Bhutan Green Transport Project
Project Information Memorandum

Introduction

This Project Information Memorandum (PIM) contains a summary of the different components of the Bhutan Green Transport Project (BGTP), which is a climate mitigation project designed to provide safe, reliable, affordable, and environmentally sustainable public transport system, complemented by improved infrastructure for non-motorised transport in Thimphu, the capital of Bhutan. The technical designs for BGTP have been completed with the support of World Bank project preparation funding and a funding application to the Green Climate Fund (GCF) is being drafted prior to the implementation of the project by the Royal Government of Bhutan. This PIM provides background information for potential investors, contractors, and suppliers.

The Investor Day for the Project was held on June 26, 2024, both virtually and in-person, to familiarise potential international investors, suppliers and contractors with the project, to provide contact with potential Bhutanese partners or sub-contractors and to explore the most cost-effective ways of dividing the procurement packages and allocating the project risks.

The Project

Bhutan is carbon-negative due to its extensive forest cover, but this status is threatened by potential GHG emissions from its transport sector. The Bhutan Green Transport Project (BGTP) is designed to provide an alternative to the typical development pathway of increasing the use of private vehicles by creating a more efficient, safer, zero-emission public transport system and encouraging the use of non-motorised transport. The context for the project is the Royal Government of Bhutan's Low Emission Development Strategy (LEDS), and the project initially focuses on the transport needs of Thimphu, Bhutan's capital city, but sets up the institutional arrangements and policies with the potential to deliver similar objectives across Bhutan with additional investment in the future. The project comprises three Components:

<u>Component 1: Creation of a Bus Priority Lane and the Procurement of 50 E-Buses</u>

1. The creation of a 14.4 km bus priority lane in each direction along the 18.7km long north-south axis through Thimphu which will allow a more reliable, frequent, and

affordable public transport service to the city centre with modern bus shelters and live information on expected waiting times for individual services;

2. Supporting infrastructure for maintaining, cleaning, and charging the bus fleet including two new bus terminals at each end of the trunk route and improvements to the existing city centre bus depot, with facilities for driver rest rooms and other public facilities;
3. The procurement of 50 e-buses to provide additional capacity to meet expected demand and more frequent services along the route and the transition of the remaining diesel bus fleet to zero-emission buses as it reaches the end of its economic life to reduce GHG emissions and atmospheric pollution;
4. The use of a Fleet Management System, smartcards and Intelligent Transport Systems to assist in managing the bus fleet, providing electronic means of payment and live information on bus services for journey planning;
5. The potential for operators to provide dedicated services such as school buses to reduce peak hour demand for the scheduled services as part of a wider rationalisation of services set out in Thimphu's Low Emission Transport Master Plan (LETMP);
6. 23 signalised pedestrian crossings along the corridor, with bus priority, to improve road safety for pedestrians accessing the public transport services;

Component 2: Pedestrianisation of the City Centre and NMT Improvements

1. The pedestrianisation of Norzin Lam, the main commercial street in the city centre, and associated traffic management/circulation plans to provide detours and allow emergency access and delivery vehicle access (outside normal business hours); and improvements to connecting footpaths and building alleys as the first stage of a Non-Motorised Transport Plan to improve NMT transport across the city.;

Component 3: Institutional and Policy Strengthening

Institutional and Policy Strengthening to create the paradigm shift for transport across Bhutan that reverses the predicted growth in GHG emissions from transport and enables Bhutan to transition to a zero-emission public transport system.

The investment in green infrastructure through BGTP will itself lead to a significant modal shift to environmentally sustainable forms of transport, but further modal shift will be encouraged by other strategies set out in the **Low Emission Transport Master Plan** (LETMP) for Thimphu. These are:

- **Non-motorised transport –** prioritising pedestrians and active mobility
- **Public transport** – creating a bus priority lane in each direction along the trunk corridor through Thimphu and improving the quality, reliability, and frequency of bus services through BGTP
- **Vehicular circulation** – creating a clear road hierarchy, improving junction designs, signage, and road markings, and restricting vehicular traffic in densely populated areas of the city (such as Norzin Lam)
- **Car parking** – controlling on-street parking and limiting parking at places of employment as well as providing off-street parking away from the city core and using charging to influence travel choices and to discourage long-term parking in the city centre
- **Freight and delivery** – restricting access for HGVs to the city centre during normal business hours and providing neighbourhood parcel lockers and other measures to improve the efficiency of freight deliveries and reduce their environmental impact
- **Low carbon mobility** – encouraging the transition to low and zero-emission vehicles by the provision of charging points and other policy/fiscal measures
- **Mobility hubs and shared mobility** – providing facilities to encourage connectivity between modes, particularly public transport and encouraging car and bicycle pooling
- **Travel demand management** – encouraging off-peak travel through fare incentives and travel management planning at schools and workplaces
- **Transit Oriented Development** – establishing high density land use around key transport nodes and a mix of retail, residential and employment uses, and planning spatial developments around the transport network
- **Placemaking and wayfinding** – creating and distinguishing public spaces with clear signage and adequate connections which prioritise alternatives to private cars
- **Governance** – clear authority and coordination between institutions and effective enforcement and regulation, with public consultation and communication.

