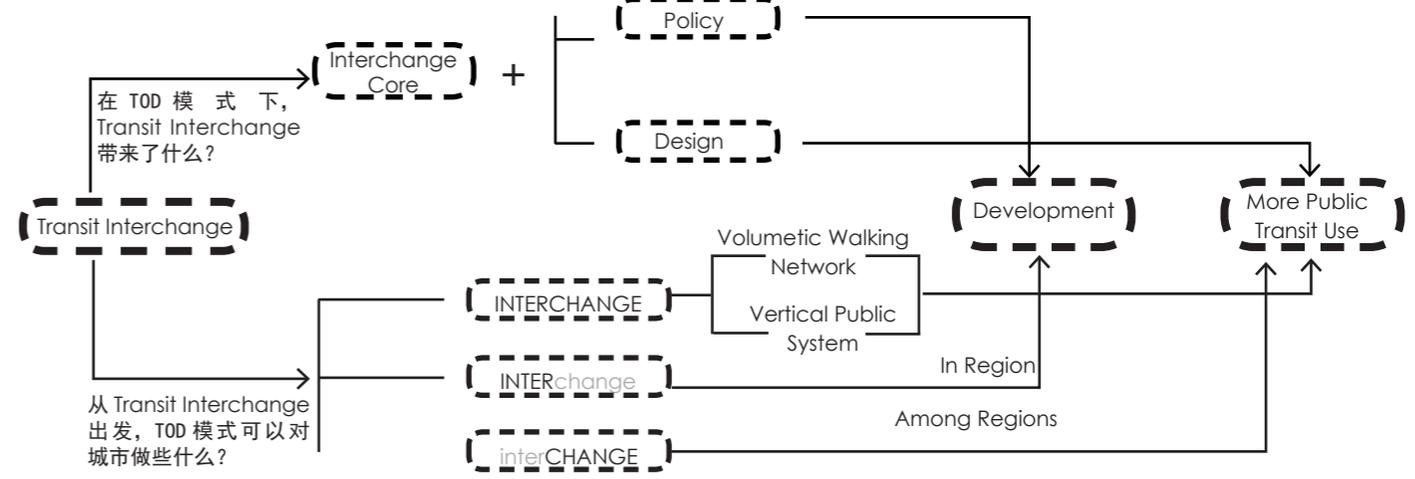
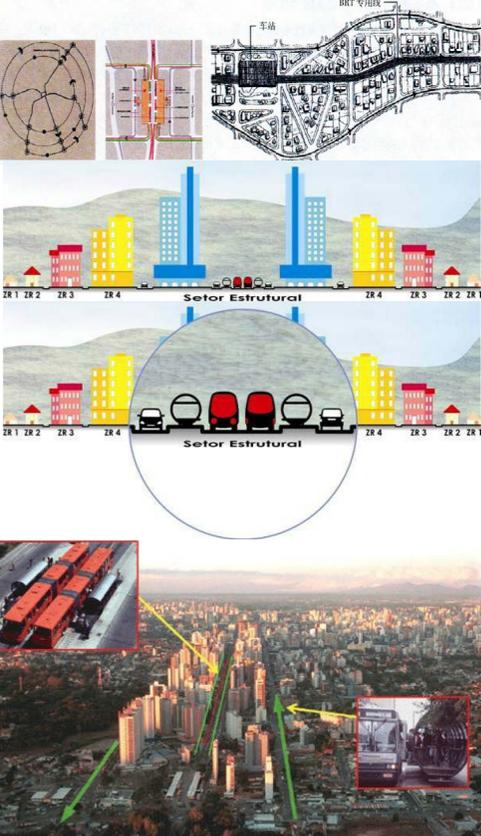


案例分析 2——库里蒂巴

- 2.1 背景：
从贫民窟遍布、城市蔓延威胁到宜居城市的转变
- 2.2 规划
· 5条放射路网+环形回路
· 轴线+土地运用+公交BRT系统
- 2.3 公交BRT系统
沿规划轴线布置→带动土地利用→城市空间形态改变（BRT沿线呈现高密度）

