



THE REPUBLIC OF THE UNION OF MYANMAR
MINISTRY OF TRANSPORT AND COMMUNICATIONS
MYANMA RAILWAYS



Expert Group Meeting on the Use of New Technologies for
Facilitation of International Railway Transport

9-12 December, 2019

Rail Infrastructure Development Plan and Planning for International Railway Connectivity in Myanmar



Ba Myint

**Managing Director
Myanma Railways**

**Ministry of Transport and Communications
MYANMAR**

Contents

- **Brief Introduction on situation of Transport Infrastructure in Myanmar**
- **Formulation of National Transport Master Plan**
- **Preparation for the National Logistics Master Plan Study (MYL-Plan)**
- **Status of Myanma Railways and Current Rail Infrastructure Development Projects**
- **Planning for International Railway Connectivity in Myanmar**



Brief Introduction on situation of Transport Infrastructure in Myanmar



Overview of Transport Infrastructure in Myanmar



Myanma's Profile

- Population – 54.283 Million(March,2018)
- Area -676,578 Km²
- Coastal Line - 2800 km
- Road Length - approximately 150,000 km
- Railways Route Length - 6110.5 Km
- GDP per Capita – 1285 USD in 2018

Current Status

- Myanmar's Transport system lags behind ASEAN
- 60% of highways and rail lines in poor condition
- 20 million People without basic road access
- \$45-60 Billion investments needs (2016-2030)
 - Reduce transport costs by **30%**
 - Raise GDP by **13%**
 - Provide basic road access to **10 million** people and save People's lives on the roads.

Notable Geographical Feature of MYANMAR



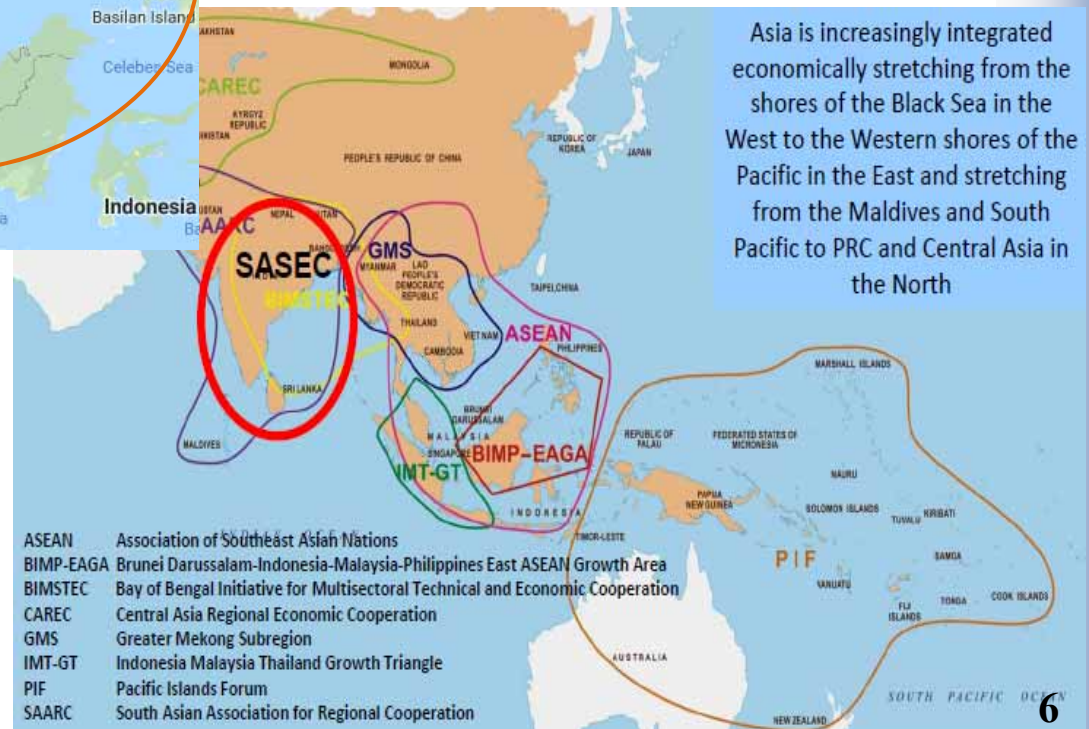
- As land - bridge between South Asia and Southeast Asia as well as with China
- Steep and long mountain ranges hamper the development of transport links with neighbors.

Notable Geographical Feature



- Situated at a cross-road of 3 large economic centers.
- At an intersection of tri-polar economic mass

Asia is increasingly integrated economically stretching from the shores of the Black Sea in the West to the Western shores of the Pacific in the East and stretching from the Maldives and South Pacific to PRC and Central Asia in the North



- As a land bridge with BIMSTEC, SAARC, SASEC, GMS, ASEAN countries

Transport Sector Administration



Ministry of Transport and Communications
Aviation, Maritime, Road and Rail transport



Ministry of Construction
Construction and maintenance of national roads and bridges



Ministry of Agriculture, Livestock and Irrigation
Construction and maintenance of roads and bridges in rural areas



Ministry of Border Affairs
Construction and maintenance of roads and bridges in border areas



Naypyitaw Development Committee



Yangon City Development Committee



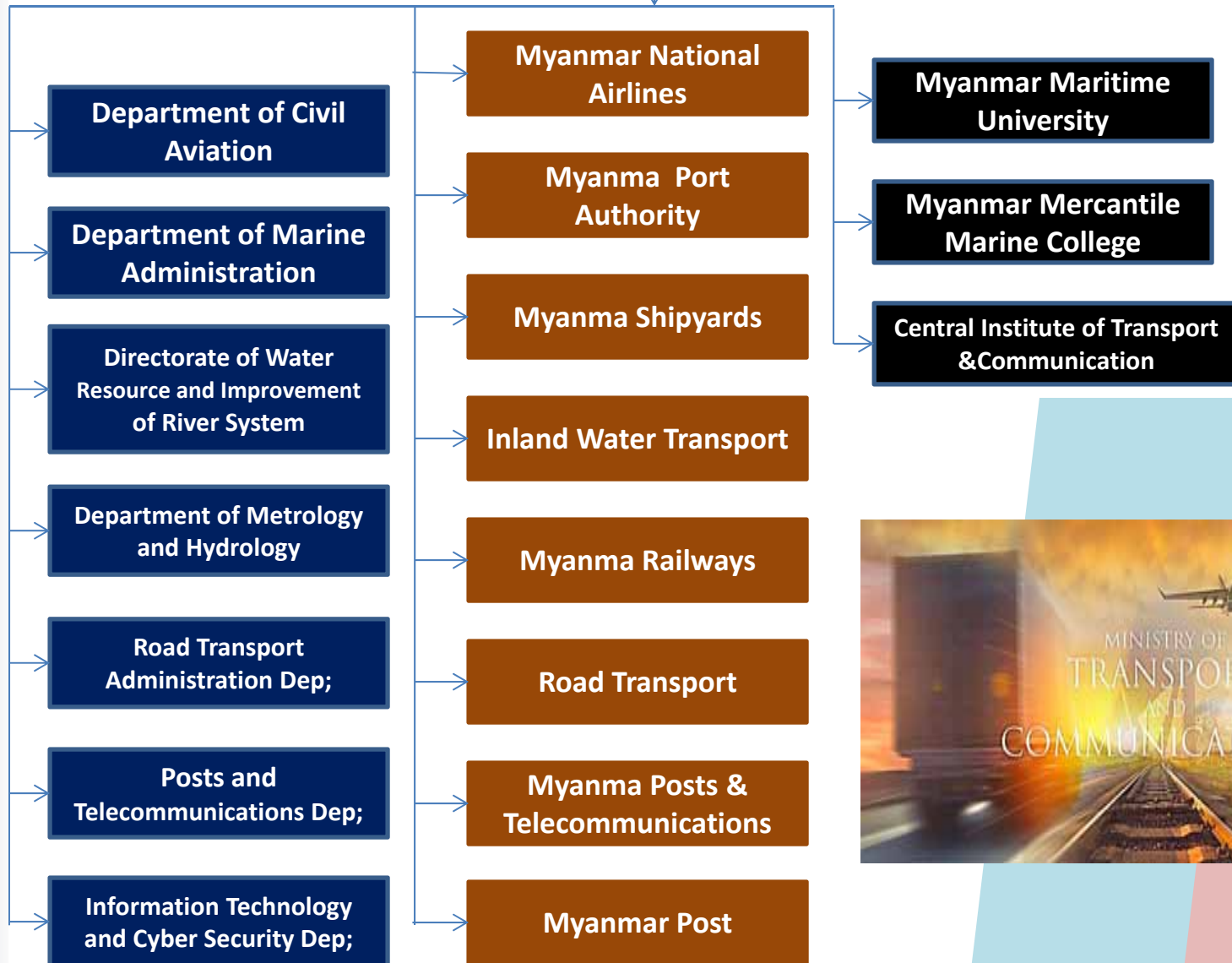
Mandalay City Development Committee

Urban Transport



18 Units of Departments, Enterprises and Institutes under Ministry of Transport and Communications

Ministry of Transport and Communications



Formulation of National Transport Master Plan

- Started in December, 2012 and completed in 2014 by the assistance of JICA.
- Master Plan is prepared in line with-
 - National Spatial Development Framework,
 - Regional Integration,
 - Demographic Framework,
 - Environmental Framework,
 - Financial Framework,
 - Economic Growth, and
 - Demand Forecast.

