Chapter 1  Project Background  2
1.1 Changxing County Profile  2
1.2 Rapid Rising of Tourist Industry  2
1.3 Traffic in County Territory to be Improved Greatly  4

Chapter 2  Project Orientation and Design Concept  5
2.1 Current Condition Analysis  5
2.2 Basic Functions of Project  8
2.3 Project Orientation ——1st Scenic Road around Taihu Lake  9
2.4 Design Concept ——Separation of Scenic Function and Transportation Function  12
2.5 Comparison of Two Plans  13

Chapter 3  Linearis of Binhu Scenic Grand Road  15
3.1 References of Designed Road Linearis  15
3.2 Road Linearis and Demonstration  19
3.3 Bicycle Path  25
3.4 Road Section  26
3.5 Bridges  27
3.6 Ecologic Road  28

Chapter 4  Function Nodes and Supporting Facilities  29
4.1 Function of Main Nodes  29
4.2 Node 1: Jiapu  30
4.3 Node 2: Chendu Port  40
4.4 Node 3: Xintang  47
4.5 Node 4: Yangjiapu  55
4.6 Node 5: Shibeitou  62
4.7 Node 6: Tuying  69
4.8 Tourist Facilities  74
4.9 Infrastructure  74
5.1 Subarea Control 76
5.2 Control of Remained Driveway 78
5.3 Road Junction Control 79
5.4 Vehicle Speed Control 81
5.4 Treatment of Special Facilities 81
5.5 Water Quality Control 83
5.6 Architectural Style Control on Both Sides of Road 83
5.7 Lighting Control 84
5.8 Building Materials and Plants 84

Chapter 6 Development of Key Nodes 87
6.1 Growth Management and Node Type Development 87
6.2 Jiapu 89
6.3 Xintang 91
6.4 Tuying 94

Chapter 7 Management and Operation of Binhu Scenic Grand Road 96
The coastwise area of Taihu Lake in Changxing County Zhejiang Province, hasn’t been designedly developed yet. According to the direction of provincial Party committee and provincial government, county Party committee and county provincial government decide to build up the Binhu Scenic Grand Road of South Taihu Lake to promote development of urban & rural economy and tourism while improve traffic status of lakeshore area as well.

In January, 2007, Changxing county government consigned American Planning Association (APA) to carry out the planning and design of this project.

As one of the planning industrial institutions possessed the largest scope and longest history, APA dedicates itself to communication of planning ideas, experiences and methods between China and USA in order to give its contribution for building harmonious society in China over a long period of time. In this project, we tried to plan and design the Binhu Scenic Grand Road of South Taihu Lake in Changxing County into a real scenic grand road in accordance with international standards by introducing the design concept of American scenic grand road. This project has already been carried out for five months; with the joint effort of Chinese and American experts in project group and positive cooperation of Changxing county government, after several researches, communications and site surveys, we composed this planning project text. This text is only the intermediate outcome of the lakeshore landscape avenue of South Taihu Lake design; on the basis of which, APA will deepen further and complete design development task of the project required by the contract. It shall be an honor for us if this outcome can be approbated by Chinese government and public then can be brought into effect or can be extended in similar project in the future!
Chapter 1  Project Background

1.1  Changxing County Overview

Located in northeast part of Zhejiang Province in China where is east to Taihu Lake and west to Tianmu Mountains with an area of 1430 km covered, Changxing County is the gateway for linking Jiangsu, Zhejiang and Anhui Provinces. At present, the number of total permanent residents in Changxing County is 616000 (Figure 1.1).

Changxing County who is the 56th in Top 100 of national integration strength counties belongs to economical developed county in China. In 2006, gross domestic product (GDP) of the county achieved RMB 16.26 billion yuan, 15.2% growth of the last year; per capital of GDP achieved RMB 26331 yuan, 15.6% growth of the last year; the total financial revenue achieved RMB 2.201 billion yuan, 25.7% growth of the last year.

1.2  Rapid Rise of Tourism Industry

Advantaged tourism resources possessed by Changxing County mainly include:

- Natural scenery. Changxing locates in junction area of Tianmu Mountains and Taihu Lake water system, possesses changeable and complicated topography with mountain and water reflecting each other around which presents Jiang Nan scene conspicuously; furthermore, it also possesses plentiful nature resources which are famous for a long period like “the four treasures of Changxing” (ginkgo, Kigelia, greengage and chestnut) and “the four rarities of Chengxin” (whitebait, white shrimp, long-tailed anchory and live fresh water crab). (Figure 1.2)

- Relics of paleontology. Because limestone of Changxing recorded the geologic catastrophe that 95% species in earth were annihilated due to impacts of celestial bodies in 250 million years before, it was offered with sign of “Gold Nail” by International Geology Institute. Moreover, there also are 10 miles Ginkgo Corridor in Xiaoou Badu, nature reserve of Chinese alligator in Yin Jibian and other landscapes.

Fig. 1.1 Changxing County Location

Fig. 1.2 Changxing County Topography
Accumulation of historical humanism. The history of Changxing can be traced back to the Spring and Autumn Period. During 2500 years, numerous historic characters left their affectation and peak of poetic perfection in Changxing. There are “Chen Ba xian former residence” of Chenwu Emperor in Southern Dynasty; book of Tea composed by Lu Yu, the Tea saint in Tang Dynasty; Cliffside Carvings of Tang and Song Dynasty; Stories of Gui Youguan and Wu Chengen, the famous writers of Ming Dynasty; Su zhe military area former site of New Fourth Army in war period of resistance against Japan and others. All of those are valuable cultural heritages. Among the people, techniques like “ceramic tea pot” and “dragon made by hundred of leaves” are inherited till now. (Figure 1.3)

Advantage of geographic location. Seeing from the geographic location, Changxing locates in the middle area of tour distributing centre or destination. Shanghai is on the east of Changxing, Suzhou and Wuxi are on the north, Nanjing is on the northwest, Huangshan is on the southwest and Hangzhou is on the south, furthermore, all of the cities above cost no more than three hours trips to Changxing. These geographic resources described above will offer the possibility for Changxing to become a regional tour destination in the near future. In recent years, rapid rising of tourism industry has already become a noticeable spot in economic development of Changxing.

<table>
<thead>
<tr>
<th>Year</th>
<th>Gross Domestic Product (GDP)</th>
<th>Gross Domestic Income of Tourism</th>
<th>Received Tourist Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Value(RMB) 100 million yuan</td>
<td>Growth Rate (%)</td>
<td>Total Value(RMB) 100 million yuan</td>
</tr>
<tr>
<td>2004</td>
<td>129.3</td>
<td>18.3</td>
<td>2.1</td>
</tr>
<tr>
<td>2005</td>
<td>135.1</td>
<td>15</td>
<td>7.1</td>
</tr>
<tr>
<td>2006</td>
<td>167.8</td>
<td>15.2</td>
<td>8.7</td>
</tr>
</tbody>
</table>

In the table above, GDP of Changxing is calculated as comparable price value and gross income of tourism is calculated as current price value. Although there are some incomparable factors, the values can still show the great increasing tendency of tourism. Value added by tourism in GDP of Changxing is estimated as 0.7% in 2003, and increasing to nearly 3% in 2006.

Figure 1.3 Changxing Tourism Resources
1.3 Traffic in County Territory to be Improved Greatly

During the period of the Eleventh Five-Year Development Guidelines, infrastructure constructions of Changxing like transportation and communication will cost the total investment of RMB 7.37 billion yuan including RMB 6.37 billion yuan for highway, RMB 670 million yuan for sea-route, RMB 70 million yuan for port, RMB 220 million yuan for depot and RMB 40 million yuan for informatization construction.

At present, important traffic projects which have been completed or are under construction or are planned to be constructed in Changxing include:

- Railways, the SN-trend Changxing-Xinyi Line, EW-trend Xuanzhou-Hangzhou Line, and the freight line from Hangzhou to Niutou Mountain are already open to traffic.
- Highways, the SN-trend Hangzhou-Nanjing Line, EW-trend Shanghai-Jiangsu-Zhejiang-Anhui Line (Shanghai-Hefei), and the planned Hangzhou-Jiaqing Line, etc.
- High-grade Highways, the SN-trend National Highway 104 (Beijing-Fuzhou) and the EW-trend National Highway 318 (Shanghai-Lhasa), etc.
- As a component part of intercity traffic in Yangtze River Delta Area, Beijing-Hangzhou Express-Railway will be constructed very soon.

Furthermore, distance between Changxing and four international airports including Pudong, Hongqiao, Xiaoshan and Lukou or three international ports including Shanghai, Ningbo and Zhapu will only cost two or three hours trip.

