1. Country and Sector Background

MAIN SECTOR ISSUES
The Bank has completed several key sector works on China in recent years, including:
- China Highway Sector Strategy Review (2001);
- China Review of Highway Technical Assistance (1998/99);
- OED Report on China Transport (1998/99); and

The China Highway Sector Strategy Review was completed and discussed with the Chinese Government in November 2001. This review identified the main challenges that China’s highway sector faces:
- improving accessibility to low-income areas and western provinces;
- supporting economic growth; and
- improving governance.

Improving Accessibility to Low-Income Areas and Western Provinces
Despite the Government’s remarkable efforts to reduce poverty, more than 200 million people in China still live on expenditures of less than US$ 1 a day. The highest incidence of poverty is found in inland provinces and in the remote mountainous areas of all provinces. Both central and local governments recognize the value of providing basic transport to improve the living conditions in poor areas. Access improvements have a strong effect on income and provide people with more convenient access to a broad range of social and economic opportunities.

The Bank’s highway program in China has aimed to have a favorable impact
on poverty levels in low-income areas. The Bank recommends a renewed effort to support road development in these areas for its lending and non-lending services for the sector. The Western Region--12 provinces that cover about 71 percent of China’s land area--accounts for about 28 percent of the population. For the past two decades, development in China accelerated more in the east than in the west, so that by 1998, per capita income in the east had risen to three times that of the Western Region. To support the Government’s major objective in its Tenth Five-Year Plan (FYP), the development of the western provinces, the Bank recommends financing higher class roads in the central and western provinces to economically justified standards.

Supporting Economic Growth
Roads and road transport indirectly support economic growth in a broad macroeconomic sense. With the construction of China’s National Trunk Highway System (NTHS) well advanced, it is essential for China to develop the national road network and connect provincial networks that will improve interprovincial itineraries as well as accessibility within the province and to deep-water ports and border crossings. For western and central provinces particularly, the road networks should link to large urban centers in the coastal areas in order to develop interprovincial trade and integrate lagging provinces into the national economy.

Improving Governance
Developing the Role of the Market in the Highway Sector
Improving Construction Quality. Since early 1999, the quality of highway construction has been recognized as a serious issue in China, with the State Council taking up the issue after some bridges collapsed. Much progress still must be made to change the mindsets of the Bank’s clients, the contractors and the supervisors with respect to quality. Reasonable construction implementation schedules must be drawn up to improve quality. In this regard, the role of supervision engineer is important. The supervision of construction of high-grade highways in Bank-financed projects in China has been undertaken by joint international/local teams composed of mostly local staff and a few international experts. However, because the management group of the local team comes from the employer and its institutes, the independence of the supervision team is limited. A system of supervision and contract management needs to be introduced that is based on the independence of the members of the tripartite relationship of employer-engineer-contractor. This should lead to a higher quality of construction.

Maintenance Work by Private Entities. Most road construction works in China are already carried out by contract rather than force account. However, all maintenance work (periodic and routine) is still undertaken by force account. In recent years, some Bank projects have tried new ways of carrying out maintenance, mainly with a view to introducing competition. Competitive approaches encourage the effective utilization of manpower and equipment and result in a better quality of work. While the role of the market is being established, there is a need to develop regulations for entering contracts to ensure construction quality and transparent contractual relationships between the employer and the contractors.

Operating Toll Roads. Managing toll roads more efficiently is a concern of
the Government. A study was undertaken under the ongoing Anhui Highway Project on the planning, financing and operation of the toll highway network in Anhui. The study focused on integration of these functions to ensure that when the proposed expressway is completed it will form part of the existing expressway system.

Improving Transport Services. Since the mid-1980s, China has emphasized the construction of new highway infrastructure. It has given less attention to improving transport services to draw the full benefits of infrastructure development. The modernization of road transport services for both freight and passengers, including developing regulations for the industry, is one area to be addressed in the highway sector. A comprehensive transport system using intelligent transport systems (ITS) and logistics would be highly beneficial. Information technology can transform the intermodal freight industry by enabling it to integrate operations across the supply chain (logistics). ITS have been introduced recently in China to maximize the use of the transport system while minimizing new infrastructure investment. The development of ITS is required to support a modern logistics system. Both ITS and logistics have gained high political visibility in China.

Managing Road Financing

Road Expenditure Allocations. The allocation of funds between new construction and maintenance is a major problem in China. Less than 4 percent of total annual highway expenditures went to maintenance in 1999 and 2000. If funding for periodic maintenance continues at such low levels, China will face major reconstruction costs in the future.