Projects in MYT-Plan

▪ Road Sector	(48) Projects
▪ Rail Sector	(14) Projects
▪ Maritime Sector	(15) Projects
▪ Inland Waterway	(33) Projects
▪ Air Sector	(32) Projects
▪ Total	(142) Projects

Transport Sector Vision

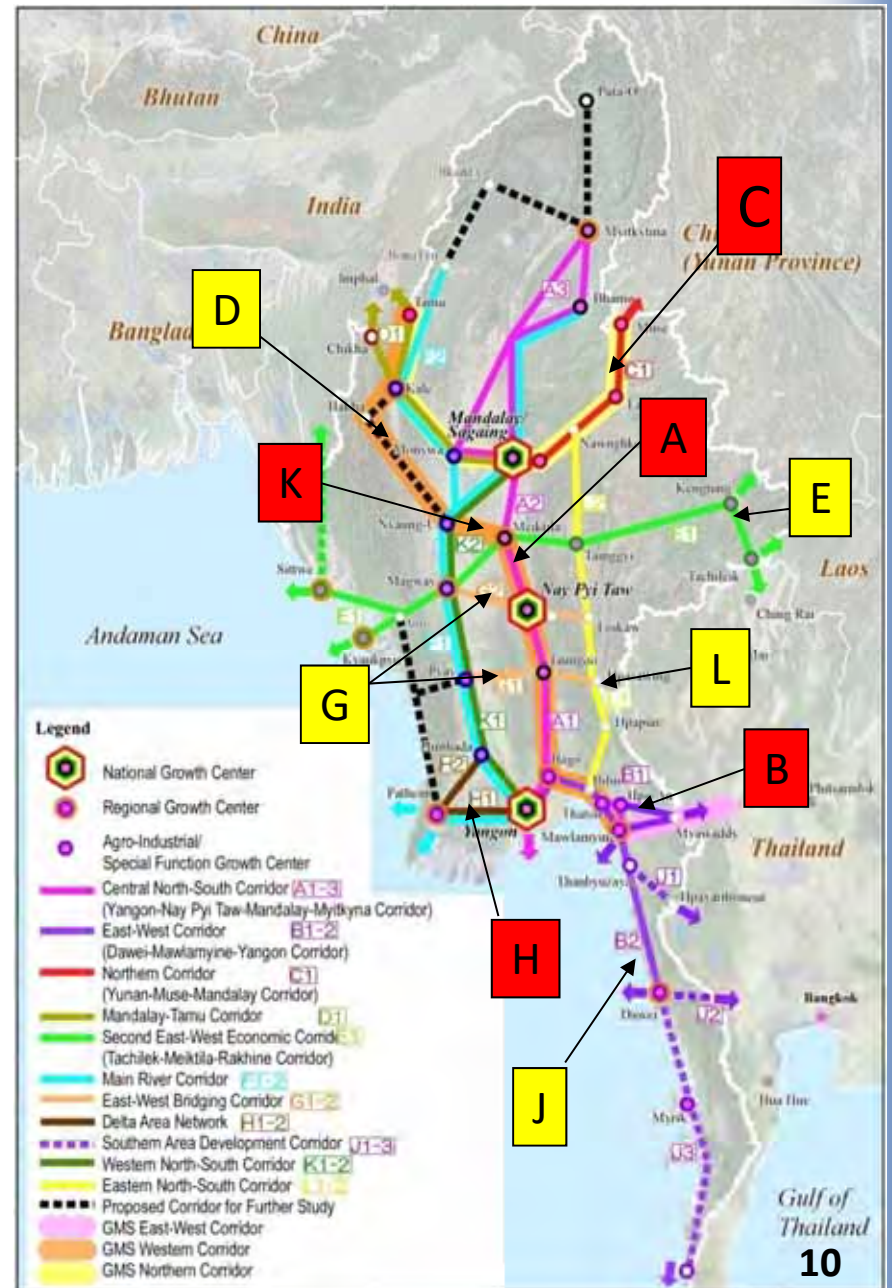
“To develop an efficient, modern, safe, and environmentally - friendly transportation system in a coordinated and sustainable manner that embraces all transport modes for the benefit of the country and people of Myanmar.”



Corridor-Based Development Approach

10 Major Corridors

- A** Central North-South Corridor
 - B** East - West Corridor
 - C** Northern Corridor
 - D** Mandalay - Tamu Corridor
 - E** Second East - West Corridor
 - G** East - West Bridging Corridor
 - H** Delta Area Network
 - J** Southern Area Development Corridor
 - K** Western North-South Corridor
 - L** Easter North-South Corridor
- Priority corridors for urgent investment**



Preparation for the National Logistics Master Plan Study (MYL-Plan)

Objective of the Project

- To formulate a strategic and workable logistics development master plan by adding and supplementing the existing National Transport Master Plan.

Vision

- To create an efficient, competitive and environmentally friendly logistics system in accordance with regional and international perspectives including the enhancement of multimodal transport for economic development and poverty reduction.

Policy Framework and Time Frame

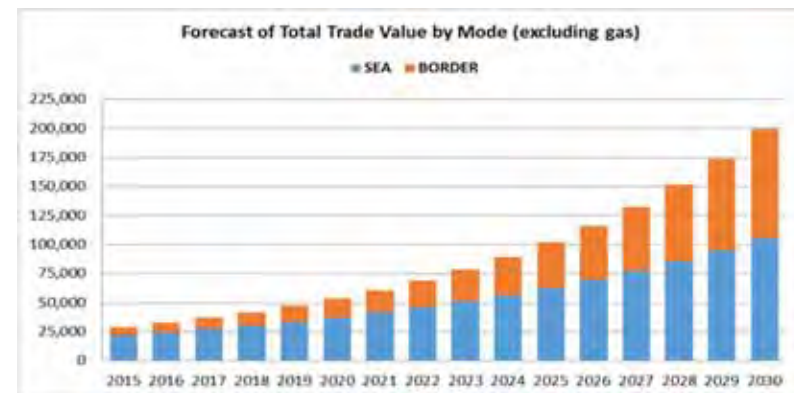
- In line with the parameters of the existing national plans and policies
- Formulated to support and materialize these plans and policies.
- The Project was started from June, 2016 and submitted Final Report in February, 2018.

Trend in Myanmar's Trade by Gateway

2012 – 2015



2015 -2030



Source: Study Team for projection based on the past trend.

Preparation for the National Logistics Master Plan Study (MYL-Plan)

Major Logistics Sector Issues

- ❑ Present transport infrastructure capacity will not be able to meet with rapidly increasing domestic and trade cargo volumes
- ❑ Need to be upgraded to meet with requirements of transport
- ❑ The freight transport cost in Myanmar is twice as high as cost in others.
- ❑ Extending the cargo dwell time and increasing transport cost.
- ❑ Low cargo transport efficiency is a major cause of high transport costs.
- ❑ Inland waterways transport, necessary infrastructure, unable to handle cargoes using mechanical handling systems.
- ❑ Railway, can provide lower transport costs with higher speeds for the long- haul of bulky cargoes in programed operations, is available it has not been utilized due to substandard infrastructures.
- ❑ No multimodal freight transport is available due to an absence of logistics providers and a lack of logistics facilities that function as transport hubs.

