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Report No: 35588-CN

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF US$218 MILLION

TO THE

PEOPLE'S REPUBLIC OF CHINA

FOR A

LIAONING MEDIUM CITIES INFRASTRUCTURE PROJECT

May 24, 2006

Transport Sector Unit
East Asia and Pacific Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective March 31, 2006

Currency Unit	=	Yuan
Y 8.037	=	US$1
US$0.1244	=	Y 1.00

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

APL	Adaptable Program Loan
ATC	Area Traffic Control
AWP	Annual Work Program
BPTC	Benxi Public Transport Component
BRIC	Benxi Road Infrastructure and Reconstruction Component
BRMC	Benxi Secondary Road Rehabilitation and Road Maintenance Equipment Component
BTSC	Benxi Traffic Safety and Traffic Management Component
CAS	Country Assistance Strategy
CCTV	Closed Circuit Television
CNAO	China National Audit Office
CPB	City Planning Bureau
CQS	Consultants' Qualifications
dB(A)	decibels
DPTC	Dengta Public Transport Component
DRC	Development and Reform Committee
DRIC	Dengta Road Infrastructure and Reconstruction Component
DRMC	Dengta Secondary Road Rehabilitation and Road Maintenance Equipment Component
DTSC	Dengta Traffic Safety and Traffic Management Component
EIA	Environmental Impact Assessment
EIRR	Economic Internal Rate of Return
EMP	Environmental Management Plan
EPB	Environment Protecting Bureau
FB	Financial Bureau
FPTC	Fushun Public Transport Component
FRIC	Fushun Road Infrastructure and Reconstruction Component
FRMC	Fushun Secondary Road Rehabilitation and Road Maintenance Equipment Component
FTSC	Fushun Traffic Safety and Traffic Management Component
GDP	Gross Domestic Product
IBRD	International Bank for Reconstruction and Development
IC	Integrated Circuit
ICB	International Competitive Bidding
ID	Institutional Development Component
I/M	Inspection and Maintenance
ITS	Intelligent Transport System
JPTC	Jinzhou Public Transport Component
JRIC	Jinzhou Road Infrastructure and Reconstruction Component
JRMC	Jinzhou Secondary Road Rehabilitation and Road Maintenance Equipment Component
JTSC	Jinzhou Traffic Safety and Traffic Management Component
JUTPMO	Jinzhou Urban Transport Project Management Office
km	Kilometer
LAES	Liaoning Academy of Environmental Sciences
LASS	Liaoning Academy of Social Sciences
LDRC	Liaoning Development and Reform Committee
LG	Leading Group
LMCIP	Laoning Medium Cities Infrastructure Project
LPCD	Liaoning Provincial Construction Department
LPCG	Liaoning Project Coordinating Group

LPDF	Liaoning Provincial Department of Finance
LPEPB	Liaoning Provincial Environmental Protection Bureau
LPTC	Liaoyang Public Transport Component
LRB	Land Resource Bureau
LRIC	Liaoyang Road Infrastructure Reconstruction Component
LRMC	Liaoyang Secondary Road Rehabilitation and Road Maintenance Equipment Component
LTSC	Liaoyang Traffic Safety and Traffic Management Component
LUCRPO	Liaoning Urban Construction and Renewal Project Office
LUTP	Liaoning Urban Transport Project
m	Meter
MBD	Model Bidding Documents
MCB	Municipal Communications Bureau
MFB	Municipal Finance Bureau
MFMD	Municipal Facility Management Division
MOF	Ministry of Finance
MV	Motorized Vehicle
MVECS	Motor Vehicle Emission Control Strategy
NCB	National Competitive Bidding
NDRC	National Development Reform Commission
NMV	Non-motorized Vehicle
NO2	Nitrogen Dioxide
NPV	Net Present Value
NRSL	National Road Safety Law
PCN	Project Concept Note
pcu/h	Passenger Car Unit/hour
PMO	Project Management Office
PM10	Airborne particulate matter less than 10 micrometers in diameter
PPTC	Panjin Public Transport Component
PRIC	Panjin Road Infrastructure and Reconstruction Component
PRMC	Panjin Secondary Road Rehabilitation and Road Maintenance Equipment Component
PSBTPB	Public Security Bureau Traffic Police Brigade
PT	Public Transport Component
PTS	Passenger Time Savings
PTSC	Panjin Traffic Safety and Traffic Management Component
PUMB	Public Utility Management Bureau
QCBS	Quality and Cost Based Selection
RAP	Resettlement Action Plan
RI	Road Infrastructure and Reconstruction Component
RIB	Resettlement Information Booklet
RM	Secondary Road Rehabilitation and Road Maintenance Equipment Component
RSC	Road Safety Committee
SEPA	State Environmental Protection Agency
SOE	State-owned Enterprises
sq km	Square Kilometer
sq m	Square Meter
TA	Technical Assistance
TOR	Terms of Reference
TS	Traffic Safety and Traffic Management Component
UCB	Urban Construction Bureau
UCC	Urban Construction Committee
UNDB	United Nations Development Business
veh-km	Vehicle-kilometer
VOC	Vehicle Operating Cost
VSL	Variable-spread Loan

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Task Team Leader:	Shomik Raj Mehndiratta, EASTR

CHINA
China-Liaoning Medium Cities Infrastructure Project

CONTENTS

IBRD 34627, 34670, 34629, 34669, 34668, 34667, 34628

CHINA

CHINA-LIAONING MEDIUM CITIES INFRASTRUCTURE PROJECT

PROJECT APPRAISAL DOCUMENT

EAST ASIA AND PACIFIC

EASTR

Date: May 24, 2006	Team Leader: Shomik Raj Mehndiratta
Country Director: David R. Dollar	Sectors: General transportation sector (100%)
Sector Manager/Director: Jitendra N. Bajpai	Themes: Other urban development (P)
Project ID: P099992	Environmental screening category: Full Assessment
Lending Instrument: Specific Investment Loan	

Project Financing Data

[X] Loan [ ] Credit [ ] Grant [ ] Guarantee [ ] Other:

For Loans/Credits/Others:
Total Bank financing (US$m.): 218.00
Proposed terms: VSL, 20 years, including 5 years of grace and annuity principal repayment, at six-month LIBOR for US$218 million plus variable spread for Variable-Rate Single Currency Loans

Financing Plan (US$m)

Source	Local	Foreign	Total
BORROWER	268.42	39.00	307.42
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT	145.00	73.00	218.00
Total:	413.42	112.00	525.42

Borrower:
People's Republic of China, represented by Ministry of Finance

Responsible Agency:
Liaoning Provincial Department of Finance
103 North Nanjing Street
Heping District
Shenyang
Liaoning Province
People's Republic of China. 110002

Facsimile: 86-24-2283-4167

Estimated disbursements (Bank FY/US$m)									
FY	2007	2008	2009	2010	2011	2012			
Annual	10.00	25.00	50.00	50.00	60.00	23.00			
Cumulative	10.00	35.00	85.00	135.00	195.00	218.00			

Project implementation period: Start July 1, 2006 End: June 30, 2011
Expected effectiveness date: December 31, 2006
Expected closing date: December 31, 2011

Does the project depart from the CAS in content or other significant respects? ***Ref. PAD A.3***	[ ]Yes [X] No
Does the project require any exceptions from Bank policies? ***Ref. PAD D.7***	[X]Yes [ ] No
Have these been approved by Bank management?	[X]Yes [ ] No
Is approval for any policy exception sought from the Board?	[ ]Yes [X] No
Does the project include any critical risks rated "substantial" or "high"? ***Ref. PAD C.5***	[X]Yes [ ] No
Does the project meet the Regional criteria for readiness for implementation? ***Ref. PAD D.7***	[X]Yes [ ] No

Project development objective ***Ref. PAD B.2, Technical Annex 3***

The objective of the Project is to assist the Borrower's Project Cities in enhancing: (i) the performance and quality of their existing urban transport infrastructure in terms of mobility, access, and safety; (ii) the efficiency and effectiveness of their urban public transport and road maintenance services; and (iii) the responsiveness of their urban transport systems to the needs of population without access to private motorized vehicles.

Project description *[one-sentence summary of each component]* ***Ref. PAD B.3.a, Technical Annex 4***

The project covers the center cities of Panjin, Jinzhou, Fushun, Benxi and Liaoyang municipalities, and the county town of Dengta in Liaoyang municipality.

The **Road Infrastructure and Reconstruction Component (RI)** [US$330.93 million, including resettlement costs of US$105.1 million] includes road improvements in the primary, secondary and tertiary networks that would address current transport problems and bottlenecks.

The **Secondary Road Rehabilitation and Road Maintenance Equipment Component (RM)** [US$113.40 million] will finance rehabilitation of major segments of the participating cities' road network to improve last-mile access to pedestrians and bicyclists, and finance road maintenance equipment.

The **Traffic Safety and Traffic Management Component (TS)** [US$22.18 million] supports the implementation of the NRSL through enhanced traffic management, monitoring and traffic control systems (including traffic signals and intersection improvements) to improve safety and traffic flow.

The **Public Transport Component (PT)** [US$14.45 million] includes provision of bus priority facilities and improvements in public transport planning and operations in the project cities. It includes investments in public transport infrastructure such as on-street bus priority and transit oriented traffic engineering, shelters, terminals and interchanges.

The **Institutional Development Component (ID)** [US$4.85 million] supports technical assistance in transport planning and management, reform in road maintenance practices and in the structure of the public transport industry, and includes project management assistance.

Which safeguard policies are triggered, if any? ***Ref. PAD D.6, Technical Annex 10***

Environment Assessment (OP/BP/GP 4.01)
Involuntary Resettlement (OP/BP 4.12)

Significant, non-standard conditions, **if any**, for:
Ref. PAD C.7

Board presentation:

None.

Loan/credit effectiveness:

Acceptable legal opinions.

Covenants applicable to project implementation:

1. The Project Implementing Entity shall cause each Project City to:

   (a) prepare, in accordance with terms of reference satisfactory to the Bank, and furnish to the Bank by February 15 in each calendar year, beginning on February 15, 2007, for review and approval, a proposed action plan for the carrying out of its Respective Parts of the Project during the same calendar year, said work plan to include, inter alia, the scope and schedule of activities under its Respective Parts of the Project, the financing plan and detailed budget arrangements (including required counterpart funds as validated by each Project City);

   (b) thereafter, carry out such Respective Parts of the Project in accordance with such action plan as shall have been approved by the Bank; and

   (c) provide to the Bank for its prior concurrence any proposed modification or waiver of its respective annual action plan, or any provisions thereof, prior to putting into effect such modification or waiver.

2. The Project Implementing Entity shall cause each Project City to engage consultants, from time to time, in adequate numbers, with expertise, terms of reference, qualification and experience, acceptable to the Bank, as required for supervision of civil works implemented under its Respective Parts of the Project.

3. The Project Implementing Entity shall cause each Project City to:

(a) conduct a public survey using public participatory process on the impacts and benefits of the Project by June 30, 2008, and June 30, 2011 respectively, under terms of reference and in accordance with methodologies acceptable to the Bank;

(b) after each public survey promptly prepare and furnish to the Bank a report integrating the results of the public survey performed pursuant to sub-paragraph (a) of this paragraph and setting out the measures recommended to address the issues raised by the public during the public surveys; and

(c) thereafter immediately take all measures required to carry out the conclusions and recommendations of said reports and the Bank's views on the reports, if any.

4. The Project Implementing Entity shall cause each Project City to:

(a) arrange an annual meeting chaired by its respective Road Safety Committee in October of each calendar year, starting October 2006, to review the records of road safety and traffic flows of such year on selected corridors and intersections in the respective Project City based on the measurements of traffic volumes and road safety agreed with the Bank; and

(b) promptly after each meeting, prepare and immediately thereafter implement a time-bound action plan to improve safety and traffic flows in the above-mentioned corridors and intersections.

5. The Project Implementing Entity shall cause each Project City to notify the Bank reasonably in advance of adopting or putting into effect any policies which may result in changes to the following: (a) legal status or corporate form of state-owned bus companies; (b) granting of bus route or bus network concessions longer than three (3) years in duration; and (c) transfer from government ownership of bus fixed infrastructure, such as depots, interchanges, terminals, and maintenance workshops.

6. During the Project implementation, the Project Implementing Entity shall cause each Project City to furnish an annual report to the Bank, by December 15 of each calendar year, beginning December 15, 2006, describing the procurement completed in such year for non-Bank financed road maintenance contracts in the Project City, which report should include, among other things, with respect to such road maintenance contracts, the number of bidders and their bid prices as announced at the bid opening, contract owner's cost estimate, the selected bidder, the signed contract price, and the reasons for rejection of the lowest bid, if any.

A. STRATEGIC CONTEXT AND RATIONALE

1. Country and Sector Issues

Urban Transport in the medium cities of Liaoning province in northeast China presents a combination of challenges peculiar to their historic and recent economic context, as well as those being faced by cities all across China.

Supporting the northeast through a period of economic transition. While China has become an international symbol of economic growth and poverty alleviation in the last three decades, the medium cities in Liaoning have benefited only to a limited extent from this prosperity. Before the market oriented reforms of the late seventies, Liaoning was one of the country's major industrial centers, focusing on heavy industry and mining. The province became China's most urbanized province with 53 percent urban population (2003, China Statistics Year Book). Much of the urban population settled in a number of medium cities with economies anchored around a small number of state-owned industrial and mining enterprises. Such enterprises have had mixed success in the transition to a market economy, and have generally found themselves under severe financial pressure. This has in turn put fiscal pressure on and weakened the economic base of the cities, an impact that has been further exacerbated with the imminent exhaustion of ore lodes in some areas.

As a result, at a time when many of the cities in China's coastal region (as well as the two large cities of Shenyang and Dalian in Liaoning) have been investing heavily in transport infrastructure, the road and public transport systems in the medium cities of Liaoning have suffered from systemic fiscal neglect. This accumulated underfunding has resulted in a serious deterioration of the asset base and underprovision of basic transportation services. Much of the existing road infrastructure in these cities is in urgent need of renovation. The secondary road system, essential for "last-mile" access, and to provide alternative routes to major arterials for bicycle traffic (which is the mainstay of much of the population), is in a particularly bad state of repair. Public transport services suffer in addition from inadequate funding of largely city-run bus services, lack of modernization of methods and technology, and the lack of adequate auxiliary infrastructure to support effective bus service. The urban environment of the cities is declining as a consequence, and a recent investment climate study conducted by the Bank found that "livability" concerns had become a significant factor undermining the investment climate in Liaoning's medium cities. Indeed, in the absence of an effort to systematically preserve, rehabilitate and manage the transport network and related services, urban infrastructure quality might well become a significant problem constraining the future economic prospects of Liaoning. These cities and their residents would benefit significantly from investments that support rehabilitation and upgrading of the urban transport infrastructure.

The challenge of cost-effective service delivery. Given the limited financial ability of the cities to continue to support services such as public transport and road maintenance, traditionally provided by local government in China, there is an urgent need to identify cost effective mechanisms for service delivery, such as those that take advantage of market efficiencies. Such a shift is also in line with national priorities; in a recent official document (Opinion #46 in October 2005) China's State Council has recommended that cities transition toward the use of market mechanisms for local public utility infrastructure and service delivery.

Ensuring "people-centered" development. Much can be done to make the transport planning and management process in all Chinese cities more responsive to the national government's stated "People First" development strategy and the desire to create a socially harmonious society. The national government has taken several actions in recent years to operationalize these general strategies in the context of urban transport. The National Road Safety Law (NRSL), promulgated in 2004 and now under implementation, explicitly values safety over mobility, and focuses especially on the most vulnerable road users; pedestrians and cyclists involved in traffic accidents are considered, by default, victims needing redress. Similarly, the State Council (via Opinion #46 in October 2005), the Ministry of Construction, as well as the highest levels of Chinese leadership, have promoted the provision of priority to public transport in cities in official documents and public announcements. However, local governments' success in implementing these priorities remains limited. In Liaoning, as elsewhere in China, the municipal transport planning and management processes too often still produce large high-profile transport investments (which focus disproportionately on the needs of the motorized few), to the detriment of the most vulnerable, who are left with inadequate levels of basic services and safety.

2. Rationale for Bank Involvement

As part of a program to revitalize the industrial base in the country's northeast, the Government of China has programmed a series of Bank urban infrastructure investment projects in Liaoning. The provincial government has asked the Bank to support urban transport, environment and heating investments in high-priority medium sized cities. The proposed Liaoning Medium Cities Infrastructure Project (LMCIP), focusing on urban transport, is the first of a series of three projects; an urban environment project and a heating project are under preparation for the coming fiscal years.

The Bank is well positioned to help Liaoning's cities address their urban transport challenges, both in terms of the Bank's competitive advantage in financing and policy advice, as well as in terms of a strong and long relationship with Liaoning province. The Bank has been Liaoning's development partner for over fifteen years, and has provided around US$400 million for four urban infrastructure projects alone, including the Liaoning Urban Transport Project (LUTP), which was successfully completed in December 2005.

The Bank brings a combination of 15 years of experience working in China on urban transport with international experience with good practice on urban transport solutions. Of particular relevance to this project is the Bank's experience with traffic safety, the use of market mechanisms for the provision of transport services, and the use of planning processes that facilitate transport outcomes responsive to the needs of the majority of the population without access to private automobiles.

Finally, Bank assistance also provides the project cities an opportunity to gain from the Bank's extensive global and China experience with institutional development, procurement and financial management. The project cities have already benefited from the analytical rigor of Bank project preparation and appraisal to achieve optimal project design. Value-added during implementation would include cost savings through procurement under Bank guidelines, and improved project management and construction quality.

3. Higher-Level Objectives to which the Project Contributes

The project is consistent with the 2006-10 Country Partnership Strategy (approved by the Board on May 23, 2006), which seeks among other objectives, to improve the competitiveness of the various regions of China and the overall investment climate, and to address the needs of disadvantaged groups and underdeveloped areas through financing infrastructure. Specifically, the project supports the objectives of: (a) reducing poverty, inequality, and social exclusion; (b) financing sustained and efficient growth; and (c) improving public and market institutions.

B. PROJECT DESCRIPTION

1. Lending Instrument

The Bank will finance the project through a Specific Investment Loan. The loan would be payable in 20 years, including 5 years of grace and annuity principal repayment, at six-month LIBOR for US$218 million plus variable spread for Variable-Rate Single Currency Loans.

2. Project Development Objective and Key Indicators

The objective of the Project is to assist the Borrower's Project Cities in enhancing: (i) the performance and quality of their existing urban transport infrastructure in terms of mobility, access, and safety; (ii) the efficiency and effectiveness of their urban public transport and road maintenance services; and (iii) the responsiveness of their urban transport systems to the needs of population without access to private motorized vehicles.

The indicators used to measure project outcomes can be classified under two categories:

- Those relating to the performance of the road network, measured through: (a) satisfaction levels with transport facilities (mobility, access, safety) expressed by a panel of public participants; (b) the percent of the road network functioning as an all-weather road; (c) weighted travel time for all users (bicycles, cars, bus, pedestrians) over a selected set of travel itineraries; (d) number of traffic accident fatalities; and (e) use of open competitive bidding methods on a pilot basis to award maintenance contracts.
- Those relating to public transport services, measured through: (a) satisfaction levels with public transport services, expressed by a panel of public participants; (b) competitive award of bus route franchises to multiple independent operators on a pilot basis; (c) improved level of bus service (measured by number of bus passengers and vehicle kilometer (veh-km) of revenue service) in at least one project city; (d) network coverage of public transport, measured in route kilometer (km) per square km; and (e) adoption of effective bus priority measures (as measured by difference in the operating speeds along priority sections).

3. Project Components

The project covers the center cities of Panjin, Jinzhou, Fushun, Benxi, and Liaoyang municipalities, and the county town of Dengta in Liaoyang municipality. The project has been designed to reverse the deterioration of the asset base, improve the "livability" and investment climate, and support initiatives that reflect national and provincial priorities related to urban transport. The design has been refined through extensive consultation with user groups. The project has five components in each city, as summarized in Table 1. The overall project cost is

estimated at US$524.9 million, which will be partly financed by the proposed US$218 million International Bank for Reconstruction and Development (IBRD) loan.

Table 1: Project Costs by City (millions of US$)

	Benxi	Fushun	Jinzhou	Liaoyang	Panjin	Dengta	Total
Road infrastructure and reconstruction	65.46	36.03	56.34	93.75	67.51	11.83	330.93
Secondary road rehabilitation and road maintenance equipment	27.19	8.72	27.33	17.03	30.53	2.59	113.40
Public transport	3.46	0.06	1.84	2.76	6.22	0.11	14.45
Traffic safety and traffic management	3.00	7.97	3.88	3.23	3.91	0.18	22.18
Institutional development	0.97	0.74	1.00	1.0	0.97	0.17	4.85
Contingencies	8.22	4.93	8.63	8.39	7.66	1.23	39.07
Front-End Fee	0.11	0.07	0.12	0.12	0.11	0.02	0.55
Total	**108.41**	**58.53**	**99.14**	**126.28**	**116.91**	**16.14**	**525.42**

Most of the project investments are concentrated in rehabilitation and reconstruction of the existing road network to make up for previous under funding, to bring the network up to a good state of repair, and to improve overall accessibility and safety. Two significant initiatives influenced the choice of road investments and concomitant traffic management designs. First, a survey of bicycle users was conducted in Fushun. Second, technical planning analysis was supplemented by an extensive public participation process in all project cities, with the goal of understanding the important urban transport related concerns of the citizens and obtaining their input into project design. The survey of bicycle users identified the need for bicycle-friendly traffic management measures to address concerns related to absent or poorly designed bicycle lanes, encroachment from pedestrians (often because of the absence of functioning sidewalks), illegally parked cars, and construction; and increased the focus on the need for a high-quality secondary road system to provide critical last-mile access and to offer bicyclists alternatives to major arterials where conflicts with motor vehicles were maximized. These results were complemented by the public participation findings (see Annex 15), which also focused on the need to improve sidewalks, street furniture, and the quality of the secondary road system to address concerns relating to drainage during rains and in winter. These initiatives were instrumental in the design and scope of the secondary road rehabilitation component and the traffic management solutions proposed in the traffic safety component. Further, the public participation also endorsed the need for the proposed new infrastructure proposals in each city - in particular raising concerns about the quality of drainage and the steepness of slopes on current rail crossings (underpasses and overpasses).

The passage of the NRSL in 2004 and initial efforts to implement it provided a rare opportunity to help the project cities to both define and implement a comprehensive safety agenda. The traffic safety and traffic management component combines investments in traffic management and control with support for a multi-institutional capacity building effort developed to help the newly formed municipal level Road Safety Committees (RSCs) execute their responsibilities.

Similarly, the project has been structured to support ongoing provincial initiatives to introduce market efficiencies in road maintenance practices and the public transport industry. In response to provincial directives, cities are in the midst of a move to contract major road maintenance activity. The project provides training, technical support and investments to help maintenance agencies in their evolving roles related to planning and effectively contracting maintenance activity. The component also supports investments and technical assistance to help maintenance companies prepare for a competitive environment.

All the project cities are also in the midst of restructuring public transport industry in response to provincial directives to increase private sector involvement in the sector. The initial focus of the cities was on generating inward investments for city-owned public transport enterprises without adequate attention on a post-reform regulatory environment that would protect the interests of the city and its bus passengers. The project is supporting cities in understanding the implications of different reform options for all stakeholders, as well as supporting interested cities in undertaking comprehensive reform that protects the interests of all the stakeholders. Concerns from the public participation, particularly from women, also helped focus the public transport component on supporting a network review and supporting bus priority pilots in the project cities.

A brief description of the project components follows: a detailed description is presented in Annex 4.

The **Road Infrastructure and Reconstruction Component (RI)** [US$330.93 million, including resettlement costs of US$105.1 million] includes road improvements in the primary, secondary and tertiary networks that would address current transport problems and bottlenecks.

The **Secondary Road Rehabilitation and Road Maintenance Equipment Component (RM)** [US$113.40 million] will finance rehabilitation of major segments of the participating cities' road network to improve last-mile access to pedestrians and bicyclists, and finance road maintenance equipment.

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The **Public Transport Component (PT)** [US$14.45 million] includes provision of bus priority facilities and improvements in public transport planning and operations in the project cities. It includes investments in public transport infrastructure such as on-street bus priority and transit oriented traffic engineering, shelters, terminals and interchanges.

The **Institutional Development Component (ID)** [US$4.85 million] supports technical assistance (TA) in transport planning and management, reform in road maintenance practices and in the structure of the public transport industry, and includes project management assistance for Liaoning Urban Construction and Renewal Project Office (LUCRPO).

4. Lessons Learned and Reflected in the Project Design

The Independent Evaluation Group (formerly the Operations Evaluation Department) and the Quality Assurance Group assessments of the Bank's infrastructure portfolio in China have confirmed satisfactory project implementation, outcomes, and project management. Experience from a full range of projects financed by the Bank in the transport and urban sectors points to the importance of Borrower ownership (particularly of institutional development components) and appropriateness of capital investments, as well as arrangements for proper operations and maintenance. This project has been designed to incorporate these lessons. Specific design decisions based on lessons from past experience include:

(a) **Selecting high impact capital investments**. A multi-pronged strategy was used to identify appropriate investments by moving beyond a focus on big visible infrastructure, such as ring roads, to strategic investments and support through:

- *Pre-screening to identify high impact investments*. In response to past experience of the difficulty of scaling down politically attractive road proposals late in the preparation process when the results of a formal economic analysis become available, all significant investments for this project (any roads with more than four lanes, any bridges, overpasses and underpasses) were intensively pre-screened during project identification and several proposals with likely low economic returns were dropped.
- *Adopting people-centered planning*. As bicycles account for up to half the vehicular travel in the project cities, the transport models explicitly modeled bicycle demand and economic evaluations included benefits accrued by bicyclists. This helped to raise planners' awareness and sensitivity to the needs of non-motorized modes.
- *Inclusive processes*. A major achievement of this project during preparation has been the successful development of a meaningful public participation process that influenced project design (see Annex 15 for more detail).

(b) **Developing a client-driven institutional agenda.** A constant challenge in urban transport projects in China has been to reconcile the need for reform to ensure sustainability with the knowledge that reform is successful only when it is client-driven. The project supports national policies on reform of both road maintenance practices and the public transport industry through training and consulting support to all the project cities to understand the implications of different reform options based on recent Chinese and international experience. However, only cities that have expressed active interest in reform implementation are provided additional support.

(c) **Enhancing traffic safety**. Past traffic safety interventions in China have focused primarily on 'bottom-up' on-street interventions such as junction channelization, which have resulted in localized benefits. However, the institutional impact has been limited; international experience indicates that sustained impact needs buy-in from city leadership. This project builds on the RSCs to bring together all related decision makers in the city to implement the NRSL. It would also establish a systematic monitoring program to institutionalize effective safety strategies.

(d) **Improving cost estimates and minimizing disbursement lags**. Market prices have been used to estimate costs, instead of the norm prices used in the past. Implementation

arrangements, funds flow, and withdrawal procedures have been reviewed to minimize potential disbursement delays.

5. Alternatives Considered and Reasons for Rejection

Project Scope and Program Options. A number of alternatives were reviewed with Liaoning Province and Government (Ministry of Finance, MOF/National Development and Reform Commission, NDRC) to determine the optimal packaging for the urban infrastructure investments proposed in the medium cities of the province (i.e., cities other than Shenyang and Dalian). These included: (a) an adaptable program loan (APL) with three stages; (b) three multi-sector projects (i.e., each project covering urban transport, urban environment, and heating and gas), each focusing on a selected number of medium cities; (c) two projects, with the first focusing on urban transport and urban environment, and the second focusing on heating and gas; and (d) a series of three sectoral projects, starting with a project focusing on urban transport, and followed in rapid succession by projects focusing on urban environment, and heating and gas supply. Key considerations in the packaging decision included the need to complement the investments with appropriate sectoral and institutional reforms, and the need to complete a significant portion of the overall program by the end of China's Eleventh Five Year Plan, i.e., 2010.

The APL approach was discarded because: (a) of the difficulty in defining appropriate triggers to move to the second and third projects in the context of multi-sector and multi-city projects; and (b) the approval of the second and third projects would each take at least two (and perhaps three) years after the approval of the preceding project, thus making the 2010 target difficult to attain. Option (b) of three multi-city projects, each handling multiple sectors, was not considered feasible because of the long lead time required for preparing a comprehensive first project with an appropriate set of investments and corresponding sectoral reforms in multiple sectors. Option (c), with a first project addressing urban transport and urban environmental issues was considered at the Project Concept Note (PCN) meeting. It was recognized that such a project would be complex; it was therefore decided that the Bank would consult with the Government to split the first project into two separate sectoral projects, i.e., one for urban transport and the other for urban environment. Following agreement with Government, the alternative of three separate sectoral projects - Option (d) - was selected. LMCIP is the first of these three projects.

Investment Components. As discussed earlier, project identification included an intensive pre-screening of individual investment proposals. This was followed by an economic analysis in which the entire road infrastructure program in each city was tested against a "no project" scenario. High-cost or large-scale investments (rail and bridge crossings, roads with more than four motorized vehicle (MV) lanes), together with investments not related to immediate problems (new development roads), were analyzed individually. For such investments, a significant effort was made to generate the lowest cost alternative that preserved the benefits (see Annex 9).

An attempt was made in the early stages of preparation to contain the scope to the road infrastructure, secondary road and traffic safety components. The consultation process showed that such a project would not respond adequately to the needs of people without access to private motor vehicles, and consequently more emphasis was placed on the public transport component.

C. Implementation

1. Partnership Arrangements

The project is free-standing and does not have any other co-financiers.

2. Institutional and Implementation Arrangements

Implementation Arrangements. The Liaoning Provincial Coordinating Group (LPCG), established by Liaoning Provincial government, chaired by a Vice Governor of Liaoning, will provide high-level guidance to the project, and coordinate on policy and institutional issues related to the project. The Liaoning Province Department of Finance (LPDF) is responsible for integrated management of the Project, including providing guidance to the LUCRPO and monitoring day-to-day Project implementation by LUCRPO. LUCRPO, established under the Liaoning Provincial Construction Department (LPCD), is responsible for day-to-day Project implementation.

Each participating city has established a city Leading Group (LG), in which government leaders participate. The LGs are responsible for providing policy guidance, and coordination support for the project. Under their direction, the city project management offices (PMOs) will manage and coordinate day-to-day project preparation and implementation. Under LUCRPO's guidance and supervision, PMOs will participate in bidding document design, bid evaluation, and contract negotiation, and will be responsible for signing procurement contracts. Upon completion of infrastructure works, PMOs will provide satisfactory review of the work completed. The completed facilities and infrastructure will be owned by the city governments, but will be operated, managed, and maintained by responsible government entities. Detailed project responsibilities and implementation arrangements are given in Annex 6.

Construction Supervision. The project includes two layers of construction supervision: general project supervision in all cities, and local supervision for individual cities. General project supervision will be provided by a consulting firm selected on the basis of international competition. Local supervision will be carried out by local consultants who will perform periodic on-site supervision and provide construction supervision reports.

Fund Flow. The Bank loan to the People's Republic of China will be on-lent to Liaoning Province, which will in turn on-lend them to the participating municipalities. The designated account (DA) will be established and managed by LPDF.

Disbursement. Municipal/city PMOs will submit the withdrawal applications and related invoices for civil works and equipment to the Municipal Financial Bureau (MFB) for checking, who will forward the invoices to LPDF, copying LUCRPO for verification. Upon LUCRPO's verification, LPDF will release funds from the project DA to the contractors or to the MFBs, to enable them to make payments to the contractors. Consultants will submit invoices to LUCRPO, who will review and forward the invoices to LPDF for payment.

Resettlement Compensation Fund Flow. MFB will allocate funds to the resettlement implementing entity (either resettlement companies, or the land acquisition and resettlement service division in the case of Panjin) according to the project implementation progress. The resettlement implementing entity will: (a) pay the land acquisition and resettlement tax and fees

to the Land Resource Bureau (LRB) and the city Resettlement Office; and (b) deposit the compensation funds into a local bank or credit union. Payments to the affected people or entity will be made by the bank/credit union based on the certificates issued by the resettlement implementing agencies. All resettlement will be financed from counterpart funds.

3. Monitoring and Evaluation of Outcomes/Results

Annex 3 lists the main outcome indicators for the project, as well as the principal results indicators for each component. Additional indicators are listed in the various documents in the project files (for example, the Environmental Management Plan, EMP). LUCRPO and the city PMOs will regularly collect data required for monitoring and evaluation of outcomes. LUCRPO will review the results on the basis of various progress reports, and take appropriate corrective action.

4. Sustainability and Replicability

Past experience suggests that the investment program is likely to be constructed to high-quality standards and completed on schedule. Long-term sustainability of the road assets will, however, depend on effective and timely maintenance. The road maintenance component will raise awareness, improve planning and delivery of maintenance, and support funding levels required to ensure sustainability of the road network in each project city.

Public transport services are currently dominated by state-owned enterprises (SOEs) whose ownership base is being transformed during 2006–07, mostly by sale or transfer of stock to management and staff. The default plans are to give concessions to the transformed SOEs for most or the entire network. Such a strategy would lock the cities into monopoly (or near-monopoly) situations which would not be in the best interests of the city or potential public transport customers. The project includes technical assistance (TA) to help cities understand the options, benefits and implementation mechanisms for various models of market reform.

Sustainability of project investments ultimately depends on each city's ability to successfully diversify its economic base. The project supports that quest, by reducing transport constraints to economic growth. Acknowledging the risks associated with long-term economic recovery of some of these dense, settled and sizable cities (the urban area in the smallest municipality, Liaoyang, is larger than Helsinki, and the largest - Fushun - is larger than Dublin), the selection of project cities is based on an analysis of their current fiscal capacity.

5. Critical Risks and Possible Controversial Aspects

Potential Risks	Proposed Mitigation Measures	Risk Rating with Mitigation
To Project Objectives		
Improvements to the road infrastructure system will not be sustained due to inadequate maintenance.	Letters of commitment from Mayors and annual reports; support for reform in maintenance practices to increase productivity; covenant to implement reform effectively; TA and equipment to assist in better maintenance planning.	S

Potential Risks	Proposed Mitigation Measures	Risk Rating with Mitigation
Congestion caused by increased motorization will limit travel time savings from the project investments.	Bus service improvements and priority measures should preserve the mobility of bus passengers. The annual monitoring program will highlight and address significant traffic management issues on the identified corridors and intersections.	S
Accidents will increase despite project investments.	Results based monitoring program will review safety in identified key corridors and intersections on an annual basis and develop effective implementation measures.	M
Public transport reform will not attract new operators	Cities will be supported in the use of standardized franchise terms. The combined market in the project cities would increase the attractiveness of the city franchises for investors. TA includes outreach to potential investors from Dalian, Shenyang, Anshan, and Fushun, where multiple operators (including major international investors) are already present.	M
The cities will respond to increases in motorization by adopting MV capacity enhancements that reduce/eliminate measures such as bus priority and MV/non-motorized vehicle (NMV) separation that help the vulnerable.	Highlight success of effective measures and raise awareness. Public consultation during implementation; monitoring program, including traffic safety audits; design solutions to increase the permanence of MV/NMV separations (street lights at the MV/NMV separation).	M
To Project Component Results		
Road Infrastructure and Reconstruction • Roads/intersections will be designed or implemented without fully addressing needs of the vulnerable • Road schemes changed during implementation	Technical reviews, public consultation during implementation Annual reviews of the implementation program	M
Secondary Road Rehabilitation and Road Maintenance Equipment • Maintenance funding • Municipalities reverse their commitment toward road maintenance after project implementation	Letters of commitment from Mayors and annual reports from each city Support from the Provincial Construction Department	S
Safety and Traffic Management • Safety measures will be ineffective	Results based implementation program; feedback from participatory monitoring	M

Potential Risks	Proposed Mitigation Measures	Risk Rating with Mitigation
Public Transport • Reform will be executed by SOE operator without considering city interests • Lack of political commitment to give priority to public transport; labor and employment issues as a result of public transport reform	TA, support of the Provincial Construction Department Participatory monitoring; TA; implementation and evaluation of demonstration schemes. Restructuring of the SOE; introduction of new entrants on a competitive basis, and maintaining total number of bus jobs through bus service expansion	M
Overall Risk Rating		S/M

Note: High Risk – H, Substantial Risk – S, Modest Risk – M, Low or Negligible Risk – N.

6. Loan Conditions and Covenants

Legal Covenants

Proceeds of the loan shall be on-lent to Panjin, Jinzhou, Fushun, Benxi, and Liaoyang municipalities at the same terms and conditions as the Bank loan, with the municipalities bearing the foreign exchange risk.

Implementation Covenants

1. The Project Implementing Entity shall cause each Project City to:

   (a) prepare, in accordance with terms of reference satisfactory to the Bank, and furnish to the Bank by February 15 in each calendar year, beginning on February 15, 2007, for review and approval, a proposed action plan for the carrying out of its Respective Parts of the Project during the same calendar year, said work plan to include, inter alia, the scope and schedule of activities under its Respective Parts of the Project, the financing plan and detailed budget arrangements (including required counterpart funds as validated by each Project City);

   (b) thereafter, carry out such Respective Parts of the Project in accordance with such action plan as shall have been approved by the Bank; and

   (c) provide to the Bank for its prior concurrence any proposed modification or waiver of its respective annual action plan, or any provisions thereof, prior to putting into effect such modification or waiver.

2. The Project Implementing Entity shall cause each Project City to engage consultants, from time to time, in adequate numbers, with expertise, terms of reference, qualification and experience, acceptable to the Bank, as required for supervision of civil works implemented under its Respective Parts of the Project.

3. The Project Implementing Entity shall cause each Project City to:

(a) conduct a public survey using public participatory process on the impacts and benefits of the Project by June 30, 2008, and June 30, 2011 respectively, under terms of reference and in accordance with methodologies acceptable to the Bank;

(b) after each public survey promptly prepare and furnish to the Bank a report integrating the results of the public survey performed pursuant to sub-paragraph (a) of this paragraph and setting out the measures recommended to address the issues raised by the public during the public surveys; and

(c) thereafter immediately take all measures required to carry out the conclusions and recommendations of said reports and the Bank's views on the reports, if any.

4. The Project Implementing Entity shall cause each Project City to:

(a) arrange an annual meeting chaired by its respective Road Safety Committee in October of each calendar year, starting October 2006, to review the records of road safety and traffic flows of such year on selected corridors and intersections in the respective Project City based on the measurements of traffic volumes and road safety agreed with the Bank; and

(b) promptly after each meeting, prepare and immediately thereafter implement a time-bound action plan to improve safety and traffic flows in the above-mentioned corridors and intersections.

5. The Project Implementing Entity shall cause each Project City to notify the Bank reasonably in advance of adopting or putting into effect any policies which may result in changes to the following: (a) legal status or corporate form of state-owned bus companies; (b) granting of bus route or bus network concessions longer than three (3) years in duration; and (c) transfer from government ownership of bus fixed infrastructure, such as depots, interchanges, terminals, and maintenance workshops.

6. During the Project implementation, the Project Implementing Entity shall cause each Project City to furnish an annual report to the Bank, by December 15 of each calendar year, beginning December 15, 2006, describing the procurement completed in such year for non-Bank financed road maintenance contracts in the Project City, which report should include, among other things, with respect to such road maintenance contracts, the number of bidders and their bid prices as announced at the bid opening, contract owner's cost estimate, the selected bidder, the signed contract price, and the reasons for rejection of the lowest bid, if any.

Reporting and Monitoring

The following reports shall be furnished to the Bank:

- **Monitoring Reports**. LUCRPO will furnish half yearly reports on implementation of the Environment Management Plan (EMP) and Resettlement Action Plan (RAP).

- **Progress reporting and mid-project review**. LUCRPO will furnish a semi-annual progress report on project implementation, by February 15 and August 15 of each year, starting with February 2007 and until the project is completed. In addition, LUCRPO will submit a project mid-term review report by December 31, 2008.
- **Annual Review**. LUCRPO will conduct an annual review of implementation progress, to address emerging problems and to agree on the Annual Work Program (AWP) for the following year. The review will take place by December 15 of each year starting 2006.
- **AWP**. LUCRPO will furnish the consolidated AWP by February 15 each year starting 2007, based on city-specific AWPs prepared by the respective implementing agencies.

D. Appraisal Summary

1. Economic and Financial Analyses

Economic Analysis

A formal economic evaluation was conducted for the road infrastructure component, which accounts for about 56 percent of the loan and 70 percent of total project cost (115 individual sub-projects in the six project cities). The principal measured benefits are: savings in vehicle operating costs (VOCs), reduced congestion, and time savings for pedestrians, bicycle riders, and bus and auto passengers. The estimated overall economic internal rate of return (EIRR) for the component is 15.23 percent. Table 2 summarizes the results of economic evaluation by city and key individual projects. See Annex 9 for more details.

Table 2: Summary of Economic Evaluation of Road Infrastructure Sub-projects

City	*Project*	*EIRR (%)*	*Net Present Value (NPV) (million Yuan, 12%)*
Benxi	Overall	16.9	162.1
	Beidi Bridge	13.9	17.7
Fushun	Overall	14.4	90.0
Jinzhou	Overall	13.6	47.9
	Hankou RC	12.1	0.9
	Guangzhou RC	13.6	5.9
Liaoyang	Overall	14.8	125.4
	Beiyuan Underpass	21.9	6.7
	Xuwangzi Underpass + Shengli Bridge	19.8	39.8
	Xiaozhuang Underpass	15.9	6.3
Panjin	Overall	16.4	160.7

Road maintenance works in the project are overdue corrective maintenance, essential to preserve the integrity of the road network, and of critical importance to the majority of the population which does not use automobiles. Design of the maintenance works has been optimized from a long-term cost-effectiveness perspective, given the physical (extreme winters) and economic (inadequate short-term maintenance budgets) environments of the project cities.

The traffic safety and management components are small investments that past experience indicates provide very significant benefits in increased levels of safety (lower levels of accidents, fatalities and associated economic loss) and savings in travel time.

