I. Introduction and Context

Country Context

China’s economic growth strategy is currently at a critical juncture. Over the last three decades its economic growth (averaging 10 percent per year) has been driven by export-led industrialization and investment on infrastructure development. The new growth strategy, as articulated in China’s 12th Five Year Plan and various government documents and speeches by China’s leadership, calls for increasing domestic consumption and fostering urbanization to promote steady and rapid economic development, while at the same time safeguarding the environment and ensuring social inclusion.

During its economic growth and urbanization period, China also enjoyed a rapid motorization. In 1990, China had 5.5 million civil vehicles, of which only 800,000 were privately owned. By the end of 2012, China had 120 million civil vehicles, of which 93 million were privately owned.
Accelerated urbanization and continued economic growth (albeit at a lower rate than historical trends) will increase further the motorization rate and transport demand, as they have done so for the last three decades. Yet, motorization, while supporting economic development and poverty reduction efforts, is a major energy consuming activity, and leads to local air pollution and greenhouse gas (GHG) emissions, and causes injuries and fatalities during road accidents. Therefore, achieving a more sustainable and inclusive path for urbanization and economic growth will be inextricably linked to how well Chinese cities are able to provide an urban transport system that can simultaneously slow down the growth rate of energy use, air pollution and GHG emissions, while at the same time ensuring cities have an effective, efficient, and safe urban transportation system.

To date, local governments in China have followed a strategy focused primarily on expanding the supply of transport in their respective jurisdictions – building roads to accommodate a growing vehicle population, and investing on buses and mass transit. Yet, this supply-side strategy could not meet the rapidly growing transport demand and thus had limited effect on making the urban transport system more efficient and environmentally sustainable, especially in large and medium size cities. In fact, during the large infrastructure investment period, congestion has worsened, air quality has deteriorated, and fatalities and major injuries from road accidents have increased. These adverse environmental and social impacts have resulted in a deteriorating quality of life in some cities and unfavorable investment climate. Therefore, transport improvement is not only important for a sustainable urban transport system, but could also contribute to the urbanization-led growth strategy sought by Chinese leaders, as efficient and sustainable urban transport would make Chinese cities globally competitive in attracting investment and talent.

Recognizing the importance of urban transport for national development, the central government has issued a series of policy directives to encourage cities to adopt a more sustainable urban transport system. In 2005, the State Council (China’s Cabinet) issued Opinion No. 46 mandating cities to make public transport development a priority in their urban transport plans. More recently, it issued another directive (Opinion No. 64, December 2012) to provide specific measures to promote public transport priority, including infrastructure improvement, financing innovations, bus priority lanes, application of Intelligent Transport System (ITS), technical standards, and comprehensive mobility management. In addition, the National Development and Reform Commission (NDRC) has approved 28 cities to develop metros; the total mileage in operation will reach 5000 km by 2015. In 2011, the Ministry of Transport initiated a pilot program to promote the development of public transit metropolises, where the majority of commuting demand would be met by public transport.

While national and local governments have made public transport a priority, its modal share for commuting in major cities is still low; about 30 percent compared to the more than 60 percent mode share attained in some international cities, such as London, Tokyo, and Seoul. Increasing the level of public transport mode share in China will require a comprehensive approach in addition to expanding public transport infrastructure and services. Specifically, it would require: (i) a better urban transport and land use integration through, for example, transit-oriented development; (ii) an integrated institutional framework to develop and operate public transport services so as to achieve a better multi-modal integration and seamless transfers between modes; and (iii) a comprehensive travel demand management, including road pricing and parking charges.

