



# Pre-Feasibility Study on Bus Rapid Transit Project Islamabad, Pakistan

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November 2012  
Executive Summary



## A. Introduction

1. This report summarizes the findings of a 4 month prefeasibility study which developed a 10 Year Public Transport Plan for Islamabad and a complementary BRT Project as a key component of that plan. The BRT Project, as defined herein has been developed within the context of the political, economic, technical and institutional landscape of Islamabad. For many stakeholders engaged in this PFS, it has been an initial introduction to the concept of a BRT. In this context, the BRT Project should be viewed as a work in progress where with subsequent analysis and detailed design, variations to some of the components and costs may be required prior to final investment decisions being made. However, in the context of the PFS process, the 10 Year Public Transport Plan and the BRT Project provide a sound basis and the initial step in developing a sustainable urban transport outcome for Islamabad.

## B. Overview

2. **The City and Development Issues:** Islamabad is Pakistan's 10th most populous city with a current population estimated at 1.29 million, which is growing at 4 percent per annum. It is one of few cities in the world which has been fully planned from the outset and which continues to maintain the original urban structure. Moreover, being the nation's capital, some 47 percent of the total workforce commute daily to the range of Government offices, located in the Pak Secretariat and along the Kashmir Highway in Sector G-10 and G-11. The social profile of the urban area is generally uniform within the sectors. This means that the middle and lower income levels and the urban slums (katchi abadis) are identified and confined to discrete locations within the urban area. Lower income members of the community are most in need of public transport, and currently rely on existing services for their mobility. The BRT corridor alignments have been designed with this market in mind for this initial phase of the project.

3. **Ten-Year Public Transport Plan:** The city does not have an urban transport master plan for the forward management of the sector. Nor does it have any reliable data on travel desire lines with which to inform the development of a sustainable network. What is known is that of the 44 routes licenced to operate, only 14 were operating in 2009. This speaks volumes for the falling demand, and the future viability of the sector. Consistent complaints regarding the unsavoury treatment of passengers by transporters over the past decade have largely gone unnoticed by the authorities. Passenger surveys undertaken in this PFS have found over 90 percent of existing users are unhappy with the current system. A new impetus is required to improve the situation and to reverse this trend.

4. This PFS has undertaken limited traffic, household and consumer surveys to begin to understand travel demands and the mobility issues facing the urban population. From this, and in conjunction with other analysis, site observations and community engagement, a ten-year Public Transport Plan for the city has been developed as a reference framework within which a BRT network can develop. This BRT Project is the initial phase of a longer term strategy (within the Ten-Year Plan), where the BRT can be developed in to a whole-of-city network and form the backbone of a comprehensive and integrated multi operator public transport network for the urban area (including links to Rawalpindi).

## C. BRT Project

5. **Components:** The Project includes a 26.6 km corridor with 53.2 km of segregated runningways operating adjacent to the median. It will be supported by 33 median-based stations, 4 end-of-line terminals and one depot. A fleet of 48 high floor/level boarding buses will provide a 10-minute frequency for four routes and a six minute frequency for one route

during peak hours, and a 15-minute frequency at other times. Service hours will be from 6.00am to 10.00pm Monday to Saturday, and from 7.00am to 10pm on Sundays and public holidays. The BRT will be supported by an automatic fare collection system, real time passenger information at stations and CCTV system. Bus priority will be managed through a BRT Control Room, forming an integral part of the operation.

**6. Indicative Project Costs and Revenues:** Based on initial PFS project specifications, the indicative capital cost estimate (including the fleet) for the BRT Project is US\$ 79.00 million. The annual operating costs (including a provision for infrastructure maintenance) is estimated to be US\$ 3.78 million. Due to the complete absence of any prior travel demand data and limitations of PFS traffic counts undertaken, passenger demand is extremely difficult to estimate. Early indications however infer a demand approaching 42,000 passengers per day may be achievable. Revenues, based on a daily passenger demand of 42,000 at an average fare of Rs. 30, Rs. 40 or Rs. 50 provides an annual revenue stream of US\$ 3.89 million, US\$ 5.19 million or US\$ 6.5 million respectively. In addition, advertising revenues may add a further 1 percent to the above revenue stream.

**7. Financial Analysis:** On the basis of the above, the estimated cost recovery varies from 102 percent, 137 percent and 170 percent, depending on the fare to be charged. This estimate, although preliminary should be viewed with considerable caution as fare box revenues of the great majority of BRT systems globally do not cover annual operating costs and is the reason why most BRT systems receive an operating subsidy from Government as part of Government's contribution to the task of providing equitable mobility for all.

**8.** From a capital investment perspective, the assessment has shown that assuming (i) Government funds all capital costs, (ii) the daily patronage is as suggested above,; then the IRR estimates for fare level scenarios of Rs 50, Rs. 40 and Rs. 30; are 14 percent, 11.6 percent and 8.6 percent respectively, and the payback period under these conditions is 15, 17 and 20 years respectively. Clearly the project requires additional patronage to make it a viable investment. This underscores the need to penetrate the estimated 400,000 per day commuter market travelling from Rawalpindi.

**9. Economic Assessment:** Irrespective of the need for public subsidy, cities continue to invest in BRT systems on the basis of the economic benefits captured. These include savings in travel time and operating costs, reduced motor vehicle accidents and lower pollution levels. Increased mobility also generates additional employment opportunities, adding to the economic activity of a city. The proportionate impacts on the poor and women is also likely to be significant due to their existing reliance on (poor, inefficient and largely unregulated) public transport. Increased BRT connectivity and travel efficiency improves the attractiveness of businesses along the alignment, raising land values, and significantly larger volumes of passengers can be moved through congested corridors compared with private vehicles. In the future, if the Islamabad BRT system is linked to Rawalpindi, it will then have a marked benefit for the many thousands of commuters relied upon by Islamabad for its economic and commercial vibrancy.