With deepening construction of dense multilayered traffic facilities, area of Changxing and Huzhou is gradually becoming an important traffic hinge in junction part of Zhejiang, Anhui and Jiangsu. (Figure 1.4)

Together with numerous improved roadways of Changxing County, these main traffic lines will form a tridimensional traffic net system which can link inside and outside and join different villages. According to statistic in 2005, passenger traffic volume of Changxing achieved 11.8 million person-times including 0.81 million person-times for railway, 10.96 million person-times for highway and 30000 man-times for waterway. After completion of the whole traffic system, transferability within or beyond the borders of Changxing can be improved sharply and passenger flow volume also may increase greatly which will provide external conditions for further development of tourism.

Fig. 1.4 Traffic Map of Changxing County
**Project Location**

The South Taihu Lakeshore Scenic Road is located inside the Circum-Taihu Lake Development Belt, Changxing County. The land area of Changxing Circum-Taihu Lake Development Belt is 160 km², where the core block is 45 km². Water area and total water front of Taihu Lake are 200 km² and 34 km respective (Fig. 2.1).

This area has three towns and 16 administrative villages with a population of almost 50,000 in total. Transportation from towns to towns basically depends on the earth roads and waterways. Traffic system still needs to be completed. According to the Layout Planning of Changxing County Territory, the natural villages inside this area will be integrated to form several new peasant villages (Fig. 2.2).

---

**Fig. 2.1** Changxing Circum-Taihu Lake Development Belt

**Fig. 2.2** Natural Village Distribution Map
With the approval of entrusting party, this foreshaid mileage was decided not to be included within design range. Therefore, the present design range is modified as: Start from Jiafu Town in the North, and end in Tuying, Hongqiao Town in the South with a total distance of 25 km (Fig. 2.3).
**Landscape**

Different from other places of circum-Taihu Lake area that have been developed in great force, this area generally still keeps the high-quality originally ecological landscapes, which is one of the virgin lands of ecological culture maintained in the whole Taihu Lakeshore. The magnificent mountains as well as extensive waterscape make this area more village and garden alike. Mist and sails are seen faraway above Taihu Lake; the deep and serene valley nearby and the sound of birds are seen and heard from time to time. Channels are densely distributed along the lake bank. The circumambient villages, interlacing fields, and luxuriantly green forests compose an exquisite picture (Fig. 2.4).

Based on over one-year working experience in Changxing, we have full understanding of the potential tourism market and commercial value of Circum-Taihu Lake Development Belt. The key point at present is to integrate and connect the unique source advantages through planned development to turn them into real tourism products, and drive rapid development of peripheral area. Our guiding ideology is to describe and express the ecological and cultural landscapes along the lakeshore by the extension of one road, making the future tourists feel the same way on this road as we do today.

**Existing Roads**

The planned lakeshore scenic road goes through Jiapu Town in the North, which is the juncture of Jiangsu Province and Zhejiang Province. At present, Hangzhou-Nanjing Highway and National Highway 104 go through from North to South. Both highways are designed to be bidirectional four-lane highways and traffic arteries (Fig. 2.5).

Tuying, the southern end of the planned lakeshore scenic road is the juncture of Changxing County and Huzhou City. The Taihu Road starting from Huzhou branches off here that link Lichen Road and Lakeshore Road respectively. At present, this section of Taihu Lake Road is two-lane road constructed at the foot of the mountain and along Taihu Lake. There have Taihu Lake Villa established on the slope and an amusement park at one side of the lake bank. It is obvious that the Taihu Lake Road undertakes general transportation at one hand, and the delivery of tourism vehicles and tourism services on the other hand (Fig. 2.6).
According to the requirement of “Unification of Bank and Road” by the People’s Government of Zhejiang Province, the determined site selection of lakeshore scenic road is located on the bank of Taihu Lake. There is an about 5 m wide road on the top of the bank, providing the convenience of traffic for transit vehicles and villagers’ vehicles. Therefore, the current lake bank road mainly implements the functions of flood control and general transportation (Fig. 2.7).

Huzhou Government and Changxing Government have already drafted the schemes of construction the lakeshore scenic road respectively. In general, the common ground of these two schemes refers to determine the functions of scenic road combining with traffic artery on one hand, and determine the road as a bidirectional four-lane road with large throughout capacity on the other hand.

According to above analysis, the lakeshore scenic road must satisfy four basic functions when it’s under planning.

Firstly, tourism scenery function. As a scenic road, it has to serve the tourism on one hand, especially undertakes the throughout traffic of tourism vehicles and tourists; on the other hand, it has to become the component of tourism object for tourists to appreciate the landscape and enjoy the leisure while traveling or staying.

Secondly, general transportation function is mainly convenient for the production and living traffic for villagers living along the lake, as well as for part of transit vehicles.

Thirdly, special function is to further extend and expand the tourism scenery function. For example, use the road for marathons and road cycling, as well as consider some sections of the road as the spot for folk and cultural festival celebration, etc.

Fourthly, flood control function. When implementing the “Unification of Bank and Road”, the design and construction of road must be strictly in compliance with flood control regulations.

This scenic road is also the economic growth axis of the Circum-Taihu Lake Development Belt, which will effectively drive the deep development of areas along the lake, and actively affect the modernization construction of Changxing.
What is “Scenic Road”?

There is no “Scenic Road” category and relevant regulations and standards in the road traffic design and construction in China. Therefore, we can only use the ready-made experience of foreign countries for reference to plan and design the lakeshore scenic road (Fig. 2.8).

In America, the precondition of one scenic road is that it must go through one or several natural or cultural scenic areas, or it doesn’t possess the basic condition to become a scenic road. However, not all roads that go through scenic areas can be called the “Scenic Road”. The road must conform to the factor requirement of “Scenic Road” with respect to the planning, design and engineering.

The so-called scenic road shall be composed by the following factors:

—Consider the description and representation of natural and cultural landscapes that the road goes through as main objective;

—Convenient accessibility for tourists to take part in the beautiful nature and satisfy their sightseeing demands.

—Diversified traffic convenient for tourists to ride on vehicles, bicycles or walk;

—All-round tourism service facilities, such as scenic overlook explanation platform, tourism information center, restaurant, teahouse, exhibition hall, parking lot and public toilets, etc.;

—Effective environmental and cultural protection measures to reduce the negative effects on ambient environment and historical, human, and archaeological resources caused by tourism activities;

—Practical safety to ensure personnel and property safety for tourists.

Scenic Roads in America

Scenic road is an independent yet special category of the American highway system, which is also called the “National Scenic Road System of America”. Generally speaking, only those roads that possess one or several irreplaceable and influential resources with respect to 6 indexes, namely scenery, nature, history, leisure sports, archaeology, and cultural remains, they can be listed into the “National Scenic Road System of America”. Scenic road is divided in to two categories: One is called the National Scenic Byways, and the other is called the All American Roads. The latter has higher grade and stricter requirements than the former one.

ISTEA of 1998 and SAFETEA-LU of 2005 specified special funds to help local governments and societies plan and construct scenic roads.

Up to 2006, there were 126 scenic roads distributed in 44 states. In America, a lot of traffic main arteries expand along the natural and cultural landscapes, or go through an area of natural and cultural scenic spot. Such as the trans-island highway connected by three state highways on Oahu Island of Honolulu, Hawaii, the along-lake highway constructed along the Lake Michigan in Chicago, and the famous Route 66 that goes through the Midwest of America. All these roads go through the important natural and cultural scenic spots, some even go through national park or the world heritage areas, however, due to the functions planned and designed are all for the traffic, they cannot be called the “Scenic Road”.

![America's Byways](image_url)
In 1887, a doctor called John Roberts from New York bought a piece of land in Monterey, California from this uncle, and created the town of “Seaside”. Roberts assumed the head of town himself as well as postman, planter and doctor. With the years of travel on hill roads, he thought about an idea to construct a coastal highway that would be convenient for traffic as well as enjoying the coastal landscapes by more people. Therefore, he began to lobby governmental departments at all levels, by doing which made him the first pusher of the world-famous scenic road.

With years of efforts, the Pacific Coastal Highway, namely Route 1, was finally under construction in 1919. The construction lasted several decades and completely finished in 1945. Due to extreme and dangerous geographic and geologic conditions, a great part of construction was undertaken and finished by the prisoners in jail. For the convenience of going to work, the government specially built three prisons in large-scale along the planned road. Prisons earned 35 cents per day per person and the working hours were recorded as the performance in prison for the conversion of reduction of sentence. The Federal Government also appropriated about USD 12 million for this highway, which was a huge sum of investment at that time with no doubt.