The public transport investments comprise mostly low-cost elements, which are either essential operational items (such as dispatching equipment, end-of-route turnarounds, off-street parking, and maintenance facilities), or which enhance quality for the passengers (such as transfer interchanges and bus shelters). Designs for all works have been optimized from a cost-effectiveness perspective. Such investments typically provide high rates of return in terms of increases in the competitiveness of the bus service, and lower operational costs related to higher productivity and lower maintenance costs. Implementation of the bus priority measures will benefit passengers in time savings; operators will be able to lower operating costs through higher bus productivity.

Financial Analysis

Total revenues and expenditures (off and on budget, transfers, and earmarked funds) were analyzed for each municipality. Total infrastructure revenues and infrastructure fixed asset and recurrent/maintenance expenditures, as defined by the Urban Construction Expenditure and Maintenance Fund, were also analyzed. Available infrastructure spending, defined as total infrastructure revenues less 'routine' infrastructure recurrent/maintenance expenditure, was calculated as a key 'surplus' ratio used to assess availability of funds for counterpart funding, debt service, and operations and maintenance requirements. The Bank team conducted a municipal debt analysis. As Chinese municipal financial practices are not yet consistent with the international practices, it is not possible to obtain integrated and reliable data for off-budget debt and contingent liabilities. However, overall, the municipal finance analysis shows that LMCIP is affordable for all project cities, and the proposed counterpart funding strategies are sound (more detail in Annex 9).

2. Technical

All investment components have been prepared by reputable Chinese design institutes. Project designs are technically sound, represent the most appropriate cost-effective alternative, and are based on sound engineering practice. A key feature of project design has been the use of an extensive public participation process to complement technical analysis (see Annex 15). All project cities conducted an extensive three-stage effort - focus groups, open meetings, and questionnaires - to obtain public input into the project design, targeting the needs of vulnerable groups such as the elderly, migrant workers, the mobility impaired, and the poor. Women-only groups were consulted to ensure that needs and issues specific to women were properly identified. Project feasibility studies include a section indicating the manner in which issues raised in the public participation process have been addressed in the feasibility studies. Follow-up rounds of participation will be conducted during implementation to adjust designs based on feedback.

3. Fiduciary

Financial Management. On the basis of guidelines issued by the Financial Management Sector Board on November 3, 2005, the project meets minimum Bank financial management requirements, as stipulated in BP/OP 10.02. The project's implementing agencies have taken necessary actions to ensure that the project will have in place an adequate financial management system that can provide, with reasonable assurance, accurate and timely information on the status of the project in the reporting format required by the Bank (see Annex 7).

Procurement. A procurement capacity assessment of the implementing agencies, carried out prior to appraisal, concluded that the overall risk of the procurement process is average (details in Annex 8). An action plan to strengthen the procurement capacity of the implementing agencies has been agreed with LUCRPO and the PMOs of the project cities. The plan calls for the preparation and dissemination of a project-specific procurement manual, training workshops, and measures to avoid excessive cost overruns and improve procurement economy and efficiency. Ways in which the Tendering and Bidding Law of China differs from Bank guidelines were addressed in the assessment, and clarifications have been included in the Project Agreement for the procedures to be followed for Bank-financed National Competitive Bidding (NCB) procurement. It is expected that all of the project cities will finance some civil works related to the RI, RM and TS components and some consulting services related to the ID component in 2006 using retroactive financing. Only payments for expenditures made after April 10, 2006, are eligible for retroactive financing, and the ceiling for such payments is limited to US$40 million for civil works and consulting services.

4. Social

The project has significant social benefits as it supports: the improvement of the secondary and feeder road networks; the development of public transport, pedestrian, and bicycle facilities; and traffic safety measures. The pioneering public participation process undertaken during preparation enables the project to address the transport-related needs of vulnerable groups, indicated above. As highlighted earlier, it was also designed to be sensitive to gender issues by conducting women-only focus groups.

The project has adverse impacts related to the need for land acquisition and involuntary resettlement; though in some cases displaced persons viewed the housing demolition as an opportunity to improve their living conditions significantly. In total, the project will affect 4,994 households, 677 enterprises and shops, and 31,547 people in the six cities. RAPs have been developed for each project city, which are in accordance with local laws and are consistent with the World Bank OP 4.12 on Involuntary Resettlement. The plans (see Annex 10) describe in detail the impacts, affected populations, consultation process, rehabilitation measures, budget, and implementation and monitoring arrangements.

LUCRPO is very familiar with Bank safeguard policies (as the proposed project would be the fifth Bank-financed project managed by LUCRPO) and Liaoning has a good track record of implementing resettlement consistent with Bank guidelines.

A screening for ethnic minority communities revealed that there are no ethnic minority communities in the project area, though some individual minority households will be affected. Based on this finding, it is the Bank's assessment that this project does not trigger Bank OP 4.10 on Indigenous People.

5. Environment

The project is classified as a Category A project under OP 4.01, Environmental Assessment, because of the disruption caused by the construction of new roads in an urban setting. The Liaoning Academy of Environmental Sciences, a State Environmental Protection Agency (SEPA) Class A - accredited agency for Environmental Impact Assessments (EIAs) in China, jointly with local environmental institutes, prepared EIAs and EMPs for each project city,

according to national policies and regulations as well as Bank guidelines. The required two-step consultation was conducted during the EIA preparation process (see Annex 10). These documents were disclosed locally and in Washington, D.C., in January 2006. The final EIA reports were furnished to the Bank in mid-March 2006.

The project facilitates environmentally desirable planning and physical improvements in the urban transport networks of the six project cities by supporting safety, the development of secondary roads that promote NMV travel, pedestrian and bicycle ways and public transport. In addition, all project investments have been designed to minimize any adverse impact on the physical environment; none of the components encroach on any environmentally sensitive terrain.

During project implementation there will be construction related impacts and disruption, including temporary land occupation, generation of dust, soil erosion, spoil disposal, disruption of local traffic, sanitation of construction camps, noise, possibility of increased air pollution, and treatment of wastewater (primarily from bus depots). These impacts will be mitigated based on the comprehensive EIA and the EMP (see Annex 10). The project will not have significant negative environmental impacts; all adverse environmental impacts can be avoided, reduced and minimized, provided the mitigation measures developed in the EMPs are properly implemented.

The EIAs determined that the Bank's policy on Cultural Property, OPN 11.03, is not triggered because no significant cultural relics were found in the project areas. However, preventive measures have been proposed in the EMP for any chance-find items.

6. Safeguard Policies

Table 3 provides details of the safeguard policies triggered by the project.

Table 3: Safeguard Policies Triggered by the Project

Safeguard policies triggered by the project	Yes	No
Environmental Assessment (OP/BP/GP 4.01)	[X]	[ ]
Natural Habitats (OP/BP 4.04)	[ ]	[X]
Pest Management (OP 4.09)	[ ]	[X]
Cultural Property (OPN 11.03, being revised as OP 4.11)	[]	[X]
Involuntary Resettlement (OP/BP 4.12)	[X]	[ ]
Indigenous Peoples (OD 4.20, being revised as OP 4.10) **	[ ]	[X]
Forests (OP/BP 4.36)	[ ]	[X]
Safety of Dams (OP/BP 4.37)	[ ]	[X]
Projects in Disputed Areas (OP/BP/GP 7.60) *	[ ]	[X]
Projects on International Waterways (OP/BP/GP 7.50)	[ ]	[X]

* By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas.

** In the context of China projects, indigenous peoples refer to ethnic minorities.

7. Policy Exceptions and Readiness

The project has obtained a waiver from Bank Management with regards to the current BP 4.01 requirement relating to translations of EIA reports. Chinese language EIA and RAP reports have

been prepared for project activities proposed in each city; and have been reviewed and disclosed separately in each project city and in the Bank Infoshop as appropriate. In addition, a Consolidated EIA and EMP for the project covering all cities, and a Summary RAP for the entire project, have been prepared in English and disclosed. These documents include detailed findings and recommendations, and address in sufficient depth and detail all the critical issues and data needed to support their findings and recommendations. Bank Management is satisfied that on the basis of staff review of these documents, as well as a review of the local language reports by qualified country office and international staff, that the Bank has complied with the review obligations set out in OP 4.01 without the need to resort to translate all of the detailed city specific reports into English. In addition, Bank management is satisfied that the Bank would meet the disclosure objectives set out in the policy through disclosure of the above English language documents, together with the disclosure of city specific EIAs, EMPs and RAPs in the Chinese language. The project will comply fully with all other Bank policies. The project meets regional readiness criteria for implementation.

Annex 1: Country and Sector or Program Background

CHINA: China-Liaoning Medium Cities Infrastructure Project

Northeast China, specifically the provinces of Liaoning, Jilin and Heilongjiang, constitute the country's old industrial base with a population of 107 million, and a gross domestic product (GDP) of Y 1,500 billion. As a result of heavy state investment in the 1950s, by 1957, over one-quarter of China's entire industrial stock was concentrated in Liaoning province. However, the economic base of heavy manufacturing and primary industry, largely operated by SOEs has had mixed success in adapting to the emerging market economy in the last three decades. Though the annual GDP growth for all three provinces averaged 8-10% in the period 1980-2004 (with an average of 9.3% annually for Liaoning), growth has been insufficient both in meeting public expectations and in generating adequate employment for the urban workforce. Indeed, despite significant GDP growth, due to lay-offs from SOEs, urban employment growth in Liaoning province in the period 1999-2003 has been *negative* 2 percent.

In response to the northeast's lagging growth, particularly when compared to the fast growing coastal regions of the southeast, the State Council launched a program in October 2003 to "revitalize" northeast China and the old industrial bases. Government has asked the Bank to finance investments and provide policy advice to support the government to develop and implement its strategy for revitalizing the northeast. The Bank's policy work included an investment climate study, which found that northeast cities lagged behind other major Chinese cities (particularly coastal cities) in urban infrastructure indicators including roads, tap water and waste water treatment. The report concluded that "continued investment in urban infrastructure is likely needed to enhance the appeal of northeast cities to investors; especially foreign investors...investment in urban infrastructure may counteract the emergence of local poverty. Investment in urban transport and infrastructure has been shown to support growth.....In addition, greater reliance on private providers of public services can help to increase competition, counteract urban poverty, and enhance the quality of life in northeast cities".[i]

This project is the first in a series of three planned urban infrastructure projects that focus on urban infrastructure improvements and service delivery reforms in the medium size cities of Liaoning province. It will be followed by projects that focus on urban environment (water, wastewater and solid waste) and urban gas and heating.

Urban Transport Issues in China

Overview. This assessment summarizes the Bank's experience with urban transport in China - twelve urban transport projects completed or underway, as well as considerable analytical work carried out. Consideration of urban transport tends to be dominated by a focus on investment, particularly the construction of new roads. (There is also an interest in investing in metros, although this is balanced by NDRC guidelines on the criteria municipalities have to meet before they can launch studies on metros). Road maintenance is generally underfunded. Until recently, public transport was given little encouragement except for revenue subsidies and some limited

[i] China: Facilitating Investment and Innovation. A Market-Oriented Approach to Northeast Revitalization. Report 34943-CN. Poverty Reduction and Economic Management Unit, East Asia and Pacific Region. World Bank. February 15, 2006

capital works funding; however it is now a focus of attention following the issue of State Council Opinion #46 of October 2005 "On the Opinion on Urban Passenger Transport Priority Development." While individual cities were trying to deal with traffic safety, it was not until the NRSL was passed in 2004 that the necessary legal and institutional arrangements to address the issue were in place. Traffic management has gradually been improving as more and better trained staff joined the Traffic Police, and through various national programs such as the "People First" Initiative. With increase in car ownership and usage, emissions from vehicles form an increasing share of total emissions at the city level. Concern about emissions from motor-vehicles is rising and many cities now have in place some kind of Motor Vehicle Emission Control Strategy (MVECS).

Road Network. Concerned with the increasing numbers of cars on the roads, leaders and professionals alike have focused on increasing road network capacity through new construction, or by reducing the amount of road space available for NMVs. However few cities seem to follow a systematic approach to investment decisions, which seek to identify problems, examine options, select the most cost effective solution, and then produce a time based prioritized investment program. Many wish to: (a) build roads into areas designated for development, in order to use the money from land sales to finance more road construction; (b) build the roads shown in the master plans far earlier than required to cater for travel demands; or (c) build urban ring roads parallel to and a short distance from expressway ring roads, arguing that the traffic functions are different. Transport models and other planning techniques which would correct these tendencies are increasingly being used, but their role in decision making is still limited.

Road investment has also focused on primary roads, rather than being used to strengthen the networks as a whole – including secondary and local access roads. This is in part due to the road networks being seen in terms of engineering design standards that have to be met, rather than in terms of the functions the roads perform. The concept of a functional road hierarchy is not yet fully understood. Multi level interchanges are often sought by leaders when single flyovers or even signal controlled junctions would be more cost effective, and less intrusive on the urban environment.

Road Maintenance. Routine and periodic maintenance of roads has been accorded a lower priority in the use of infrastructure funds than road construction. On average a city budgets about 50% of the amount considered necessary to maintain the network in good condition. This money is used to maintain the most heavily trafficked roads – the primary and secondary roads – the majority of which are kept in good condition. However, this has still meant that much maintenance is deferred until full reconstruction becomes necessary. To improve budgeting (and to allow multi-year budgeting), and undertake maintenance on a more systematic needs-based approach, cities are increasingly using maintenance management systems. Simple paper based systems are quite adequate initially (especially in smaller cities) to learn the business process. Information Technology based systems are being introduced, but without adequate understanding of the key functional requirements, or business processes being adjusted, or people trained to make most cost effective use of them.

In the past all maintenance work was carried out in-house. In order to increase the cost effectiveness of maintenance, efforts are now underway to separate the "government" function

(of planning, programming, budgeting, quality management and contracting actual maintenance work) from the teams actually undertaking the work. The teams undertaking the works are being transformed into road maintenance "companies" and are being asked to bid for the works.

Public Transport. Buses constitute the majority of public transport service in China, and form the backbone of the passenger transport network in even quite large cities (for example Wuhan and Xi'an). Rail-based passenger transport services are limited to a small number of the largest cities (e.g., Beijing, Shanghai, and Guangzhou). The bus network is generally extensive even in cities that have rail systems, but quite often is not well matched with the developing parts of the city and the changing travel and residence patterns. Much of the public transport supply is still provided by SOEs or joint-ventures where the state has majority stake. Internal reforms in the last decade have ensured relatively low staffing levels and in most cities bus companies run on little or no subsidy. However, there has been relatively little modernization of management methods, operational systems, maintenance practices, or use of Intelligent Transport System (ITS). As motorization rates increase, even though a majority of residents do not have access to private vehicles, bus speeds in increasingly congested streets are falling and there is a pressing need for on-street priority.

Though operators have been able to finance bus replacement with loans from local banks, they generally do not have adequate depot facilities for storing buses overnight, funds for maintaining them, or information technology equipment for routine business, maintenance and operations functions. Limited money has been invested in other public transport infrastructure, e.g., interchanges, passenger information systems. Bus priority and bus rapid transport have been tried and sustained in only a few places. This situation should change with the issue of State Council Opinion #46 which requires local governments to give more priority to public transport in decision making and allocation of funds.

Industry reform is still in its early stages. Separation of the "government" functions (of policy, planning, regulation, procuring services from operators, and quality management of service delivery) from the bus operators is underway. Cities have started enterprise reform – transforming the bus companies from municipal government departments into SOE "companies", and trying to attract "non-public" capital to invest in them. However, government regulatory and procurement functions need further strengthening; too often the new "investors" ask for (and all too often have been given) thirty year operating franchises to operate the system with few safeguards built-in to protect the municipality or the traveling public.

Traffic Safety. The magnitude of the traffic safety problem in the project cities, and China in general, is dauntingly stark in the context of fatalities and injuries. There has been a sharp increase in road traffic accidents and casualties in China since the mid 1980s. During 2005, there were 110,000 fatalities in China; i.e. *'Every five minutes, every day of the year, one person is killed in traffic accident in China.'* In 2002, for every 10,000 registered vehicles, there were 13.7 traffic accident deaths in China, compared to 1.6 fatalities in the United States of America, 1.4 fatalities in Canada, 1.2 fatalities in Australia and 1.0 fatality in United Kingdom.

The reasons for this high rate of fatalities are many and complex. Until recently, road safety was not a focus for any of the national, provincial or municipal government institutions or agencies;

rather, most of the attention placed on managing the road network was on increasing efficiency for motor vehicles. Indeed, during the past 15 years, motorization has been equated by many to modernization, and despite comprising a large majority of the traffic stream, pedestrians and bicyclists have often been considered by planners and local leadership as a nuisance and a symbol of backwardness. Consequently, they have been accorded second-class status on the road network, as cities have invested heavily in new infrastructure to accommodate motor vehicles. Secondary road systems, of critical importance for NMVs, have been neglected and have fallen into disrepair. Sidewalks are in similarly indifferent condition, with encroachment by commerce and parked private autos a common problem.

This has focused all traffic, motor vehicles as well as bicycles, onto the major arterial system. Facilities for bicycles have suffered significantly. While conditions for bicyclists in Chinese cities are better than in many parts of the world – physical segregation between MV and NMV traffic on major roads is common – recent trends have generally been unfavorable. At worst, some cities (such as Shenyang, the provincial capital of Liaoning) have removed dedicated NMV facilities from the network in favor of expanded motor vehicle lanes. A common problem is that the effectiveness of dedicated sidewalk and bicycle facilities, even where they exist, is limited by a management focus primarily on motor vehicles: encroachment during construction is common, there is patchy attention to issues such as snow removal and removal of debris, and increasingly there is a problem of illegal parking in bicycle facilities. Conditions for bicyclists and pedestrians are particularly poor at intersections, where the guiding management principle has been to facilitate higher speeds and flows for motor vehicles.

While modern traffic management technologies, particularly for intersection management, are being used and are becoming common, their benefits have not been felt by the majority non-auto using public. The focus of traffic management efforts has been technological, on high-tech control facilities. Use of junction channelization and other techniques to reduce conflicts and improve conditions for all road users has been limited. Traffic police have invested considerable funds in building modern traffic management command centers, area traffic control (ATC) systems, and closed circuit television (CCTV) cameras. While these technologies can have an important role in ensuring safe and efficient traffic outcomes, to date their use has primarily been to facilitate motor vehicle flow. In the case of ATC systems and traffic signals, pedestrian and bicycle friendly uses such as pedestrian signals, signal phasing (specially targeted towards bicycles and pedestrians) or facilities such as mid-block pedestrian crossings, are rare. The net result has been a facilitation of higher MV speeds, reduction of space for NMVs, and more traffic, which has led to the very serious safety problems for all road users.

Until relatively recently, any traffic safety initiatives, including accident analysis, remedial measures and road user education, were generated by the traffic police and were local in scale. However, in recent years there has been a growing realization of the importance and scale of the traffic safety challenge and a growing focus on this issue culminating in the passage of the NRSL. The NSRL, implemented in 2004, provides a welcome institutional and comprehensive focus on traffic safety. To implement the law, RSCs are being set up at different levels of government to coordinate safety initiatives. These RSCs provide an institutional anchor around which traffic safety strategies have started emerging.

Air Quality Management. Emission standards for new vehicles and the timing of their introduction are set nationally by SEPA. Cities are responsible for enforcing standards, including for in-use vehicles. Many cities have developed MVECS, but of uneven quality and with variable results in implementation. With growth in car ownership and usage, more effort and investment will be needed for monitoring and inspection and maintenance. Guidelines are required to help cities prepare MVECS and to ensure cost effective inspection and maintenance.

Project City Background

This project supports the development of the urban transport systems in the municipalities of Benxi, Fushun, Jinzhou, Liaoyang, and Panjin. Basic data for the involved cities is shown in Table A1.1. The total population in the five municipalities is around 10 million people, while the six cities involved in the project have a total of 4.2 million urban inhabitants. Total GDP for the five municipalities reached Y 164 billion in 2004.

Table A1.1: Project City Demographics

	Population		2004 GDP	2004 GDP Per capita (yuan)
	Total	Urban	(Y 10^6)	
Benxi	1,570,000	950,000	29,360	18,701
Fushun	2,255,000	1,428,000	37,500	16,630
Jinzhou	3,075,000	872,000	33,700	10,959
Liaoyang	1,823,500	715,000	29,000	15,903
Dengta	n.a.	70,000	n.a.	n.a.
Panjin	1,244,000	575,000	34,107	27,417
Total	9,967,500	4,610,000	163,667	16,420

n.a. not applicable

All of these cities are industrial cities, built around a small core of heavy or primary industrial enterprises. Table A1.2 summarizes their economic base, growth trends and recent economic performance. The cities have had mixed economic results in the recent past: they have seen very high economic growth in the last year; however, all but Panjin (which is home to one of China's important oil fields and refinery) have seen their share of the provincial GDP reduce in the past decade.

The table also illustrates that urban infrastructure funding for the medium cities, on a per-capita basis, is generally around half that of Shenyang and Dalian, where much of the economic growth in the last decade has occurred.

Table A1.2: Project Cities: Economic Characteristics

City	Key Industries	GDP growth 2003-2004	Percent of Provincial GDP		Urban Construction Fund
			1990	2003	Annual RMB-capita
Large Cities					
Shenyang			20.9	24.4	1,339
Dalian			18.5	23.9	1,258
Medium Cities					
1. Benxi	Steel	14%	4.0	4.0	227
2. Fushun	Coal	15%	6.6	4.8	480
3. Jinzhou	Heavy Industry	16%	6.0	4.3	510
4. Liaoyang	Chemicals	16%	4.3	3.6	779
5. Panjin	Oil	8%	4.3	5.2	1,241

Overview of Transport Conditions

Motor vehicle ownership is growing in all of the cities, but motor vehicles per 1000 inhabitants rates (including motorcycles) for the five municipalities remain low (see Table A1.3). Except for Jinzhou, motorcycles ownership is restricted in the project cities and is not a significant factor in the transport system.

Table A1.3: Project Cities: Motor Vehicle Ownership (motorcycles included)

	Benxi	Fushun	Jinzhou	Liaoyang	Panjin
MV / 1000 persons (2005)	33	52	129	93	97
Annual MV growth (1996 2004)	2.6%	1%	2.2%	0.7%	2.1%
Total growth 1996 -2004	23%	8%	19%	5%	18%

Walking, cycling and bus riding accounts for more than 80 percent of daily trips in all cities as can be seen from Table A1.4.

Table A1.4: Project Cities: Modal Splits (Percent)

Modal Split 2005	Benxi	Fushun	Jinzhou	Liaoyang	Panjin
Walk	60	41	33	33	37
Bicycle	7	19	41	43	27
Bus	19	29	12	14	16
Others	14	11	14	10	20

The road network in all of the cities is focused on a small number of arterial roads where most traffic, regardless of mode, is concentrated. Branch roads and alleys have little continuity across main streets, and are just used to increase traffic levels of all traffic on the arterials. The road network as a whole is in poor condition (see Table A1.5 below), a problem especially acute on the secondary and branch road systems. Facilities for bicyclists and pedestrians are limited even on the arterial road network (see safety discussion below). The condition of the road network significantly reduces its effectiveness in providing safe accessibility and mobility. The majority non-auto using population is disproportionately affected. The poor condition of the road network, especially the non-arterial network, impacts the safety of the bicyclists and pedestrians who depend on this system for last-mile access. Lower travel speeds (due to poor road

conditions) also make bus service less attractive and less competitive; passengers see increases in travel times and operators see increased operating costs.

In addition, all of the cities have bottlenecks that limit urban connectivity and constrain their access to the expressway system. In Fushun, Jinzhou, Dengta and Liaoyang, and Benxi, railway crossings are a major issue in the urban road network, creating bottlenecks within the city (as in Fushun and Benxi) or in the city's access to the intercity expressway system.

The master plans in all the cities are heavily expansion oriented, even when recent population growths are small (with the exception of Panjin), and highly car-oriented, although car users represent a minor part of people traveling within the cities. However, the master plans also call for addressing key access bottlenecks, and call for significant upgrading of the road network within the city to complement an urban renewal process.

A brief characterization of the road networks in each city that identifies key transport bottlenecks follows.

Benxi. The Taizi River runs from the northeast to the southwest through the urban area and divides the city into two parts, both of which are heavily developed. The Taizi River and a set of main railway lines together constitute a major barrier between the two parts of the city. There are no roads connecting industry north of the river to the expressway system. In the urban area there are only two bridges crossing the river, Caitun and Xihu. Both were built in the 1930s and have three metric ton load limitations. Congestion on both bridges is significant and the lack of adequate river crossings is a significant impediment to connectivity in the city. The road network is heavily influenced by the mountainous area in which it is built.

Fushun. The Hun River runs through the city from east to west, conditioning the city structure: 30 km along the river, 6 - 8 km across the river. There are nine bridges across the Hun River. The road network is mostly river oriented, with some exceptions where other natural barriers (such as the coal mine) make changes in it. Fushun participated in the recently completed LUTP, which financed a series of major east-west roads, including the Hunhe Nan Road, south of the river and river crossings. Most of the city's road system is in relatively good condition, partially as a result of LUTP. However, the city's access to the newly built Shenyang - Dalian expressway, via the Gebu corridor is poor and needs upgrading. Additionally, the road network in the northwest of the city, a historically poor area, is poor and is in need of renewal.

Jinzhou. The main urban area of Jinzhou is divided into three parts, separated by the Beijing - Shenyang Railway and the Xiaoling River. Transportation between the three parts is accomplished primarily through five existing underpasses and five river-crossing bridges, including one railway bridge. Existing rail underpasses suffer from severe congestion and have some clearance limitations, making it difficult to connect the north and center of the city. The historical core of the city is north of the Xiaoling River, and the city has ambitious expansion plans in a southward direction. These plans include the development of a new township five km south of the existing city at Nanzhan (in what is currently agricultural land) providing a new high-speed passenger rail station on the Beijing - Dalian line, and further developments towards the port on the Bohai Sea, a further 15 km southward.

Liaoyang. The current developed city lies mainly between main rail lines in the west and the Liao River that runs from north to south on the east. The city master plan calls for expansion

east of the river, while some new developments are also planned west of the river. Rail lines form a barrier between the central part of the city and the western outskirts. Both of the city's main access points to the expressway are also west of the rail lines. This rail line is crossed by two main underpasses (Beiyuan and Xuwangzi) with congestion problems and difficult access in winter due to a combination of frost and high slopes. The road network in the downtown area presents basically a gridiron shape, and has already been formed by three W - E arterial roads (Zhonghua Street, Xinyun Street and Nanjiao Street) and four N - S arterial roads (Tiexi Road, Minzhu Road, Xinhua Road and Wensheng Road), completed by three W - E secondary roads (Beishao Street, Qingnian Street and Nanjiao Street) and another three N - S secondary roads (Shengli Roads, Jiefang Road and Weiguo Road). There is no ring road in the city. The secondary road network (branch and feeder roads) is poor, particularly in the northeastern shanty town and in the southern part of the city.

Panjin. Panjin is divided by the Liao river into an historical core in the north and new settlements in the south. In the north, the Shuangtaizi district includes the old city with narrow roads, while in the south Xinglongtai district is a newly developed area, based on the Liaohe Oil Fields. The city's master plan also considers the growth of Shuangtaizi district towards the north and in the southwest. There are two main bridges connecting both parts of the city, the Shuangtaizi and the Panjin Bridges. The connections between the north and south sections of the city need improvement, particularly in terms of improving access to the existing bridges. The Xinglongtai Road, connecting the city to the expressway to the west, needs to be upgraded.

Maintenance Issues

The five cities exhibit the maintenance issues found in other cities in China: much of the network is in poor condition due to lack of adequate budgets, limited maintenance planning, and low productivity of maintenance works.

Existing Road Condition. As discussed above, the road networks in the various cities are in a poor condition (see Table A1.5). Drainage and lighting were mentioned by the public during the consultation process as two of the most visible failures on the road network.

Table A1.5: Ratio of roads (in percent) that are in acceptable condition (March, 2006)

	Benxi	Dengta	Fushun	Panjin	Liaoyang	Jinzhou
Arterial road network	54	18	83	73	21	16
Secondary road network	43	49	37	34	29	34
Branch roads	36	30	37	74	21	28
Carriageway	**49**	**49**	**74**	**54**	**23**	**23**
Bicycle lanes	n.a	n.a	82	70	22	25
Sidewalks	70	28	58	62	61	38
Whole road network	**51**	**45**	**72**	**60**	**33**	**28**

Source: Municipal Maintenance Departments

n.a. not available

Roads in an unacceptable condition: it is no longer possible to drive safely and comfortably at 40 km/hr during the night under specified weather conditions (excluding heavy rain-showers, fog, snow and ice). The road has to allow for safe and comfortable use, within 15 minutes after a heavy rain shower. Bicycle lanes and sidewalks in an unacceptable condition: a person is no longer able to travel at a normal speed without risking an accident due to the condition of the pavement.

Budget. Most cities invest insufficiently in road maintenance. Table A1.6 compares the budget allocations with actual maintenance needs during the tenth five year plan period (2001-2005). On average the project cities budget about 50% of the amount necessary to keep their network in acceptable condition. This money is used to maintain the most heavily trafficked roads – the primary and secondary roads – which are kept in a better condition then the rest of the network. However this has still meant that much maintenance is deferred until full reconstruction becomes necessary.

Table A1.6: Analysis of 10th Five Year Maintenance Plans (million yuan)

City	Allocation	Demand	Deficit
Fushun	313,000,000	429,621,308	116,621,308
Jinzhou	49,270,000	333,264,000	283,994,000
Panjin	48,643,000	52,175,000	3,532,000

Both allocation and demand figures exclude maintenance of structures.
Source on demand: Panjin, municipal maintenance department; other cities, World Bank analysis. Demand assessments prepared on basis of standard maintenance cycles. These figures present benchmark values for budgets for the current assets (pavement Y 13/m^2/year; streetlights Y 1000/piece/year; and drains Y 25,000/km/year).

As Table A1.7 indicates, allocations for road maintenance are increasing slowly; the commitments for the coming five years reflect partially the Bank's engagement with the cities to raise awareness of the importance of road maintenance.

Table A1.7: Project Cities: Recent Road Maintenance Budget Allocations and Future 11th Five Year Plan Maintenance Forecasts (Y million)

Year	Benxi	Fushun	Jinzhou	Liaoyang	Panjin
2001	20.04	9.50	8.24	n.a.	7.34
2002	22.37	7.20	9.13	n.a.	8.35
2003	26.82	5.00	9.24	n.a.	13.32
2004	36.29	143.50	11.24	n.a.	11.24
2005	33.11	147.80	11.42	n.a.	8.37
2006-2010 (planned)	54.00	295.00	146.00	75.20	124.00

n.a. not available

Maintenance Planning. Allocations for road maintenance also suffer from poor levels of planning and supply of information from the maintenance departments to the decision makers. With exception of Panjin, the maintenance departments develop their plans only after the budgets have been allocated. (Panjin develops a budget request and subsequently prioritizes maintenance works on the basis of allocations). Budget estimates are based on coarse standardized estimates and are not based on any real estimate of the state and needs of the system. There is a need to develop maintenance management methods that can be used to build more credible, transparent budget estimates, which could be used to ensure that adequate resources are available for the real maintenance needs.

Implementation of Works. Maintenance works are largely carried out by municipal maintenance companies, of which there is one per city. Within the municipal maintenance departments, the separation of the "government" functions of planning and budgeting, and the "enterprise" functions of implementation, are at an early stage. The cost-effectiveness of

implementation of road maintenance works varies considerably. Table A1.8 presents aggregated costs for typical maintenance works. These prices are higher than compared to similar works in the United States, where prices for overlays and mill and replace works are about 90 to 100 US$/m3.[ii]

Table A1.8: Unit Costs for Typical Road Maintenance Works

	Benxi	Dengta	Fushun	Panjin	Jinzhou	Liaoyang
Current average cost (US$ per cubic meter)	107.8	141.7	102.7	149.4	100.4	121.2

An aggregate indicator has been compiled for the following maintenance works: Overlays and Mill & Replace for thicknesses up to 70 mm.

The Government has enacted several laws to improve the cost-effectiveness of road maintenance. Two reforms are of particular interest. The procurement and related laws aim to increase competition between providers of civil works (including maintenance) and recommend adopting competitive bidding procedures. In addition, the Government has instructed cities to improve productivity through separation of ownership and management authorities. As Table A1.9 indicates, the Project cities are in the midst of this reform and it is expected that the combination of more commercial SOE management and competition among civil work maintenance providers will result in significant productivity gains and cost reductions.

Table A1.9: Structure of Road Maintenance

City	Legal Status of Road Maintenance Company	Share of 2005 Maintenance Contracts Awarded to City SOE
Benxi	Commercialized SOE with legal monopoly	100%
Fushun	City division commercialized in 2004	43%
Jinzhou	7 SOE contractors, 2 supplier SOEs - all commercialized	100%
Liaoyang	Commercialized entity with hybrid stock - based employee ownership	100%
Panjin	Unit of city – not commercialized	70%

Traffic Safety and Traffic Management

Fatality Rates. The sustained motor vehicle growth in recent years (though at levels significantly lower than the national average) has resulted in particularly severe safety issues, especially for the vulnerable road users: the pedestrians and cyclists. As the fatality rates in 2005 (see Table A1.10) suggest, this is a particular problem in urban areas where fatality rates are significantly higher than the national average of 9.9 fatalities per 10,000 motor vehicles, and a substantial number of those impacted are the vulnerable road users and the poor.

[ii] Source: Table 14 of Asphalt Overlay Effectiveness: Minnesota Department of Transportation, October 2000. (adjusted for inflation at 3%) http://ntl.bts.gov/lib/11000/11500/11592/2000-31.pdf

Table A1.10: Project Cities 2005 Fatality Rates

	Benxi	Fushun	Jinzhou	Liaoyang	Panjin
Fatalities/10,000 motor vehicles	34.4	27.9	3.7	14.8	32.0

Traffic Management: Equipment and Methods. Utilization of traffic control and management equipment lags motorization levels in the project cities. None of the cities except Fushun have ATC systems, additional traffic signals are required in all the cities, and the traffic control command centers in all of the cities need modernizing and upgrading. In Benxi, Jinzhou and Panjin, the existing closed circuit television (CCTV) equipment is dated and there is a need to add more units to facilitate the efficient functioning of the traffic control command centers. Several major intersections would benefit from redesign in light of current traffic volumes and much more can be done to provide effective separation between motorized and NMVs along major arterials.

Parking has become a serious problem due to an absence of a clear parking policy, limited availability of legal parking options and low levels of enforcement (in part due to unclear regulations). As a result, it is not uncommon to find MVs parked on sidewalks and bicycle lanes, thus requiring pedestrians to make detours on to the road way and MV lanes, inevitably exposing themselves to high safety risks. It is estimated that demand exceeds supply for parking by 6,000 spots in the center of Panjin and 7,000 spots in central Liaoyang. In recent months, cities have started examining a combination of measures, including the provision of additional legal parking spots, and reinforcement of enforcement standards (in the last 6 months of 2005, the traffic police in Fushun and Panjin issued 16,000 and 22,000 citations for parking and traffic violations, respectively). As the initial challenges related to staffing, authority to levy penalties and operational regulations are clarified, the effective enforcement and collection of penalties should get sorted out. However, the cities are a long way away from developing a comprehensive parking policy that balances the need to accommodate cars, with the development of incentives that promote instead a culture promoting the use of public transport and NMVs in the central city areas.

Traffic Law Enforcement. There is also a need to complement investments in traffic control equipment with additional staffing and training to ensure effective enforcement. With the promulgation of the NRSL, the province and the cities are slowly sorting out various regulations (detailed enforcement and penalty procedures) with regard to drivers and vehicles (moving violations and parking). For example, in Fushun, the regulations governing parking law enforcement and penalties were published only on March 15, 2006. This process has been under way since October 2004 and it is expected that all the project cities would have issued their regulations by mid 2006.

Traffic Safety Education. Since October 2004, the RSCs in all the project cities have been aggressively promoting the education of all road users (MV drivers, pedestrians and cyclists), with regard to the provisions of traffic behavior and the related penalties for violations. The initial emphasis was on teaching traffic safety and traffic law education through schools (students and parents), and then moving on to employees at various work units and later through

general publicity, advertisements, mobile vans with message boards and cartoons. This effort appears to be quite successful, though its impact is difficult to measure.

Institutional Arrangements. Prior to the promulgation of the NRSL in May 2004, institutional fragmentation and the lack of a single agency that had the appropriate institutional authority or responsibility to address safety related concerns limited the development of effective safety strategies in the project cities. Construction, design and maintenance of the road network are the responsibility of urban construction bureaus and committees that have been primarily concerned with building new infrastructure. Coordination with the traffic police, who have responsibility for traffic management, enforcement and safety, has been limited. However, the new NRSL focused top decision makers on traffic safety needs. Detailed implementation regulations require provincial and local governments to establish multi-agency RSCs to implement the law effectively. In Liaoning, the RSCs were set up at the provincial and municipal level in all the project cities in late 2004 and they are now getting off the ground to take up the traffic safety challenge. These committees are multi-agency and multi-disciplinary leadership groups. In addition, they are the designated group to be held accountable for traffic safety outcomes within their physical jurisdiction.

RSCs have been set up in all the project cities for the sole purpose of enhancing traffic safety and traffic management. They have the authority to pull various agencies and resources together to take on this major challenge. They are still in the incubator stage, willing to make a start but with little expertise and experience.

Public Transport

Public Transport Services and Operators. Public transport in the project cities is generally at a basic level and in need of development, see Table A1.11. There are a number of common characteristics relating to services, operators and industry reform. First, **network design** is weak. Network density is low, routes are meandering (as shown by linearity coefficient), and the percent of the city within easy walk of bus stops is below recognized norms. The cities have experienced major changes in employment patterns and levels, residential locations etc. These are being addressed through route extensions, but the core networks have not been reviewed.

Service quality appears to be quite variable, and poor in some locations. Frequencies are low in many cities, even in peak times. This makes public transport less attractive, particularly for journeys requiring transfers.

Buses do not have a favorable on- street operating environment. There is no effective bus priority and what exists is not respected. Bus speeds vary from moderate to slow. The poor condition of road surfaces reduces speeds, damaging buses and increasing their operating costs, and makes conditions uncomfortable for passengers. **Passenger facilities** including stop signs, shelters, interchanges and route termini are not well provided, and in many cases are below basic minimum quality.

Table A1.11: Public Transport Characteristics of the Cities

CITY	BENXI	FUSHUN	JINZHOU	LIAOYANG	PANJIN
UNIT OF MUNICIPALITY DEALING WITH UPT	Passenger Transport Management Office of Benxi Construction Bureau	Urban Passenger Transport Department., Fushun Communications Bureau	Public Utilities Bureau of Jinzhou Construction Bureau	Liaoyang Construction Bureau	Public Transport Management Office of Panjin Construction Bureau
SERVICES					
Number of routes	32 (30 bus, 2 m/bus)	41+20=61	46 (30 bus, 16 m/bus)	36 (21 bus, 15 minibus)	26
Network density	1.35	2.58	1.74	1.47	2.34
% of population within 300 meters of a bus stop	39.3	30.0	54.1	37.1	37.4
% of population within 500 meters of a bus stop	67.4	50.0	69	46.2	57.8
Monthly bus passengers	12,000,000	26,666,000	6,330,000	4,319,166	5,370,000
Bus mode share of all city trips	19	n/a	12.4	14	16.1
OPERATORS					
Number of buses operated	573 (566 bus, 7 m/bus)	807+	516 (425 bus, 91 m/bus)	374 (292 bus, 82 m/bus)	326 (165 bus, 161 m/bus)
Buses parked overnight in bus facilities	90	n/a	100	30	68
Monthly veh-kms	2,276,873 av. 2005	12,160,000	2,120,000	2,030,000	1,299,432
Annual subsidy	None since 1995	Y 0.5– 1.0 million	Y 4-4.5 million	Y 3 million	Y 8.5 million
FINANCIAL DATA – REPORTED					
SOE Total Annual Revenue (2005)	121,000,000	196,000,000	73,660,000	18,925,000	29,300,000
SOE Total Annual Costs (2005)	129,000,000	170,000,000	83,670,000	20,980,000	37,900,000

n/a not available

SOE Bus Operators are generally marginal or making moderate losses. Subsidy levels are modest, and it is not clear that they are actually paid in full. SOEs have generally been through internal staff efficiency reform and (on the basis of the limited data provided) have reasonable staffing levels. However, the enterprise management approach, information systems, operating methods and maintenance methods have not been developed. It is probable that there are still significant cost and quality improvements to be achieved.

Maintenance facilities range from basic to poor. There are no modern maintenance facilities, and even central facilities lack basic equipment such as lifting gear. Engines are being maintained on the ground in the open. It is not possible to optimize the value from new bus investment in these conditions. **Depots and other support facilities are not well provided,** and

in many cases are below basic minimum quality. Overnight parking on-street is high, up to 70 percent in some cases.

Tariffs are controlled and appear to be determined more by the perception of citizens' affordability rather than the actual costs of service provision. **The bus market is controlled at the moment by SOE operators**. SOE bus operators have 100% of the scheduled bus market in four cities and 65% in the fifth (Fushun). There is little effort made to bring in new operators, except as subcontractors to the SOEs. In some of the cities, the minibus operators and small operators have been displaced.

Characteristics of Passenger Transport Organization and Reform. State Council Opinion #46 provides guidance on market reform, and this is complemented by an Opinion document from Liaoning Province. To date, there has not been substantial reform in the project cities, other than in Fushun where four non-SOE operators have 425 buses and a 27.6% share. Bus service in the other project cities is operated by monopoly SOEs. There are policies in place to open the market for other operators, but no practical mechanisms to do so. SOE ownership reform is centered on:

- Transferring ownership to management and employees (already partially done in Panjin);
- Nominal effort to find external investors, but no visible interest to do so and no achievement to date;
- Maintaining the company as a single entity; and
- Granting lengthy franchise to the SOE for the core network, and favorable conditions to win any new routes.

This creates the conditions where monopoly companies either in public or (quasi-) private ownership will totally dominate the bus market, and where the real market for bus services is effectively closed for periods of 8, 16 or 30 years. The specific situation in the cities is summarized in Table A1.12.

