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R2015-0237/1

December 2, 2015

Closing Date: Monday, December 21, 2015 at 6 p.m.

FROM: The Corporate Secretary

China - Tianjin Urban Transport Improvement Project

Project Appraisal Document

Attached is the Project Appraisal Document regarding a proposed loan to China for the Tianjin Urban Transport Improvement Project (R2015-0237), which is being processed on an absence-of-objection basis.

Distribution:
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Document of
The World Bank

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Report No: PAD1145

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF US$100 MILLION

TO THE

PEOPLE'S REPUBLIC OF CHINA

FOR A

TIANJIN URBAN TRANSPORT IMPROVEMENT PROJECT

November 24, 2015

Transport and ICT Global Practice
East Asia and Pacific Region

CURRENCY EQUIVALENTS
(Exchange Rate Effective September 18, 2015)

Currency Unit	=	RMB
RMB1.00	=	US$0.16
US$1.00	=	RMB6.36

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

ADM	Administrative Decision Making
BOQ	Bill of Quantities
CCTV	China Central Television
ChinaRAP	China Road Assessment Program
CPS	Country Partnership Strategy
DA	Designated Account
DRC	Development and Reform Commission
EA	Environmental Assessment
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EIRR	Economic Internal Rate of Return
EMP	Environmental Management Plan
EPB	Environmental Protection Bureau
ESMAP	Energy Sector Management Assistance Program
FM	Financial Management
FSR	Feasibility Study Report
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GOC	Government of China
GRS	Grievance Redress Service
IBRD	International Bank for Reconstruction and Development
ICB	International Competitive Bidding
IDA	International Development Association
IPF	Investment Project Financing
iRAP	The International Road Assessment Program
ITDP	Institute for Transportation & Development Policy
JingJinJi	Beijing-Tianjin-Hebei
kph	Kilometers per Hour
LA	Loan Agreement
M&E	Monitoring and Evaluation
MDTF	Multi Donor Trust Fund
MoT	Ministry of Transport
NCB	National Competitive Bidding
NPV	Net Present Value
O&M	Operation and Maintenance
PBS	Public Bike Sharing System

PDO	Project Development Objective
PDRC	Provincial Development and Reform Commission
PFD	Province Finance Department
PM	Particulate Matter
PMO	Project Management Office
PPP	Public-Private Partnership
RAP	Resettlement Action Plan
RPF	Resettlement Plan Framework
SA	Social Assessment
SOEs	Statement of Expenditures
SORT	Systematic Operations Risk-rating Tool
SS	Summary Sheets
TA	Technical Assistance
TCC	Tianjin Construction Commission
TMAO	Tianjin Municipal Audit Office
TMFB	Tianjin Municipal Finance Bureau
TMG	Tianjin Municipal Government
TOD	Transit-Oriented-Development
TOR	Terms of Reference
TransFORM	China Transport Transformation and Innovation Knowledge Platform
TUCC	Tianjin Urban-rural Construction Commission
TUDEP	Tianjin Urban Development and Environment Project
VOC	Vehicle Operating Costs
WAs	Withdrawal Applications
WB	World Bank

Regional Vice President:	Axel van Trotsenburg, EAPVP
Country Director:	Bert Hofman, EACCF
Senior Global Practice Director:	Pierre Guislain, GTIDR
Practice Manager/Manager:	Michel Kerf, GTIDR
Task Team Leader:	Gerald Paul Ollivier, GTIDR

CHINA
Tianjin Urban Transport Improvement

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PAD DATA SHEET

China

Tianjin Urban Transport Improvement Project (P148129)

PROJECT APPRAISAL DOCUMENT

EAST ASIA AND PACIFIC

0000009381

Report No.: PAD1145

Basic Information			
Project ID	EA Category		Team Leader(s)
P148129	B - Partial Assessment		Gerald Paul Ollivier
Lending Instrument	Fragile and/or Capacity Constraints [ ]		
Investment Project Financing	Financial Intermediaries [ ]		
	Series of Projects [ ]		
Project Implementation Start Date	Project Implementation End Date		
31-Jan-2016	30-Sep-2020		
Expected Effectiveness Date	Expected Closing Date		
01-Jul-2016	31-Mar-2021		
Joint IFC			
No			
Practice Manager/Manager	Senior Global Practice Director	Country Director	Regional Vice President
Michel Kerf	Pierre Guislain	Bert Hofman	Axel van Trotsenburg

Borrower: People's Republic of China							
Responsible Agency: Tianjin PMO							
Contact:	Qi Wenjie			Title:	Director		
Telephone No.:	86-22-23191560			Email:	tjpmo123@163.com		

Project Financing Data(in USD Million)					
[X] Loan	[ ] IDA Grant	[ ] Guarantee			
[ ] Credit	[ ] Grant	[ ] Other			
Total Project Cost:	224.27		Total Bank Financing:	100.00	
Financing Gap:	0.00				

Financing Source	Amount
Borrower	124.27
International Bank for Reconstruction and Development	100.00
Total	224.27

Expected Disbursements (in USD Million)

Fiscal Year	2017	2018	2019	2020	2021	0000	0000	0000	0000	0000
Annual	5.00	20.00	25.00	30.00	20.00	0.00	0.00	0.00	0.00	0.00
Cumulative	5.00	25.00	50.00	80.00	100.00	0.00	0.00	0.00	0.00	0.00

Institutional Data

Practice Area (Lead)

Transport & ICT

Contributing Practice Areas

Cross Cutting Topics

[ ] Climate Change

[ ] Fragile, Conflict & Violence

[ ] Gender

[X] Jobs

[ ] Public Private Partnership

Sectors / Climate Change

Sector (Maximum 5 and total % must equal 100)

Major Sector	Sector	%	Adaptation Co-benefits %	Mitigation Co-benefits %
Transportation	Urban Transport	100		100
Total		100		

☐ I certify that there is no Adaptation and Mitigation Climate Change Co-benefits information applicable to this project.

Themes

Theme (Maximum 5 and total % must equal 100)

Major theme	Theme	%
Urban development	City-wide Infrastructure and Service	100

	Delivery	
Total		100

Proposed Development Objective(s)

The PDO is to leverage the Tianjin metro system and to promote walking and biking in the urban core (in Heping and Nankai) in order to make transport greener and safer in Tianjin and draw lessons for other large cities.

Components

Component Name	**Cost (USD Millions)**
Green Transport Improvement in Heping and Nankai Districts	89.48
Metro Access Improvement	89.05
Public Bike Sharing System (PBS) Pilot	23.14
Bus Terminal Development	15.99
Technical Assistance	2.90

Systematic Operations Risk- Rating Tool (SORT)

Risk Category	**Rating**
1. Political and Governance	Low
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Substantial
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	Moderate
7. Environment and Social	Moderate
8. Stakeholders	Moderate
9. Other	
OVERALL	Substantial

Compliance

Policy

Does the project depart from the CAS in content or in other significant respects?	Yes [ ]	No [X]
Does the project require any waivers of Bank policies?	Yes [ ]	No [X]
Have these been approved by Bank management?	Yes [ ]	No [ ]
Is approval for any policy waiver sought from the Board?	Yes [ ]	No [X]

Does the project meet the Regional criteria for readiness for implementation?	Yes [X] No [ ]

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	X	
Natural Habitats OP/BP 4.04		X
Forests OP/BP 4.36		X
Pest Management OP 4.09		X
Physical Cultural Resources OP/BP 4.11	X	
Indigenous Peoples OP/BP 4.10		X
Involuntary Resettlement OP/BP 4.12	X	
Safety of Dams OP/BP 4.37		X
Projects on International Waterways OP/BP 7.50		X
Projects in Disputed Areas OP/BP 7.60		X

Legal Covenants

Name	Recurrent	Due Date	Frequency
Institutional Arrangements	X		CONTINUOUS

Description of Covenant

Project Agreement (PA), Schedule, Section I A. Tianjin Municipality shall, throughout implementation, maintain the Project Management Office, with composition, powers, functions, staffing, facilities and other resources satisfactory to the Bank, to be responsible for the overall coordination, management and supervision of the Project.

Name	Recurrent	Due Date	Frequency
Annual Work Plans	X		Yearly

Description of Covenant

PA, Schedule, Section I.C: Tianjin Municipality shall prepare and furnish to the Bank by September 30 in each year, beginning in 2016, a draft Annual Work Plan for review and comment, summarizing the implementation progress of the Project for the said year and the Project activities to be undertaken for the following calendar year, including the proposed annual budget for the Project.

Name	Recurrent	Due Date	Frequency
Safeguards	X		CONTINUOUS

Description of Covenant

PA, Schedule, Section I.D: Tianjin Municipality shall implement the Safeguards Instruments (RPF and EMP) in a manner and substance satisfactory to the Bank.

Name	Recurrent	Due Date	Frequency
Mid-term review		30-Nov-2018	

Description of Covenant

PA Schedule, Section II A. 2. Tianjin Municipality shall prepare, under terms of reference satisfactory to the Bank, and furnish to the Bank a consolidated mid-term review report for the Project, summarizing the results of the monitoring and evaluation activities carried out from the inception of the Project, and setting out the measures recommended to ensure efficient Project completion.

Team Composition

Bank Staff

Name	Role	Title	Specialization	Unit
Gerald Paul Ollivier	Team Leader (ADM Responsible)	Senior Infrastructure Specialist		GTIDR
Guoping Yu	Procurement Specialist	Senior Procurement Specialist		GGODR
Haixia Li	Financial Management Specialist	Sr Financial Management Specialist		GGODR
Alejandro Alcala Gerez	Counsel	Senior Counsel		LEGES
Aristeidis I. Panou	Team Member	Counsel		LEGOP
Artessa Saldivar-Sali	Team Member	Municipal Engineer	Disaster Risk Management	GSURR
Arturo Ardila Gomez	Peer Reviewer	Lead Transport Economist		GTIDR
Binyam Reja	Team Member	Lead Transport Specialist	Cluster Leader	GTIDR
Camila Rodriguez Hernandez	Peer Reviewer	Senior Infrastructure Specialist		GTIDR
Ellen Hamilton	Peer Reviewer	Lead Urban Specialist		GSURR
Felipe Targa Rodriguez	Peer Reviewer	Sr Urban Transport Spec.		GTIDR
Geoffrey John Kurgan	Team Member	E T Consultant	road safety expert	GTIDR
Georges Bianco Darido	Peer Reviewer	Lead Urban Transport Specialist		GTIDR
Ke Fang	Peer Reviewer	Lead Transport Specialist		GTIDR
Meixiang Zhou	Safeguards Specialist	Social Development Specialist	Social Safeguards	GSURR

Monica Sawyer	Peer Reviewer	Operations Officer		GTIDR
Peishen Wang	Safeguards Specialist	Consultant	Environmental Safeguards	GEN02
Shuai Ren	Team Member	E T Consultant	Urban Planning	GTIDR
Weimin Zhou	Team Member	Transport Specialist	Co-Team Leader	GTIDR

Extended Team

Name	Title	Office Phone	Location
Chuntai Zhang	Economist Consultant		Beijing
Ewald Anthonie Jan Venhoeven	Urban Planning Consultant		Washington DC
Greg Smith	Regional Director		
Haixiao Pan	transport consultant		
Hongwei Dong	Transport Planning Consultant		Washington DC
Hongye Fan	Transport Consultant		Beijing
Huixuan Li	Urban Designer Consultant		Beijing
Jiayi Zhao	Urban Planning Consultant		Beijing
Li Qu	Transport Consultant		Washington DC
Peishen Wang	Environment Consultant		Winnipeg
Rajagopal S. Iyer	Consultant, GSURR		
Serge Salat	Consultant, Urban Planning, Architecture		Paris
Shen Qu	Urban Planning Consultant		Beijing

Locations

Country	First Administrative Division	Location	Planned	Actual	Comments
China	Tianjin Municipality	Heping and Nankai Districts		X	

Consultants (Will be disclosed in the Monthly Operational Summary)

Consultants Required? Consultants will be required

I. STRATEGIC CONTEXT

A. Country Context

1. Over the past three decades, rapid economic development in China, supported by steady urbanization, has lifted more than 500 million people out of poverty. Urbanization created a supportive environment for growth with abundant labor, cheap land and good infrastructure. The urbanized population grew from 30 percent in 1996 to 54.8 percent in 2014. Such urbanization is anticipated to continue for the next two decades with an expected one billion urban residents in China by 2030.

