Study on the Construction Technology of Visual Environment in Highway Tourism Service Area

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Abstract. The integrated development of transportation and tourism has become a new trend in the transformation and development of the transportation industry. A series of policies issued from the central government to the local government have put forward corresponding requirements for the integrated development of transportation and tourism, the construction of tourism roads, and the upgrading of highway service facilities. As an important window of highway service for tourism, the construction of tourism service area needs to pay more attention to the spiritual needs of tourists and create a "tourist place" with a strong sense of belonging. In the environmental planning and design of tourism service area, the design concept of "place spirit" is presented, which makes the tourism service area have the dual characteristics of external form and place spirit. In the aspects of environmental coordination, space guidance, service function expansion, visual environment, etc., the construction of space environment of tourism service area is strengthened.

Keywords: Tourist service area; Visual environment; Design theory; Planning strategy.

1. Questions Raised

1.1. The Integration of Transportation and Tourism Has Become a New Trend

Tourism is an important strategic pillar industry of national economy, and transportation is the basic support and prerequisite for the development of tourism. Tourism road is a road with dual functions of transportation and tourism. It is an important content of green road construction and an important carrier to promote the integration of transportation and tourism. In recent years, a series of policies have been issued from the central government to the local government, which put forward corresponding requirements for the integrated development of transportation and tourism, the construction of tourism roads, and the upgrading of highway service facilities. In 2014, the general office of the State Council issued several opinions of the State Council on promoting the reform and development of tourism industry, proposing to improve tourism transportation services, strengthen the construction of tourism infrastructure, and actively develop transportation tourism products. In February 2017, the Ministry of transport and other six ministries and commissions jointly issued several opinions on promoting the integrated development of transportation and tourism, which put forward: vigorously improve the tourism function of expressway service facilities: promote the transformation and upgrading of expressway service area to transportation, ecology, tourism, consumption and other integrated functional service areas, build a number of characteristic theme service areas; strengthen the...
connection with important scenery. For the landscape construction of expressway service area, the service area adjacent to the scenic spot can consider the innovative construction mode of joint scenic spot.

1.2. It is Imperative to Improve the Service Quality of Tourism in Service Area

One of the goals of the construction of a powerful transportation country is to strive to build people's satisfactory transportation, provide more safe, convenient, efficient, green and economic transportation services, and enhance people's sense of gain, happiness and security. To meet people's diversified travel needs. In October 2017, the notice on organizing the construction of tourism highway demonstration project issued by the general office of the Ministry of transport proposed that, through careful design, improvement of traffic safety facilities, reasonable increase of service facilities, and sharing of multiple information services, we should create a high-quality route for highway tourism, stimulate and release new demand for tourism consumption, and serve the diversification of mass tourism and leisure. Need. With the arrival of the era of mass tourism, tourism has been transformed from traditional sightseeing to leisure vacation. Tourism is no longer a simple view of the beautiful scenery, but a feeling. Tourists need to get happiness and pleasure through tourism. The change of tourists' needs is mainly reflected in their inner perception and belonging. In such a deep-seated experience, the construction of tourist service area needs to pay more attention to the spiritual needs of tourists and create a "tourist place" with a strong sense of belonging. This is exactly the characteristic of "place spirit". Based on this, the exploration and application of "place spirit" in the environment construction of tourist service area is very important and urgent.

2. Design Concept of Tourist Service Area

2.1. Comprehensive Optimization

Establish a comprehensive and optimized design evaluation system, adhere to the principle of design creation and improvement, strengthen the overall design, and carry out the professional design of route, subgrade and pavement, bridge and culvert, tunnel, interchange, traffic engineering and facilities along the line, environmental protection landscape, etc. in an overall and comprehensive way. Through the optimization design, the optimal layout of the horizontal and vertical sections of the route, the intensification of subgrade protection and drainage, the environmental protection, the safety and durability of bridge and tunnel structures, the optimal layout of interchange, the people-oriented layout of traffic engineering and facilities along the route, and the natural coordination of landscape greening are achieved. Through comprehensive optimization design, the harmony between the road and the nature, humanity and society along the line can be achieved, and the design quality can be improved, the difficulty of project implementation can be reduced, and the project cost can be saved through fine design.

2.2. Flexibility

On the basis of fully mastering the existing technical standards and specifications, ensuring the safety and function, and at the same time, through reasonable selection of standards and flexible use of technical indicators, the coordination between the road and the natural and human environment along the line is maintained to the maximum extent. It can reduce the construction difficulty, save the project cost and benefit the management and maintenance in the later stage by arranging different subgrade cross-section forms, selecting appropriate protection forms,
selecting reasonable bridge pier and abutment and tunnel portal forms in combination with the terrain, and changing interchange forms under the site conditions in mountainous areas.

2.3. Tolerance
Establish the tolerance design concept of "people-oriented, prevention, fault tolerance and error correction", and systematically improve the safety of highway driving. The design of operation speed is adopted to reduce the allowable speed difference of adjacent road sections, achieve the continuous equilibrium of the alignment, and set reasonable curve elements and superelevation according to the operation speed, so as to comprehensively improve the safety of the alignment; improve the safety of the road by setting reasonable roadside clearance, such as using low embankment, wide platform, slow slope, etc.; set tolerant roadside structures, such as roadside vibration belt and protection. Fence, buffer pad, sign post which can be disassembled to dissipate energy, etc. provide safety protection for vehicles invading the roadside.

2.4. People Oriented
The planning and construction of tourist service area follows the leading thought of people-oriented, embodies humanization in the details of functional construction, meets the service needs of different groups, provides exquisite and comfortable facilities and service environment, and then improves users' viewing degree and use feeling, enhances users' sense of existence, acquisition and happiness, and gives full play to the service of tourist service area. The economic, social and environmental benefits of travel.

