POWERING FORWARD WITH ELECTRIC MOBILITY

LAO GREEN GROWTH FORUM

Vientiane Sustainable Urban Transport Project (BRT Project)

Crowne Plaza Hotel Vientiane

4 October 2022
The Vientiane Sustainable Urban Transport Project (VSUTP) will introduce a **Bus Rapid Transit** (BRT) system in Vientiane on 3 Routes:

- **BRT A**: Nong Teng – ITECC Mall (28 km)
- **BRT B**: Tha Ngon – Thongpong (39.6 km)
- **BRT D**: Fa Ngum Park – National University of Laos (BRT Corridor 12.9 km)

- **Depot**: Km 16 of Rt. 13 S

The total length of the routes to be operated by the Bus Rapid Transit is 80.5 km

Operating hours: 6 am – 10 pm
BRT Bus

The Project will provide a fleet of 55 units of 12-meter, 40 seat, low floor, Battery Electric Buses (BEB) for BRT with recommended spare parts, tools and related services.

The bus are designed to accommodate people with disabilities (PWD)

The contract includes a driver training program for 140 drivers, 2 years of vehicle maintenance supervision by full-time Maintenance Supervisor.
BRT will use a cashless fast fare collection technology through a contactless prepaid smartcard. Smartcards will be available at convenience stores and in major BRT stations.

Validation of smart cards on board by contactless readers.
Vientiane BRT is an open BRT system: BRT Route D is operating along the 12.9 km BRT Corridor from one end to the other. There the BRT buses run in bus-exclusive lanes.

The other two BRT Routes A and B will use part of the BRT corridor and extend outside the corridor.
BRT Stations Architectural Design

❖ All BRT stations will have a distinctive architectural design, making them easy to identify.
❖ The BRT stations will be weather protected, readily reachable through the zebra crossings located at each end.
❖ Enhanced lighting will be provided in and around all stations to ensure safety at night.
❖ All stations will be monitored by CCTV and have real time information displays: Next bus arrival time.

There are 27 new BRT stations along the BRT Corridor including:

22 median stations

5 curbside stations
Some of the existing Diesel bus routes operated by Vientiane Capital State Bus Enterprise (VCSBE) will be taken over by the BRT service and other will continue to operate as feeder services for the BRT system.

Transfer between BRT and VCSBE buses and vice-versa will be free of charge with 3 transfer points at Fa Ngum, Central Bus Station (CBS) and Phongkheng (P17).

The two services will become integrated and form a 158 km long public transport network.
Along most of the length of the BRT corridor, the BRT lanes are laid in the middle of the road. Traffic segregation is by concrete kerb preventing vehicles from intruding.
Traffic Management - BRT Priority

All signaled intersections along the BRT corridor will be equipped with a Transit Signal Priority (TSP) system. The BRT bus is detected by a magnetic loop when approaching the intersection and interrupts the cycle of traffic signal, to give priority to the BRT bus.

If the signal is red when the bus approaches, the system will cut the red phase short and turn the signal into green so that the bus can pass through the intersection faster.

If the signal is green when the bus approaches the intersection, the system will extend green phase until the bus passes through the intersection.
BRT Bus Frequency

Peak Period
6am – 9am, 3pm – 8 pm

Peak Frequency:
5 minutes

Peak Frequency:
3.3 minutes

Peak Frequency:
5.8 minutes

Off-Peak Period
9am – 3pm, 8pm - 10pm

11 minutes

5.3 minutes

7.8 minutes
Pedestrianization around the BRT Stations

Some selected roads giving access to the BRT stations of Vientiane Core area will be pedestrianized.

Hatsady Road

Chao Anou Road

Hengboun Road
Pedestrianization of the core area

In the Vientiane Core Area, the 600m section from Khun Bu Lom intersection to Nam Phou Plaza has only two exclusive BRT bus lanes. It is called ‘Transit Mall’. This 600m section is closed to the general traffic.

In the Transit Mall the bus ways are raised up to sidewalk level, making the area pedestrian-friendly.

Access to the transit mall is authorized only to pedestrians, bicycles, strollers, skate rollers, e-pedicabs etc.

The transit mall is a walking street. The citizens living there will walk to and from their home or use e-pedicabs.
Introduction of E-Pedicabs

150 Electric Pedicab (e-pedicab) will be financed by the GEF under this project for a total cost of $460,000. The aim is to providing convenient transfer from and to the BRT stations thus promoting the use of BRT.

The e-pedicab can operate under pedal power only, or a combination of pedal and batteries. It can carry 2-3 people at a speed of up to 30 km/h.

E-pedicab can be grabbed through a mobile-phone-based ride-hailing and payment app. or by hailing directly on the street.

Operating hours are the same as the BRT service hours 6:00 am - 10:00 pm
New Parking Management

To enable the BRT system to operate without encumbrance, the project introduces a pay-parking management system. The new system is expected to substantially improve the current parking situation in the core area of Vientiane. The principles are:

- Strictly no parking on sidewalks (bollards).
- No parking on setback if less than 6m wide.
- Paid parking on one side or both sides of the road according to Parking map.
- No parking along roads with cycle lanes.

The Parking Management System will be based on smart-phone application. The name of the application and the code of the parking area will be shown on parking signs.

The new Parking Management system will increase the parking space vacancy and make it easy to find a parking space along the streets.

Parking is free at night and on Sundays.

The parking app. will point at nearby parking space, saving time, instead of cruising in search of a parking space.
Environmental Benefits of the BRT Project (VSUTP)

The BRT service combined with pay-parking system and e-pedicab service provides incentive for car and motorcycle users to shift to public transport, cycling and walking, hence yielding a wealth of environmental benefits.

#1 air pollution: low CO2 emission, reduced carbon print

#2 noise pollution: BRT e-bus and e-pedicab are more quiet than Diesel bus and the noisy tuktuk

#3 less risks of accidents owing to the BRT bus exclusive lane and well designed BRT stations.

BRT is quiet, safe, comfortable and environmentally friendly
BRT Depot

BRT Bus depot provides ample capacity of 60 parking spaces for the fleet of 55 e-buses. Each bus bay will be equipped with electric charger designed for overnight slow charge (6 hours).

Slow charge is required and the operating range of batteries is 90%-20% to ensure 8-year battery lifespan.
The BRT operational control center will be located at the BRT Bus depot at Km 16, RN 13S.

The Intelligent Transport System (ITS) will be hosted at the Operational Control Center including all hardware and software needed for data collection and distribution from and to the BRT Buses and Stations.

Computer-Assisted Dispatch manages bus reliability in real-time.

Passenger information displayed inside the buses are generated from the ITS system in the Control Center.
The Operational Control room includes CCTV monitoring system where all camera’s/recorders installed in the busses and the cameras of the stations are connected via fiber-optic cable.

The fiber-optic cable network conveys passenger information from the ITS in the Control Center, to the 27 BRT stations where the estimated time of arrival of next bus is displayed in real-time.
# Project Implementation Schedule

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- **12/09**: Phase completion
- **12/05**: Key milestone
- **08/04**: Important date
- **21/07**: Significant event
- **13/09**: Critical phase