Another important funding issue is the balance of expenditures between various classes of roads. The NTHS currently consumes 30 percent of highway resources. Concentrating resources less on just a few large projects would have the advantage of spreading the effects of improved roads to a larger number of users, thus broadening the development impact of the expenditures. It is the Chinese government’s policy to balance expenditures economically and equitably between various classes of roads in the context of the total provincial road network. This is consistent with CAS objectives to direct more resources to alleviation of poverty.

Road Revenues and Financing. It is clear that public spending will be insufficient to meet the increasing demands placed on road infrastructure by a growing economy. Developing other sources of road financing, such as user fees, domestic borrowing, and private financing (investors’ equity, proceeds of loans and bonds and share issues) is necessary.

Private Sector Financing. Several provinces have raised funds from investors through joint venture agreements and the securitization of toll roads. However, toll-road shares have reached their limit in the Hong Kong market in terms of what the market can absorb from a single sector. It is therefore time to review ways of mobilizing private financing for roads as well as the toll road policy. The increasing maturity of loans available from domestic banks and the reform of the bond market and its opening at some time in the future to corporate issuers will widen funding sources accessible to toll-road companies. Improvements in the legal and regulatory framework that constrain private participation in infrastructure are also required.
Fuel Tax. China has been discussing the introduction of a fuel tax for some years, but no implementation is decided yet. There is no decision on either the level of such a tax and the amount of revenues desired, nor on what proportion of these revenues would go back to the road system or how these revenues would be allocated between Ministry of Communications (MOC) and the provinces. The matter is clearly political, because the new road law of January 1998, which mandates the introduction of such a fuel tax, has not yet been decided.

Improving Traffic Safety
The traffic accident rate and the death rate from road accidents are high in China, despite the relatively low rate of motorization. In 2000, 93,900 people were killed and 418,700 injured in over 617,000 accidents. International comparisons of the number of killed in traffic accidents per 10,000 vehicles show that the rate in China is about 20 times higher than that for Europe and North America. The Bank has been concerned for many years about China’s poor record of traffic safety. However, this issue is still low among the preoccupations at the highest levels of Government. The diffusion of responsibilities makes addressing the problem of traffic safety in a comprehensive manner difficult. The question is how can the dialogue on this problem be taken to higher levels of Government to improve coordination among relevant agencies and authorities. Meanwhile, the traffic safety component of the proposed project will be confined to matters under the jurisdiction of the project executing agencies—namely, the engineering aspects of road safety.

GOVERNMENT STRATEGY
To achieve a sound market economy by 2010, the following general objectives are specified in the Tenth FYP (2001-2005):
stimulate demand to foster growth, and narrowing the income gap between urban and rural areas;
accelerate development of the Western Region;
redefine the role of Government and restructure industries;
improve education; and
balance development with ecological conservation and protection of the environment.

The objectives of the Tenth FYP for the transport sector, and for the highway sector in particular, reflect most of these general objectives. The objectives of the Tenth FYP for the highway sector are primarily to support economic growth and spread the benefits of growth to lower-income populations by continuing to develop and improve the highway networks, mainly through capacity increases in infrastructure, and by developing transport services using this infrastructure. The plan focuses on:
continued construction of the NTHS in order to complete the 35,000-km network by 2010;
improved transport to and within the Western Region;
improved accessibility to low-income populations in all regions of China;
development of logistic concepts and their implementation, particularly for container transport from major ports to the interior;

2. Objectives
The project aims to provide an efficient, safe, and cost-effective highway
infrastructure and improve transport links to support the social and economic development of Anhui Province.

To meet this development objective, the project will produce the following outputs:
- transport capacity increased and market integration promoted in the low-income southeast area of Anhui;
- accessibility to low-income areas in the province improved;
- safety of road transport improved; and
- institutional capacity of the Anhui Provincial Communications Department (APCD) and related sector institutions strengthened, through policy, institutional, and organizational reform and provision of training, technical assistance, and equipment.

3. Rationale for Bank’s Involvement
By sustaining a policy dialogue and with its experience from involvement in the China highway sector for the past 17 years, the Bank will continue playing a catalytic role at the provincial level in promoting sustainable road management practices, enhancing awareness on the need to better manage sector externalities such as traffic safety, environment and social dimensions, accelerating the move towards market-based activities in the road sector, and developing institutional and manpower capacity in highway planning, design, supervision, construction, operation, maintenance, and finance.