This scenic road is located at the Pacific coast line of West America, which connects Canada in the North and Mexico in the South. It possesses the most glorious and the most pleasant coastal landscapes of the world, including the famous beach, sea rocks, cliffs, historical heritages of Spanish colonial period, American celebrity’s former residence and various outdoor appreciation activities and sports for tourists to participate. Meanwhile, managerial personnel also consider the cultural and historical factors of highway as attractions, by thinking of which they organize a great deal of activities along the highway according to seasons. The most spectacular section of this scenic road is the 139 miles long way from Monterey Bay to Morro Bay where shows coastal landscapes. The mountain-ocean-combined section has sinuous roads and 33 mountain-ridge-span bridges with magnificence. The expansion of one road expresses a story of culture and nature.

PCH is orientated as the highest-grade scenic road of American scenic road: All-American Road. PCH is not a passage with high throughout capacity from the very beginning, but a road that is specially oriented for tourists and travelers for tourism, leisure activities, and sports. There are two parallel service-type highways designed in the East: National Highway 101 and State Highway Route 5, which support industrial and agricultural production and commercial activities of inland area, as well as realize traffic split-flow. As a high-grade scenic road, PCH has definite orientation in regional traffic system, which has well marked road signs that are full of features and different from other roads. The low-profile design road is basically a bidirectional one-lane road without any “artificial landscapes” in additional, which considers the introduction and set-off of sceneries along the road as objectives. But the crossover design is consecutive and spectacular without usurping the role of the road, as well as enhances the sense of modern and combines the landscapes along coast line naturally.

The precondition of developing both sides of scenic road is to protect the natural and cultural landscapes of road. Except for necessary service supporting facilities and natural and cultural protection construction projects, any development project can only be conducted in adjacent metropolises and current city centers along the road without interfering the scenic road.
Case 2: George Washington Memorial Parkway Virginia, USA

The George Washington Memorial Parkway was planned and construction in 1932 for the purpose of memorizing the 200-year birthday of George Washington, the father of America. The 40-mile long Memorial Parkway is located in Virginia and sinuously expands along Potomac River bank. This Parkway starts from the most famous historical and cultural land of holy—Mt. Vernon, the former residence of President Washington, goes through the District of Columbia established by Washington, and ends at the Great Fall—hydraulic engineering designed by Washington. The full line expands along the street where President Washington often rode horses there. Considering the presentation of contribution that President Washington devoted for America as the theme, the Parkway gives a scenic and cultural expression of the over 200-year founding history of America. Driving along this road, people can not only visit hundreds of historical remains and cities, but also appreciate the surrounding patterns and water scenes as well as overlook sky line of capital. The Washington Monument is the highest landmark of D.C., which towering and majestic appearance can be seen from far away. All of this constantly reminds of tourists’ respects to this great man.

The George Washington Memorial Parkway was oriented, planned and designed according to the American standard scenic road—National Scenic Byways. The scenic road is basically a bidirectional two-lane road body that is without any decorative artificial landscapes, but only sets off the open and natural garden sceneries well maintained along the road. In order to excavate the plentiful cultural and historical resources along the road, it sets up the parking sightseeing facilities for tourists entering and leaving historical remains, strongholds, blockhouses, farms, and memorial halls conveniently with the help of legibly designed identification system. There are over 900 million tourists going through this scenic road for studying and visiting the American historical sceneries every year. Although the scenic road also gives attention to part of traffic function of local societies, there are strict traffic control provisions and measures stipulated to prohibit large-scale commercial and industrial vehicles to travel through. In order to support the special functions of scenic road and serve the surrounding production and living, the National Highway 95 was designed as the traffic artery parallel to Parkway. There are also strict boundary delimitation and distance restriction to the development of both sides of
The upsurge of building “Scenic Road” has been spreading fast during recent years in China. A representative is the Century Avenue in Pudong, Shanghai. Although the original intention of this avenue was to be designed according to the standards of “city scenic road”; the 100m-wide, bidirectional 8 lanes, and 80 km speed of vehicles make this avenue a city main artery with uninterrupted vehicle stream from the very first day. So whatever it’s called, it will never become a true scenic road if it’s not designed in compliance with internationally acknowledged standards and codes (Fig. 2.9).

The currently built trans-island road in Xiamen, Fujian, possesses basic features of a scenic road. However, due to it’s technically designed to be a 6-lane road, the main function is still traffic. Therefore, it is not a strictly true “Scenic Road” (Fig. 2.10).

If the Southern Taihu Lakeshore Scenic Road is planned, designed and constructed in compliance with the internationally acknowledged requirements of scenic roads, this road will become the first scenic road truly conforming to the international standards in circum-Taihu Lake area, a mark that shows preferable natural ecology and centuries-old historical and cultural charms of Changxing, and one of the results of implementing scientific development. The establishment of this road will add a new tourism brand in Changxing and new motive power for economic and social development of entire county.

Due to special characteristics of scenic roads, they shall not be confused with general roads. According to above analysis, the Lakeshore Scenic Road needs to undertake four basic functions like tourism sceneries, general transportation, etc. We consider that the correct design principles shall be: Separate tourism scenery function from general transportation function. Speaking in details, that is, based on Taihu Lake bank, build a special scenic road along the road at first to highlight the tourism scenery function; and then construct another assistant road in addition to undertake the general transportation function that connects the towns and villages inside this area to provide production and living services for residents. Most scenic roads of the world are fit with parallel sidewalks or traffic arteries for freight trucks and other transit vehicles driving through, without interfering tourist to enjoy the sceneries along scenic road.

What needs to be emphasized is that the functions of two roads cannot be completely separated actually. This is because the residents living along scenic road still use this road for traffic. We cannot prohibit this situation but reduce the occurrence of this phenomenon as best as possible. Main method is to set up isolated area or obstacles that block certain vehicle away (such as trucks, tractors, etc.) on one hand; on the other hand, the design of sidewalks needs to be rational and convenient that residents rather choose sidewalks than scenic roads in daily lives.

Besides general transportation, the functions of sidewalks can not only guarantee them to partake the delivery of tourists, but also guarantee local residents’ daily lives not to be interfered during special circumstances, such as holding marathons and road cycling, or when Lakeshore Scenic Road needs to be closed down during festival celebrations.
Up to this point, we have two plans in front of us. One is planned according to the basic concept of “Unification of Scenery and Traffic” set in the original plan by Huzhou Government and Changxing Government; the other is planned according to the basic concept of “Separation of Scenery from Traffic” (Fig. 2.11).

Plan 1 in Fig. 2.11 refers to a bidirectional four-lane road, which line form selection considers that development planning has been already prepared in the nodal points of Xintang and Tuying. The advantage of this plan is the direct butt joint with National Highway 104 in shape and scale, allowing various vehicles through smoothly.

However, due to that the road has to undertake tourism sightseeing and general traffic at the same time, the situation results in mutual check and mutual interference of each other that they cannot effectively perform their functions.

The busy and promiscuous transit traffic neither profits sightseeing, nor the protection of ambient ecological environment and personal safety of tourists. It also restricts the establishment of facilities like sightseeing explanation platform and tourism information center. While the sightseeing and stay that tourists and tourism vehicles appreciate on the road interferes the speed and safety in traffic of other vehicles.

According to this plan, the bidirectional four-lane road plus road shoulders, bicycle lanes and isolated area must be broadened from 5 m wide to more than 20 m. Considering the requirement of flood control, the construction engineering load is rather heavy.
In conclusion, the lakeshore scenic road laid out in Plan 1 can neither become a true scenic road, nor completely and effectively solve traffic problem of production and living for local residents (Fig. 2.12).

Plan 2 in Fig. 2.12 consists of a bidirectional two-lane scenic road and a bidirectional two-lane sidewalk. The separated functions can centralize construction resources to build a qualified scenic road. After the completion of scenic road, it has to take special management measures as well, especially at the entry of both ends of the road, to strictly split vehicle flows, so that the tourists and tourism vehicles can enter the scenic road smoothly, while other vehicles have to drive through other passages. Thus, the lakeshore scenic road in Changxing can be ensured to become a scenic road true to its name and not to be copied.

Meanwhile, it uses the existing roads to compound the lake-along towns and villages and new peasant villages in series as best as possible for the line section of sidewalk, by doing which it provides convenient traffic service for local industrial and commercial enterprises and residents better, and further activates its development potential. This sidewalk is also the connection between scenic road and backland of Changxing, where tourists may enter into the sceneries of other counties from this sidewalk.

