Research on Urban Shared Traffic Space Landscape Planning and Design in the Construction of "Smart City"

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Keywords: smart city, shared transportation, landscape, planning and design

Abstract: As an important way of travel in the city now, shared transport is also an important part of smart city construction. Shared transport will become the main transport mode of the future city. The landscape planning and design of the shared traffic space is studied from the necessity of the research site, the principles of the landscape planning and design of the shared traffic space, and the content of the landscape planning and design of the urban shared traffic space, providing a reference for the landscape planning and design of the shared traffic space in the future cities.

1. Introduction

"Smart City" was widely carried out in the world at the end of the 20th century, aiming at promoting the development concept of sustainable development of cities. Smart City is one of the trends of future urban development, and shared transportation in smart cities is also an important part of it. In the process of development, better and more reasonable landscape planning and design is an important research direction.

The shared traffic space in the development of smart cities is an important part of it. This paper studies the landscape planning and design of the shared traffic space, and expounds the principles and contents of the planning and design of the shared traffic space.

2. The necessity of landscape planning and design of shared traffic space

In recent years, with the development of the concept of sharing, shared transportation, as a new mode of transportation, has been seen everywhere in our lives. Shared transportation not only achieves the convenience and comfort of private cars, but also reduces the dependence of residents on private cars, improves the utilization rate of urban public transport, reduces the number of urban travel tools, and alleviates traffic congestion. Therefore, the transportation mode based on shared transportation will be the development trend of social transportation in the future.

At the same time, "smart city", as a new concept of development under the modern network technology, can effectively promote the new trend of smart city development by applying a series of new technologies such as big data, the Internet of Things, and sensor technology to all sectors of society. However, the corresponding urban shared traffic space landscape planning and design has not been improved, and there are certain problems. Shared traffic space is the basis of shared traffic. The planning and design of shared traffic space landscape will not only affect the urban environment and urban pattern, but also affect the travel efficiency of urban residents and the social status of shared traffic.

3. Planning and design principles of shared traffic space landscape

3.1. Build intelligent shared transportation space

When planning and designing the landscape of shared traffic space, we should first consider the concept of smart city, which has four characteristics: comprehensive perception, full integration, collaborative operation and incentive innovation, and is also the four major components of the intelligent system of traffic space. As a public facility and landscape sketch of the city, with the intelligent development of society, the function, service and technology requirements of the shared

transportation space are increasingly high.

With the progress and development of information technology, people have gradually overcome their dependence on the natural environment. While modern technology promotes the development of human civilization, it also makes designers gradually ignore the importance of nature in space design. The loss of the ecological environment has resulted in a series of urban problems, such as environmental pollution, cultural loss, energy depletion and so on. Therefore, the design of shared traffic space can not only rely on technology, but return to the essence of landscape design and integrate the artificial environment design into the natural environment.

The society has increased the conservation and reuse of energy. Shared transportation space accounts for a large proportion of the urban landscape, and many materials and energy are needed. Therefore, the selection of materials and energy should focus on high utilization and greening.

3.2. Build a shared transportation space with humanistic care

The shared traffic space is different from the traditional traffic space. The shared traffic space should not only meet the parking of the shared traffic, but also facilitate the transfer and access of passengers. In the design, the requirements of human body scale should be considered. The people in the urban traffic landscape include dynamic scale, static scale and psychological scale. People's static scale refers to the state of people when they are still, people's dynamic scale refers to the spatial scale that people feel when they are moving, and people's psychological scale refers to people's psychological scale of real space. The setting of pedestrian activity space should be comprehensively analyzed from the three dimensions of people's dynamic, static and psychological, so that the urban traffic space can be combined with the surrounding space on the premise of meeting the needs of people's travel, and at the same time meet the needs of stay, sightseeing, rest, activities and communication, so that the urban traffic landscape can be humanized.

3.3. Build a shared transportation space with regional characteristics

As an important part of the urban space landscape, the design of shared traffic space expresses the unique customs, history and culture of the city through different architectural forms, space organization forms, and even the treatment of details and color changes. When carrying out landscape design, we should put people first and fully consider people's vision and psychological feelings. First of all, the landscape style of shared traffic space should be unified with the adjacent buildings and streets. Secondly, from the perspective of local unique cultural customs, the design should incorporate local unique patterns and colors. Third, learn from the local unique construction process and engineering technology. Fourth, the selection of landscape materials with regional characteristics and local materials can not only reflect the local natural attributes, but also have regional cultural characteristics.

3.4. Build a shared traffic space with elastic characteristics

The characteristics of elasticity include ecological elasticity, engineering elasticity, economic elasticity and social elasticity. The shared traffic space is also a part of the urban environment. In the design, the shared traffic space landscape planning and design are used to build a shared traffic elastic space system.

4. Planning and design content of urban shared traffic space landscape

On the basis of establishing the layout of shared traffic space, the design of shared traffic space environment studies the spatial composition, traffic flow lines and landscape elements of different types of shared traffic space nodes, and puts forward corresponding design strategies to guide the construction of shared traffic space environment. According to the theory of landscape ecology, the environment of shared traffic space is related to the environment of shared traffic space, the people served and the scale of space. The environmental design is divided into macro and micro aspects. Firstly, the landscape elements such as pavement, ancillary facilities and greening of shared traffic space are discussed at the micro level, and the overall spatial environmental structure and traffic

flow line of shared traffic are studied at the macro level. There are many types of shared transport space. Taking the shared transport site space as an example, this paper puts forward the planning and design strategy of urban shared transport site space landscape, laying a foundation for the design of shared transport space landscape.

