Project Overview

(this summary does not form part of the bidding document. The Employer does not take responsibility for the accuracy of the information which may be subject to change. Please refer to the bidding documents for contractual data)

A. Requirements

1. Brief Description of the Scope

The Republic of the Union of Myanmar intends to apply for a loan from the Asian development Bank (ADB) toward the cost of the Greater Mekong Subregion Highway Modernization Project. Civil works contracts under the project will be jointly financed by the ASEAN Infrastructure Fund (AIF).

The project includes three outputs: (i) output 1: road rehabilitation and maintenance, (ii) output 2: Yangon-Mandalay expressway safety, and (iii) output 3: technical preparation of a Greater Mekong Subregion East-West Economic Corridor Highway Development project.

Civil works contracts are financed under output 1 and output 2 of the project. Specifically the works concern the following highways and works:

- Rehabilitation of Yangon-Pathein highway (km 0 to km 175)
- Rehabilitation of Bago-Thanlyin Highway (km 0 to km 99)
- Improvement of Yangon-Mandalay Expressway (km 0 to km 63)

The bidding documents are based on the preliminary design, prepared under ADB Technical Assistance no. 8987- Improving Road Network Management and Safety. The preliminary design was undertaken by PADECO, of Japan, in association with Martin Small Consulting (MSC), of Australia, and Myanmar International Consultants Co. Ltd. (MMIC), of Myanmar.

The Project Management and Contract Supervision Consultant (PMCSC) will be responsible for the final design for the works, including reviewing and confirming or adjusting as needed the road's profile, and pavement design, and preparing designs for some parts of the works such as bridges, intersections and, if required, soft soil treatments at some bridge approaches.

Rehabilitation of Yangon-Pathein highway (km 0 to km 175 – see map at Figure 1)

The start point is at the highway's first toll gate at the entrance to Yangon.

The end point is the intersection between the Yangon-Pathein highway and the Thang Paw Road at the entrance to Pathein.

From km 0 to km 10, the highway has 4 lanes, which will be resurfaced with asphalt concrete.

From km 10 to km 175, the highway has a currently a 6 meter to 7 meter wide bituminous penetration macadam pavement. The highway will be widened to two lanes (7 meters) and two 1.5 meter paved shoulders. Pavement will be strengthened and overlaid with asphalt concrete. Village sections will be resurfaced and provided with drainage. Between km 128 and km 148, a 20-km section located in a flood-prone area will be raised by about 2 meters. Five bridges will be replaced and one bridge will be constructed over a railway. Other bridges will be repaired.

The work involves:

- Earthworks for the widening, and between km 128 and km 148 for raising of embankment
- Asphalt concrete pavement strengthening and construction of new pavement comprising subbase, aggregate base, and asphaltic concrete pavement layers on the widening sections and in the raised section
- Reconstruction of existing intersections
- Repair, reconstruction and replacement of concrete bridges, the latter typically with pre- stressed concrete superstructure of 10 to 20 meters spans, on bored concrete pile foundations.
- Rehabilitation of some existing steel truss bridges, including fabricating and installing steel walkways.
- Installation of road furniture and pavement marking

Rehabilitation of Bago-Thanlyin highway (km 0 to km 99 – see Map at Figure 2)

The start point is the intersection between the Bago-Thanlyin highway and the road to Seinthalyaung Pagoda,

at the entrance to Bago.

The end point is at the intersection between the Bago-Thanlyin highway and the road to No 2 Thanlyin bridge.

The highway has a 4-6 meter wide bituminous penetration macadam pavement. The highway will be widened to two lanes (7 meters) and two 1.5 meter paved shoulders. The pavement will be reconstructed and paved with asphalt concrete. Fifteen bridges will be replaced or constructed. Village sections will be provided with drainage.

