Landscape planning and design of tourist highway service area under the background of all-for-one tourism system

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Abstract. Nowadays, service areas are increasingly difficult to meet the demand of high quality services. According to the characteristics of tourist highway service area demand, and analyzed the concept of all-for-one tourism system, the paper expounded the classification of tourist highway service area and key points of layout, summarized the functions and facilities of different service area, put forward the service area of landscape planning and design requirements. It can provide a reference for other tourist highway service area landscape planning and design.

1. Introduction
In the context of all-for-one tourism system, tourism has become an increasingly common form of entertainment, and the existing highway service areas can hardly meet the needs of tourists. The all-for-one tourism system is an inevitable product of China's economic and social development. The all-for-one tourism system is an important measure to solve the problems of overcapacity and industrial transformation and upgrading in China [1]. All-for-one tourism system is the completeness of tourism in space domain, industry domain, factor domain and management domain [2]. All-for-one tourism system should be considered from eight aspects including factor, industry, process, location, space and time, society, department and tourists [3]. The all-for-one tourism system put forward a new direction for tourism industry development, and also provided a new idea for the construction of tourist highway landscape. The service area is the support system of the functional system of tourist highway. Qiu Hailian proposed design principles and procedures of tourist highway service area according to facility size and function of tourism highway roadside recreation service area [4], Wang Haifeng thought that tourist road can be divided into four themes including historical culture, landscape, nature and recreation type. According to the characteristics of different types of tourist highways, the planning and design contents of tourist highway service area are put forward [5]. Based on the deficiency of the existing research and the existing problems, this paper studies the planning and design method of the tourist highway service area.

2. Tourist highway service area classification and layout

2.1. Service area classification
Considering its scale and service capacity, tourist highway service area can be divided into first-level service area, second-level service area and third-level service area. First-level service area is a large comprehensive service area, covering all the tourist highway service content. Second-level service area is a basic service area set up between primary service areas. Third-level service area is mainly set up for tourists' viewing needs along the tourist highway. Third-level service area only provides the most basic tourism services.

2.2. Service area layout

In order to provide tourist services and information services, the first-level service area is usually located at the entrance of the tourist highway. Second-level service area is mainly located at the necessary rest points outside the radiated section of the primary service area. It can also be located at the places where the road branches and topography or spatial functions have changed significantly. Third-level service area is mainly located at the road sections with viewing needs and the landscape nodes of the slow travel system, as shown in figure 1. Considering safety, physiological needs and vehicle replenishment and other factors, the spacing of the highway service area is suggested to be between 50 and 85 km in china [6]. Considering that the tourist highway traffic volume is larger than ordinary roads and the demand such as view, rest, this paper suggests that the interval between tourist highway service areas should be set at a minimum of 50km, which can be extended to 60km in extreme cases.

Figure 1. General layout of service area.

The layout of first-level and second-level service areas is mainly bilaterally separated and one-sided centralized. Because the traffic on both sides does not interfere with each other, the service area of bilaterally separated is suitable for high speed section. The service area of one-sided centralized is concentrated on one side, and the people need to cross the overpass to the other side. For the second-level service area, there are also straddle the main line type, the people can enter it from both sides. Because it is to satisfy meet the needs of viewing and parking, the third-level service area is mainly one-side centralized, as shown in figure 2.
3. Tourist highway service area function classification and facility configuration

According to the concept of all-for-one tourism system, the tourism highway is regarded as a special linear tourism destination, and its service area is the main place for recreational activities, and also undertakes the requirements of improving tourists' recreational activities experience. Therefore, the service area functions include three major functions: self-driving service, information service and recreational service. Self-driving service is the function of tourist highway service area different from service area in scenic spot, and improving self-driving service is the tourism service task of improving the service area. Information service is an important part of displaying and promoting tourist destinations and optimizing tourist feelings in service areas along tourist highways. Recreation service is the basic function of the service area.

For the first-level service area, self-drive service facilities include parking facilities, vehicle supply facilities, vehicle maintenance facilities and self-drive camp; recreation service facilities include featured catering and accommodation services, local featured commodity sales, entertainment places and facilities, leisure plaza; information service facilities are mainly tourist centers. There are many entertainment places and facilities to choose from, such as local culture theme parks, history museums, large entertainment theme parks and so on.

Self-drive service facilities in the secondary service area include parking facilities, vehicle supply facilities, and optional vehicle maintenance facilities. Recreation service facilities include catering services, convenience stores, and rest halls. Information service facilities are mainly tourist information desks.