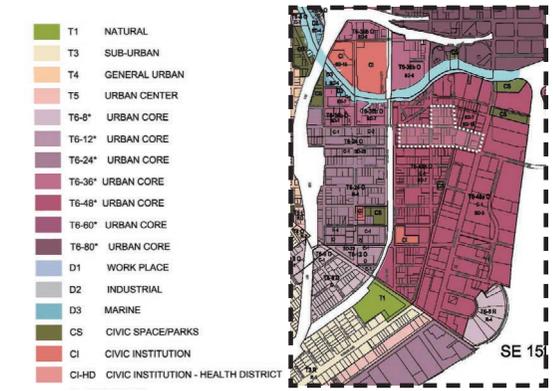
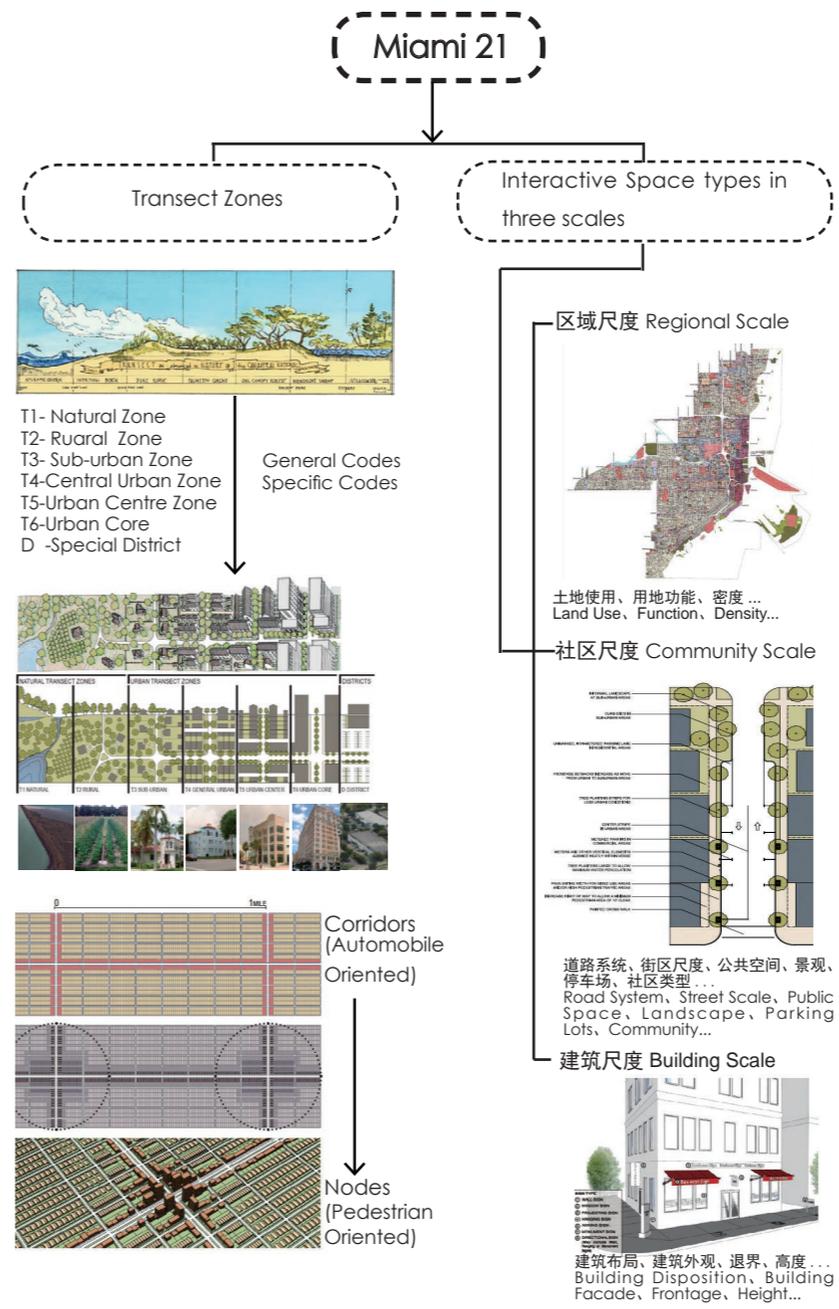
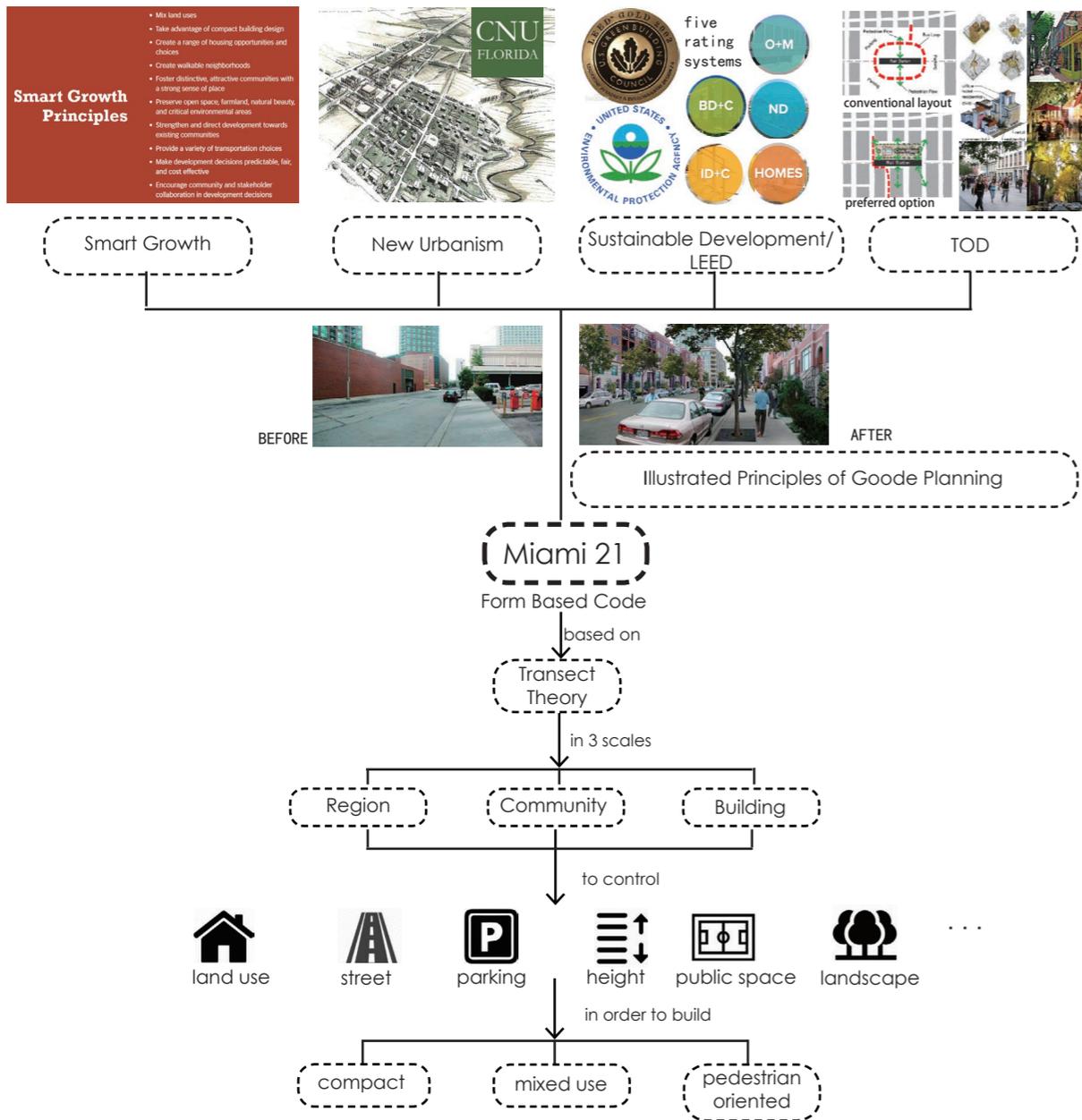
Case study 2——Curitiba

- 2.1 Background
Transformation from threats of slums and urban expansion to livable cities
- 2.2 Urban Design
· 5 radial roads + 1 loop
· Axis + mixed land use + BRT
- 2.3 Public BRT system
Improve the structure and space of the city (high density along BRT)



关键词二：法规 Keyword 2: Zoning

WHAT IS MIAMI 21?



MIAMI 21 根据 Transect 理论，将城市划分成 T1-T6 及 D 和 C 区，作为城市建设的指导。
The City is divided into several zones, T1-T6, D and C zone as the guidance of urban construction.
基地位于位于迈阿密地理中心的布里克尔城市中心。根据 MIAMI 21 规划，基地处于属于城市核心的 T6-48 O 区。
The site is located in the geographical heart of Miami, Brickell City Centre. Based on Miami 21, it belongs to T6-48 O zone, which is the urban core.

- 功能 Function
- 居住功能 Residential
 - 寄宿功能 Lodging
 - 办公功能 Office
 - 商业功能 Commercial
 - 市民公共功能 Civic
 - 市政设施功能 Civil Support
 - 教育功能 Educational

密度 Density
The maximum density in T6 is 500 unit/acre.

层数 Layers
Layers of buildings in T6-48 should be a maximum of 48.

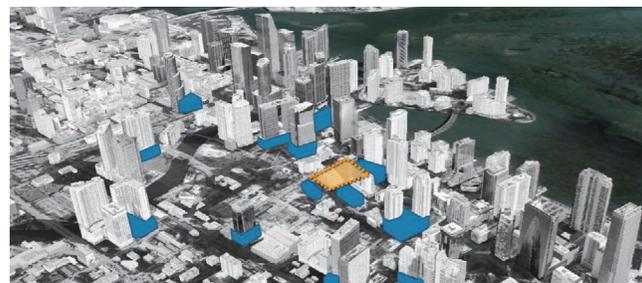
景观 Landscape
Landscape standards may decrease for buildings of greater capacity and density. Open Space shall be a minimum ten percent (10%) of the total lot area.

容积率 FAR
限制性商业区内非居住区的容积率可达到 7.0。若满足土地发展条例中的奖励政策，可酌情增加容积率，但不得大于 11.0
The nonresidential portions within Restricted Commercial Zone allow a maximum floor lot ratio (FLR) of 7.0 times the net lot area; such FLR may be increased upon compliance with the provisions of the land development regulations; however, may not exceed a total FLR of 11.0 times

- 结论：基地所在区域以高密度的居住功能为主导，围绕居民建立办公功能和服务性商业功能。
1、建筑最高层数 48 层
2、建筑密度最大 500 单元 / 英亩
3、容积率最高 7.0
4、公共空间需占总建筑面积的 10%。

Basis 1 依赖小汽车的城市

迈阿密是一个严重依赖小汽车的城市，城市蔓延发展与依赖汽车形成恶性循环。严重依赖汽车也导致了大量停车空间的需求。



基地附近主要停车场分布

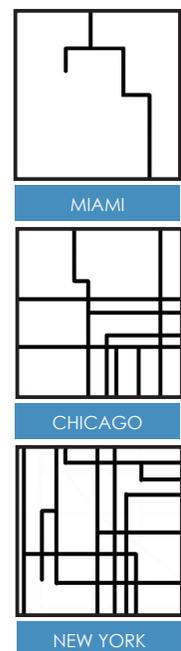
Basis 1 CAR-ORIENTED

Miami is a city deeply dependent on cars. Urban sprawl and car-orientation forms vicious circle. Car-orientation also promotes the demand for parking.