2. While China has avoided some of the common ills of urbanization, notably slums and urban unemployment, strains such as urban sprawl, environmental pollution and social inequities have emerged, calling for a paradigm shift in the overall urbanization approach. China's leadership has recognized such challenges and has launched a new model of urbanization for the period 2014-2020. The formulation of this model built on a wide range of international and national experiences such as the findings of the joint World Bank and the China Development Research Center *Urban China*[1] report, recognizing that the way China manages the next wave of urbanization will be an important determinant of the country's success.

3. As one of the four Municipalities directly under the Central Government and a core growth area in the Beijing-Tianjin-Hebei (Jing-Jin-Ji) region, Tianjin is expected to play a leading role in applying such new concepts and recommendations and, in the process, become a model for other cities to replicate. Tianjin is a renowned historic port-city, experiencing rapid economic and population growth as well as urbanization. The municipality spreads over a total area of 11,916 km2, with a total population of 15.2 million and a GDP per capita of US$16,718 in 2014, concentrated in two main urban centers, a central city of 5.1 million people over 334 km2 and a new urban area (Binhai) with 1 million people over 270 km2. Based on the 2015 Beijing-Tianjin-Hebei (Jing-Jin-Ji) Program of Collaborative Development [the Program], Tianjin is positioned as the 'national base of advanced manufacturing and R&D, core zone of international shipping, demonstration zone of financial innovation, and piloting zone of reform and opening'.

4. The Program places a special emphasis on integrated land use planning, economic development and transport planning, on environmental protection and on industrial upgrading. It sets out a framework to integrate Tianjin systematically with Beijing and Hebei, leveraging integrated transport infrastructure, and in particular on recently built high speed rail connections. The Program seeks to reduce the heavy air pollution[2] impacting the Beijing-Tianjin-Hebei region in terms of particulate matter and greenhouse gas emissions with ambitious reduction targets for 2017. The Program also gives Tianjin an opportunity to further develop and attract major research and development activities as well as innovative financial services.

[1] World Bank; Development Research Center of the State Council, the People's Republic of China. 2014. Urban China: Toward Efficient, Inclusive, and Sustainable Urbanization. Washington, DC: World Bank. © World Bank. https://openknowledge.worldbank.org/handle/10986/18865 License: CC BY 3.0 IGO.

[2] About 66 percent of days with air quality below requisite standards in the second half of 2013 (Ministry of Environmental Protection), with transport as one of the major contributors.

5. Within Tianjin, the Districts of Nankai and Heping are well positioned to lead such transformation, considering the economic base on which they can build. These districts are two of the most important economic areas in the central city, endowed with historical heritage, developed services and commercial activities, and a dense mixed use space concentrating over 763,000 jobs and a population of 1.5 million, with a wide range of income levels. Heping District is the city center for business offices, education and health care and includes a network of small streets from the concession period. Nankai District is an important birth place of China's northern culture, with renowned historic and cultural resources, and hosts a diverse range of businesses. Nankai and Heping Districts directly influence the competitiveness of Tianjin as the economic heart of the central city, accessible by residents through multiple metro lines and by the rest of China through two nearby high speed rail stations.

6. The transformation of Nankai and Heping Districts as modern central urban areas is however slowed by a city design that prioritized car movement over people mobility and accessibility. This has led to a fragmented urban space with reduced accessibility to and within those districts, lowering the effectiveness of past infrastructure investments, as is the case with many central urban areas in China. The two districts aim to address these challenges through their economic and urban renewal strategies.

B. Sectoral and Institutional Context

7. **Urbanization and urban sprawl in China have been accompanied by deep changes in the overall travel patterns of urban residents.** Cities have rapidly spread out as a result of increased real estate costs, incentives for cities to convert rural land in peri-urban areas to urban land, and improved road infrastructure. This was accompanied by rapid motorization with a 25 percent annual growth in private cars (reaching 126 million in 2014 nationwide), increase in distances travelled and a steady decline in the percentage of biking and walking trips.

8. Tianjin experienced such changes between 1993 and 2011, although its dense, mixed use urban center allowed it to retain a healthy level of walking and biking trips. Based on comprehensive transport surveys in the central city[3], trips lengthened from 4.2 km to 4.8 km and the number of trips increased by 20 percent. Non-work, school or business related trips increased substantially from 27 percent to 50 percent bringing more dynamic factors in daily travel demand. Private vehicle trips grew from 2.4 percent to 13.4 percent. The two active transport modes, biking and walking, saw their combined mode share drop from a high level of 90.5 percent to 70.6 percent, a level that remains high compared with other cities in China in part due to the still relatively shorter distances travelled in Tianjin (4.8 km) compared to some of the other large cities. Public transport, walking and biking remain the primary transport modes for lower income groups in Tianjin.

9. **Rapid motorization has brought about a range of adverse economic, environmental and social impacts, including increased traffic congestion, air pollution, fossil fuel consumption, greenhouse gas emissions and road accidents**. The city urban design gave growing priority to cars in the streetscape. By the end of 2014, private car ownership reached 2.4 million in Tianjin, trebling since 2006. This led to a deterioration in the quality of the urban

[3] Defined as the area within the outer ring road.

space and the overall city image.[4] Congestion is severe[5] and has worsened in recent years, with cars operating at an average speed of 22 kph in 2012 during morning peak hour, a drop of 7 percent compared to 2011. Motorization directly impacts people's health, both in the long term and the short term. Road traffic accounts for 20 percent of PM2.5 pollutant and about 6.3 people die in traffic accidents per 100,000 people each year in Tianjin,[6] one of the highest levels in China (ninth out of 32 province-level administrative units). In addition car-focused urban design has started to have an impact on the level of obesity in urban environment by reducing the use of active transport modes like walking or biking, with the odds of being obese being 80 percent higher for Chinese adults who own a motorized vehicle compared to those who do not.[7]

10. **Lack of transport integration has led to an underutilization of major public transport investments.** Tianjin's four metro lines, with a total length of 135 km, are underutilized. Metro rail daily ridership was only 0.8 million in 2013, only 1/13 of Beijing and 1/10 of Shanghai, while Tianjin metro rail length is between 1/3.5 and 1/4 of the metro rail length in Beijing and Shanghai respectively. A satisfaction survey of metro passengers identified the least satisfactory factors as: limited safe space for bike parking, poor transfers and connections between buses and metro stations, and lack of parking facilities. Since 76 percent of passengers access metro stations by walking, 5 percent by biking and 9 percent by bus, the quality of connections has had a direct impact on ridership. Such concern is exacerbated for some of the newly developed areas and for suburban residential communities located too far away from metro stations to be accessible by walking, for which access to stations by car, bus or bike is the mandatory last or first leg of the trip.

11. For bus transport, coverage, quality of services and integration remain challenging. Tianjin Bus Company operates more than 543 bus routes in the urban area, with 7,620 buses. The bus coverage ratio (500 meters) of 71 percent is below that of other large cities (90 percent). Average speed is low at 9 to 13 kph in mixed traffic and 15 kph on bus lanes with enforcement. The development of bus terminals and bus parking is lagging behind with only 68 percent of buses having overnight parking spaces and several key bus-rail interchange and car parking facilities missing, in particular in the outskirts of Tianjin. This incomplete system undermines connection between origins and destinations using public transport.

12. **With cars claiming a growing share of the street space, the walking and biking environment is rapidly deteriorating.** A road risk assessment conducted using the iRAP methodology as part of project preparation[8] highlighted the overall poor environment for walking and biking in terms of sidewalks, bikeways and crossings, including insufficient width, lack of separation, and vehicles using the space reserved for walking and biking. In Nankai and Heping Districts, a survey found that more than 50 percent of bike lanes were occupied by illegal

[4] World Bank. 2014. Tianjin TOD Urban Design (MDTF on Sustainable Urbanization).
[5] According to the GPS service provider TomTom, among the cities it provides results for, Tianjin is ranked as the second most congested city in China.
[6] China Communication Press. 2013. Blue Book of Road Safety.
[7] Preventive Medicine. 2014. Walking, Obesity and Urban Design in Chinese Neighborhoods, by Mariela Alfonzo and al.
[8] The International Road Assessment program (iRAP) is a program to assess road infrastructure safety risks. It is implemented in China with the Research Institute of Highway and the Ministry of Transport road with the support of the Bloomberg Philanthropies and the World Bank Global Road Safety Facility.

parking, and 40 percent of sidewalks were less than two meter wide. On average 2,070 road accidents took place each year on the 42 streets to be improved by the project, including 420 involving bikes and pedestrians. While both districts include a number of high quality areas for pedestrians, the overall pedestrian and bike networks in these two districts is fragmented, making trips between these areas and other main points of interests both hazardous and unattractive.

13. **In recent years, the national government and many cities have engaged in a strategic shift in their urban transport investments towards public transport, walking and biking**. To support greener mobility and promote more inclusive development, the China State Council adopted public transport as a national policy priority, through a December 29, 2012 directive on the Prioritization of Urban Public Transport Development. The State Council reinforced such emphasis as part of the Air Pollution Prevention and Control Plan (2013) which identifies the following key actions to prevent and control mobile pollution sources: 'Prioritize public bus, increase the proportion of public transport and upgrade the pedestrian and public bike system'. The combination of public transport, walking and biking ensures that long distance mobility and accessibility options are available to all members of society, in a way that minimizes negative impacts in line with recommended global strategies.[9] It also supports a more vibrant urban life, pulsing with energy and activity, with many opportunities for people to people interactions at the neighborhood level, a necessary feature in large competitive cities.

14. To implement such policies, the Government of China (GOC) is actively promoting a more comprehensive approach for urban transport management that goes beyond supply-side options, through a number of ongoing initiatives. The first is the Ministry of Transport's (MOT) *Transit Metropolis Demonstration Project*, whereby 37 cities, including Tianjin, have been chosen to pilot strategies on public and non-motorized transport priority schemes, travel demand management, and transit-oriented development patterns. The second initiative is a National Walking and Cycling Transport System Demonstration program in place since 2010. On December 31, 2013, the Ministry of Housing and Urban-Rural Development issued Guidelines for Urban Pedestrian and Bicycle Transportation System Planning and Design, the first national-level policy document of its kind in the field in China, and proposed to designate 100 pilot projects by 2015, to create momentum for this initiative.

15. **Tianjin has worked on such a shift towards integrated transportation and public transport as part of its 12th Five Year Plan.** Tianjin is currently engaged in eight related plans to address the challenges outlined above. Tianjin plans to build an efficient, convenient, safe, green and integrated transport system, leveraging a combination of public transport (with metro as its backbone, supported by the public bus system), walking and biking. The implementation of these plans seek to ensure that public transport offers coverage at 500 meters for 80 percent of the population in central areas and 60 percent in peripheral areas, with 60 percent of motorized travel by public transport and travel within the city in less than 45 minutes. In parallel, the Tianjin government approved a detailed Tianjin Congestion Mitigation Plan in 2013 covering a broad range of measures to pull traffic to public transport, walking and biking, while discouraging the use of cars. The Tianjin government started a car plate restriction policy in December 2013 and launched an on-road car restriction mechanism in March 2014 to ease congestion, which was effective in curbing the number of new cars in 2014. The 12th Five Year

[9] Urban Mass Transport Infrastructure, World Bank and ADB Joint Report to G20, 2012.

Plan included major investments in urban infrastructure with a significant portion to improve public transport. Tianjin invested RMB151 billion in urban infrastructure and transport development in 2013, while total municipal fiscal expenditure in transport was RMB8 billion.