Yangon Port
(Congestion)



Rail Freight Transport

(manual cargo handling, Not applicable for Container Block Trains)



River Port
(manual cargo handling)



Preparation for the National Logistics Master Plan Study (MYL-Plan)

Identified and Prioritized Projects and Estimated Costs

■ Number of Identified Projects up to 2030

	Total	National Transport Master Plan (MYT-Plan)	Logistics
Projects	167	108	59
US\$ 1 billion	41	18	23

■ Type of Projects Identified

Hard Components (167 projects) :

- 1) Logistics facilities (truck terminals), transport infrastructure (roads, railways, ports, river ports, domestic ports, airports)
- 2) Creation of Multi-modal Freight Logistics Hubs at Strategic Locations / nodes.

Soft Components (22 projects) :

- 1) Legislation of Laws and Regulations
- 2) Capacity Building of Administrators
- 3) Fostering logistics providers
- 4) Undertaking various feasibility studies

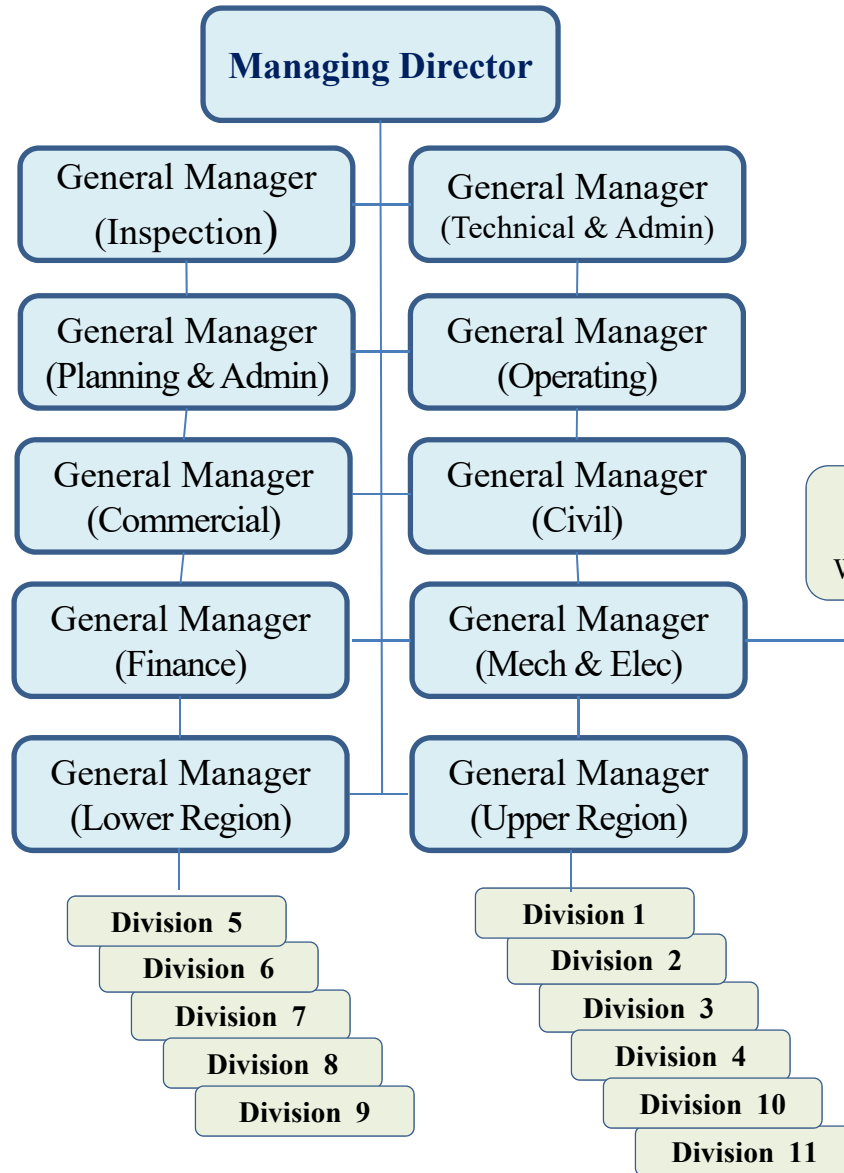
FACTS of MYANMA RAILWAYS



- Started in 1877 (142 year old)
- Single Route 5405.285 km
- Double Route 705.196 km
- Total Route Length 6110.481 km
- Total Track Length 7944.320 km
(The longest transport rail network among ASEAN members.)
- Bridges - 12103 Nos
- Tunnels - 12 Nos
- Railway Stations - 960 Nos
- 1000 mm gauge (Narrow gauge)
- Daily train operating (Total 422 nos. of trains) (168 Inter-City, 229 Urban and Suburban, 25 freight)
- Current Employment strength -20,900



MYANMA RAILWAYS ORGANIZATION CHART



❖ The Organization Structure of the MR had been made restructure on February 2016

Particular	Section Strength	Existing Strength June,2019
Officers	457	348
Other	32,550	19,330
Total	33,007	19,678

Each Division has been composed with;

- Chief Divisional Officer
- Divisional Traffic Manager
- Divisional Engineer(Mechanical)
- Divisional Engineer (Civil)
- Divisional Engineer(Signal & Telecom)
- Divisional Commercial Manager
- Divisional Finance Manager
- Divisional Medical Officer

Current Infrastructure development Projects by External Assistance



The Oldest Railway Bridge in Myanmar, "Gokteik Viadut"
Construction start/end: 28-4-1899/1-1-1900
Total length: 689 Metres (2,260 ft)

Yangon-Mandalay Railway Improvement Project



Scope of Works

- Civil & Track Works, Bridge work, Installation of new signaling system, Procurement of Modernized DEMU, Establishment of Workshop and depot, etc.

Phase 1 (Yangon - Taungoo)

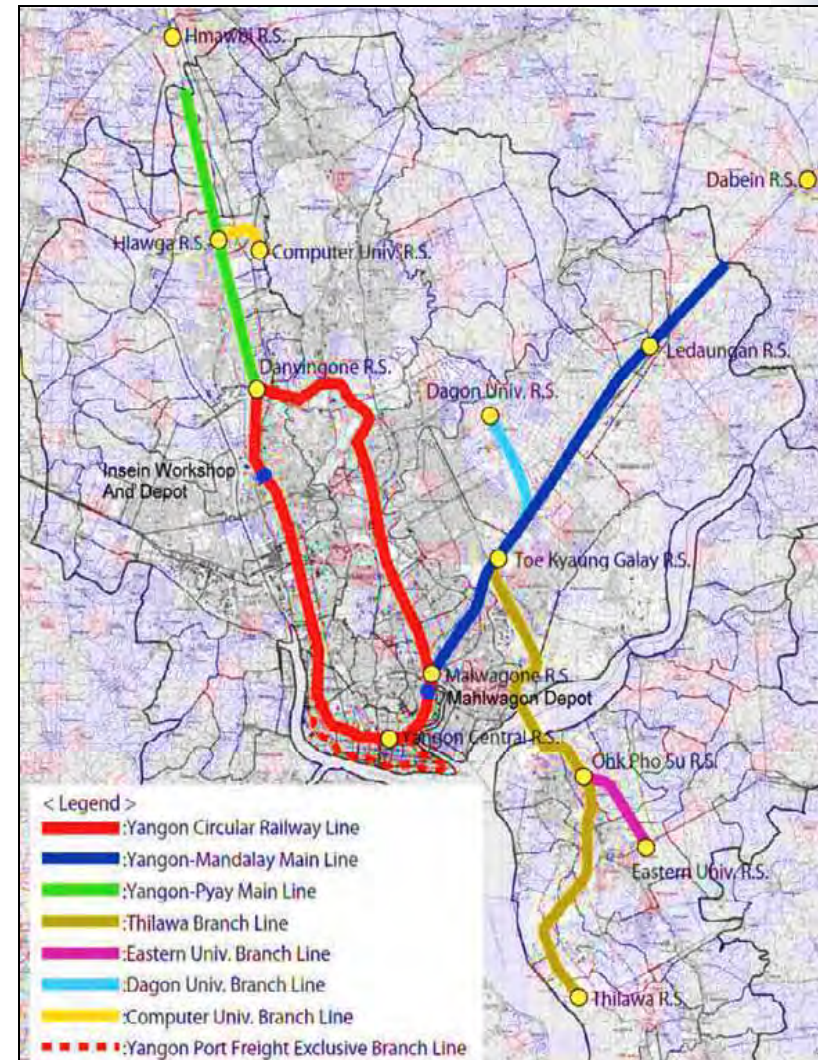
- Conducted for F/S on Sep,2014 and Detail Design Studied completed on June,2016
- Estimated Cost JPY (91.179) Billion (As DD Report)
- Signed Consultancy Services Agreement on Dec, 2016
- Invited the Contractors by dividing 8 Packages on March, 2017
- Construction Period – 2018 to 2023 (6 Years)