2.5. Regional Context
Compared with the general service area, the planning and design of the tourism service area needs to be more closely combined with the local elements such as nature, ecology, folk custom and culture. In particular, the tourism service area located near the characteristic scenic area should pay more attention to the coordination between the service area and the surrounding environment. Let the natural style, historical context and use function echo each other, reflect the local folk customs through modern functional facilities, and improve the environmental quality of the service area by refining the essence of nature.

3. Spiritual Connotation of Places in Tourist Service Area
Tourism resources are the unique resources of a region, including natural features and human customs, which are the essential characteristics of a region different from other regions. The service area of tourism highway just serves tourists. It provides users with unique and intimate tourism services by means of perfect facilities functions, special environmental atmosphere, comfortable visual experience and high-quality travel services. Line experience. Through shaping the unique atmosphere of the service area, users' memory of the tourist road and a place will be strengthened, so as to enhance their sense of identity and belonging, and meet the material and spiritual needs of tourism travel.

The tourism service area is mainly for the vehicles and people who want to travel for tourism. The surrounding natural or cultural landscape conditions of the service area are good, and the tourism resources are rich. Based on the basic functions of the service area, the tourist service area should provide more diversified and targeted supporting services for tourist vehicles and people. According to the form of existence and expression, the environment of highway service area can be divided into entity form and place spirit. Among them, the entity form includes visible parts such as building facilities, building components and shapes, crafts, colors, etc. After the completion of the physical form of the building, the space that can be used by workers
will be formed, accompanied by the activities of people in the space, resulting in the spirit of place (Figure 1).

![Figure 1. Composition of tourist service area.](image)

4. Planning Strategy of Tourist Service Area Contextual Characteristics

Regional context is the sublimation of regional natural environment and human environment. Context integration of service area landscape has become an important content of tourism service area construction. The planning of tourist service area should pay attention to the regional context, integrate the local architectural style, art works, living utensils, ancient cultural relics, academic achievements and other historical and cultural elements, on this basis, pay attention to the application of new technology and new materials to achieve the unity of the sense of the times and the sense of history.

For example, Yunnan Dali high speed architectural design imitates the local architectural style symbols, colors, etc., uses modern architectural processing techniques, forms the overall effect of light structure and unique modeling, and highlights the local regional characteristics (Figure 2).

![Figure 2. Regional characteristic architectural design of Yunnan Dali Expressway.](image)

4.1. Space Guidance

Spatial guidance element is an important means of traffic organization and guidance in service area, which determines the user's identification time, awareness and service level of space. At the same time, the characteristic space guiding element is also a beautiful scenery of the tourist
service area. The traffic and tourism signs in the tourism service area mainly include: characteristic sign system, scientific guidance sign, safety service sign, cultural interpretation sign, etc. In the planning and design, the signs at the main entrances and exits, passageways and main intersections of the site shall be set, and the form, color, size and materials of the signs shall be carefully considered to reflect the regional customs. For example, Guizhou Chishui River Valley tourism highway has set up many personalized rest areas and post stations along the slow travel system, and has set up supporting signs that adapt to the environment and scenic area culture along the line (Figure 3).

![Figure 3. Rest area and post station identification system of Tourism Road in Chishui River Valley, Guizhou Province.](image)

4.2. **Tourism Service Function**

In addition to the basic functions of general expressway service area, tourism service area should also have more humanistic and diversified derivative functions to meet the diversified needs of tourists, including comprehensive service, transportation distribution, featured catering, accommodation facilities, leisure and tourism, cultural experience, sports and entertainment, green landscape space, etc., so as to form a complete tourism service area. Construct and perfect supporting facilities to meet the travel needs of users. For example, Chongqing cold water service area's eco-tourism self driving camp integrates eco-tourism, camping, photography, sports, campfire, barbecue and other leisure projects. It has comprehensive reception service area, landscape leisure area, Forest Resort, RV camping area and outdoor sports area and other different functional blocks, supporting wooden house, RV, steel frame phantom ball room, container room, North European membrane structure. Tents and other accommodation facilities and professional service teams can meet the diverse needs of group accommodation, RV camping, leisure and entertainment tourists. (Figure 4).
4.3. **Visual Environment**

The visual environment of the tourist service area tends to show the regional and contemporary features, and give consideration to the viewing and enhance the visual comfort. Therefore, in the planning and design, it is necessary to create a pleasant environment atmosphere by means of blending, borrowing and creating scenery. At the same time, in order to create a good aesthetic environment, it is necessary to cover the bad factors in the visual field and reduce the interference to the visual quality, including glare, smoke, dust, chaotic facilities or light and everything else that will cause users to be bored. Through fine design, fine construction and fine management, it is necessary to create a pleasant service area environment space.

For example, the environmental planning and design of Yayao service area of Guangdong Fokai Expressway well integrates the local Confucian culture, creates a comfortable courtyard landscape through local plant materials, and selects the landscape stone inscription to set off the welcome atmosphere at the entrance of the service area (Figure 5).

![Figure 5. Entrance landmark landscape of Yayao service area of Fokai Expressway.](image)
upgrading of highway transportation industry, improving the quality and efficiency, and constantly improving the service quality of highway. The theory of place spirit is the best theoretical interpretation of the construction of the space environment of the highway tourism service area. It regards people, service area and environment as a whole, discusses and promotes the exchange and integration of the three, so that the tourism service area has the dual characteristics of the external form and place spirit, and creates the environment space of the service area with distinctive features, perfect facilities, pleasant environment and thoughtful service. Greatly enhance the user's sense of identity and satisfaction, make the service area become a new tourism destination, and explore a new path for transportation to serve tourism and promote the integrated development of transportation and tourism.

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