16. Such shift is however complex to implement in practice since it requires coordinated actions across multiple agencies as well as close engagement with practitioners and citizens at both a strategic and implementation level. Tianjin currently lacks a systematic long-term green transport development plan meshing the respective sector plans together. Through the project, it seeks to design, pilot, evaluate, adjust and scale up a range of priority activities requiring active interagency coordination and addressing issues raised by users. In the process, Tianjin seeks experience from leading cities in designing and implementing such solutions. Tianjin also sees the need to raise public awareness and engage with its citizens to develop a buy-in for such a shift. By implementing a combination of these activities, Tianjin will be well positioned to prepare a green transport development plan[10], building on other plans under implementation while addressing gaps identified through the pilots.

17. Tianjin seeks to implement a number of innovative solutions through the project at different scales. These solutions have been endorsed as priorities in existing plans and are expected to have a high impact. At a network level, Tianjin seeks to improve bike, bus and car access to stations, combined with adjustments to bus routes and service integration[11] to increase public transport ridership and contribute to a lower carbon transport solution. At a neighborhood level, it seeks to reprioritize biking and walking across a large area, as part of an effort to increase urban vibrancy and encourage low carbon mobility. In terms of specific solutions, it aims to test the applicability of public bike sharing combined with the metro system in Tianjin, and to develop a parking management improvement scheme to encourage cars to use off-street parking in a central area, while exploring multi-channel financing options for urban transport.

18. Urban transport in China takes place in an institutional environment with substantial fragmentation in mandates. The Urban Construction Bureau is in charge of transport infrastructure construction within the urban area; the Transport Bureau is responsible for rural transport infrastructure and passenger transport service management; responsibility for land use planning rests in the Planning Bureau and in the Land Resource Bureau; and the Traffic Police is responsible for road traffic management. This has led to mismatches between land use planning and transport planning, and between urban infrastructure construction and operation. An increasing number of large Chinese cities have recognized the impact of such institutional obstacles and some of them have formed comprehensive transport commissions responsible for the overall planning, construction and operation of urban transport. Tianjin is currently evolving in this direction. In 2014, the Tianjin Transport Commission was formed to coordinate urban transport planning and be responsible for urban transport operations. Institutional fragmentation will likely remain one of the main challenges in urban transport in China in the near future, improving gradually as sector reform take place at the national and city levels.

[10] Such vision and plans are essential to sustainable urban mobility as per the World Bank and ESMAP (2014). Formulating an Urban Transport Policy. Choosing between Options.
[11] Bus route adjustment and service integration are being carried out through parallel plans.

C. Higher Level Objectives to which the Project Contributes

19. The proposed project is aligned with the 2013-2016 World Bank Group Country Partnership Strategy (CPS) for China, dated October 11, 2012. The 2013-2016 CPS focuses on three main pillars: support greener growth, promote more inclusive development, and advance mutually beneficial relations with the world. The CPS is aligned with China's 12th Five-Year Plan. The proposed project supports the CPS pillars for greener growth and inclusive development, as well as the CPS sector objective of promoting low carbon urban transport.

20. The project supports the World Bank's goal of boosting shared prosperity. Based on the Tianjin statistical yearbook, people with an income level below RMB23,259 per annum are in the bottom 40 percent in Tianjin. Based on a survey by Nankai University, over 65 percent of bottom 40 percent households walk or bike for their trips compared to about 30 to 35 percent for higher income groups. Public transport is used actively by all groups except for the highest income group (over RMB15,000 per month). Over 70 percent of trips of the bottom 40 percent are below 5 km and 1 hour and are substantially shorter than that of higher income groups. About 44 percent of the extreme poor (i.e., those with an annual income below RMB7,860) live in the six central districts.

21. The project will impact both long distance and short distance accessibility of the bottom 40 percent. Since the mass transit system covers the core districts in Tianjin, where major hospitals, universities, schools, parks, and jobs are located, the proposed project will benefit the bottom 40 percent by providing a cost-efficient solution to move within the city of Tianjin and access jobs and public services, while reducing traffic congestion. By improving the walking and biking environment, the project will particularly benefit the bottom 40 percent.

22. The project also supports the higher goal of enhancing the urban vibrancy in Tianjin, through a series of integrated transport intervention. As part of the Jing-Jin-Ji Program, Tianjin seeks to create an urban environment that can attract a creative class of young professionals to support the development of innovative services in finance, research and development. The Heping and Nankai Districts, which have been selected as green transportation improvement pilots under the project, seek to create such an environment as part of their broader urban renewal strategies. In both districts, the project will improve the greening of key roads and interchanges to promote a more livable, functional and orderly city center, where people want to live, work, play and shop.

23. Tianjin's experiences and lessons in urban transport are valuable for other Chinese cities. A number of ideas with potential for replication will be pursued under the project, in particular: improving the walking and biking environment in Nankai and Heping Districts, which will have an impact on urban regeneration; leveraging major metro investments through better access within one mile of stations; improving safety of access roads to the mass transit system; applying transit oriented development and land value capture concepts around at least one bus station; and rolling out a pilot public bike sharing system (PBS). Such topics have high relevance for many other Chinese cities, and the project will contribute the lessons learned to other cities using different tools like TransFORM, a collaborative transformation and innovation knowledge platform between the Ministry of Transport and the Bank, to make transport safer, cleaner and more affordable in China.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

24. The PDO is to leverage the Tianjin metro system and to promote walking and biking in the urban core (in Heping and Nankai) in order to make transport greener and safer in Tianjin and draw lessons for other large cities.

B. Project Beneficiaries

25. The main project beneficiaries are the residents in the catchment areas of metro stations and of the public bike sharing system (about 70 percent of the Central Tianjin[12]) who walk, bike or travel by public transport on work days. An estimated 2.8 million trips will benefit from such improvement every day[13] with about 220,000 trips experiencing quantifiable benefits. Women would especially benefit from the safety and convenience improvement supported under the project. The project will in particular benefit the bottom 40 percent in Tianjin, by improving the modes they use most frequently to access jobs and services. It would also enhancing transfer points in the outer parts of Tianjin, where new communities, which would otherwise rely on car transport, are being developed. The metro and bus companies will benefit from higher ridership, improving the financial performance of their existing investments.

26. The Districts of Nankai and Heping are expected to become even more attractive for people as well as for businesses and retailers as a result of the project, in support of their urban renewal strategy and of their plan to play a major role in the Jing-Jin-Ji Program. The project will also increase the overall city wide access to the two districts through the metro system and improve the local level environment for walking and biking. Results achieved through the green transport improvement pilots in the two districts will be monitored and shared with other districts to facilitate replication.

C. PDO Level Results Indicators

27. Achievement of the PDO will be measured through the following key performance indicators:

(a) Increase in metro ridership (trips);
(b) Increase in walking and biking trips (trips);
(c) GHG emission reductions (tons);
(d) Reduction in accidents (number); and
(e) System of detailed performance evaluation with citizen engagement (both men and women) in place for specific pilots (number of sites).

[12] Tianjin Central Area is defined as an urbanized area of about 176 square kilometers with a population of 4.9 million.
[13] Including trips using one of 111 improved access to metro station access, trips in the Heping and Nankai districts, trips using the Public Bike Sharing System, and trips through new bus terminals.

III. PROJECT DESCRIPTION

A. Project Components

28. The Project consists of five closely related components to achieve the overall objective: Component 1 focuses on walking and biking improvements within the urban center; Component 2 focuses on accessibility improvements to the mass transit system; Component 3 establishes a pilot for a Tianjin public bike sharing system (PBS); Component 4 focuses on the construction of bus terminals/parking facilities close to metro stations in underserved areas; and Component 5 includes all technical assistance activities and will support the development of such replication approach. Components 1 to 4 together will support integration across transport modes, centered on the metro network and the central part of the city. The principles of component 1, 2 and 3 will be applied in specific areas, and the results will be monitored to allow for scaling up and replication in other districts and other cities. Project components are summarized in the paragraphs below; a more detailed description is provided in Annex 2.

29. **Component 1: Green Transport Improvement in Heping and Nankai Districts (Total cost US$89.48 million, IBRD Loan US$33.39 million, 41% of total project cost).** This Component will finance the redevelopment of the streetscape in certain parts of Heping and Nankai Districts, including the creation of an integrated pedestrian and bike network with infrastructure investments in, *inter alia*, street pavement updates, drainage improvements, street facilities, and landscape improvements.

30. **Component 2: Metro Access Improvement (Total cost US$89.05 million, IBRD Loan US$44.9 million, 40% of costs).** The project will finance civil works for selected intersection improvements and interconnection facilities (bike parking, bus connection/terminal, taxi connection, landscaping and park and ride) at about 111 metro stations along existing Tianjin Metro Lines 1, 2, 3, and 9, and Lines 5 and 6 (under construction).

31. **Component 3: Public Bike Sharing System Pilot (Total cost US$23.14 million, IBRD Loan US$9.77 million, 11% of costs).** This Component will finance the establishment of a pilot public bike-sharing (PBS) system in the core urban area of Tianjin, including, *inter alia*, the pavement of PBS stations, the development of a PBS management system, and the provision of bikes and other required equipment.

32. **Component 4: Bus Terminal Development (Total cost US$15.99 million, IBRD loan US$5.58 million, 7% of costs).** This component will finance the development of selected bus terminals, including, *inter alia*, civil works for the pavement of terminals and bus stops, bus parking, car parking, bike parking and service buildings, and the purchase of equipment for bus operation within the bus terminals.

33. **Component 5: Technical Assistance (Total cost US$2.90 million, IBRD loan US$2.64 million, 1% of costs).** Technical assistance will be provided on, inter alia: sustainable green urban transport development; parking management improvement schemes; the effectiveness of the public bike sharing system implementation; multi-channel financing mechanisms for urban transport; and surveys and support for the analysis of and reporting on the project impact.

B. Project Financing

34. **Lending Instrument**. The proposed lending instrument for this project is Investment Project Financing (IPF). The Borrower has selected a US Dollar denominated, commitment-linked variable spread loan, based on six-month LIBOR plus an additional variable spread. It has also selected all conversion options, a level repayment profile, payment of front-end fee, commitment fee and interest under the IBRD loan (during the construction period) and a repayment period of 20 years, including a 5-year grace period.

Project Cost and Financing

35. The total cost of the proposed project, including financing costs, is US$224.27 million, of which the proposed IBRD loan will finance US$100 million and Tianjin will provide counterpart funding of US$124.27 million from the municipal budget. Table 1 provides the overall and component costs and financing.

Table 1: Project Cost and Financing Plan

Project Components	Project Cost （US$ million)	IBRD Financing (US$ million)	% IBRD Financing
Component 1: Green Transportation Improvement in Heping and Nankai Districts	89.48	33.39	37%
Component 2: Metro Access Improvement	89.05	44.90	50%
Component 3: Public Bike Sharing System Pilot	23.14	9.77	42%
Component 4: Bus Terminal Development	15.99	5.58	35%
Component 5: Technical Assistance	2.90	2.64	91%
Total Costs	**220.56**	**96.28**	44%
Interest	3.14	3.14	100%
Commitment Fee	0.32	0.32	100%
Front-End Fees	0.25	0.25	100%
Total Financing Required	**224.27**	**100.00**	

C. Lessons Learned and Reflected in the Project Design

36. The project design has taken into account lessons learned in other major global metropolises, in large Chinese cities, in the urban transport program supported by the Bank in China, and in the two previous urban development projects supported by the Bank in Tianjin.

37. **Sustainable urban mobility should be considered as part of the broader city competitiveness agenda**. Competitive cities (e.g., New York or London.[14]) are able to regenerate themselves[15] and leverage on connective transport infrastructure by developing economic poles near areas of high public transport access, supported by high quality public

[14] Case studies on Hudson Yards Development and King's Cross, World Bank 2015 forthcoming.
[15] Ten Principles for Urban Regeneration, Urban Land Institute 2014

spaces that reflect people's needs.[16] The project will support the regeneration of Heping and Nankai, two districts with strong potential, and strengthen their connectivity at regional, city and neighborhood scales in line with recommendations from *Urban China.*[17] In line with the experience of New York Complete Street program, the project includes technical assistance to engage with residents, monitor and communicate the impact of reorganizing streetscapes for multiple types of users to facilitate replication.