The work involves:

- Earthworks for widening
- Asphalt concrete pavement construction
- Reconstruction of existing intersections
- Replacement of bridges, typically with structures consisting of prestressed concrete superstructures of 10-20 m span on bored concrete pile foundations. [Installation of road furniture and pavement marking

Improvement of Yangon-Mandalay Expressway (km 0 to km 63 – see map at Figure 3)

The expressway links Yangon with the capital Nay Pyi Taw and Mandalay, an overall distance of about 600 km. It consists of a 4 lane rigid concrete pavement with some interchanges, but without effective provision for restricted access. It lacks most road safety provisions that would be standard on a modern high-speed highway.

The start point is the intersection between the Yangon-Mandalay "Old" Highway (National Highway No1) and the Yangon-Mandalay Expressway, near Hlegu.

The end point is located shortly before the Bawnetgyi interchange, which connects the Yangon- Mandalay Expressway with the Payagyi access road.

The scope of work consists primarily of carriageway and safety improvements, including the following:

- Construction or reconstruction of the inner shoulder (1 meter concrete pavement) and outer shoulder (2.5 meters, asphalt concrete pavement)
- Improvement of the median strip, including provision of mountable kerb and wire rope barrier;
- Overlay of the concrete slabs with an asphalt concrete wearing course
- Channelization of the interchange at km 0;
- Provision of guardrail and other road safety facilities at all bridge approaches; and
- Provision of road safety facilities, including signage and pavement marking.

2. Major Contract Components

Major contract components of the civil works on the project include the following:

- Roadworks: replacement of unsuitable material, embankment construction, capping layer and gravel sub-base and base course.
- Asphalt concrete works: surfacing, base and binder courses
- Bridge and culvert replacement, and bridge repairs
- Road furniture: pavement marking, signage and safety facilities

3. Estimated Quantities of Major Components

Road	Yangon-Pathein Highway			Bago-Thanlyin Highway		Yangon-Mandalay Expressway
Package	HMP - YP			HMP - BT		HMP - YM
Lot	L01	L02	L03	L01	L02	L01
Start point (km)	0	70	128	0	46	0
End point (km)	70	128	175	46	99	63
No of lanes	4 (10 km) 2 (60 km)	2	2	2	2	4
Earthworks, cut and fill (m3)	350,000	300,000	600,000	380,000	450,000	150,000
Granular capping layer, base and sub- base (m3)	135,000	120,000	170,000	185,000	220,000	100,000
Asphalt works (m3)	76,000	78,000	72,000	65,000	77,000	50,000
Concrete works (m3)	2,300	600	6,700	7,700	9,000	19,500

4. Methods Required

Works are to be carried out under traffic. The contractor will construct temporary diversions up to 5 km in length where required, and consider night works on the heavily trafficked sections near Yangon.

5. Key Personnel and Key Equipment

Indicative key personnel

#	Position	Total Work Experience [years]	Experience In Similar Work [years]
1	Project Manager	15	10
2	Deputy Project Manager	12	10
3	Construction Manager	12	10
4	Senior Highway Engineer	12	8
5	Senior Bridge Engineer (Structural)	10	8
6	Geotechnical Engineer	10	8
7	Quality Control Engineer	10	8
8	Quantity Surveyor	10	8
9	Setting Out Engineer	8	5
10	Environmental Health and Safety Officer	8	5

Notes:
Position 2 Deputy Project Manager should speak Myanmar language fluently
At least one of either positions 1, 3, 4, 7 or 8 should speak English fluently

Indicative key equipment (expected) – per Lot

#	Equipment Type and Characteristics	Minimum Quantity
1	Bulldozer	2
2	Excavator (>100HP)	4
3	Motor Grader	3
4	Milling machine / cold planer (minimum 1.2m planed width)	1
5	Bitumen decanter 15,000 l/day if contractor intends to use drums	1
6	Bitumen Distributor (>6000 L)	2
7	Asphalt Plant (>120 t/hr)	1
8	Asphalt Paver (minimum 5.1m paved width)	1
9	Vibratory Roller	8
10	Tandem Roller	4
11	Pneumatic Tired Roller	2
12	Transit mixers for concrete	Sufficient for works
13	Cranes – minimum 20 ton capacity	2
14	Trucks	Sufficient for the works
15	Pile Drivers and/or Pile Boring Machines	Sufficient for the works