The preliminary comparison above indicates that Plan 2 is preferable than Plan 1.
3.1 References of Designed Road Line Type

Through the above analytic demonstration, we decide to adopt design idea in Scheme Two and to form design scheme of scenic road by further specification.

The basis for scheme planning includes:
— the existing planning of all levels and types in Changxing County;
— the experience of road design in U.S.;
— the relevant standards for road design in China.

Planning Basis
Overall Planning of Changxing City, 2003 Version
Overall Planning of Changxing County Region (2006-2020)
Village Layout & Planning in Changxing County Region
Overall Planning of Jiapu Town, Changxing County
Overall Town Planning of Hongqiao Town, Changxing County

Planning Reference
Detailed Planning & Urban Design of the Control of Circum-lake
tting Tourist Resort, Changxing County, Zhejiang Province
Conceptual Overall Planning of Circum-Taihu Lake Xintang
Tourism Development Area

The 11th Five-year Plan for Highways & Waterways
Transportation in Changxing County
Traffic Planning of Changxing County
Hangzhou-Huzhou-Nanjing Intercity Railway—Proposed Planning for Changxing City Railway Traffic

Fig 3.1 Existing Planning Stacking Chart
Conceptual Planning Design Scheme for Circum-Taihu Lake Tourist Resort, Changxing
In order to determine the road line type, we have stacked relevant parts of the above planning with the same scale and finally arrived at Fig 3.1. It shows that the selection of line type is of great importance for constructing an ecological scenic road between dense traffic corridor in Changxing County and vast Taihu Lake. (Fig 3.1)
Figure 3.4 Road Line Type
<table>
<thead>
<tr>
<th>Road Type</th>
<th>Expressway</th>
<th>Arterial Road</th>
<th>Secondary Main Road</th>
<th>Branch Road</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Level</td>
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<td>III</td>
<td>I</td>
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<td>0.80</td>
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Figure 3.5 Road Spatial Analysis
According to its relationship with Taihu Lake Grand Dam, the Scenic Road line type can be subdivided into road section beside lake, road section off lake and road section above lake. (Fig 3.6)
Scenic road line type is composed of three road sections, namely:

— Road Section beside Lake, the main body of Scenic Road, which is the unification of bank and road basically and it spans about 16 km long. It is designed to be divided into three sections: Jiapu-interface of Xintang Taihu Lake Ave, amounting 8 km, with two places needing special treatment, namely, Jiapu Sewage Treatment plant and above-water Training Base; Yangjiapu-Taihu Lake Villidge, amounting 3.5 km; Xiaohendu Village-Tuying, amounting 4.5 km. As the bank is twisty in nature, it is qualified for Scenic Road line type relatively. At the same time, there is small vacant lot that is formed in road cutoff, which can be constructed as “Docking Island” for tourists to stay for sightseeing. There are five such “Docking Island” in Fig 3.7, which be added with more in development design. (Fig 3.7)
Road Section above Lake, a bridge road constructed as entrance to Taihu Lake, which is 2.5 km long and 300m away from the bank. The reasons of choosing this point as access to Taihu Lake are: there shall be lake access part in Xintang-Tuying Road Section according to the client requirements; considering the Scenic Road nature, Lake Access Road Section can be constructed to strengthen water experience for tourists on condition that it would not lead to worsening ecological environment; for the bank curvature in Xintang area is too heavy, it is quite difficult to conduct unification of road ad bank, so it is reasonable to cutoff by accessing to the lake; road access road would not affect the development of Xintang area at all and can serve as magnificent scenery for the area; Lake Access Road is kept away from bank properly, which is not only reasonable for vision but also works for preventing from siltation of river mouth. (Fig 3.8a-b)

Current Changxing Port is only a Six-Level Watercourse at present, with Xintang being developed to be an important tourist distributing center, there will be more boats going in and out. Therefore, we decide tentatively to design the bridge of this section based on Four-Level Standard and the cross section is come-go two-lane.

Road Section off Lake, one subsection is in Jiapu, which passes across Hangning Expressway and finally connect with 104 National Highway, amounting to 1.2 km; the other is between Doujibin Village and Xiaochendu Village, which push its way inland, with length about 6.5 km.

Reasons of choosing this Road Section off Lake are: Yangdang is one of the famous local features and Qidou Yang is one of the large Yangdang at lakeside bank, with beautiful and enjoyable landscape surrounded, which is necessary for tourists to enjoy the scene and receive environmental protection education at the same time; the route selection aim shall be approaching to Yangdang, experiencing Yangdang but not damaging it. So it is defined outside of Yangdang; encircle a uninhabited natural preservation district between Scenic Road and the bank and although there are few people living here, they will relocate to neighboring new peasant village. (Fig 3.9)
3.3 Bicycle Lane

In order to encourage non-power driven traffic modes and experiential tourist, all the way of scenic road is attached with bicycle lane. The design of bicycle lane shall not only be in accordance with relevant regulations, but also can provide tourists with diverse experience and choice at the same time. Its route is as follows:

From Jiapu to the above-water training base, bicycle lane is set up outside the scenic road, namely the side along the lake;

From Shijia Village, the North of the above-water training base, bicycle lane turns inside of scenic road and is divided into two paths. One is along the inner bank inter-country road and finally turns to the scenic road, which serves as a spare lane for above-water training; the other goes along the inside scenic road. Here forms a conflict point between bicycle lane and scenic road. Therefore, it must erect warning boards on both southern and northern ends of the training base;

From the above-water training base to Xintang, bicycle lane is set up inside the scenic road;

From Xintang to Yangjiapu, it uses the existing country roads and lake banks to form the experience-type bicycle tourism line.

From Yangjiapu to Tuying, connecting with scenic road again, bicycle lane is set up inside the scenic road. And for the off-lake section, it can form a two-lane bicycle lane by making good use of the existing lake banks. (Fig 3.10)
Fig 3.11 Basic Road Cross Section

Standard Section 2 with bank, road separated
3.5 Bridges

In Road Section beside Lake, there are eight bridges needing widening. In Road Section off Lake, build bridges or culverts according to the situation. And both bridges and culverts shall be designed based on the requirements of come-go two-lane. (Fig 3.12)
3.6 Ecologic Roads
It's the gateway of Jiangsu to Zhejiang while also the start of the Lakeshore Scenic Road and centralizes many traffic arteries, of which Hangzhou-Nanjing Highway and National Highway 104 have the closest relationships with the scenic road. Due to both the two roads described above content 4 driveways of 2 in each side which mainly function as transportation, measures like distributaries and isolations shall be carried out to ensure only tourist vehicles can enter the scenic road. Those measures shall include: sign brand, management station (or toll station), turning driveway, tourist service station and others. (Fig. 4.2, 4.3, 4.4, 4.5)

Build a lake-shore park for sport and entertainment in the triangle region of Hangzhou-Nanjing Highway, Taihu Lake levee and scenic road, in which set water-closed pathway, cycle way area for sport & entertainment and other sections. Furthermore, establish a "guide center of the Lakeshore Scenic Road in south Taihu Lake" which can introduce the information and tourist route of the scenic road to tourists. It can be the start of marathon and highway cycle track as well as the place for holding folk-custom festivals or events. (Fig. 4.6 and Fig. 4.7)

According to the Section Line position shown in Fig. 4.8, Section Line H-H is distributed in the park in north side entrance of the scenic road; H-H section starts from Taihu Lake to inland; and sceneries in both sides of the Scenic Road and Taihu Lake face inter-reflect each other. Section Line G-G is distributed in the node of southern suited development; shown by G-G section, Taihu Lake water-closed platform which shall be located in the entrance park will offer the place for tourists to overlook blue waves of Taihu Lake. (Fig. 4.8 and Fig. 4.9)
Fig. 4.7a Jiapu Road Traffic Control 1
Fig. 4.7b Jiapu Road Traffic Control 2
Fig. 4.9 Jiapu Section
Fig. 4.10a and Fig. 4.10b are two design plans for joint of the scenic road and National Highway 104: in Plan a, buildings in separation area of middle part needn’t to be removed; in Plan b, they must be removed. (Fig. 4.10a-b)
4.3 Node 2: Chendu Port

Located in river system area between Jiapu and Xintang, Chendu Port possesses the natural villages which may make it become the perfect site to exhibit original culture for agricultural cultivation of Changxing residents. (Fig. 4.11, 4.12, 4.13, 4.14)

It has been considered to build up a small lakeside park which shall extend into the lake by trestle in order to make tourists enjoy the beautiful scenery of Taihu Lake. Set up a small history exhibition Room in interior of the road to introduce the historic changes of Changxing County which include:

— Archaeology and unearthed relics like the jade cone-shaped vessel excavated in Jiangbu Bridge, the semi-annular jade pendant excavated in Xiaopuhexi and others which can present the multiplying, living and culture creating history of Changxing ancestors in Taihu Lake valley.