38. **In order to deliver expected benefits, metro systems need to be easily accessible by walking, biking and public transport**. All metro trips start or end with walking, biking or taking another bus, requiring careful fare, infrastructure and service integration, as illustrated by the approach and strategies of Singapore or Hong Kong SAR, China. In China, such integration has been a core component in the three on-going urban rail projects supported by the Bank. The project takes on the challenge of poor connectivity to metro stations raised by users in Tianjin by supporting physical integration at all key stations and providing space for public and private bikes, while building on parallel activities of municipal agencies to regularly reorganize bus services to optimize their integration with metro services.

39. **Public Bike Sharing Systems (PBS) can be an effective solution for last mile connectivity, but require careful attention to design and operation to be sustainable.** Success stories highlight the importance of design and strong commitment from local government, while some PBS failed in terms of financial sustainability. Global lessons have been captured and turned into guidelines (ITDP 2013). A growing number of Chinese cities have undertaken PBS with varying degrees of success, both in terms of institutional arrangements and service offerings, with government run models emerging as an effective first step.[18] The accumulated international and domestic experience is reflected in the design of the project PBS component. The pilot would be run by the government-owned bus company, allowing Tianjin to better understand demand characteristics and service performance, and will further the analysis of operation models through technical assistance, to enable future scale-up. The municipal government has allocated operating subsidies to support the pilot, with a unit level of subsidy per trip that is lower than bus subsidies.

40. **The right balance between innovation and city buy-in is essential.** The proposed project would be the third Tianjin project funded by the Bank with transport components. One of the innovative project components in the second project (wastewater reuse component) was canceled by lack of buy-in and a bus priority corridor was kept at an experiment and planning stage. The proposed project design reflects lessons from the earlier projects by undertaking targeted pilots for activities with potential high impacts that are endorsed in government plans, and by setting up a framework supported by technical assistance to facilitate future replication, reducing risks and encouraging innovation through an incremental approach.

[16] Enabling Land Value Capture by matching Place Value and Node Value, the 3V Framework, The World Bank 2015.
[17] World Bank/DRC 2014.
[18] Bikeshare in China as a public service: Comparing government-run and public-private partnership operation models, Lohry and Yiu (2015)

41. **Institutional fragmentation needs to be overcome to address urban transport challenges.** The project recognizes the fragmented institutional arrangements, especially as they relate to the integrated operation of different urban transport modes. It therefore focuses on priority activities that align incentives across multiple agencies by taking a pilot approach to foster a dialogue among agencies focused on results. It then proposes to elevate lessons learned through technical assistance, building on other ongoing initiatives; for example, the combination of the rail, bus and public and private bike systems will increase ridership and build on on-going activities to enhance institutional and fare integration. This will stimulate cooperation between the Transport Commission, the metro company, the Bus Company and the two districts.

42. **Limited monitoring often prevents lessons being learned**. Beyond the project and Tianjin, lessons learned from the Bank's urban transport projects are expected to be systematically captured, presented and disseminated through the China Urban Transport Solution Platform (TransFORM), a collaborative knowledge platform between the Bank and China that was established in November 2012 as a first effort to promote the Science of Delivery in China.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

43. In order to provide overall leadership, policy guidance, and institutional coordination for project implementation, the Municipality will organize regular coordination meetings, as per the practice established during project preparation. Such meetings will be headed by the Vice Mayor responsible for urban construction and will comprise leaders and directors of relevant government line agencies. The PMO will provide such meetings with the relevant information and support the Municipality in carrying out its functions on policy guidance and strategic coordination of the project.

44. The project will be managed by the Project Management Office (PMO), founded in the 1990s for the first World Bank financed project. The PMO will be responsible for overall project management and, through its units, with coordinating the implementation of procurement, contract management, resettlement, social and environmental safeguards, loan disbursement requests, fiduciary compliance, and evaluation, results monitoring, and reporting. It will serve as a project implementation unit for all the TA sub-components and coordinate with all relevant agencies. The PMO will be responsible for ensuring that implementation is consistent with all relevant World Bank policies and procedures.

45. Six other Tianjin municipal agencies will support the PMO in defining content, coordinating and implementing the project: Development and Reform Commission; Finance Bureau; Transport Commission; Traffic Police; Metro Company and Bus Company. The PMO has engaged several research institutes to provide technical support, including: Tianjin Urban Planning & Design Institute; Tianjin University; Tianle International Engineering Consulting & Design Ltd.; and Tianjin Municipal Design Institute. The PMO will also hire a consulting firm to support the implementation of construction activities. Operation and maintenance of infrastructure will be assigned according to established practice in the city.

B. Results Monitoring and Evaluation

46. The Results Framework provided in Annex 1 will be the main tool for monitoring and evaluation of overall project outcomes and intermediate outcomes/outputs. The PMO will coordinate the relevant agencies in collecting the required M&E data and will report the results as part of the Project Progress Report. The project will also include more detailed monitoring of a number of pilots (Nankai/Heping Districts, metro access and PBS) through the technical assistance component to facilitate their replication. The proposed project includes accounting of GHG emission reductions based on mode shifts occurring as a result of the project.

47. The project will apply ChinaRAP's safety inspection score for the Green Transport Improvement for the safety indicator in the results framework. ChinaRAP's June 2015 comprehensive survey along the corresponding streets will serve as the baseline for the indicator. ChinaRAP will conduct surveys at Mid-term and at the project completion to monitor this indicator.

C. Sustainability

48. The overall sustainability of this project comes from its strategic fit with plans endorsed by the central and municipal governments to develop more sustainable transport solutions (in place of car-based transport) in line with international good practice. At a national level, cities like Tianjin are encouraged by the central government to ensure that public transport receives priority investments under their urban transport plan. As a demonstration city under MoT's "transit metropolis" program, Tianjin will continue investing in and supporting public transport services to meet its goals for increasing the transit mode share at a city level. Tianjin is committed and has shown strong interest in the various project components. It has embedded all of them in its official plans. Fiscal analysis carried out as part of project appraisal indicates that Tianjin has the financial capacity to finance the project and maintain service quality.

49. At a component level, sustainability will come from the effectiveness of design, institutional arrangements including user feedback, operational performance, and financial support. Those aspects have been integrated in the design of Components 1, 2 and 3 by a combination of technical assistance and investment, as well as by using pilots to test solutions and through citizen engagement, before rolling them out on a larger scale.

50. In particular, the project will monitor the operating performance of the PBS pilot with reference to a performance benchmark established between the municipal government and the bus company as a basis for the provision of subsidies (with a level of operating subsidies per trip expected to be lower than for buses). Based on the experience of the pilot and further analysis of experience in other cities, Tianjin will be well positioned to envisage the expansion of its system.

V. KEY RISKS AND MITIGATION MEASURES

A. Overall Risk Rating Explanation

51. The overall implementation risk of achieving the PDO is rated substantial, along with the technical design of the project and institutional capacity for implementation and sustainability. The design concepts pursued under the project are a departure from traditional car-focused urban design. It implies a need to carefully consider user requirements in the design of facilities to ensure a high quality integration between transport modes and systems, and the need to rebalance the street layout towards non-motorized transport. The project will also require close cooperation across agencies to address some of the challenges that currently reduce the attractiveness of non-motorized transport in Tianjin, e.g., illegal parking on sidewalks or bike lanes, lack of respect for non-motorized transport at street intersections. This will require engagement with stakeholders, including the public and municipal agencies, throughout the process to ensure support for the overall approach. The project will draw on international and domestic experience to address such risks through the technical assistance on green growth strategy, on parking and on citizen engagement.

52. The project also carries substantial risks for implementation capacity because of the large number of sites with project interventions (over 550 small sites, including PBS stations and metro stations). While the technical complexity of each intervention would be reasonably low for a city like Tianjin, the scale risk would be managed by standardizing the design approach of these interventions for different types of sites. The PMO has also engaged a number of institutes and an experienced project management firm to provide technical support in project implementation and reduce such risk. Active monitoring of pilots through the project technical assistance will allow a quick response to any observed deviation in service standards. Engagement with focus groups will support proactive channels of communication with the population to obtain early feedback, especially on shortcomings.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analysis

53. **Economic Analysis**. Economic analysis of the proposed project was carried out in accordance with the World Bank guidelines of *Economic Analysis of Investment Operations* and *Economic Analysis Guidance Note*.[19] The project would bring substantial economic benefits to Tianjin, including (i) savings in passenger traveling time cost; (ii) reduction in vehicle operation cost; (iii) reduction in emissions and environment improvement; (iv) reduction in vehicle accident; and (v) savings in bus operation and maintenance cost. The economic internal rate of return (EIRR) of the project was calculated by comparing the economic costs and benefits over a period of 25 years, including 5 years construction and 20 years operation. The project has an EIRR of 17.6 percent, which is higher than the World Bank recommended economic opportunity cost of capital (12%). Sensitivity analysis carried out indicated that the EIRRs for the tested

[19] The World Bank. January 1998. *Handbook on Economic Analysis of Investment Operations*. Operational Core Services Network, Learning and Leadership Center. The World Bank. April 9, 2013. *Guidance Note of Economic Analysis for Investment Project Financing*. OPSPQ

cases were higher than 12 percent; however, if capital and O&M costs are both increased by 20 percent and benefits are concurrently decreased by 20 percent, the EIRR would drop to an estimated 10.9 percent. In view of this, investment costs should be monitored carefully during project implementation and close attention should be paid to facility quality and efficient transport services, and the promotion of their use.

54. **Fiscal Analysis**. Fiscal analysis indicates that counterpart fund requirements for the project during project implementation would be about 0.24% of government's fiscal allocation for urban transport and infrastructure development. To maintain the project sustainability, the government would need to allocate about RMB50 to 70 million per annum for project operation and maintenance over the period 2021 to 2040, or about 0.22% of its transport funding for operation and maintenance in Tianjin central city in 2021 (first year of full operation). Tianjin confirmed that such levels of support would be maintained for such priority investments.

B. Technical

55. The Project's technical design reflects good international practice of urban transport in large cities, which seek to promote non-motorized transport and public transport by significantly improving their level of service and integration. The Project emphasizes the integration of non-motorized transport and public transport systematically to create attractive alternatives to driving private cars. The systematic design approach enables the Project components to work together to promote green and sustainable urban travel modes.

56. **Green Transport Improvement.** The proposed component concentrates in an area that is well suited for this type of intervention, based on: high density of jobs and population (59,000 per square kilometer over 7.2 square kilometers); economic characteristics; and the current and future high connectivity to the rest of the city.[20] The proposed improvements have been tailored to reflect traffic volumes and urban characteristics based on surveys of usage for all streets in the area. The overall approach rebalances the street layout to reflect such use and to create a continuous network for walking and biking linked to public transit, drawing on a Complete Street approach[21] adjusted to the Tianjin context. This approach will need to be maintained during the detailed design. Other components, including Metro Access Improvement and the pilot PBS, will contribute to this strategy by improving access to this area. The final design will draw on the experience in other large cities, e.g., New York, London, Singapore, with a view to showcasing its applicability in a Chinese context.

57. **Metro Access Improvement.** The design examined the entire Metro trip chains of citizens, and identified transfers as the main obstacle for metro use. The Project seeks to optimize transfer facilities and arrangements at Metro entrances by minimizing obstacles in transfers with other modes, providing public and private bike parking facilities, changing bus stop locations for closer transfer, optimizing traffic organization taxi drop-offs, optimizing pedestrian routes, and providing park and ride facilities in remote metro locations as traffic collectors. The PBS will also contribute to such access improvement.

[20] Currently three metro lines pass through this area while a total of six metro lines will serve this area in the future.
[21] http://www.smartgrowthamerica.org/complete-streets/complete-streets-fundamentals/resources

58. **PBS Pilot.** The PBS builds on the established biking tradition in Tianjin (32.6% of citizens use bikes for daily trips in the Tianjin urban area). The design follows good practice for a high-standard PBS to reduce the future maintenance costs, as well as to collect fares for short trips. As a prudent measure, the Project supports the demonstration of PBS in the core urban area, as well as in areas along metro lines to support last mile accessibility. Technical assistance will support the monitoring of performance and the scaling up of this pilot by considering diverse operating options.