6. Contract Implementation Period

The implementation period and defect notification period for the contracts is as follows:

Package Number	Lot Number	Implementation Period	Defect Notification Period
HMP - YP	L01	36 months	12 months
	L02		
	L03		
HMP - BT	L01		
	L02		
HMP - YM	L01	24 months	

B. Supplementary Information

1. Project Country

The project country is the Republic of the Union of Myanmar. Information on the economic, social and political situation of the country can be found on the following web-sites, among others:

http://data.un.org/CountryProfile.aspx?crName=Myanmar

https://www.adb.org/countries/myanmar/main

http://www.worldbank.org/en/country/myanmar

The executing agency for the project is the Ministry of Construction (MOC). MOC includes among others a Department of Highways (DOH) and a Department of Bridges (DOB). The implementing agency for the project is DOH. DOH manages a road network of about 40,000 km comprising: (i) National Highways (which include expressways, international communication roads, union roads, and region and state connecting roads) on behalf of MOC, and (ii) Region and State Roads (which include district and township connecting roads, and township and villages connecting roads) on behalf of region and state governments.

2. Contract Sites

Rainfall and Meteorological Data

The project highways are located in the Ayeyarwaddy, Yangon and Bago regions. The rainy season in the project area is between the months of May to October, during which period most rainfall occurs.

Yangon–Pathein highway

See Figure 1 location map.

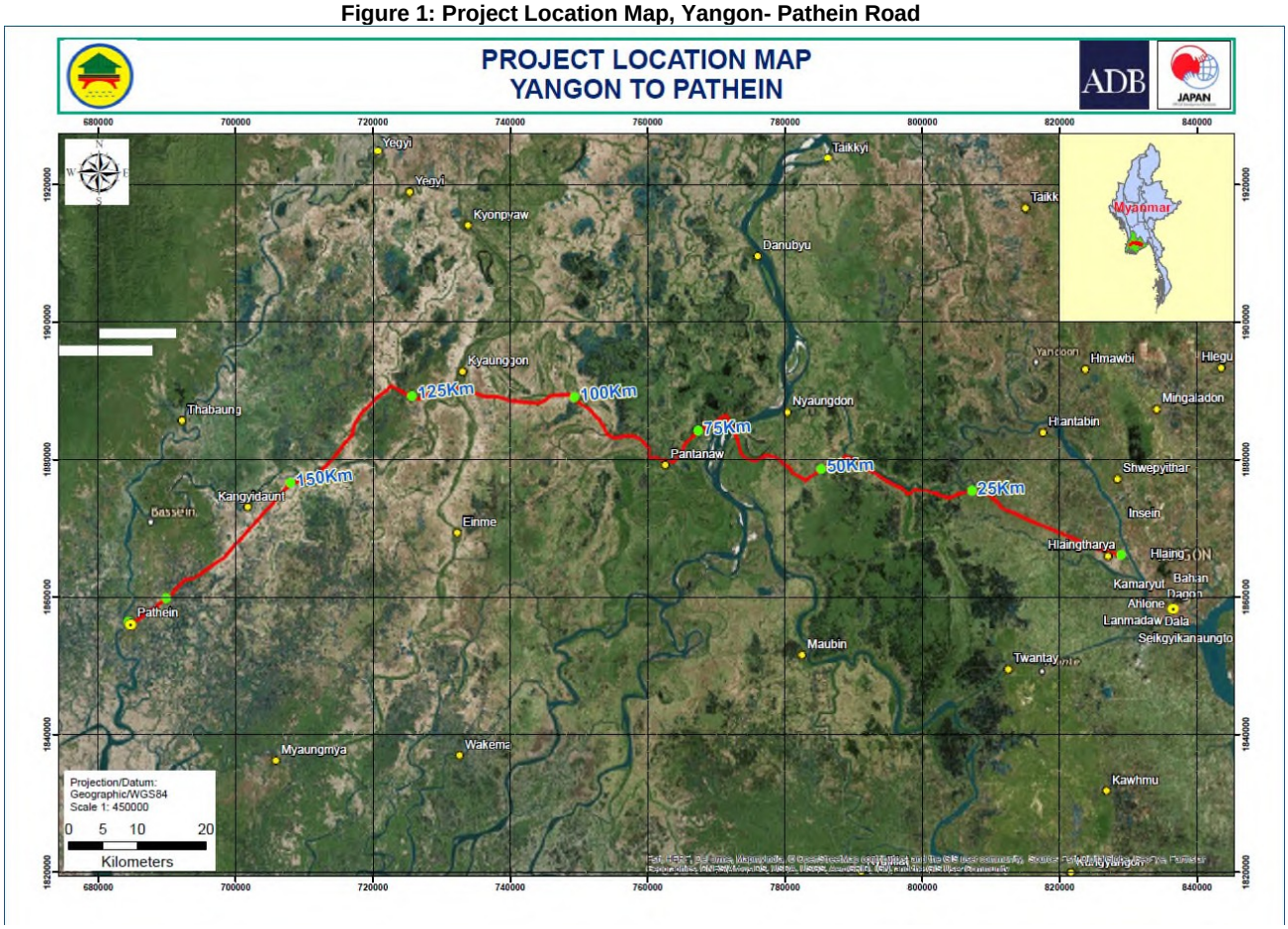
The highway is located in the Ayeyarwady delta and passes through the Yangon region and the Ayeyarwady region.