迈阿密主要停车场分布

Basis 2 公交系统不完善



美国城市公交系统对比 (1 平方千米)

Basis 2 POOR PUBIC TRANSPORTATION SYSTEM



迈阿密地铁线路图

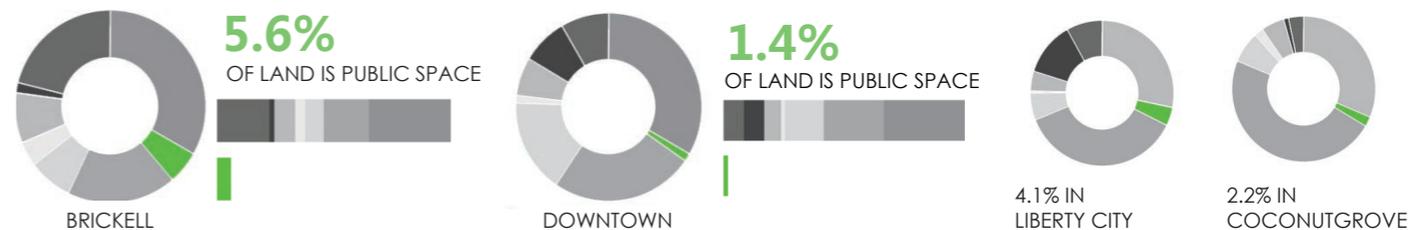
通过对比迈阿密与美国其他城市在同样范围内的轨道交通网络密度。可看出迈阿密的公交系统极为不完善，且没有有效的换乘中心，大部分城市区域并未有公共交通覆盖。

Compared with the density of rail network of other cities in US, we can see that, Miami has a poor public transit system. There are few effective interchange cores, and the public transit system does not cover most part of the city.

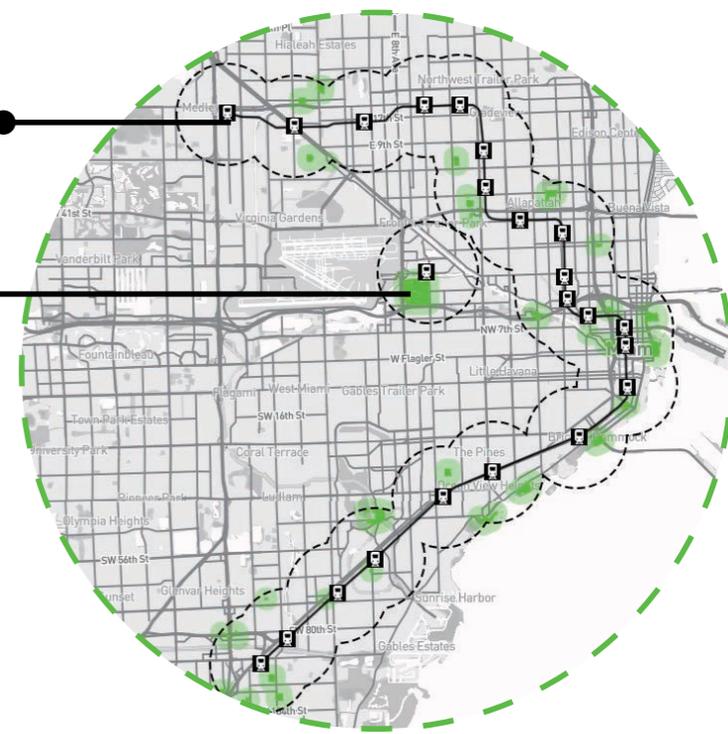
Basis 3 政策

迈阿密地铁站附近公共空间比例 (半径 800m)

PUBLIC SPACES NEAR THE SUBWAY STATIONS IN MIAMI (R 800M)



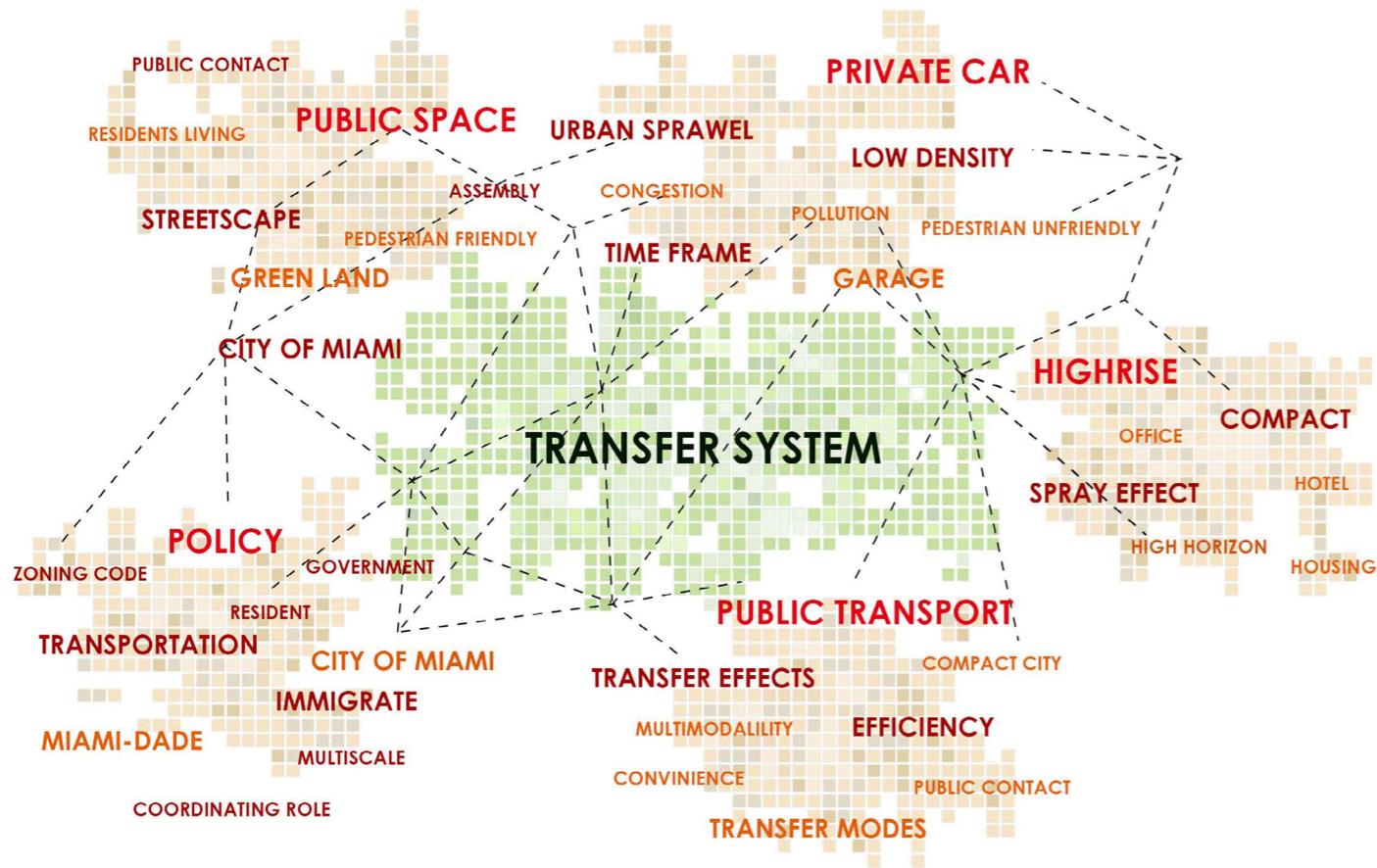
Basis 3 ZONING CODE



虽然迈阿密正在通过 MIAMI 21 等一系列法规政策鼓励城市的公共空间建设以及公共交通系统的完善。

但是迈阿密的公共交通系统开发并未与迈阿密的公共空间建设结合到一起。

Although Miami is trying to improve public transit and public space system, public transit is still seperated from public space.