59. **Bus terminals.** Rapid urban and bus service expansions have left Tianjin with major gaps in the availability of bus terminals. The design covers not only the terminal function for buses, but also access through other transport modes to promote seamless trip transfers. The design includes bike parking facilities in bus terminals and will optimize pedestrian flows to/from bus terminals. Car parking facilities will be provided to provide park and ride opportunities at bus terminals in the outskirts of the city. Opportunities for applying transit oriented development concepts were reviewed during project preparation and space above one of the bus terminals will be developed as a combined bus terminal and commercial space, drawing on good international practice.

60. **Technical Assistance**. The two main technical assistance packages (green transport strategy and parking management) have been fully appraised and will be procured under retroactive financing.

C. Financial Management

61. The Bank loan proceeds and oversight of the designated account (DA) will be managed by the Tianjin Municipal Finance Bureau (TMFB). Both TMFB and the PMO have previous experience of Bank-financed projects and are familiar with Bank financial management and disbursement policies and requirements. A World Bank financial management (FM) capacity assessment conducted for the PMO did not identify significant risks and confirmed the suitability of the financial management manual. The FM assessment concluded that the project's FM arrangements satisfy Bank requirements under OP/BP 10.00.

D. Procurement

62. The PMO, which will be responsible for carrying out day-to-day procurement under the project, has extensive experience in implementing Bank financed projects. It has implemented and completed several Bank financed projects. The procurement capacity assessment of the PMO identified the following key risks: (i) possible misunderstanding in processing procurement due to differences between the domestic and the Bank's procurement policies and procedures, resulting in delays and non-compliance; (ii) weak contract management; and (iii) poor records management. These risks will be mitigated by hiring an experienced procurement agent, a consulting firm experienced in project management, and continued training of PMO staff.

63. The project Procurement Plan prepared by the PMO is acceptable to the Bank, and includes packages included for advance contracting. It will be updated at least annually or as required to reflect project implementation needs, and will be submitted to the Bank for review. The initial Procurement Plan has been posted on the project website as well as the Bank's

external website. Updated Procurement Plans will also be posted after Bank review and non-objection.

E. Social (including Safeguards)

64. The project will have significant positive social impact through better prioritized street layout, by supporting more effective public transport, and improving connectivity and accessibility to metro stations and other public transport facilities. Based on information provided in the FSR, all land required for construction has been under the control of the municipal government prior to 2010. During project preparation, efforts were made to avoid land acquisition and involuntary resettlement impacts through careful selection of project sites and the locations of civil works. However, the precise locations of intersections, entrances and exits of bus stations, overpasses and underpasses cannot be fully determined until detailed technical designs are finalized. In addition, the siting of bus depots, parking plots or road intersections could require minor demolition of structures during project implementation. In view of this, Bank safeguards policy OP/BP2.12 on Involuntary Resettlement has been triggered as a precautionary measure.

65. A resettlement policy framework (RPF) has been prepared to guide future land acquisition and resettlement. The RPF sets out the principles and procedures for handling involuntary resettlement. The RPF was locally disclosed on the Tianjin Municipal Rural-Urban Construction Bureau website on August 18, 2015, on September 18, 2015, and on October 12, 2015, and in Infoshop on September 30, 2015 and October 15, 2015. Implementation of the RPF will be closely monitored, internally and externally, during the supervision stage of the Project.

66. **Gender.** Gender consideration have been integrated in project design and will continue to be included as part of implementation. Public consultations and participation included and will continue to include both men and women and reflect the opinions of both men and women in project design and implementation. Women's needs for street lighting and safety, footpaths, rest seats and transport signs supported by the project, will be taken into account and adequate number of toilets will be provided for women in bus terminals. The needs of the elderly and of the less mobile, including disabled people of either gender, will be taken into account in detailed designs. Equal participation of women and gender responsiveness will be reflected in project activities such as training and capacity building. Gender disaggregated information will be included in annual progress reports. Compensation and resettlement support, should they be required, will be provided equally to both men and women.

67. **Citizen engagement.** Intensive public consultations were conducted as part of the social and environmental assessment (in accordance with Bank OP4.01 and OP4.12) and during the project feasibility study. The consultations included a combination of public opinion surveys, focus group meetings with local residents (including no less than 30 percent women) and public consultation meetings with the general public, vulnerable people, drivers and transport police officers. Consultations were also held with residents, agencies and work units along the transport corridors and in communities in project sites along project metro lines and major avenues or streets to be supported by the project. Information on the project, potential social impacts, and planned mitigation measures were shared with the public during the consultations.

68. The main concerns and suggestions that emerged from the public consultation are: construction noise (particularly night time construction), dust and emissions, proper street lighting, management of solid construction waste, provision of temporary access, road safety, convenient traffic lights and signs, selection of the location of major transport corridors, parking lots and bus depots, and timely road restoration. These concerns have been addressed in the Environmental Impact Assessment (EIA), Environmental Management Plan (EMP), Social Assessment (SA) and RPF and the project feasibility study and their implementation will be monitored.

69. Registered low income citizens[22], who mainly live in the four districts north and south of the project area, highlighted during consultations that: (i) they could not afford more than RMB100 per month on public bus fares and would like government subsidies for any excess amount; (ii) they would like more preferential pricing for public transport; (iii) free access should be provided to public transport for elderly Tianjin residents, irrespective of hukou status.

70. During project implementation, three more rounds of public consultations will be carried out, with gender disaggregation to: obtain baseline data; for the mid-term review; and at the end of the project. Feedback and suggestion collection boxes, email and hotlines will be set up in project sites to facilitate public participation. Arrangements for such consultation and promotion of citizen engagement will be reflected in the project implementation budget and adequate personnel will be assigned.

F. Environment (including Safeguards)

71. The project will have potential environmental and social impacts during construction, including increased truck traffic due to material transportation, noise and dust pollution, pedestrian and business disruption, waste management issues, and safety concerns. Environmental concerns during operation will mainly be environmental compliance of bus terminals/hubs in terms of waste management, and traffic safety. Construction activities are expected to be of limited scale and will take a relatively short time to implement (mostly a few months for each road). They are expected to take place within the right-of-way of existing urban streets, parking spaces, green belt and bus terminals. No land acquisition is currently envisaged and there are no sensitive ecological environmental sites (e.g., natural habitat, protected area and parks etc.) within the area of influence of the project. The main environmental and social impacts are expected to be site specific, temporary in nature, well understood and can be readily mitigated with good construction management and known mitigation measures. The project has therefore been classified as a Category B project.

72. To address environmental safeguards issues, an EIA and a stand-alone EMP have been prepared for the project as per the requirements of Bank OP4.01. The EIA addresses the potential adverse environmental and social impacts, based on which a stand-alone EMP was developed to identify the environmental management setup, mitigation measures, monitoring and reporting and a budget estimate. The preparation of EA documents complied with the relevant national laws/regulations and guidelines, as well as Bank safeguard policies and EHS General Guidelines.

[22] Defined as receiving poverty subsidies from the government and representing about 1.7% of the population.

73. Public consultations were conducted in the project area as required by both national environmental and social policies as well as World Bank policies (see Section E). The draft EIA/EMP were locally disclosed on July 23, 2015 in the website of Tianjin Environmental Impact Assessment Center, with an announcement in Bohai Morning newspaper. The draft final EIA and EMP were re-disclosed on the same website on September 8, 2015 and on October 12, 2015 respectively. The EIA was disclosed in Infoshop on September 30, 2015. The EMP was disclosed in Infoshop on October 12, 2015.

G. World Bank Grievance Redress

74. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate GRS, please visit www.worldbank.org/grs. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

Annex 1: Results Framework and Monitoring

Country: China

Project Name: China: Tianjin Urban Transport Improvement Project (P148129)

Results Framework

Project Development Objectives

PDO Statement

The PDO is to leverage the Tianjin metro system and to promote walking and biking in the urban core (in Heping and Nankai) in order to make transport greener and safer in Tianjin and draw lessons for other large cities.

These results are at	Project Level

Project Development Objective Indicators

Indicator Name	Baseline	Cumulative Target Values					
		2016	2017	2018	2019	2020	End Target
Increase in metro ridership with the project compared to without the project (trips)	0	0	7,200	22,000	55,000	85,000	85,000
Increase in volume of non-motorized trips by project, including Public Bike Sharing trips and increase in walking and biking trips with the project in Heping and Nankai pilot areas (trips).	0			20,000	80,000	100,000	135,000
GHG emission reduction (tons)	0		100	1,600	3,100	6,500	6,500
Reduction in number of accidents in Heping and Nankai pilot area (accidents)	0				50	80	100
System of detailed performance evaluation with citizen engagement (both gender) in place (number of sites)	Pilot selected		5	10	20		20

Intermediate Results Indicators

Indicator Name	Baseline	Cumulative Target Values					
		2016	2017	2018	2019	2020	End Target
Changes to project activities as a result of consultation (Yes/No)			Yes	Yes	Yes	Yes	Yes
Non-motorized Transport (NMT) Space in Nankai and Heping Districts (percentage)	25	26	30	42	44	46	46
Roads rehabilitated, Non-rural (Kilometers) - (Core)	0.00	0.00	10.00	30.00	50.00	50.00	50.00
IRAP's road safety assessment scores above 3 for streets in the Heping and Nankai upgraded under the project (percentage)	30		90	90	90	90	90
Metro station areas improved (number)	0		10	30	70	111	111
PBS stations in operation (number)	0			50	446	446	446
Bus terminals completed (number)	0			1	5		5
Technical Assistance Leading to Changes (number)	0		1	2	3	4	4

Indicator Description

Project Development Objective Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Increase in metro ridership with the project compared to without the project (trips)	The indicator measures the difference between metro ridership in Tianjin Central City compared to what would have happened without the project. It is calculated by multiplying total traffic within the Central City by the percentage of generated and diverted traffic. This percentage will be determined through a survey on Line 1, which will serve as a pilot, one year after completion on Line 1 improvements.	Once a year	Traffic data will be collected by the metro company.	PMO with metro company.
Increase in volume of non-motorized trips by project, including Public Bike Sharing trips and increase in walking and biking trips with the project in Heping and Nankai pilot areas (trips)	The indicator measures increase in the volume of non-motorized trips related to the project intervention. It is calculated as the sum of the number of public bike sharing trips and the increase between the pre-project number of biking and walking trips and number of trips in the streets improved by the project. The latter is measured at the same six locations as used for the feasibility study for a period of one day. The number of trips for the area is derived from the volumes identified at those locations.	Once a year	For PBS, results will be collected by the PBS operator. For increases in Nankai and Heping, traffic data will be collected under the technical assistance for Sustainable Green Urban Transport.	PMO with support from consultant
GHG emission reduction (tons)	GHG emission savings are estimated based on the increase in metro ridership and increase in the volume of walking and	Once a year	Calculation will be based on the previous two indicators, using the	PMO

	biking trips, using the same assumptions as for the economic analysis in terms of transfers from other modes.		spreadsheet used for economic appraisal.	
Reduction in number of accidents in Heping and Nankai pilot area (accidents)	This reduction is measured by comparing the number of accidents in the 50 km of streets improved by the project with the five year rolling average (baseline of 2070 accidents).	Once a year	Number of accidents as recorded by traffic police for the 42 roads.	PMO with Traffic Police
System of detailed performance evaluation with citizen engagement (men and women) in place (number of sites)	This is measured by reviewing the number of pilot locations (metro stations, street improvements in Heping and Nankai, PBS) for which the city has put in place a process of engaging with citizens (men and women) in the design phase and implementation phase, pre-identifying expected results and costs of an intervention, setting up a monitoring and evaluation framework, analyzing ex-post results, and producing a note and presentation of the results to citizens, other districts and other cities through dissemination tools like TransFORM. Monitoring will take place before and six months after a given intervention, and will compare results against expected impacts and the costs of the interventions. Such monitoring will take place as part of the technical assistance on Sustainable Green Urban Transport under the project. The number will be cumulative.	Once a year	Report produced under the Technical Assistance on Sustainable Green Urban Transport.	PMO with support from consultant