The highway's first 10 km section has 4 lanes and 14 m carriageway width, and passes through the West Yangon industrial zone. The highway continues as a 2-lane road, with 6 to 7.2 m carriageway and unpaved shoulders, mainly open fields and cultivated areas. The highway crosses the Ayeyarwady river at kilometer 68 with a major steel truss bridge. There are 5 toll gates along the route.

The alignment is straight and flat, with very limited curves and slopes, and elevations barely 10m above sea level. Geometric profile generally allows for speeds up to 80 kph, but the posted speed limits are 60 kph. The road is periodically flooded in the section between km 128 and 148.

Main settlements crossed are Hlaingtharya Township at the start of the section near Yangon, Samalauk, Pantanaw, a developed market area near Inma village, and the city of Pathein at its end point.

Figure 1: Project Location Map, Yangon- Pathein Road



Bago-Thanlyin Highway

See Figure 2 location map.

The Bago-Thanlyin highway passes through the Bago Region and the Yangon Regionsand is entirely located in the Bago river basin.

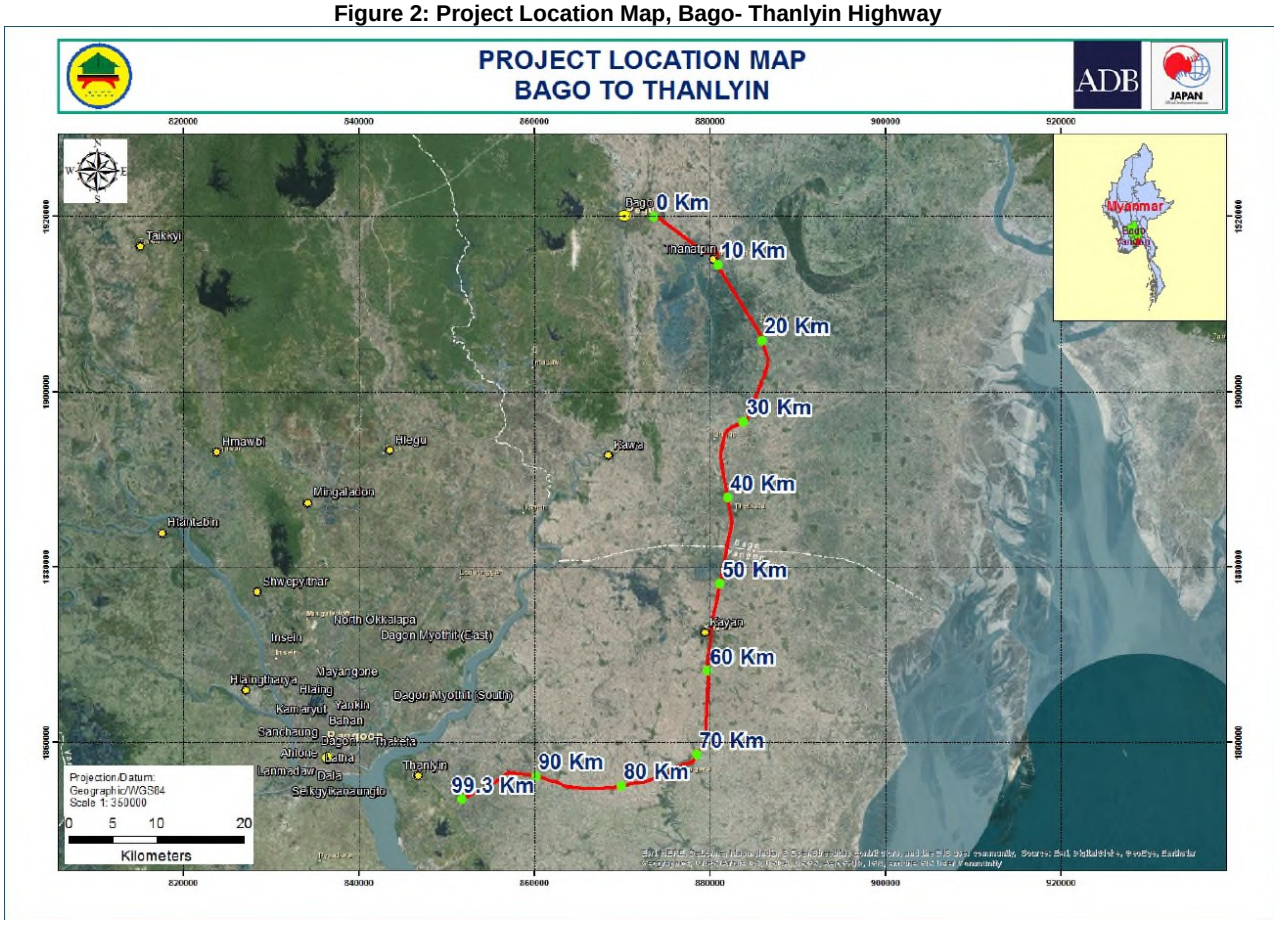
The highway commences Yangon-Mandalay “old” highway (National Highway 1), at Bago in the north and ends at the south with access to Thilawa Special Economic Zone, and Yangon city through the bridges over the Bago River.

The highway is currently a narrow 2-lane or 1-lane road with width between 4 m and 6 m carriageway and unpaved shoulders. It passes through mainly open paddy fields.

The alignment is straight and flat, with very limited curves and slopes, and elevations barely 10m above sea level. Geometric profile generally allows for speeds up to 80kph, but the posted speed limits are 60 kph. The highway is sitting on high embankment for part of its length, and is otherwise protected by dikes and levees. The highway has been above flood level, even during the high floods of 2016.

The main settlement crossed is Thongwa, located at km 73, a very active market and local town. The main other settlement is Thanatpin, located South of Bago. Smaller villages are crossed by the project road.

Figure 2: Project Location Map, Bago- Thanlyin Highway



Yangon-Mandalay Expressway (km 0 to km 63)

See Figure 3 location map.