Phase II (Taungoo- Mandalay)

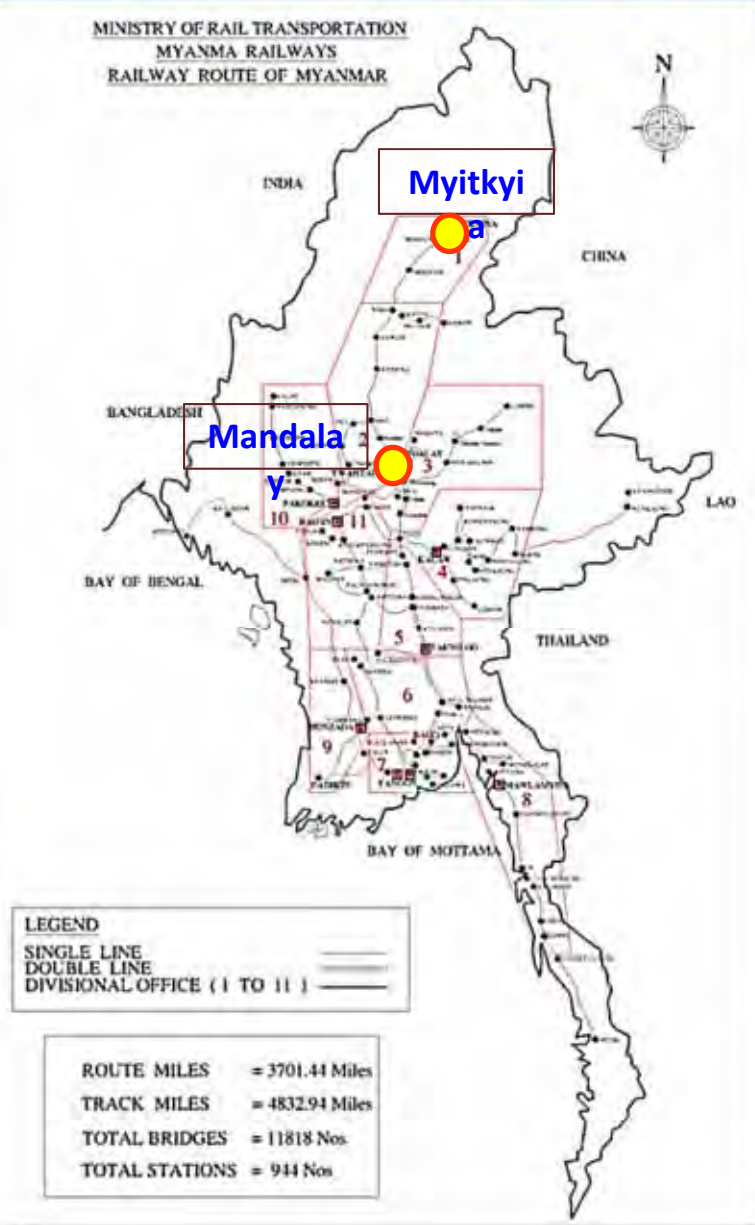
- Conducted for F/S on Oct,2017 and Detail DD Study started on April, 2018 and expected to complete Sep,2019
- Estimated Cost JPY (191.069) Billion (As DD Report)
- Signed Consultancy Services Agreement on
- Planned to invite the 10 Nos. of Contract Packages
- Construction Period - 2019 to 2025 (6 Years)

Yangon Circular Railway Line Upgrading Project

- **The project Financing consists of two parts:**
 - Japanese ODA Loan (US\$ 207.8 million)
 - The other is cover by National Budget (US\$ 43.38 million)
- **Scope of Works;** Civil & Track Works, Signaling Works, Procurement of Modernized DEMU.
- **Project Period** 2017 to 2022 (6 Years)
- **Activities to Implement**
 - Completed Basic Design on Feb,2017
 - Under construction for Civil Works by Local Contractors
 - 2 nos. of Tender packages for Signaling Works and Procurement of Modernized DEMU are being invited.
- After completion of project, travel time of passenger trains will reduce from 2 hours and 50 minutes to 1 hour and 50 minutes



Mandalay -Myitkyina Railway Line Rehabilitation Project



Status of the Project

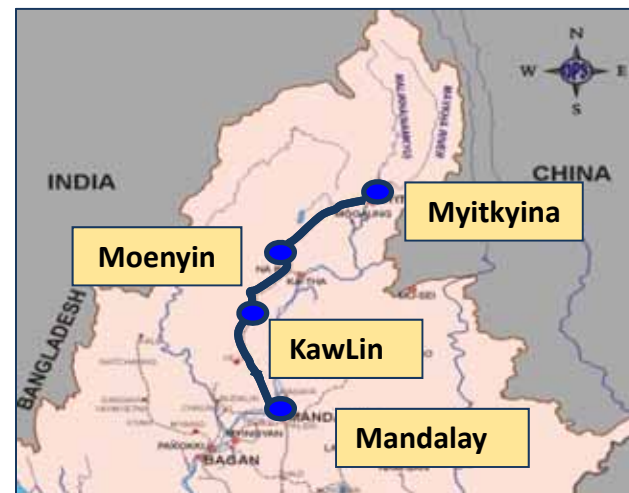
- 547.4 Km Long, Single lane, Meter gauge Track
- High gradients and Curves on some portion,

Divided into 3 priority sections

- Mandalay - KawLin, Section - I (3rd Priority)
- KawLin - Moenyin, Section - II (1st priority)
- Moenyin - Myitkyina, Section - III (2nd priority)

Activities to upgrade

- First priority portion of section II (about 42 Km) by Korea EDCF Loan USD 125 Million.
- F/S has been done by Technical Assistance of Korean EXIM Bank.
- Under Loan Negotiation process to implement the project



Yangon-Pyay Railway Improvement Project

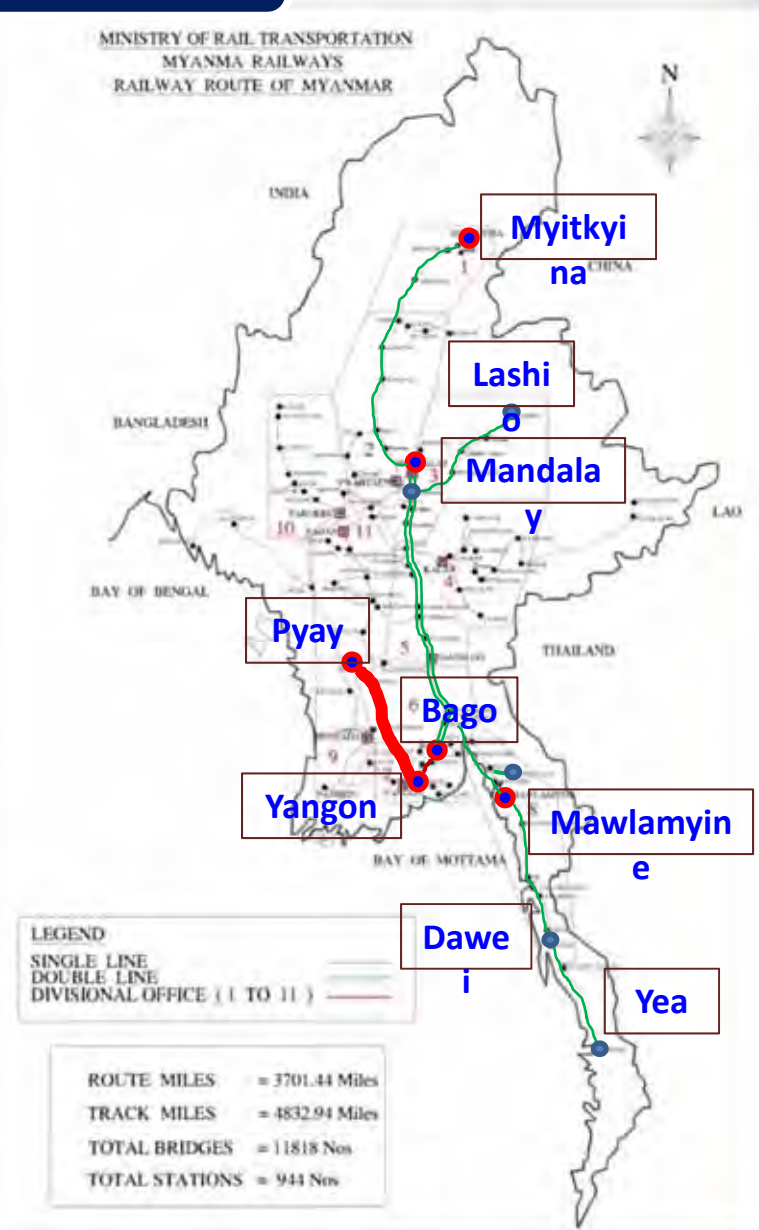
- It was first introduced rail line in Myanmar since 1877.
- Yangon(Danyinkone)-Pyay -148.25 Route Mile
- Track Mile -162.25 Mile