— Historic remains of “Three cities with three bent shores” in Peng City; Fu Gai of Wu State in Spring and Autumn period trained the troop in the city and trained the navy in the bent shore.

— Historic remains of Xiegong Pond, the hydraulic project in Chendu Port built up by Xie An, the Wuxin satrap in Eastern Jin Dynasty.

— Historical site or relics for revolution of Communist Party of China (CPC); Jiapu was the birthplace of the first CPC branch; a secret traffic station of Changxing county committee of CPC were set in Zhuyuan Village, Zhi City; Chendu Port was used to be the wharf of liaison ship for underground CPC and Shanghai Committee. During the Anti-Japanese War period, Su Zhe (Jiangsu and Zhejiang) military area of the New Forth Army was located in Changxing, therefore Wentang Village of Huaikan Country was called as “Small Yan’an in Jiangnan” (Fig. 4.5)
Fig. 4.12 Chendu Port Current Situation
Fig. 4.13 Chenda Port Plane Layout
Fig. 4.14 Chendu Port Tourist Facilities
Fig. 4.15 Chendu Port Traffic Organization
Fig. 4.16 Chendu Port Section Line

Fig. 4.17 Chendu Port Section A-A
Fig. 4.18 Chendu Port Service Facilities Construction
4.4 Node 3: Xintang

It locates in joint area of the scenic road and Taihu Avenue which shall be the most important node in middle section of the scenic road. (Fig. 4.19, 4.20)

The Lakeshore Scenic Road of South Taihu Lake locates in northeastern part of Changxing County region while most of famous history, culture and tourism resources distribute in southwestern part, so there is a rather long distance between them. Furthermore, as divided by traffic arteries including two highways (Shanghai-Jiangsu-Zhejiang-Anhui, Hangzhou-Nanjing), two national highway (104, 318), one railway (Xintang-Changxing Line) and intercity LRT in planning, It shall mainly relay on Taihu Avenue of east to west to join the scenic road with local history, culture and tourism resources, by which it also can make the quick arriving from the scenic road to these sight spots become possible. By Taihu Avenue, tourists from riverside can enter the inland while tourists from inland can go to the riverside; therefore, Xintang possesses the largest possibility to become one of the key collecting and distributing centre for tourism in Changxing County. (Fig. 4.21, 4.22)

According to the traffic plan of Changxing County, extended line of Xinhu Road from the center urban of Changxing County will be laid to Xintang which shall create a new intercommunication with Hangzhou-Nanjing Highway; and high-speed railway which will run through the whole Yangzi River Delta Region in future shall also set a station in Taihu Avenue. The reasons above will prompt Xintang become the highly compact district of people and vehicle flow.

For that reason, tourism supporting facilities shall be distributed as the key point in order to exhibit all of the tourism resources within Changxing County region like tourism information center of the whole county, tourist centre, large-scale parking lot, ticket counter, restaurant and others. (Fig. 4.23 and Fig. 4.24)

As shown by section line in Fig. 4.25, section line D-D is closed to joint area of Taihu Avenue and Scenic Road. In the Xintang node plan, spaces and sizes of service supporting facilities shall be in accordance with requirements of reserved old villages. Section line B-B locates in south bank of Xingang river port which covers road section for lake entry. It shall be the same with Section 1 of standard road in section type and entire width of road and bridge of lake entry section. Because the rate of cycle is 40 km/h, the lane separator on each side can be replaced by traffic marker and no lay-by needs to be set in the bridge. (Fig. 4.25, 4.26)

Fig. 4.19 Xintang Area Location
Fig. 4.20 Xintang Current Situation
Fig. 4.21 Xintang Plane Layout
Fig. 4.22 Xintang Tourism Facilities
Fig. 4.23 Xintang Traffic Organization
Fig. 4.24 Xintang Road Traffic Control
Fig. 4.25 Xintang Section Line
Fig. 4.26 Xintang Cross Section
4.5 Node 4: Yangjiapu

There are villages, folk houses and paths which lead to Hongqiao Town. (Fig. 4.27, Fig. 4.28, Fig. 4.29 and Fig. 4.30)

This place can be taken as an transfer station or rest area that characteristic tea shops and rest restaurants shall be exhibited there like tea, silk, “Four Rareness of Taihu Lake” (including whitebait, white shrimp, long-tailed anchovy, Taihu Lake Crab) and “Four Treasure of Changxing” (maidenhair tree, greengage, mongolian snakegourd and chestnut). And it also can introduce their cultural meanings during the tasting by tourists. (Fig. 4.31)

C-C section line locates in the position showed in Fig. 4.31. With inside road of the node, the section in Yangjiapu of Scenic Road forms a road net of partly mixture for human and vehicle traveling. Supporting service facilities are proper with assistant of sight built by arbor and shrub in planning. (Fig. 4.27, 4.28, 4.29, 4.30)

Fig. 4.27 Yangjiapu Area Location
Fig 4.28 Yangjiapu
Current Situation
Shipaitou Village is one of the natural villages planned to be pulled down, which situates itself on the midpoint of Off Lake Section. It is next to Dangyang and thus is applicable for exhibiting wetland with Qidouyang as the centural theme.

This node is designed mainly for tourists to have access to Dangyang and thus experience returning to nature. Build a subsidiary road for Scenic Road on the north of the node to Taihu Village. Set up parking lot and wharf near to Taihu Village for tourists to park and then go to Qidouyang by walking or boat. The walking distance is only about 400m long and thus would not be tiring. Pave walking path along Dangyang for tourists scattering. Opposite to Yangdang is Tongjia Village, whose traditional texture of water system and buildings maintains complete and thus can be developed as excellent tourism destination, which can be reached by boat. (Fig 4.37, 4.38)

Set a miniature design wetland display building for introducing science knowledge of geography, geology and the meaning of wetland protection to inspire tourists of cherishing this worthful ecological resource.

Set a wharf aside the display building for tourists to Yangdang by boat and reaching Qidouyang, Tongjia Village further; tourists can also take walking path to Taihu Lake.

The exploitation of this node will attract villagers living in neighboring villages to tourism, that is, to create job opportunities for them. (Fig. 4.39)

E-Section Line position is situated as in Fig. 4.39. The section in Shipaitou of Scenic Road together with the node roads has formed road network for pedestrians and vehicles to pass at the same time. The supporting service facilities are appropriate in dimension and are against trees and bushes for scenery to form regular skyline with diversification. (Fig. 4.40, 4.42)
Fig. 4.37 Shipaitou Plane Layout
Fig. 4.40 Shipailou Section Line
It lies on the boundary between Changxing County and Huzhou City and connects Scenic Road and Taihu Road extending from Huzhou. (Fig 4.43, Fig 4.44)

In case the design of Taihu Road extending from Huzhou is in accordance with that of the Scenic Road, they can be joint directly; otherwise, make distributary for them. (Fig 4.45)

Most of the area of Tuying belongs to Haughton Peak Holdings Limited, however, the exploitation planning made by Haughton Peak Holdings Limited is still not definite yet. Therefore, the tourist project layout of Tuying remains for further study and determination. (Fig 4.46, Fig 4.47)

From the view of the whole Scenic Road, as the gateway in the south of Scenic Road, Tuying shall not only compromise and coordinate with Huzhou but also emphasize its distinguishing feature to avoid sameness. Therefore, as there are “dynamic” sceneries built in Huzhou like Taihu Villas, Water Park, on the contrary, Tuying shall be built with “static” sceneries. Set a geological park on the roadside to display geological transition of Changxin, including the discovery of “Golden Spike” Limestone Geology, Taihu Lake Evolution History, etc., which enable the tourists to enter the topic of “” in enjoying the vast Taihu Lake scenery. (Fig 4.48)

The position of F-F Section Line is marked in Fig 4.47. The space and scale of newly built Tuying Entrance Node Park and tourism supporting facilities is rather appropriate and correspond with Taihu Lake scenery. (Fig 4.49, Fig 5.50)
Fig. 4.44 Tuying Current Situation
Fig 4.45 Condition Design with TH Road in Huzhou

Fig 4.46 Taying Plane Layout
Fig 4.48 Tuying Traffic Organization
Tourism facilities are essential to Scenic Road. A accurate guide board, a appropriate viewing platform, a multifunctional exhibition hall or a rest station with considerate service, all can make the tourists feel at home. Now we will introduce these tourism facilities in American form.