Table A1.12: Public Transport Reform

	BENXI	FUSHUN	JINZHOU	LIAOYANG	PANJIN
SOE Reform – status and plans	Plan to sell or transfer stock to management and staff.	Open the company to investment, aim for completion in 2007.	Transform ownership in 2006. Stock ownership not clear.	Plan to sell or transfer stock to management and staff in 2006.	Corporatised in 2004, 49% sold to staff and management.
External investors?	Possible, but none identified	Possible, but none identified	Possible, but none identified	Possible, but none identified	Possible, but none identified
Market opening	Transformed SOE will be given 1-2 protected years to prepare.	Mechanism already exists. Four other operators have 35% of the market. Existing operators will be given all their current routes. Not clear how or when open market will be created.	Transformed SOE will be given 1-2 protected years to prepare.	Multi-operator market would be established, market to be opened. No visible mechanisms to achieve this since concessions to SOE have/will shut the main market. Risk is that private protected monopolies will be created, with just a few new routes occasionally available for bidding to give the appearance of open market.	
Franchise agreements	New franchise agreement will be put in place to cover all current networks.	New franchise already on two routes; all to be on new basis by end-2006. Duration 5-8 years.	Five year franchise to be granted to new SOE, and to subsequent franchises.	Current network granted to SOE, creating monopoly on core routes. Duration of concession is unclear. Future franchises 5 - 8 years.	Agreement signed in 2004. Gives effective monopoly on current routes to SOE for eight years with right of renewal.

Air Quality and Motor Vehicle Emissions Control

Ambient levels of particulate emissions are high in all of the cities, however vehicles are not considered a significant cause of air pollution. Motorization levels in all project cities are low. Table A1.13, which shows the number of cars, trucks and motorcycles in the urban areas of the project cities, indicates that though motorization is increasing, in 2005 the cities had less than 50,000 cars and less than 20,000 trucks. Furthermore, all the project cities are industrial, with significant heavy and extractive industries.

Table A1.13: Cars, Trucks and Motorcycles in 2005

City	Trucks	Cars	Motorcycles
Benxi	8,636	18,751	2,247
Fushun	12,199	42,638	18,919
Jinzhou	10,884	39,442	61,860
Liaoyang	19,084	19,133	28,474
Panjin	17,486	28,868	9,534

All the project cities are beneficiaries of a provincial vehicle inspection and maintenance program. As part of a pilot initiated by SEPA, Liaoning Provincial Environmental Protection Bureau (LPEPB) is establishing a province-wide vehicular inspection and maintenance system to ensure that all registered vehicles in the province will undergo periodic inspection in a regime where inspection and maintenance operations (I/M) will be independent of each other. The program will initially be piloted in the14 largest cities of the province (including all the project cities) and will have the following key features:

Unified planning, standards, supervision and specifications.

In line with international practice, cities will use an advanced inspection method to monitor the emission loads instead of concentrations and will be able to determine compliance status to the latest and future load based emission standards (e.g., Euro III and IV).

The private sector will be invited to bid for the construction of inspection stations and operations based on concessionary terms; the government will not finance capital investment and/or facility operations.

A motor vehicle emission control center has been established under LEPB to coordinate, supervise, and guide the establishment and long term operations of the I/M system.

Some of the cities have already established motor vehicle emission control offices, under their respective municipal Environmental Protection Bureaus (EPBs). The provincial center will provide guidance and assistance to, as well as be a coordination center for, the municipal offices.

The province will also establish a system for the management of repair and maintenance of the I/M program. A key management tool will be to accredit repair shops based on their technical and equipment capabilities for emission retrofitting. The province will also provide supervision of the repair operations and technical staff training and examinations.

The provincial government has established the necessary regulatory framework for the I/M system. Regulation requiring all motor vehicles to go through annual emission inspections as a condition for registration renewal is already in place. A fee of Y 40 per inspection has been set in a circular issued jointly by the LPDF and Price Bureau.

The LPEPB has started implementing this program and the Bank is providing them technical advice and guidance.

The specific plan is to establish the province wide I/M system in two years. As first steps, the largest six cities (including two of the project cities) will start construction in 2006. The remaining cities will build their systems starting the second half of 2006.

Annex 2: Major Related Projects Financed by the Bank and/or other Agencies

CHINA: China-Liaoning Medium Cities Infrastructure Project

Sector issue	Ongoing projects	Latest supervision (PSR) ratings	
Bank-financed		**Implementation Progress (IP)**	**Development Objective (DO)**
Addressing urban transport needs in a comprehensive manner: • Selective road investments to enhance capacity and relieve bottlenecks. • Public transport investments and support to policy, operations, and planning. • Traffic management safety. • Development of a motor vehicle emission control strategy. • Road maintenance. • Training and capacity building.	Shanghai Metropolitan Transport Project I (completed)	S	S
	Shanghai Metropolitan Transport Project II (completed)	S	S
	Liaoning Urban Transport Project (completed)	S	S
	Guangzhou City Center Transport Project (on-going)	S	S
	Urumqi Urban Transport Project (on-going)	S	S
	Shijiazhuang Urban Transport Project (on-going)	S	S
	Wuhan Urban Transport Project (on-going)	S	S
Supporting peri-urban expansion and coordination with transport and urban plans.	Fuzhou Peri-urban Development Project (on-going)		
Urban Environment Infrastructure in Liaoning	Liaoning Urban Infrastructure Project	S	S
	Liaoning Environment Project	S	S
	Liao River Basin Project	HS	HS
Other development agencies			
Japan Bank for International Cooperation (formerly Overseas Economic Cooperation Fund of Japan) • Shenyang Air Pollution Control Project, Phase I (under implementation) • Water Source Program in Yingkou (under implementation) • Environment Improvement Program in Shenyang, Phase II (under implementation) • Integrated Environment Improvement Program in Anshan (under implementation) **Asian Development Bank** • Shenyang – Benxi Expressway (completed) • Yingkou Port (completed) • Dandong Port (completed) • Dalian Water Intake Project (completed) • Liaoning Environmental Gas and Heating Project (under implementation)			

PSR: Project Supervision Report.
S: Satisfactory.

Annex 3: Results Framework and Monitoring

CHINA: China-Liaoning Medium Cities Infrastructure Project

Results Framework

Project development objective	Outcome indicators	Use of outcome information
The objective of the Project is to assist the Borrower's Project Cities in enhancing: (a) the performance and quality of their existing urban transport infrastructure in terms of mobility, access, and safety; (b) the efficiency and effectiveness of their urban public transport and road maintenance services; and (c) the responsiveness of their urban transport systems to the needs of population without access to private motorized vehicles.	**Those relating to the performance of the road network, measured through:** (a) satisfaction levels with transport facilities (mobility, access, safety) expressed by a panel of public participants; (b) the percent of the road network functioning as an all-weather road; (c) weighted travel time for all users (bicycles, cars, bus, pedestrians) over a selected set of travel itineraries; (d) number of traffic accident fatalities; and (e) use of open competitive bidding methods on a pilot basis to award maintenance contracts. **Those relating to public transport services, measured through:** (a) satisfaction levels with public transport services, expressed by a panel of public participants; (b) competitive award of bus route franchises to multiple independent operators on a pilot basis; (c) improved level of bus service (measured by number of bus passengers and vehicle km of revenue service) in at least one project city; (d) network coverage of public transport, measured in route km per square km; and (e) adoption of effective bus priority measures (as measured by difference in the operating speeds along priority sections).	Supporting local government decision-makers in managing the urban transport system of the cities on a continual basis

Intermediate results, one per component	Results indicators for each component	Use of results monitoring
Component One Road Infrastructure and Reconstruction Component	**Component One** Completion of the works	**Component One** Monitoring implementation progress and action plan to address possible delays
Component Two Secondary Road Rehabilitation and Road Maintenance Equipment Component	**Component Two** Completion of the works and successful procurement of goods	**Component Two** Monitoring of implementation progress and action plan to address possible delays
Component Three Public Transport Component .	**Component Three** Completion of the works	**Component Three** Monitoring of implementation progress and action plan to address possible delays
Component Four Traffic Safety and Traffic Management Component	**Component Four** Completion of the works and successful procurement of good	**Component Four** Monitoring of implementation progress and action plan to address possible delays
Component Five Institutional Development Component	**Component Five** Completion of studies, training and study tours	**Component Five** Monitoring of implementation progress and action plan to address possible delays

Arrangements for Results Monitoring

		Target values					*Data collection and reporting*		
Outcome indicators	*Baseline*	*YR1*	*YR2*	*YR3*	*YR4*	*YR5*	*Frequency and reports*	*Data collection instruments*	*Responsibility for data collection*
1. **Satisfaction with road network expressed by panel of public participants** [1]						15% increase	Report of public participation at mid-term and at completion	Questionnaires	LUCRPO and City PMOs
1a. Benxi	3.1								
1b. Fushun	2.8								
1c. Jinzhou	2.7								
1d. Liaoyang	2.8								
1e. Panjin	3.0								
1f. Dengta	3.6								
2. **% of network in acceptable condition**							Mid-term and project completion	Visual inspections	Project city PMOs, urban construction bureaus and LUCRPO
2a. Benxi	51%					80%			
2b. Fushun	71%					85%			
2c. Jinzhou	28%					80%			
2d. Liaoyang	33%					80%			
2e. Panjin	59%					80%			
2f. Dengta	45%					70%			
3. **Travel times [minutes] (calculated separately for autos, buses and bicycles and averaged weighting by mode share)**						Reduction	Mid-term and project completion	Field trips	Project city PMOs and LUCRPO
3a. Benxi									
(i) Railway station to Xihu/Liutang junction	19.6					10%			
(ii) Railway station to Yumin road bridge under ShenDan expressway	21					10%			
3b. Fushun									
(i) Railway station (north) to Gebu/expressway	39.6					15%			
(ii) Railway station (north) to Wudong rail crossing.	7.4					5%			
3c. Jinzhou									
(i) Railway station to City hall on Shifu road	20.3					10%			

		Target values					Data collection and reporting		
Outcome indicators	*Baseline*	*YR1*	*YR2*	*YR3*	*YR4*	*YR5*	*Frequency and reports*	*Data collection instruments*	*Responsibility for data collection*
(ii) Railway station to Songpo/ Renmin junction	20.5					10%			
3d. Liaoyang									
(i) Railway station to Tiexi/Beiyuan junction	11.1					5%			
(ii) Railway station to Zhongxin/ Nanjiao junction	27.6					10%			
3e. Panjin									
(i) Railway station to Xinlong/Liaohe junction	39.9					15%			
(ii) Railway station to Shuangxin/ Shiyou junction	37.9					15%			
3f. Dengta									
(i) Railway station to Zhaolin rail underpass	32.5					15%			
(ii) Wenhua/Fuqian junction to Xinkai/ Fanrong junction	28.0					10%			
4. **Traffic fatalities/10,000 motor vehicles**						Reduction	Annual	Traffic Police Records	Project city PMOs, Traffic Police and RSCs
4a. Benxi	34.4					15%			
4b. Fushun	27.9					15%			
4c. Jinzhou	3.7					15%			
4d. Liaoyang	14.8					15%			
4e. Panjin	32.0					15%			
5. **Pilot the use of open competitive bidding methods being used to award maintenance activities leading to a significant reduction in costs (RMb/m3) in at least one project city for overlay and mill and replace works**						10% reduction in pilot city	Mid term and project completion	Maintenance procurement reports	LUCRPO, Project city PMOs and project city urban construction bureaus.
5a. Benxi	865								
5b. Fushun	825								
5c. Jinzhou	805								
5d. Liaoyang	973								
5e. Panjin	1,200								
6. **Satisfaction level with public transport service expressed by public participants/1**						15% increase	Report of public participation at mid-term and at completion	Questionnaires	LUCRPO, Project city PMOs

		Target values					Data collection and reporting		
Outcome indicators	*Baseline*	*YR1*	*YR2*	*YR3*	*YR4*	*YR5*	*Frequency and reports*	*Data collection instruments*	*Responsibility for data collection*
6a. Benxi	3.1								
6b. Fushun	2.8								
6c. Jinzhou	2.7								
6d. Liaoyang	2.8								
6e. Panjin	3.0								
6f. Dengta	3.6								
7. **Pilot bus route franchises on competitive basis to multiple operators to increase market share operated by non-SOE**						At least one city (other than Fushun) 20%	Annual report on urban public transport market which includes : - Number of routes awarded by open tender - Number of operators with route franchises and their market share - Total bus passengers on scheduled routes - Total bus-kms operated on scheduled routes	Register of route franchise	Public transport management office of the Municipal Construction Bureau (or Communications Bureau, if relevant)
7a. Benxi	0%								
7b. Fushun	34%								
7c. Jinzhou	0%								
7d. Liaoyang	0%								
7e. Panjin	0%								
8. **Improved level of bus service**						Passengers and Veh-km increase %		Bus operators annual statistics	Public transport management office of the Municipal Construction Bureau
8a. Benxi									
(i) Number of passengers (100,000)	144.0					20%			
(ii) Annual veh-km of bus revenue service (millions)	27.6					15%			
8b. Fushun									
(i) Number of passengers (100,000)	320					20%			
(ii) Annual veh-km of bus revenue service (millions)	144.0					15%			
8c. Jinzhou									
(i) Number of passengers (100,000)	76.0					15%			
(ii) Annual veh-km of bus revenue	25.2					15%			

		Target values					Data collection and reporting		
Outcome indicators	*Baseline*	*YR1*	*YR2*	*YR3*	*YR4*	*YR5*	*Frequency and reports*	*Data collection instruments*	*Responsibility for data collection*
service (millions)									
8d. Liaoyang									
(i) Number of passengers (100,000)	52.0					15%			
(ii) Annual veh-km of bus revenue service (millions)	24.1					15%			
8e. Panjin									
(i) Number of passengers (100,000)	64.0					10%			
(ii) Annual veh-km of bus revenue service (millions)	15.4					10%			
9. **Bus service network density (km/sq km)**							Annual	Route network length, served area.	Public transport management office of the Municipal Construction Bureau
9a. Benxi	1.35					10%	Annual		
9b. Fushun	2.58					5%	Annual		
9c. Jinzhou	1.74					10%	Annual		
9d. Liaoyang	1.47					10%	Annual		
9e. Panjin	2.34					5%	Annual		
10. Adoption of effective bus priority measures in at least one project city	0					10% reduction in travel time	Annual	Operational speeds in: (a) routes using bus priority; and (b) entire network.	Public transport management office of the Municipal Construction Bureau

[1] Rating: range from 1 to 5 with 1 = very unsatisfactory; 2 = unsatisfactory; 3 = indifferent; 4 = satisfactory; 5 = very satisfactory

Results indicators for each component									
Component One. Road Infrastructure and Reconstruction Component. Percentage of civil works completed o Jinzhou o Panjin o Liaoyang o Fushun o Dengta o Benxi	0	20	20	20	20	20	Semi-annual	Progress reports	LUCRPO and city PMOs

Component Two. Secondary Road Rehabilitation and Road Maintenance Equipment Component. Percentage of works completed and equipment procured. o Jinzhou o Panjin o Liaoyang o Fushun o Dengta o Benxi	0	20	20	20	20	20	Semi-annual	Progress reports	LUCRPO and city PMOs
Component Three. Public transport component. Percentage of works completed and equipment procured. o Jinzhou o Panjin o Liaoyang o Fushun o Dengta o Benxi	0	20	20	20	20	20	Semi-annual	Progress reports	LUCRPO and city PMOs
Component Four. Traffic safety and traffic management component. Percentage of works completed o Jinzhou o Panjin o Liaoyang o Fushun o Dengta o Benxi	0	20	20	20	20	20	Semi-annual	Progress reports	LUCRPO and city PMOs
Component Five. Institutional Development. Percentage of consultancy, training and training completed	0	20	20	20	20	20	Semi-annual	Progress reports	LUCRPO and city PMOs

Annex 4: Detailed Project Description

CHINA: China-Liaoning Medium Cities Infrastructure Project

LMCIP covers the medium-size cities of Panjin, Jinzhou, Fushun, Benxi and Liaoyang, as well as the county level city of Dengta in Liaoyang municipality. It is a comprehensive urban transport project, with each city targeting complementary investments in the road network (a road infrastructure and reconstruction component, and a secondary road rehabilitation and road maintenance component), in traffic safety and traffic management, and in public transport to achieve the main objectives of accessibility, safety, and connectivity.

The **Road Infrastructure and Reconstruction Component (RI)** [US$330.93 million including resettlement costs of US$105.1 million] includes road improvements in the primary, secondary and tertiary networks that would address current transport problems and bottlenecks. The investments cover 179 km in the six cities. The focus of the investment is on the reconstruction of existing roads, including selective widening that will enhance the performance of the road network for all users in terms of mobility, convenience and safety. The Institutional Development (ID) component also includes TA related to this component to support continuation and institutionalization of work undertaken during preparation related to the transport modeling process and public participation in the transport planning process.

The **Secondary Road Rehabilitation and Road Maintenance Equipment Component (RM)** [US$113.40 million] will finance rehabilitation of major segments of the participating cities' road network to improve last-mile access to pedestrians and bicyclists, and finance road maintenance equipment. The rehabilitation works cover 280.5 km, of which 61% are branch roads, streets in neighborhoods and alleys, and 29% are secondary roads. The works can be characterized as routine corrective maintenance without changing the road cross-section. Most of the roads provide access primarily for cyclists and pedestrians and the works aim to bring back road conditions to original maintainable levels. In addition, the component finances equipment used by the municipal maintenance departments for monitoring, planning and small and emergency maintenance works. The ID component also includes assistance to support effective preventive maintenance planning. The component also supports ongoing reform of municipal maintenance practices by strengthening city-owned maintenance companies with training (financed by the ID component) and equipment, prior to supporting cities to divest these companies (as required by provincial directives) and contracting out all maintenance activities larger than a threshold value. Project cities will use open competitive procurement procedures for works to invite and select bidders on the self-financed maintenance works. TA support will be provided to the municipal maintenance departments (whose core function will in future be planned maintenance) to implement this reform effectively and provide advisory support to the newly formed maintenance companies. Grant TA is being sought to explore a framework for performance-based contracting.

Both components include:

(a) Provision of pedestrian and non-motorized transport facilities, traffic management, and traffic safety arrangements, including: (i) physical separation of MV and NMV lanes on

major roads; (ii) safety islands in long pedestrian crossings; and (iii) intersection design based on safety issues.

(b) Care on pavement design regarding traffic loads, drainage and frost considerations due to the extreme winter conditions.

(c) Street furniture and accessibility, including the needs of the mobility impaired (by way of features such as curb cuts and Braille markings).

The **Traffic Safety and Traffic Management Component (TS)** [US$22.18 million] supports the implementation of the NRSL through support for enhanced traffic management, monitoring and traffic control systems (including traffic signals and intersection improvements) to improve safety and traffic flow. The ID component also supports this component with TA to: (a) support the cities to develop and implement a traffic safety audit program on selected corridors and intersections based on an annual monitoring program; and (b) support training and regional study tours to understand domestic and international experience and good practice on traffic control, enforcement and parking.

The component is consistent with the "People First" policy initiative of the government and reflects the needs of all road users, particularly those of pedestrians and cyclists. It is designed with six objectives: (a) investment in technology to modernize traffic control systems; (b) investment in protecting the vulnerable road users by rationalizing the allocation of road space for all modes; (c) effective monitoring of the traffic volumes (MVs and NMVs) and speed on selected arterial corridors and monitoring of traffic volumes (MVs, and NMVs and pedestrians) and time delay for MVs at selected major intersections; (d) mobilizing the RSCs to undertake appropriate traffic management actions arising from the results-oriented monitoring of traffic safety; (e) effective enforcement of the NRSL to enhance traffic safety; and (f) effective enforcement of laws and regulations regarding on-street and off-street parking, particularly MV parking on sidewalks, and the invasion of the cycle lanes by MVs.

Proposed investments in each city (described in detail later in this Annex) are based on a traffic safety and traffic management plan developed by each city that outlined current traffic management practices and identified needs and key priorities. In general,

(a) All the project cities will modernize their traffic management equipment and technologies by adding ATCs, more traffic signals, red light cameras, CCTV, and speed measuring equipment. New ATC systems are proposed for Benxi, Jinzhou, Liaoyang and Panjin. Fushun, which already has an ATC system, is adding 16 new signals at various intersections. All new and upgraded traffic signals will have proper pedestrian and bicycle lights and the related traffic control systems will be re-engineered to accommodate this.

(b) In terms of enforcement and education enhancement technologies, all cities except Fushun will add new CCTV units, and all except Liaoyang will add red light cameras. Traffic management command centers will be upgraded in Jinzhou, Liaoyang and Panjin. New electronic sign boards will be installed in all cities except Liaoyang. Fushun will buy a safety education vehicle. Panjin will procure new mobile speed measurement equipment.

(c) All project cities will undertake substantial increases in signs and markings to enhance the preventive element of traffic management. The project will finance junction channelization and other improvements to ensure safe mobility for all classes of users on project roads, as well as a selected number of other intersections. All intersections, where signals will be upgraded or new signals installed, will be re-designed and channelization will be put in to reflect the volume of pedestrians and cyclists. Proper lane separation will be undertaken at the intersections and in the vicinity of these intersections; and safety islands will be built where pedestrian and bicycle volumes are high enough. All of the cities, except Liaoyang (where there is already significant length of lane separation between MVs and NMVs) will undertake lane separation between MVs and NMVs, ranging from 11 km in Benxi to 26 km in Jinzhou.

These investments will be supplemented by a series of 'soft' measures designed specifically to support the city RSCs to implement the NSRL. Traffic safety audits will be conducted on a set of corridors and intersections that are high volume and/or high accident prone, and actions taken to reduce the risk of accidents. Actual safety, traffic flow, and records of enforcement actions (including a summary of red light violations, speed violations, parking violations) for these corridors will be monitored annually and action plans developed jointly with the RSCs for corridors and intersections where the safety performance does not improve significantly. The action-plans will include changes in enforcement strategies, traffic management, black-spot improvements and other similar strategic measures. In terms of traffic flow, public transport flows will be explicitly monitored and action plans focusing on public transport oriented traffic management developed to facilitate public transport improvements. It is expected that the concentration of effort related to improved safety, flow and public transport service would maximize the impact of the project on these selected corridors.

The **Public Transport Component (PT)** [US$14.45 million] includes provision of bus priority facilities and improvements in public transport planning and operations in the project cities. This consists of investments in: (a) public transport infrastructure at bus stops, including bus shelters, upgraded bus stop signage, and bus bays allowing buses to pull in from general traffic; (b) bus interchanges and terminals, with dispatching, parking and light maintenance facilities, and for use as overnight parking facilities; (c) bus lanes and other bus-friendly traffic management measures; and (d) introduction of new routes and existing route extensions. These facilities were designed on the basis of trends in demand and service, to address existing problems and taking into account the needs of the mobility impaired. These investments will enhance the quality, safety and level of public transport services while reducing their operating and maintenance costs. In addition, the ID component supports this component by supporting TA related to bus priority, network planning, and support for restructuring of the public transport industry to increase the role of the private sector, lower net costs and increase the effectiveness of bus service.

Bus Priority Lanes are proposed in Benxi, Jinzhou, Liaoyang and Panjin. The budgeted unit cost per km is based on an expectation of high quality design, best practice in road surface delineation, markings, and curbside/gantry signage, education and training campaigns, and evaluation. The project finances TA for training and study tours to understand options and best practice, which will precede implementation of the bus priority lanes.

The **Institutional Development Component (ID)** [US$4.85 million] includes project management assistance for LUCRPO, and supports TA to complement the investment components. The latter includes: TA to support public participation during implementation; training and assistance related to the use of the transport planning models developed during preparation; training and institutionalization on preventative maintenance planning practices; support for road maintenance reform; support for public transport reform; training and assistance related to bus priority design; training and assistance related to traffic enforcement strategies; and support for institutionalizing traffic safety audits.

The project has been designed at, and will be executed at, the city level. The project includes an overall project management component which is common to all of the cities and will be executed with the coordination of LUCRPO. Institutional development in support of individual components has been discussed as part of the respective components.

BENXI

The Benxi component includes road construction, bridges, associated drainage system, road lighting, and bus stops. The component locations are shown in the attached city map.

BRIC: Benxi Road Infrastructure and Reconstruction Component (US$41.39 million investment, US$20.75 million resettlement, and US$2.90 million design and management fees)

The Benxi road infrastructure and reconstruction sub-component will support: completion of the urban road network; improve the network to accommodate increased traffic; improve traffic conditions in the central area; and strengthen transportation between the old urban area and the new developments. As shown in Table A4.1, this includes reconstruction of 14 roads and construction of 3 new ones (total length 29.4 km) north and south of the Taizi River (including three creek crossing bridges), and the Beidi Bridge across the river and main rail lines. Road auxiliary facilities include drainage and street lights in all sub-projects.

Table A4.1: Benxi Road Infrastructure and Reconstruction Component

No.	Name	Class	Length (km)	Width (m)	Contents
BRIC1	Huanshan	Secondary	2.45	25	Reconstruction/15% new alignment
BRIC2	Guangyu	Trunk	1.68	25	Reconstruction
BRIC3	Houshi	Secondary	2.39	15	Reconstruction /80% new alignment
BRIC4	Xihu (Hexi)	Trunk	1.03	25	Reconstruction
BRIC5	Shujing	Secondary	3.47	20	Reconstruction/ 35% new alignment
BRIC6	Xifen	Secondary	1.13	25	Reconstruction
BRIC7	Jiefang 2nd South	Branch	1.39	20	Reconstruction
BRIC8	Xincheng North	Secondary	0.3	20	Reconstruction
BRIC9	Pingshanheng 3rd	Branch	0.93	15	Reconstruction
BRIC10	Pingshanheng 4th	Branch	0.93	15	Reconstruction
BRIC11	Digong	Trunk	2.45	30	Reconstruction/15% new alignment
BRIC12	Xihu (Houhu)	Secondary	1.79	20	Reconstruction/15% new alignment
BRIC13	Liutang	Secondary	0.88	18	Reconstruction
BRIC14	Meitie Jie	Secondary	1.15	17	New road
BRIC15	Huazhong	Secondary	0.58	30	New road
BRIC16	Beishan	Secondary	2.68	20	New road
BRIC17	Qianjin	Trunk	4.2	25	Reconstruction/80% new alignment
BRIC18	Beidi	Bridge	0.96	21	New bridge

BRMC: Benxi Secondary Road Rehabilitation and Road Maintenance Equipment Component (US$25.19 million (including US$1.89 million equipment), and US$1.76 million design and management fees)

BRMC comprises five activities:

(a) BRMC1 - BRMC1 will rehabilitate 317,940 m^2 of pavements on 43 roads, and rehabilitate and repair sidewalks of a total area of 202,537 m^2 on 44 roads.

(b) BRMC2 - BRMC2 will preserve or re-install original 1,372 street lights on 44 roads over a total length of 43.7 km.

(c) BRMC3 - BRMC3 will construct 43.7 km of drains to improve the efficiency of 44 roads.

(d) BRMC4 - BRMC4 will provide equipment to carry out small and emergency maintenance works, including a concrete and gravel mixer, a generator set, a street light service vehicle, sewer sludge collection equipment, pipe and cable detector, high-pressure water injector and related truck, a pipe plug, a mobile traffic information system and a hydraulic cutter.

(e) BRMC5 - BRMC5 will finance the purchase of loaders, rollers, trucks, millers, a paver, asphalt cutter, cranes, asphalt mixing plant and water browsers.

BPTC: Benxi Public Transport Component (US$3.22 million (including US$1.35 million equipment), and US$0.23 million design and management fees)

BPTC will finance works related to the construction of 10 km of bus priority on three roads to be selected as demonstration for the city. It will finance works related to three bus interchanges, including one at the railway station and one at the long-distance bus terminal to facilitate multi-modal transfers, and a dispatch center with control system located at the third interchange station in the growth area of the city. It will also finance six bus bays, and the installation of 691 bus stop signs and information plates, and 276 bus shelters on all existing and new routes. Details of the investment are presented in Table A4.2.

Table A4.2: Benxi Public Transport Component

	Proposed Investment Items
BPTC1	10 km of bus priority lanes on three roads to be selected
BPTC2	Six bus bays at Technical School, Minsheng, and Fire Station*
BPTC3	Three interchanges at Railway Station, Dongfen Passenger Station, and Xiaopu
BPTC4	Dispatch centre and control system located at Xiaopu
BPTC5	691 bus stop signs on current and new routes
BPTC6	276 bus shelters on current and new routes

Note: * project costs are combined with the costs of other works on the same roads under RI or RM component

BTSC: Benxi Traffic Safety and Traffic Management Component (US$2.8 million, and US$0.2 million design and management fees)

BTSC comprises eleven activities. It will finance equipment and civil works to enhance traffic safety and the overall efficiency of the road network in the city. Equipment financed under BTSC includes an ATC system with 19 new traffic signals, CCTV and red light cameras, electronic variable message signs, and other related equipment as shown in Table A4.3. BTSC will also finance intersection re-design at selected intersections and lane separation between MV and NMVs on 11.2 km of arterial roads.

Table A4.3: Benxi Traffic Safety and Traffic Management Component

	Proposed Investment Items
BTSC1	ATC System with 19 new traffic signals
BTSC2	21 CCTV units
BTSC3	13 Red Light Cameras
BTSC4	Lane separation for MVs and NMVs, 11.2 km*
BTSC5	6 Electronic Traffic Information Boards
BTSC6	Channelization at 3 junctions*
BTSC7	351 traffic signs*
BTSC8	Lane markings, 45,600 m^2*
BTSC9	1 signal maintenance vehicle
BTSC10	Radio phone system (200 units, 3 Relay Platforms and 7 Base Stations)
BTSC11	Traffic accident clearance vehicle

Note: * these costs are included in the costs of other works on the same roads under RI or RM component

BTSC also includes an annual monitoring plan on 15 intersections and 8 arterial roads shown below in Table A4.4. Every May, starting May 2007, the city will conduct traffic counts to determine traffic flow (volumes of all modes) and speed for MVs. In addition, annual traffic accident data (number of accidents, fatalities, injuries and economic loss) will be reported for the city as a whole, and the intersections and corridors identified in Table A4.4. The monitoring program will be coordinated with component IDTS2, as described below.

Table A4.4: Benxi Traffic Safety & Traffic Management Monitoring Program

	Roads	**Intersections**
1	Dongming Road	Xiaopu Intersection
2	Shengli Road	Xiangyangshan Intersection
3	Shuita Road	Xiaofang Intersection
4	Jiefang North Road	Shuita Intersection
5	Jiefang South Road	Wenhua Palace Intersection
6	Renmin Road	Dongming Intersection
7	Pingshan Road	Shifu Intersection
8	Yuming Road	Tielu Intersection
9		Mingsheng Intersection
10		Yongfeng Intersection
11		Dasha Intersection
12		Beidi Intersection
13		Dongfen Intersection
14		Nandi Intersection
15		Qianjin Intersection

FUSHUN

The Fushun component includes road construction, interchanges, associated drainage system, and road lighting; it does not contain a public transport component. The component locations are shown in the attached city map.

FRIC: Fushun Road Infrastructure and Reconstruction Component (US$28.33 million, US$5.5 million resettlement costs, and US$1.98 million design and management fees)

Fushun road infrastructure and reconstruction sub-component will support completion of the urban road network north of the river and improve access to Shenda Expressway. It includes the upgrading of two major traffic corridors in the city, involving 11.9 km of trunk roads (including three river crossing bridges) and six railway crossings on nearby roads. Auxiliary facilities include street lights, drainage & sewerage pipelines, and water/gas/heating supply. Details are shown in Table A4.5.

Table A4.5: Fushun Road Infrastructure and Reconstruction Component

No.	Name	Class	Length (km)	Width (m)	Contents
FRIC1	Gebu	Trunk	3.5	28	Reconstruction/widening
FRIC2	Gaoshan	Trunk	8.4	25/33	Reconstruction/widening
FRIC3	Rail crossings	Secondary			New construction of six rail underpasses - one on Gebu, five on secondary roads near Gaoshan
FRIC4	Bridges	Trunk			Three bridges on Gaoshan Road

FRMC: Fushun Secondary Road Rehabilitation and Road Maintenance Equipment Component (US$8.1million (including US$1.12 million equipment), and US$0.57million design and management fees)

FRMC comprises four activities:

(a) FRMC1 - FRMC1 will rehabilitate pavements of 205,520 m^2 on 30 roads with a total length of 20.1 km, rehabilitate and repair sidewalks of a total area of 95,975 m^2 of the same roads, and repair, rehabilitate and reconstruct drainage for a total length of 22.4 km on these roads.

(b) FRMC2 - FRMC2 will improve traffic safety and social safety by installing 574 street lights on 30 roads over a total length of 20.1 km.

(c) FRMC3 - FRMC3 will finance a mobile asphalt regeneration plant for the municipal road maintenance department.

(d) FRMC4 - FRMC4 will strengthen the road maintenance company to enable it to compete successfully in the post-reform environment by financing the purchase of six rollers and a suction and pressure hose.

FPTC: Fushun Public Transport Component (US$0.06 million)

Three bus bays will be constructed as part of the road infrastructure component.

FTSC: Fushun Traffic Safety and Traffic Management Component (US$7.41 million (including US$3.11 million equipment), and US$0.52 million management and design fees)

FTSC component will finance equipment and civil works to enhance traffic safety and the overall efficiency of the road network in the city. Equipment to be financed includes an ATC system with 16 new traffic signals, a license plate recognition system, CCTV and red light cameras, electronic variable message signs, and other related equipment as shown in Table A4.6. It will also finance intersection re-design at 16 intersections and lane separation between MV and NMVs on 24 km of Xincheng road and 10 other arterials.

Table A4.6: Fushun Traffic Safety and Traffic Management Component

	Proposed Investment Items
FTSC1	Traffic management facilities (signs and marking) including signs, MV/NMV separations, reconstruction of South Station area and markings.
FTSC2	16 traffic signals and ATC facilities
FTSC3	Electronic variable message signs, solar-warning lights, manually controlled pedestrian signals
FTSC4	10 traffic patrol vehicles
FTSC5	6 accident investigation vehicles
FTSC6	Traffic control data system vehicle with video camera
FTSC7	2 signal repair and maintenance vehicles
FTSC8	14 MV speed monitor devices with video cameras
FTSC9	300 wireless electronic communication systems
FTSC10	Road safety propaganda vehicle with video editing and display devices
FTSC11	61 red light cameras
FTSC12	16 CCTV

FTSC also includes an annual monitoring plan on 15 intersections and 10 arterial roads shown in Table A4.7. Every May, starting May 2007, the city will conduct traffic counts to determine traffic flow (volumes of all modes) and speed for MVs. In addition, annual traffic accident data (number of accidents, fatalities, injuries and economic loss) will be reported for the city as a whole and the intersections and corridors identified in Table A4.7. The monitoring program will be coordinated with component IDTS2, described below.

Table A4.7: Fushun Traffic Safety & Traffic Management Monitoring Program

	Roads	Intersections
1	Yumin Road	Gaoshan Road and Ningyuan Street
2	Gebu Road	Beizhen Street and Dandong Road
3	Xiyi Road	Changchun Street and Fushuncheng Road
4	Dongyi Road	South of Jiangjun Bridge
5	Gaoshan Road	South of Yong'an Bridge
6	Heping Road	Lichuan Road and Ankang Street
7	Xincheng Road	South of Changchun Bridge
8	South Hunhe Road	Xincheng Road and Gebuqian Street
9	Sui Hua Road	Xincheng Road/and Longcheng Street
10	Anshan Road	Xincheng Road and Liuhua Street
11		Xincheng Road and Changchun Street
12		Qianjin Road and Shiyidao Street
13		Yongyi Road and Anze Street
14		Xiyi Road and Xisan Street
15		Dandong Road and Kangping Street

LIAOYANG

The Liaoyang component includes road construction, bridges, associated drainage and road lighting systems, landscaping, traffic management, public transport, and road maintenance. The component locations are shown in the attached city map.

LRIC: Liaoyang Road Infrastructure Reconstruction Component (US$53.17 million, US$36.4 million resettlement costs, and US$3.72 million design and management fees)

The Liaoyang road infrastructure and reconstruction component will improve: traffic conditions in the northeast and south parts of the city; access to the expressway; and communication between both sides of the main rail line. It will support urban upgrading in different areas of the city and assist in adapting the road network to accommodate travel demands. It involves works on 43 roads (new construction and upgrading) with a total length of 53.5 km; 30 of the affected roads (35.4 km) are branch roads and alleys. LRIC includes the widening of two existing rail underpasses (Beiyuan and Xuwangzi), a new overpass (Shengli) to complement the work on the Xuwangzi underpass, and a new underpass (Xiaozhuang) giving better access from the city center towards the expressway. Auxiliary facilities such as drainage and street lights are included at present in all the sub-projects. Details are shown in Table A4.8.

Table A4.8: Liaoyang Road Infrastructure and Reconstruction Component

No.	Name	Class	Length (km)	Width (m)	Contents
LRIC1	Wangshui	Trunk	1.42	38	New construction.
LRIC2	Xinhua North	Trunk	2.57	38	Reconstruction/Extension (30%)
LRIC3	Xinhua South	Trunk	0.93	38	Reconstruction
LRIC4	Minzhu	Trunk	0.35	38	Reconstruction
LRIC5	Wensheng	Trunk	1.37	42	New construction
LRIC6	Beigong	Secondary	0.94	21	Reconstruction/Extension (60%)
LRIC7	Qianjin	Secondary	1.95	21	Reconstruction
LRIC8	Jiefang	Secondary	1.48	28	Reconstruction/Extension (60%)
LRIC9	Beishao	Secondary	0.90	32	Reconstruction/Extension (60%)
LRIC10	Xiaopu	Secondary	2.16	28	Reconstruction/Extension (15%)
LRIC11	Gongnong	Secondary	1.17	32	New construction
LRIC12	Beixin	Secondary	1.09	32	Reconstruction/Extension (30%)
LRIC13	Jiahe	Secondary	1.79	32	New construction
LRIC14	9 roads	Branch	5.76	18/24	New construction
LRIC15	14 roads	Branch	22.39	18/24	Reconstruction
LRIC16	7 roads	Alleys	7.22	9/15	Reconstruction/New construction
LRIC17	Beiyuan	Rail crossing	0.02	42	Widening of existing underpass
LRIC18	Xiaozhuang	Rail crossing	0.07	29	New underpass (replaces an existing pedestrian's only overpass)
LRIC19	Xuwangzi	Rail crossing	0.10	40	Widening of existing underpass
LRIC20	Shengli	Street flyover	0.09		Related to Xuwangzi underpass

LRMC: Liaoyang Secondary Road Rehabilitation and Road Maintenance Equipment Component (US$15.8 million, including US$1.32 million equipment), and US$1.11 million design and management fees)

LRMC comprises four activities:

(a) LRMC1 - LRMC1 will rehabilitate pavements of 754,100 m^2 on 41 roads, and rehabilitate and repair sidewalks of a total area of 545,700 m^2 of 48 roads.

(b) LRMC2 - LRMC2 will improve traffic safety and social safety through installing 2,765 street lights on 48 roads.

(c) LRMC3 - LRMC3 will improve road access by constructing 14.5 km of drainage on 31 roads.

(d) LRMC4 - LRMC4 will strengthen the road maintenance company for competing successfully in the post-reform environment by financing the purchase of a paving machine, a roller, street light maintenance equipment, a milling machine, and suction and pressure hose.

LPTC: Liaoyang Public Transport Component (US$2.56 million, including US$0.69 million equipment)

LPTC will support works related to the construction of 15.85 km of bus priority on four sections of four roads, as well as four end-of-route bus-turnarounds, a bus parking facility, and 60 bus stop shelters and signage at 146 bus stops on 8 new bus routes. Details of the investment are presented in Table A4.9.

Table A4.9: Liaoyang Public Transport Component

	Proposed Investment Items
LPTC1	15.85 km of bus priority on four sections on Zhonghua Da St. (Shengli Rd. – Shenyin Rd), Minzhu Rd. (Zhonghua Da St. – Nanhuan St.), Xinyun Da St. (Minzhu Rd. – Wensheng Rd.)*, and Xinhua Rd. (Zhonghua Da St. – Nanhuan St.)
LPTC2	4 bus turnaround facilities located at Qianjin Street, Nanchang Road (north section), Zhongxin Road (south section), and Xinhua Road (north Section)
LPTC3	A bus parking facility at Liaohua
LPTC4	146 bus stop signs on 8 new routes
LPTC5	60 bus shelters on 8 new routes

Note: * these costs are included in the costs of other works on the same roads under RI or RM component

LTSC: Liaoyang Traffic Safety and Traffic Management Component (US$3.02 million, and US$0.21 million design and management fees)

LTSC will finance equipment and civil works to enhance traffic safety and the overall efficiency of the road network in the city. Equipment financed by the project includes an ATC system with 47 new traffic signals, a GPS system to assist the police communication system and to coordinate ambulatory response to road accidents, CCTV, electronic variable message signs, and other related equipment, as shown in Table A4.10.

Table A4.10: Liaoyang Traffic Safety and Traffic Management Component

	Proposed Investment Items
LTSC1	Command Center Upgrading, installation and commissioning
LTSC2	New ATC System, covering 47 intersections
LTSC3	20 CCTV Units, installed at 20 intersections
LTSC4	16 Electronic Traffic Information Boards, installed at 10 intersections
LTSC5	GPS System, 200 units with server and software, linking traffic police and also ambulance vehicles

LTSC also includes an annual monitoring plan on 11 intersections and 10 arterial roads shown in Table A4.11 below. Every May, starting May 2007, the city will conduct traffic counts to determine traffic flow (volumes of all modes) and speed for MVs. In addition, annual traffic accident data (number of accidents, fatalities, injuries and economic loss) will be reported for the city as a whole, and the intersections and corridors identified in Table A4.11. The monitoring program will be coordinated with component IDTS2 as described below.