Scope of Works

- Installation of new track and signaling system
- Railway bridge construction and rehabilitation
- Station improvement works
- New foot over bridge (FOB) installation

Activities to Improvement

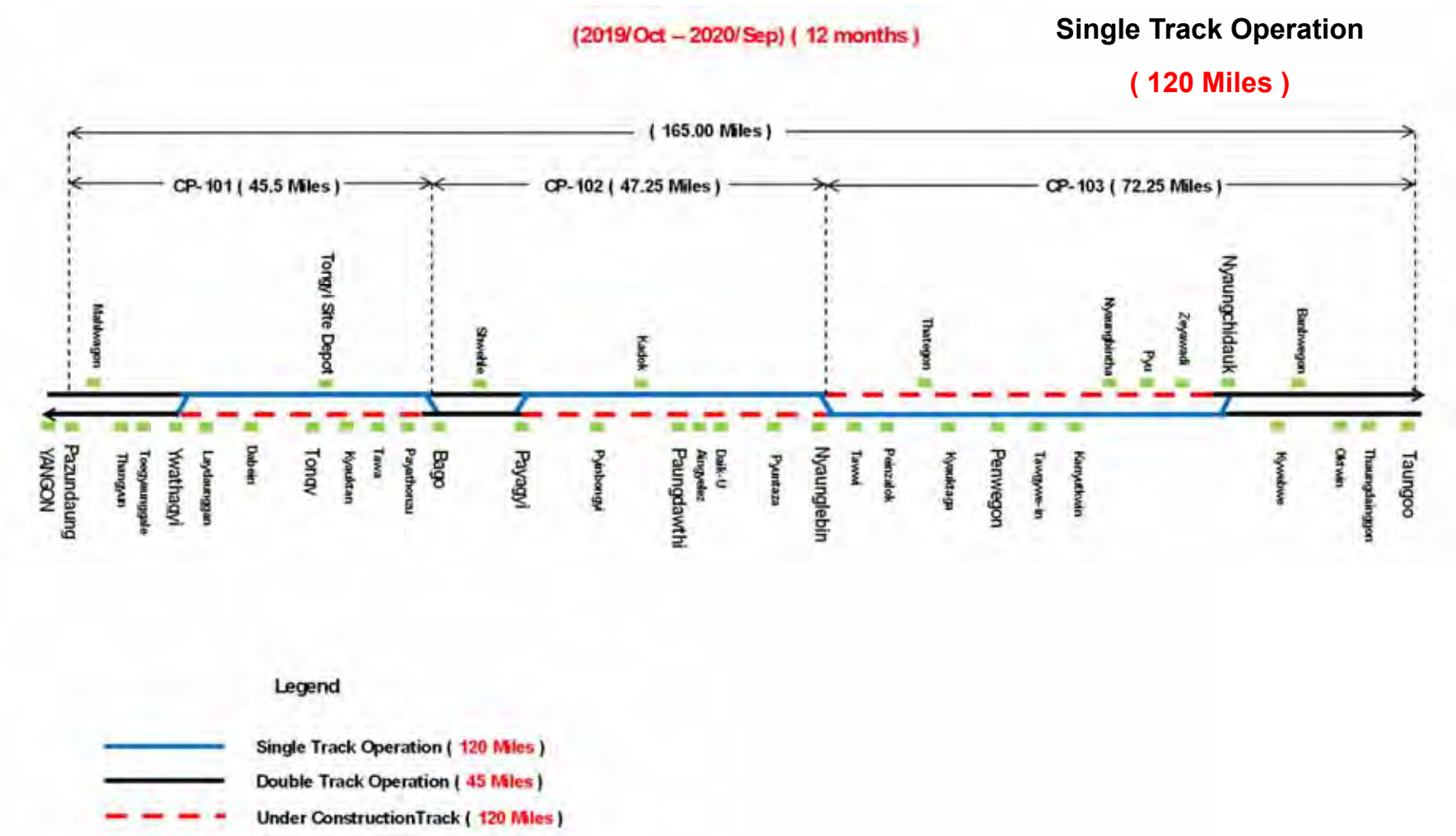
- Project Cost is approximately –Approx; \$ 200 Mil.
- Surveyed at June,2017
- Singed MoD for Project Preparation in Dec,2018.
- Conducting the F/S by ADB's Technical Assistance
- Under Loan Negotiation Process with ADB



A world map with a light blue background and a white grid. The map is color-coded: North America and South America are in shades of brown; Europe, Africa, and Australia are in shades of orange; Asia and parts of Europe and Africa are in shades of green; and India, Southeast Asia, and Australia are in shades of purple. The text is centered over the map.

Planning for International Railway Connectivity in Myanmar

Single & Double Track Operation Plan Chart Step-1

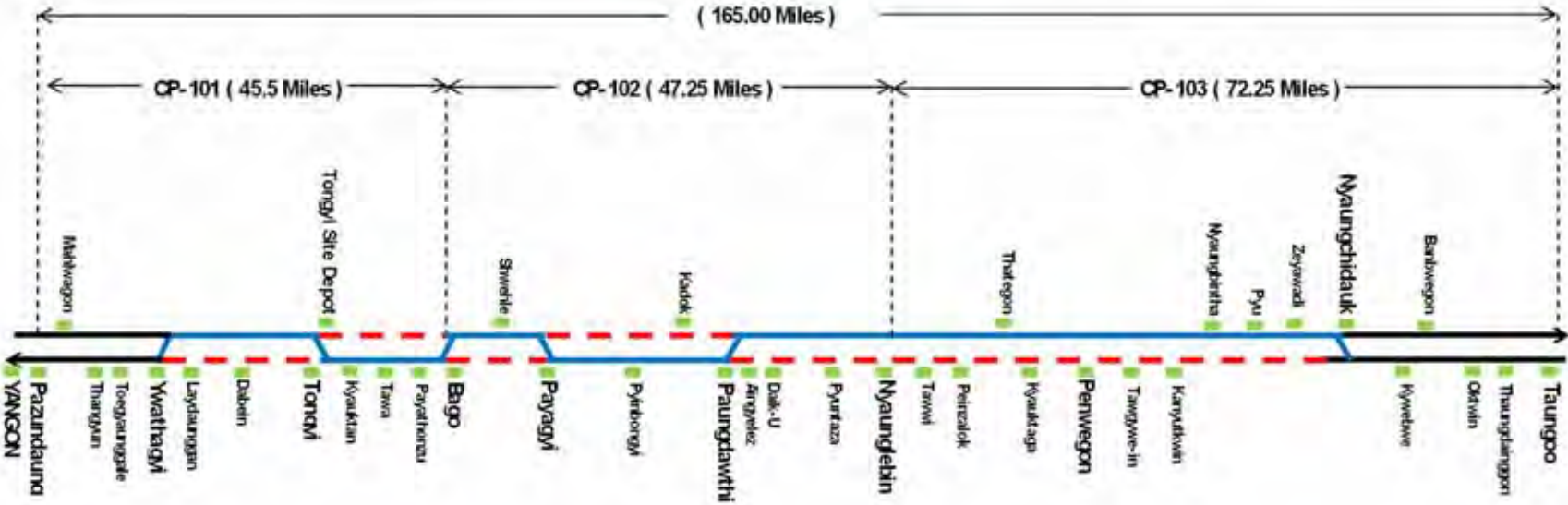


Single & Double Track Operation Plan Chart Step-2

(2020/Oct – 2020/Nov) (2 months)