Intermediate Results Indicators

Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Changes to project activities as a result of consultation (Yes/No)	Citizens will be consulted through focus groups to influence the design and implementation of pilots, determine baseline conditions and establish targets. Results of the pilots will be shared with the focus group.	Once a year	TA on citizen engagement will support such activities.	PMO
NMT Space Ratio in Nankai and Heping Districts (percentage)	Percentage measured as the number in square meters available for biking and walking compared to the total road space in areas improved by the project compared to the baseline value.	Once a year	Progress report	PMO
Roads rehabilitated, Non-rural	Kilometers of all non-rural roads reopened to motorized traffic, rehabilitated, or upgraded under the project. Non-rural roads are roads functionally classified in various countries as Trunk or Primary, Secondary or Link roads, or sometimes Tertiary roads. Typically, non-rural roads connect urban centers/towns/settlements of more than 5,000 inhabitants to each other or to higher classes of road, market towns and urban centers. Urban roads are included in non-rural roads.	Once a year	Progress Report	PMO
IRAP's road safety assessment scores above 3 for streets in Heping and Nankai that are upgraded under the project	Percent of km of streets renovated under the project with at least 3-star rating for vehicle occupants, motorcyclists, pedestrians and bicyclists, subject to the availability of economically viable	Once a year	IRAP team will review road safety scores before the design stage and after the implementation stage and will prepare a report.	IRAP Team

(percentage)	infrastructure countermeasures. At locations where it is not economically viable to lift the Star Ratings to at least three-stars using infrastructure countermeasures, lowering operating speeds should also be considered. Star ratings should not decrease as a result of the project.			
Metro station areas improved (number)	Number of station areas where connections between metro, bike and public transport have been upgraded ensuring safe bike parking, short transfer distance, and proper facilities for the less mobile.	Once a year	Progress Report	Urban Rail Company and PMO
PBS stations in operation (number)	This indicator measures the number of operational PBS stations	Once a year	Progress Report	Bus company and PMO
Bus terminals completed (number)	This indicator measures the number of bus terminals completed under the project.	Once a year	Progress Report	Bus company and PMO.
Technical Assistance Leading to Changes (number)	Number of technical assistance studies completed with endorsement from Tianjin government leading to improvements for the NMT/public transport combination.	Once a year	Progress Report	PMO

Annex 2: Detailed Project Description

CHINA: Tianjin Urban Transport Improvement Project

1. The proposed PDO is to leverage the Tianjin metro system and to promote walking and biking in the urban core (in Heping and Nankai) in order to make transport greener and safer in Tianjin and draw lessons for other large cities.

2. The Project consists of five closely related components to achieve the overall objective: Component 1 focuses on Walking and Biking improvements within the city core; Component 2 focuses on accessibility improvements to the mass transit system; Component 3 establishes a pilot for Tianjin Public Bike Sharing System; Component 4 focuses on the construction of bus terminals/parking facilities close to metro stations in underserved areas; and Component 5 includes technical assistance activities to support the development of such replication approach. Components 1 to 4 will together support integration across transport modes, centered on the metro network and the central part of the city. The principles of Components 1, 2 and 3 will be applied in specific areas, and results will be monitored to allow for scaling up and replication in other districts and other cities.

3. **Component 1: Green Transport Improvement in Heping and Nankai Districts (estimated cost: US$89.48 million, 41% of total project cost).** This Component will finance the redevelopment of the streetscape in certain parts of Heping and Nankai Districts to create a connected, vibrant and sustainable urban space (spanning over about 7.2 km2). It will follow a "Complete Street" approach that rebalances the street layout to better reflect current and expected mode shares. For this area, it implies reprioritizing the layout to better support biking and walking in combination with public transport, and in particular metro lines that connect to the rest of the city.

4. Component 1 will include the creation of an integrated pedestrian and bike network with infrastructure investment along about 42 streets (including about 26 streets in Heping District and 16 streets in Nankai District) for a total length of about 50 km. The streets were selected based on a traffic analysis that identified streets with the highest NMT potential. It will seek to systematically reduce road safety hazards and existing bottlenecks for NMT, drawing on the results of an iRAP review, while maintaining mobility for all, including the less mobile. The streets will be repaved with safety facilities, including bollards separating NMT from vehicles, pedestrian crossing facilities, street furniture, signage, greening, bus stops, junction improvements and selective upgrades of underground drainage pipelines.

5. The detailed tasks include the following works:

(a) **Street Pavement Updates and Drainage Improvement**. Civil works include reconfiguration of existing street layouts and repaving the streets, including vehicle lanes, bike lanes, sidewalks, and pedestrian crossings, as well as improvements to the underground drainage system.

(b) **Street Facilities**. Works will include road markings, traffic signs, on-street parking, sidewalk bike parking, traffic signals, bike lane guiderails, sidewalk bollards, pedestrian safety islands, bus stop sheds, and street lights.

(c) **Landscape Improvements**. Civil works will include the relocation of trees and plants, street furniture, and other landscape features.

6. The integrated NMT network with reconnect the space between the Hai He riverfront, Nanjing Road, Cheng Xiang West Avenue, Namenwai Avenue, and Beima Road. It will improve seamless access to this area of high job concentration both at a city level (by extending the reach of three existing metro lines that border the area) and at a national level by connecting it to the Tianjin high speed rail station.

7. **Component 2: Metro Access Improvement (US$89.05 million, 40% of costs).** The project will finance civil works for selected intersection improvements, interconnection facilities (bike parking, bus connection/terminal, taxi connection, landscaping, and park and ride) at about 111 metro stations along existing Tianjin Metro Lines 1, 2, 3, and 9 and Lines 5 and 6 (under construction). This component would increase the catchment area of these metro stations and leverage past investments in the mass transit system.

8. The proposed stations are categorized into four types based on their surrounding land uses:

(a) **Transport Connection Stations (12 stations)**. These stations are located near planned bus terminals and car parking lots. Access improvements aim to improve connections and transfers to different transport modes.

(b) **Park Vitality Improvement Stations (6 stations)**. These stations are located close to parks. The pedestrian environment connecting to the parks (including the parks) and connections to other transport modes will be improved.

(c) **Green Belt Vitality Improvement Stations (21 stations)**. Entrance to these stations' entrances are located near small landscaped or green areas. The intervention will improve the environment surrounding the stations and enhance the attractiveness of the metro system.

(d) **Other Stations (72 stations)**. These stations have limited space around them and the improvements will promote transfers from bikes and other transport modes.

9. Different measures and interconnection facilities are proposed for each station, based on space availability, transport demand from/to different transport modes, and surrounding land use. The size of the facilities will be defined during preliminary design after the preparation of an integration study. These measures include:

(a) Building or improving bus terminals and bus stops to ease transfers to and from stations, including shifting bus stops closer, and creating direct pedestrian routes.

(b) Building bike parking lots (about 138,000 parking racks) to promote interconnections with the metro system.

(c) Building off-street car parking lots (about 10 lots, covering 11 ha with 3,137 parking spots) in the outskirts of Tianjin to promote park and ride.

(d) Creating taxi drop-off and pick-up areas close to stations.

(e) Optimizing the adjacent junctions to create safer environment for pedestrians and bikes.

(f) Improving squares and parks with landscaping to create a pleasant environment for leisure activities.

Table A2-1: Proposed Number of Metro Stations for Access Improvement

Metro Line	Number of Metro Stations for Access Improvement
Line 1	20
Line 2	13
Line 3	12
Line 5	28
Line 6	29
Line 9	9

10. **Component 3: Public Bike Sharing System Pilot (US$23.14 million, 11% of costs).** This Component will finance the establishment of a pilot PBS system in the core urban area of Tianjin, as well as in areas along metro lines, to support last mile accessibility. It will include about 12,370 bikes and 446 stations. Civil works will include paving the PBS stations. The project will also finance the PBS management system, including hardware and software, the provision of bikes, docking poles, CCTV and other required devices and equipment. Counterpart funding will cover subsidies for the first three years of the service.

11. **Component 4: Bus Terminal Development (US$15.99 million, 7% of costs).** Civil works will include the pavement of terminals, as well as bus stops, bus parking, car parking, bike parking and service buildings. The project will also finance equipment within bus terminals for bus operation. These five terminals are part of a program of bus terminal development identified under a previous World Bank project. With this project, bus parking capacity in bus terminals in Tianjin will increase from 68% to 71.5% and will move toward the end target of 80%.

Table A2-2: Proposed Components of Bus Terminals

Name	Land Area (m2)	Building GFA (m2)	Bus Parking Spaces	Bike Parking Spaces	Car Parking Spaces	Location/Relevance
Xiqing Caozhuang Bus Terminal	13,500	800	125	25	0	The bus terminal will be integrated with Caozhuang Station, located on the West end of Metro Line 2. The line connects to the Binhai International Airport in the East. Caozhuang area hosts a shopping mall, a flower market, and a botanic garden.
Nankai Qingnianlu Bus Terminal	1,500	360	10	40	0	The bus terminal is adjacent to residential areas and to the Changhong ecological garden (a tourist attraction) and about 700 m from Metro Line 2 through public transport.
Nankai Renmin Hospital Bus Terminal	1,400	720	10	30	0	The bus terminal is close to Renmin hospital as well as residential and commercial areas. It will help provide bus services for these areas. It will also be close to the future Line 6 for convenient metro/bus transfer.
Beichen Technology Park Bus Terminal	9,500	920	32	500	0	The bus terminal will be integrated with the Huabei Group Station of Metro Line 3, close to the technology park, around which 300,000 people live (within a 5 km radius), of whom a large number belong to income groups living in relocation housing.
Beichen Liuyuan Bus Terminal	6,500	620	25	Some	600	The bus terminal will be integrated as a TOD site with the Liuyuan Station of Metro Line 1. It is a key station in North Tianjin, close to several large residential communities.

12. **Component 5: Technical Assistance (US$2.90 million, 1% of costs).** The topics proposed for technical assistance include:

(a) **TA-1-Sustainable Green Urban Transport Development - Strategic Study for the Tianjin Central Area (Phase 1 and Phase 2).** This study will evaluate the current state of development of green transport in Tianjin and will support the implementation of the proposed pilots under the project, in a way that allows for replication in other locations. It will include a design review of the pilot projects, as well as public consultation and citizen engagement to ensure that the designs reflect both international good practice, national guidance and local feedback. It will also measure the impact of pilots and evaluate them.

Based on the evaluation and pilots, the study will propose a development pattern for NMT and public transport in Tianjin, including operational improvements (such as fare integration) to facilitate multimodal trips. It will build on the Urban Pedestrian and Bike Transportation System Planning and Design Technical Guideline. It will also support Tianjin in developing and proposing strategies to deal with the rapid growth in car ownership in Tianjin, including travel demand management measures. The study will build on Tianjin's existing comprehensive urban transport model to quantify the impact of different strategies on GHG emissions.

(b) **TA-2-Parking Management Improvement Scheme for the Core Zone of Tianjin Central Area.** This TA will propose strategies to guide the parking management of motor and non-motor vehicles in the core zone of Central Tianjin. It will incorporate international experience and design a comprehensive parking management plan to encourage people to use public transit and NMT.

(c) **TA-3-Public Bike sharing System Implementation Result Evaluation.** This TA will evaluate the effectiveness of PBS in terms of operation, fares and financing, as a benchmark for Tianjin Municipal Government to decide on the subsidy and operational strategies based on the first three years of operation (which are funded under the Project). This TA will also diagnose issues faced by PBS during its pilot and draw lessons for its future operation.

(d) **TA-4-Multi-channel Financing Mechanism of Urban Transport.** The TA will explore new financing options for urban transport projects to ease the financial pressure on government, including PPP options, equity and bonds, loans, and foreign funds. It will provide guidance on fund raising for urban transport projects through multiple channels in order to ease the risks to municipal government, and to improve operational efficiency.