Table 4.11: Liaoy t : Management Monitoring Program

	Roads	Intersections
1	Minzhu Road	Xinyun Street and Minzhu Road
2	Xinhua Road	Xinyun Street and Wusheng Road
3	Wensheng Road	Xinyun Street and Zhongxin Road
4	Shengli Road	Xinyun Street and Xinhua Road
5	Zhonghua Road	Xinhua Road and Qingnian Street
6	Xinyun Street	Xinhua Road and Sandao Street
7	Qingnian Street	Minzhu Road and Nanjiao Street
8	Nanjiao Road	Minzhu Road and Tuanjie Street
		Minzhu Road : Street
10		Wensheng Road and Qingnian Street
11		Xinhua Road and Xinxing Street

JINZHOU

The Jinzhou component includes road construction, bridges, associated drainage system, road lighting, and bus stops. The component locations are shown in the attached city map.

JRIC: Jinzhou Road Infrastructure and Reconstruction Component (US$45.61 million, US$7.1 million resettlement costs, and US$3.19 million design and management fees)

Jinzhou's road infrastructure and reconstruction component will improve the existing road network in the old part of the city, address bottlenecks at the main rail line crossings (thus improving connections between northern and central areas), and complete the road network south of the river. It involves works on 13 roads (new construction and upgrading) with a total length of 45.4 km and 2 new rail passes (Hankou and Guangzhou) to solve congestion at existing level crossings. Drainage and street lights are included in all the proposed sub-projects. Details are shown in Table A4.12.

Table A4.12: Jinzhou Road Infrastructure and Reconstruction Component

No.	Name	Class	Length (km)	Width (m)	Contents
JRIC1	Yunfei	Trunk	2.00	30	Reconstruction
JRIC2	Beijing	Trunk	2.47	30	Reconstruction
JRIC3	Nanjing	Trunk	4.15	30	Reconstruction
JRIC4	Jiefang	Trunk	10.9	40	Reconstruction
JRIC5	Zhongyang	Trunk	4.06	40	Reconstruction
JRIC6	Yan'an	Trunk	6.09	22/30	Reconstruction
JRIC7	Songpo	Trunk	4.99	24	Reconstruction
JRIC8	Zhongyang north	Trunk	1.58	36	Reconstruction
JRIC9	Keji	Trunk	3.24	44	New construction
JRIC10	Chongqing	Secondary	2.43	22	Reconstruction
JRIC11	Jinxing	Secondary	1.90	32	New construction
JRIC12	Wuhan	Branch	0.88	32	New construction
JRIC13	Changsha	Branch	0.80	20	New construction
JRIC14	Hankou	Rail crossing	0.05	26	New underpass, replacing level crossing
JRIC15	Guangzhou	Rail crossing	0.07/ 0.23	29	New underpass + overpass, replacing level crossing and damaged bridge

JRMC: Jinzhou Secondary Road Rehabilitation and Road Maintenance Equipment Component (US$25.35 million (including US$2.95million equipment), and US$1.77 million design and management fees)

JRMC comprises six activities:

(a) JRMC1 - JRMC1 will rehabilitate pavements of 1,057,400 m^2 on 41 roads, and rehabilitate and repair sidewalks of a total area of 378,500 m^2 on the same roads. It will also carry out corrective repairs on Nan and Nuerge bridges.

(b) JRMC2 – JRMC2 will preserve or reinstall original 561 street lights on 2 roads with a total length of 5.3 km.

(c) JRMC3 - JRMC3 will construct 29.6 km of drains on 24 roads over a total length of 70.1 km.

(d) JRMC4 - JRMC4 will install 1,745 street lights on 28 roads.

(e) JRMC5 - JRMC5 will finance equipment, including a street light service vehicle, mowers, trimmers, water browsers, a chemical sprayer, a multifunctional maintenance unit, a small roller, mobile traffic information systems, and deflection meters.

(f) JRMC6 - JRMC6 will strengthen the road maintenance company for competing successfully in the post-reform environment by financing equipment, including a miller, asphalt sprayer, loaders, water browser, trucks, excavators, hydraulic cutters, rollers, pavers, scrapers, cranes, and a mobile mixing plant.

JPTC: Jinzhou Public Transport Component (US$1.70 million)

JPTC will finance works related to the construction of 9.5 km of bus priority in five sections of five roads. It will also finance works related to three interchange terminals and three end-of-route bus turnarounds. Details of the investment are presented in Table A4.13.

Table A4.13: Jinzhou Public Transport Component

	Proposed Investment Items
JPTC1	9.5 km of bus priority lanes in five sections on Limin St. (Beijing Rd – Hubei Rd), Aimin St. (Beijing Rd – Hubei Rd), Zhongyang South St. (Xiaolinghe Nan Qiao – Guangcai Zhungpan), Luoyang Rd. (Renmin St. – Jiafang St.), Shiying St. (Yanan Rd. – Zhongyang Da St.)
JPTC2	3 interchange terminals at Fuzhou St, Zhanqian and Shenglicun
JPTC3	3 end-of-route bus turn-around at Bohai University, Xinzhi St., and Nanshan

JTSC: Jinzhou Traffic Safety and Traffic Management Component (US$3.62 million, and US$0.25 million design and management fees)

JTSC will finance equipment and civil works to enhance traffic safety and the overall efficiency of the road network in the city. Equipment financed includes an ATC system with 45 new traffic signals, CCTV and red light cameras, electronic variable message signs, and other related equipment as shown in Table A4.14. The component will also finance 26 km of lane separations between MVs and NMVs.

Table A4.14: Jinzhou Traffic Safety and Traffic Management Component

	Proposed Investment Items
JTSC1	25.9 km of lane separation between MVs and NMV
JTSC2	New ATC system, covering 45 intersections
JTSC3	18 CCTV Units
JTSC4	48 red light cameras
JTSC5	5 Electronic variable message signs
JTSC5	Traffic control data system vehicle with video camera
JTSC6	A traffic signal maintenance vehicle

JTSC also includes an annual monitoring plan on 14 intersections and 8 arterial roads shown below in Table A4.15. Every May, starting May 2007, the city will conduct traffic counts to determine traffic flow (volumes of all modes) and speed for MVs. In addition, annual traffic accident data (number of accidents, fatalities, injuries and economic loss) will be reported for the city as a whole, and in the intersections and corridors identified in Table A4.15. The monitoring program will be coordinated with component IDTS2, described below.

Table A4.15: Jinzhou Traffic Safety & Traffic Management Monitoring Program

	Roads	Intersections
1	Jiefang Road	Jiefang Road and Central Boulevard
2	Beijing Road	Central Boulevard and Nanjing Road
3	Yan'an Road	Jiefang Road and Renmin Street
4	Nanjing Road	Yunfei Street and Yan'an Road
5	Yunfei Road	Yan'an Road and Renmin Street
6	Central Boulevard	Zhongyang Road and Luoyang Road
7	Shifu Road	Jiefang Road and Zhengzhou Road
8	Shiying Street	Jiefang Road and Shiying Street
9		Jiefang road and Guizhou Street
10		Chongqing Road and Liming Street
11		Chongqing Road and Aimin Street
12		Beijing Road and Ada Street
13		Yan'an Road and Hankou Street
14		Shifu Road and Chengdu Street

PANJIN

The Panjin component includes road construction, bridges, associated drainage system, road lighting, and bus stops. The component locations are shown in the attached city map.

PRIC: Panjin Road Infrastructure and Reconstruction Component (US$32.59 million, US$32.32 million resettlement costs, and US$2.23 million design and management fees)

Panjin's road infrastructure and reconstruction component will support the improvement of road networks in Shuangtaizi and Xinglongtai districts, both to improve existing traffic conditions and to accommodate future travel demand, and also to promote economic development and urban construction. It will also improve accessibility to existing bridges, by giving access to the roads crossing the bridges. It involves reconstruction of four roads and new construction of eight roads, with a total length of 26 km (including two small bridges). It includes the building of new ramps at Shuangtaizi Bridge from Xindi Street, as well as drainage and street lights facilities. Details are shown in Table 4.16.

Table A4.16: Panjin Road Infrastructure and Reconstruction Component

No.	Name	Class	Length (km)	Width (m)	Contents
PRIC1	Xingong West	Secondary	3.00	46	New construction
PRIC2	Huibin West	Trunk	1.45	51	New construction
PRIC3	Shiyou	Trunk	1.29	43	New construction
PRIC4	Liao He South	Trunk	1.48	51	New construction
PRIC5	Xingong (East)	Trunk	3.43	36	Reconstruction
PRIC6	Xinglong Av. (West)	Trunk	3.59	42	Reconstruction
PRIC7	Gongye	Trunk	1.68	37	Reconstruction
PRIC8	Hubin	Secondary	2.87	24	New construction
PRIC9	Xindi	Secondary	4.16	16	New construction. Includes new ramps as Shuangtaizi Bridge
PRIC10	Changzheng	Secondary	1.23	24	New construction
PRIC11	Limin	Secondary	1.07	15	Reconstruction
PRIC12	Xinkaihe	Branch	0.36	24	New construction

PRMC: Panjin Secondary Road Rehabilitation and Road Maintenance Equipment Component (US$28.34 million (including US$2.82 million equipment), and US$1.9 million management and design fees)

PRMC comprises five activities:

(a) PRMC1 - PRMC1 will rehabilitate pavements of 1,600,000 m^2 on 38 roads, and will also rehabilitate and repair sidewalks and bicycle lanes with an area of 523,400 m^2 on these roads.

(b) PRMC2 - PRMC2 will construct 42.5 km of drainage on 25 roads over a total length of 35.6 km.

(c) PRMP3 - PRMP3 will install 2,899 street lights on 25 roads.

(d) PRMC4 - PRMC4 will finance street light service vehicles and multifunctional maintenance vehicles.

(e) PRMC5 - PRMC5 will strengthen the road maintenance company for competing successfully in the post-reform environment by financing equipment, including a paver, miller, rollers, suction and pressure hose, water browsers, trucks, trailer, high-pressure hose, truck and lift.

PPTC: Panjin Public Transport Component (US$5.06 million (including US$2.29 million equipment), and US$0.35 million design and management fees, and US$0.65 million resettlement costs)

PPTC will finance works related to the construction of 18.6 km of bus priority in four sections of four roads, and 5 km of bus priority lanes in the north city on streets to be determined. It will also finance works related to 26 bus bays and an interchange terminal at the railway station to facilitate multi-modal transfers. It will further finance a dispatch center and control system for north (located at the interchange) and south city services, an Integrated Circuit (IC) card system, and needed workshop equipment at a city centre facility. PPTC will also finance 2 bus turnarounds, 139 bus shelters, and installation of 1,256 bus stop signs and information plates. Details of the investment are presented in Table A4.17.

Table A4.17: Panjin Public Transport Component

	Proposed Investment Items
PPTC1	18.5 km of bus priority lanes on Xinglongda St. (Shuangxing Rd – Taishan Rd.), Shiyouda St. (Liaohenan Rd – Shuangxingnan Rd.), Taishan Rd. (Huibinda St – Gongyeda St.), Shuangxing Rd. (Huibinda St. – Xingyouda St.), Xingong Street East (Panshi West Rd – East Outer Huan Rd), and one road in the North city.*
PPTC2	26 bus bays on Xinlongda St., Shiyouda St., Taishan Rd., and Shuangxing Rd.
PPTC3	An interchange terminal at Panjin Railway Station
PPTC4	2 bus turnarounds and parking at Liulihe and San Chang district
PPTC5	2 dispatching centre and control system with GPS, located at Xinlongtai district and Shuangtaizi
PPTC6	IC Card system for 300 buses
PPTC7	189 bus shelters on existing and new routes
PPTC8	1360 bus stop signs on all existing and new routes
PPTC9	Workshop equipment at Xinglongtai maintenance facility

Note: * these costs are included in the costs of other works on the same roads under RI or RM component

PTSC: Panjin Traffic Safety and Traffic Management Component (US$3.65 million, and US$0.26 million design and management fees)

PTSC will finance equipment and civil works to enhance traffic safety and the overall efficiency of the road network in the city. Equipment financed includes an ATC system with 34 new traffic signals, CCTV and red light cameras, and other related equipment, as shown in Table A4.18. The component will also finance channelization at 9 intersections, signs and markings on 38 secondary roads, and 15 km of lane separations between MVs and NMVs.

Table A4.18: Panjin Traffic Safety and Traffic Management Component

	Proposed Investment Items
PTSC1	Channelization at 9 intersections *
PTSC2	Enhancing pedestrian and bicycle safety and separation at 17 intersections and 5 roads
PTSC3	Signal lights for pedestrians and cyclists at 9 intersections
PTSC4	Lane separation between MVs and NMV on 5 arterial roads*
PTSC5	New ATC system (34 crossings, 18 crossings with pedestrian signals)
PTSC6	33 Red Light Cameras at 17 intersections
PTSC7	Command Center upgrading, installation and commissioning
PTSC8	A traffic signal maintenance vehicle
PTSC9	2 tow trucks
PTSC10	6 mobile speed measuring units
PTSC11	Install 3 warning light signals at intersections outside ATC
PTSC12	2 accident investigation vehicles and equipment

Note: * these costs are included in the costs of other works on the same roads under RI or RM component

PTSC also includes an annual monitoring plan on 15 intersections on 8 arterial roads shown in Table A4.19. Every May, starting May 2007, the city will conduct traffic counts to determine traffic flow (volumes of all modes) and speed for MVs. In addition, annual traffic accident data (number of accidents, fatalities, injuries and economic loss) will be reported for the city as a whole, and the intersections and corridors identified in Table A4.19. The monitoring program will be coordinated with component IDTS2 as described below.

Table A4.19: Panjin Traffic Safety & Traffic Management Monitoring Program

	Roads	**Intersections**
1	Taishan Road	Xinglong Street
2	Hongqi Street	Shuangxing Road/Xinggong Street
3	Shuangxing north street	Shuangxing Road/Xinglong Street
4	Shuangxing south street	Taishan Road/Shifu Street
5	Shiyou Street	Taishan Road/Shiyou Street
6	Liaohe Road	Shuangxing Road/Shiyou Street
7	Bohai Road	Shuangxing Road/Huibin Street
8	Xinggong Street	Hongqi Street/Bohai Road
9		Shengli Street/Liaohe Road
10		Shifu Street/Shuangxing Road
11		Liaohe Road/Hongqi Street
12		Taishan Road/Xinggong Street
13		Xinglong Street/Liaohe Road
14		Shiyou Street/Liaohe Road
15		Huibin Street/Taishan Road

DENGTA

The Dengta component includes road construction, bridges, associated drainage system, road lighting, and bus stops. Component locations are shown in the attached city map.

DRIC: Dengta Road Infrastructure and Reconstruction Component (US$8.12 million, US$3.07 million resettlement costs, and US$0.57 million design and management fees)

DRIC will help in completing the city's arterial network, improving traffic conditions in the city and at the rail crossings, and upgrading the lower level road system. As shown in Table A4.20, this will be achieved with works on seven road sections (new construction and upgrading) with a total length of 9.7 km, with the improvement of 6.5 km of alleys, and with the widening of an existing rail underpass. Drainage and sewerage pipelines and street lights complement the proposed sub-projects.

Table A4.20: Dengta Road Infrastructure and Reconstruction Component

No.	Name	Class	Length (km)	Width (m)	Contents
DRIC1	Zhao Lin West	Trunk	2.17	28	Reconstruction
DRIC2	Wen Hua North	Trunk	0.41	28	New construction
DRIC3	Wen Hua South	Trunk	1.20	28	Reconstruction
DRIC4	Guang Ming East	Trunk	1.27	36	New construction
DRIC5	Guang Ming West	Trunk	1.00	36	Reconstruction
DRIC6	Guang Ming South	Secondary	2.01	26	Reconstruction
DRIC7	Tadong	Secondary	1.63	25	New construction
DRIC8		Alleys	6.48		Reconstruction
DRIC9	South Rail Underpass				Widening of existing underpass

DRMC: Dengta Secondary Road Rehabilitation and Road Maintenance Equipment Component (US$ 2.4 million (including US$0.57 million equipment), and US$0.17 million design and management fees)

DRMC comprises four activities:

DRMC1 - DRMC1 will rehabilitate pavements of 135,612m^2 on seven roads, and rehabilitate and repair sidewalks of a total area of 29,173.5 m^2 on five roads.

DRMC2 - DRMC2 will construct drainage over the entire 1.7 km of Tiexi Street.

DRMC3 - DRMC3 will finance a street light service vehicle.

DRMC4 - DRMC4 will finance the purchase of two rollers, a paver, an excavator, a water spraying truck and a crane.

DPTC: Dengta Public Transport Component (US$0.1 million)

DPTC will finance 38 bus stops and 2 dispatch offices.

DTSC: Dengta Traffic Safety and Traffic Management Component (US$ 0.17 million)

DTSC will finance US$0.17 million of equipment.

Institutional Development (ID) Component

This component will finance technical assistance in the form of consultancy, training and study tours to support project implementation and to complement the investment components such that the project's development objectives can be realized. Details of this component are summarized in Table A4.21 and discussed below.

IDPM1. Support for tendering agents to assist with procurement.

IDPM2. Project management support for LUCRPO and the project cities.

IDRI1. *Public participation.* Consultant services will be financed to provide public input to: ensure that implementation related concerns raised by the public during preparation are adequately addressed; ensure that project investments are designed in a manner that maximizes benefits for the users; provide feedback on the safety and traffic management impact on the identified corridors and intersections; measure the public's general satisfaction with mobility, convenience, cost and safety elements of the city's urban transport system; and understand any other transport related concerns raised by the public. Participation would include, at a minimum: well-publicized public meetings, attended by local government officials and officials involved with implementing the project; a series of focus groups that target vulnerable groups such as the elderly, migrant workers, the unemployed, people depending on the road system for employment (such as handcart or paratransit drivers); women-only focus groups to ensure that women's issues are properly understood; individual interviews with a selection of mobility impaired individuals; and quantitative interviews that will include a core panel sample of individuals consulted during preparation. At least two rounds of participation will be conducted during implementation.

IDRI2. *Assistance in transport planning.* In order to institutionalize the knowledge base relating to formal transport modeling developed as part of project preparation, the cities will hire a consultant team to support training on the model system developed during preparation, and support the city in using the model for modeling related issues during the project period. The consultant's tasks will include: ensuring that the city's construction committee (or its equivalent agency) has an appropriate license for any software needed to run the transport model and use its results; providing training for construction committee members and leaders to raise awareness of the modeling process, its requirements and potential benefits; updating the input data for the

model by way of surveys, traffic counts etc.; using the updated model to support the city to conduct an economic analysis for the project implementation completion report; and supporting the city to use the model to prepare its road infrastructure and maintenance investment plans for the 2011-2015 five-year plan period.

IDRM1. *Assistance in preventative maintenance planning.* The objective of this assignment is the adoption of an appropriate Maintenance Control System for Municipal Road Networks in the project cities. The Consultant will develop and test a maintenance planning system and tools; and prepare manuals, guidelines and supporting training materials for inspectors and road asset managers. The Consultant will train the inspectors and asset managers in applying the tools and manuals, and review every year the quality of the five-year maintenance plan.

IDRM2. *Assistance in road maintenance contracting.* The objectives of this task are to: support successful implementation of the reform of the Municipal Maintenance Companies (SOE) through advisory support, information supply and training to city governments; and ensure a successful adaptation of the reformed municipal maintenance companies to competition by 2010. Success of the first objective will, among others, be measured with indicators like cost reductions in civil works, reduction of overhead costs within the administration, and reduced number of workers. Success of the second objective will be measured in terms of market shares, employment figures, turnover and profit.

IDPT1. *Bus priority and operations management.* This task would include: training, study tours and discussions on concepts and design for bus priority lanes, based on experiences in China and elsewhere, focusing on functional requirements, operational characteristics, traffic impacts, design issues, accommodating other road-users especially NMV, signage and awareness, staff training, enforcement, and problem-solving. It would also include training on: operations management, with a focus on comprehensive operations management and dispatching concepts; optimizing resources and meeting service quality targets; functions, organization and staffing levels; advanced technologies (ITS) for operations management, including GPS, communications systems, control center software and hardware; specification and procurement of systems.

IDPT2. *Bus network review and support for bus transport enterprise reform.* This task would include: (a) an assessment of the bus transport situation, including financial, operational and market structure issues on benchmarks, as far as possible; (b) network review, including know-how transfer for professionals, and implementing network review as preparatory action for cities about to tender out part or all of their network; (c) training, study tours and discussions on different reform options, based on experiences in China and elsewhere, focusing on risks and operational implications of different models; (d) organizing outreach with bus operators and potential investors to explain their perspectives to the city and to increase operator awareness of the markets in these cities; (e) assistance to a selection of interested cities in developing an extended road map for reform, including an action plan and support for choosing a reform model; and (f) support for implementation, including support for disinvestment of the public transport company, developing concession contract documents, supporting the tendering and tender evaluation process, supporting business planning and training for the erstwhile public transport company; (g) supporting the companies to evaluate the reform experience; and (h)

supporting SOEs which have commercialized, in developing their management capacity, Management Information System capability and maintenance capabilities.

IDTS1. *Training and regional study tour on traffic enforcement and parking strategies.* The training component will comprise two parts: training on effective enforcement strategies and training on parking strategies. Training on enforcement will include: (a) evaluation of enforcement methods and strategic development of staff for enforcement to create law abiding driver behavior; (b) evaluation of the effectiveness of enforcement equipment (such as red light cameras) and monitoring equipment (such as CCTV); and (c) the development of dynamic enforcement strategies, combining traffic control systems, electronic surveillance equipment and enforcement staffing. The component dealing with the development of parking strategies will include: (a) the assessment of parking sufficiency and demand; (b) development of parking enforcement strategies and determining equipment and man-power needs; and (c) planning for future parking needs.

Regional study tours will focus on the leadership (policy makers from RSCs) and the senior professional staff from the traffic police to study and understand how other successful cities in the region, both in China and abroad, handle their problems successfully. More importantly, to learn about long range and short range strategies to control and to manage parking problems without causing traffic flow impediments. The selected group will visit cities in China (Beijing, Shanghai, Guangzhou and Hong Kong) and internationally (Singapore, Seoul and Tokyo). The tour will be guided by an expert to facilitate the learning process.

IDTS2. *Traffic safety audits and supporting monitoring for traffic safety and management components.* This technical assistance component is designed to strengthen the process and the product of the annual monitoring for traffic safety, development of remedial action plans, and the implementation of these plans during the next year. The traffic safety audit sub-component will include: (a) the training of traffic police to conduct annual traffic safety audits during 2006-08; (b) supervising the conduct of such audits in the initial two years of project implementation; and (c) assisting in the preparation of remedial action plans during the three years 2006-09. Briefly, the traffic safety audits should assess the over all traffic safety in the city, identify critical elements of safety and critical locations (physical elements such as the roads, intersections, traffic control equipment, channelization, and lane separation) and behavioral elements such as driver behavior, education, enforcement, and suggest changes as necessary. The output of the safety audits is the primary input into the analysis of the current problems and the preparation of remedial action plans. The objectives of the remedial action plans include taking pro-active actions necessary to enhance traffic safety in the city.

Table A4.21: Institutional Development Component Investment Summary

	Proposed Items
IDPM1	Support for procurement agent 2007 - 2009
IDPM11	Support for procurement agent for 2006 procurements
IDPM2	Support for project management, design review and construction supervision
IDPM21	Preparation of Technical Specifications for construction works in 2006
IDRI1	Public participation
IDRI2	Transport planning
IDRM1	Preventative maintenance planning
IDRM2	Support for road maintenance reform
IDPT1	Bus priority
IDPT2	Support for public transport reform
IDTS1	Traffic enforcement and parking strategies
IDTS2	Traffic safety audits and monitoring
	Grant financing will be sought for
IDG1	Framework for performance-based contracting
IDG2	Strengthening Provincial Construction Department on public transport reform

Annex 5: Project Costs

CHINA: China-Liaoning Medium Cities Infrastructure Project

LMCI PROJECT COST SUMMARY BY PROJECT COMPONENTS (IN MILLION USD)

	Benxi			Dengta			Fushun			Jinzhou			Liaoyang			Panjin			LMCI		
(Values in $million)	Total	IBRD	China	Total	IBRD	China	Total	IBRD	China	Total	IBRD	China	Total	IBRD	China	Total	IBRD	China	Total	IBRD	China
Road Infrastructure (RI)																					
Civil Works	41.39	21.11	20.28	8.12	4.14	3.98	28.33	14.45	13.88	45.61	23.26	22.35	51.27	26.15	25.12	32.59	16.62	15.97	207.31	105.73	101.58
Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90	1.90	0.00	0.00	0.00	0.00	1.90	1.90	0.00
Land Acquisition & Resettlement	20.75	0.00	20.75	3.07	0.00	3.07	5.50	0.00	5.50	7.10	0.00	7.10	36.40	0.00	36.40	32.32	0.00	32.32	105.14	0.00	105.14
Design fees and other	2.90	0.00	2.90	0.57	0.00	0.57	1.98	0.00	1.98	3.19	0.00	3.19	3.72	0.00	3.72	2.23	0.00	2.23	14.60	0.00	14.60
Local Supervision (LS)	0.42	0.00	0.42	0.08	0.00	0.08	0.22	0.00	0.22	0.44	0.00	0.44	0.46	0.00	0.46	0.36	0.00	0.36	1.98	0.00	1.98
SUBTOTAL	*65.46*	*21.11*	*44.35*	*11.83*	*4.14*	*7.69*	*36.03*	*14.45*	*21.59*	*56.34*	*23.26*	*33.08*	*93.75*	*28.04*	*65.71*	*67.51*	*16.62*	*50.89*	*330.93*	*107.63*	*223.30*
Road Maintenance (RM)																					
Civil Works	23.30	11.88	11.42	1.83	0.93	0.90	6.98	3.56	3.42	22.40	11.42	10.97	14.48	7.38	7.09	25.52	13.02	12.50	94.51	48.20	46.31
Equipment	1.89	1.89	0.00	0.57	0.57	0.00	1.12	1.12	0.00	2.95	2.95	0.00	1.32	1.32	0.00	2.82	2.82	0.00	10.67	10.67	0.00
Land Acquisition & Resettlement	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Design fees and other	1.76	0.00	1.76	0.17	0.00	0.17	0.57	0.00	0.57	1.77	0.00	1.77	1.11	0.00	1.11	1.90	0.00	1.90	7.28	0.00	7.28
Local Supervision (LS)	0.24	0.00	0.24	0.02	0.00	0.02	0.05	0.00	0.05	0.22	0.00	0.22	0.13	0.00	0.13	0.28	0.00	0.28	0.94	0.00	0.94
SUBTOTAL	*27.19*	*13.77*	*13.41*	*2.59*	*1.51*	*1.08*	*8.72*	*4.68*	*4.04*	*27.33*	*14.37*	*12.97*	*17.03*	*8.70*	*8.33*	*30.53*	*15.84*	*14.69*	*113.40*	*58.87*	*54.53*
Road Safety (RS)																					
Civil Works	0.00	0.00	0.00	0.00	0.00	0.00	4.30	2.20	2.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.30	2.20	2.11
Equipment	2.80	2.80	0.00	0.17	0.17	0.00	3.11	3.11	0.00	3.62	3.62	0.00	3.02	3.02	0.00	3.65	3.65	0.00	16.39	16.39	0.00
Land Acquisition & Resettlement	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Design fees and other	0.20	0.00	0.20	0.01	0.00	0.01	0.52	0.00	0.52	0.25	0.00	0.25	0.21	0.00	0.21	0.26	0.00	0.26	1.45	0.00	1.45
Local Supervision (LS)	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.03
SUBTOTAL	*3.00*	*2.80*	*0.20*	*0.18*	*0.17*	*0.01*	*7.97*	*5.31*	*2.66*	*3.88*	*3.62*	*0.25*	*3.23*	*3.02*	*0.21*	*3.91*	*3.65*	*0.26*	*22.18*	*18.58*	*3.59*
Public Transport (PT)																					
Civil Works	1.87	0.95	0.92	0.10	0.05	0.05	0.06	0.03	0.03	1.70	0.87	0.83	1.87	0.95	0.92	2.77	1.41	1.36	8.37	4.27	4.10
Equipment	1.35	1.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.69	0.00	2.29	2.29	0.00	4.32	4.32	0.00
Land Acquisition & Resettlement	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.00	0.65	0.65	0.00	0.65
Design fees and other	0.23	0.00	0.23	0.01	0.00	0.01	0.00	0.00	0.00	0.12	0.00	0.12	0.18	0.00	0.18	0.48	0.00	0.48	1.02	0.00	1.02
Local Supervision (LS)	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.02	0.00	0.02	0.03	0.00	0.03	0.08	0.00	0.08
SUBTOTAL	*3.46*	*2.30*	*1.16*	*0.11*	*0.05*	*0.06*	*0.06*	*0.03*	*0.03*	*1.84*	*0.87*	*0.97*	*2.76*	*1.64*	*1.11*	*6.22*	*3.70*	*2.52*	*14.45*	*8.59*	*5.85*
Technical Assistance (TA)	0.97	0.97	0.00	0.17	0.17	0.00	0.74	0.74	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.97	0.97	0.00	4.85	4.85	0.00
COST SUBTOTAL	***100.07***	***40.95***	***59.12***	***14.89***	***6.04***	***8.85***	***53.53***	***25.21***	***28.32***	***90.39***	***43.12***	***47.27***	***117.77***	***42.41***	***75.36***	***109.14***	***40.78***	***68.36***	***485.79***	***198.52***	***287.28***
Unallocated																					
Physical Contingency	5.32	2.72	2.61	0.80	0.41	0.39	3.17	1.62	1.56	5.58	2.84	2.73	5.41	2.76	2.65	4.87	2.48	2.39	25.16	12.83	12.33
Price Contingency	2.90	1.60	1.30	0.43	0.23	0.20	1.76	0.98	0.78	3.05	1.68	1.37	2.98	1.66	1.33	2.79	1.59	1.19	13.91	7.75	6.16
Bidding Contingency	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL PROJECT COSTS	**108.30**	**44.50**	**63.04**	**16.12**	**6.66**	**9.44**	**58.46**	**27.39**	**30.66**	**99.02**	**47.50**	**51.37**	**126.16**	**46.68**	**79.33**	**116.80**	**44.72**	**71.94**	**524.87**	**217.45**	**305.77**
Front-End Fees (0.25%)		0.11			0.02			0.07			0.12			0.12			0.11			0.54	
TOTAL LOAN AMOUNT		**44.61**			**6.68**			**27.46**			**47.62**			**46.79**			**44.83**			**218.00**	

Taxes. Estimated taxes are US$17.3 million

LMCI LOAN ALLOCATION SUMMARY (IN USD)

Category	Amount of the Loan allocated (Expressed in Millions of Dollars)	% of Expenditures to be Financed
(1) Panjin's Respective Parts of the Project	**44.83**	
(a) Civil Works	31.05	51%
(b) Goods	8.76	100%
(c) Consultants' services, Training, workshops and study tour	0.97	100%
(d) Unallocated	3.93	100%
(e) Front-end Fees*	0.11	
(2) Jinzhou's Respective Parts of the Project	**47.62**	
(a) Civil Works	35.55	51%
(b) Goods	6.57	100%
(c) Consultants' services, Training, workshops and study tour	1.00	100%
(d) Unallocated	4.38	100%
(e) Front-end Fees*	0.12	
(3) Fushun's Respective Parts of the Project	**27.46**	
(a) Civil Works	20.24	51%
(b) Goods	4.23	100%
(c) Consultants' services, Training, workshops and study tour	0.74	100%
(d) Unallocated	2.19	100%
(e) Front-end Fees*	0.07	
(4) Benxi's Respective Parts of the Project	**44.61**	
(a) Civil Works	33.95	51%
(b) Goods	6.04	100%
(c) Consultants' services, Training, workshops and study tour	0.97	100%
(d) Unallocated	3.55	100%
(e) Front-end Fees*	0.11	
(5) Liaoyang's Respective Parts of the Project	**46.79**	
(a) Civil Works	34.48	51%
(b) Goods	6.93	100%
(c) Consultants' services, Training, workshops and study tour	1.00	100%
(d) Unallocated	4.27	100%
(e) Front-end Fees*	0.12	
(6) Dengta's Respective Parts of the Project	**6.68**	
(a) Civil Works	5.13	51%
(b) Goods	0.74	100%
(c) Consultants' services, Training, workshops and study tour	0.17	100%
(d) Unallocated	0.62	100%
(e) Front-end Fees*	0.02	
TOTAL	218.00	

*Amount due under Section 2.04 of Loan Agreement

Annex 6: Implementation Arrangements

CHINA: China-Liaoning Medium Cities Infrastructure Project

Provincial Level Implementing Agencies

The LPCG, established by Liaoning Provincial government, chaired by a Vice Governor of Liaoning, will be responsible for providing overall guidance on project implementation, including coordinating any policy and institutional issues related to the project. LPDF will be responsible for integrated management and providing implementation guidance. LUCRPO, which has been established under LPCD, will be the primary interlocutor with the Bank, and responsible for day-to-day project implementation.

The principal provincial level implementing agencies are:

Liaoning Development and Reform Committee (LDRC) is responsible for overall economic and investment planning. It is also responsible for providing funding sources and management for government and SOE investment projects. LDRC's main responsibilities towards LMCIP are to review and authorize project plans and investment applications as well as to plan, arrange and authorize the use of foreign funds and counterpart funding.

Liaoning Provincial Department of Finance (LPDF) is responsible for provincial government and its agencies' financial management, financial planning, budget allocation and control. LPDF, as the government agency in charge of debt management and the official Bank loan borrower, manages and supervises all Bank financed projects in the province. LPDF is also in charge of financial management, disbursement and financial reporting of the project.

Liaoning Provincial Construction Department (LPCD) is responsible for the management of urban infrastructure in the province as well as the management of public transport planning and infrastructure construction planning. It is in charge of urban infrastructure development planning, urban development planning and for providing policy guidance on individual cities' urban transport planning.

Liaoning Provincial Environment Protection Bureau (LPEPB) is in charge of environmental planning, monitoring, and management. It is responsible for setting relevant environmental laws and/or rules, monitoring, managing and controlling noise, pollution, and vehicle emission. It is also responsible for developing pollution control and environmental management plan. In the LMCI project, LPEPB is responsible for review and approval of LMCIP's environment assessment reports.

LUCRPO, established under LPCD, is responsible for the day-to-day works related to project preparation, implementation, and management.

City Level Implementing Agencies

Each participating city has established a Leading Group (LG). These LGs are responsible for providing policy guidance and delegating project responsibilities to relevant entities. LGs are chaired by the mayors (or vice mayors who oversee the urban construction activities). Under their overall direction, municipal or city PMOs will manage and coordinate the day-to-day Project preparation and implementation. The major relevant city entities include the following:

Municipal Development and Reform Committee (DRC) (or Development and Reform Bureau (DRB) in Dengta) is responsible for the overall government economic and investment planning, as well as the financial planning and management of government invested projects, and SOE investments. Municipal DRCs are also in charge of developing five year plans and the annual investment plan. The DRCs review and authorize the financial plans of development projects, and also review and authorize the local investment proposals and foreign fund applications. The DRCs have assisted government in the review and authorization of LMCIP. (In Dengta, the Development and Reform Bureau – DPB – performs the functions of DRC).

Municipal Financial Bureau (MFB) is in charge of utilizing and managing project funds, and raising counterpart funding. As the municipal government debt representative, the MFB guides, manages, and holds responsibilities for the Bank loan project in the municipality. It reviews and authorizes the disbursement requests against the project designated account as well as reporting to the municipal government.

Municipal Environment Protection Bureau (EPB) is responsible for monitoring the city's environmental conditions on a regular basis. The EPB is responsible for implementing environmental laws and regulations, and inspecting the implementation of environmental impact mitigation measures during the project construction and operation. In addition, EPBs will review environment performance reports submitted by contractors and city PMOs.

Municipal Pubic Security Bureau Traffic Brigade (PSBTB) is the implementing agency for road safety improvement and traffic management. PSBTB will implement the traffic safety and traffic management component under LMCIP, and operate, manage and maintain the facilities and equipment installed under the project.

A ***Municipal Road Safety Committee (RSC)*** has been recently established in each project city in response to the NRSL. The RSCs, comprised of the leadership of all relevant city agencies, are the leadership groups responsible for ensuring higher traffic safety levels and appropriate traffic management strategies for each city. These committees are headed in each city by the Vice-Mayor in charge of public security in each city. These committees meet regularly to review issues related to traffic safety and have the authority to recommend and implement changes - in traffic management, in enforcement strategies and other related measures - if such changes are needed to improve road safety. RSCs will review the progress of the TS component and provide guidance as appropriate.

Municipal Urban Construction Committee (UCC). The UCC is in charge of planning, construction, management and maintenance of urban infrastructure facilities. Its main responsibilities include urban infrastructure development planning, urban development planning (including public transport, traffic management, road construction and maintenance planning, implementation and management), and infrastructure construction, operation, maintenance and management. Municipal UCCs also supervise the operation of their subordinary entities, including construction companies and design institutes. Municipal UCCs are supported by government tax income.

Municipal Urban Construction Bureau (UCB). UCBs are responsible for the implementation of urban construction plan developed by UCCs. UCBs have a division responsible for the planning and implementation of urban infrastructure maintenance.

Municipal Project Management Offices (PMO, City PMO in the case of Dengta). Municipal or City PMOs are responsible for the day-to-day management and coordination of project preparation and implementation. In Liaoyang, Benxi, Fushun and Jinzhou, the PMOs are established under the UCCs. In Panjin, the PMO is established under the Panjin UCB. The Dengta PMO is established under Dengta Public Utility Management Bureau (PUMB) of the city government. The city PMOs are temporary entities established for the duration of Bank financed projects and other donor financed projects.

Implementation Arrangement by Project Component at City Level

Implementation arrangements for each project component are described below. Further details are available in the project files.

Road Infrastructure and Reconstruction (RI): Major entities responsible for the preparation, implementation and management of road infrastructure projects include (a) municipal or city PMOs; (bi) UCCs, which plan urban construction projects and approve the AWP, and/or (c) UCB, which manages and maintains infrastructure facilities, and/or (d) municipal or city Planning Bureau (PB). Responsibilities of each of these entities are summarized below.

Municipal PMO or Dengta PMO was responsible for the initial project preparation and will coordinate and manage project implementation. PMOs will participate in NCB and International Competitive Bidding (ICB) procurement, particularly in bidding document design, bid evaluation, contract negotiation and contract signing. PMOs will coordinate and manage contractors' construction and material supply. Upon completion of infrastructure works, PMOs will review and confirm satisfactory completion of work. Infrastructure facilities constructed under the project will be owned by the city government.

UCC plans urban construction projects, participates in initial project identification, and is responsible for developing financial plans. UCCs will authorize the AWP and the budget developed by the PMOs. UCCs will also authorize payment for works. These functions are carried out in Dengta by the PUMB.

UCB provided data and information for feasibility studies and designs. UCB will also manage the infrastructure facilities once they are built.

Municipal or City PB is responsible for road network planning of the city. PB participated in (and provided data and inputs for) the preparation of feasibility studies, preliminary designs, and detailed designs.

Secondary Road Rehabilitation and Road Maintenance Equipment (RM). The preparation and implementation of this component involves the: (a) PMOs, (b) UCCs to approve project identification and scope; and (c) the municipal/city entity in charge of infrastructure maintenance to propose project contents, to facilitate the implementation, and to maintain the infrastructure built. The maintenance entities are: the Municipal Facility Management Division (MFMD) of UCB for Liaoyang; the MFMD of UCC for Benxi; the Municipal Management Division of UCC for Jinzhou; the Road Rehabilitation Office of UCB in Fushun; and the City Public Works Management Division of UCB for Panjin. In Dengta, these responsibilities will be carried out by the PMOs and the PUMB. Responsibilities of each of these entities are summarized below.

Municipal and Dengta PMOs were responsible for the initial project preparation and will coordinate and manage project implementation. PMOs will participate in NCB and ICB procurement, particularly in bidding document design, bid evaluation, contract negotiation and contract signing. Upon completion of the work, PMOs will review and confirm satisfactory completion of work. RM facilities constructed under the project will be owned by the city government and managed by the UCB.

UCC plans infrastructure rehabilitation work and will participate in the review, coordination and supervision of the project. It will authorize the annual work program and the budgets, and authorize payments for completed works. This function will be carried out in Dengta by PUMB.

Municipal/City Maintenance Entity (name varies) develops road maintenance plans, subject to UCC approval, and assists in the identification and determination of road maintenance projects. The maintenance entities will also implement the maintenance work and receive the project TA on preventive maintenance.

UCB will be responsible for the management and maintenance of the infrastructure facilities completed under the project.

Traffic Safety and Traffic Management (TS). This component is prepared and implemented jointly by: (a) PMOs; (b) UCCs to review and approve project proposals and scope; (c) the PSBTBs to propose project contents, participate in the implementation, and manage the systems developed under the TS project components; and (d) RSCs to provide overall guidance on the TS projects. Responsibilities of each of these entities are summarized below.

Municipal and Dengta PMOs coordinated the initial project preparation and identification. PMOs will coordinate and manage project implementation; be in charge of preparing lender documents for NCB and ICB procurements tender design, and will participate in the bidding

process and contract negotiation of procurement led by LUCRPO. PMOs will authorize payment for completed works.

PSBTB proposed project contents, participated in project designs, and will be responsible for project implementation. PSBTBs have assigned dedicated staff for the project, who will either remain in their original office, or transfer temporarily to PMOs over the duration of the project. Upon completion of the project, the facilities and equipment installed under the project will be owned by the government, and operated, maintained and managed by PSBTB.

UCC reviewed and approved PSBTB's proposals. UCCs (PUMB in Dengta) will also authorize the AWP developed by PSBTB, and authorize payments for completed works.

RSCs provide overall guidance and coordination support to the safety and traffic management component. Starting October 2006, RSCs will meet annually to monitor the safety and traffic flow on specified locations. Results from the review will be incorporated by PSBTB into the annual work plan for the coming year.

Public Transport (PT). The preparation, implementation and management of the public transport component involves: (a) PMOs; (b) the public transport companies, who have been fully consulted in the preparation of this project component, and will use the facilities built; and (c) the agencies supervising the public transport companies, which supervise and coordinate the participation of public transport companies in the project. The public transport management entities are: the UCC in Benxi; the UCBs in Panjin and Liaoyang; the PUMBs in Jinzhou and Dengta; and the Municipal Communications Bureau (MCB) in Fushun.