**Lookout Station**

Build lake access trestle and set lookout tower in Jiapu, Xintang, Tuying, the main nodes of Scenic Road. Lookout stations can also be set on lakeside “Docking Island”.

**Tourist Guide Facilities**

There are various of tourist guide facilities, such as display house, information center, sculpture and guide board, etc., which shall be set near the main nodes according to different topics. They can also be performance, such as spinning, tea art and silk costume show, etc. Lead tourists to sightsee along Scenic Road by tourist guide or to the hinterland to visit local places of interest such as Corridor and Golden Spike, etc.

**Commentary Center**

Commentary Center is actually interactive museum in miniature, which can be used by tourists for recognizing the direction and position and understanding the scenery and cultural resource on the way and various information of the whole Taihu Lake Valley. These organized information centers will be set mainly on Node One, Node Three and Node Six, serving as gateways of Scenic Road. (Fig 4.51)

It includes the treatment of aboveground and underground water (sewage and rain water distibutary), power supply, communication cables, fuel gas and garbage, etc. As an ecological road, the infrastructure shall be constructed by adopting advanced green technology as much as possible.
It’s the gateway of Jiangsu to Zhejiang while also the start of the Lakeshore Scenic Road and centralizes many traffic arteries, of which Hangzhou-Nanjing Highway and National Highway 104 have the closest relationships with the scenic road. Due to both the two roads described above content 4 driveways of 2 in each side which mainly function as transportation, measures like distributaries and isolations shall be carried out to ensure only tourist vehicles can enter the scenic road. Those measures shall include: sign brand, management station (or toll station), turning driveway, tourist service station and others. (Fig. 4.2, 4.3, 4.4, 4.5)

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According to the Section Line position shown in Fig. 4.8, Section Line H-H is distributed in the park in north side entrance of the scenic road; H-H section starts from Taihu Lake to inland; and sceneries in both sides of the Scenic Road and Taihu Lake face inter-reflect each other. Section Line G-G is distributed in the node of southern suited development; shown by G-G section, Taihu Lake water-closed platform which shall be located in the entrance park will offer the place for tourists to overlook blue waves of Taihu Lake. (Fig. 4.8 and Fig. 4.9)
Fig. 4.5 Jiapu Tourist Facilities
Fig. 4.6 Sapsu Traffic Organization
Fig. 4.7a Jiapu Road Traffic Control 1
Fig. 4.8 Jiapa Section Line
Fig. 4.9 Jiapu Section
Fig. 4.10a Joint Design of National Highway 104

Fig. 4.10b Joint Design of National Highway 104

Fig. 4.10a and Fig. 4.10b are two design plans for joint of the scenic road and National Highway 104: in Plan a, buildings in separation area of middle part needn’t to be removed; in Plan b, they must be removed. (Fig. 4.10a-b)
4.3 Node 2: Chendu Port

Located in river system area between Jiapu and Xintang, Chendu Port possesses the natural villages which may make it become the perfect site to exhibit original culture for agricultural cultivation of Changxing residents. (Fig. 4.11, 4.12, 4.13, 4.14)

It has been considered to build up a small lakeside park which shall extend into the lake by trestle in order to make tourists enjoy the beautiful scenery of Taihu Lake. Set up a small history exhibition Room in interior of the road to introduce the historic changes of Changxing County which include:

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Fig. 4.13 Chenda Port Plane Layout
Fig. 4.14 Chendu Port Tourist Facilities
Fig. 4.15 Chendu Port Traffic Organization
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For that reason, tourism supporting facilities shall be distributed as the key point in order to exhibit all of the tourism resources within Changxing County region like tourism information center of the whole county, tourist centre, large-scale parking lot, ticket counter, restaurant and others. (Fig. 4.23 and Fig. 4.24)

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Fig. 4.19 Xintang Area Location
Fig. 4.21 Xintang Plane Layout
Fig. 4.22 Xintang Tourism Facilities
Fig. 4.23 Xintang Traffic Organization
Fig. 4.24 Xintang Road Traffic Control
Fig. 4.25 Xintang Section Line
4.5 Node 4: Yangjiapu

There are villages, folk houses and paths which lead to Hongqiao Town. (Fig. 4.27, Fig. 4.28, Fig. 4.29 and Fig. 4.30)

This place can be taken as an transfer station or rest area that characteristic tea shops and rest restaurants shall be exhibited there like tea, silk, “Four Rareness of Taihu Lake” (including whitebait, white shrimp, long-tailed anchovy, Taihu Lake Crab) and “Four Treasure of Changxing” (maidenhair tree, greengage, mongolian snakegourd and chestnut). And it also can introduce their cultural meanings during the tasting by tourists. (Fig. 4.31)

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Fig. 4.29 Yangjiapu Plane Layout
Shipaitou Village is one of the natural villages planned to be pulled down, which situates itself on the midpoint of Off Lake Section. It is next to Dangyang and thus is applicable for exhibiting wetland with Qidouyang as the central theme.

This node is designed mainly for tourists to have access to Dangyang and thus experience returning to nature.

Build a subsidiary road for Scenic Road on the north of the node to Taihu Village. Set up parking lot and wharf near to Taihu Village for tourists to park and then go to Qidouyang by walking or boat. The walking distance is only about 400m long and thus would not be tiring. Pave walking path along Dangyang for tourists scattering. Opposite to Yangdang is Tongjia Village, whose traditional texture of water system and buildings maintains complete and thus can be developed as excellent tourism destination, which can be reached by boat. (Fig 4.37, 4.38)

Set a miniature design wetland display building for introducing science knowledge of geography, geology and the meaning of wetland protection to inspire tourists of cherishing this worthwhile ecological resource.

Set a wharf aside the display building for tourists to Yangdang by boat and reaching Qidouyang, Tongjia Village further, tourists can also take walking path to Taihu Lake.

The exploitation of this node will attract villagers living in neighboring villages to tourism, that is, to create job opportunities for them. (Fig. 4.39)

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Fig. 4.38 Jiapu Tourism Facilities
Fig. 4.39 Shipaitou Traffic Organization
Fig. 4.40 Shipailou Section Line
It lies on the boundary between Changxing County and Huzhou City and connects Scenic Road and Taihu Road extending from Huzhou. (Fig 4.43, Fig 4.44)

In case the design of Taihu Road extending from Huzhou is in accordance with that of the Scenic Road, they can be joint directly; otherwise, make distributary for them. (Fig 4.45)

Most of the area of Tuying belongs to Haughton Peak Holdings Limited, however, the exploitation planning made by Haughton Peak Holdings Limited is still not definite yet. Therefore, the tourist project layout of Tuying remains for further study and determination. (Fig 4.46, Fig 4.47)

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The position of F-F Section Line is marked in Fig 4.47. The space and scale of newly built Tuying Entrance Node Park and tourism supporting facilities is rather appropriate and correspond with Taihu Lake scenery. (Fig 4.49, Fig 5.50)
Fig 4.45 Concept Design

Fig 4.46 Tuying Plane Layout
Fig 4.48 Tuying Traffic Organization
Tourism facilities are essential to Scenic Road. A accurate guide board, a appropriate viewing platform, a multifunctional exhibition hall or a rest station with considerate service, all can make the tourists feel at home. Now we will introduce these tourism facilities in American form.

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Lead tourists to sightsee along Scenic Road by tourist guide or to the hinterland to visit local places of interest such as Corridor and Golden Spike, etc.

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**Commentary Center**

Commentary Center is actually interactive museum in miniature, which can be used by tourists for recognizing the direction and position and understanding the scenery and cultural resource on the way and various information of the whole Taihu Lake Valley. These organized information centers will be set mainly on Node One, Node Three and Node Six, serving as gateways of Scenic Road. (Fig 4.51)

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It includes the treatment of aboveground and underground water (sewage and rain water distributary), power supply, communication cables, fuel gas and garbage, etc.

As an ecological road, the infrastructure shall be constructed by adopting advanced green technology as much as possible.

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Fig 4.51 Tourism Service Facilities
Chapter 5 Scenic Control along the Road

At the present, there are many natural features and agricultural economic kept in circum-lake area of Changxing County which meets the requirements of environment for the scenic road nicely. In order to keep this environment permanently, control for area along the road must be carried out. Once the natural or ecological environment is damaged, basic condition of the scenic road will no longer exist.