(e) **TA-5-Surveys and Support for the Analysis of and Reporting on the Project Impact -** This TA will take place towards the end of the project to further support analysis and reporting on project impact and other follow up actions outlined in the TA on Sustainable Green Urban Transport Development Strategy.

13. The following table summarizes the cost breakdown of the project.

Table A2-3: Proposed Components, Cost and Financing

Project Components	**Project cost（US$ million)**	**IBRD Financing (US$ million)**	**% IBRD Financing**
Component 1: Green Transport Improvement in Heping / Nankai Districts	89.48	33.39	37%
Component 2: Metro Access Improvement	89.05	44.90	50%
Component 3: Public Bike Sharing System Pilot	23.14	9.77	42%
Component 4: Bus Terminal Development	15.99	5.58	35%
Component 5: Technical Assistance	2.90	2.64	91%
Total Costs	**220.56**	**96.28**	44%
Interest	3.14	3.14	100%
Commitment Fee	0.32	0.32	100%
Front-End Fees	0.25	0.25	100%
Total Financing Required	**224.27**	**100.00**	

Annex 3: Implementation Arrangements

CHINA: Tianjin Urban Transport Improvement Project

Project Institutional and Implementation Arrangements

1. In order to provide overall leadership, policy guidance, and institutional coordination for project implementation, the Municipality will organize regular coordination meetings, as per the practice established during project preparation. Such meetings will be headed by the Vice Mayor responsible for urban construction and will comprise leaders and directors of relevant government line agencies. Most of these line agencies will be stakeholders in the project as they will supply information and/or use outputs of the project. This practice will be maintained throughout project implementation and meetings will be organized at the request of the PMO when coordination or important issues arise. The PMO will provide such meetings with relevant information and support the Municipality in carrying out its functions on policy guidance and strategic coordination of the project.

2. The project will be managed by the PMO, founded in the 1990s for the first World Bank financed project. The PMO, also known as Tianjin Construction Commission World Bank Financed Project Office, belongs to the Tianjin Urban-rural Construction Commission (TURCC) and has extensive experience with World Bank policies and procedures. It will be entrusted with overall project management and through its units, will coordinate the implementation of procurement, contract management, resettlement, social and environmental safeguards, loan disbursement requests, and fiduciary compliance, as well as evaluation, results monitoring, and reporting. It will serve as a project implementation unit for all TA components and coordinate with all relevant agencies. The PMO will be the primary coordinating body responsible for communicating with the World Bank, and for ensuring that implementation is consistent with all relevant World Bank policies and procedures. It will ensure continuity and good coordination between the different implementing entities.

3. Six other Tianjin municipal agencies will support the PMO in defining content, coordinating and implementing the project: Development and Reform Commission; Finance Bureau; Transport Commission; Traffic Police; Metro Company; and Bus Company. The PMO has engaged several research institutes to work for the project and provide technical support, including: Tianjin Urban Planning & Design Institute; Tianjin University; Tianle International Engineering Consulting & Design Ltd.; and Tianjin Municipal Design Institute. The PMO will also hire a consulting firm to support the implementation of the construction activities. Operation and maintenance of infrastructure will be assigned according to established practice in the city.

Financial Management, Disbursements and Procurement

Financial Management

4. No significant risks were noted during the financial management capacity assessment conducted at the PMO. The overall residual financial management risk, after taking into account mitigation measures, is assessed as Moderate.

5. Funding sources for the project include the Bank loan and counterpart funds which come from the government budget. The World Bank loan agreement will be signed between the World Bank and MOF. An on-lending agreement will be entered into between MOF and Tianjin Municipal Government through TMFB, and then between Tianjin Municipal Government and TURCC.

6. **Audit Arrangements.** The Tianjin Municipal Audit Office (TMAO） will be the project auditor. The annual audit report on project financial statements will be due to the Bank within six months after the end of each calendar year. According to the agreement reached with MOF and China National Audit Office, the audit report and audited financial statements will be made publicly available in both World Bank and TMAO official websites.

7. **Budget.** Annual construction and financing plans will be prepared by the PMO and reviewed by TCC. TMFB will formulate the annual government budget and allocate required funds to the project. Funds will be released based on the approved annual plan and actual construction progress. Budget variance analysis will be conducted regularly thus enabling timely corrective actions.

8. **Funds Flow.** The designated account (DA) of the Bank loan will be opened in a segregated US$ account and managed by TMFB. Disbursement requests will be prepared by the PMO and reviewed by TMFB. The Bank loan proceeds will be disbursed from the DA to contractors directly or to the PMO when the PMO pre-finances. TMFB will prepare and submit withdrawal applications to the Bank for disbursement.

9. The proposed funds flow arrangement and related processing period should ensure contractors receive payments within the dates stipulated in the signed contracts. The Bank will closely monitor disbursement efficiency during implementation. If significant payment delays occur, the Bank will guide the project to explore more streamlined funds flow arrangements.

10. **Accounting and Reporting.** The administration, accounting, and reporting for the project will be set up in accordance with Circular #13: "Accounting Regulations for World Bank-financed Projects" issued by MOF in January 2000.

11. The PMO will add an accrual based project accounting module to complement its institutional accounting management system of "Golden Butterfly" to manage, monitor and maintain project accounting records and prepare financial reports for project activities. This system has been widely used in other Bank financed projects and is considered adequate. The PMO will prepare the project financial statements after consolidating DA information from TMFB. It will prepare and furnish unaudited semi-annual project financial reports to the Bank as part of the semi-annual Progress Report no later than 60 days following each semester.

12. **Internal Control.** Detailed internal controls procedures including segregation of duties, review, approval, and reporting procedures as well as the safeguarding of assets have been established and exercised in the previous Bank-financed Tianjin Urban Environment Project by the PMO. These controls will be updated and customized according to the project's features.

Disbursement

13. Four disbursement methods are available to the project: advance, reimbursement, direct payment and special commitment. The primary Bank disbursement method will be advances to the DA. Withdrawal Applications (WAs) will be prepared to request Bank disbursements and to document the use of Bank financing. WAs will include supporting documents in the form of Statement of Expenditures (SOEs) and Summary Sheets (SS) which are both cash based statements and source documents identified in the Disbursement Letter issued by the Bank.

14. The Bank loan would disburse against eligible expenditures (taxes inclusive) as in the table below:

Table A3-1: Disbursement Categories and Percentages

Disbursement Categories	IBRD Loan	
	Allocated Amount (in US$)	**Percentage of Expenditures to be financed (inclusive of taxes)**
1. Goods, works, and non-consulting services	93,646,000	60%
2. Training and consultant services	2,640,000	100%
3. Commitment charge and Interest	3,464,000	
4. Front-end fee	250,000	
Total	100,000,000	

15. Retroactive financing will be available for the Project in the amount of US$2 million for payments made under the Project prior to the date of the Loan Agreement but on or after October 30, 2015, for Eligible Expenditures.

Procurement

16. **Procurement Risks and Mitigation Measures.** The procurement capacity assessment concluded that the procurement risk is moderate. The PMO has Bank project and procurement experience, however, some lessons may be learned from the previous Bank financed projects, such as slow project progress and delays of procurement for some contracts. Key risks include: (i) possible misunderstanding of the differences between domestic and Bank procurement policies and procedures on the part of the PMO, resulting in delays and non-compliance; (ii) weak contract management; and (iii) poor records management. Measures agreed to enhance procurement capacity of the PMO and to strengthen procurement, contract management, and mitigate procurement risks are:

a. A procurement agent with procurement experience in projects financed by the Bank and other multilateral financing institutions has been hired by the PMO to assist in the procurement of goods, works and non-consulting services under international and national competitive bidding (ICB and NCB).

b. A consulting firm with project management experience in projects financed by the Bank or other multilateral financing institutions will be hired by the PMO to provide project management and technical support, e.g. reviewing bidding documents, (including designs, technical specifications and bill of quantities); supervising contract management (including progress, quality, variations and other contract issues); and providing guidance and consulting support on financial management and procurement related issues.
c. The PMO will send its procurement and other key staff to attend workshops on procurement and contract management under Bank-financed projects, including procurement of goods, works and non-consulting services, as well as selection and employment of consultants.
d. The Bank procurement specialist will continue to provide training on procurement as needed throughout project implementation.

17. Procurement for the project will be carried out in accordance with the World Bank's "Guidelines: Procurement of Goods, Works and Non-Consulting Services under IBRD Loans and IDA Credits & Grants" dated January 2011 (revised July 2014); "Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" dated January 2011 (revised July 2014); and the provisions stipulated in the Legal Agreements.

18. **Procurement Plan.** The PMO has prepared a Procurement Plan for the project, which is acceptable to the Bank. It will be available in the PMO, the project's website and in the Bank's external website. The Procurement Plan will be updated, reviewed and agreed with the Bank annually, or as required, to reflect project implementation needs.

19. **Procurement and Selection Methods and Prior Review Thresholds.** The table below indicates the procurement and selection methods and prior review thresholds for goods, non-consulting services, works, and consulting services to be procured by the PMO under the project.

Table A3-2: Thresholds for Procurement Methods and Bank Prior Review

Expenditure Category	Contract Value (US$)	Procurement Method	Bank Prior Review
Goods/IT Systems and Non-Consulting Services	≥ 10 million	ICB	All ICB contracts
	>=500,000 - < < 10 million	NCB Remarks: Where goods are not normally available from within China, the method of procurement will be ICB even if the contract value is less than US$10 million.	First NCB goods contract irrespective of value and all contracts >= US$ 3 million
	< 500,000	Shopping	None
	N/A	DC	All DC contracts
Works/ Supply	≥ 40 million	ICB	All ICB contracts

Expenditure Category	Contract Value (US$)	Procurement Method	Bank Prior Review
& Installation	>=500,000 - < 40 million	NCB	First NCB works contracts irrespective of value and all contracts ≥ US$15 million.
	< 500,000	Shopping	None
	N/A	DC	All DC contracts
Consultants	≥ 300,000	QCBS, QBS	Firms: First contract for each selection method and all contracts ≥ US$1 million; Firms: All SSS contracts >= US$ 100,000; Individual Consultant: Only in Exceptional Cases; SSS for individual consultant: ≥ US$50,000
	< 300,000	QCBS, QBS, CQS	
	N/A	SSS	
	N/A	IC	

Notes: ICB: International Competitive Bidding
NCB: National Competitive Bidding
DC: Direct Contracting
QCBS: Quality- and Cost-Based Selection
QBS: Quality-Based Selection
CQS: Selection Based on the Consultants' Qualifications
SSS: Single Source Selection
IC: Individual Consultant selection procedure
NA: Not Applicable

20. **Advance Contracting and Retroactive Financing.** Retroactive financing of up to US$2 million would be available for eligible expenditures incurred on and after October 30, 2015. The procurement plan sets forth those contracts which are expected to be signed in advance of loan signing, together with the relevant Bank review procedures. Payments made for such contracts procured in accordance with the applicable Bank procurement/consultant selection procedures will be eligible for reimbursement by the Bank.

Environmental and Social (including safeguards)

Environment

21. The project will include construction activities for the renovation of urban streets (e.g. re-pavement, drainage improvement, street facility and landscape improvement), access improvement around mass transit stations (pedestrian access, parking spaces and green belts) and construction of bus terminal buildings. The project will have potential environmental and social impacts during the construction, including increased truck traffic due to transport of material, noise and dust pollution, pedestrian and business disruption, waste management issues, and safety concerns. Environmental concerns during the operational stage will mainly be environmental compliance of bus terminals/ hubs in terms of waste management, and traffic safety.

22. Based on the project design, construction activities are expected to be of limited scale and will take a relatively short time to implement (mostly a few months). They are expected to take place within the right-of-way of existing urban streets, parking spaces, green belt and bus terminals. No land acquisition is expected and there are no sensitive ecologic environmental sites (e.g., natural habitat, protected areas, and parks) within the project's area of influence. The main sensitive environmental protection receptors are residential communities, hospitals, schools and kindergartens along the urban streets that will be subject to noise/vibration and dust impacts. These include 54 historical buildings along the project streets. Construction activities will not directly intrude into the boundaries of the identified historical buildings and measures developed

in EMP will effectively mitigate their impacts. As the main environmental and social impacts are those related to the construction, and are expected to be site specific, temporary in nature, well understood and can be readily mitigated with good construction management and known mitigation measures, the project is classified as a category B project.