Municipal and Dengta PMOs were responsible for initial project identification and preparation; and will coordinate and manage project implementation. PMOs will develop an annual implementation plan, coordinate supervision, and verify works and confirm payment.

Public Transport Company participated in project identification and design, and provided data for feasibility study and project designs. Public transport companies will join contract negotiations, participate in and oversee project implementation. Bus companies will also collect data on monitoring indicators and submit progress reports. They will either assign dedicated staff for the project, or send staff to the PMOs for the project period. Upon completion of work, the public transport companies will use, operate and manage the facilities built; the facilities will be owned by government. The facilities of bus routes (e.g., end-of-route turn-around) would be used by the bus entity which operates the relevant bus route; i.e., where services are operated by operators other than the SOE, those operators will be able to use these facilities built under the project.

Public Transport Management Entity: UCC and/or UCB reviewed and approved component content . They will supervise and coordinate the participation of public transport companies in the project. They will be responsible for budget planning and payment authorization. They will participate in the component implementation, and will own the facilities built. They will authorize the payments for the work completed.

PUMB (Dengta and Jinzhou). Same as above.

MCB. Same as above.

Institutional Development. LUCRPO, through the project procurement agent, will organize the procurement of all consulting services under the ID component. In particular, LUCRPO will develop technical bidding documents incorporating requirements from individual cities through their PMOs. Upon receipt of the bids, municipal/city PMOs and LUCRPO will jointly evaluate the bids and develop the bid evaluation reports. Each consulting contract will be jointly signed by the involved participating municipalities. LUCRPO will provide office space for all consultants. LUCRPO will submit related invoices to the municipal PMOs and MFB for review and verification. LPDF will make the payments from the project DA to the consulting firms.

Equipment. LUCRPO will procure international specialist consulting services to help develop the technical bid documents for equipment procurement. The project procurement agent will develop the business clauses and LUCRPO will submit the bid document for Bank review. Municipal bidding and procurement will be arranged by municipal PMOs. LUCRPO will be responsible for arranging the bidding, under overall management at provincial level. A bid evaluation committee (composed of municipal/city PMOs, the relevant agencies, technical specialist and staff from individual cities, and domestic bid evaluation specialists engaged by the procurement agent) will evaluate the bids, and submit the results for LUCRPO to review. Individual PMOs and/or relevant city implementing agencies will negotiate with equipment suppliers and sign separate city contracts.

Implementation Arrangements for Other Project Management Activities

Project management activities relating to environmental and resettlement aspects are discussed below.

Environment. LUCRPO, with its dedicated environmental specialist staff, and the PMOs will coordinate and take ultimate responsibility for environmental performance and environmental management during construction. LUCRPO, based on individual cities' environmental reports, organized cities to contract with the LAES. LAES carried out the EIA during preparation, and prepared EMPs. LAES will provide environmental training to contractors and construction supervisors. LUCRPO and the individual PMOs will prepare specifications on environmental performance for contractors and for construction supervision. Municipal EPBs will review and monitor the implementation of environment policies, and review the environment performance reports submitted by the contractors and PMOs.

Resettlement. Resettlement implementation agencies and their responsibilities are summarized below.

Municipal/City project LG provides leadership support and policy guidance for land acquisition and resettlement. It reviewed and approved the resettlement action plans.

Municipal/City PMO developed the RAPs, and will manage and coordinate resettlement activities, including internal monitoring and reporting.

Resettlement Company will implement the RAP approved by the Bank, and develop resettlement internal monitoring reports to be submitted to the PMO. In Panjin, this function will be carried out by land acquisition service station and housing demolishment service division.

LRB facilitates and guides resettlement procedures, determines the methods and indicators of measurement for compensation, reviews and approves resettlement activities. LRB also supervises and audits resettlement activities.

Urban Construction Resettlement Office measures the indicators to determine compensation amounts, implements land acquisition and demolishing of buildings, supervises resettlement activities and manages resettlement disputes.

Municipal/City Housing Property Division investigates and manages issues related to the status and changes in property rights.

Design Institutes involved are responsible for the engineering design and determine project areas and resettlement areas.

Municipal FB allocates funds for resettlement compensation.

Independent Monitoring Agent engaged by the city PMO to perform independent external monitoring and supervision on land acquisition and resettlement activities.

Annex 7: Financial Management and Disbursement Arrangements

CHINA: China-Liaoning Medium Cities Infrastructure Project

Overview

The Bank has conducted an assessment of the adequacy of the financial management system of the project. The assessment, based on guidelines issued by the Financial Management Sector Board on November 3, 2005, has concluded that the project meets minimum Bank financial management requirements, as stipulated in BP/OP 10.02. In the Bank's opinion, the project will have in place an adequate project financial management system that can provide, with reasonable assurance, accurate and timely information on the status of the project in the reporting format agreed with the project and as required by the Bank.

Funding sources for the project include Bank loan and counterpart funds. Bank loan proceeds will flow from the Bank into the project DA to be set up at (and managed by) LPDF, to various MFBs, to project implementing agencies, and to contractors or suppliers. The Loan Agreement will be signed between the Bank and the People's Republic of China through the MOF, and on-lending agreements for the Loan will be signed between MOF and the government of Liaoning Province through LPDF, and between LPDF and various MFBs. Counterpart funds will be government appropriation from various municipal governments.

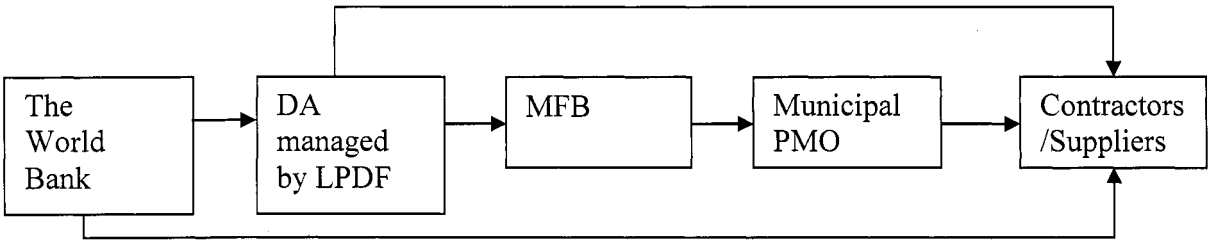
Audit Arrangement

In line with other Bank financed projects in China, the project will be audited in accordance with International Auditing Standards and the Government Auditing Standards of the People's Republic of China. The Liaoning Provincial Audit Office has been identified as auditors for the project. Annual audit reports will be issued by the above audit center and will be subject to reviews by the China National Audit Office (CNAO). The Bank currently accepts audit reports issued by CNAO or provincial/regional audit bureaus/offices for which CNAO is ultimately responsible.

LPDF will submit the annual audit report of project financial statements to the Bank within six months after the end of each calendar year, as stipulated in the Loan Agreement.

Funds Flow and Disbursement Arrangement

Funds flow for the Loan will follow Bank and MOF requirements. One DA will be established and managed by LPDF. The funds flow is as follows:



In accordance with the general agreement between the Bank and MOF, the project will use traditional disbursement techniques and will not use report-based disbursements.

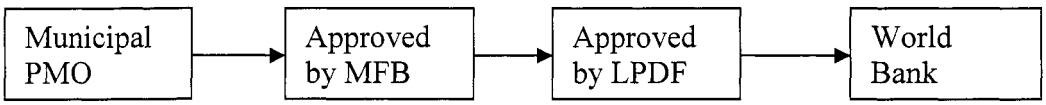
The Loan would be disbursed against eligible expenditures as in Table A7.1.

Table A7.1: Allocation of Loan Proceeds

Category	Amount of the Loan Allocated (in US$ million)	Percentage of Expenditures to be financed
(1) Civil works	160.395	51%
(2) Goods	33.28	100%
(3) Consulting services, training/workshops	4.85	100%
(4) Front-end Fee	0.545	
(5) Unallocated	18.93	
Total	**218.00**	

Four disbursement methods are available for the project: reimbursement, advance, direct payment and special commitment.

LPDF will be directly responsible for the management, monitoring, maintenance and reconciliation of the DA. Supporting documents required for disbursements will be prepared and submitted by respective Municipal PMOs through MFB, to LPDF for final verification and consolidation, before sending to the Bank for further disbursement processing. The flow of the withdrawal application is as follows:



Financial Management and Reporting Arrangements

Implementing Entity. In each project city, a Municipal PMO has been established to be responsible for project coordination and management, as well as day to day project implementation. Project accounting and withdrawal applications will be managed by the PMO (more details in Annex 6).

Accounting and Reporting. Administration, accounting and reporting of the project will be set up in accordance with the Circular #13: "Accounting Regulations for World Bank Financed Projects" issued by MOF in January 2000. The circular provides in-depth instructions on accounting treatment of project activities, and covers the following:

- Chart of accounts
- Detailed accounting instructions for each project account
- Standard set of project financial statements
- Instructions on the preparation of project financial statements

The standard set of project financial statements mentioned above has been agreed between the Bank and MOF, and applies to all Bank projects appraised after July 1, 1998. It includes the following:

- Balance sheet
- Statement of source and use of funds by project components
- Statement of implementation of loan agreement
- Statement of DA
- Notes to the financial statements

Each PMO will manage, monitor and maintain the respective project accounting records. Original supporting documents for project activities will be retained by each PMO. In addition, each PMO will prepare financial statements, which will then be reviewed, approved and consolidated by LPDF before furnishing them to the Bank for review and comment on a regular basis.

One of the factors critical to successful implementation of project financial management is adequate project accounting staff with educational background and work experience commensurate with the work they are expected to perform, is Based on discussions, observation and review of the educational background and work experience of the staff identified for financial and accounting positions in the implementing agencies, the Bank considers that the financial staffs are qualified and appropriate to the work they are expected to perform.

To strengthen financial management capacity and achieve consistent quality of accounting work, a project financial management manual (the Manual) has been prepared. The Manual provides detailed guidelines on financial management including internal controls, accounting procedures, fund and asset management, withdrawal application procedures, financial reporting and auditing arrangements.

Internal Control and Internal Auditing. The project does not have an independent internal audit facility. However, it is the Bank's assessment that this will not impact the project's financial management; management and monitoring by LUCRPO and individual PMOs, supplemented with annual external audits, will ensure that financial management controls are functioning appropriately.

Information System. Some PMOs will use computerized financial management information software, while others will maintain the project accounting books manually. The Bank will monitor the processing of accounting closely, especially in the initial stages of project implementation, to ensure complete and accurate financial information is provided in a timely manner.

Supervision Plan. A detailed supervision plan for this project will be included as part of the China Audit Strategy document, taking into consideration the size of the project and the financial management risk rating.

Annex 8: Procurement Arrangements

CHINA: China-Liaoning Medium Cities Infrastructure Project

A. General

Procurement for the proposed project will be carried out in accordance with the World Bank's "Guidelines: Procurement Under IBRD Loans and IDA Credits" dated May 2004, "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004, and the provisions stipulated in the legal documents. The general description of various items under different expenditure categories is shown below. For each contract to be financed by the Loan, the different procurement methods or consultant selection methods, the need for pre-qualification, estimated costs, prior review requirements, and time frame are indicated in the Procurement Plan. The Procurement Plan will be updated at least annually (or as required) to reflect actual project implementation needs and improvements in institutional capacity.

Procurement of Works. Works procured under this project would include: (a) civil works related to the road infrastructure and road maintenance components; (b) civil works related to the public transport component (bus priority lanes, bus interchanges, bus turnarounds, bus bays and shelters); and (c) traffic signs and markings under the traffic safety and traffic management component. Civil works in (b) and (c) above will be packaged into (a), if the works can be executed together with the road infrastructure or road maintenance works. The preliminary designs and detailed designs shall be approved by the Bank in advance for all prior review and post review contracts. Procurement will be done using MOF's model bidding documents (MBD) dated May 1997, agreed with the Bank for all NCB contracts below US$15 million for each contract, and the Bank's Standard Pre-qualification Documents, May 2004, for large bridge contracts.

Procurement of Goods. Goods procured under this project would include: (a) ATC and other traffic safety and management equipment (CCTV, red light cameras, large screen display panels, and special vehicles); (b) road maintenance equipment; and (c) dispatching system for Benxi and Panjin, and IC Card system for Panjin. ICB (for contracts above US$500,000) and NCB (for contracts above US$100,000) apply to (a) and (b) above, while NCB and Shopping (for contracts not more than US$100,000 per contract) apply to (c) above. NCB procurement will be done using MOF's MBD dated May 1997 agreed with the Bank. The Bank's Standard Bidding Documents, Supply and Installation of Plant and Equipment, May 2004 or Standard Bidding Documents for Procurement of Goods, May 2005 will be used for ICB contracts.

Selection of Consultants. Consultants selected under this project would be required for assistance on: (a) project management, design and bidding document review, construction supervision and procurement agents; (b) public transport reform and operations management; (c) road maintenance reform and operations management; and (d) traffic safety and traffic management. Short lists of consultants for services estimated to cost less than US$300,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines. Universities and Government Research institutions engaged as consultants will be selected in accordance with the provisions

of paragraphs 1.11(c) and 2.8 of the Consultant Guidelines. Procurement agents will be selected in accordance with the provisions of paragraphs 1.11(b), 3.17 and 4.4 of the Consultant Guidelines.

B. Assessment of the Agency's Capacity to Implement Procurement

Procurement activities will be carried out by LUCRPO and each of the project municipalities. LUCRPO will serve as the main counterpart to the Bank, and will have overall responsibility for project implementation, in accordance with the Loan and Project Agreements.

The Bank conducted an assessment of the capacity of the implementing agency to implement procurement actions for the project. The assessment reviewed the organizational structure for implementing the project and the interaction between project staff responsible for procurement in LUCRPO and the relevant units in each project city.

LMCIP is the fifth Bank financed urban infrastructure project to be implemented by LUCRPO and project cities in the province; Dengta is the only first time sub-borrower of a Bank loan. The procurement risk has been assessed as average. There are some deviations from the Bank's guidelines in government's own procurement practices, including the use of a 'bracketing and merit point' system. The provisions in the legal documents for NCB procurement, Bank prior reviews and post reviews of NCB procurement, as well as training on the Bank's policies and procedures will address these issues. The Bank's procurement guidelines will be followed for Bank financed contracts. Issues/risks relating to procurement under the project have been identified and included in the procurement capacity assessment report. Corrective measures have been agreed to and implemented.

C. Procurement Plan

The Borrower has developed a Procurement Plan for project implementation. This plan has been agreed between the Borrower and the Bank and is available at the LUCRPO office in Shenyang, China. It will also be available in the Project database and in the Bank's external website. The Procurement Plan will be updated in agreement with the Bank annually (or as required) to reflect project implementation needs and improvements in institutional capacity.

Works, goods and consultant services under urban transport projects are procured on a yearly basis and city governments approve the annual investment plan at the beginning of the year. Roads and bridges are usually constructed within one or one and a half years, and rehabilitated/maintained within one construction season. The construction season in northeast China is from April to November, so the bidding process shall be completed before April. Some civil works contracts in 2006 will be financed under retroactive financing. Equipment procurement will start from 2007, after the loan is signed.

Equipment under the traffic management component and the road maintenance component will be packaged on a city basis. LUCRPO will guide and coordinate the procurement of traffic management equipment and road maintenance equipment by each city, e.g., preparation of specifications. Equipment will be grouped together on "slice and package" basis to increase the procurement scale. However, contracts for equipment will be signed by each city.

Office equipment will be procured by LUCRPO for all project cities on "slice and package" basis to increase the scale, since the equipment is standardized and available off the shelf.

Bus plates and waiting pavilions will be packaged as goods contract for each city.

Roads and bridges under the road infrastructure and road maintenance components in each project city will be packaged into one or two contract lots each year. Bus terminals, stops, bus bays, some bus priority lanes, bus interchanges and bus turnarounds under the public transport component, and traffic signs and markings under the traffic safety and traffic management component may be packaged together with the relevant roads under RI or RM components. However, works under PT component may be executed independent of RI or RM contracts. Drains and sewers, traffic lines, traffic signs, street lighting, landscaping and greening along the route, etc., will be included in the bill of quantities of the road contract. The sub-contractors for traffic signs and markings, street lighting, and landscaping shall be indicated in the bids and evaluated during bid evaluation. Service lines and pipes for water supply, power supply, telecommunication, gas, TV, and heating utilities, which are barred under the road pavement are not included in the road contracts and will be built by other contractors before the road is paved. The city PMO shall coordinate with the owners and contractors for these urban utilities to ensure that the works are implemented smoothly. Road contracts shall be signed only after any resettlement required is completed in accordance with the approved RAP.

All consultants will be selected by LUCRPO in consultation with the municipal PMOs.

Prior review thresholds for LMCIP are indicated in Table A8.1.

Table A8.1: Prior Review Thresholds

	Civil Works	Goods	Consultant Services	Consultant Services
			Firm	Individual
Above US$	5 million	500,000	200,000	50,000

In addition, the Bank will review the first contract procured under each category.

The procurement method thresholds for LMCIP are indicated in Table A8.2.

Table A8.2: Procurement Method Thresholds

	Civil Works	Goods	Consultant Services
ICB (US$)	>15 million	>500,000	>300,000 (short list not more than two from a country)
NCB advertisement in a national newspaper (US$)	>2 million	>300,000	<300,000 (shortlist may be limited to national consultants)
NCB advertisement in a provincial newspaper (US$)	<2 million	<300,000	>200,000 - QCBS <200, 000 – Consultants' Qualifications (CQS) or Individual Consultant
Shopping (US$)	NA	<100,000	

Advertisement. In addition to a national newspaper, all Procurement Notices for ICB, and consultant contracts above US$200,000 for firms, will be advertised on United Nations Development Business online and dgMarket. The advertisement for Expression of Interest for selection of consulting firms will be in a national newspaper, regardless of contract value.

Bid/proposal evaluation and contract award will be published in accordance with paragraph 2.60 of the Guidelines for works and goods, and paragraph 2.28 of the Guidelines for consultant services.

Retroactive Financing. In accordance with paragraph 1 of Section IV (B), Schedule 2 of the Loan Agreement, only payments for expenditures made after April 10, 2006, are eligible for retroactive financing, and the ceiling for such payments is limited to US$40 million for civil works and consulting services. Procurement documents for the contracts eligible for retroactive financing from each project city will be submitted to the Bank for prior review. The retroactive financing period is one year before signing of the loan.

D. Frequency of Procurement Supervision

The Bank will monitor procurement closely through its prior review procedures, regular supervision missions, and procurement post-review missions. In addition to the prior review supervision to be carried out from Bank offices, post reviews of procurement actions will be carried out every six months, as recommended by the procurement capacity assessment.

DETAILS OF THE PROCUREMENT ARRANGEMENT INVOLVING INTERNATIONAL COMPETITION

1. Goods and Works and Non-consulting Services

(a) Table A8.3 summarizes the contract packages which will be procured under ICB and direct contracting:

Table A8.3: List of equipment to be procured using ICB and Direct Contracting

1	2	3	4	5	6	7	8	9
Ref. No.	**Contract (Description)**	**Estimated Cost US$ 000**	**Procurement Method**	**P-Q**	**Domestic Preference (yes/no)**	**Review by Bank (Prior / Post)**	**Expected Bid-Opening Date**	**Notes**
BTS23	Area Traffic Control (ATC) and traffic signals in Benxi	750	ICB	NA	Yes	Prior	2007	Supply & Install
PTS23	Area Traffic Control (ATC) and traffic signals in Panjin	935	ICB	NA	Yes	Prior	2007	Supply & Install
JTS23	Area Traffic Control (ATC) and traffic signals in Jinzhou	1,545	ICB	NA	Yes	Prior	2007	Supply & Install
LTS23	Area Traffic Control (ATC) and traffic signals in Liaoyang	1,445	ICB	NA	Yes	Prior	2007	Supply & Install
BTS22	Equipment for traffic management in Benxi	1,500	ICB	NA	Yes	Prior	2007	A few lots
PTS22	Equipment for traffic management in Panjin	2,005	ICB	NA	Yes	Prior	2007	A few lots
JTS22	Equipment for traffic management in Jinzhou	1,370	ICB	NA	Yes	Prior	2007	A few lots
LTS22	Equipment for traffic management in Liaoyang	1,000	ICB	NA	Yes	Prior	2007	A few lots
DTS22	Equipment for traffic management in Dengta	140	ICB	NA	Yes	Prior	2007	A few lots
FRM21	Equipment for road maintenance in Fushun	900	ICB	NA	Yes	Prior	2007	A few lots
BRM21	Equipment for road maintenance in Benxi	1,520	ICB	NA	Yes	Prior	2007	
PRM21	Equipment for road maintenance in Panjin	2,270	ICB	NA	Yes	Prior	2007	
JRM21	Equipment for road maintenance in Jinzhou	1,865	ICB	NA	Yes	Prior	2007	A few

LRM21	Equipment for road maintenance in Liaoyang	1,060	ICB	NA	Yes	Prior	2007	A few lots
DRM21	Equipment for road maintenance in Dengta	460	ICB	NA	Yes	Prior	2007	A few lots
Total		18,765						

Notes: Contract numbers are assigned as indicated below.
The first capital letter: B - Benxi, F - Fushun, J - Jinzhou, P - Panjin, L - Liaoyang, D - Dengta
The second and third capital letters: PT - Public Transport, TS - Traffic Safety, RI - Road Infrastructure and Reconstruction, RM - Secondary Road Rehabilitation and Maintenance Equipment
The first number: 1 - civil works, 2 - equipment
The second number: 1 - RM equipment, 2 - TM equipment except ATC, 3 - ATC under TM
The sixth number after decimal: for each lot, such as BRM21.1 for Loaders
P-Q: prequalification

(b) ICB Goods contracts estimated to cost above US$0.5 million for per contract will be subject to prior review by the Bank.

2. Consulting Services

(a) Table A8.4 summarizes consulting assignments that will require a short list of international firms.

Table A8.4: Consulting Assignments that will Require Shortlisting of International Firms

1	2	3	4	5	6	7
Ref. No.	**Description of Assignment**	**Estimated Cost US$ 000**	**Selection Method**	**Review by Bank (Prior / Post)**	**Expected Proposal Submission Date**	**Comments**
IDPM1	Procurement agent for works 2007-2009, goods & consultant services	900	QCBS	Prior	May 2006	Percentage contract
IDPM2	Project management, design review, construction supervision	1,300	QCBS	Prior	May 2006	Time based contract
IDRM2	Road maintenance reform, management and support to SOE, including overseas training	480	QCBS	Prior	2006	Time based contract
IDPT2	Public transport reform, bus network planning, and Strengthening SOE management capacity, including overseas training	600	QCBS	Prior	July 2006	Time based contract
IDTS1	Enforcement of traffic management, parking policy, including overseas training	300	QCBS	Prior	2007	Time based contract
	Total	3,580				
IDG1	Assistance on output based road maintenance			Prior	2007	Funded by PPIAF
IDG2	Strengthening Provincial Construction Department on Public Transport Reform			Prior	2007	Funded by a grant

Notes: The first and second capital letters: ID - Institutional Development,
The third and fourth capital letters: PT - Public Transport, TS -Traffic Safety,
RI - Road Infrastructure, RM - Road Maintenance, PM - Project Management

(b) Consultancy services estimated to cost above US$200,000 per contract and Single Source selection of consultants (firms) for assignments estimated to cost above US$50,000 for individual consultant will be subject to prior review by the Bank.

(c) Short lists composed entirely of national consultants: Short lists of consultants for services estimated to cost less than US$300,000 equivalent per contract, may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

(d) Table A8.5 summarizes consulting assignments where the shortlists could be constituted entirely of domestic firms.

Table A8.5: Consulting Assignments for which Shortlist could be Constituted only of Domestic Firms

1	2	3	4	5	6	7
Ref. No.	**Description of Assignment**	**Estimated Cost US$ 000**	**Selection Method**	**Review by Bank (Prior / Post)**	**Expected Proposal Submission Date**	**Comments**
IDPM11	Procurement agent for works 2006	200	CQS	Prior	April 2006	Percentage contract
IDPM21	Preparation of Technical Specifications for works 2006	200	CQS	Prior	April 2006	Lump-sum contract
IDRI 1	Public participation	60	SSS	Prior	2006	Lump Sum contract
IDRI2	Transport planning	250	QCBS	Prior	2007	Lump sum contract
IDRM1	Preventative road maintenance planning	120	CQS	Post	2006	Lump sum contract
IDPT1	Bus priority	140	CQS	Post	July 2006	Lump sum contract
IDTS2	Traffic safety auditing	300	Firm or Individual Consultant	Prior	2006 completed until 2009	Time based contract
	Total	1,270				

The contract for the second round of public participation was awarded to the Liaoning Academy of Social Sciences (LASS) on a Single Source Selection basis. LASS is an eligible entity that has carried out the first round of participation work financed by Liaoning cities, and was selected through a competitive process. LASS created a valuable asset in the first round of consultations - a scientifically chosen representative panel sample that was needed for the second round of work. As the second round was a continuation of the initial work, and as LASS was uniquely qualified to do the work, it was agreed that the loan-financed second round could be awarded on a single source selection basis.

Annex 9: Economic and Financial Analysis

CHINA: China-Liaoning Medium Cities Infrastructure Project

ECONOMIC ANALYSIS

Overview

All project components have been subject to an economic analysis. For the components besides the road infrastructure component, the generally modest individual investments have been designed to reflect a wealth of Chinese and international experience that indicates that small investments in maintenance, traffic safety, traffic management and public transport facilities have very high economic returns and distributional benefits.

Road maintenance works in the project include overdue corrective maintenance, essential to preserve the integrity of the road network, and of critical importance to the majority of the population which does not use automobiles. Design of the maintenance works has been optimized from a long-term cost-effectiveness perspective, given the physical (extreme winters) and economic (inadequate short-term maintenance budgets) environments of the project cities.

The traffic safety and management components are small investments that past experience indicates provide very significant benefits in increased levels of safety (lower levels of accidents, fatalities and associated economic loss) and savings in travel time.

The public transport investments comprise mostly low-cost elements, which are either essential operational items (such as dispatching equipment, end-of-route turnarounds, off-street parking, and maintenance facilities), or which enhance quality for the passengers (such as transfer interchanges and bus shelters). Designs for all works have been optimized from a cost-effectiveness perspective. Such investments typically provide high rates of return in terms of increases in the competitiveness of the bus service, and lower operational costs related to higher productivity and lower maintenance costs. Implementation of the bus priority measures will benefit passengers in time savings while operators will be able to lower operating costs through higher bus productivity.

A formal economic evaluation based on an analysis using a transport planning model was conducted for the road infrastructure component (115 sub-projects in the six cities) which accounts for about 56% of the loan and 70% of total project cost. Both costs and benefits reflect December 2005 prices, and a project life of 15 years is assumed. Financial costs have been converted to economic costs by the elimination of price contingency, taxes, customs duty on imported materials, and by the application of shadow price factors. The resulting overall economic cost is about 96.7 percent of the financial cost. In all cities, an overall analysis was undertaken, together with individual evaluations for key projects.

Screening

A pre-screening based on an informal assessment of economic return was an integral part of the project identification process. At the beginning of the identification process, twelve cities made proposals for urban transport investments, totaling US$1.2 billion in aggregate. These proposals were a combination of major road expansion projects (such as ring roads and bridges) and a significant number of proposals to finance major roads to facilitate urban expansion. The following criteria were developed to guide the cities to identify project components:

- Focus on investments targeting *existing bottlenecks* in built-up areas.

- Transport plans and policies should be reviewed in a comprehensive manner, with particular emphasis on:

  (a) Enhanced implementation of the new NRSL.
  (b) Enhancements in the secondary road network to complement the investments in improving major roads.
  (c) An independently managed (i.e., by a non-governmental body) participatory planning process to complement the technical planning process.

The set of cities and components included in the project reflect the result of an extensive screening that has yielded a self-selected group of six cities with urban transport investments that address existing problems with reasonably scaled solutions. These cities are committed to sectoral reforms to complement the investments. The overall investments in each city have then been further screened by LPDF from a financial capacity perspective.

Alternatives

All of the significant stand-alone investments – i.e., investments with a cost larger than Y100 million, or those with more than four lanes for motor vehicles - were subject to a rigorous alternatives analysis to ensure that the lowest-cost alternatives meeting the traffic needs were chosen. The key features of the alternatives analysis in each city are summarized in the subsequent paragraphs.

Benxi. The main individual project in Benxi is the Beidi Bridge. The city is divided into two by the Taizi River. There are only two bridges across the river in the urban area, and both of them have load constraints due to age and damaged structure. Additionally, one of them can only be accessed via an underpass which has clearance constraints. As a result, there are no road freight connections between the expressway and the industries located to the north and west of the Taizi river. Extensive analyses of alternative locations for a new bridge were conducted, taking into account constraints of geography and the location of existing industries. On the west side of the river, mountains constrain the northern limits of the bridge approach. On the east side of the river, steel factories constrain possible bridge locations on the south. In light of these constraints, the selected spot is the best option for the construction of the new bridge; the selected design is simple and represents the appropriate solution.

Fushun. The investments in Fushun are limited to improvement of two existing roads including small bridges and rail crossings. All projected rail crossings have been designed as underpasses.

Jinzhou. Jinzhou City has two main barriers: a rail line dividing the north section of the city from the central area, and the river, which separates the southern section of the city from the central core. The rail lines form a significant bottleneck between the north and central areas. Existing rail crossings are concentrated in the western part of the city, and have clearance and drainage constraints. The key investments in Jinzhou will include improvement of two rail crossings on Hankou and Guangzhou roads. An analysis of alternatives was conducted to identify the lowest cost solution for both crossings. At Hankou, a simple underpass is the chosen solution. The proposed crossing at Guangzhou Road consists of a combination of an underpass crossing of the main rail line and an overpass crossing a secondary set of rail lines.

Liaoyang. Rail crossings are the main bottlenecks in Liaoyang, limiting access to the expressway. Two existing underpasses provide the city's primary access to the expressway. The proposed new underpass at Xiaozhuang is currently a pedestrian bridge with high slopes, and was identified as particularly in need of improvement during the public participation process. It is located in the middle of the existing crossings and its construction will shorten the distance between crossings. After an extensive screening, low cost alternatives were selected for all three underpasses.

Panjin. A significant effort was undertaken to reduce the size of most new road construction/upgrading. Panjin does not have any significant stand-alone investments.

Dengta. The main investment is the widening of Zaolin rail underpass. A rail line currently demarcates the western edge of Dengta City. Two rail underpasses connect the expressway and the developing areas west of the rail line to the urban area. Zaolin is the southern of these underpasses, and suffers from congestion, clearance constraints and significant drainage problems. There are no sidewalks or bicycle lanes and it is particularly inconvenient for pedestrians and cyclists. The selected option retains an enhanced version of the current underpass for motor vehicles and adds two low cost sections on each side for bicyclists and pedestrians.

Methodology

Transport user benefits, i.e., savings in VOCs and passenger travel time, were estimated from an urban transport network analysis through the development of a transport model, based on household and motor vehicle surveys, together with traffic counts. The calibrated models were used to simulate network traffic performance under different scenarios - with and without the project. The simulation results, including travel distance, times, and speeds for each personal or vehicular trip, were used to estimate travel time and cost savings that constitute the transport user benefits. The household survey also generated pedestrian and bicycle OD matrices, and both classes of users were explicitly modeled in the evaluation of project benefits. Details can be found in the project files.

Other project benefits, such as improved traffic safety, reduced road congestion and auto emissions were not quantified because of the lack of reliable data. The EIRR and NPV presented in this annex can therefore be considered somewhat conservative.

Main Assumptions

Forecasts of traffic volumes were modeled based on trends for related variables in particular, population. Table A9.1 presents population forecasts for the project cities.

Table A9.1: Population Forecast

City	Population ('000)			Annual Growth	
	2005	2010	2020	2005 to 2010	2010 to 2020
Benxi	950	1,034	1,013	1.7%	-0.2%
Fushun	1,428	1,450	1,494	0.3%	0.3%
Jinzhou	872	903	921	0.7%	0.2%
Liaoyang	715	853	1,030	3.6%	1.9%
Panjin	575	727	977	4.8%	3.0%

Forecasts of motor vehicle growth are presented in Table A9.2 and the resulting modal split forecast is presented in Table A9.3 (cars are included in 'others' in the table). All forecast trends are based on observed growths in recent years, indicating auto ownership rates of around 140 veh/1000 (including motorcycles) in 2020.

Table A9.2: Motor Vehicle Growth Rates

Period	Benxi	Fushun	Jinzhou	Liaoyang	Panjin
2000 to 2005	22.8%	8.6%	6.4%	2.7%	12.1%
2005 to 2010	16.4%	7.8%	3.4%	5.6%	8.6%
2010 to 2020	5.5%	5.4%	2.1%	3.2%	4.8%

Table A9.3: Forecast Modal Split

City	2005				2010			
	Walk	Bicycle	Bus	Other	Walk	Bicycle	Bus	Other
Benxi	60	7	19	14	56	5	22	17
Fushun	41	19	29	11	39	18	31	12
Jinzhou	33	41	12	14	35	40	13	12
Liaoyang	33	43	14	10	33	40	16	11
Panjin	37	27	16	20	35	24	17	24

Economic Internal Rate of Return

Traffic assignment has been carried out for each city to represent traffic volumes at the end of project implementation and in 2020. As a summary, a small number of important roads have been selected in each city. Current and forecast motor vehicle flows (pcu/h) during peak hour are presented in Table A9.4 below. This pcu figure comes from the current vehicle distribution in the cities, where more than 30% of vehicles are "heavy vehicles", i.e., buses and trucks (all

sizes). An average conversion rate (dividing the pcu by the conversation factor provides an estimate of vehicle flow) could be: 1.25 for Liaoyang, Jinzhou, and Fushun; 1.15 for Panjin; and 1.35 for Benxi.

Table A9.4: Current and Forecast Flows

City	Street	Section	Traffic Flow (pcu/h in peak hour)		
			2005	2010	2020
Benxi	Huazhong			1,776	2,232
	Xihu (Hexi section)		1,442	1,288	1,656
	Digong Street		1,095	1,920	2,632
	Beidi Bridge			3,519	4,617
Fushun	Gebu	Gebu - n°17 bus yard	1,344	2,552	3,634
	Gaoshan	Ningyuan - Lingqian	1,198	3,147	4,673
Jinzhou	Chongqing Road	Hankou - Renmin	1,156	764	780
	N. Central Avenue	Zhaoyang - Beijing	644	1,983	2,396
	Keji Road	Xinxiang - Wuhan		890	1,152
Liaoyang	Xinhua Road (North)	Tiexi - Gongnong	641	1,456	1,906
	Minzhu Road	Linguang - Nanhuan	297	1,799	2,359
	Jiefang road	Aimin - Qingnian		600	936
Panjin	Xinlong Av. (West)	Jincheng - Liaohe Nan	606	1,079	1,128
	Xindi Road	Bohai - Shuangxing N.		620	716
	Liaohe Nan Road	Shiyou - Shifu	1,958	2,023	2,497

The overall EIRR for the whole project is estimated at 15.23 percent, and NPV (at 12 percent discount rate) is estimated to be Y 586.17 million, as summarized in Table A9.5.

Table A9.5: Economic Evaluation Summary

City	Project	Present Value of Total Costs (million Yuan, 12%)	EIRR (in %)	NPV (million Yuan, 12%)
Benxi	Overall	439.7	16.87	162.1
	Beidi Bridge	98.3	13.93	17.7
Fushun	Overall	372.0	14.4	90.0
Jinzhou	Overall	425.1	13.63	47.9
	Hankou RC	51.3	12.11	0.9
	Guangzhou RC	125.1	13.60	5.9
Liaoyang	Overall	645.9	14.80	125.4
	Beiyuan Underpass	8.5	21.87	6.7
	Xuwangzi Underpass + Shengli Bridge	70.5	19.80	39.7
	Xiaozhuang Underpass	25.1	15.93	6.3
Panjin	Overall	546.4	16.36	160.7
All cities	All projects	2,429.1	15.23	586.2

Bicyclists and pedestrians are forecast to benefit 45 percent from travel time savings; bus users, 33 percent; cars, 10 percent; and freight traffic, the remaining 12 percent.

Sensitivity Analysis

The basic evaluation of the project, by stand alone investments and as a whole, shows that the investments are economically viable, and the sensitivity tests (with respect to a one-year delay in project completion, higher cost, lower benefit, lower passenger time savings (PTS), zero growth of time value, and lower traffic projection) confirm this result. See Table A9.6 below.

Table A9.6: Results of Sensitivity Analysis

Parameter	EIRR (%)	NPV (12%, millions of yuan)
(a) Delay the completion by one year	15.23	523.37
Higher capital cost (+10%)	13.85	362.13
(b) Lower benefits (-10%)	13.61	284.64
Combine (a) and (b)	12.32	60.61
Lower value of PTS (15%)	13.98	351.64
Zero growth of time value	11.35	-100.90
Lower traffic projection (-10%)	13.94	344.95
Switching values		
(c) Cost increase to reduce EIRR to 12%	124%	
(d) Benefit reduction to reduce EIRR to 12%	81%	
Combine (c) and (d) to reduce EIRR to 12%	Cost: 111%; Benefits: 89%	

In addition, sensitivity tests with variations in costs and benefits of the project indicate that the conditions for the project's viability to fall below the minimum acceptable threshold, e.g., a negative NPV by using 12 percent discount rate or an EIRR lower than 12 percent, are unlikely to occur. Benefits would have to fall to less than 81 percent of those in the base case with no change in costs, costs would have to increase to more than 1.24 times those of the base costs, or costs would have to increase by 11 percent and benefits fall to 89 percent at the same time. The results of sensitivity tests (EIRR in percentage) to cost and benefit variation are summarized in Table A9.7.

Table A9.7: Sensitivity of EIRR to Cost and Benefit Variation

Variation in cost	Variation in benefits							
	-50	-40	-30	-20	-10	0	10	20
-40	12.48	15.23	17.79	20.21	22.54	24.80	27.00	29.17
-30	10.36	12.89	15.23	17.43	19.53	21.55	23.52	25.43
-20	8.64	11.01	13.19	15.23	17.16	19.01	20.80	22.54
-10	7.21	9.46	11.51	13.42	15.23	16.95	18.61	20.21
0	5.99	8.14	10.09	11.90	13.61	**15.23**	16.78	18.28
10	4.94	7.00	8.87	10.60	12.22	13.76	15.23	16.64
20	4.01	5.99	7.79	9.46	11.01	12.48	13.88	15.23
30	3.18	5.11	6.85	8.45	9.94	11.36	12.70	13.99

Municipal Financial Analysis

The objective of the municipal finance analysis was to confirm that the municipalities participating in LMCIP have sufficient financial resources to afford the investments. Specifically, municipalities should have sufficient resources to: (a) contribute the required counterpart funds; (b) repay the amount borrowed from the Bank; and (c) maintain and operate the assets created under the project. Due to limited data availability, complementary analysis on municipal public debt was carried out only on official public debt, i.e., without taking off-budget debt and contingent liabilities into account.

Methodology. For each municipality, total revenues and expenditures (off and on budget, transfers, and earmarked funds) were analyzed. Total infrastructure revenues, infrastructure fixed asset investments and recurrent/ maintenance expenditures, as given by the Urban Construction Expenditure and Maintenance Fund, were also analyzed. Available infrastructure spending, defined as total infrastructure revenues less 'routine' infrastructure recurrent/maintenance expenditure, was calculated as a key 'surplus' ratio used to assess the ability to provide counterpart funds, debt service, and operations/ maintenance expenditures.

Total municipal revenues, infrastructure revenues and expenditures were projected by the municipalities up to 2010 at lower rates than recent historical trends, based on conservative planning assumptions (especially in terms of infrastructure revenues). Given the lack of multi-year budgets and the high incidence of one-off municipal funding patterns (i.e., through land sales), these projections can however only be initial estimates (and less emphasis was therefore placed on the projecting the outer years, i.e., beyond 2010). Moreover, particular attention was paid to the municipalities' reliance on land sales (as one of the least predictable funding sources) in terms of their importance as a source of counterpart funds.

Summary Results

The municipal finance analysis shows that project investments are broadly affordable for all cities, and the proposed counterpart funding strategies are sound (see Table A9.8). In all municipalities, project investments constitute only a small fraction of total municipal expenditures, never exceeding 5 percent. As a share of available infrastructure spending, the percentages are higher (as further explained below), but are judged to be affordable. All municipalities are experiencing high growth - with anticipated positive spillovers on available infrastructure funds (for example, through higher urban construction and maintenance tax revenues) not all of which is reported in the current estimates. In terms of public official debt, the municipalities show very low percentages of official debt relative to GDP – not surprising given the restrictions placed on direct borrowing by municipalities. Total project debts relative to provincial fiscal revenues are very small, never exceeding 0.5 percent of total provincial revenues, so there is negligible credit repayment risk at the provincial level.

Despite this overall positive situation, the LPCG agreed (so as to minimize any unforeseen risk to project implementation, for example, through the lack of counterpart funds) to work with the Bank to solve any issues related to implementation, including any issues related to the availability of counterpart funds.

Table A9.8: Financial Analysis Summary

City	Population (million)	GDP/Capita (Y)	GDP Growth (2002-2005)	Max. Project Cost/ Revenue[1]
Benxi	1.58	20,619	17%	4%
Fushun	2.25	19,316	14%	3%
Jinzhou	3.07	12,606	15%	3%
Liaoyang	1.83	18,361	17%	4%
Panjin	1.26	31,099	7%	5%

[1/] maximum of total project costs are a % of total municipal revenue

Benxi. Table A9.9 summarizes the results of the financial analysis in Benxi. Total project costs constitute about 5 percent of total revenues in Benxi municipality. Infrastructure revenues are expected to grow roughly in line with municipal revenues and a bit lower than the most recent historic trends. Benxi intends to provide counterpart funds via a state grant and a loan from China/State Development Bank, and the rest (about 50 percent) through the urban construction and maintenance tax. Project counterpart fund requirements are about 25 percent of total estimated annual urban construction and maintenance tax. Land sales constitute only a small part of total infrastructure revenue projections (and are not expected to grow, a conservative planning assumption). However, Benxi's municipal revenues depend largely on a single source, with Benxi Steel contributing about 80 percent of total revenues. Also, project counterpart funds constitute a large part of the surplus available for infrastructure spending (close to 80 percent). However, LMCIP is the only major infrastructure investment project in the city. In terms of total debt as a percentage of GDP - Benxi is one of the more indebted municipalities among the project cities, with around 5 percent of GDP as official debt - the new World Bank (and other) debt to fund LMCIP is taken into account.