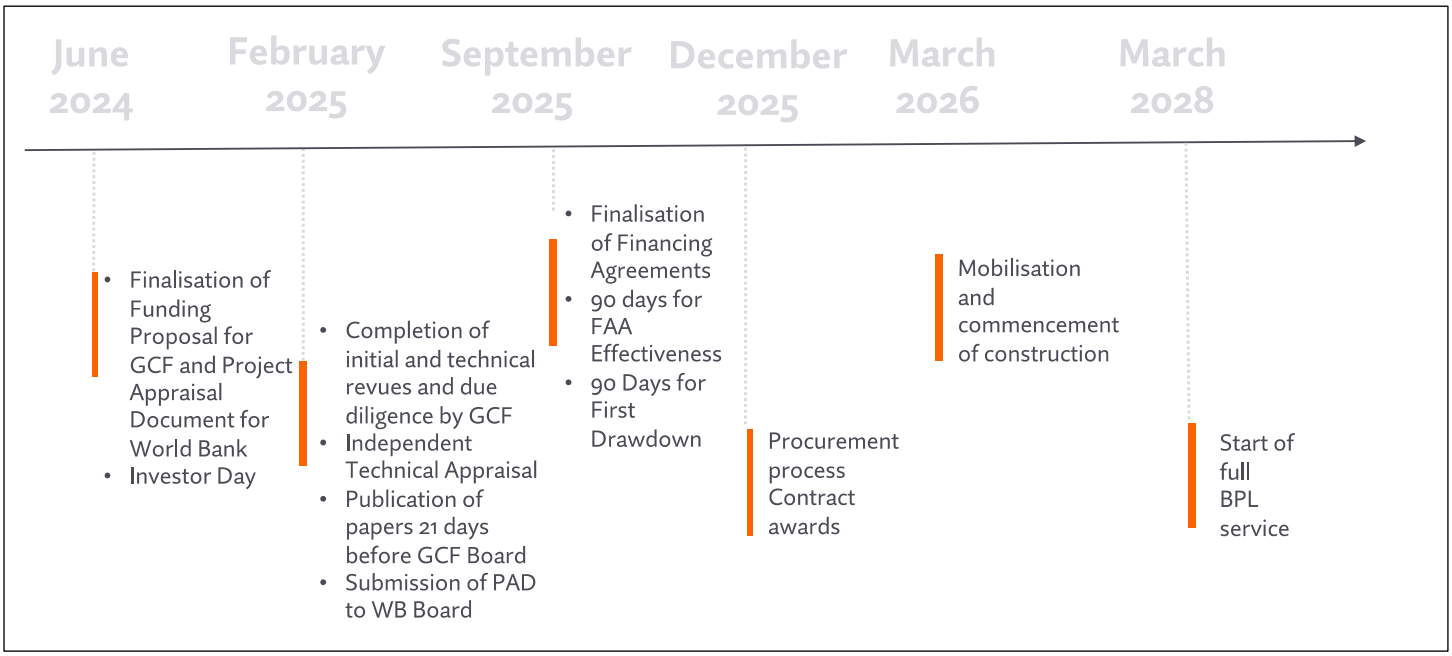
Timeline

The technical designs for the Bus Priority Scheme, including the depot and terminals, the specification for the Intelligent Transport System, the Management Information System, and the electric buses together with the Environmental and Social Impact Assessment, Gender Action Plan, Resettlement Action Plan and all associated traffic, climate impact, economic and financial analysis have been completed. The World Bank, as the Accredited Entity with the GCF for the project, is proposing to submit the funding proposal to the GCF Secretariat in summer 2024 for a decision at the GCF Board meeting in March. The procurement of the Bus Priority Lane (BPL) infrastructure and the Phase 1 Works for the pedestrianisation of Norzin Lam is expected to begin in Q4 2025 after the financing agreements are completed, and for construction to commence by the end of Q1 2026.