**Sectoral and Institutional Context**
The proposed project will support public transport improvements in two cities in Heilongjiang Province, namely Harbin and Mudanjiang. Heilongjiang province is located in the northeastern part of China and has 38 million people. Its GDP per capita in 2011 was RMB1.25 trillion (US$202 billion). Heilongjiang was the traditional base of the old industrial complex in China, which had been declining since the start of reforms in China. In October 2003, the State Council issued an Opinion on “the Implementation of Strategies for Revitalizing Northeast’s Old Industrial Bases,” following which the government launched the Northeastern Revitalization Strategy to support the reform of state-owned enterprises and transform and upgrade the old industries. The 12th Five-Year Plan also emphasizes the revitalization of the Northeast Region.

Harbin is the capital city of Heilongjiang, and the largest city in northeast China. In 2011, Harbin Municipality (covering the urban and suburban areas) population was 10.6 million, making Harbin the tenth most populated city in China; its GDP was RMB424 billion (US$ 68 billion). Consistent with the national trend, Harbin’s motorization has also been increasing and reached approximately 1 million civil vehicles in 2012.

Mudanjiang is a much smaller city than Harbin. It is a prefecture-level city located in the southeast of Heilongjiang. It is a border town located 248 km from Vladivostok, Russia. In 2011, Mudanjiang Municipality (covering the urban and suburban areas) had 2.8 million. Its GDP was RMB94 billion (US$15 billion). There were about 200,000 vehicles in Mudanjiang in 2011.

Both Harbin and Mudanjiang are located above 45 degrees latitude and both cities have dry and extremely cold winter with temperature averaging in January about -18°C (-1°F). For more than 200 days a year, the average temperature is below -10°C. As such, Harbin and Mudanjiang, not only have the same urban transport challenges faced by other cities in China as described above, but also have the added challenge of operating and proving public transport services in an extremely cold climate, heavy snow, and icy road conditions during winter.

Public transport services in both Harbin and Mudanjiang is characterized by inadequate capacity, old aging bus fleet, and poor road infrastructure and traffic management system. The application of Intelligent Transport System (ITS) to support public transport operations and traffic management is just beginning, and lags behind other major cities in China. Buses run at low speed and low punctuality rate, causing long waiting time during the cold temperature, crowdedness during peak hours, low comfort, and inconvenient transfers. The public transport network planning is disjointed and lacks network optimization. The ongoing metro development in Harbin is done separately from the bus system, and the metro corridors and stations are not well coordinated and integrated with the available bus services. The long waiting time at bus stops and general inconvenience of the public transport system in Harbin and Mudanjiang are especially detrimental to women’s willingness to take public transport as women tend to value safety, security and comfort more than men, and thereby reducing their mobility or forcing them to take a more expensive mode.

The supporting infrastructure facilities, such as bus depots, terminal and passenger hubs are inadequate. Due to lack of adequate bus parking garages, buses are parked outside, and during the cold winter season, this causes drivers to spend more than one hour to start and warm up the engine, leading to wasting fuel and inefficient use of drivers’ time. Under the severe weather condition, accidents occur frequently due to icy road conditions and low visibility with heavy snow. The accidents cause fatalities and injuries and also high property loss. In addition, accidents, even minor
ones, cause major delays and create congestion during incident investigation and removals, slowing down public transport services and cars.

Institutional and Financing Arrangement for Public Transport in Harbin and Mudanjiang. Public transport in Harbin is provided by 35 public transport companies, including two state-owned and 33 private. The total number of bus routes in Harbin is 165. The bus network density is 2.37 km/ km² with daily passenger volume of 3.08 million. The mode share for buses was 30 percent in 2012. The two state-owned bus companies have about 10,000 staff and 85 bus lines with 2682 buses. Their combined loss in 2011 was RMB48 million, which was financed through subsidy by the city government. The private bus companies have a combined staff of 5200, and operate on 80 bus lines with 2447 buses, and have a combined loss of RMB 69 million. The private bus companies are operating the same level of service with half the staff of the public operators. Both public and private companies operate at a minor loss, although the public companies’ losses are much higher if the operating subsidy they receive from the local government is taken into account.