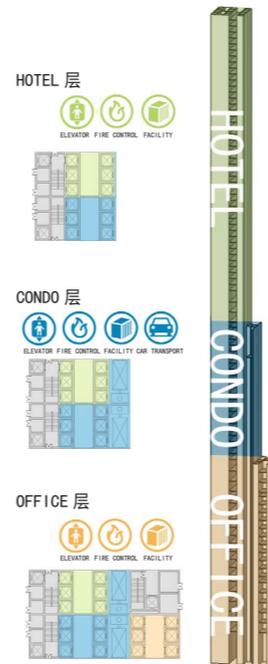


迈阿密，一个充满阳光沙滩，度假休闲，以及正在快速崛起的热带城市，位于美洲大陆的中心。其城市核心区却缺乏活力与生活气息。严重的依赖小汽车，不完善的公交系统，缺失的市中心公共空间都阻止了城市核心区的活力与生活气息。

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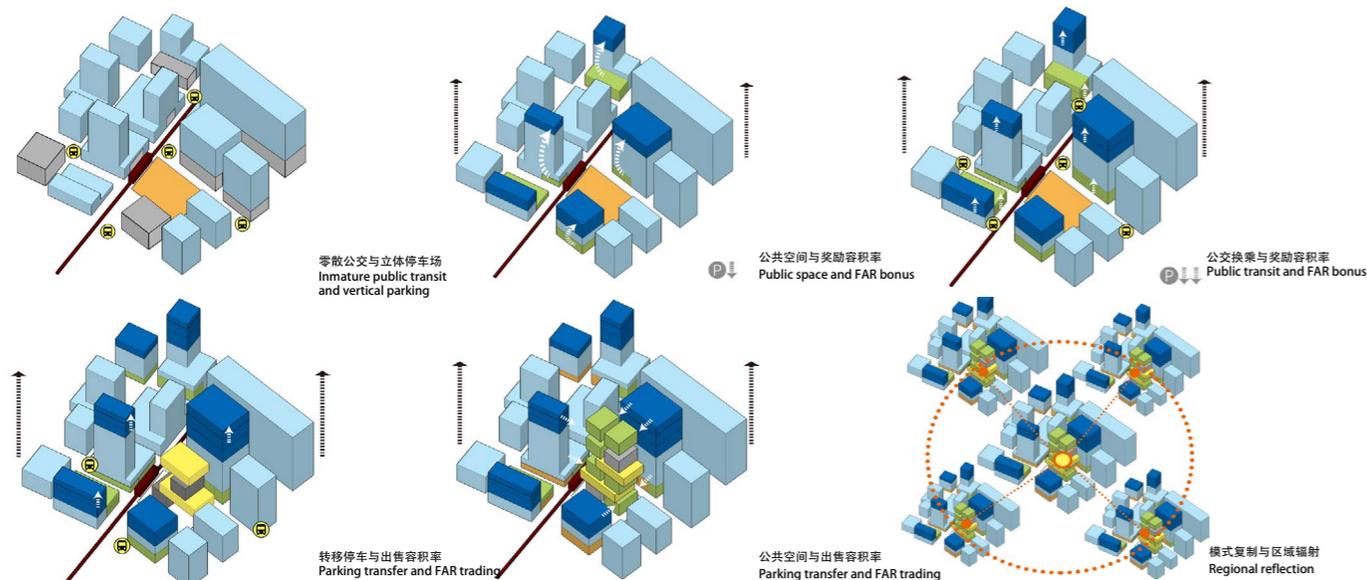
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经济技术指标：
占地面积：1.85 万平方米
总建筑面积：26.4 万平方米
容积率：14.27
建筑高度：333 米
停车位：约 1000

ECONOMICAL & TECHNICAL INDEXES:
Floor Area:18.5 thousand sqm
GFA:264 thousand sqm
FAR:14.27
HEIGHT:333M
PARKING:about 1000





4.2 形态生成 4.2 SHAPE GENERATION

1, 延续 CLIMATE RIBBON 一直到 BRICKELL AVENUE (连接迈阿密河两岸的主要道路之一)

1, Extend CLIMATE RIBBON to BRICKELL AVENUE (main street connecting both sides of the Miami River)

2, 与现有轨道交通结合创造换乘点, 同时加强与南北两侧地块的联系, 通过类似于 RIBBBON 的公共空间连接南北两侧地块。

2, We create an interchange core connected with the metromover, and use public space to improve the connection between the south and the north of the site.

3, 基地由于之前的操作留下四个地块, 其中最大的一块用作超高层, 另外三块用于底层开发。

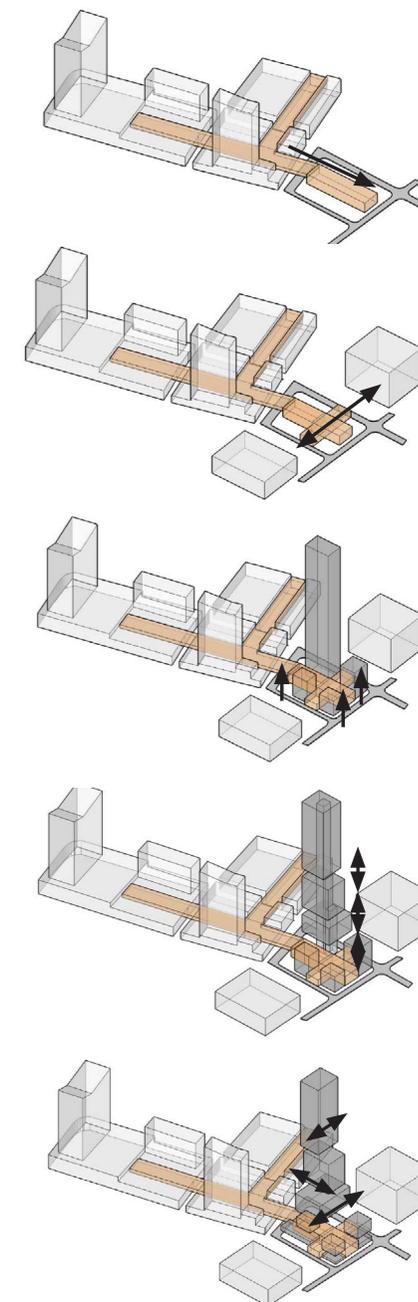
3, The site is divided into 4 parts. The largest part is for highrise, and the other 3 are for podium.

4, 由于核心筒随着高层功能的变化而变化, 因此高层形态随着高度变化而收缩。

4, The core varies with the function of highrise, therefore the volumn shrinks with the height.

5, 根据具体环境情况, 对于体块进行错位变形。

5, The volumn changes according to the site.