The procurements for the initial tranche of 50 e-buses and the Intelligent Transport and Management Information Systems will proceed in parallel with the procurement of the civil works.

Because of the need to phase the construction works for the BPL to minimise traffic disruption a two-year construction period is planned, but sections of the BPL will be brought into operation as the works are completed so that new bus schedules along the corridor can be introduced in 2028, using the fleet of e-buses which will have been gradually introduced into service over the preceding 12 months. A programme for the construction activities and a traffic management plan has been prepared as part of the technical designs.

Indicative timeline



Implementation Arrangements

The RGoB will establish a Project Management Unit (PMU) within the Ministry of Infrastructure and Transport (MoIT) to coordinate the procurement and implementation of the three components of the BGTP. The Ministry will also be responsible for the planning and implementation of the complementary strategies within the LETMP described above.

For the BGTP itself, the procurement and supervision of the construction activities including:

- The construction of the Bus Priority Lanes;
- improvements to sidewalks and the construction of bus bays;
- the installation of bus shelters, signalised pedestrian crossings;
- the widening of three existing bridges;
- the construction of two terminal buildings and improvements to the existing city centre bus depot, with the installation of 10 charging points and the provision for an additional 15 charging points as additional tranches of e-buses are procured in the future;

the pedestrianisation of Norzin Lam with associated traffic management works and improvements to the connecting footpaths and building passages will be managed and led by a

Project Implementation Unit (PIU) within *Thimphu Thromde* (which also managed the technical preparations for the project).

City Bus Service (CBS) has been responsible for the development and operation of bus services across the city since January 2020 and is to be established as a separate State-Owned Enterprise with a national mandate to provide public transport in other urban areas in Bhutan. It will be responsible for procuring an initial tranche of 50 e-buses and the Intelligent Transport and Management Information Systems to upgrade the existing Control Centre hardware and software and to provide service status information online (through the existing Gakyid Ride website) and at bus stops, pre-payment systems and journey planning for online and smartphone apps, and upgrades to the smartcard payment system.

The Management Information System will support route scheduling, staff rostering and maintenance planning and record keeping, as well as performance against key indicators as part of a Results Management Framework within a Public Service Agreement.

Proposed Procurement Strategy

All of the procurement processes will follow World Bank standards and will be supported by Component 3: Institutional and Policy Support and managed by the PMU within the MoIT. It will include:

- Project management and procurement capacity building for all of the infrastructure and IT components; and
- Policy support, technical assistance, and capacity building for RGoB to prepare for the implementation of the LETMP strategies, including public communications, the development of design standards and drafting of any legislation required to implement or enforce the BGTP and LETMP.

The procurement of the civil engineering to create the bus priority lanes and associated infrastructure will follow international competitive bidding. It is assumed that the bus shelters and charging facilities in the terminal buildings will be installed by the contractor, but that the installation of the information screens and cabling will be done by the ITS supplier. However, other options could be considered, for example the bus supplier could install the individual bus charging points and connect to the high voltage metered supply.

The construction activities associated with the pedestrianisation of Norzin Lam could follow national competitive bidding to provide opportunities for SMEs to bid for work which is of a smaller scale and to build capacity and experience in improving the non-motorised transport infrastructure across the city which is one of the longer-term LETMP strategies. Local contractors would be free to team up with a larger international firm.

The ITS and MIS design, testing, and commissioning would follow international competitive bidding and could include the terminals, GPS tracking devices, CCTV and emergency alarms in each of the buses, as well as the screens at the bus stops (see above).

The supply of the initial tranche of 50 9m or 10m e-buses would follow international competitive bidding and would include the delivery of the vehicles to Thimphu and the supply of essential spare parts over the expected life of the buses, including the mid-life replacement of the batteries (and their safe disposal or recycling/re-purposing), and training of local maintenance staff.. Local assembly and mid-life refurbishment of the buses could also be considered and any local employment benefits may be taken into account in the bid evaluation.

CBS will continue to operate a mixed fleet of diesel and electric buses until 2037, but responsibility for periodic maintenance of the e-buses could be transferred to the supplier, and possibly also some routine maintenance responsibilities. The value for money of transferring performance risks to the supplier through a monthly payment mechanism based on daily availability or vehicle kms could also be tested through the procurement process. The payment mechanism would include abatements and incentive bonuses similar to those proposed in the National Electric Bus Program (NEBP) in India. Escrow accounts for the payment of sums due to the supplier could also be considered.