Single Track Operation

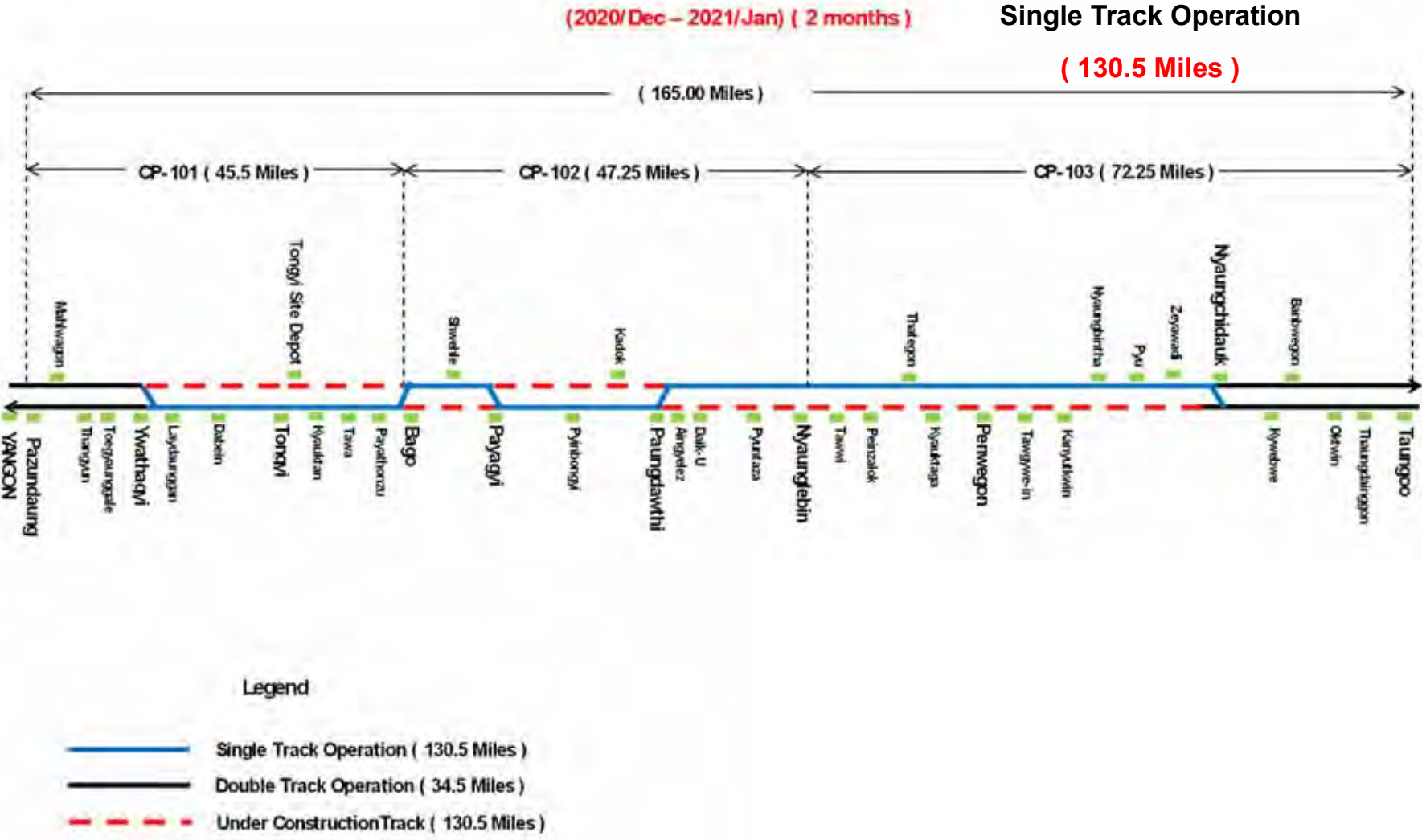
(130.5 Miles)



Legend

- Single Track Operation (130.5 Miles)
- Double Track Operation (34.5 Miles)
- - - Under Construction Track (130.5 Miles)

Single & Double Track Operation Plan Chart Step-3



Single & Double Track Operation Plan Chart Step-4

(2021/Feb – 2021/Aug) (7 months)

Single Track Operation

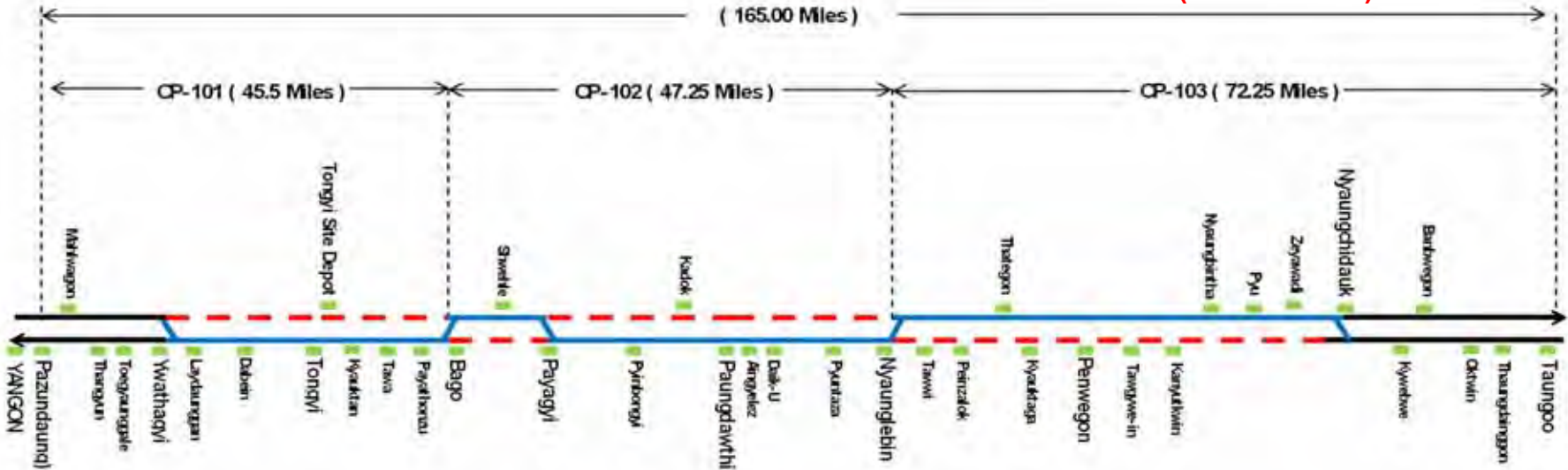
(130.5 Miles)

(165.00 Miles)

CP-101 (45.5 Miles)

CP-102 (47.25 Miles)

CP-103 (72.25 Miles)



Legend

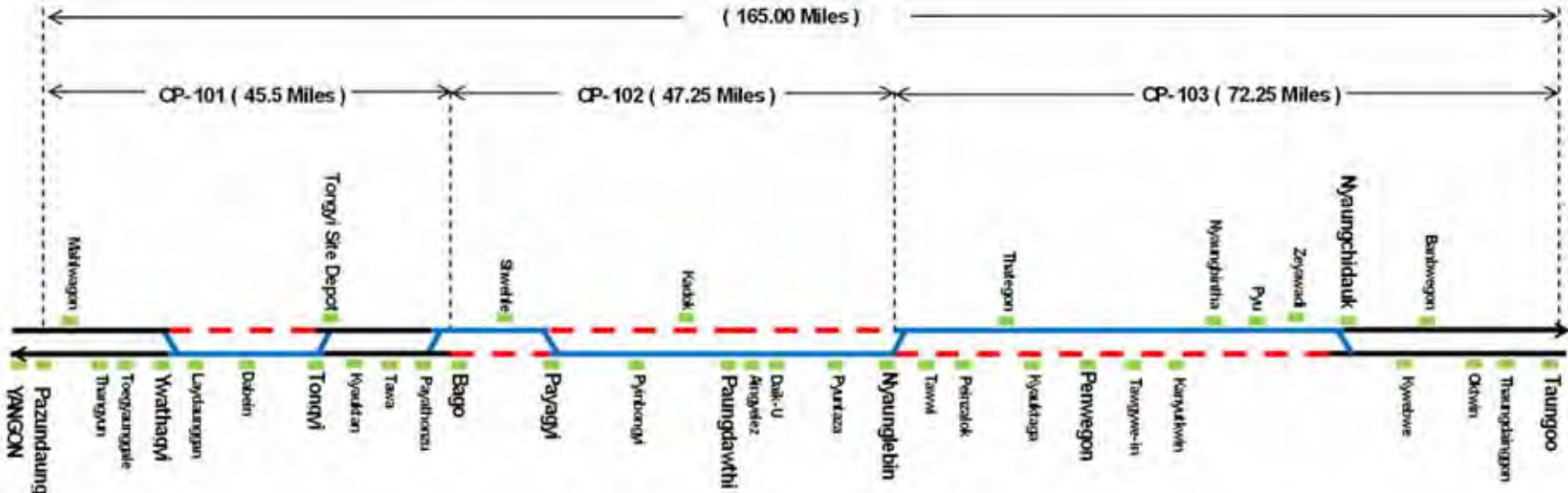
- Single Track Operation (130.5 Miles)
- Double Track Operation (34.5 Miles)
- - - Under Construction Track (130.5 Miles)