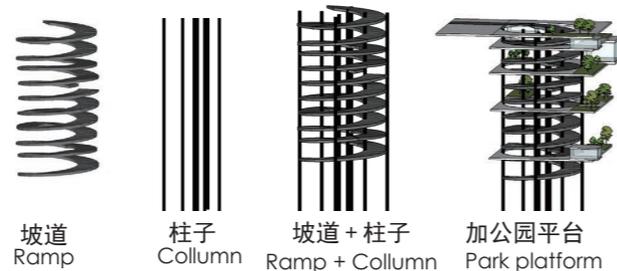
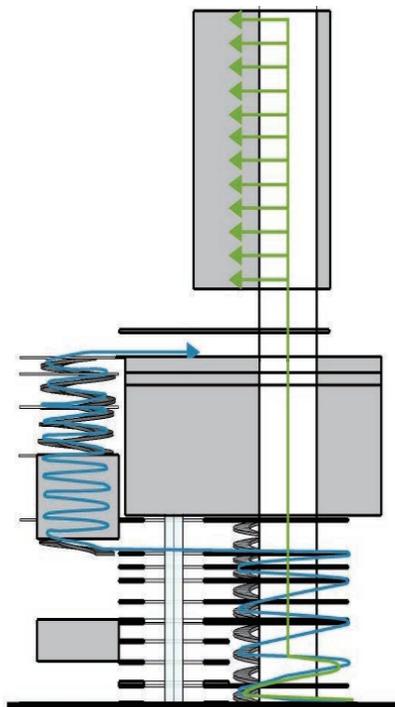
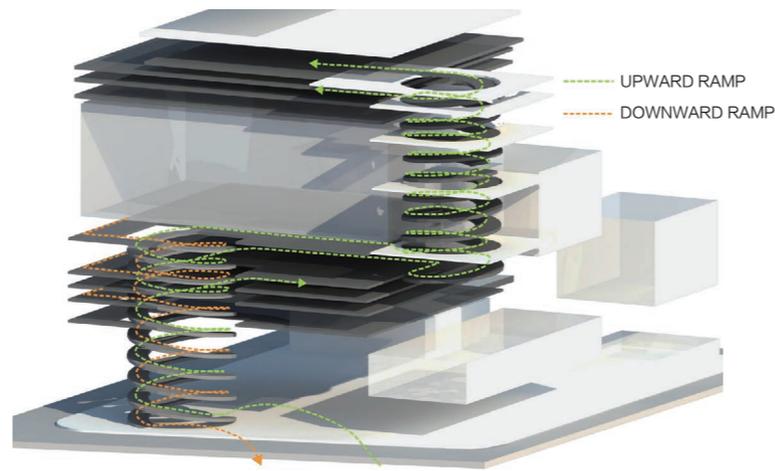


5.1 小汽车系统

5.1 SYSTEM FOR CAR

迈阿密城市蔓延发展情况严重，整个城市严重依赖小汽车现状很难再短时间内改变。同时由于迈阿密地下开发困难，因此在市中心有大量的地上停车楼。严重依赖小汽车以及大量的地上停车楼导致城市街道氛围冷漠。因此我们需要巧妙的解决停车数量问题以及市中心停车空间的消极性问题

The urban sprawl in Miami is becoming more serious, and the car-orientation cannot be changed in a short period. Besides, since Miami is a city floating on the sea, parking space can only be built on the ground rather than underground. Large amounts of vertical parking brings negative space to the city. So the problem we need to solve is the amount of parking and the negative space brought by parking.



地上的汽车坡道往往是功能性极强的消极空间。但如果汽车坡道暴露在城市空间中，那就有可能将汽车坡道转换为一个垂直城市公园。

The car ramps are always negative space with single function. But if it is exposed to the urban space, we can transfer them to a vertical urban park.

迈阿密的人均汽车拥有量位居前列。对于住宅来说，可采取高效的机械停车将汽车停到住户门口。

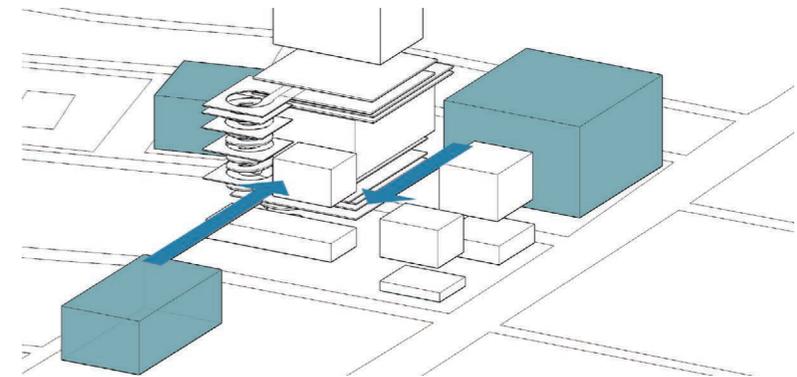
The car use in Miami ranks high in US. For housing in highrise, it is possible for residents to park their cars in front of their units by using mechanic parking.

停车需求是具有很大潮汐作用的。特别是服务于办公与住宅的停车空间，我们希望整合周边停车空间。形成一个一体化的停车系统，利用潮汐作用调节停车空间需求。

同时将项目与周边停车空间相连接，停车空间能为基地带来人流量。

The demand for parking is like tide, especially in housing and offices. We hope to intergrate the parking nearby, to form a unified parking system, changing the function of the space with the demand.

Meanwhile, the building will be connected with parking nearby, as parking brings people to the site.



