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ORIGINAL ARTICLE

Integrating Urban Building Space and Transportation Space to Solve Traffic Congestion

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ABSTRACT Today, with urban function system increasingly complicated, there exist problems which are seriously hindering urban sustainable development in most cities such as traffic jams, constructive destruction, building space separation with traffic space, poor urban space resource utilization and so on. So the article makes a number of integration methods of urban building space and transportation space from the perspective of urban morphology integration. It tries to integrate urban environment with techniques of multidimensional space interludes, cascading, infiltration between building space and traffic space in three-dimensional space coordinates, to achieve the objectives of proper division, solving traffic congestion problems and the establishment of a new dynamic three-dimensional transport system.

KEYWORDS
Urban building space
Urban transportation system
Integration
Traffic congestion

1. Analysis of issues rise

1.1. Reflections on a traffic congestion problem

With the dramatic increase in the number of cars, cars constantly filled the streets, even brought the street into a parking lot, so that the flow rate of urban transportation system is greatly reduced, increased the pressure on road congestion and traffic systems.

On the other hand, China's access road and pedestrian road vehicle parallel construction in most cities, people and vehicles line, a serious impact on city traffic and flow rate, is the common problem of urban transport systems, is an important reason for traffic jams generated.

1.2. Reflections on a building construction issues

First, the city's roads and buildings are an important part of urban transportation system is closely related to [1]. For a long time, the traditional antiquated transportation system supporting the concept of architectural planning and construction, a large number of urban infrastructure investment effect just stay in the street, did not seriously consider the needs of pedestrians and traffic. Commercial road on both sides, catering shops, supermarkets and other street in construction, in particular the size of the hotel, attracting a large number of procurement people, severely damaged the road traffic fluency.

Second, most of the cities to set up regular bus and taxi stop site on population concentration area, near the commercial center of the region's major roads or secondary roads, attracting a large flow of people crossing the road or squeeze disordered motor vehicle lanes impede the normal operation of urban transport systems. Third, the analysis of the current city building mode, we found that the city has become a pile of cement box building a large number of exhibition games [2]: Building a simple line, independently, lack the necessary space for continuous and functional relevance. Urban road or street is the only building links between the media, leading to road traffic increasing population, urban transport load increase. The building itself features a single, and almost no cross traffic, association, or even impede traffic operation. Urban space fragmentation and fragmentation, the lack of facilities for people's lives, causing inconvenience to residents, but also to increasing urban traffic load.

2. Solve traffic congestion problems focus

Consideration Based on the above, we find that traffic patterns and architectural planning and development of our country tradition, is seriously affecting the normal operation of the transportation system. This paper argues that,

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to solve the traffic congestion problem, we must break the inherent mode of thinking, to integrate as the focus of urban spatial morphology, to fully tap the potential of building space to the development of new building construction model, the use of complex, interspersed, laminated and other techniques to make the building space mutual penetration and traffic space, architectural space of urban space and transportation integration of urban traffic diversion system to divert, promote win-win urban transport systems and urban construction, and sustainable development. In order to be studied, this paper concerns new construction model building space and traffic integration named "agglomeration formula High-density construction groups".

3. Integrated approach of urban architectural space and urban transport space

For the current problem of traffic congestion status quo and building construction planning models exist, the paper mainly from the macro and micro perspectives of urban architectural space and traffic space consolidation.

3.1. Macro-integration of urban architectural space and urban transport space

3.1.1. Rational distribution buses, taxis docking site taking into buses, taxi stops the flow of traffic generated and the site attracts amount

The degree of influence and impact on the surrounding road vehicle operation, the paper argues that the site should be rational distribution of the bus station and taxi station - bus stops, taxi stands into the community, into the building, into the commercial center, to achieve "dealers who do not go "The zero distance transfer. Stops should avoid establishing regular bus system in urban population concentration near the central business district and the main road on the way, and the establishment of an integrated public transport system centralized transfer hub station in the above area [3].

3.1.2. Concerned about the impact of commercial door head room dining outlets, supermarkets, hotspots on transportation system

Maximize the removal of the current in the city primary and secondary roads on both sides of the door of the first room and dining outlets, eliminating urban road on both sides of the door of the first non-commercial areas and catering rooms disorder construction, and should encourage business door head room to the residential area of development, let slip on both sides.

The door of the first house in the direction toward the departing city road open, to avoid disorderly crowd at the roadside excessive concentration. Adhere to the central area of the city supermarkets, hotspots moved to the edge of the city, in order to avoid excessive centralization of procurement people and vehicles in the city.

3.1.3. For pedestrians, bicycles, motor vehicles and other transportation road network system reasonable diversion

On pavements, non-motorized vehicles and vehicle Road system, in accordance with humane, reasonable diversion, the principle of the separation of planning and construction firm, to reduce the flow of disorderly flow, forming various modes of operation clear division of labor, linking close, convenient transfer efficient transport network. On the one hand full advantage of the city square, urban transport nodes, using three-dimensional transport interchanges attract and guide the flow of people into buildings. On the other hand, considering the square, platforms, bridges, roof garden, aerial platforms and other system settings and pedestrian walk together constitute the leisure space, natural triage and guide people to reach the need to go. Specific forms of traffic diversion can be divided into: traffic diversion and space plane in the traffic diversion. Traffic diversion on a plane that is external access motorized transport buildings, interior passage pedestrian traffic system is completely independent of other traffic flow, bike or motor vehicle. Space traffic diversion that is the organization of the different nature of the traffic flow to different planes perpendicular direction to go, so as not to interfere with each other and increase road capacity. Taking into account the construction costs, the paper advocates for pedestrian traffic mainly three-dimensional design, and not advocate large-scale construction viaduct. Walk traffic dimensional main methods are set up aerial trails, underground Pedestrian Street, across the street tunnels, etc., can effectively reduce road traffic population, greatly improve the operating efficiency of the vehicle.