Single & Double Track Operation Plan Chart Step-5

(2021/Sep) (1 months)

Single Track Operation

(118.25 Miles)



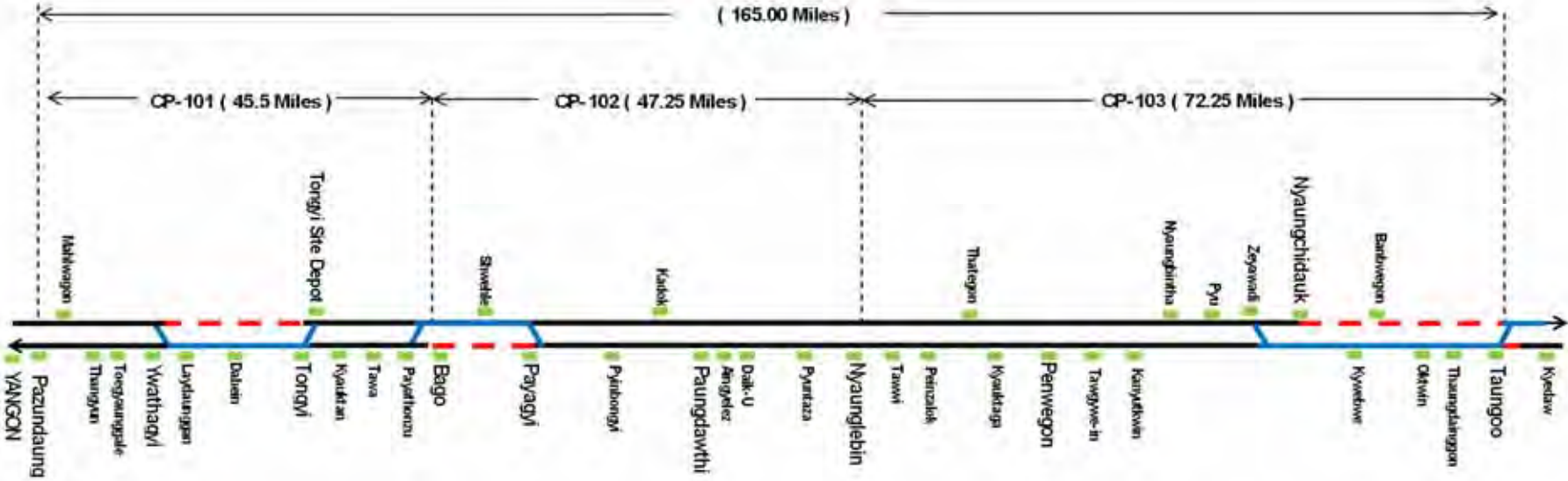
Legend

- Single Track Operation (118.25 Miles)
- Double Track Operation (46.75 Miles)
- - - Under Construction Track (118.25 Miles)

Single & Double Track Operation Plan Chart Step-6

Single Track Operation
(59.75 Miles)

(2021/Oct) (1 months)

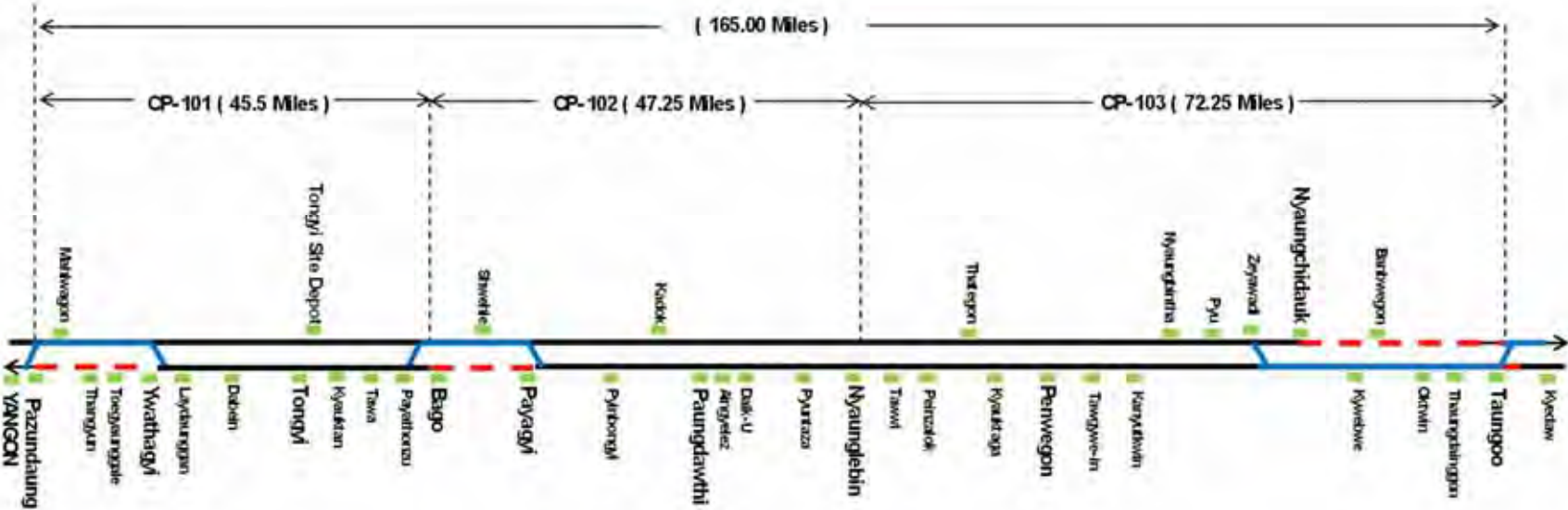


Legend

- Single Track Operation (59.75 Miles)
- Double Track Operation (105.25 Miles)
- - - Under Construction Track (59.75 Miles)

Single & Double Track Operation Plan Chart Step-7

(2021/Nov-2022/Jan) (3 months)

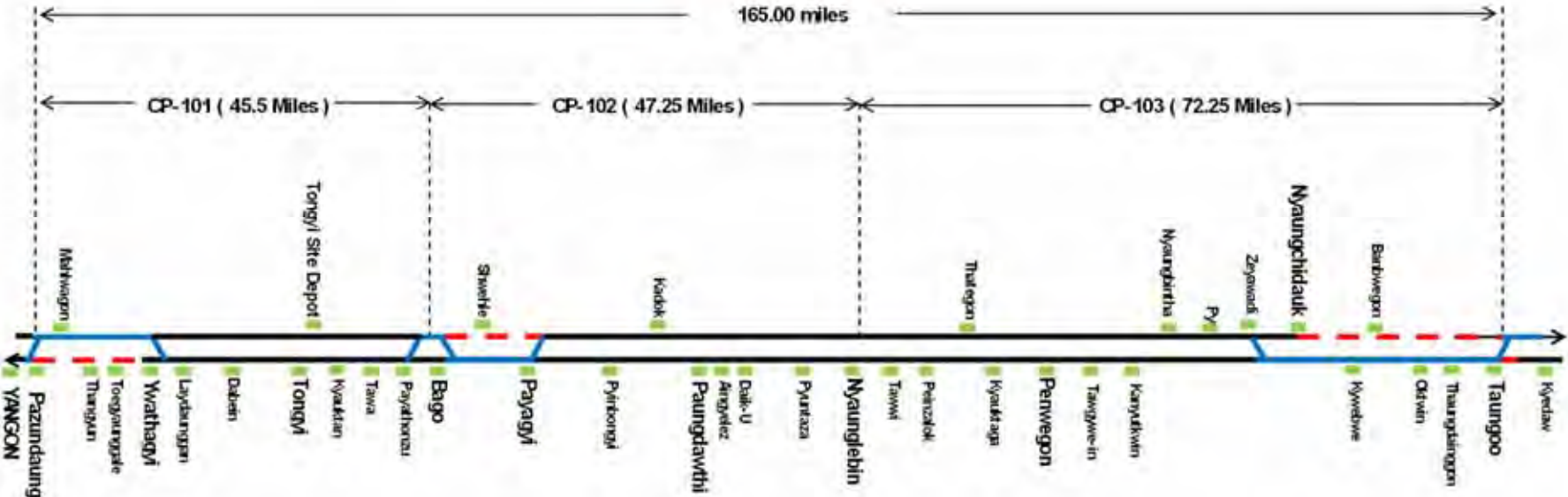


Legend

- Single Track Operation (54.00 Miles)
- Double Track Operation (111.00 Miles)
- - - - Under Construction Track (54.00 Miles)