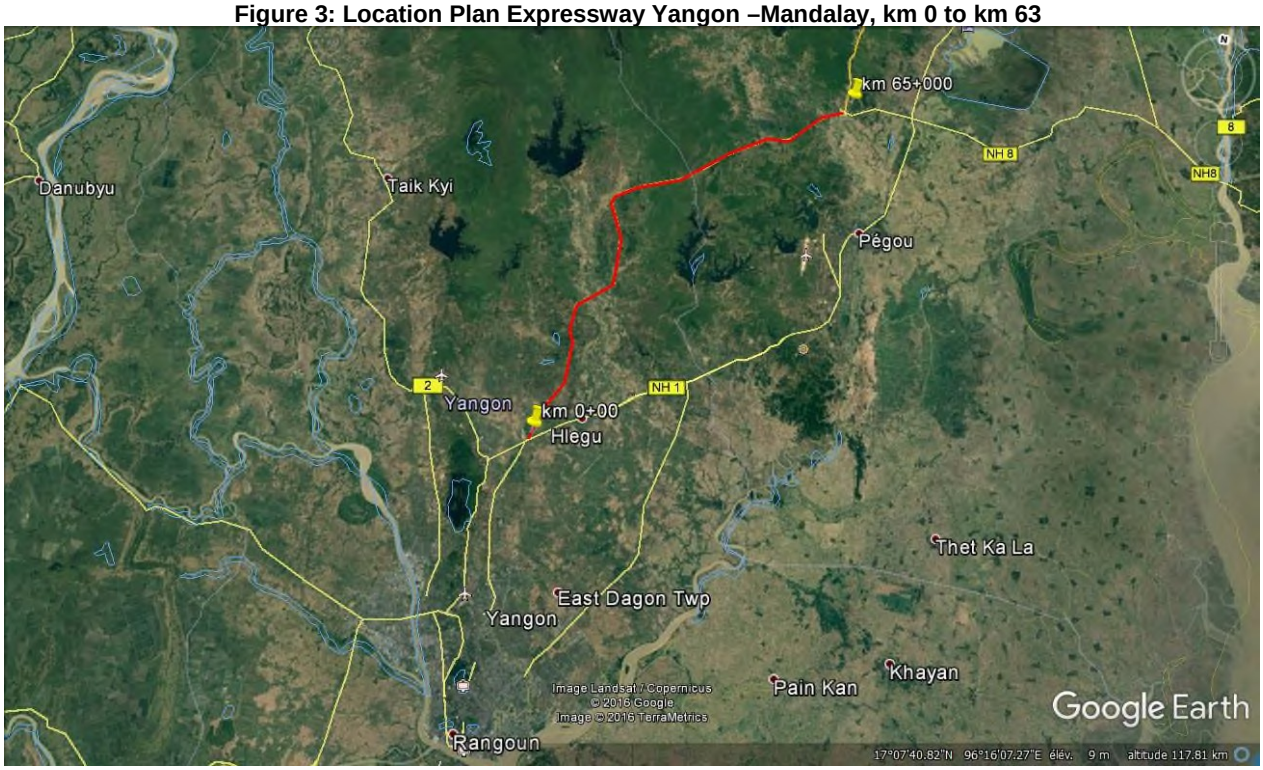
The section of the Yangon-Mandalay Expressway under the project is located in the Yangon and Bago regions.

The expressway is a divided road with two lanes of traffic (3.5 meter wide) in each direction, separated by a 6 to 8 meter wide grassed median, and with hard narrow outer shoulders. Traffic lanes are paved with concrete slabs. Part of the expressway section under the project have received an asphalt concrete overlay. The only interchanges at a km 0, and at km 64, shortly after the end of the contract section. There are no service areas.

The expressway section is in flat or mildly undulating terrain. Its posted speed is generally 100 kph. Some curves on the project section have low radius, as low as 350 meters.

The expressway's right of way of 400 feet is clear, but not fenced, and there are many informal road accesses and crossings. The expressway is currently regulated to be used by cars, buses and small trucks only.

Figure 3: Location Plan Expressway Yangon –Mandalay, km 0 to km 63



3. Applicable Conditions of Contract

Conditions of Contract for Construction (Multilateral Development Bank Harmonized Ed. Version 3: June 2010). For Building and Engineering Works designed by the Employer, prepared by the Fédération Internationale des Ingénieurs-Conseil, or FIDIC (FIDIC MDB Harmonized Construction Contract).