The Harbin Transport Infrastructure Investment and Construction Management Co. Ltd (TIICMC), attached to Harbin Transport Bureau, develops and operators all public transport supporting infrastructure. The TIICM is responsible for the construction, management, operation and development of bus depots, garages, and terminals. Currently, there are 19 bus depots, 2034 bus stops and 303 bus terminals in Harbin available to both public and private operators.

Mudanjiang has only one privately-owned bus company, providing bus services and operating public transport infrastructure throughout the municipality under a 30-year concession agreement with the Mudanjiang Transport Bureau. The mode share for buses in Mudanjiang is about 15 percent. There are 50 bus lines in operation, with 704 buses. There are 21 bus terminals in the city, 17 of which do not have parking space for buses. There are 1194 bus stops in all bus lines. Of these, 350 have bus shelters and only 2 percent of bus stops have bus stop bays.

Coordination with other World Bank Project. Harbin is one of the pilot cities in the GEF “Large City Congestion and Carbon Reduction Project”, which was approved by the Board on March 28, 2013. The GEF project complements the proposed project in the following way: it provides funding to develop a comprehensive travel demand management system, including better parking charges, and transient-oriented development plan. Both of these are essential to ensure public transport mode share increases and is sustained. The GEF project also finances thematic study, which will complement the institutional development component under the proposed project.

Relationship to CAS

The proposed project is aligned with the 2013-2016 World Bank Group Country Partnership Strategy (CPS) for China discussed by the Board on November 6, 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 and is informed by the “China 2030” report prepared jointly by the Bank and the Development Research Center of the State Council. The proposed project supports the CPS pillars for green and inclusive development and the sectoral objectives of the CPS to promote low-carbon urban transport and strengthening mechanisms for managing climate change.

II. Proposed Development Objective(s)

Proposed Development Objective(s) (From PCN)
The PDO is to improve the convenience, reliability, safety and energy efficiency of the public transport systems in Harbin and Mudanjiang.

**Key Results (From PCN)**
The achievement of the PDO will be monitored through the following proposed indicators, which would be finalized during further project preparation.

(a) **Convenience**
   (i) Customer satisfaction established through surveys (percent of people rating the system comfortable increases from the before the project situation); and/or

(b) **Reliability**
   (i) Increased share of buses arriving on schedule; and/or
   (ii) Increased bus speed on selected corridors.

(c) **Safety**
   (i) Reduction in fatalities and major injuries on targeted public transport corridors; and
   (ii) Improved incident management on targeted corridors

(d) **Environmental Sustainability**
   (i) Reduction in energy use by buses stemming from new cleaner vehicles and reduction of colds starts.

**III. Preliminary Description**

**Concept Description**

Concept

1. The proposed project is designed to improve the level of service and reduce the impact of extreme weather conditions on public transport usage and operations. In order to achieve such multifaceted goals, the project will include infrastructure improvements, a wider application of ITS for public transport operations and traffic management, procurement of cleaner-fuel and accessible buses, and institutional and financing reforms. The project design focuses on providing integrated solutions on high-traffic priority corridors and on promoting a “complete street” concept where all modes – private cars, buses, bikes, and pedestrian – share the street in a safe and effective manner. These investments together will lead to improved bus speed and reliability, and to making waiting at bus stops more predictable (through better information) and comfortable (heat-preserving shelters). The traffic management and lane reconfiguration supported under the project will improve safety on the targeted corridors.

2. The project also supports overall public transport system improvement in the two cities through financing a comprehensive sector planning, city-wide traffic management and safety initiatives, road maintenance and emerge response, and an institutional development component and capacity building program. The institutional development component is designed to improve the financial sustainability and institutional framework governing public transport operations in Harbin and Mudanjiang. It will undertake several thematic studies and develop a technical assistance program to support the project cities to put in place an improved institutional and financing arrangement for provision of public transport services.
3. Both cities have similar project designs, and the project components are described below in broad terms to accommodate variations among the cities. Each city will have specific detailed project activities, which will be finalized during further project preparation.