The Chinese government has paid more attention recently to environmental aspects of highway projects as people have become more concerned about the environment. Bank involvement also will strengthen provincial practices in analyzing and implementing environmental, land acquisition, resettlement, social, and participatory aspects of highway projects.

The rural road improvement program under the ongoing project has achieved significant benefits for local communities and has demonstrated that such a program is an effective means of reducing poverty in rural areas when combined with programs for socioeconomic development.

Through its involvement in a new project in Anhui Province, the Bank will contribute financial resources needed to help increase traffic capacity in the proposed project area and strengthen the linkage of the highway network to the low-income areas in Anhui. Furthermore, Bank consultants reviewed engineering designs and helped APCD in improving their quality. Experience from the ongoing Anhui Highway project shows that with the Bank’s review, design changes and variations led to an increase of less than 2 percent of the contract price. This figure is far below the increase normally seen in similar non-Bank financed projects.

4. Description
All project components have been designed to address the sector issues described in Section B.3.

Sustain Economic and Social Development. The main project component is construction of the 116-km TTH. It is part of the Tianjian-Shanwei (Fujian) highway, which is a National Trunk Highway. The TTH will link the low-income areas in southeastern Anhui with the major provincial cities and eventually with coastal provinces through the NTHS. It will help
promote interprovincial trade and tourism-related industries in the area, particularly in Huangshan.

Improving Accessibility to Low-Income Areas. To help improve accessibility in remote areas, the proposed project includes a component to improve the rural road network. The RRIP will upgrade about 240 km of rural roads in seven counties, including four poor counties, from Class III/IV to Class II/III standards. The improved rural road network will strengthen the linkage between rural areas and major urban centers and promote the integration of regional markets.

Traffic Safety. The project will build on the knowledge and experience gained under the ongoing Anhui Highway project. The objective of this program is to mainstream blackspot improvements in the long-term highway investment and maintenance program. Some segments and blackspots identified under the Highway Accident Study will be improved. Urgent needs for human resource development will be addressed through the training of APCD staff and other provincial offices, including traffic police. Road experts from Chinese universities and research institutes will provide training on safety audits for the design, construction, operation, and maintenance of highways.

Institutional Development and Road Sector Management. The previous project began to address certain institutional issues, and the proposed project will continue to strengthen Anhui road agencies to enable them to adapt to market-based methods for road maintenance and management as well as road safety. The project will provide training, technical assistance, and equipment to APCD and related agencies.

1. Expand highway capacity and promote regional integration by constructing approximately 116 km of trunk highway

2. Improve accessibility to low-income counties by rehabilitating and improving 243 km of the Class III/IV highway network

3. Improve road safety by upgrading selected dangerous sections (blackspots) that are key to the road network

4. Strengthen the highway management capacity of APCD through technical assistance and training, including:
   - Study on construction supervision
   - Study on overloading of vehicles

5. Land acquisition and resettlement

5. Financing

   Total (US$m)
   BORROWER $380.94
   IBRD $250.00
   IDA
   Total Project Cost $630.94

6. Implementation

   The institutional and implementation arrangements will follow those of the previous Anhui Highway Project. APCD will have overall responsibility for project preparation and implementation. The Project Execution Office
(PEO), established within APCD under the ongoing Anhui Highway project, will be responsible for project preparation and implementation and the coordination of all project components, including procurement, supervision, and environmental and resettlement aspects. It will be responsible for the preparation and supervision of TTH construction and for the institutional and road safety components. The Anhui Provincial Highway Administration Bureau (APHAB) will implement the RRIP. The overall direction of the project at the central level will rest with MOC in Beijing, which will assume an oversight role and provide some technical support. The Bank loan will be lent to the Borrower, the People’s Republic of China, which will onlend the loan proceeds through the Ministry of Finance (MOF) to Anhui Province on the same conditions. The project will be implemented during 2003-2008.

Financial management and funds flow. The PEO, established under APCD, will be headed by Mr. He Guang, director of APHAB. The PEO will assume overall implementation and coordination responsibility and directly implement every component of the project. In addition, the Foreign Fund Division of APFB will play a major role in project implementation, including overall monitoring, financing arrangements, and financial management. APFB also will be responsible for maintaining, monitoring, and reconciling the project special account and reviewing, verifying, and approving withdrawal applications before submitting them to the Bank for disbursement processing. The division has experience with Bank projects and is familiar with Bank disbursement procedures. In addition, the Bank’s experience with APFB in terms of special account management and disbursement processing indicates that APFB meets and complies with the Bank’s relevant policies and procedures. For smooth and successful project implementation, close cooperation and coordination between APFB and PEO are extremely critical.