23. To address environmental safeguards issues, an Environmental Impact Assessment (EIA) and a stand-alone Environmental Management Plan (EMP) have been prepared for the project as per requirements of OP4.01. The EIA addresses potential adverse environmental and social impacts, based on which a stand-alone EMP was developed. The preparation of EIA documents complied with the relevant national laws/regulations and guidelines, as well as Bank safeguards policies and EHS General Guidelines. The EMP specifies the institutional arrangement for environmental management and supervision, mitigation measures, capacity building and training plan, monitoring plan, and budget estimates for EMP implementation.

24. The key mitigation measures during construction include:

- **Social Disturbance.** Proper planning of road traffic diversion; coordination with police department, and prior notice through public media; proper relocation of public utility facilities without interrupting the usual life of the local community; arrangements for temporary access, with adequate safety measures (temporary bridges, protection nets, night lights etc.) for local residents, businesses, schools etc.; and bulletin board information disclosure.
- **Physical Cultural Resources.** Restrict construction activities within the right-of-way and avoid encroachment in the protection boundary of buildings; and chance-find procedures.
- **Noise.** Use of low noise equipment and proper maintenance; installation of temporary noise reduction facility, if necessary; night-time construction will be restricted, and prior public notice as well as the Environmental Protection Bureau (EPB) approval will be required for activities that need continuous construction during the night.
- **Dust.** Installation of fences around construction areas; frequent water spraying on construction sites and access roads to suppress dust; covering of trucks transporting bulk materials and timely site clean up after construction; proper maintenance of construction machines and vehicles.
- **Waste Management.** Careful balance of excavation and backfilling and full reuse of spoil material; proper disposal of spoil waste in line with the city regulations; proper treatment of wastewater and sewage before discharge into the municipal sewerage network; timely collection of garbage and disposal through municipal collection/disposal system.
- **Ecological environment.** Minimization of the area of disturbance and damage of green space; relocation of trees; new plantation of trees and green space to off-set green space loss; timely removal of spoil material to minimize soil erosion; proper disposal of spoil material according to city regulations.

25. The PMO will be directly responsible for ensuring the EMP implementation, with support from a project management company. An environmental management unit will be established with dedicated environmental staff. EMP mitigation measures will be incorporated into bidding documents and contracts, and will be implemented by the contractors. Contractors

and supervision engineers will be required to assign qualified environmental staff to their team to ensure effective implementation of the EMP.

26. Public consultations were conducted in the project area during the project preparation as required by both national environmental and social policies as well as World Bank policies (OP4.01 and OP4.12). Consultations were conducted through a combination of opinion surveys and public meetings among concerned communities with equal gender participation. Information about the project, potential environmental and social impacts, and planned mitigation measures were provided to the public during consultation. Main concerns from the public include traffic and accessibility impact during construction, nuisance of noise (particularly night-time construction), dust and traffic safety. These concerns were addressed in the EIA, and necessary mitigation measures have been included in the EMP and in the project design.

27. The draft EIA/EMP were locally disclosed on July 23, 2015 in the website of Tianjin Environmental Impact Assessment Center, with an announcement in Bohai Morning newspaper. The draft final EIA/EMP were re-disclosed on the same website on September 8, 2015 and on October 12, 2015 respectively. The EIA was disclosed in Infoshop on September 30, 2015. The EMP was disclosed in Infoshop on October 12, 2015.

Social

28. The project will bring significant positive social benefits by supporting more effective public transport and improving connectivity and accessibility to metro stations and other public transport facilities. Based on information provided in the FSR, all land required for construction has been under the control of the municipal government before 2010. During project preparation, efforts were made to avoid involuntary resettlement through optimized selection of project sites and specific locations of civil works. Nevertheless, involuntary resettlement cannot be fully ruled out as there could be location adjustments for bus depots, parking lots, and road intersections could require the demolition of some structures. In addition, the precise locations of intersections, entrances and exits of bus stations, overpasses and underpasses cannot be fully determined until the detailed technical designs are finalized. Bank safeguards policy OP/BP 4.12 on Involuntary Resettlement has therefore been triggered as a precaution.

29. A resettlement policy framework (RPF) has been prepared to guide future land acquisition and resettlement. The RPF sets out detailed principles and procedures, as well as other crucial requirements for handling involuntary resettlement. The RPF was locally disclosed on the Tianjin government Rural-Urban Construction Bureau website on August 18, 2015, on September 18, 2015, and on October 12, 2015, and in Infoshop on September 30, 2015 and October 15, 2015. The RPF will be managed by the PMO and its implementation will be monitored both internally and externally. The PMO will assign a dedicated social staff to coordinate social safeguards, together with the local government departments in charge of local land requisition and house demotion.

30. **Gender.** Gender considerations were integrated in project design and will continue to be included as part of implementation. Public consultation and participation included and will continue to include both men and women and project design and implementation will reflect the opinions of both men and women. Equal participation and gender responsiveness will be

reflected in project activities, including training and capacity building. Gender disaggregated information will be included in the annual progress reports. Compensation and resettlement support, should they arise, will be provided equally for both men and women if they are affected by any land acquisition or house demolition. Women's needs for road lighting and safety, foot paths, an adequate number of women's toilets in bus terminals, rest seats and transport signs supported by the project will be considered. The needs of elderly and of the less mobile, including disabled people from either gender, will also be taken into account during project detailed design.

31. **Citizen engagement.** As part of the social and environmental assessment, intensive public consultations were conducted in accordance with the Bank's OP4.01 and OP4.12. Consultations included a combination of public opinion surveys, meetings with the general public, vulnerable people, drivers and transport police officers. Consultations were also conducted with residents, agencies and work units along the transport corridors, and in the communities in project sites along project metro lines as well as major avenues or streets to be supported by the project. Information about the project, potential social impacts, and planned mitigation measures were shared with the public during consultation.

32. Concerns of the public include mitigation of construction noise (particularly night time construction), dust and emissions, proper street lighting, management of solid construction waste, provision of temporary access, road safety, convenient traffic lights and signs, selection of the locations of major transport corridors, parking lots and bus depots, and timely road restoration. These concerns have been addressed in the EIA, EMP, SA and RPF, as well as in the project FSR, and their implementation will be monitored during project supervision.

33. The relatively poor people who live in the four districts mainly in the north and south part of the project area, highlighted that: (i) they would only be able to afford RMB100 per month on public bus fares and would require government subsidies if they are required to pay more than this amount; (ii) they would like more preferential pricing for public transport; (iii) free access to public transport could be provided for elderly Tianjin residents, irrespective of their hukou status.

34. During project implementation public consultations will be conducted (with gender disaggregated surveys) to serve as project baselines, at mid-term, and at project completion. Surveys will be embedded as part of the monitoring of pilots. Feedback and suggestion collection boxes, emails and hotlines will be set up in project sites to enable public participation and feedback. Arrangements for such consultation and for promotion of citizen engagement will be reflected in the project implementation budget.

Annex 4: Implementation Support Plan

CHINA: Tianjin Urban Transport Improvement Project

Strategy and Approach for Implementation Support

1. The strategy for the implementation support plan has been developed based on the risk assessment through the SORT process. Close monitoring and mentoring will be necessary during the implementation to mitigate the risks on "Technical design of project" and "Institutional capacity for implementation and sustainability", which are rated as "Substantial" risks.

2. **Technical design of project**. The successful technical design of the project will be driven by the quality of the design team engaged by the PMO and by the effectiveness of TA-1 in supporting citizen engagement, reviewing designs and supporting the implementation of pilots and their scaling up. Procurement packaging has been designed with a first phase of smaller contracts allowing for such pilots. During project preparation, Bank support focused on the finalization of the terms of reference for TA-1. During implementation, it will focus on the rapid selection of the corresponding consultants, using retroactive financing. The Bank will provide guidance to the design team and will participate in citizen engagement events during the early stages, especially for the pilots. The Bank team will include a range of expertise in citizen engagement, street design, road safety, parking management, intermodal transport, public bike sharing and monitoring and evaluation.

3. **Institutional capacity for implementation and sustainability**. The Bank team will support the PMO in engaging in a dialogue with the various agencies and residents to fine tune solutions through pilots prior to their scaling up. This will systematize the type of interventions based on different types of sites and reduce the risks associated with the large number of sites. The Bank will also support cross agency cooperation on the various technical assistance packages by participating in selected critical discussions and ensuring that perspectives of key stakeholders are considered. The field based Bank team will also continue to use regular video conferences to communicate with the PMO on project progress, in addition to regular missions, to allow quick action as necessary.

4. **Procurement and Financial Management**. Bank procurement and financial management specialists will continue to provide training and guidance on procurement and financial management as needed throughout project implementation. The procurement management specialist and financial management specialist will participate in implementation support mission at least once a year, or more as warranted by progress. They will monitor compliance with Bank fiduciary requirements, in particular through timely procurement prior reviews and sample procurement post-reviews, reviews of quarterly interim unaudited financial reports and annual audited financial statements.

Table A4-1: Implementation Support Plan

Time	*Focus*	*Skills Needed*	*Resource Estimate*	*Partner Role*
First 24 months	• TOR finalization • NMT area design • Bus Depot design • Metro Accessibility design • PBS design • Parking management • Procurement • Safeguards	• Technical (NMT design, road safety, bus depot design, parking management and PBS design) • Transport planning • Citizen engagement • Monitoring and evaluation • Safeguards • Financial management • Procurement	5-6 staff, 2 trips per staff; 1 Citizen engagement/monitoring and evaluation 1 NMT design consultant, 1 Transport planning/multimodal expert, 1 PBS consultant 2 trips per consultant	
24-48 months	• Procurement • Project Implementation • Monitoring and supervision	• Technical (as above) • Transport planning • Safeguards • Citizen engagement • Monitoring and evaluation • Financial management • Procurement	5-6 staff, 2 trips per staff; 1 Citizen engagement/monitoring and evaluation Technical consultants as warranted by progress 2 trips per consultant	
Other				

Table A4-2: Skills Mix Required

Skills Needed	*Number of Staff Weeks*	*Number of Trips*	*Comments*
Transport planning	1 staff member: 6 weeks	3 trips	1 trip + 2 weeks for the first three project years Review the TA outputs
NMT design	1 staff member: 6 weeks	3 trips	1 trip + 2 weeks for the first three project years Review on the Metro station accessibility and PBS system design and implementation
Citizen engagement,	1 staff member: 8 weeks	4 trips	1 trip + 2 weeks per year

Monitoring and Evaluation			for four years Focus of pilot planning, implementation, evaluation, communication and scale up
PBS Pilot and Study	1 staff member: 6 weeks	3 trips	1 trip + 2 weeks per the first-three project years Review on the PBS system design, implementation and related TA
Bus Depot	1 staff member: 3 weeks	2 trips	1 trip + 1 week per year in the first 2 years. 1 week of additional support in the third year.
Parking Management	1 staff member: 3 weeks	2 trips	1 trip + 1 week per year in the first 2 years. 1 week of additional support in the third year.
Road safety	1 staff member: 5 weeks	5 trips	1 trip + 1 week per project year Review on the design and implementation on road safety
Safeguards	2 staff members: 10 weeks	10 trips	1 trip + 1 week per project year for each staff
Financial management	1 staff member: 5 weeks	5 trips	1 trip + 1 week per project year
Procurement	1 staff member: 5 weeks	5 trips	1 trip + 1 week per project year
Training	1 staff member: 5 weeks	5 trips	1 trip + 1 week per project year

5. **Location of Staff Expertise**. Team leadership, safeguards, financial management, and procurement contributions will be provided by the Bank's country office-based staff. Technical expertise will be provided by Bank staff as well as specialist consultants.