Description

4. Component 1. Public Transport Corridor Improvement (62 percent of total project cost). This component will finance the improvement of three designated public transport corridors in Harbin and five in Mudanjiang by: (a) improving pavement conditions and developing new lane configurations within the current pavement width (i.e., without widening) to provide bus-priority lanes, bike lanes, and pedestrian facilities; and (b) installing bus-bays and providing heat preserving shelters at bus stops.

5. Component 2: Public Transport Fleet Renewal and Operations Improvement (25 percent of total project cost). This component will finance: (a) the procurement of cleaner-fuel and accessible buses to increase usage of cleaner-fuel vehicles and introduce accessible buses to be used by people with disability; (b) implementation of enterprise office automation system to improve business operation within bus companies; (c) establishment of fleet supervision, control and management system to schedule, dispatch, monitor and coordinate fleet operation and manage maintenance need; (d) installation of GPS based on-board unit and surveillance equipment on fleet vehicles; (e) deployment of real-time passenger information system at bus stops along proposed corridors; (f) construction of passenger hubs, terminal, depots/garages, maintenance facility; and (g) bus driver training facility.

6. Component 3. Traffic Management and Safety Improvement (Seven percent of total project cost). This component will finance the procurement of equipment, consulting services and training for: (a) traffic control system, including traffic signals with bus priority function to ensure bus priority and pedestrian crossings safety; (b) traffic control center equipment and integrated comprehensive management platform software, (c) real time traffic information system through Variable Message Sign on traffic conditions; (d) traffic surveillance and violation enforcement system; and (e) traffic safety education center.

7. Component 4. Emergency Response and Road Maintenance (Three percent of total project cost). This component will support Harbin Municipality to develop an effective emergency response and road maintenance system. The project will finance (a) consulting services for the development of a comprehensive emergency management strategy to respond to severe weather conditions; (b) procurement of emergency rescue equipment and specialized road maintenance equipments; and (c) procurement and installation of a geographic information system and other equipments to develop a comprehensive inventory of urban roads, bridges, underground pipes, and to assess the condition of these assets and determine the repair and maintenance requirements.

8. Component 5. Institutional Reform and Capacity Building (Three percent of total project cost). This component will support improvements to the institutional and financing framework within which public transport services are developed and operated. The project will finance consulting services to: (a) develop an updated bus route structure and schedule, taking into account the changing land use patterns in the project cities and the need to integrate with the new metro lines in Harbin; (b) improve the ownership and regulatory structure in Harbin, including better integration of private and public sector operators, and clarifying and separating the government’s role in service
operation and regulation; (c) improve the enforcement of the current concession agreement in Mudanjiang through better performance agreement and development of the government’s regulatory capacity; (d) study and develop policy options for the establishment of a new financing and funding arrangement for urban transport in Harbin, including through identification and earmarking of transport user fees for the development of a sustainable urban transport and increasing market-based financing for public transport improvement; this will also include strategy for improving revenue and reducing and better targeting of subsidies; (e) study and develop an integrated air quality and transport plan for Harbin including the establishment of air quality monitoring system, building on the GEF supported project. The project will also finance consulting services for project management, and domestic and international training and study tours, as well as consulting services for design and supervision of civil works, and preparation and implementation of related environmental and social safeguard documents.

9. Annex III has detailed project cost breakdown. The total cost of the proposed project is US $493 million, of which US$200 million will be financed by the proposed IBRD loan. Each city is currently slated to receive US$100 million loan. The actual loan amount for each city (within the total project loan amount) will be decided during further project preparation based on the readiness of the city for appraisal. This is designed to provide incentives and competition between the two cities to speed up project preparation and achieve a higher level of readiness for implementation.

IV. Safeguard Policies that might apply

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V. Financing (in USD Million)

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