5.2 公共交通系统

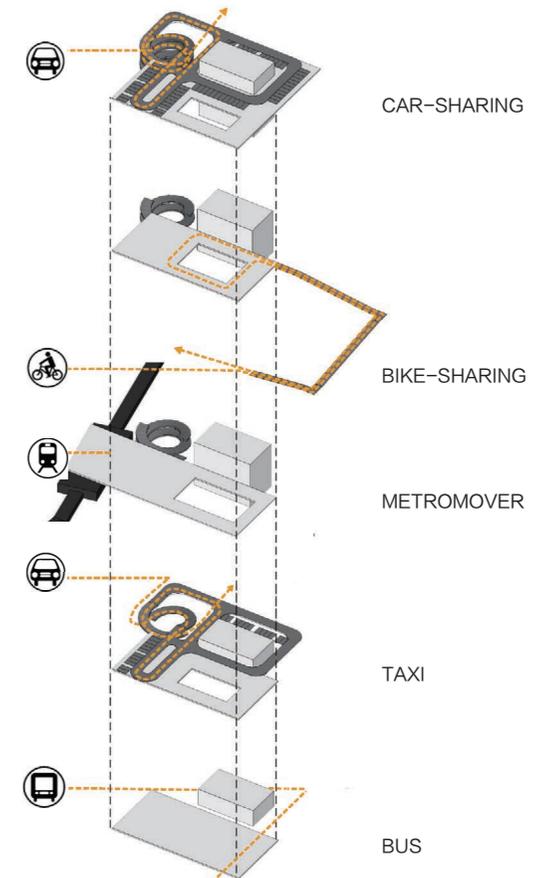
5.2 PUBLIC TRANSPORTATION SYSTEM

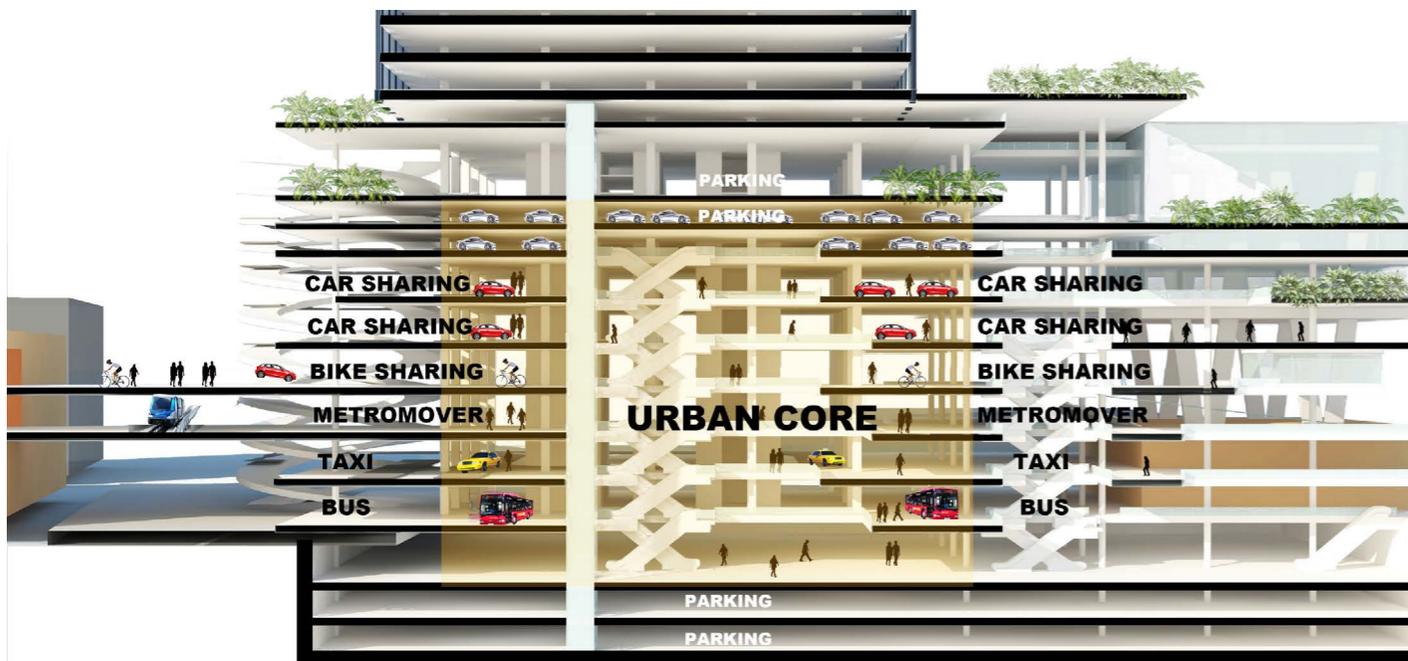
垂直叠加是最有效率的组合方式，也便于不同交通工具之间的转换。利用垂直叠加的方式整合巴士，出租车，轨道交通，自行车，共享汽车等公共交通工具。

根据不同公共交通的性质，分别将不同公共交通工具放置在不同的高度上。我们需要丰富城市的公共交通并且加强不同交通工具之间的高效换乘。

Vertical accumulation is the most efficient way, as it provides a convenient transfer between diferent transportations. We intergrate different transportations like bus, taxi, railway, cycle, cab sharing through vertical accumulating.

Different public transportations are placed at different heights according to their features.

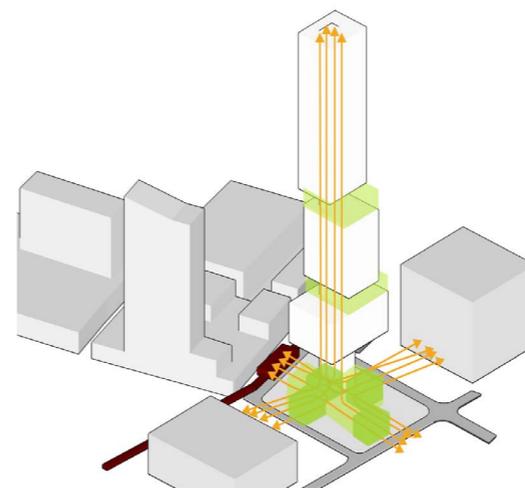




创造出一个 URBAN CORE 公共交通换乘中心，不仅仅包含多样的公共交通方式，而且能够提供高效的换乘。丰富城市现有的公交系统，创造出多样的公交方式。公交车，出租车，轨道交通，自行车，共享汽车等等。合理安排不同公共交通位置，将它们以最有效率的垂直叠加方式组合在一起，创造出不同公共交通之间的高效换乘。

The immature public transit system reflects in two parts. First, the system covers few parts of the city. Second, transit interchange is inconvenient and inefficient. Therefore, we need to increase the public transportation and strengthen the efficient interchange between them.

5.3 快速换乘系统，产生公共空间 RAPID EXCHANGE SYSTEM, PRODUCING PUBLIC SPACE



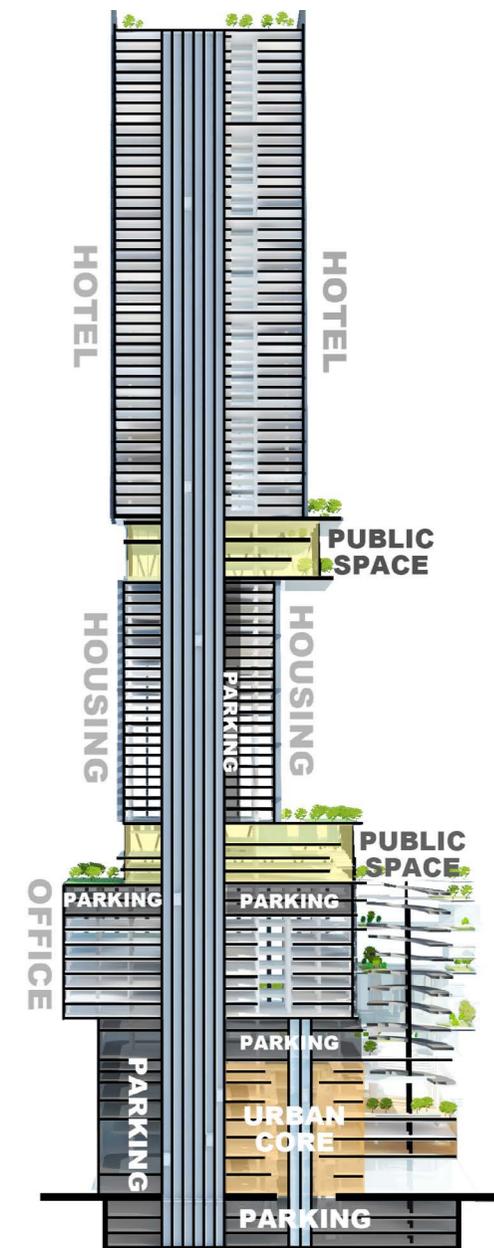
将小汽车系统与公共交通系统整合，并且叠在整个形态上，这其中将会产生多样的高效换乘流线。高强度的换乘意味着巨大的人流量，因此整个换乘系统将产生具有高度可达性与活力的城市公共空间

Private cars are integrated with public transits, and placed on the whole system, to create varied and efficient interchange routes

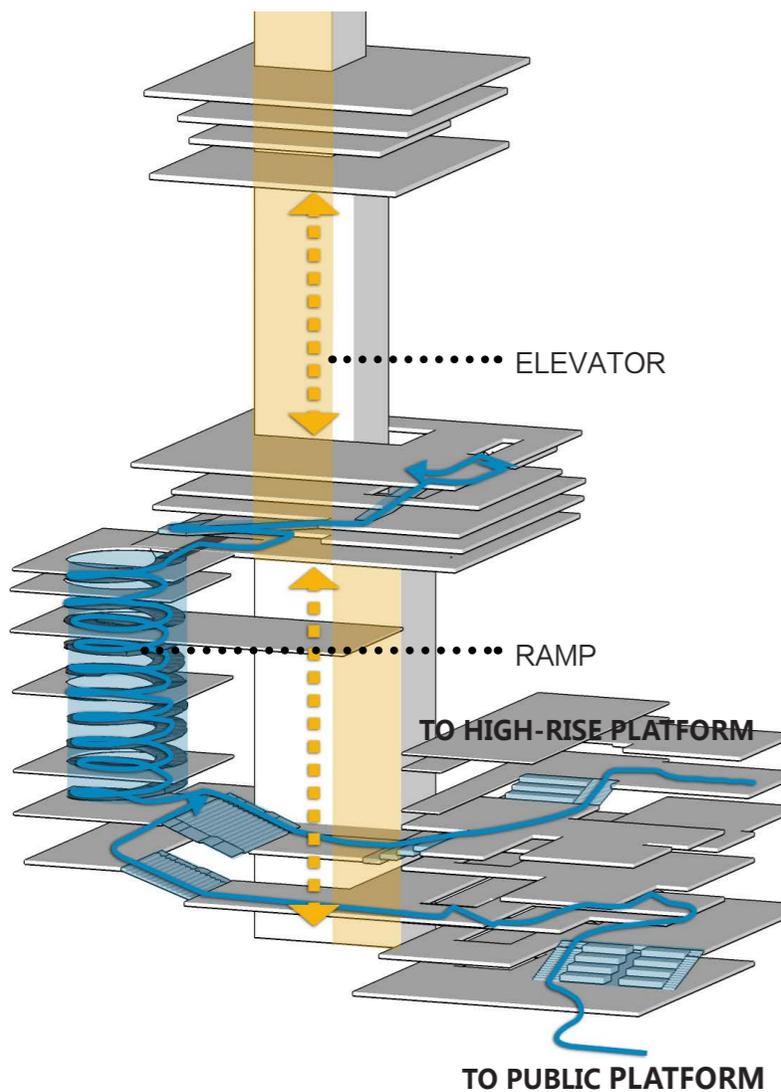
Interchange with high efficiency brings large amounts of people, therefore the whole system will produce urban public space with high accessibility and vitality.