**10. Implementing Institutions:** The Capital Development Authority (CDA) will act as the implementing agency. It is currently establishing a BRT Cell within its structure to develop and implement the BRT Project. The cell is proposed to initially comprise 13 personnel in four specialist units (network development, engineering services, contract and legal, and market development). In addition to this, it is envisioned that the initial functions of the cell could be greatly enhanced through international technical assistance provided by one or several IFI's if possible. Over time, and in order to develop the additional BRT phases and other initiatives contained in the ten-year Public Transport Plan, it is envisaged that the BRT

Cell will transition into an Urban Transport Wing within CDA, to assume responsibility for all relevant aspects of the urban transport sector.

11. Three other institutions are also involved in the urban transport sector. Firstly, the Islamabad Transport Authority (ITA) licenses vehicles and issues passenger carriage permits for bus and taxi services within Islamabad. Secondly, the Islamabad Police is responsible for traffic management and general security matters on the city's urban road network. And thirdly, the Infrastructure Project Development Facility (IPDF) has a specific mandate to assist all Government agencies to prepare projects for public private partnership (PPP) modalities, such as the BRT Project. The IPDF has also been instrumental in the PFS by completing the financial and economic analyses of the PFS.

12. **Implementing Modalities:** The CDA is keen to optimize private sector involvement through PPP modalities. The recent increase of PPP projects in Pakistan demonstrates the Government's desire to consider innovative ways of developing and financing infrastructure investments such as this. Through this PFS process, three BRT financing options have been assessed by the CDA and PFS team; (i) CDA self-financing (ii) Government grants with IFI support, and (iii) financing through PPP modalities. Following the analysis, it is clear that the most plausible way forward is a mix of options (ii) and (iii), that is, financing through Government grants and available IFI support, with optimized private sector involvement wherever possible.

13. Also, there appears to be a paradigm shift away from the original CDA concept that the private sector will 'design-build-finance-operate' the entire system with little Government support, through to concepts where CDA is to retain ownership and control of the BRT system, and engage the private sector to provide and operate specific components and systems, where their involvement is advantageous to all. This includes the CDA taking a lead position in the development and implementation of the Project, funded through a blend of financing provided by the CDA, the private sector, and potentially one or several IFIs. The CDA are currently discussing these options, and the IPDF is advising on possible PPP structures and how to proceed. The IPDF welcomes additional support and guidance from IFIs in this process.

14. **Environmental Assessment:** Initial analysis indicates that the BRT Project is unlikely to result in significant impacts to receptors or the environment. The Project will also have a significant positive impact from a climate change perspective by reducing the greenhouse gas emissions within the urban area. From the estimated 16.294 million km reduction in annual kilometres travelled (mainly by low occupancy private vehicles), it is estimated at this PFS stage that this translates into approximately 4,290 tonnes of CO<sub>2</sub> emission savings per year.

15. **Social Assessment:** PFS surveys confirm widespread (>90 percent) public dissatisfaction with existing public transport services, and high levels of support for improved, higher quality services. Women, the elderly and disadvantaged groups in particular prioritize the issues of service reliability, seat availability and being treated with respect by drivers and conductors as key deficiencies. Two out of every three trips on public transport are daily commuter trips, the largest single market, where private sector workers account for 26 percent of the market and Government employees 20 percent. Most respondents (83 percent) pay less than Rs 100 per day for public transport, and there is widespread willingness of current users to pay for premium services, although women are more price sensitive. Over 75 percent of journeys by low-income households are by public transport, underlining their reliance on this transport mode, while less than 25 percent are by bicycle, reportedly due to safety fears.

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## D. Next Steps

16. **Feasibility Study:** A full Feasibility Study is recommended as the next phase of Project development. This will involve the preparation of detailed designs and cost estimates; relevant financial, economic, social and environmental assessments, and necessary capacity building in order for the BRT Cell to be able to develop and implement the BRT system going forward. The estimated cost of this Feasibility Study is US\$802,340.

17. The BRT Cell must fully understand the market for travel and how to develop policies which are relevant for the city, assist the BRT maintain its relevance and ensure mobility options for all residents are maximised in accordance with modern policy and planning principles. These are the basis of any future TAs the CDA should consider seeking assistance with.

18. **Project Implementation:** Successful implementation will depend on CDA's capacity to prepare itself (during the time the Feasibility Study is being undertaken) for a number of key capabilities so that it becomes an informed agency in relation to BRT and (eventually) to the urban transport sector in general. These tasks include (i) preparation of various contract documentation, (ii) BRT planning and design manuals, (iii) the preparation of EOs and selection of contractors, (iv) the financial management of the construction and procurement processes, (v) BRT operations and management expertise (for application in the BRT Control Room) and (vi) a vast improvement in the capacity to engage in a meaningful way, existing transporters, Government agencies, and the general community. Only when this has been achieved, can CDA claim to be in a position to successfully implement the BRT and manage the broader responsibilities required of the ten year Plan.

19. Such expertise will require a TA program to impart this capability. This PFS has estimated this will require a 7 month dedicated effort by CDA and the TA supporting team. Should CDIA consider this TA, the estimated cost is US\$ 515,900. To move the entire process forward, CDIA, CDA and IPDF should commence serious discussions on the extent to which CDA is progressing with the activities documented in Volume 1, Chapter 12.