5.1 Subarea Control

According to Overall Planning of Changxing County Region (2006-2020) finished by Institute for Urban and Rural Planning of Zhejiang in October 2006, we primarily propose the subarea control range of Scenic Road of south Taihu Lake. (Fig. 5.1)

In figure above, control area is divided into:
—Prohibited Development Area, marked by dark green block;
—Restricted Development Area, marked by light green block;
—Guided Development Area, marked by purple block.
Other parts refer to the Landscape Coordination Area.

Prohibited Development Area

It includes protective green block, basic farmland and ecosystem nature reserve.

It’s regulated by Overall Planning of Changxing County Region that “Build an eco-corridor along the regional way: mainly ecological shelter forest belt in two sides of highway, railway and waterway controlled within 80-150m”. Therefore, beyond the inside nodes of scenic road, shelter forest belt of 100 m shall be kept.

Basic farmland in this area shall be executed in accordance with the relevant policies of government strictly (the scope of basic farmland is shown by lines due to it hasn’t been confirmed yet).

Popple in this area is relatively concentrated in the whole county region. According to the requirements of Overall Planning of Changxing County Region, ecological environment of Taihu Lake and wetland systems around lake shall be listed in the key protection items. So it suggests that two wetland parks shall be built up in this area, one is centralized in Qidouyang and the other is centralized in Chenwanyang. Around the popple, sensitive area shall be marked and any type of development is forbidden there.

Restricted Development Area

Most blocks in this place belong to restricted development area; allowed development project and range shall be confirmed by planning department further.

On each node along the scenic road, it can build some public tourist facilities in small or middle size.

Guided Development Area

According to Overall Planning of Changxing County Region, key zones for development around Taihu Lake shall be Xintang and Hongqiao Tuying block. Development and construction of these two areas shall be coordinated and cooperated with the scenic road in order to form an organic whole.
Fig. 5.1 Subarea Central along Science Road
5.2 Control of Reserved Driveway

On the basis of the requirement that “In the principle, it agree to take design of two-way 2 driveways with keeping usage of 4 reserved driveways”, we intend to make the management of remained area scope as follows:

— Lakeside section, from Jiapu to Xintang and the section of Taihu Avenue from Xiaochedu Village to Huzhou. In consideration of that it’s not proper for the second sedimentation in the existing lake levee, area for 2 reserved driveways shall locate in the west of brook inside of the lake levee, in ecological shelter forest belt of prohibited development area which is mainly parallel with the scenic road with the width of 12 m.

— Inlet section, Xintang to Yangjiapu. Because the scenic road will go over the lake and there is no proper reminded place on the bridge, reserved driveway shall go across Xintang through landway which requires to keep an area with the width of 12 m on the basis of existing village roads nearby. For the future, with the development of Xintang construction, it can build up the reserved driveways firstly and put it into road net system of Xintang area. Meanwhile, it can function as spare road for inlet section of the scenic road; vehicles can pass through this road when inlet section is closed in heavy fog day.

— Off-lake section, from Doujiabang Village to Xiaochedu Village. Now there is the levee which can function as the remanded place. (Fig. 5.2)

Fig. 5.2 Distribution of Reserved Driveway
5.3 Road Junction Control

At the present, there are more than 40 road junctions along the levee and road along with Taihu Lake. (Fig. 5.3)
According to the design concept of separating scenic function from transporting function, existing road junctions need to be integrated and merged. The principles are: reduce traffic volume of produce or family vehicles of residents in villages nearby through the scenic road as much as possible; remain the space in key nodes for communication between scenic road and hinterland. After merger, 5 road junctions shall remain:

—Chengdu Port, locus of Node 2;
—Taihu Avenue, locus of key node for connection with the county;
—Yangjiapu, locus of Node 4;
—Xiaochendu Village, the way of connection with Hongqiao Town;
—Tuying Village, locus of Geopark. (Fig. 5.4)

Fig. 5.4 Road Junction after Merger
Where the scenic road approaches to the road nodes, important establishments or main intersections, there should set undee gentle slope to decelerate the vehicles and avoid the noise. And for the pedestrian-dominated and person-car-mixed intra-node roads, it should set several speed control humps at a certain distance to the crossings to ensure the pedestrian’s safety.

5.4 Special Facilities Treatment

There are two facilities needed special treatment between Jiapu and Xintang, one is Jiapu sewage treatment plant, and another is the channel of water training base. (Fig. 5.5)

It is raised by Overall Planning of Changxing County Region that: “Taihu Lake and the land around the lake within 1000m compose the key protection area of Taihu Lake water pollution”. Jiapu sewage treatment plant is the first environmental agency around Taihu Lake which focuses on the centralized treatment of dyeing sewage for the township enterprises. It is said that since putting into operation in 2004, it keeps monitoring discharging to reach standard. However, according to the field observation, it seems that the plant should be improved. Beside that, there should be a shelter forest belt between the plant and the scenic road. (Fig.5.6, Fig. 5.7)
The bicycle lane is located on the north of the channel of water training base, namely it is transferred from the lake side to the inland side. Because of the special use of this road, it is considered the organization of bicycle tourist route when it is restricted passage, as shown in Fig. 5.8, after passing the Shijiacun Bridge, get down the lake dam and go along the dam inside ditch, bypass the training base then return to the scenic road. (Fig. 5.8)

Both sides of the channel of water training base within 100m should not be set parking area tourism and have the warming marks (including indicator light and note board, etc.) to maintain the field order and ensure the normal development of training activities.
5.5 Water Quality Control

The water quality of Taihu Lake in Changxing county region maintains water standard 3 for several years. This is an area which has a better water quality in Taihu Lake basin. The good water quality is the important resource of the scenic road near the water and the major headspring of wetland and green vegetation as well. We should try the best to control the discharge of sewage and waste along the road especially all the nodes and distribute the sewage and rainwater.

The rainwater treatment system must be harmless to the environment. We advocate the green basic establishment technology, set barrel-drain and small natural purgative pool on the outboard of the road and spread water plant on them. When the rainwater flow by them, the harmful substance will be disposed and filtrated. Then the water be cleaned will converge to the surface runoff or natural water.

The domestic sewage on each node should be brought into the municipal sewage network and ensure the standard discharge. The whole line should implement the classification and collection of solid waste and set special clean team to maintain the public health.

5.6 Architectural Style Control on both Sides of the Road

The scenic road should represent the local customs and practices and tell the stories of Changxing itself. Therefore, the architectural style on the side of the river should represent the unique local characteristics. Except for the footpath on the lakeside, park and yacht dock being promised to adopt the modern style, museum, exhibition hall, teahouse, restaurant and shopping department should mainly adopt Jiangnan Residential style. The height of watchtower of the sightseeing site may be 10m, and the height of all other buildings should be controlled below 2 floors to build the atmosphere that the buildings are assimilated into nature. (Fig. 5.9)
The street lamps on the scenic road should be pole lamps (see chapter 3 “Road Truncation Surface”). The lighting landscape along the road may adopt various eco-lightings such as solar lamp, wind energy lamp and energy-saving lamp, etc. In Xintang, it should have building contour lights at the intersection of the scenic road and Taihu Lake road. There should mainly be ground lamp at the lake dam slope, pedestrian area and Dangyang walk path with high density. In the park, it should use controllable switch to control the lighting brightness according to the different real-time atmosphere of dawn, dark and night. (Fig. 5.10)

Using the natural materials which could represent local characteristics is very important while building artificial landscape.

Pavement

Adopt local craftwork, choose paving material and pavement pattern. The design suggestion scheme of footway pavement is as follows: (Fig. 5.11)
Except for the bridges on the scenic road which are designed according to the formal standard of road and bridge, there are several over 10m wide small bridges which should be designed as practical and ornamental article bridges in this area especially around Dangyang. (Fig. 5.12)
Plants
In a place which has humanistic landscape value, any plant may have some relationship with the local historical figures or event, thus be endowed the meaning beside biology. For example, bamboo and pine are popular in China. In any period and any branch of Chinese art development history, we can see the expression application of them.

We can distinguish, utilize and protect these plants according to seven indexes as follows: place, environment, atmosphere, symbol, design, craftsmanship and material. While evaluating according to these indexes, it is necessary to notice the impact of the changes of times.

Bamboo: It is tough and ever green so that it is admired by Chinese art, poem and literature. Bamboo is the local characteristic plant in Changxing which should be widely planted and used as the main materials of bower, bridge and some other buildings.

Pine: It is the symbol of iron, justice and longevity. Pine is usually planted together with cypress, and that is used to represent the ever-last friendship. It can be planted in the parks and around the buildings.

Taihu Lake Reed: The plant grows in wetland. For there exists aerenchyma on its stem, leaves and roots, it can purify the sewage and deadening. It is ideal eco-building materials after being mixed with cement.