Table A9.9: Benxi Financial Analysis

	actual 2002	actual 2003	actual 2004	actuall 2005	proj. 2006	proj. 2007	proj. 2008	proj. 2009	proj. 2010
Total Revenue	2,449	3,099	3,290	3,617	3,895	4,217	4,553	4,918	5,311
Total Project Cost As % of Total Revenues					4%	4%	4%	4%	3%
Infrastructure Revenue	228	280	330	358	422	435	447	459	511
Urban Construction Maintenance Tax	114	143	164	208	218	228	238	248	298
Land Sales	62	51	90	50	50	50	50	50	50
Other	51	87	76	100	154	157	159	161	163
Infrastructure Maintenance/ Recurrent Expenditures	134	196	225	282	293	305	316	327	377
Surplus Available for Infrastructure Spending	94	84	106	76	129	130	131	132	134
of which is for LMCIP (counterpart funds only)					102	102	102	102	102
LMCIP as a % of Surplus Available for Infrastructure Spending									
LMCIP Counterpart Funds (%)					79%	78%	78%	77%	76%
LMCIP Payments (%)					4%	8%	10%	12%	15%
LMCIP Counterpart Funding Sources (as a % of Total Funding Source)									
Urban Construction/ Maintenance Tax (%)					23%	22%	21%	21%	17%

Fushun. Table A9.10 summarizes the results of the financial analysis in Fushun. The project constitutes about 2 percent of total municipal revenues. Infrastructure revenue growth is projected to grow in line with total revenue, both somewhat more slowly than recent historic averages. The main sources of infrastructure revenue are urban construction and maintenance tax and land sales. The project constitutes, on average, about 40 percent of total available spending for infrastructure. Counterpart funding sources are identified as urban construction and maintenance tax and land sales; however both constitute only a small fraction of total funds

available in that category (only about 10 percent to 30 percent in each category respectively). Debt service payment and operations and maintenance are projected to be within the range of affordability.

Table A9.10: Fushun Financial Analysis

	actual 2002	actual 2003	actual 2004	actual 2005	proj. 2006	proj. 2007	proj. 2008	proj. 2009	proj. 2010
Total Revenue	3,639	3,872	4,544	4,719	3,681	3,874	4,085	4,294	4,525
Total Project Costs as a % of Total Revenue					3%	2%	2%	2%	2%
Infrastructure Revenue	263	355	364	420	414	433	501	488	522
Urban Construction Maintenance Tax	132	148	180	161	179	199	251	245	272
Land Sales	77	118	89	81	80	75	80	80	80
Other	53	89	95	178	155	159	170	163	170
Infrastructure Maintenance/ Recurrent Expenditures	177	301	282	295	344	310	259	372	406
Surplus Available for Infrastructure Spending	86	54	82	125	71	123	242	116	116
of which is for LMCIP (counterpart funds only)					48	48	48	48	48
LMCIP as a % of Surplus Available for Infrastructure Spending									
LMCIP Counterpart Funds (%)					68%	39%	20%	41%	41%
LMCIP Debt Service Payments (%)					4%	5%	3%	9%	11%
LMCIP Counterpart Funding Sources (as a % of Total Funding Source)									
Urban Construction/ Maintenance Tax (%)					13%	11%	9%	9%	8%
Land Sales (%)					32%	34%	32%	32%	32%

Jinzhou. Table A9.11 summarizes the results of the financial analysis in Jinzhou. Project costs in Jinzhou are about 3 percent of total municipal revenues, which are estimated to grow at about half the rate of actual revenue growth in the last three years (reflecting a conservative planning assumption). Project counterpart fund requirements constitute about 30 percent of total surplus available for infrastructure investment. The single biggest counterpart funding source is an allocation from central government, with the urban construction and maintenance tax and land sales contributing the remainder. Both these categories draw on only a small fraction of total available resources, with project counterpart funding constituting around 5 percent and 10 percent of total urban construction and maintenance tax and land sales respectively. Overall, counterpart fund availability is judged adequate in light of the fact that they only require a limited fraction of the total resources available to fund infrastructure.[3] Debt service payment and operations and maintenance are projected to also be within the range of affordability, with debt service in the initial years constituting, on average, 3 percent. Even when principal repayment and operation and maintenance expenditures are taken into account, (after 2010) project expenditures do not exceed 25 percent of available spending for infrastructure - though the planning horizon is too far in the future to produce reliable predictions. Total official debt (including LMCIP) as a percentage of GDP is about 1 percent and is constant over time.

[3] Total infrastructure revenues are projected, by the municipality, to grow faster than the historical rates. However, even if growth were at the historical averages counterpart funds as a percentage of revenue is only a limited amount of total available spending.

Table A9.11: Jinzhou Financial Analysis

	actual 2002	actual 2003	actual 2004	actual 2005	proj. 2006	proj. 2007	proj. 2008	proj. 2009	proj. 2010
Total Revenue	3,580	4,130	4,370	5,300	5,360	5,790	6,320	6,920	7,630
Total Project Cost As % of Total Revenues					3%	3%	3%	2%	2%
Infrastructure Revenue	443	468	424	416	492	586	643	750	830
Urban Construction Maintenance Tax	108	123	146	179	205	236	272	313	334
Land Sales	108	260	148	114	158	182	200	242	272
Other	227	85	130	124	128	167	171	196	223
Infrastructure Maintenance/ Recurrent Expenditures	93	196	190	166	194	238	269	339	379
Surplus Available for Infrastructure Spending	350	272	234	250	298	348	374	411	451
of which is for LMCIP (counterpart funds only)					84	84	84	84	84
LMCIP as a % of Surplus Available for Infrastructure Spending									
LMCIP Counterpart Funds (%)					28%	24%	22%	20%	19%
LMCIP Payments (%)					2%	3%	4%	4%	5%
LMCIP Counterpart Funding Sources (as a % of Total Funding Source)									
Urban Construction/ Maintenance Tax (%)					6%	5%	4%	4%	4%
Land Sales (%)					11%	10%	9%	7%	6%

Liaoyang/ Dengta. Table A9.12 summarizes the results of the financial analysis in Liaoyang. Liaoyang Municipality (under which Dengta falls) is projected to spend about 4 percent in terms of total project costs relative to total municipal revenue. Infrastructure revenue is projected to grow significantly more slowly than in the recent past - reflecting conservative planning assumptions by Liaoyang MPB. Total counterpart funding requirements are about 30 percent of total surplus available for infrastructure spending. Counterpart funds will come in roughly equal proportion from the urban construction and maintenance tax and land sales. Counterpart funding claims constitute about one third of available infrastructure revenue sources in each category. Given that the overall infrastructure revenue projections were made based on such conservative planning assumptions by the municipality (for example, infrastructure revenues are projected to grow by less than a third of recent historical trend), Liaoyang is not expected to face counterpart funding problems. Debt service payment and operations and maintenance expenditures were projected to also be within the range of affordability.

In Dengta County, total project costs constitute about 4 percent of total county level revenues, and as such no affordability issues are anticipated.[4] Liaoyang is directly responsible for Dengta's counterpart fund requirements and debt service repayments. Based on the earlier analysis of the municipal finances in Liaoyang, Dengta's participation in the project should not affect Liaoyang's financial situation significantly. A sensitivity analysis showed that the inclusion of Dengta's project costs (about 10 percent of total project costs in Liaoyang) in the municipal finance analysis for Liaoyang will not affect any of the affordability ratios in a substantive way.

[4] Dengta does, however, propose to provide counterpart funds particularly through land sales.

Table A9.12: Liaoyang Financial Analysis

	actual 2002	actual 2003	actual 2004	actual 2005	proj. 2006	proj. 2007	proj. 2008	proj. 2009	proj. 2010
Total Revenue	2,378	2,751	3,454	4,068	4,759	5,568	6,515	7,623	8,918
Total Project Cost As % of Total Revenues					4%	4%	3%	3%	2%
Infrastructure Revenue	259	381	512	676	695	741	803	876	973
Urban Construction Maintenance Tax	64	80	110	149	174	204	239	279	327
Land Sales	15	51	61	159	183	210	242	278	320
State Bonds	48	120	157	169	125	100	80	60	50
Other	132	130	184	199	213	227	242	259	276
Infrastructure Maintenance/ Recurrent Expenditure	109	158	202	279	276	295	320	349	388
Surplus Available for Infrastructure Spending	149	223	310	397	418	446	483	527	584
of which is for LMCIP (counterpart funds only)					128	128	128	128	128
LMCIP as a % of Surplus Available for Infrastructure Spending									
LMCIP Counterpart Funds (%)					31%	29%	27%	24%	22%
LMCIP Payments (%)					2%	4%	6%	6%	7%
LMCIP Counterpart Funding Sources (as a % of Total Funding Source)									
Urban Construction/ Maintenance Tax (%)					40%	35%	30%	25%	22%
Land Sales (%)					32%	27%	24%	21%	18%
LMCIP Counterpart Funding Sources (as a % Increase Over Previous Year)									
Urban Construction/ Maintenance Tax (%)					17%	17%	17%	17%	17%
Land Sales (%)					15%	15%	15%	15%	15%

Panjin. Table A9.13 summarizes the results of the financial analysis in Panjin. Project costs are about 5 to 6 percent of total municipal revenues (with municipal revenue growing somewhat more slowly than historical rates). Infrastructure revenue is expected to grow in line with overall municipal revenues. Panjin is endowed with a large oil field and therefore much of Panjin's economy and municipal tax revenues are derived from oil (about 70 percent of total municipal revenues); this also explains Panjin's high per capita income, the highest among project cities. Infrastructure revenue in Panjin relies to a significant extent on financial transfers from the municipal government (about 30 - 40 percent). Total counterpart funding requirement as a percentage of surplus available for project investments is about 30 percent. Counterpart funds are derived, in particular, from the urban construction and maintenance tax and land sales (together adding up to 50 percent) and a local commercial bank loan (50 percent). Counterpart funds from land sales appear to be a high percentage of total land sale funds available. Debt service payment and operations and maintenance are projected to be within the range of affordability.

Table A9.13: Panjin Financial Analysis

	actual 2002	actual 2003	actual 2004	actual 2005	proj. 2006	proj. 2007	proj. 2008	proj. 2009	proj. 2010
Total Revenue	2,190	3,012	3,240	3,401	3,693	4,013	4,373	4,761	5,180
Total Project Costs as a % of Total Revenue					5%	5%	4%	4%	4%
Infrastructure Revenue[1]	509	632	662	490	545	596	657	723	788
Urban Construction Maintenance Tax	184	261	284	210	231	254	279	307	338
Financial Allocation from Disposable Income	184	241	256	135	148	163	180	198	210
Land Sales	59	45	29	30	33	36	40	45	50
Other	82	85	93	115	133	143	158	173	190
Infrastructure Maintenance/ Recurrent Expenditures[2]	179	188	186	173	228	249	218	184	194
Surplus Available for Infrastructure Investment	330	444	476	317	317	347	439	539	594
of which is for LMCIP (counterpart funds only)					114	114	114	114	114
LMCIP as a % of Surplus Available for Infrastructure Investments									
LMCIP Counterpart Funds (%)					36%	33%	26%	21%	19%
LMCIP Debt Service Payments (%)					2%	3%	3%	3%	3%
LMCIP Counterpart Funding Sources (as a % of Total Funding Source)									
Urban Construction/ Maintenance Tax (%)					13%	12%	11%	10%	9%
Land Sales (%)					86%	79%	71%	63%	57%
LMCIP Counterpart Funding Sources (as a % Increase Over Previous Year)									
Urban Construction/ Maintenance Tax (%)					14%	13%	12%	11%	10%
Land Sales (%)					95%	86%	79%	71%	63%

Annex 10: Safeguard Policy Issues

CHINA: China-Liaoning Medium Cities Infrastructure Project

RESETTLEMENT

As described in Annex 4, LMCIP will finance improvements and new construction of about 115 roads (primary, secondary, and neighborhood) totaling about 179 km, improvements to traffic management and safety, road maintenance, and public transport in the cities of Liaoyang, Jinzhou, Panjin, Benxi, Fushun and Dengta. Resettlement impacts of the project have been reduced significantly through optimizing the design of each component and subcomponent.

Socioeconomic and Inventory Survey

Under the guidance of LUCRPO, a socioeconomic and inventory survey was carried out by each municipal project office, jointly with the housing demolition offices, LRBs and other relevant bureaus at the municipal level. Table A10.1 summarizes the process.

Table A10.1: Detailed Information of Socioeconomic and Inventory Survey

Subproject	Survey Time	Survey Method	Survey Organization
Benxi	November 11 – December 13, 2005	100% general investigation and field measurement, and 20% family socioeconomic investigation	Urban construction office
Dengta	May 15 – August 31, 2005	100% general investigation and field measurement, and 20% family socioeconomic investigation	Project office
Fushun	April 10 – August 31, 2005	100% general investigation and field measurement, and 20% family socioeconomic investigation	Project office
Jinzhou	July 10 – August 31, 2005	100% general investigation and field measurement, and 20% family socioeconomic investigation	Project office
Liaoyang	June 25 – August 31, 2005	100% general investigation and field measurement, and 20% family socioeconomic investigation	Resettlement team
Panjin	June 25 – August 31, 2005	100% general investigation and field measurement, and 20% family socioeconomic investigation	Resettlement team

Project Impact

Project resettlement impacts include permanent land acquisition, residential house demolition, demolition of buildings belonging to enterprises and public institutions, demolition of shops, infrastructure and ground attachments. These impacts will be scattered in 12 districts/counties: Baita, Wensheng, and Taizihe districts of Liaoyang city; Linghe, Guta, and Lingnanxin districts of Jinzhou; Xinglongtai, and Shuangtaizi districts of Panjin; Xihu, Pingshan, and Mingshan districts of Benxi; Shuncheng district of Fushun; and two streets of Dengta. The project will

affect 4,994 households and 677 enterprises and shops, and will affect 31,547 people in all. The collective land acquired is currently being used primarily for housing and a very limited amount of farm land will be acquired. Details are included in individual city RAPs and summarized in Table A10.2.

Table A10.2: Detailed Resettlement Impacts

Type of Impacts		Benxi	Dengta	Fushun	Jinzhou	Liaoyang	Panjin	Total
Collective land	Affected households	0	12	0	0	863	0	875
	Affected persons	0	45	0	0	3,396	0	3,441
State-owned land	Affected households	0	0	0	0	0	304	304
	Affected persons	0	0	0	0	0	1,222	1,222
Urban residence demolition	Affected households	1,338	71	292	401	802	564	3,468
	Affected persons	4,316	252	857	1,016	2,280	1,893	10,614
Rural residence demolition	Affected households	0	0	0	0	712	263	975
	Affected persons	0	0	0	0	2,708	919	3,627
Affected enterprises	Number	43	2	49	12	58	19	183
	Affected population	5,159	30	185	96	2,853	1,504	9,827
Affected public institutions	Number	8	2	6	6	0	5	26
	Affected population	120	28	0	20	0	2,096	2,264
Affected shops	Number	259	0	91	34	61	23	468
	Affected population	2,297	0	128	123	327	137	3,012
Total net affected persons		11,892	355	1,170	1,255	9,320	7,555	31,547

Linkage. Contemporaneously with the project, Fushun Municipal Government is resettling residents of two shanty towns located along Gaoshan road, which is part of the project. Though a review of these activities concluded that they are not 'linked' to LMCIP as per OP4.12 (since these activities are not essential to achieve LMCIP objectives), a due diligence review of the resettlement associated with the shanty town project was conducted. Based on an independent review commissioned at the Bank's request, it was concluded that resettlement associated with the shanty town project was found to have been conducted in a manner generally consistent with OP 4.12 objectives, and to the general satisfaction of displaced persons.

Resettlement Policies and Legal Framework

The RAPs were prepared in line with relevant Chinese laws and regulations, as well as the Bank OP 4.12 on Involuntary Resettlement. Details are provided in Chapter 4 of the RAP.

Principles

The following basic principles were adopted for resettlement planning:

- acquisition of land and other assets, and relocation of people, will be minimized as much as possible;
- all project affected people residing, working, doing business or cultivating land required for the project as of the date of the baseline surveys are entitled to rehabilitation measures sufficient to assist them to improve or at least maintain their pre-project living standards, income-earning capacity and production levels. Lack of legal rights to the assets lost will not bar them from entitlement to such rehabilitation measures;
- rehabilitation measures due to land acquisition to be provided are: (a) agricultural land for land of equal productive capacity; (b) compensation for land acquisition and resettlement subsidy for the farmers affected by land acquisition; and (c) other forms of assistance;
- replacement agricultural land will be as close as possible to the land that was lost;
- plans for acquisition of land and other assets, and provision of rehabilitation measures will be carried out in consultation with the affected people;
- financial and physical resources for resettlement and rehabilitation will be made available as and when required;
- all affected people losing their place of residence will be relocated directly as far as possible (that is, use of transitory housing will be minimized);
- institutional arrangements will ensure effective and timely design, planning, consultation and implementation of the Resettlement Plan; and
- effective and timely supervision, monitoring and evaluation of RAP implementation will be carried out.

Compensation Levels

Based on the 'Land Law' of China, compensation of collective land is composed of three elements: land compensation, resettlement subsidy and compensation for standing crops. Compensation rates of collective land are determined based on approach provided in the Land Law in China. Compensation of urban state owned land is determined based on the Circular of State Owned Land Transferring.

Compensation rates of structures are determined based on their replacement cost. The replacement cost will be determined in a two-step fashion. At the planning stage, the following were used as reference in the RAP to calculate estimates of the replacement cost of housing in different cities: (a) commercially built housing and equivalent but older housing on the real estate market; (b) the price of economical housing built by government for low income people; and (c) the construction cost of resettlement housing built by government especially for displaced persons. During implementation, houses to be demolished will be evaluated by

government certified real estate evaluation agencies based on local government policies. At that time the higher of (a) the rates in the RAP and (b) the acceptable rates determined as a result of the house evaluation will be adopted as the compensation rate.

Livelihood Rehabilitation Strategy and Measures

Separate strategies for livelihood rehabilitation have been devised for different classes of affected people, enterprises and institutions as summarized below:

- *Affected farmers.* The socioeconomic survey indicated that agricultural income constituted between 0 and 18.13% of the total income of affected farmers. The major portion of income for this group is generated from non-agricultural activities, including temporary job outside the community and small business operations. To restore the loss of agricultural income, three different measures have been designed, based on consultation with affected people: (a) cash compensation; (b) land re-distribution; and (c) training for jobs.
- *Affected urban residents.* Different relocation methods will be applied to the affected urban households, based on extensive consultations with the affected population. Three options will be offered: (a) cash compensation; (b) replacement housing; and (c) provision of inexpensive cheap rental housing.
- *Affected rural residents.* Affected rural residents will be offered two options: (a) full package of cash compensation, including structure and land; or (b) cash compensation for structure, and provision of housing plot to construct houses on their own.
- *Affected enterprises, institutions, and shops.* Compensation for business loss has been provided for in the RAPs. New sites will be provided to affected enterprises, institutions and shops. Salary will be paid to employees during the replacement period, and employees will not lose their job due to relocation.
- *Affected public infrastructure.* Compensation will be paid to the relevant government agencies or local governments to restore the affected infrastructure and services based on replacement value.

Institutional Arrangements

A multi-level institutional structure has been established for the implementation of RAPs. An independent monitor has been selected for resettlement implementation. Details of staffing and their responsibilities are provided in individual RAPs. Briefly, the PMOs are the administrative institutions in charge of RAP implementation in their respective cities. Their responsibilities include preparation of resettlement policy; planning the resettlement; guaranteeing the timely implementation of the plan, managing capital allocation; and taking primary responsibility for monitoring. The implementing agency responsible for land acquisition and demolition, and the appropriate personnel at these agencies are provided in the RAPs.

Table A10.3: Resettlement Organizations and Its Responsibilities

Project City	Implementing Institution
Benxi	Benxi urban construction office
Dengta	Dengta civil engineering company
Fushun	Shuancheng district shed upgrading headquarters
Jinzhou	Urban investment company. House demolition and resettlement company
Liaoyang	National land resources bureau. Demolition company
Panjin	Land acquisition service station Build new houses Demolition service station

Public Consultation and Participation

Public consultation and participation played a key role in formulating the RAPs. The affected residents, business people and district governments participated in the census, inventory and formulation of the livelihood rehabilitation strategy, measures and relocation sites. Their feedback has been incorporated in the RAPs. The RAPs include a list of major consultation sessions (see also Annex 15).

Public consultation and participation will continue during RAP implementation. Project information will be provided to the affected people through TV, radio, newspapers, bulletins and posters. The RAP will be summarized into a resettlement information booklet (RIB) and distributed to all affected households.

Grievance Redress Mechanism

A mechanism has been designed for grievance redress under each of the project components. All grievances can be filed in both written and verbal form. The redress channel lies within the project management and government systems. Recording requirements and response time frame have been established for grievance resolution. Briefly, the mechanism is designed to escalate unsolved grievances up the local government chain of command, starting from local demolition offices to the municipal government authorities. Affected persons can seek redress in civil courts for grievances not addressed even at this level. This mechanism will be disclosed as part of the RIB.

Resettlement Implementation Monitoring

Internal and external monitoring has been designed as part of project resettlement management. Project resettlement offices will carry out internal monitoring of the resettlement implementation in each project city and LUCRPO will be responsible for preparing the summary internal monitoring report. The monitoring procedures, content, staffing, responsibility, time frame and reporting have been detailed in the RAPs. An external monitor has been selected for independent monitoring of RAP implementation. The independent monitoring will cover

physical progress of RAP implementation, including compensation payment, allocation of residential sites, farmland allocation, and restoration of infrastructure. The independent monitor will also review the public consultation process, operation of the resettlement project offices, grievance redress mechanisms and restoration of livelihood of the affected farmers. Independent monitoring will be conducted once a year during the project implementation period.

Resettlement Budget and Disbursement

A detailed resettlement budget has been developed on the basis of the inventory and the compensation rates developed. This budget includes the base cost, management fees, and contingencies. The total resettlement budget is about $105.8 million. Resettlement will be financed entirely through counterpart funds. Resettlement funds will be disbursed from the municipal governments to the various entitled units through the city PMO.

ENVIRONMENT

Environmental Impacts and Environmental Management Plans

This section describes the environmental impacts and EMPs of LMCIP. The discussion is based on the consolidated EIA report and EMP prepared by LAES, with assistance from local environmental research institutes, local environmental monitoring stations, and an international environmental specialist. EIA documents identify potential environmental benefits and consequences of the project, propose measures to avoid, mitigate or otherwise compensate negative environmental impacts during construction and operation, and allow incorporation of appropriate measures in the design to mitigate negative impacts to a minimum and acceptable level.

The EIA has been prepared on the basis of China's legal and policy framework for pollution control and environmental protection, master plans and environmental plans of the six project cities/county, as well as applicable World Bank safeguard policies. Applicable regulatory discharge and environmental standards have been used as the primary reference to determine the extent and level of impacts.

The EIA applies methodologies set out in various technical guidelines issued by SEPA. The scope of the project covered by the EIA is based on project feasibility study reports for each of the project components prepared by the Liaoning Urban Planning Design and Research Institute.

Environmental Baseline

General Setting. Liaoning Province, located in the northeast of China, is one of the heavy industrial bases in the country. Fushun, Benxi, Jinzhou, Panjin and Liaoyang are important cities in the Liaoning regional development plan, and are located along the two priority development corridors that will receive financial and institutional support for infrastructure development in the context of the Revitalization of Northeast Program.

Climate, River, Hydrogeology, and Ecology. Liaoning Province is located in the temperate zone with distinct seasons. The cities are situated in the Liao River Basin, except for Jinzhou, which is in the Xiaoling River Basin. The Liao River Basin drains through 11 important industrial and population centers and vast agricultural fields in the province. Project investments are located in urbanized or agricultural setting, where majority of the native flora and fauna have adapted to the sometimes inhospitable environment.

Identification of Sensitive Receptors. Based on the criteria described in the EIA report and the rounds of detailed site investigation by the Bank along all sites and alignments, 31 sensitive receptors in Fushun, 16 in Benxi, 43 in Liaoyang, 13 in Panjin, 10 in Jinzhou and 2 in Dengta have been identified as being vulnerable to increased air pollution and noise from the increased traffic volume after the project. These sensitive receptors are the focus of the impact assessment, particularly air quality and noise-related impacts. Detailed information is available in the EIA reports.

Air Quality Baseline. In general, most of the air quality parameters monitored during the EIA will meet the applicable standards, except airborne particulate matter less than ten micrometers in diameter (PM10), and occasionally carbon mono-oxide and hydrocarbons in selected cities. As the cities in the province are all industrial cities, despite the substantial efforts made to renovate, upgrade, and in some cases close industries to control pollution, air quality, particularly related to particulate pollution from coal combustion, remains a concern. Construction sites, sand storms from surrounding areas, and ambient dust also contribute to particulate pollution in the ambient air in the project cities.

Motor vehicle emissions are not yet a major air pollution factor according to the monitored results during the EIA. Most of the monitored parameters related to motor vehicle emissions meet the applicable standards. Although growing, at present the motor vehicle fleets in the project cities are generally very small.

Acoustic Quality Baseline. Monitoring data shows that the monitored sensitive receptors and other project areas experience noise levels exceeding the applicable standards when located adjacent to existing roads. Greenfield sites and small alleys, which currently do not have motor vehicle traffic, have a good acoustic environment. Motor vehicle traffic seems to be a significant source of noise, even though current traffic volumes are generally not high and speeds are low; indications are that the high noise is due to the poor road surface, frequent acceleration and braking (which generates high noise and constant use of the horn) due to poor road conditions, traffic congestion and poor traffic management.

Although in some cases standards are exceeded to a very significant extent (in some cases up to 20 decibels, dB(A)), the impact of the baseline noise levels on sensitive receptors is limited, based on the season. In northeast China, most multi-storey buildings, including schools, hospitals, residential houses and other sensitive receptors, have double glazed windows for heat insulation. During late fall, winter and early spring when windows are closed, the noise impact is substantially reduced. Although the windows are not designed specifically for noise reduction, the two glass layers can reduce noise by about 15-20 dB(A) when properly closed.

Vibration Baseline. Benxi has similar roads and traffic conditions as all the other project cities and was monitored to reflect the general vibration baseline conditions for the overall project areas. Monitoring results indicate that all points meet the standards, except for the first floor of a building adjacent to the main railway, which received significant vibration impact.

Cultural property. An initial cultural property screening along the entire project area, including the alternative alignments, was conducted in accordance with Bank OP4.11. The screening covered cultural/historic sites or buildings within 500 meters on both sides of the project road alignments. The cultural relics investigation consisted of three parts: literature review, field reconnaissance and consultation with relevant authorities. The investigation found that the project activities pass near a "city level" park and temple in Benxi, a "provincial level" protected park, pagoda and museum in Fushun, and 200 meters from a "state level" protected pagoda in Liaoyang. In all cases, the investigation found that the proposed activities would increase the quality of access to the sites, without any encroachment or adverse impact. Details are available in the consolidated EIA.

Environmental Benefit – Operations

LMCIP will bring significant positive impacts and benefits to the natural environments of the six project cities/county. This project facilitates environmentally desirable outcomes by promoting alternatives to private motorized travel thereby reducing local and GHG pollution and promoting safety, especially for cyclists and pedestrians.

Works under the road maintenance component will improve the condition of the sidewalks, feeder and tertiary road system, and reduce road dust. The road infrastructure component will enhance travel conditions for pedestrians and cyclists on major and secondary roads, and finances MV/NMV separation on major roads. The public transport component supports improvements in bus service and operations, which will contribute to making the public transport system more attractive. In addition, the air quality analysis suggests that in many cases, the improvements in urban streets will reduce vehicle emissions and contribute to improved local air quality. The traffic safety and traffic management component creates a safer travel environment for pedestrians and bicyclists through improvements to major road corridors and intersections.

Analysis of Alternatives

Alternatives were considered for each component during the preparation of the feasibility studies, with the objective of minimizing the negative environmental impacts. As has been described in Annex 9, this resulted in enlarging the scope of the secondary road rehabilitation component, and on focusing the road infrastructure component on reducing existing transport congestion. In Panjin, an analysis of alternatives considered for the proposed Hu Bin Road led to a modification of the original design to avoid encroachment towards a neighborhood lake. Details of the process and specific issues associated with the alternatives analysis are provided in Chapter 6 of the consolidated EIA report and summarized in Annex 9.

Environmental Impacts and Mitigation

Project components will potentially cause a variety of short-term construction and longer-term operational impacts. A series of mitigation measures have been planned to reduce the impacts to acceptable levels during construction and operation. Mitigation monitoring procedures have been established and the organizations responsible for monitoring have been designated.

Construction Phase. Project components could cause short-term impacts, such as dust, noise, traffic, soil erosion, workers' safety, and solid wastes from construction activities, community activities and public health issues. Various measures planned to reduce them to acceptable levels have been described in the EIA and the EMP, including restrictions on night-time construction, mandating the use of low-noise machinery and construction methods, and the development of detailed plans for the disposal of soil and waste disposal.

Operation Phase. Project impacts on air quality are limited and pollutant concentrations comply with applicable standards. The primary negative impact of the project is predicted to be higher than standard noise levels at a selection of identified locations. However, some sensitive receptors in project locations have baseline noise levels higher than standard. In other locations, the project is expected to lower noise levels through eased congestion and improved road quality. The negative impact of the project on noise will be most significant in green field sites and alleys, where there is no motor vehicle traffic at present.

During implementation, noise levels at affected sensitive receptors will be monitored, and residents and other affected people will be consulted on the actual noise impact with regard to their life and/or work. The results of this monitoring and consultation will serve to identify locations where window ventilation or air conditioners will be installed to mitigate noise impact. Details of all mitigation measures and the responsible agencies for their implementation and supervision are provided in the EMP.

Environmental Management and Monitoring

Environmental management organizations involved in LMCIP construction and operation and their functions are summarized in the consolidated EIA. Briefly, the EPB and the municipal EPBs in Benxi, Fushun, Liaoyang, Panjin and Jinzhou, are responsible for enforcement of laws and regulations, implementation of environmental policies/programs, setting up and enforcing discharge standards, providing guidance on environmental matters, reviewing environmental reports and handling environmental emergencies.

As the project proponent, LUCRPO and the city PMOs will take ultimate responsibility for environmental performance and environmental management during construction. Environmental staff in LUCRPO and city PMOs will be responsible for ensuring the implementation of mitigation measures. All project city PMOs will engage environmental specialists for supervision. They will work closely with the design institutes and contractors, as necessary, to modify and update the mitigation measures needed during construction and implementation. Supervision will involve regular monthly meetings and reviews of site environmental reports, diaries and records, and regular site inspections and investigations.

Environmental Management Plan. An EMP has been developed as a stand-alone document for each of the six project cities. The EMPs include the applicable policy basis and environmental standards, the environmental management system, the mitigation measures, monitoring plans, institutional arrangements, capacity building, and the estimated costs for the mitigation measures and monitoring programs during the construction and operation phases. Cities have formally adopted the EMPs, which estimate a total mitigation cost of about US$4 million.

Monitoring. Monitoring parameters include noise, dust, water quality, and solid waste disposal. During construction, daily routine monitoring will be conducted (mainly by contractors) through visual observations for parameters such as air-borne dust, and muddy run-off discharge to the rivers. Limited equipment measurements through hand-held noise meters will be carried out by contractors and construction supervision companies. Professional monitoring units, using standard methods recognized by regulatory authorities, will be arranged to monitor the parameters specified in the EMP. Professional monitoring units will also review overall compliance status. Monitoring reports will be compiled at intervals of three to six months, summarizing the findings. These reports will be submitted to the project proponents, as well as to all relevant agencies and the Bank. During the operation phase, noise levels will be monitored every three to six months. During operation, each city PMO will contract qualified professional monitoring units to conduct the monitoring program according to the parameters specified in the EMP.

Capacity Building. The EMP includes training programs for professional, managerial and technical personnel from Government, project proponents and operation units, environmental institutions, contractors, and construction supervisors. Mandatory environmental training will be provided for contractors and construction supervisors prior to the commencement of construction. The training will cover the basics of environmental protection and pollution control, contents of the respective city EIAs and the requirements of the EMPs, methodologies of site environmental management and monitoring, and reporting requirements.

Public Consultation

Apart from the consultation conducted to obtain inputs into project design, two rounds of public consultation were conducted in each of the six project cities during the preparation of the EIA: the first round was during the EIA TOR preparation stage, to obtain the public's views, concerns and comments on the project design, and potential adverse environmental impacts. The second round was conducted during the draft EIA report stage to explain the results of the impact assessments, mitigation measures, and the EMP. Details are provided in Annex 15. Public concerns and opinions expressed are addressed in the EIA, and where appropriate, have been communicated to the relevant authorities for response and required follow-up actions.

Summary of Information Disclosure

The draft EIA reports were released on January 25, 2005 on the LAES website. The printed city EIA reports were distributed during the week of February 6, 2006 to the city PMOs and/or local EPBs for public review.

Information about the project and the process of the EIA was published in the local media through advertisements or public notices. These include brief announcements of project content, the process of EIA, the contact persons and their telephone numbers for the public to express their concerns or opinions on the EIA. The media disclosure is summarized in the table below.

Summary of Media Disclosure

	Benxi	**Fushun**	**Liaoyang**	**Panjin**	**Jinzhou**
Date	December 15, 2005	January 12, 2006	January 16, 2006	November 30, 2005	January 13, 2006
Media	Benxi Daily	Fushun Daily	Liaoyang Daily	Panjin Daily	Jinzhou Daily
Content	Brief description; major environmental impacts, benefits, invitation to provide opinions	Brief description; major environmental impacts, benefits, invitation to provide opinions	Brief description; major environmental impacts, benefits, invitation to provide opinions	Brief description; major environmental impacts, benefits, invitation to provide opinions	Brief description; major environmental impacts, benefits, invitation to provide opinions
Contact persons	PMO officials, with names and contact telephone numbers	PMO officials, with names and contact telephone numbers	PMO officials, with names and contact telephone numbers	PMO officials, with names and contact telephone numbers	EIA team, with names and contact telephone numbers

Annex 11: Project Preparation and Supervision

CHINA: China-Liaoning Medium Cities Infrastructure Project

Table A11.1: Project Schedule

Stage of Project	Planned	Actual
PCN review		September 20, 2005
Initial PID to PIC		February 17, 2006
Initial ISDS to PIC		February 17, 2006
Appraisal		
Negotiations		May 10, 2006
Board or RVP approval	June 27, 2006	
Planned date of effectiveness	December 31, 2006	
Planned date of midterm review	June 30, 2009	
Planned closing date	December 31, 2011	

Key institutions responsible for preparation of the project:

- Ministry of Finance
- National Development and Reform Commission
- Liaoning Provincial Government, including LPDF, LDRC, LPCD, LPEPB, and LUCRPO.
- LAES, LASS
- Municipal governments of Benxi, Fushun, Jinzhou, Liaoyang, and Panjin; Dengta local government; and Urban Construction, Finance, Development and Reform Commissions and other associated organizations in each city.
- Liaoning Urban and Rural Design Institute, Shenyang Comprehensive Traffic Design Institute, Dalian Maritime Institute, Harbin Institute of Technology, City design institutes in Liaoyang, Jinzhou, Panjin and Fushun.

Bank staff and consultants who worked on the project are listed in Table A11.2.

Table A11.2: Bank Staff and Consultants Assigned to Project

Name	Title	Unit
Shomik Raj Mehndiratta	Senior Transport Specialist and Task Team Leader	East Asia Transport Sector Unit
Mei Wang	Senior Counsel	East Asia Legal Department
Junxue Chu	Senior Finance Officer	Financial Management and Disbursement Group 1
Raja Iyer	Lead Management Specialist	East Asia Urban Development Sector Unit
Wenling Chen	Junior Professional Associate	East Asia Transport Sector Unit
Axel Bauemler	Senior Private Sector Development Specialist	Infrastructure Vice Presidency
Chaogang Wang	Social Development Specialist	Environment and Social Development Department
Chongwu Sun	Environmental Specialist	Environment and Social Development Department
Dawei Yang	Procurement Specialist	East Asia Central Operations Services Unit
Haixia Li	Financial Management Specialist	East Asia Central Operations Services Unit
Teresita Ortega	Program Assistant	East Asia Transport Sector Unit
Xuan Peng	Team Assistant	East Asia Transport Sector Unit
Miguel Angel Reguero	Urban Transport Planner	Consultant
Oscar Gutierrez-Bolivar Avarez	Urban Transport Planner	Consultant
John van Rijn	Maintenance Institutional Specialist	Consultant
Luis Polonio Sanchez	Road Engineer	Consultant
Brendan Finn	Public Transport Specialist	Consultant
Setty Pendakur	Safety & Traffic Management	Consultant
Xiaoyun Li	Public Participation	Consultant

Annex 12: Documents in the Project File

CHINA: China-Liaoning Medium Cities Infrastructure Project

Feasibility Study and Plans

1. Liaoyang, Jinzhou, Panjin, Dengta Urban Transportation Improvement Project Feasibility Study Reports (Infrastructure Engineering, Economic Analysis, Infrastructure Maintenance, Traffic Management and Travel Demand Analysis Volumes) in Chinese, Liaoning Urban-Rural Design Institute, October 2005
2. Benxi, Dengta, Jinzhou, Liaoyang and Panjin Urban Transport Component, Summary (Consolidated) Feasibility Study for RI, RM, RS, and PT, Urban and Rural Planning Design Institute of Liaoning Province, January 2006.
3. Gebu Passageway and Gaoshan Road Reconstruction Project Feasibility Research Report, Provided by Fushun PMO, February 27, 2006
4. Road Maintenance Plans for the World Bank Financed Liaoning Medium Cities Infrastructure Project Urban Transport Component—Benxi, Jinzhou, Liaoyang, and Panjin Urban Transport Component (in English), Liaoning Urban and Rural Construction and Planning Design Institute and Benxi Municipal Management Department, January 2006
5. Liaoning Urban Transport Project Road Maintenance Study Final Report, prepared for Liaoning Urban Construction and Renewal Project Office (LUCRPO) by Obermeyer Planen + Beraten GmbH, October 2003
6. Benxi Traffic Management Planning Report Summary (2005–20) in English, Traffic Planning Academe of Dalian Maritime University, December 20, 2005
7. World Bank Funded Liaoning Medium Cities Project Urban Transportation Project, Jinzhou Urban Transportation Upgrading Project Feasibility Study Report—Traffic Management Report (in English), Shenyang Zhongji Traffic Research Institute, Liaoning Urban & Rural Construction & Planning Design Institute, and Jinzhou Urban Transportation Project Office, received through GETINSA on January 16, 2006
8. Summary for Traffic Management Planning Report of Liaoyang (2005–2010) (prepared for World Bank Mission) in English, Shenyang Zhongji Traffic Institute, December 20, 2005
9. Condensed Public Transportation Plan for Benxi City, Dalian Maritime University transport Plan and Research Institute, January 7, 2006
10. Summary of Public Traffic Planning Report (2005–2010), Liaoyang City (For World Bank Mission), Shenyang Transportation Institute, December 2005

Safeguards

11. World Bank Financed Liaoning Medium City Improvement Project Urban Transport Component, Environmental Assessment Executive Summary, Environmental Assessment, Environmental Management Plan, Liaoning Academy of Environmental Sciences, March 2006
12. Draft Consolidated Environmental Impact Assessment for Liaoning Medium City Infrastructure Project (Urban Transport Component), Liaoning Academy of Environmental Sciences, February 2006
13. EIA reports for Liaoyang, Dengta, Panjin, Fushun, Benxi and Jinzhou in Chinese, April 2006

14. EMP reports for Liaoyang, Dengta, Panjin, Fushun, Benxi, and Jinzhou in Chinese, April 2006
15. World Bank Financed Liaoning Medium Cities Infrastructure Project (LMCIP) Urban Transport Component – Resettlement Action Plan (Executive Summary) (Chinese and English), Urban Planning and Design Institute of Liaoning Province, December, 2005, and February 2006
16. Resettlement Action Plan for World Bank Financed Liaoning Medium Cities Infrastructure Project—Benxi, Dengta, Liaoyang, Fushun, Jinzhou, and Panjin Urban Transport Component (Chinese Version), Liaoning Urban-Rural Planning Design Institute, December 2005
17. Memos of comments made by the Bank on Chinese versions of RAPs, November and December 2005
18. Memo of comments made by the Bank on Chinese versions of EA reports, October 2005 – March 2006
19. LMCIP Response on issues raised at ISDS meeting April 17

Public Participation

20. The Report of the First Participatory Social Assessment of Panjin, Liaoyang, Jinzhou, Fushun, Dengta, and Benxi Urban Transportation Improvement Project (Abstract in English, Full Report in Chinese), September 2005 to January 2006
21. Draft PowerPoint Slides on Social Assessments of the Liaoning World Bank Urban Transportation Project, Liaoning Academy of Social Sciences, October 25, 2005
22. Powerpoint Slides on Fushun Bicycle User Survey, World Bank, September 2005
23. TRB Presentation (Powerpoint Slides) on Using Public Participation Techniques to Improve Urban Transport Project Design in Liaoning China, January 2006
24. World Bank Liaoning Urban Transport Project – the Report of the Second Participatory Social Assessment of Jinzhou, Liaoyang, Dengta, Panjin, Fushun, and Benxi Urban Transportation Improvement Project, Sociological Institute of Liaoning Academy of Social Science, Research Duration: April 2006

Procurement

25. Liaoning Medium Cities Infrastructure Project (LMCIP) Procurement Capacity Assessment Report, the World Bank, March 6, 2006
26. Procurement manual/ instruction, Liaoning Provincial Finance Department and LUCRPO (in Chinese), April 27, 2006
27. General Procurement Notice (GPN), April 2006
28. Procurement Packaging Plan, LUCRPO, March 28, 2006