The Bank loan proceeds will flow from the Bank to the project special account and to APCD for reimbursement of expenditures incurred for the project and advanced by the APCD, or directly to contractors or suppliers. Counterpart funds include contributions made by MOC and funds raised by APCD, including lending from commercial banks. The contributions will be appropriated by MOC directly to APCD, and domestic loan proceeds will also be injected directly to the project.

7. Sustainability
Experience from completed and ongoing Bank-financed highway projects indicates a strong commitment among Chinese officials to implement the physical components. Counterpart funds are generally made available on time. However, when the province faces financial constraints due to the general policy of speeding up investment in the highway sector, funds are sometimes diverted from maintenance to construction. To mitigate this tendency, about 10 percent of project funds are allocated to improving the existing roads, especially in poorer areas.

The level of tolls would be reviewed periodically so that the project proves to be financially and economically viable and the province can repay the Bank loan and provide maintenance when required. Under the ongoing Anhui Highway Project, a study on toll rates and a study on the operation of the toll highway network were undertaken. Recommendations from these studies will be taken fully into consideration in the proposed project.
8. Lessons learned from past operations in the country/sector

Although the overall performance of the Bank highway portfolio in China (26 projects to date) has been satisfactory, a number of issues have arisen and are being taken into consideration in the design of the proposed project. One project feasibility study made optimistic assumptions on traffic growth and anticipated diversion rates from existing roads to a new highway. For the proposed project, a sensitivity analysis based on more realistic assumptions derived from actual observations was undertaken.

Previous Bank-financed projects experienced the late commencement of tendering for an electrical and mechanical facilities component. Tendering activities under the proposed project are planned to start as soon as the civil works commence.

The quality control of construction has sometimes been inadequate. Based on experience from the previous Anhui Highway project, more rational supervision mechanisms will be introduced and a study on practices in the supervision and recommendations on its future directions will be included in the project.

The development of the road network in China has not balanced the need for maintenance of existing roads and the construction of new highways. The proposed project design attempts to ensure that the highway network is balanced between high-growth areas and impoverished areas by apportioning a substantial share of investment to lower classes of roads.

9. Environment Aspects (including any public consultation)

   Issues:

The proposed preliminary project alignment runs very close to the Huangshan and Jinhuashan scenic sites and passes through Taiping Lake, a scenic and popular lake in the province. Huangshan is one of the top ten protection sites in China and has been recognized by UNESCO as a World Cultural and Natural Heritage site. Jinhuashan has 93 temples and many cultural properties, which makes it an important sacred place of Buddhism in China. Given these considerations, a thorough and detailed Environmental Assessment (EA) is needed to address the potential adverse impacts of the project, especially any indirect impacts due to a dramatic increase in tourism as a result of the proposed new highway.

Other potential environmental issues include noise, dust, water pollution and erosion during both the construction and operation phases. Air pollution, traffic management and safety, waste management and disposal will be of concern during the operation stage. Special attention will need to be paid to soil erosion and the aesthetics of the highway alignment selection and design because of the sensitive situation of scenic and tourism resources in the corridor. The potential impacts on the Taiping Lake of the added tourism and impact on the bird wildlife (specially if the lake is a winter breeding area) will need to be assessed. Although the project will not support Forestry operation, the potential impact of the highway, the connecting roads and rural roads on illegal logging will need to be assessed.

Key stakeholders of the project include APCD, affected local people along the alignment, and local communities and governments in the immediate vicinity of the parks and the lake, especially related natural resources and tourism management, cultural property authorities, NGOs and UNESCO.
APCD has retained Shanghai Ship and Shipping Research Institute (SSSRI) to prepare the Environmental Assessment of the project and to develop appropriate measures to mitigate the impacts. During the preparation of the EA, APCD will carry out further alignment refinements and analysis of alternative alignments for certain sections. SSSRI has retained recognized experts on natural habitats and cultural property for the detailed investigation and assessment as per OP 4.04 on Natural Habitats and OP 4.11 on Cultural Property.

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Note: This is information on an evolving project. Certain components may not be necessarily included in the final project.