3.2. Microscopic integration of urban architectural space and traffic space

(1) City motor traffic through residential buildings urban area urban transport system in the building is a very important node. The idea of integration model, the basic principle is to minimize the travel rate of urban residents and the excessive use of urban roads. Within the community-building fully functional, service facilities gathering high-density population structures, scientific layout and construction of accessible pedestrian corridor air system. Within buildings provide residents with the best possible services and facilities, such as the strong dependence of urban residents living small supermarket, commercial shops, bank teller machines, medical clinic, children's kindergartens and other commercial and service facilities located directly in the building substrate (typically 1 to 5 layers) within the residential areas located in the "city of the second floor," the roof of the building base, reduce the resident population out daily occupancy vehicle traffic roads. Considering pedestrians off the train, efficient bus and vehicular traffic convenience operation, the buses, taxis, and other docking stations and switching stations concentrated

disposed in the body instead of building roads, increases alighting zone and residential section Accessibility convenience and vehicle services. Specifically: analysis of different travelers stop mode, the functional organization of the rational distribution of traffic space, set the appropriate way to meet, so that passengers in a continuous rhythm inbound, outbound, to meet the different needs of travelers, and strive to achieve "zero distance transfer". Wherein, bus, taxi transfer station Harbour Station using desktop design, layout mode upper part of the taxi transfer station, the lower part of the bus transfer station. Different trips bus departure, waiting station is fixed, guided by the guide visitors through the proper selection marker trips and waiting platform, ride; similarly, the taxi ride side of the grid area Pro, provides for passengers to queue up ride and order conditions, to ensure the safety and quick car running system.

Another feature of this building complex is on the roof of the building substrate (for single building between residents of) reserved green, entertainment, fitness, exchange space, and built the "roof park" to help residents achieve "downstairs the park will be able to, "the desire to make the building a true sense of an urban oasis for residents to escape the real reinforced concrete jungle, people achieve a healthy ecosystem, architecture and natural environment between.

(2) Business district and urban transport systems integration walking downtown is one of the urban transport system in the most active nodes. Gather high-density commercial building space should be designed to be continuous, open, mobile, build a continuous flow of pedestrian trails system in the gathering room style commercial buildings and building groups, improving accessibility and extensibility architecture walking space. In the passage between building and building and building, the establishment of shopping pedestrian street; to ensure the continuous, accessible, user-friendly, accessibility of different channels, creating a relaxing environment for walking and shopping environment, while providing environmentally friendly means of transport (such as escalators, sightseeing elevator, etc.). Thus, the construction groups attracted both maximize procurement flow; improve business efficiency, but also to minimize the flow of motorized traffic pressure foot operation.

In order to improve operational efficiency and commercial building floor area ratio, reflecting the humane care for employees, but also in the body of the top group of buildings plus built single building, commercial construction increased body entertainment, leisure, living, dining and other functions.

(3) Integration rail station and construction groups and rail transit station joint construction of residential, commercial, having extremely excellent transport characteristics, urban residents will be welcome. And in track cross through the upper part of the station building houses will reach a high volume rate and land utilization.

(4) Integration hilly area transportation systems and building groups to maintain the original topography of this method, the flow is characterized by the construction of ecological principles of the Code Type performance. It uses the mountain gap with the ground, build a layer of overhead space construction groups run space as motorized transport, cross bridge setting can guarantee the normal operation of a reasonable diversion systems and people walking, cars.

(5) Air Trail Design a complete trail system to reduce dependence on the downtown area of the car, and increase the number of people to the city center, promotion of humanistic scale and strengthen the urban environment, to create more retail activities, but also help to improve air quality [4]. In the pedestrian walkway as the backbone of urban public space system means that the city's pedestrian facilities is no longer just a single element (such as overpasses or tunnels independently set, etc.) arrangement, but to constitute each successive linear relationship, and closely integrated with the city public buildings, so as to form an inclusive city floating population-related activities convenient and lively space network [5]. This point to the importance of the establishment of two words in a row, unimpeded air trails in the city.

Air trail design patterns in addition to the single-channel linear mode, we can refer Atelier Hapsitus pedestrian bridge reticular pattern, this mode is full of levels, varied, optional strong, not only can increase the number of traffic trail and traffic efficiency, but also increase access fun, very worth learning from. However, this design has a drawback, it is not shelter, in the promotion of the application process, suggested adding occlusion ceiling to improve amenity.

4. Conclusion

The era of the 21st century global city, Chinese cities are to achieve sustainable development, to solve the traffic congestion problem is urgent. Urban transport system includes not only the car, the road, but also closely linked with the construction of urban construction, most building mode current Chinese cities has hindered the normal operation of the transport system. By analyzing the current situation and problems of traffic congestion buildings building model there, breaking the inherent model to integrate as the focus of urban spatial morphology, in the "people first" principle, from the macro and micro perspectives put forward some urban architectural space and integrated approach to transport space. The integrated approach, taking into account the "human" convenience and mobility "vehicle" flow resistance, provide more convenient for pedestrians, basic security, humane channel on, and strive to minimize road vehicle traffic on the population to to ensure smooth operation of the motor vehicle, in order to achieve efficient operation of the whole urban transport system.

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