Lake Mulberry: China is the seedbed of international sericulture. Mulberry had been one of Chinese most important economic trees since ancient times. Lake mulberry is the local original tree and important economic plant. It is necessary to protect and utilize the landscape formed by lots of mulberries.

Magnolia: It is appreciated by young ladies because it means that the hope is coming while the magnolia blossoming out. It has four distinctive seasons and the magnolia is necessary.

Lotus: It is green flowering plant and represents peace, satisfaction and blessedness. It should be widely planted according to the water area near the villa and residence. (Fig. 5.13)
Chapter 6 Development of Key Nodes

6.1 Growth Management & Node Type Development

Construction of Lakeshore Scenic Road is sure to bring great commercial profits by raising land value along the line. And benign development in Lakeshore area also can enrich surrounding atmosphere of Scenic Road and increase its attraction. The key for maintaining this circular process of interactive feedback is to keep the balance between development and protection and excessive development must be forbidden. (Fig. 6.1, 6.2)

For that, we suggest the measure “node type development” of “growth management” shall be taken to develop the area along Scenic Road. Node type development means to restrict or concentrate developments in the range of the 6 nodes described above, of which the emphases are Jiaju, Xintang and Tuying in order to protect the sight, water system and farmland along the road. Furthermore, it also can design the development rate and scope by measures like “stage type development” and “flexibility development”.

In this region, Jiaju, Xintang and Tuying are introductory development areas. We will respectively propose the planning principles for distribution requirements of these three areas according to the Overall Planning of Changxing County Region.

Growth management means government restricts growth in a certain range by taking management measures to guide the increase extent and rate of city in order to ensure different social services can satisfy the requirements brought by increase while saving the investment and operation cost.

The common tools for growth management include node type development, stage type development, flexibility development, boundary extension and others.

Effective growth management requires the special measures shall be established and carried out by government while strict supervision for implement shall be taken in the meanwhile. In USA, scope, style and building line of urban architectures shall be examined and approved by professional architecture approval committee commonly while feasibility and shutdown analysis of project shall be provided by developer to avoid bad results for neighboring environment caused by development.

Fig. 6.1 Birdview Nightscape of Taihu Lake Scenic Road Planning (I)
Fig. 6.2 Birdview Nightscape of Tailhu Lake Scenic Road Planning (II)
6.2 Jiapu

Jiapu County possesses advantaged traffic superiority. Now, as the start point of Lakeshore Scenic Road, it’s also endowed with the potential for tourist development. However, the section of this area has been divided into two blocks due to obstruction by several traffic main lines especially Nanjing-Hangzhou Highway. (Fig. 6.3)

The large area in the east of Nanjing-Hangzhou Highway, which possesses a close relationship with Lakeshore Scenic Road, will be used in developments of tourist project like Lakeshore Park. Recreation, cultural entertainment and sport establishment as well as supporting facilities of tourist with low density shall be distributed in that area.

In the area between the west of Nanjing-Hangzhou Highway, Nanjing-Hangzhou Highway and National Highway 104, the south part has been taken by Jiapu industrial development zone; therefore, new development shall be extended toward north. As the description in the Overall Planning of Changxing County Region, “Development toward north for Jiapu can be considered while it become close to urban area and eradicated by center area in future”. (Fig. 6.4)
Fig. 6.4 Jiapu Key Development Nodes and Construction Plan
6.3 Xintang

Xintang is the most potential node for development along the Scenic Road. According to the Overall Planning of Changxing County Region, “distribute proper city functions like residence, business meeting, recreation and entertainment in block section from Xintang and Taihu Avenue to Lakeshore area”. (Fig. 6.5)

There are two important factors shall be noticed especially in development of Xintang:

Firstly, three traffic nodes:

— Node of Taihu Avenue and Scenic Road;
— Station point of intercity LRT in Taihu Avenue;
— Node of Xinhu Road which has been planned and Taihu Avenue; In Xinhu Road, there will be a new intercommunication developed for Ninghang Highway.

Therefore, a main transportation of Xintang area will be formed in Xintang area in future and Taihu Avenue and Xihu Road will become the tuff between Xintang and urban area of county center. On the basis of American experience, it shall be effective to adopt TOD (Transit Oriented Development) mode in transportation hub.

Secondly, joint place of Taihu Avenue, Changxing Port and Scenic Road, especially the triangle zone surrounded by inside of Scenic Road, Taihu Avenue and Changxing Port is a rare “gold area”. There are Haian Temple, archeized arch bridge, back street and bourn which presents style and feature of small market town in Jiangnan. Along with Changxing Port, locating series of hydrophilia buildings in small size can combine the modern style with Jiangnan traditional style perfectly and raise the taste level of Daxi Levee greatly.

The development of Xintang shall be in accordance with the purpose of building a city image with integrated functions. In this new urban area, it shall not only enrich scenery of Lakeshore Scenic Road but also can be extended toward urban area of county center and become “the second center” for urban area as well as realize the visualization of “introducing Taihu Lake into urban area”. (Fig. 6.5, 6.7)

Fig. 6.5 Xintang Traffic Nodes Concept
Fig. 6.6 Xintang Planning Perspective View
Fig. 6.7 Xintang Key Development Nodes and Construction Plan
6.4 Tuying

APA has already taken part in planning work of Tuying commercial development before.

It’s proposed by the *Overall Planning of Changxing County Region* that: “In Hongqiao Tuying block, key points shall be reinforcing function integration and traffic connection as well as presenting the distribution of recreation facilities clearly.” Therefore, beautiful scenery in this area shall be utilized fully for building up a ecological tourist park, of which the key points is to establish middle or high grade hotel for leisure and vacations, tourist villa, golf driving range and other facilities.

In the southwestern part, build up a wetland park which is centralized in Chenjiayang. (Fig. 6.8, 6.9)

Subdivided development shall be carried out in these three key nodes above. Firstly, set the necessary service facilities for supporting the scenic road; as the tourism here becoming prosperous gradually, developments in other forms shall be taken next when the mature time arrives like building Inn, hotel and middle or high grade housing for business or service industry in order to complete the development goal step by step.

![Fig. 6.8 Tuying Planning Perspective View](image-url)
Fig. 6.9 Tuying Key Development Nodes and Construction Plan
Chapter 7 Management and Operation of Lakeshore Scenic Road

Road is a kind of public goods provided by government or private institute. As same with other products, road also possesses the relationship between investment and output. Investment means the spending cost by construction and maintenance for the road; and output has two ways, one is the acceptance and satisfaction degree of public and the external economies brought with local development, which means if one road has strong function for local development, it shall possess high returns. The other, for the toll road, is to get the direct benefits from charging.

As the first scenic road according to international standard around Taihu Lake, the Lakeshore Scenic Road shall be one of the public tourist products with high investment and output. It shall be not only the carrier of tourist economy in Changxing County but also the booster for economical leap of development zone around Taihu Lake.

Series of operation policies shall be established for achieving anticipated return of this Scenic Road.

—Construction. Building department of government shall manage the construction in accordance with high standards and strict requirements to guarantee the project quality.

—Management. Planning department shall establish detailed management rules to control the road and ground or scenery along with it strictly. Traffic department shall set up special group for charging the routine maintenance of road as well as forming a good service specification. Tourist department shall plan the travel route, distribution and utilization of tourist facilities carefully while strengthen the management of tourist service personnel as well to build up a hospitable, natural and polite public image. In conclusion, management level of scenic road shall be promoted by cooperation between all of relevant departments.

—Promotion. At present, both the concept of scenic road and the concept of promotion are lacking in China. But if the Scenic Road is treated as a tourist product, the promotion must be considered.

Because the service target of the Scenic Road is not limited to local resident but also to attract tourists at home and abroad for touring as well as to encourage consumption by extending their staying period. For that reason, it shall make the Scenic Road become more popularized and attractive by packaging and propaganda.

In USA, the common methods for sale promotion of the scenic road are to issue ads and build a special website on the internet. (Fig. 7.1)

Now construction industry of scenic road in China has already been put on the agenda and scenic roads have been built in several places.
Now construction industry of scenic road in China has already been put on the agenda and “scenic roads” have been built in several places, like Chongqing, Qingdao, Baotou, Dongguan and others. In order to make Lakeshore Scenic Road of south Taihu Lake become the first scenic Road with international standard around Taihu Lake, it must enhance promotion work to strive for outstanding. Measures for reference include:

— Publish the news report through medium;
— Build website or webpage on the internet;
— Print and issue ads and guide materials;
— When the road is completed and put into use, hold a large (international for better) marathon or cycle track or other races. (Fig. 7.2)
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