Financial

29. Liaoning Medium Cities Infrastructure Project Financial Management Assessment, Prepared by Haixia Li, Financial Management Specialist, EASPC, Reviewed by David I, Sr. Financial Management Specialist, EAPCO.
30. Liaoning World Bank Financed Medium City Infrastructure Project Transport Component Draft Financial Management Manual (in Chinese), LUCRPO, April, 2006

31. LMCIP Municipal Financial/ Counterpart Fund Analysis, the World Bank, March, 2006

Consultant Reports

32. Inception Report on Liaoning Medium Cities Infrastructure Project Review of Feasibility Studies, Engineering Designs and Institutional Strengthening of the Road Maintenance Agencies, Liaoning Province, GETINSA, November, 2005
33. Project Economic Analysis, GETINSA, March, 2006
34. Cost analysis in preparation for cost estimate
35. Summary of traffic data and forecasts from the feasibility studies
36. Design guidelines
37. Review of first year projects

Others

38. Commitment Letters from the project city government, January, 2006
39. Commitment Letters from project city governments, April 2006
40. City by city project implementation arrangement, April 2006
41. Liaoning Motor Vehicle Emission Inspection and Maintenance System Background Paper, October 2005
42. Progress of in-use Automobile Inspection and Maintenance (I/M) Project in Our Province and Suggestions on Utilization of WB Grants, April 2006

Annex 13: Statement of Loans and Credits

CHINA: China-Liaoning Medium Cities Infrastructure Project

			Original Amount in US$ Millions						Difference between expected and actual disbursements	
Project ID	FY	Purpose	IBRD	IDA	SF	GEF	Cancel.	Undisb.	Orig.	Frm. Rev'd
P075732	2006	CN-Shanghai Urban APL2	180.00	0.00	0.00	0.00	0.00	180.00	6.67	0.00
P084742	2006	CN-IAIL III	200.00	0.00	0.00	0.00	0.00	199.50	16.27	0.00
P085333	2006	CN-Fifth Inland Waterways	100.00	0.00	0.00	0.00	0.00	99.75	4.95	0.00
P086629	2006	CN-Heilongjiang Dairy	100.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00
P070519	2006	CN-Fuzhou Nantai Island Peri-Urban Dev	100.00	0.00	0.00	0.00	0.00	100.00	0.67	0.00
P094388	2006	CN-HFC-23 Emissions Reduction	0.00	0.00	0.00	0.00	0.00	935.13	0.00	0.00
P096158	2006	CN-Renewable Energy II (CRESP II)	86.33	0.00	0.00	0.00	0.00	86.33	0.00	0.00
P072721	2005	CN-GEF-Heat Reform & Bldg Egy Eff.	0.00	0.00	0.00	18.00	0.00	16.20	1.23	0.00
P071094	2005	CN - Poor Rural Communities Development	100.00	0.00	0.00	0.00	0.00	99.66	19.66	0.00
P069862	2005	CN - Agricultural Technology Transfer	100.00	0.00	0.00	0.00	0.00	94.50	5.37	0.00
P068752	2005	CN-Inner Mongolia Highway & Trade Corrid	100.00	0.00	0.00	0.00	0.00	91.54	1.54	0.00
P057933	2005	CN-TAI BASIN URBAN ENVMT	61.00	0.00	0.00	0.00	0.00	48.83	5.10	0.00
P075730	2005	CN-HUNAN URBAN DEV	172.00	0.00	0.00	0.00	0.00	165.14	8.14	0.00
P067828	2005	CN-Renewable Energy Scale-up Program	87.00	0.00	0.00	0.00	0.00	86.57	17.33	0.00
P067625	2005	CN-GEF-Renewable Energy Scale-Up Program	0.00	0.00	0.00	40.22	0.00	40.22	-0.35	0.00
P081161	2005	CN-CHONGQING SMALL CITIES	180.00	0.00	0.00	0.00	0.00	180.00	2.17	0.00
P081346	2005	CN-LIUZHOU ENVIRONMENT MGMT	100.00	0.00	0.00	0.00	0.00	96.50	-0.10	0.00
P086505	2005	CN-NINGBO WATER & ENVMT	130.00	0.00	0.00	0.00	0.00	120.46	-9.54	0.00
P066955	2004	CN-ZHEJIANG URBAN ENVMT	133.00	0.00	0.00	0.00	0.00	113.58	1.83	0.00
P065463	2004	CN-Jiangxi Integrated Agric. Modern.	100.00	0.00	0.00	0.00	0.00	91.05	25.88	0.00
P069852	2004	CN-Wuhan Urban Transport	200.00	0.00	0.00	0.00	1.00	175.67	157.47	0.00
P065035	2004	CN-Gansu & Xinjiang Pastoral Development	66.27	0.00	0.00	0.00	0.00	45.69	11.49	0.00
P084003	2004	CN-GEF GUANGDONG PRD URB ENV	0.00	0.00	0.00	10.00	0.00	10.00	1.27	0.00
P081749	2004	CN-Hubei Shiman Highway	200.00	0.00	0.00	0.00	1.00	136.14	37.14	0.00
P077615	2004	CN-GEF-Gansu & Xinjiang Pastoral Develop	0.00	0.00	0.00	10.50	0.00	8.61	5.03	0.00
P073002	2004	CN-Basic Education in Western Areas	100.00	0.00	0.00	0.00	0.00	68.39	44.91	0.00
P075035	2004	CN-GEF-Hai Basin Integr. Wat. Env.Man.	0.00	0.00	0.00	17.00	0.00	14.13	5.09	0.00
P075602	2004	CN-2nd National Railways (Zhe-Gan Line)	200.00	0.00	0.00	0.00	1.00	97.14	-38.53	-39.53
P075728	2004	CN-GUANGDONG/PRD UR ENVMT	128.00	0.00	0.00	0.00	0.64	108.29	-4.27	0.00
P077137	2004	CN-4th Inland Waterways	91.00	0.00	0.00	0.00	0.46	82.86	6.65	6.15
P040599	2003	CN-TIANJIN URB DEV II	150.00	0.00	0.00	0.00	0.00	134.80	25.39	0.00
P067337	2003	CN-2nd GEF Energy Conservation	0.00	0.00	0.00	26.00	0.00	8.27	25.37	0.00
P058847	2003	CN-3rd Xinjiang Hwy Project	150.00	0.00	0.00	0.00	0.00	57.22	27.22	0.00
P076714	2003	CN-2nd Anhui Hwy	250.00	0.00	0.00	0.00	0.00	154.78	35.04	0.00

P068058	2003	CN-Yixing Pumped Storage Project	145.00	0.00	0.00	0.00	0.00	123.30	31.23	0.00
P070191	2003	CN-SHANGHAI URB ENVMT APL1	200.00	0.00	0.00	0.00	0.00	157.36	36.73	0.00
P070441	2003	CN-Hubei Xiaogan Xiangfan Hwy	250.00	0.00	0.00	0.00	0.00	41.71	-4.95	0.00
P068049	2002	CN-Hubei Hydropower Dev in Poor Areas	105.00	0.00	0.00	0.00	0.00	35.19	16.52	0.00
P070459	2002	CN-Inner Mongolia Hwy Project	100.00	0.00	0.00	0.00	0.00	40.16	6.83	0.00
P071147	2002	CN-Tuberculosis Control Project	104.00	0.00	0.00	0.00	0.00	57.43	22.99	0.00
P064729	2002	CN-Sustainable Forestry Development	93.90	0.00	0.00	0.00	0.00	36.74	12.25	0.00
P060029	2002	CN-GEF-Sustain. Forestry Dev	0.00	0.00	0.00	16.00	0.00	8.99	11.53	0.00
P058846	2002	CN-Natl Railway Project	160.00	0.00	0.00	0.00	0.00	23.34	21.68	0.00
P047345	2001	CN-HUAI RIVER POLLUTION CONTROL	105.50	0.00	0.00	0.00	0.00	53.49	53.49	0.00
P045915	2001	CN-Urumqi Urban Transport	100.00	0.00	0.00	0.00	0.00	34.47	34.47	0.00
P051859	2001	CN-LIAO RIVER BASIN	100.00	0.00	0.00	0.00	0.00	32.71	26.51	0.00
P056199	2001	CN-3rd Inland Waterways	100.00	0.00	0.00	0.00	0.00	39.13	14.96	0.00
P056516	2001	CN-Water Conservation	74.00	0.00	0.00	0.00	0.00	6.85	4.02	0.00
P056596	2001	CN-Shijiazhuang Urban Transport	100.00	0.00	0.00	0.00	0.00	66.10	66.10	0.00
P058845	2001	CN-Jiangxi II Hwy	200.00	0.00	0.00	0.00	54.77	26.50	61.60	0.00
P064730	2000	CN-Yangtze Dike Strengthening	210.00	0.00	0.00	0.00	0.00	79.46	79.46	79.46
P049436	2000	CN-CHONGQING URBAN ENVMT	200.00	0.00	0.00	0.00	3.70	113.69	100.66	0.00
P064924	2000	CN-GEF-BEIJING ENVMT II	0.00	0.00	0.00	25.00	0.00	21.93	24.01	18.73
P045910	2000	CN-HEBEI URBAN ENVIRONMENT	150.00	0.00	0.00	0.00	0.00	52.21	35.21	0.00
P042109	2000	CN-BEIJING ENVIRONMENT II	349.00	0.00	0.00	25.00	0.00	240.85	223.41	0.00
P056424	2000	CN-Tongbai Pumped Storage	320.00	0.00	0.00	0.00	100.00	43.39	127.19	0.00
P058844	2000	CN-Henan Provincial Hwy 3	150.00	0.00	0.00	0.00	0.00	25.64	24.30	0.00
P058843	2000	CN-Guangxi Highway	200.00	0.00	0.00	0.00	19.70	20.71	35.75	6.05
P043933	1999	CN-SICHUAN URBAN ENVMT	150.00	2.00	0.00	0.00	0.00	61.34	57.33	56.20
P036953	1999	CN-HEALTH IX (Shiyong Wang, Back-up)	10.00	50.00	0.00	0.00	0.40	21.23	20.40	11.28
P046564	1999	CN-Gansu & Inner Mongolia Poverty Red.	60.00	100.00	0.00	0.00	13.30	4.57	18.46	-9.13
P046829	1999	CN-Renewable Energy Development	100.00	0.00	0.00	0.00	0.00	2.62	2.62	2.62
P042299	1999	CN-Tec Coop Credit IV	10.00	35.00	0.00	0.00	0.00	22.42	20.83	0.00
P041268	1999	CN-Nat Hwy4/Hubei-Hunan	350.00	0.00	0.00	0.00	0.00	32.35	32.35	0.00
P038121	1999	CN-GEF-RENEWABLE ENERGY DEVELOPMENT	0.00	0.00	0.00	35.00	0.00	15.74	34.77	21.33
P057352	1999	CN-RURAL WATER IV	16.00	30.00	0.00	0.00	0.00	5.41	5.90	0.36
P051888	1999	CN-Guanzhong Irrigation	80.00	20.00	0.00	0.00	0.00	10.73	11.12	0.00
P051856	1999	CN-Accounting Reform & Development	27.40	5.60	0.00	0.00	0.00	9.65	9.59	0.00
P051705	1999	CN-Fujian II Highway	200.00	0.00	0.00	0.00	0.00	27.13	27.13	3.12
P049665	1999	CN-Anning Valley Agric. Development	90.00	30.00	0.00	0.00	0.00	2.70	3.83	-2.84
P045788	1998	CN-Tri-Provincial Hwy	230.00	0.00	0.00	0.00	5.04	0.97	6.01	0.00
P003539	1998	CN-Sustainable Coastal Resources Dev.	100.00	0.00	0.00	0.00	2.06	33.88	35.94	16.73
P051736	1998	CN-E. China/Jiangsu Power	250.00	0.00	0.00	0.00	86.00	12.94	98.94	12.28
P036414	1998	CN-GUANGXI URBAN ENVMT	72.00	20.00	0.00	0.00	13.48	39.37	52.31	9.89
P003566	1998	CN-BASIC HEALTH (HLTH8)	0.00	85.00	0.00	0.00	0.00	16.00	11.98	0.00
P003606	1998	ENERGY CONSERVATION	63.00	0.00	0.00	22.00	0.00	13.74	13.99	0.00
P003619	1998	CN-2nd Inland Waterways	123.00	0.00	0.00	0.00	37.00	6.03	43.03	6.03
P003614	1998	CN-Guangzhou City Transport	200.00	0.00	0.00	0.00	20.00	82.58	102.58	39.61
P003637	1997	CN-NAT'L RURAL WATER 3	0.00	70.00	0.00	0.00	0.00	0.22	3.44	3.02

P036405	1997	CN-Wanjiazhai Water		400.00	0.00	0.00	0.00	75.00	4.51	79.51	4.51
P044485	1997	SHANGHAI WAIGAOQIAO		400.00	0.00	0.00	0.00	0.00	46.13	46.13	46.13
P003594	1996	CN-Gansu Hexi Corridor		60.00	90.00	0.00	0.00	0.00	48.01	49.87	19.14
			Total:	10,072.40	537.60	0.00	244.72	434.55	5,948.57	2,300.10	311.14

CHINA
STATEMENT OF IFC's
Held and Disbursed Portfolio
(millions of U.S. dollars)

		Committed				Disbursed			
		IFC				IFC			
FY Approval	Company	Loan	Equity	Quasi	Partic.	Loan	Equity	Quasi	Partic.
2002	ASIMCO	0.00	10.00	0.00	0.00	0.00	10.00	0.00	0.00
2005	BCCB	0.00	59.20	0.00	0.00	0.00	59.03	0.00	0.00
2003	BCIB	0.00	0.00	11.89	0.00	0.00	0.00	0.00	0.00
2006	BUFH	8.04	0.00	0.00	0.00	8.04	0.00	0.00	0.00
2005	Babei	0.00	5.00	0.00	0.00	0.00	5.00	0.00	0.00
	Babei Necktie	11.00	0.00	0.00	6.00	8.94	0.00	0.00	4.88
1999	Bank of Shanghai	0.00	21.76	0.00	0.00	0.00	21.76	0.00	0.00
2000	Bank of Shanghai	0.00	3.84	0.00	0.00	0.00	3.84	0.00	0.00
2002	Bank of Shanghai	0.00	24.67	0.00	0.00	0.00	24.67	0.00	0.00
2005	BioChina	0.00	3.00	0.00	0.00	0.00	0.15	0.00	0.00
2002	CDH China Fund	0.00	2.12	0.00	0.00	0.00	0.00	0.00	0.00
2005	CDH China II	0.00	18.00	0.00	0.00	0.00	4.60	0.00	0.00
2003	CSMC	0.00	7.17	0.00	0.00	0.00	7.17	0.00	0.00
2005	CT Holdings	0.00	0.00	40.00	0.00	0.00	0.00	0.00	0.00
2004	CUNA Mutual	0.00	11.47	0.00	0.00	0.00	0.94	0.00	0.00
2005	Changyu Group	0.00	18.09	0.00	0.00	0.00	18.07	0.00	0.00
1998	Chengdu Huarong	4.04	3.20	0.00	3.91	4.04	3.20	0.00	3.91
2004	China Green Ener	20.00	0.00	0.00	0.00	11.50	0.00	0.00	0.00
2004	China Re Life	0.00	0.27	0.00	0.00	0.00	0.27	0.00	0.00
1994	China Walden Mgt	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00
2006	Chinasoft	0.00	0.00	15.00	0.00	0.00	0.00	0.00	0.00
2004	Colony China	0.00	16.07	0.00	0.00	0.00	4.68	0.00	0.00
2004	Colony China GP	0.00	0.84	0.00	0.00	0.00	0.22	0.00	0.00
2006	Conch	80.51	40.43	0.00	0.00	80.51	0.00	0.00	0.00
2002	Darong	10.00	1.50	0.00	8.00	6.67	1.50	0.00	5.33
2006	Deqingyuan	0.00	2.82	0.00	0.00	0.00	0.00	0.00	0.00
1994	Dynamic Fund	0.00	5.43	0.00	0.00	0.00	3.77	0.00	0.00
2005	Fang Xin SHMT	7.20	0.00	0.00	4.80	7.20	0.00	0.00	1.42
2005	Fang Xin Limited	0.00	4.67	0.00	0.00	0.00	4.67	0.00	0.00
2005	Fang Xin SHDX	1.80	0.00	0.00	1.20	0.60	0.00	0.00	0.12
2005	Fang Xin SZFX	1.20	0.00	0.00	0.80	1.20	0.00	0.00	0.24
2004	Fenglin	19.00	0.00	6.00	14.00	14.77	0.00	6.00	13.79
2005	Five Star	0.00	0.00	7.00	0.00	0.00	0.00	0.00	0.00

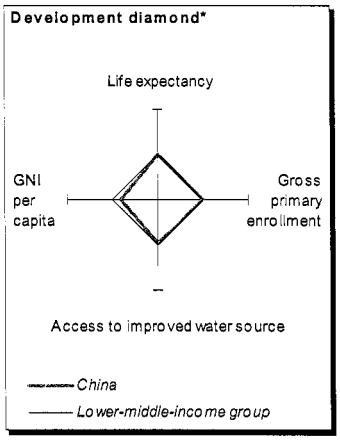
2006	GDIH	50.23	0.00	0.00	0.00	50.23	0.00	0.00	0.00
2003	Great Infotech	0.00	1.73	0.00	0.00	0.00	1.03	0.00	0.00
2005	HiSoft Tech	0.00	4.00	0.00	0.00	0.00	3.00	0.00	0.00
2004	IB	0.00	52.18	0.00	0.00	0.00	52.18	0.00	0.00
2004	Jiangxi Chenming	50.00	12.90	0.00	40.00	40.00	12.90	0.00	20.00
2006	Launch Tech	0.00	8.35	0.00	0.00	0.00	0.00	0.00	0.00
2001	Maanshan Carbon	6.00	2.00	0.00	0.00	6.00	2.00	0.00	0.00
2005	Maanshan Carbon	11.00	1.00	0.00	0.00	5.00	1.00	0.00	0.00
2005	Minsheng	15.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	Minsheng Bank	0.00	23.50	0.00	0.00	0.00	23.50	0.00	0.00
2005	Minsheng Bank	0.00	2.80	0.00	0.00	0.00	2.79	0.00	0.00
2001	NCCB	0.00	8.94	0.00	0.00	0.00	8.82	0.00	0.00
1996	Nanjing Kumho	0.00	3.81	0.00	0.00	0.00	3.81	0.00	0.00
2004	Nanjing Kumho	34.00	2.23	0.00	0.00	34.00	2.23	0.00	0.00
2001	New China Life	0.00	5.83	0.00	0.00	0.00	5.83	0.00	0.00
2005	New Hope	0.00	0.00	45.00	0.00	0.00	0.00	0.00	0.00
1995	Newbridge Inv.	0.00	0.22	0.00	0.00	0.00	0.22	0.00	0.00
2005	North Andre	15.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1997	Orient Finance	0.00	0.00	2.86	3.57	0.00	0.00	2.86	3.57
2003	PSAM	0.00	1.98	0.00	0.00	0.00	0.00	0.00	0.00
	RAK China	13.00	0.00	0.00	0.00	13.00	0.00	0.00	0.00
2006	SAC	3.00	1.60	0.00	0.00	0.00	0.00	0.00	0.00
2003	SAIC	12.00	0.00	0.00	0.00	12.00	0.00	0.00	0.00
2000	SEAF SSIF	0.00	3.82	0.00	0.00	0.00	2.14	0.00	0.00
2004	SHCT	40.00	0.00	0.00	30.00	30.86	0.00	0.00	23.14
2004	SIBFI	0.00	0.07	0.00	0.00	0.00	0.07	0.00	0.00
1998	Shanghai Krupp	21.00	0.00	0.00	41.99	21.00	0.00	0.00	41.99
2006	Shanshui Group	0.00	5.50	0.00	0.00	0.00	5.50	0.00	0.00
1999	Shanxi	12.61	0.00	0.00	0.00	12.61	0.00	0.00	0.00
2002	Sino Gold	0.00	2.40	0.00	0.00	0.00	2.40	0.00	0.00
2005	Stora Enso	50.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00
2006	TBK	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	VeriSilicon	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
	Wanjie High-Tech	12.19	0.00	0.00	0.00	12.19	0.00	0.00	0.00
2004	Wumart	0.00	3.24	0.00	0.00	0.00	3.24	0.00	0.00
2003	XACB	0.00	19.74	0.00	0.00	0.00	2.64	0.00	0.00
2004	Xinao Gas	25.00	10.00	0.00	0.00	25.00	10.00	0.00	0.00
2003	Zhengye-ADC	15.00	0.00	0.00	7.00	11.59	0.00	0.00	5.41
2002	Zhong Chen	0.00	5.00	0.00	0.00	0.00	5.00	0.00	0.00
	Total portfolio:	552.57	443.40	127.75	186.27	416.95	324.85	8.86	123.80

		Approvals Pending Commitment			
FY Approval	Company	Loan	Equity	Quasi	Partic.
2002	SML	0.00	0.00	0.00	0.00
2004	NCFL	0.00	0.00	0.02	0.00
2004	SIBFI	0.00	0.00	0.00	0.00
2004	CCB-MS NPL	0.00	0.00	0.00	0.00
2002	Zhong Chen	0.00	0.00	0.00	0.03
2004	China Green	0.00	0.00	0.01	0.00
2006	Launch Tech	0.01	0.00	0.00	0.00
2005	MS Shipping	0.00	0.01	0.00	0.00
2002	Sino Mining	0.01	0.00	0.00	0.01
2003	Peak Pacific 2	0.00	0.01	0.00	0.00
	Total pending commitment:	0.02	0.02	0.03	0.04

Annex 14: Country at a Glance

CHINA: China-Liaoning Medium Cities Infrastructure Project

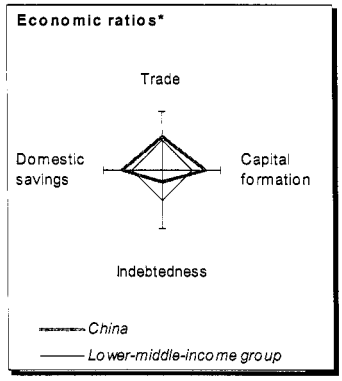
POVERTY and SOCIAL	China	East Asia & Pacific	Lower-middle-income
2004			
Population, mid-year *(millions)*	1,296.5	1,870	2,430
GNI per capita *(Atlas method, US$)*	1,290	1,280	1,580
GNI *(Atlas method, US$ billions)*	1,672.5	2,389	3,847
Average annual growth, 1998-04			
Population *(%)*	0.7	0.9	1.0
Labor force *(%)*	0.8	1.1	0.7
Most recent estimate (latest year available, 1998-04)			
Poverty *(% of population below national poverty line)*	5	..	..
Urban population *(% of total population)*	40	41	49
Life expectancy at birth *(years)*	71	70	70
Infant mortality *(per 1,000 live births)*	30	32	33
Child malnutrition *(% of children under 5)*	10	15	11
Access to an improved water source *(% of population)*	77	78	81
Literacy *(% of population age 15+)*	91	90	90
Gross primary enrollment *(% of school-age population)*	115	113	114
Male	115	113	115
Female	115	112	113



KEY ECONOMIC RATIOS and LONG-TERM TRENDS

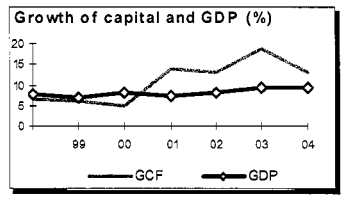
	1984	1994	2003	2004
GDP *(US$ billions)*	256.1	542.5	1,418.3	1,653.8
Gross capital formation/GDP	34.4	41.2	43.8	45.2
Exports of goods and services/GDP	11.3	25.3	34.2	39.7
Gross domestic savings/GDP	34.5	42.7	42.5	44.9
Gross national savings/GDP	35.3	42.7	43.2	46.1
Current account balance/GDP	0.7	1.9	3.2	4.2
Interest payments/GDP	0.4	0.9	0.5	0.4
Total debt/GDP	4.7	18.5	13.6	10.7
Total debt service/exports	7.3	7.7	7.2	3.6
Present value of debt/GDP	..	..	13.3	..
Present value of debt/exports	..	..	36.4	..

	1984-94	1994-04	2003	2004	2004-08
(average annual growth)					
GDP	9.4	8.3	9.3	9.5	8.0
GDP per capita	7.9	7.4	8.6	8.9	7.3
Exports of goods and services	8.1	17.3	26.8	28.4	14.4

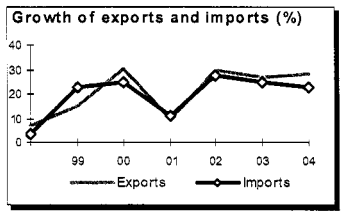


STRUCTURE of the ECONOMY

	1984	1994	2003	2004
(% of GDP)				
Agriculture	32.0	20.2	14.6	15.2
Industry	43.3	47.8	52.2	52.9
Manufacturing	35.5	34.4	36.7	37.3
Services	24.7	31.9	33.2	31.9
Household final consumption expenditure	51.2	44.5	44.9	43.1
General gov't final consumption expenditure	14.2	12.8	12.6	12.0
Imports of goods and services	11.4	23.4	31.7	36.7



	1984-94	1994-04	2003	2004
(average annual growth)				
Agriculture	4.0	3.3	2.5	6.3
Industry	12.3	10.0	12.7	11.1
Manufacturing	11.7	10.1	14.9	13.2
Services	9.8	8.2	7.3	8.3
Household final consumption expenditure	8.1	7.9	6.1	7.9
General gov't final consumption expenditure	9.4	8.6	4.8	6.8
Gross capital formation	9.1	9.5	18.9	13.0
Imports of goods and services	9.9	15.5	24.8	22.5

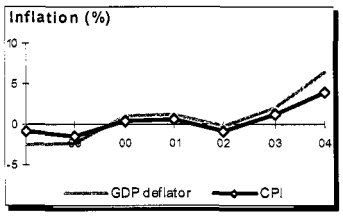


Note: 2004 data are preliminary estimates.

* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

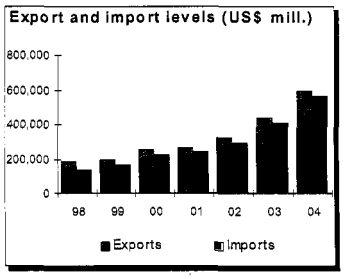
PRICES and GOVERNMENT FINANCE

	1984	1994	2003	2004
Domestic prices				
(% change)				
Consumer prices	8.3	24.1	1.2	3.9
Implicit GDP deflator	4.9	19.9	2.1	6.5
Government finance				
(% of GDP, includes current grants)				
Current revenue	22.9	11.9	18.7	19.4
Current budget balance	..	1.0	1.3	1.9
Overall surplus/deficit	-0.8	-1.2	-2.8	-1.7



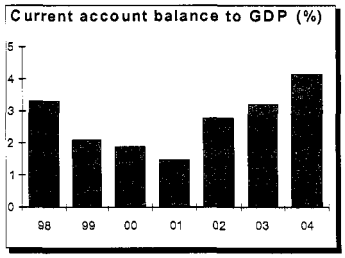
TRADE

	1984	1994	2003	2004
(US$ millions)				
Total exports (fob)	26,139	121,006	438,228	593,369
Food	3,232	10,015	17,533	18,870
Fuel	6,027	4,069	11,110	14,476
Manufactures	14,205	101,298	403,560	552,818
Total imports (cif)	27,410	115,614	412,760	561,423
Food	2,331	3,137	5,959	9,156
Fuel and energy	139	4,035	29,214	48,003
Capital goods	7,245	51,467	192,869	252,624
Export price index *(2000=100)*	50	103	96	102
Import price index *(2000=100)*	74	96	102	112
Terms of trade *(2000=100)*	68	107	95	91



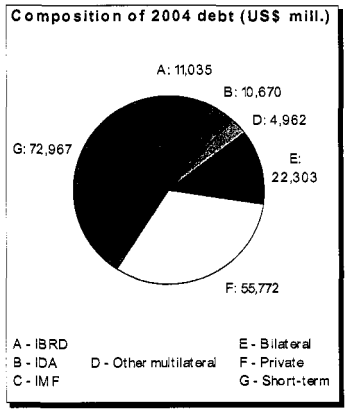
BALANCE of PAYMENTS

	1984	1994	2003	2004
(US$ millions)				
Exports of goods and services	29,039	137,378	485,003	655,827
Imports of goods and services	29,183	127,210	448,924	606,543
Resource balance	-144	10,168	36,079	49,284
Net income	1,534	-1,036	-7,838	-3,523
Net current transfers	442	1,337	17,634	22,898
Current account balance	1,832	10,469	45,875	68,659
Financing items (net)	-2,363	20,058	71,148	137,705
Changes in net reserves	531	-30,527	-117,023	-206,364
Memo:				
Reserves including gold *(US$ millions)*	..	57,770	416,208	622,945
Conversion rate *(DEC, local/US$)*	2.8	8.6	8.3	8.3



EXTERNAL DEBT and RESOURCE FLOWS

	1984	1994	2003	2004
(US$ millions)				
Total debt outstanding and disbursed	12,082	100,457	193,567	177,709
IBRD	73	5,933	10,657	11,035
IDA	181	6,097	10,314	10,670
Total debt service	2,285	11,135	37,073	24,498
IBRD	6	679	2,690	1,124
IDA	4	50	219	262
Composition of net resource flows				
Official grants	112	337	..	..
Official creditors	831	3,117	-3,092	-2,485
Private creditors	240	6,691	-1,778	-13,373
Foreign direct investment (net inflows)	1,419	33,787	55,507	60,906
Portfolio equity (net inflows)	0	3,915	7,729	10,923
World Bank program				
Commitments	959	4,035	1,250	1,250
Disbursements	197	2,060	1,616	1,246
Principal repayments	0	323	2,459	999
Net flows	197	1,737	-843	247
Interest payments	9	406	450	387
Net transfers	187	1,331	-1,293	-140



Annex 15: Public Participation Process

CHINA: China-Liaoning Medium Cities Infrastructure Project

In addition to the public consultations required for environmental impact assessment and resettlement planning under Chinese law and Bank regulations, the project also incorporated a public participation process as a separate strategic input into the project preparation to enhance project design. This annex provides details on the public participation processes conducted both for project design, and under the EIA and resettlement planning processes.

PUBLIC PARTICIPATION IN PROJECT DESIGN

International experience suggests that public participation during the technical planning process generates solutions with widespread benefits, while minimizing adverse impacts. A major achievement of this project has been the successful development of a meaningful public participation process that influenced project designs. Public participation was integrated into the project cycle and carried out in three phases: (a) Phase I (project design and feasibility stage), when participation was designed to identify key issues of concern to the public; (b) Phase II (post appraisal stage), when solutions were presented to the public for review and comments; and (c) Phase III (project implementation stage), during which the satisfaction level of the public with project implementation and outcomes will be ascertained.

Phase I and II Public Participation

In September and November 2005, Phase I participation, was carried out to complement the technical analysis in project design and preparation. The objectives of the process were to determine the public's key concerns, to prioritize problems to be solved under the project and to incorporate public inputs into project design. Phase II public participation was carried out in April 2006. The major objectives of Phase II were to: (a) determine the public's assessment of the extent to which the findings from the Phase I participatory process were addressed in the project design; (b) measure the public's assessment of the quality of the urban transport systems in the project cities; and (c) public concerns relating to project implementation and their suggestions on ways these concerns could be addressed.

Methods. For both phases of public participation, LASS was contracted by the cities to conduct extensive three-stage efforts - focus groups, open meetings and questionnaires - to obtain public input into the project design. Special efforts were made to ascertain the needs of vulnerable groups, such as the elderly, migrants, the unemployed, the laid-off and the disabled. "Women only" discussions were conducted to ensure that needs and issues specific to women were properly identified. Findings from Phase I led to special attention during Phase II to involve pedestrians, bicyclists, and bus users. Design institutes and city authorities attended the discussions to ensure responsiveness to the issues raised in the project design. Table A15.1 summarizes the work done.

Table A15.1: Summary of Phase I and II Public Participation Process

Phase I Participation Process				
City	**Open Meeting (persons)**	**Focus Group (groups/persons)**	**Individual Interviews (persons)**	**Questionnaires (number)**
Liaoyang	30	12/86	11	503
Jinzhou	30	12/89	12	711
Fushun	27	12/93	11	696
Panjin	28	12/85	11	497
Dengta	30	8/60	10	151
Benxi	26	12/90	10	700
Phase II Participation Process				
City	**Open Meeting (persons)**	**Focus Group (groups/ persons)**	**Individual Interviews (persons)**	**Questionnaires (number)**
Liaoyang	90	12/120	10	400
Jinzhou	90	12/120	10	500
Fushun	90	15/120	10	500
Panjin	100	12/120	10	403
Dengta	30	6/60	10	150
Benxi	90	12/120	10	500

This effort successfully highlighted to city leaders problems such as the poor conditions of secondary roads and sidewalks, safety at intersections, the need to separate the stream of non-motorized traffic, and the need to improve public transport service. It helped to address, on a priority basis, the needs of the non-auto population. City authorities have noted that while such participatory planning was not part of the previous planning practice, it provided them with a good model for interacting with the public on transport planning issues.

Phase I Findings. Findings from Phase I are summarized below:

(a) The pavement and drainage facilities of secondary roads and alleys are often in poor condition.

(b) Sidewalk conditions and walkability are problematic.

(c) There is lack of separation between MV and NMV, both physically and from a traffic management perspective.

(d) There is lack of street lighting and signage.

(e) There are differences, based on gender, in the needs expressed on safety, security and public transport. Women raised concerns on lack of street lights, poor quality bus services (schedules, transfers, long waits, etc.), and unsafe road crossings.

The participatory process resulted in significant changes to the project compared to the initial proposals: (a) the initial proposals focused primarily on facilitating new urban developments and road expansion, whereas the participatory process resulted in the emphasis being shifted to sidewalks, the needs of pedestrians, secondary road improvements, and traffic management,

especially the separation of MV and NMV traffic; and (b) latent issues, e.g., missing street lights and poor public transport services, were picked up to address the needs of the vulnerable segments of the population.

Phase I Impact. The feasibility studies include a section highlighting how the issues raised in the public participation process are addressed in project design. Table A15.2 summarizes the major issues raised and addressed by the project.

Table A15.2: Addressing the Concerns Raised by the Public in Project Design

Issues/Requests Raised by the Public	Benxi	Dengta	Fushun	Jinzhou	Liaoyang	Panjin
RI						
Improve drainage condition in some roads or the city network	R/A	R/A	R/A	R/A	R/A	R/A
Improve quality of alley and secondary roads: pavement, traffic lights or street lighting		R/A	R/A	R/A	R/A	R/A
Improve quality of problematic arterials: pavement, traffic lights, or street lighting	R/A	R/A	R/A	R/A	R/A	
Improve damaged street lights		R/A		R/A		
Add new street lights		R/A			R/A	
Improve tunnel lighting			R/A			
Enhance disability access (barrier-free path)	R/A	R/A			R/A	R/A
Improve public facilities: bus stations, phone booth, trash bins, public restroom, etc.,	R/A	R/-			R/A	R/A
Improve greening and beautify the street pedestrian crossing		R/-				
		R/A				R/-
Road widening at some locations				R/-	R/A	
Relieve traffic pressure on some roads with new alternative roads/bridge constructions					R/A	
RS						
Regulate speeding issues at some intersections					R/A	
Reduce traffic accidents in problematic locations				R/A	R/A	
Improve the separation of MV/NMV traffic, walkability, and pedestrian safety	R/A	R/A	R/A	R/A	R/A	R/A
Improve traffic flow and congestion conditions on problematic locations			R/A	R/A	R/A	R/A
Regulate the routing of freight traffic			R/-			R/A
Ban the illegal use of roads by peddlers and vehicle parking						R/-
Manage the illegal use of sidewalks					R/-	
Manage bus parking to free bus parking from other road facilities	R/A				R/A	
Over or underground pedestrian passes at heavy traffic intersections			R/-		R/A	R/-
Manage bicycle parking and solve bicycle stealing problem		R/A	R/-			
Manage overloading problem			R/-			
Lack of sign post at intersections		R/A				
Strengthen traffic Management at chaos sections		R/A				R/-
Strengthen coordinated management of main roads, secondary roads, and alleys			R/A	R/A		
Better monitor traffic violations and maintain traffic safety					R/A	
Manage parking	R/-	R/-				
Lack of road monitoring system		R/-				
Manage tricycle traffic		R/-				
Lack of guardrail in rail crossings and segments				R/A		
Add separate bike path on main and secondary roads					R/-	
Strengthen the promotion of traffic rule to the residents	R/-	R/A				
PT						
Increase bus numbers (capacity) and services in certain areas	R/A		R/A	R/-	R/-	R/-
Increase bus stops and improve bus stop signages	R/A			R/A	R/A	
Extend some bus routes	R/A	R/A				
Improve smoothness of bus transfer	R/A					
Improve the management of bus facility (e.g., advertisement at bus stops)			R/A			
Improve public transport management efficiency						R/-
Improve bus routing		R/A	R/A			
Reduce bus fares, especially lower fares for seniors and the disabled	R/A				R/-	R/-
Lack of bus priority lanes in some routes	R/A		R/-		R/A	
Improve bus access to the disabled and seniors (e.g, dedicated seats, disability facility)	R/A	R/-	R/A		R/-	R/-
RM						
Improve road maintenance	R/A				R/A	
Other						
Reduce vehicle emission and noise pollution	R/-					
Difficult traffic condition during road construction		R/A				
Reduce taxi price				R/-		

R/A: Raised and addressed.

R/-. Raised, but was not considered or could not be addressed under the project.

Phase II Findings. Findings from the Phase II process, summarized in the tables below, include:

(a) Most of the participants agreed that the revised designs satisfactorily reflected the concerns raised in the Phase I participation process. Participants also made suggestions on additional improvements to problems related to: drainage and pavement conditions, infrastructure management and maintenance, illegal use of sidewalks, poor bus stop facilities, MV/NMV separation, signal timing optimization, and accessibility for the disabled.

(b) The following concerns related to implementation, and suggestions to address them were made:

- Participants expressed concerns over construction quality and suggested that quality of the project and optimization of fund utilization will be improved by greater involvement of the public.
- Construction impacts on noise, air quality, and the disruption caused by construction were viewed as the major concerns. Suggestions were made to avoid late construction at night, and to clean construction solid waste in a timely manner.
- Participants raised resettlement concerns related to affordability, locations of new houses, compensation methods, and proper use of compensation funds.

(c) Public participation process was highly welcomed by the participants. Suggestions were made on how to better engage the public into decision making.

Phase II Impact. Project design will be adjusted in the following ways to reflect the above findings from the Phase II public participation:

(a) To reflect the public's concerns related to construction quality and governance issues it was agreed that:

- The public would be kept properly informed about the project through publicizing project information via a variety of media.
- Various channels will be made available for the public to provide inputs into project development and decision making, e.g., dedicated public opinion phone number, workshops, surveys, newspapers, website, and etc.

(b) Participants have identified issues that need to be further solved, related to public transportation and infrastructure improvements not included in the Project, as summarized in each city's participation report. These issues will be specifically answered and/or addressed either through this project or by separate projects in the cities.

- It is agreed that public transportation issues will be addressed in the network review of the TA component.

- The process has identified great needs for some infrastructure improvements that are not funded through this project. The city governments agreed to provide the identified improvements through domestic funds. However, such projects shall be the priorities to be financed through the unallocated portion of LMCIP loan, should it become available.

Phase III Public Participation

During this stage, the participating cities will hire an independent consultant to follow up on the public participation work conducted during project preparation. At least two rounds of participation will be conducted, and annual participation is being considered. This phase of participation will provide public input into the implementation of the process to ensure that implementation related concerns raised by the public during preparation are adequately addressed' that the project investments are designed in a manner that maximizes benefits for the users; provide feedback on the impact of the project traffic safety component on the identified corridors and intersections; that the public's general satisfaction with mobility, convenience, cost and safety elements of the city's urban transport system are measured; any other transport related concerns raised by the public are understood.

PUBLIC CONSULTATION DURING ENVIRONMENTAL IMPACT ASSESSMENT AND RESETTLEMENT PLANNING

Public Consultation during EIA Process

Two rounds of public consultation were carried out during the environmental assessment: the first round during the preparation of EA TOR, between August to November 2005; and the second round at the draft EA report stage in early January 2006 in the six project cities/county town. The primary technique used in public consultation was public opinion survey either through questionnaires or public meetings, or both. This was supplemented by interest group interviews such as temple/mosque communities, cultural properties management, and relevant agencies. Consultation was focused primarily on the project areas, and the people consulted included mainly those who will be affected directly by the project. Relevant government and non-government organizations, and experts from academic institutions on various environmental and socio-economic issues, have also been consulted. In total, 599 individuals responded to the questionnaire survey in the first round of consultation, and about 438 persons participated in the second round of consultation.

The consulted public was mostly aware of the proposed project and the majority of them expressed their support. The predominant concern from the affected public was increased noise following project implementation, airborne dust and inconvenience during construction and on-time and fair payments for resettlement compensation. Other concerns included motor vehicle emission, community severance, loss of urban green space, disturbed areas rehabilitation, communication channel to voice their concerns about the project, etc.

Public concerns and suggestions were addressed by including a series of dust control measures during construction, noise insulation windows and noise barriers at sensitive receptors which are

expected to experience significant incremental increase in noise levels after the completion of the project. A landscaping program with more new trees planted than those cut during the project has been planned. A program has been established for continued public consultation, including proper channels to receive public concerns and complaints. Concerns expressed by the public on resettlement, relocation and livelihood rehabilitation have been addressed with appropriate measures in the RAPs.

In compliance with the EIA process requirements of the government and the Bank, the completed draft EIA and EMP reports were released in public places in the project area, including libraries, PMO offices, etc. The public has the access to the reports at these places. In addition, project information (including availability of the reports) was conveyed to the public through major daily newspapers in the project cities/county. The reports have also been released on the LPEPB website, with a link to the LAES.