快速换乘系统不仅仅意味着不同交通工具之间的快速换乘，更是各类城市功能到城市公交系统的快速换乘。如办公到公交，住宅到公交以及酒店到公交等的快速换乘。在这些快速换乘的活动将产生丰富的公共空间。

The rapid transfer system means not only efficient interchange between different transportations, but also between different urban functions and public transportation systems. Rapid exchange, like office to public transit or housing to public transit, will produce various public spaces.



5.4 公共空间系统 5.4 PUBLIC SPACE SYSTEM



公共空间系统主要分为三个层次。酒店与住宅之间的公共空间，住宅与办公之间的公共空间，面向城市的公共空间。不同的公共空间具有各自的功能偏向用于满足不同需求。

The public space systems are divided into 3 levels. They are public spaces between housing and hotel, between housing and office, and space open for the city. Different public spaces meet different users' demands.

面向城市的公共空间由几个主要的活动场所创造出—条漫游向上的流线将人流引导向上。

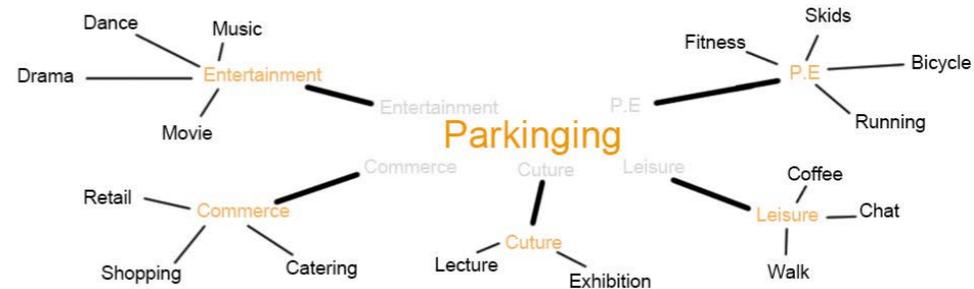
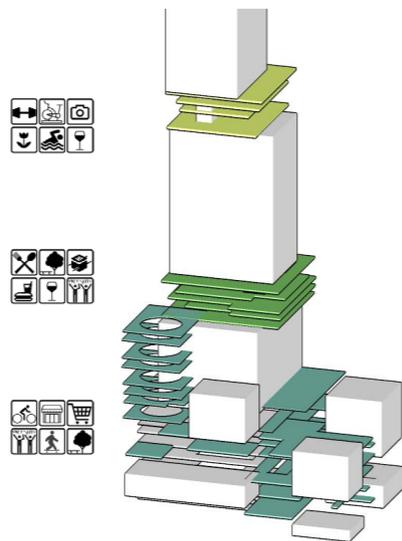
—个垂直公园联系下段的公共空间与中段的公共空间。

由于连接酒店与住宅这类较为私密的功能，高段的公共空间则较为独立保证其私密性。

The public spaces open for the city, which include some platform for different activities, are connected by a upward route, leading people to go to the high part.

A vertical park connects public spaces at low and medium part.

Since people in housing and hotel needs privacy, the public space between them is sperated from the whole continuous system.

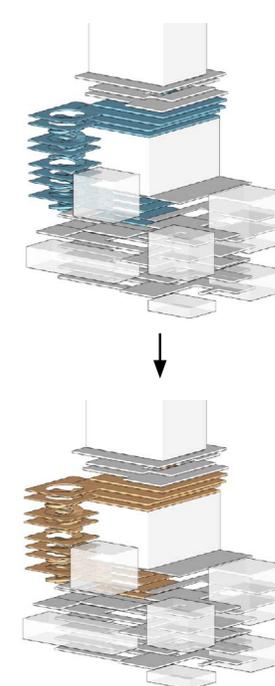


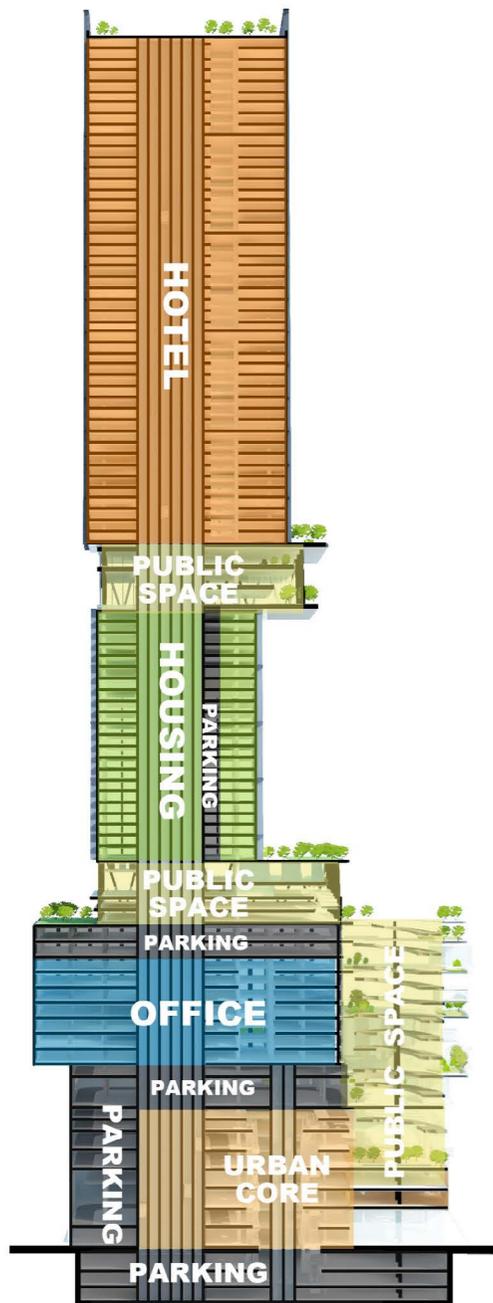
停车需求是具有很大潮汐作用的，特别是服务于办公与住宅的停车空间。因此这些停车空间可以与公共空间相互转换，特别是在办公的停车空间在下班后将会空置，转化成为公共空间。

因此停车空间的设计需要考虑转化为公共空间的可能性。

The demand for parking, esp. in housing and office, is like tide, chaging with hours. Therefore, these parking spaces can be transferred into public spaces. Parking for office greatly decrease after rush hours, which can be turned into public spaces.

Therefore, possibility of transferring parking into public spaces need to be taken into consideration in designing.