The self-drive service facilities in the third-level service area are mainly small parking facilities, and bicycle maintenance points can be set according to the situation. Recreational facilities include seats, stalls, viewing facilities, information service facilities are mainly roadside display. The facilities of the three types of service areas are shown in table 1.

| Service area type     | Drive service                        | Recreation services                                      | Information service               |
|-----------------------|--------------------------------------|----------------------------------------------------------|----------------------------------|
| First-level service area | The parking lot<br>Vehicle supplies<br>Vehicle maintenance<br>Self-driving camp<br>The toilet | Special catering and accommodation service<br>Local specialty goods selling<br>Entertainment venues and facilities<br>Leisure square | Visitor center                  |
| Second-level service area | The parking lot<br>Vehicle supplies<br>Vehicle maintenance | Food and beverage service<br>The convenience store<br>Have a rest hall | Visitor information desk         |
4. Planning and design of tourist highway service area

4.1. Self-driving service facilities
Self-driving service facilities include parking lots, vehicle supply stations and self-driving camps. According to the particularity of tourist highway service area, sound insulation measures should be taken between parking area and comprehensive building, and ecological parking lot should be adopted, as shown in figure 3. Vehicle refueling stations are generally located at the exit of the service area, while maintenance stations are generally located at the entrance of the service area. Vehicle refueling stations include not only water and fuel, but also new types of fuel. Self-drive camps can provide accommodation services, life services, recreation and leisure services and tourism information services [8]. The self-drive camp needs to provide basic life, washing, cooking and other services, with recreation facilities, sports and fitness facilities, and the reception center which provides at least 18 hours a day of tourism information, weather, traffic and other services. Since most campsites are not suitable for housing construction on the basis of deep excavation, the overhead pillar foundation can be adopted, and the aggregate camp facilities can be placed on it, as shown in figure 4. Vegetation landscape should be set at the entrance of the self-drive camp. Roadside plants in the camp should choose vegetation with high branches and luxuriant leaves. Low-growing shrubs and small trees that are easy to survive should be selected for vegetation partition in the camp.

![Ecological parking design](image1)

![Tibet Rhanwu lake self-driving camp](image2)

4.2. Recreational facilities
Recreation service facilities include leisure plaza, entertainment facilities, catering and accommodation facilities. Leisure squares are generally divided into distribution space, rest space and living space. Each space is set up separately but not separated from each other, forming a space group that can flow with each other. The separation of people and vehicles in the distribution space should be clearly marked, the distance between the parking space and the road should be paid attention to, and the distance between the living space and the parking lot should not be too far. First, the leisure square needs to carry out the overall layout and composition, and each sub-space scale and landscape elements should be harmonious and unified with the overall image of the whole tourism highway, so that tourists can feel the change of functional space through subtle landscape changes. Entertainment facilities include small entertainment facilities, such as fitness facilities, small children's play facilities, and larger entertainment facilities, such as theme parks, museums, etc., as shown in figure 5. It is the first-level service area of mow valley on the coast highway of ise bay, Japan. Catering and accommodation services should adhere to the principle of a small number of high-quality goods and sufficient quantity of high-quality goods, and provide some excellent catering and accommodation
services with local characteristics and sufficient standardized catering and accommodation quality services, as shown in figure 6.

4.3. Information service facilities
Information service is the vein of the tourist highway service area, the information service carrier of the first-level service area is the tourist center, the information service carrier of the second-level service area is the tourist information desk, and the information service carrier of the third-level service area is the roadside display. The functions of the visitor center are mainly focused on displaying and answering questions, and other functions are auxiliary. Outdoor can display large tourism display platform, outdoor cinema, etc. The indoor functions mainly include information consulting service, hotel ticket booking service, catering booking service, conference tourism service, multimedia display of tourism scenery, etc. The information service involved in the tourism information desk is basically the same as that in the tourist center, but it weakens the display facilities of tourist destinations. The information display signs of roadside mainly introduces the tourism resources and routes along the routes.

5. Conclusions
Based on the concept of all-for-one tourism system, this paper studies the classification and layout, functional classification, facility configuration and landscape planning and design of tourist highway service area, and draws the following conclusions:

- According to the concept of all-for-one tourism system, the tourism highway service area mainly includes functions of self-driving, recreation and information service. According to the size and function of the service area, it can be divided into first-level, second-level and third-level service area. The first-level service area is a comprehensive service area, the second-level service area is a standardized service area, and the third-level service area is a simplified service area. The spacing between primary and secondary service areas should be controlled within 50km, and in extreme cases, it can be relaxed to 60km.
- The first-level service area is located at the entrance of the tourist highway, the second-level service area is located at the change of road environment or the necessary rest point, and the third-level service area is located at the scenic rest point.
- Landscape design of service area can be divided into three parts: self-driving service, recreation service and information service for detailed facility landscape design. Self-driving service facilities include parking lots, vehicle supply stations and self-driving camps. Recreation service facilities include leisure plaza, entertainment facilities, catering and accommodation facilities. According to functional diversity, information service facilities are divided into visitor center, tourist information desk and roadside display.

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