Public consultation activities and information disclosure are summarized in Table A15.3 and Table A15.4, respectively.

Table 15A.3: Public Consultation Summary

Stage	Form	By whom and for whom	Date	Location	World Bank Policy
First round	Questionnaire survey	Benxi PMO and the Bank for 149 local affected people	November 16-22, 2005	Benxi project areas	OP4.01
	Questionnaire survey	Dengta PMO and the Bank for 50 affected residents	November 2005	Dengta project areas	OP4.01
	Questionnaire survey	Fushun PMO and the Bank for 100 affected residents	August 30, 2005	Fushun project areas	OP4.01
	Public meeting	Jinzhou PMO and the Bank for 50 affected people	September 9, 2005	Jinzhou PMO office	OP4.01
	Questionnaire survey	Liaoyang PMO and the Bank for 100 affected people	August 1-5, 2005	Liaoyang project areas	OP4.01
	Public meeting	Panjin PMO and the Bank for 100 affected people	August 26 to Sept.5 2005	Panjin PMO office	OP4.01
Second round	Public meeting	Benxi PMO and the Bank for 68 local affected people	January 10, 2006	Benxi PMO office	OP4.01
	Public meeting	Dengta PMO and the Bank for 51 affected residents	January 12, 2006	Dengta PMO office	OP4.01
	Public meeting	Fushun PMO and the Bank for 50 affected residents	January 9, 2006	Fushun PMO office	OP4.01
	Public meeting	Jinzhou PMO and the Bank for 54 affected people	January 8, 2006	Jinzhou PMO office	OP4.01
	Public meeting	Liaoyang PMO and the Bank for 100 affected people	January 15, 2006	Liaoyang PMO office	OP4.01
	Public meeting	Panjin PMO and the Bank for 105 affected people	January 6, 2006	Panjin PMO office	OP4.01

Table A15.4: Information Disclosure Summary

No	Components	Newspapers	Date	Content	Contact Persons
1	Benxi	Benxi Daily	December 15, 2005	Brief description; major environmental impacts, benefits, invitation for public opinions	City PMO officials (with names and contact telephone numbers)
2	Dengta	Liaoyang Daily	January 12, 2006		
3	Fushun	Fushun Daily	January 12, 2006		
4	Liaoyang	Liaoyang Daily	January 13, 2006		
5	Jinzhou	Jinzhou Daily	January 13, 2006		
68	Panjin	Panjin Daily	November 30, 2005		

Public Consultation Process during Resettlement Planning

Bank guidelines, as well as national, provincial and municipal policies and regulations on land acquisition and demolition, require that the legal rights of displaced persons be protected. Accordingly, the project RAPs have been prepared after consultation with the affected persons. Tables A15.5 and A15.6 summarize the public participation process and the disclosure procedures for resettlement.

Table A15.5: Public Participation Process

Contents	Place	Participants	Method	Time Period						Conclusion
				Liaoyang	Panjin	Jinshou	Fushun	Dengta	Benxi	
Physical quantity investigation in project areas	Affected persons locus	PMO members, affected persons	interview	2005.6-8	2005.8	2005.8	2005.4-6	2005.6-7	2005.11	Data confirmed
Project area social economy situation investigation and compensation & resettlement intent				2005.6-8	2005.8	2005.8	2005.4-6	2005.7-8	2005.11	
Compensation and resettlement policy	Municipal PMO	PMO members, affected persons representatives	Workshop and discussion	2005.8	2005.9	2005.8	2005.1	2005.9	2005.11	
Resettlement plan				2005.8	2005.9	2005.8	2005.12	2005.1	2005.12	

Table A15.6: Disclosure Procedure for Resettlement

Topic/documents	Disclosure language and media	Disclosure Period						Remarks
		Liaoyang	Jinzhou	Panjin	Fushun	Dengta	Benxi	
Project introduction	Chinese; municipal radio stations and TV stations	October 2005	2005.7	2005.9	2005.12	2005.10	2005.12	
General introduction of project land acquisition	Chinese; municipal radio stations and TV stations		2005.10	2005.10	2005.12	2005.11	2005.12	
Municipal policies of land acquisition and house demolition	Chinese; municipal web sites	November 2005	2005.12	2005.12	2005.12	2005.12	2005.12	
Resettlement plan report disclosure	Chinese; municipal radio stations and TV stations, newspaper	Liaoyang Daily 2006. 1.12	Jinzhou Daily 2006. 1.13	Panjin Daily 2006. 1.11	Fushun Daily 2006 1.25	Liaoyang Daily 2006 1.12	Benxi Daily, 2006. 1.11	Residents committee
		PMO, library	PMO, library	PMO	PMO	PMO, library	Urban infrastructure construction office, Demolition department	
Resettlement plan booklets	Chinese; handouts to displaced persons	After Board approval						

Annex 16: Maps

CHINA: China-Liaoning Medium Cities Infrastructure Project

Map 1
CHINA AND LIAONING PROJECT AREA MAP (IBRD 34627)

Map 2
BENXI PROJECT SUMMARY MAP (IBRD 34670)

Map 3
DENGTA PROJECT SUMMARY MAP (IBRD 34629)

Map 4
FUSHUN PROJECT SUMMARY MAP (IBRD 34669)

Map 5
JINZHOU PROJECT SUMMARY MAP (IBRD 34668)

Map 6
LIAOYANG PROJECT SUMMARY MAP (IBRD 34667)

Map 7
PANJIN PROJECT SUMMARY MAP (IBRD 34628)

CHINA

LIAONING MEDIUM CITIES INFRASTRUCTURE PROJECT

PROJECT LOCATION AND CITIES

- PROJECT CITIES
- SELECTED CITIES AND TOWNS
- PROVINCE CAPITALS
- RIVERS
- PROVINCE BOUNDARIES
- INTERNATIONAL BOUNDARIES

120° E 122° E 124° E 126° E

This map was produced by the Map Design Unit of The World Bank. The boundaries, colors, denominations and any other information shown on this map do not imply, on the part of The World Bank Group, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries.

NEI MONGOL

JILIN

HEBEI

LIAONING

DEM. PEOPLE'S REPUBLIC OF KOREA

YELLOW SEA

Bo Hai

42° N

40° N

Kangping
Xifeng
Changtu
Kaiyuan
Faku
Tiefa
Zhangwu
Tieling
Qingyuan
Xinmin
Fushun IBRD 34669
SHENYANG
Xinbin
Beipiao
Heishan
Beizhen
Chaoyang
Yi Xian
Jianping
Tai'an
Dengta IBRD 34629
Panjin IBRD 34628
Liaoyang IBRD 34667
Benxi IBRD 34670
Huanren
Lingyuan
Jincheng
Anshan
Jinzhou IBRD 34668
Harqin
Dawa
Haicheng
Kuandian
Jianchang
Jinxi
Xingcheng
Yingkou
Fengcheng
Gai Xian
Suizhong
Xiuyan
Dandong
Donggou
Zhuanghe
Fu Xian
Xinjin
Jin Xian
Dalian

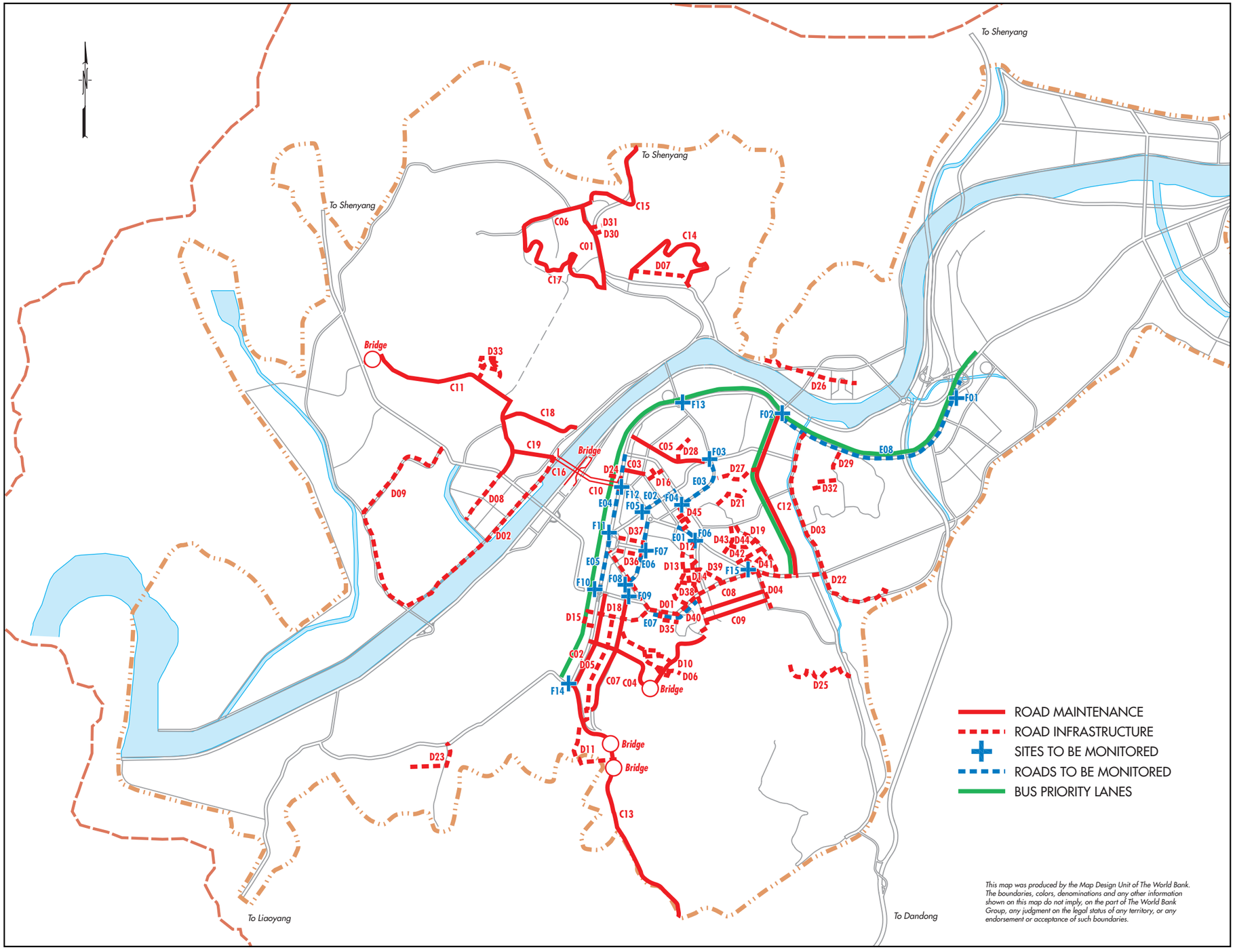
120° E 122° E 124° E

APRIL 2006

IBRD 34670

CHINA

LIAONING MEDIUM CITIES INFRASTRUCTURE PROJECT - BENXI



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INFRASTRUCTURE

No.	Name of Road	No.	Name of Road	No.	Name of Road
C01	Xihu Road Hexi Part	D01	Pingshan Road	D24	Yongxin 1 Road
C02	Jiefang 2 Road	D02	Binhebei Road	D25	Tianmen Road
C03	Xincheng Road	D03	Tangjia Road	D26	Yaoxi Road
C04	Huanshan Road	D04	Yingbin Road	D27	Wuan Road
C05	Xifen Road	D05	Fuqiang Road	D28	Xifang Road
C06	Liutang Road	D07	Minzhu Road	D29	Heshan Street
C07	Guangyu Road	D08	Zhongxing Road	D30	Tianqiao 1 Street
C08	Pingshanheng 3 Road	D09	Zhengjia Road	D31	Tainqiao 2 Street
C09	Pingshangeng 4 Road	D10	Zhuanshan Branch Road	D32	Hejin Street
C10	Beidi Bridge (Railway)	D11	Xibo Road	D33	Gaoshan Residential Street
C11	Shujing Road	D12	Yuandong Residential Street	D35	Qingrong Market Road
C12	Digong Road	D13	Xiyuan Road	D36	Shifunan Street
C13	Qianjin Road	D14	Xiyuanhuan Road	D37	Shifubei Street
C14	Houshi Road	D15	Fuli Street	D38	Guangming Road
C15	Xihu Road Houhu Part	D16	Hongguang Road	D39	Shifan 2 Street
C16	Beidi Bridge (River)	D18	Cuidong Road	D40	Liming Street
C17	Beishan Road	D19	Zidong Road	D41	Dongfeng Street
C18	Meitiejie Road	D21	Shuiyuan Road	D42	Dongguang Street
C19	Huazhong Road	D22	Yucai Road	D43	Xinwenjie Road
		D23	Fujin Road	D44	Gaozhong Residential Street
				D45	Lizhi Residential Street

TRAFFIC MANAGEMENT

No.	Monitor Road	No.	Monitor Intersection
E01	Dongming Road	F01	Xiaopu Traffic Post
E02	Shengli Road	F02	Xiangyangshan Traffic Post
E03	Shuita Road	F03	Xiaofang Traffic Post
E04	Jiefangbei Road	F04	Shuita Traffic Post
E05	Jiefangnan Road	F05	Wenhuagong Traffic Post
E06	Renmin Road	F06	Dongming Traffic Post
E07	Pingshan Road	F07	Shifu Traffic Post
E08	Yuming Road	F08	Tieluzhuanpan Traffic Post
		F09	Minsheng Traffic Post
		F10	Yongfengzhuanpan Traffic Post
		F11	Dasha Traffic Post
		F12	Beidi Traffic Post
		F13	Dongfenzhuanpan Traffic Post
		F14	Nandi Traffic Post
		F15	Qianjin Traffic Post

PUBLIC TRANSPORT

No.	Bus Priority Lane	No.	Bus Priority Lane

JUNE 2006

IBRD 34629

CHINA

LIAONING MEDIUM CITIES INFRASTRUCTURE PROJECT - DENGTA

ROAD INFRASTRUCTURE
ROAD MAINTENANCE
SITES TO BE MONITORED
ROADS TO BE MONITORED
BUS PRIORITY LANES

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INFRASTRUCTURE

No.	Name of Road	No.	Name of Road	No.	Name of Road
C01	Zaolin West Road	D01	Jianshe Street		
C02	Guangming Road	D02	Xinkai Road		
C03	Guangming Road	D03	Xingmin Road		
C04	Wenhua Street	D04	Xinkai Road		
C05	Wenhua Street	D05	Fanrong Street		
C06	Guangming South Road	D06	Fu Qinn Road		
C07	Tadong Street	D07	Tiexi Street		
C08	South Bridge	D08	Tiexi Street		

TRAFFIC MANAGEMENT

No.	Monitor Road	No.	Monitor Intersection

PUBLIC TRANSPORT

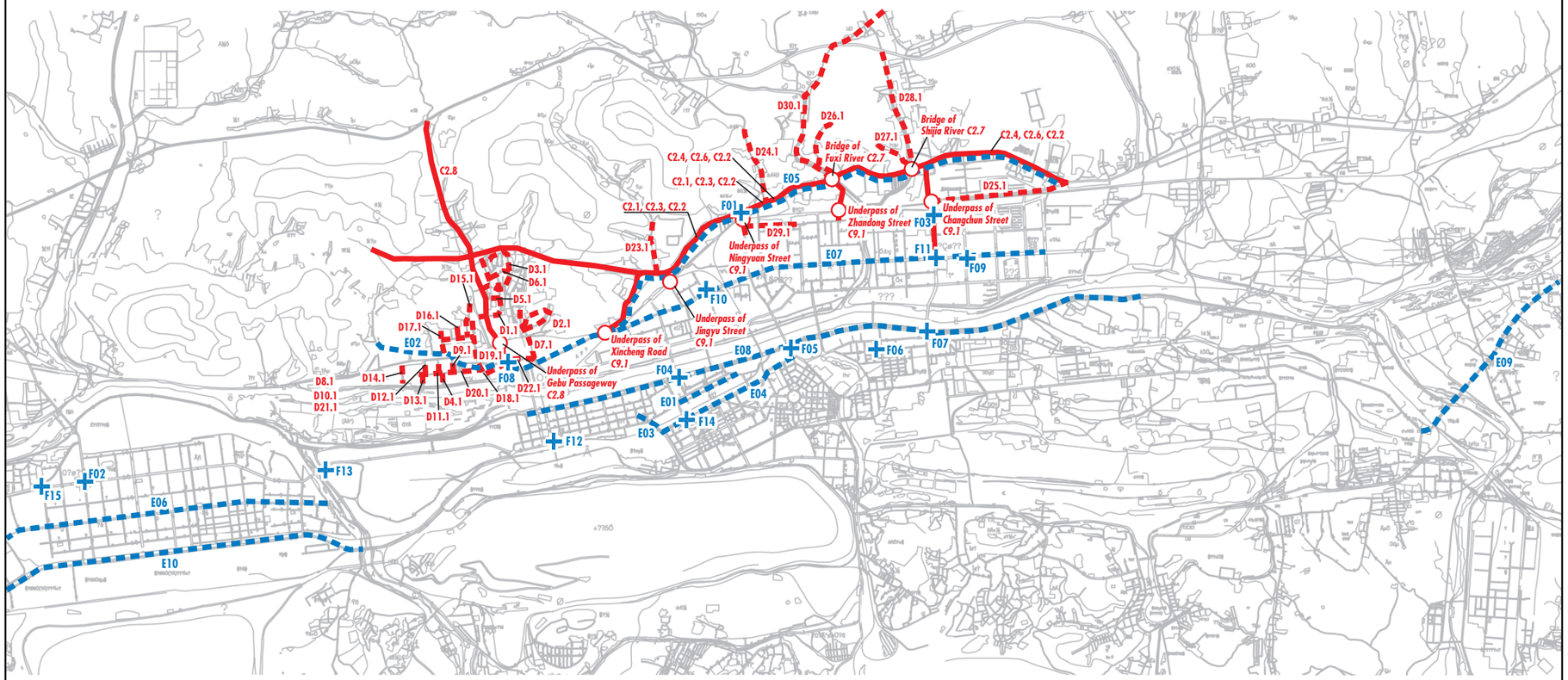
No.	Bus Priority Lane	No.	Bus Priority Lane

JUNE 2006

IBRD 34669

CHINA

LIAONING MEDIUM CITIES INFRASTRUCTURE PROJECT - FUSHUN



ROAD INFRASTRUCTURE
ROAD MAINTENANCE
SITES TO BE MONITORED
ROADS TO BE MONITORED
BUS PRIORITY LANES

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INFRASTRUCTURE

No.	Name of Road	No.	Name of Road
A2.2	Gaoshan Road Bus Bay (2)	D12.1	Xige Fourth Street
B4.2	Gaoshan Road Traffic Facilities (2)	D13.1	Xige Fifth Street
C2.4	Gaoshan Road (2)	D14.1	Xige Sixth Street
C2.5	Gaoshan Road Drainage Pipeline (2)	D15.1	Houge First Street
C2.6	Gaoshan Road Street Lights (2)	D16.1	Houge Second Street
C2.7	Gaoshan Road (Bridge)	D17.1	Houge Third Street
C2.8	Railway Underpass (Gaoshan Road)	D18.1	Gebu Middle Street
D1.1	Jiutai Street	D19.1	Gebu Rear Street
D2.1	Jiutai First Street	D20.1	Xige First Road
D3.1	Jiutai Sixth Street	D21.1	Geshan Road
D4.1	Jiutai South Street	D22.1	Gebu Road
D5.1	Jiutai South First Street	D23.1	Giangjun North Street
D6.1	Jiutai Middle Road	D24.1	Lingqian Street
D7.1	Gebu East Street	D25.1	Shuangyang South Road
D8.1	Dongge Spur Track	D26.1	East Day of FiXi River Rd.
D9.1	Xige First Street	D27.1	West Day of Shijia River Rd.
D10.1	Xige Secong Street	D28.1	East Day of Shijia River Rd,
D11.1	Xige Third Street	D29.1	Fushun Burgh Road
		D30.1	Hanjiang Road

TRAFFIC MANAGEMENT

No.	Monitor Road	No.	Monitor Intersection
E01	Yumin Road	F01	Gaoshan Road/Ningyuan Street
E02	Gebu Road	F02	Beizhen Street/Dandong Road
E03	Xiyi Road	F03	Changchun Street/Fushuncheng Road
E04	Dongyi Road	F04	South of Jinagjun Bridge
E05	Gaoshan Road	F05	South of Yang'an Bridge
E06	Heping Road	F06	Lichuan Road/Ankamg Street
E07	Xincheng Road	F07	South of Changchun Bridge
E08	South Hunhe Road	F08	Xincheng Road/Gebuqian Street
E09	Sui Hua Road	F09	Xincheng Road/Longcheng Street
E10	Anshan Road	F10	Xincheng Road/Liuhua Street
		F11	Xincheng Road/Changchun Street
		F12	Qianjin Road/Shiyidao Street
		F13	Yongyi Road/Anze Street
		F14	Xiyi Road/Xisan Street
		F15	Dandong Road/Kangping Street

PUBLIC TRANSPORT

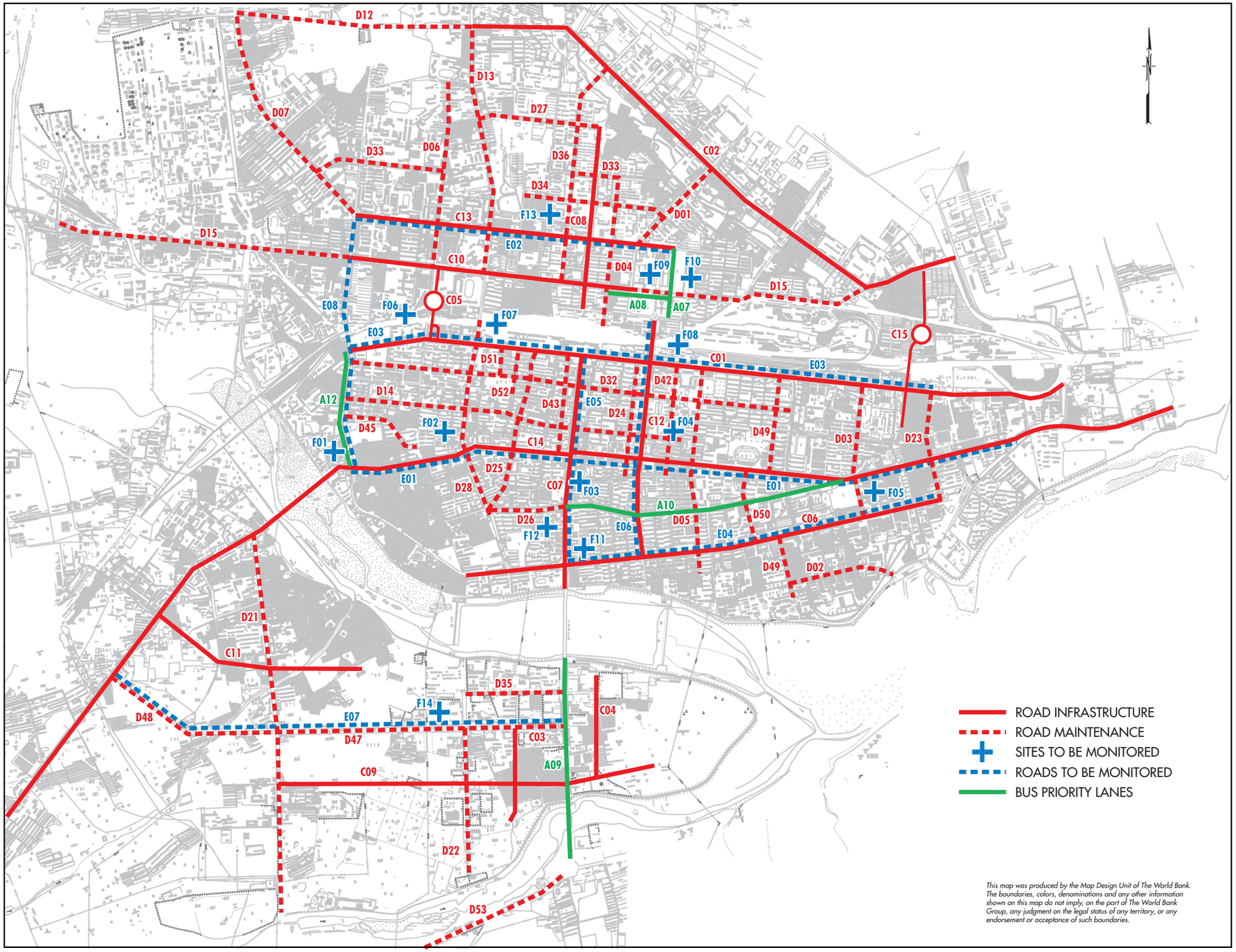
No.	Bus Priority Lane	No.	Bus Priority Lane

JUNE 2006

IBRD 34668

CHINA

LIAONING MEDIUM CITIES INFRASTRUCTURE PROJECT - JINZHOU



ROAD INFRASTRUCTURE
ROAD MAINTENANCE
SITES TO BE MONITORED
ROADS TO BE MONITORED
BUS PRIORITY LANES

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INFRASTRUCTURE

No.	Name of Road	No.	Name of Road	No.	Name of Road
C01	Yanan Road	D01	Jinyi Street	D32	Heping Road
C02	Songpo Road	D02	Nanyang Road	D33	Beian Road
C03	Wuhan Street	D03	Guizhou Street	D34	Beizhen Road
C04	Changsha Street	D04	Mingde Street	D35	Lingchuan Road
C05	Hankou Bridge	D05	Hangzhou Street	D36	Anda Street
C06	Nanjing Street	D06	Hankou Street	D42	Jingdong Street
C07	Zhongyang Street	D07	Jinchao Street	D43	Weidong Street
C08	Zhongyang North Street	D12	Songpo Road	D45	Jinyuan Road
C09	Keji Street	D13	Renmin Street	D47	Shifu Road
C10	Chongqing Road	D14	Yichang Road	D48	Shifu West Road
C11	Jinxing Street	D15	Chongqing Road	D49	Zhaodong Street
C12	Yunfei Street	D21	Lingxi Street	D50	Kuangshan Street
C13	Beijing Street	D22	Fuzhou Street	D51	Jinxi Street
C14	Jiefand Road	D23	Ziming Street	D52	Jiangxi Street
C15	Guangzhou Bridge	D24	Dandong Street	D53	Zhonghuan South Road
		D25	Jinhua Street		
		D26	Luoyang Road		
		D27	Beining Road		
		D28	Zhengzhou Street		

TRAFFIC MANAGEMENT

No.	Monitor Road	No.	Monitor Intersection
E01	Jiefang Road	F01	Jiefang Road/Shiying Sreet
E02	Beijing Road	F02	Jiefang Road/Renmin Street
E03	Yan'an Road	F03	Jiefang Road/Zhongyang Street
E04	Nanjing Road	F04	Jiefang Road/Zengzhou Street
E05	Yunfei Street	F05	Jiefang Road/Guizhou Street
E06	Zhongyang Street	F06	Yan'an Road/Yunfei Street
E07	Shifu Road	F07	Yan'an Road/Renmin Street
E08	Shiying Street	F08	Yan'an Road/Hankou Street
		F09	Chongqing Road/Limin Street
		F10	Chongqing Road/Aimin Street
		F11	Zhongyang Street/Nanjing Road
		F12	Zhongyang Street/Luoyang Road
		F13	Chengdu Street/Shifu Road
		F14	Beijing Road/Anda Street

PUBLIC TRANSPORT

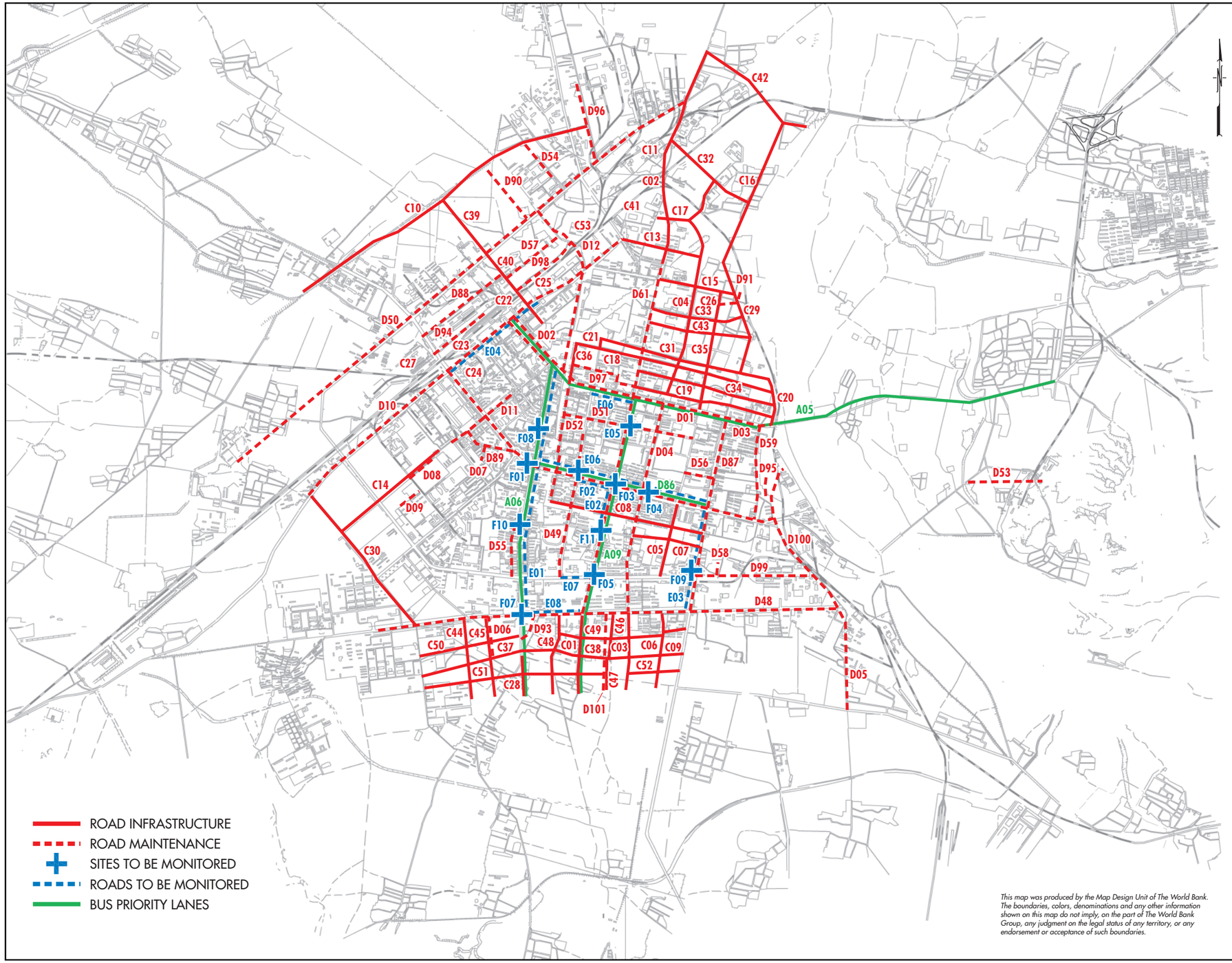
No.	Bus Priority Lane	No.	Bus Priority Lane
A07	Limin Street	A09	Zhongyang Street
A08	Aimin Street	A10	Luoyang Road
		A12	Shiying Road

JUNE 2006

IBRD 34667

CHINA

LIAONING MEDIUM CITIES INFRASTRUCTURE PROJECT - LIAOYANG



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INFRASTRUCTURE

No.	Name of Road	No.	Name of Road	No.	Name of Road
C01	Xinhua Road South Part	C27	Xuwangzi Pumping Sta.	D01	Zhonghua Street
C02	Xinhua Road North Part	C29	Wensheng Road	D02	Zhonghua Street
C03	Zhongxin Road South Part	C30	Qianjin Street	D03	Zhonghua Street
C04	Zhongxin Road North Part	C31	Shaobao Street	D04	Zhongxin Road
C05	Dongxing Road Middle Part	C32	Gongnong Street	D05	Jiancai Road
C06	Dongxing Road South Part	C33	Beixin Street	D06	Rendaqixiuchang Alley
C07	Xinxing Street	C34	Liudao Street	D07	Niuaichang Road
C08	Nanshuncheng Street	C35	Bongxing Road North Part	D08	Mianzuowei Road
C09	Sanli Street East Part	C36	Xinshuncheng Road	D09	Shierzhong Alley
C10	Shuangshu Road	C37	Sanli Street West Part	D10	Shengli Road
C11	Xinhua 6# Pumping Sta.	C38	Sanli Street Middle part	D11	Jiefang Road
C13	Beigong Street	C39	Xiaozhuang Road West Part	D12	Binhe Road South Part
C14	Jiefang Road	C40	Xiaozhuang Road East Part	D48	Nanjiao Street
C15	Beishao Street	C41	Beiyuang Bridge	D49	Wusheng Road
C16	Jiahe Road	C42	Wangshui Street	D50	Tiexi Road
C17	Xinzhong Street	C43	Hanjiahe Street	D51	Sandao Street
C18	Beishuncheng Street	C44	Nanchun Road	D52	Xishuncheng
C19	Wudao Street	C45	Tiyu Road	D53	Yongan Road
C20	Dongmen Road	C46	Houdi Road South Part	D54	Zhonglinzi Road
C21	Wusheng Road	C47	Houdi Road North Park	D55	Xiwenhua Road
C22	Xiaozhuang Bridge	C48	Xinsheng Road	D56	Sanyimiao
C23	Xuwangzi Bridge	C49	Huayuan Street	D57	Xiaozhuang St. West Part
C24	Shengli Bridge	C50	Bayi Street	D58	Caocangwei-Qingnian St.
C25	Xiaozhuang Pumping Sta.	C51	Linguang Street West Part	D59	Dongshuncheng
C26	Beishao Pumping Sta.	C52	Linguang Street East Part	D61	Xinhua Road
		C53	Beiyuan #2 Pumping Sta.	D87	Wensheng Road
				D88	Tiexiliangju Rd. West Part
				D89	Xiongjia Street
				D90	Qianjinhuagongchang
				D91	Beishuiyuan
				D93	Gopinwei
				D94	Tiexiliangku Rd. East Part
				D95	Zhongchangzhai
				D96	Jiancai Road
				D97	Wudao Street
				D98	Xiaozhuang Rd. East Part
				D99	Qingnian Street
				D100	Dongmen Road
				D101	Nanyuan Road

TRAFFIC MANAGEMENT

No.	Monitor Road	No.	Monitor Intersection
E01	Minzhu Road	F01	Xinyun Street/Minzhu Road
E02	Xinhua Road	F02	Xinyun Street/Wusheng Road
E03	Wensheng Road	F03	Xinhua Road/Xinyun Street
E04	Shengli Road	F04	Xinyun Street/Zhongxin Road
E05	Zhonghua Street	F05	Qingnian Street/Xinhua Road
E06	Xinyun Street	F06	Sandao Street/Xinhua Road
E07	Qingnian Street	F07	Nanjiao Street/Minzhu Road
E08	Nanjiao Street	F08	Tuanjie Street/Minzhu Road
		F09	Qingnian Street/Wensheng Road
		F10	Minzhu Road/Xinxing Street
		F11	Xinhua Road/Xinxing Street

PUBLIC TRANSPORT

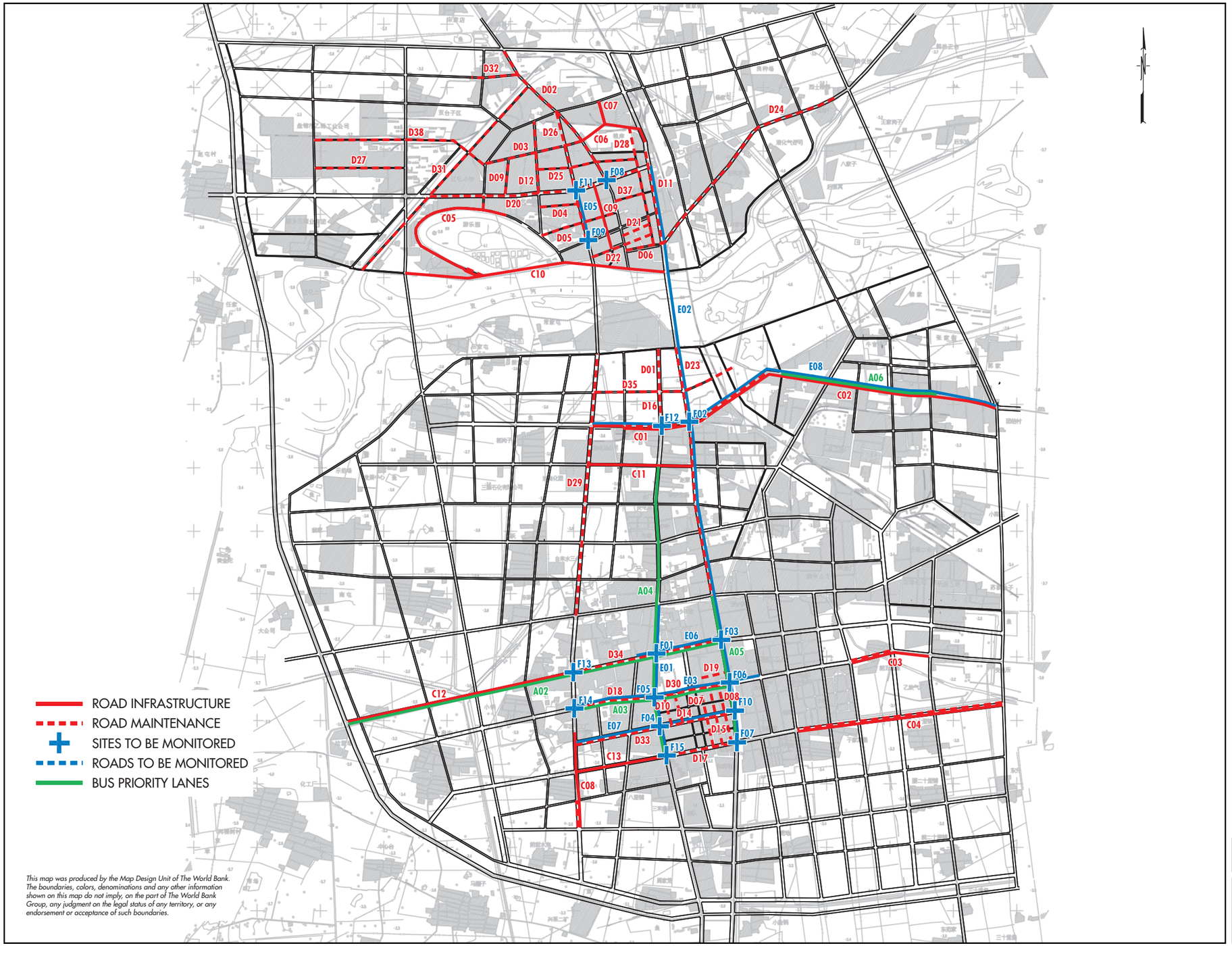
No.	Bus Priority Lane	No.	Bus Priority Lane
A05	Zhonghua Street	A09	Xinhua Road
A06	Minzhu Road	D86	Xinyun Street

JUNE 2006

IBRD 34628

CHINA

LIAONING MEDIUM CITIES INFRASTRUCTURE PROJECT - PANJIN



ROAD INFRASTRUCTURE
ROAD MAINTENANCE
SITES TO BE MONITORED
ROADS TO BE MONITORED
BUS PRIORITY LANES

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INFRASTRUCTURE

No.	Name of Road	No.	Name of Road	No.	Name of Road
C01	Xingong Street West Part	D01	Taishan Road North Part	D20	Tianhe Road South Part
C02	Xingong Street East Part	D02	Bohai Road	D21	Yanyang Street
C03	Shiyou Street	D03	Changzheng Street	D22	Xinhua Street
C04	Huibi Dong Street East Part	D04	Jingqi Street	D23	Shuangxing Street
C05	Hubin Road	D05	Xingnong Street	D24	Shenpan Road
C06	Changzheng Street	D06	Dongfeng Street	D25	Xiangyang Street
C07	Xinkaihe Road	D07	Hexiang Road	D26	Liaohe North Road
C08	Liaohe South Road	D08	Heji Road	D27	Dayanghe Road
C09	Limin Road	D09	Yanhu Road	D28	Yuhong Road
C10	Xindi Road	D10	Sidewalks at Song Jiang Road	D29	Liaohe South Road
C11	Gongye Street	D11	Shuangxing North Road	D30	Shiyou Street East Part
C12	Xinglongtai Street	D12	Lixian Road North Part	D31	Yitonghe South Road
C13	Huibin Street West Part	D13	Hongqi Street	D32	Yigong Street
		D14	Songyang Road	D33	Shifu Street
		D15	Hewu Road	D34	Xinglong Street
		D16	Taishan Road South Part	D35	Keji Street
		D17	Huibin Street	D36	Songlin Road
		D18	Shiyou Street	D37	Qianjin Street
		D19	Xingsi Street	D38	Fenggong Street

TRAFFIC MANAGEMENT

No.	Monitor Road	No.	Monitor Intersection
E01	Taishan Road	F01	Xinglong Street/Taishan Road
E02	Shuangxing Road	F02	Shuangxing Road/Xingong Street
E03	Shiyon Street	F03	Shuangxing Road/Xinglong Street
E04	Bohan Road	F04	Taishan Road/Shifu Street
E05	Liaohe Road	F05	Taishan Road/Shiyou Street
E06	Xinglong Street	F06	Shuangxing Road/Shiyou Street
E07	Shifou Road	F07	Shuangxing Road/Huibin Street
E08	Xinggong Street	F08	Hongqi Street/Bohai Street
		F09	Shengli Street/Liaohe Road
		F10	Shifu Street/Shuangxing Road
		F11	Liaohe Road/Hongqi Street
		F12	Taishan Road/Xingong Street
		F13	Xinglong Street/Liaohe Road
		F14	Shiyou Street/Liaohe Road
		F15	Huibin Street/Taishan Road

PUBLIC TRANSPORT

No.	Bus Priority Lane	No.	Bus Priority Lane
A02	Xinglong Street	A05	Shuangxing Road
A03	Shiyou Street	A06	Xingong Street
A04	Taishan Road		

JUNE 2006