5.5 功能分区系统 5.5 FUNCTION LAYOUT

功能在垂直方向上的分布按照功能与停车需求放置。

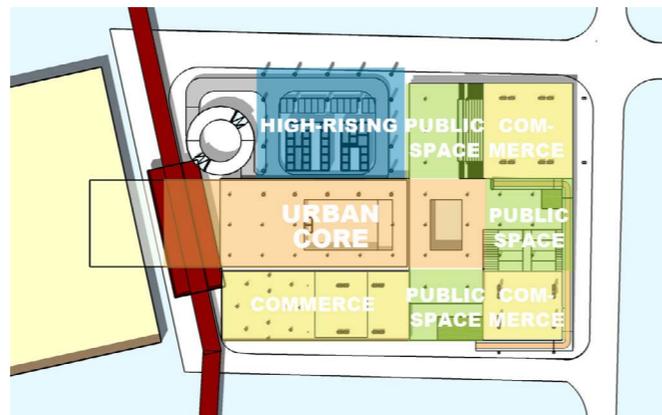
根据功能对于私密性的需求，越向上越私密。同时也按照对于停车的需求，办公以及商业等对于停车的需求最大，放置在下方；住宅的停车量需求相对办公较小，放置在中段；酒店对于停车的需求最小，放置在最上段。

Different functions are placed according to the demand for privacy and parking of different spaces.

The higher the tower is, the space is more private. Also, office and commerce are placed at low part as the demand for parking is the highest, then the housing at medium part, and hotel at high part, since parking is rarely needed.

平面上的功能分布按照形态生成逻辑放置。由 URBAN CORE 与面向城市的公共空间组成偏十字的主要空间结构。将高层与城市商业零售等分别挂在偏十字的主要空间结构上。

The arrangement of functions is based on the forming logic. Public spaces and urban core form a 'cross' in the plan, and other functions like highrise and retail are placed around the 'cross'.



复合换乘中心 MULTI-EXCHANGE CENTRE

各个系统的相互叠加，产生了高效便利的换乘中心，同时生成了丰富的城市公共空间。

这个复合换乘中心 (multi-exchange centre) 不仅能够为人们提供交通工具之间的便利转换，推动公共交通的使用；也产生了具有高度可达性与活力的城市公共空间，激活迈阿密市中心的街道空间活力。

The accumulation of different systems produces an efficient and convenient interchange core, and produce various urban open space.

The multi-exchange centre provides a convenient exchange between different transportations, promoting the public transit use; and it produces urban public space with high accessibility as well, stimulating the street vigor in Miami downtown.





6.1 换乘中心节点设计 The joint of interchange core

换乘核心不仅仅能够提供丰富多样的公共交通方式，而且能够提供高效便利的换乘。并且由此将产生面向城市的具有活力的公共空间。

在这里不仅仅能够促进公共交通的使用与完善，也能为城市带来更多的活力与生机。

The interchange core provides various public transportations and efficient transfer, and also produces public space open for the city.

The interchange core stimulates and improves public transit, and brings vigor to the whole city.



6.2 下段公共空间节点设计： The joint of public space in low part

下端公共空间节点主要是面向城市的开放性公共空间，这些公共空间与交通换乘一起协同作用。不仅仅将人们引向公共交通系统，促进公交系统的使用；而且激发迈阿密现状死气沉沉的街道空间。

This part is open for the city, producing synergistic effects with transit interchange. The public spaces lead people to the public transit system, and stimulate the dull streets in Miami





6.3 中段公共空间节点设计 The joint of public space in medium part

中段公共空间位于办公与住宅之间，同时由于有垂直公园与下部公共空间相联系，中段公共空间的性质偏公开，鼓励市民使用。垂直公园可作为汽车坡道，服务于办公的停车空间；也可作为公园步道，服务于中段的公共空间。

中段公共空间的功能可分布一些商业，餐饮以及市民聚会休闲等。

This part is located between office and housing. It is also open for citizens, as it is connected with the lower part by the vertical park. Vertical park is used as car ramp for parking, and walking path for public spaces as well.

Some shops, restaurants and plaza are located here.



6.4 上段公共空间节点设计 The joint of public space in high part

上段公共空间位于酒店与住宅之间，上段公共空间的性质偏私密，主要服务于酒店以及住宅住户。

上段公共空间的功能可分布一些商业，餐饮以及市民聚会休闲等。由于其良好的景观优势，可放置屋顶泳池等设施供酒店与住宅使用。

This part is located between hotel and housing. People living here needs privacy and space here is more private.

Some shops, restaurants and plaza are located here. Besides, facilities like swimming pool are also placed here for good view.





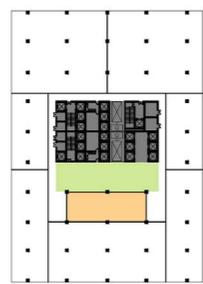
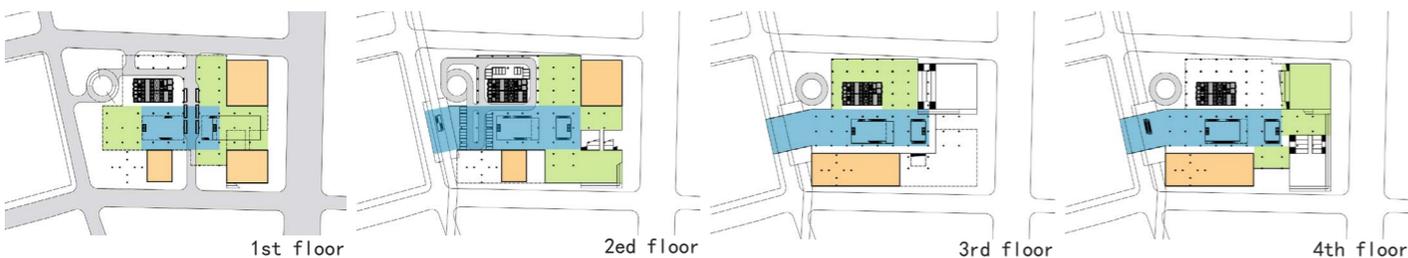
总平面图

基地关系:

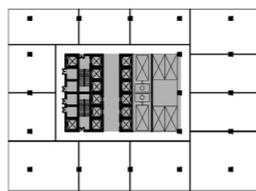
与基地的关系上, 延续 BRICKELL CITY CENTRE 的 CLIMATE RIBBON 一直到 BRICKELL AVENUE (连接迈阿密河两岸的主要道路之一)。一个偏十字的公共空间系统与四周的地块相连接, 利用城市公共空间, 将人流引导到公共交通, 同时激发城市的街道活力。

About the site

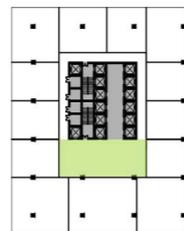
The project extends climate ribbon from Brickell City Centre to Brickell Avenue. The 'cross' public space structure connects the surroundings and lead people to public transit through urban public spaces , stimulating urban vitality.



office



residence



hotel



在复合换乘中心这里, 小汽车到公共交通以及不同公共交通之间的换乘变得便利高效, 同时具有丰富的城市公共空间。

来此工作的人, 工作期间将更加依赖出电梯门即达的公交系统;
这里的住户, 在享受城市公共空间的同时也将更多的使用公交系统;
游客也为有这样一个有趣的换乘中心而通过公交系统前来;
而开车前来购物的人们也将跃跃欲试这里的换乘体验。

换乘改变城市空间, 也改变生活方式。

The multi-exchange centre provides an efficient transfer between cars and different transportations, various urban public space.

For the people working here, they can turn to the public transit just through elevator.
For the residents living here, they can enjoy the urban public spaces while using the public transit.
For the visitors, they can also experience an intereting interchange trip while transferring.
Also for the car users, they can choose different transportations here.

Interchange alters urban space; Interchang alters lifestyle.