4.1. Pavement design

High-strength hard pavement, such as asphalt and asphalt, shall be used for the pavement of the aboveground traffic stations. According to the natural environment such as climate and temperature, the selection of pavement materials in the early stage and the maintenance of the ground in the later stage shall be considered. The entrance materials of shared bicycle can be concrete bricks, granite, bluestone slabs and brick cut blocks, etc., to ensure its anti-skid and water permeability.

Ecological pavement shall be selected as far as possible for parking space. The load of ecological grass planting floor is 910kg-4500kg for parking space in general cities. Different pavement can be used according to the different usage rate and parking intensity. In low frequency parking space, the pavement with lower bearing and wear resistance of lawn grid can be used.

4.2. Plant design

Plant design mainly includes tree species selection and lawn laying. The shared transport station is an open space, which requires a lot of public parking pavement and facilities, such as asphalt and other hard ground materials. At the same time, after the completion of the project, the number of greening maintenance is less, so the trees and turf that are easy to survive should be selected, preferably local trees.

The tree species selection criteria for the northern sharing site are: select deciduous tree species with tall trunk, beautiful tree posture and large crown. Resistance to drought, cold and wind. Trees with strong resistance and pruning resistance. Mainly local tree species. Choose no thorns, flowers and fruits are non-toxic, odorless or irritating. Turf selection criteria: tufted or creeping varieties with low plant height. Easy to breed, resistant to drought, cold and heat. It has strong resistance to drying, shearing, trampling, recovery and regeneration.

4.3. Space design

The shared traffic station space should be fully integrated and coordinated with the urban street image while having its own characteristics. Reasonable sharing of external traffic flow lines of traffic stop space is the premise of boundary space design. The boundary design of the shared traffic station space can use the height difference to realize the distinction of the shared traffic station space, which not only highlights the sense of space, but also facilitates the drainage treatment of the shared traffic station space.

For the treatment of parking space, the terrain treatment can be used to not only reduce the amount of work and save costs, but also form a natural space boundary line. According to local conditions, the combination of terrain, plants and sketches can create a multi-level space landscape and form an ideal parking landscape.

The design of rest space can be divided into macro and micro. The macro aspect refers to the design of the space interface. I share the overall elements of the traffic station space, create different space levels through the handling of the space interface, and design a rhythmic space change. The micro aspect mainly refers to the improvement of the relevant facilities in the rest space and the greening landscape design. Through personalized design and greening of recreational facilities, a harmonious recreational space is formed.

4.4. Design of traffic flow line

The design of space traffic flow line of shared traffic station can be divided into two aspects: vehicle flow line and pedestrian flow line. The space of shared transport stations should preferably be circular. At the same time, in order to prevent the intersection of the access routes of shared trams from causing traffic accidents, the access and parking are set separately to ensure smooth traffic and effective use of space. When designing the non-motor vehicle flow line, first of all, a

continuous route from the entrance to the parking point to the exit should be considered. Secondly, in order to prevent traffic accidents, the non-motor vehicle lane of the traffic flow line should be separated from the motor vehicle flow line.

4.5. Supporting facilities design

The supporting facilities of shared transportation space include many contents, including indication system, rest service facilities, lighting facilities, barrier-free facilities, intelligent entertainment facilities, etc. The utilization rate of urban traffic is closely related to the improvement of public facilities. Therefore, to improve the indicator system, especially in the construction of smart cities, the big data system can be used to design the indicator system with time prompt or train number prompt.

The shape of lighting facilities should not only be combined with the overall environment, but more importantly, it should integrate traditional cultural elements. The lighting in private space or rest space should use warm light source, with the intensity should not be too high. It can also be combined with the seat to form a lighting seat, and the lighting material is mostly LED. Smart lighting should also be considered in the construction of smart cities. The lighting facilities in the shared traffic station space should be managed intelligently through the platform of the shared traffic station space system, and respond intelligently according to the various needs of the shared traffic station space.

Obstacle facilities include barrier free ramps, tactile paving, elevators, Braille recognition, etc. Because the shared transport station space is often built at the junction of urban roads and urban pedestrian areas, the accessibility design of the shared transport station space puts safety first, and the accessibility facilities should be safe and durable, economic and reasonable, and technologically advanced. Baggage ramps and other facilities can be set up in areas where a large amount of baggage needs to be collected, such as railway stations and bus stations.

The landscape planning and design of the shared transport station space starts from the landscape elements of the shared transport station space pavement and plants, and then carries out careful design and research from the space and traffic flow line. Finally, it should be equipped with intelligent supporting facilities to create the shared transport space in the smart city.

5. Conclusion

The traditional transportation mode can no longer meet the needs of urban development and public travel. The high efficiency, comfort, low cost and high utilization of shared transportation will become the main transportation mode in the future. The smooth implementation of the shared transport mode requires the establishment of a new urban transport system and urban transport space - the shared transport system and the shared transport space. Shared transport space is the basis of shared transport development. Through the study of shared traffic space, this paper puts forward the principles of landscape planning and design of shared traffic space, and puts forward the strategies of landscape design.

Shared transport space is not only to meet the access of shared transport, but also a multi-functional urban space based on shared transport services. Therefore, the design of shared traffic space environment should be carried out from pavement design, plant design, space design, traffic flow line design, and supporting facilities design. Through the creation and distribution of landscape elements in the space, as well as the construction of different functional spaces and traffic flow lines, we will jointly create a humanized intelligent and flexible shared traffic space with regional characteristics.

Acknowledgement

The research results of the 2021 scientific research project of Liaoning Provincial Department of Education: urban shared traffic space landscape planning and design research in the construction of "smart city" in the new era (subject number: LJKR0773)

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