Single & Double Track Operation Plan Chart Step-8

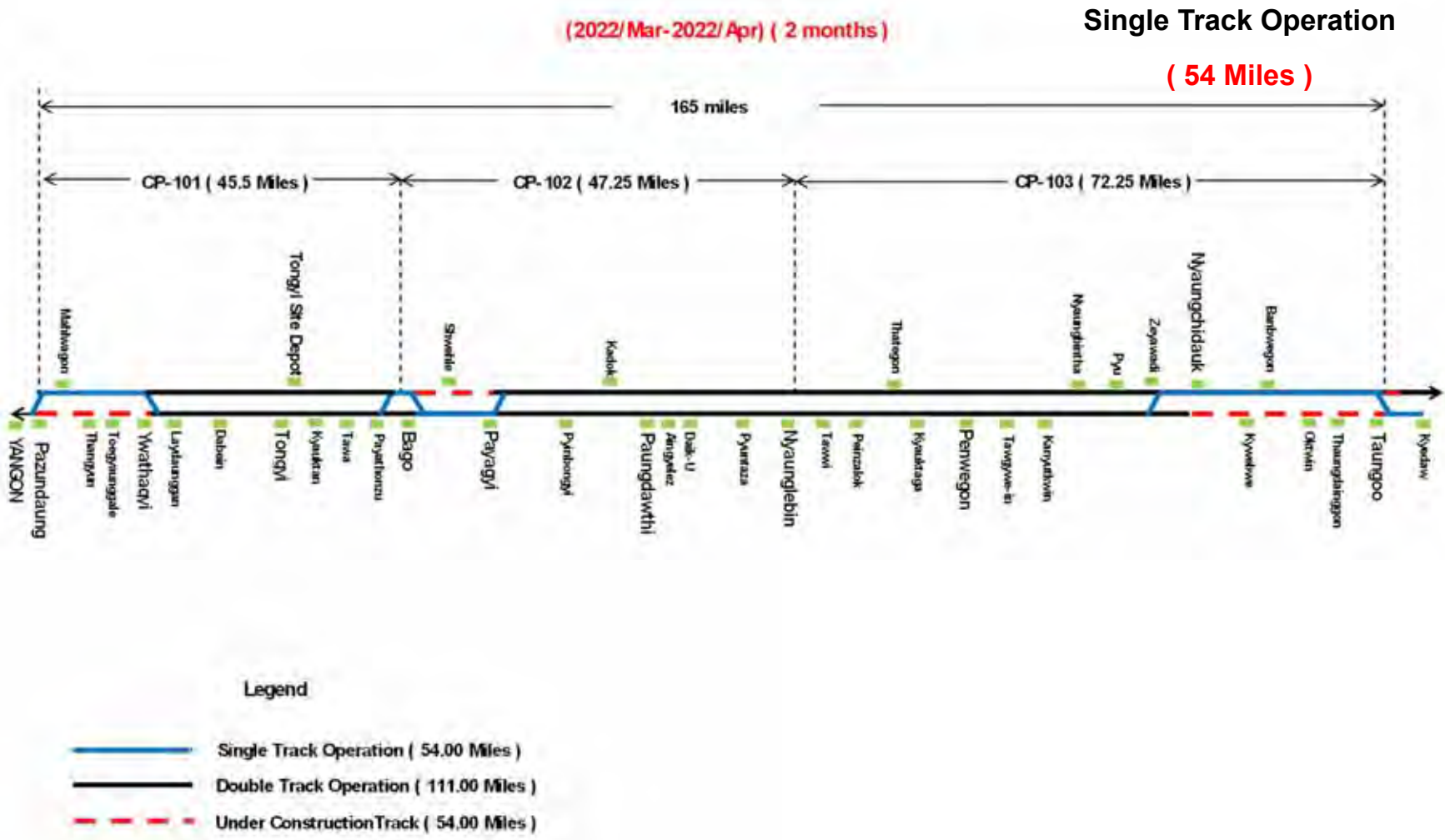
(2022/Feb) (1 months)



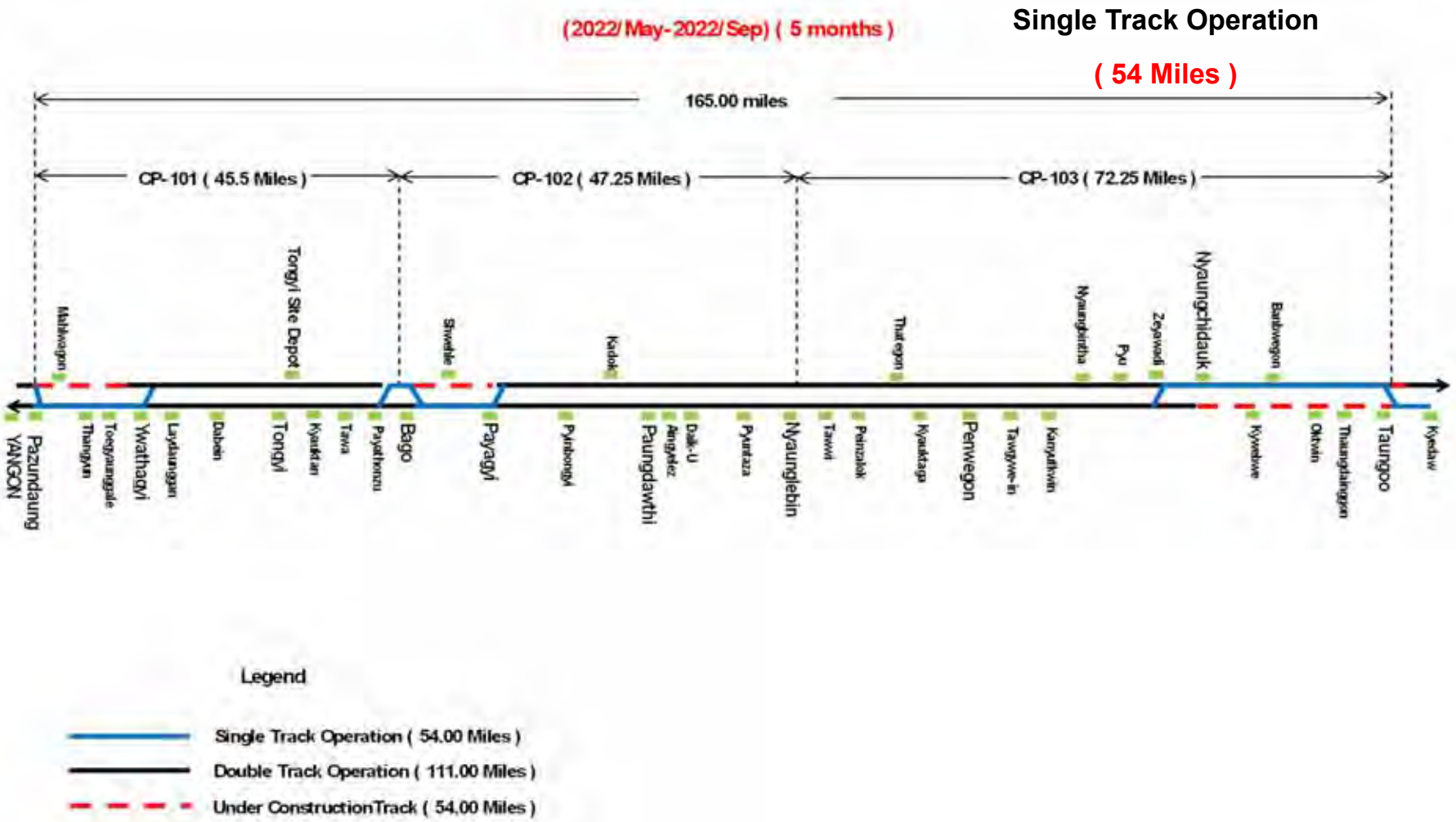
Legend

- Single Track Operation (54.00 Miles)
- Double Track Operation (111.00 Miles)
- - - Under Construction Track (54.00 Miles)

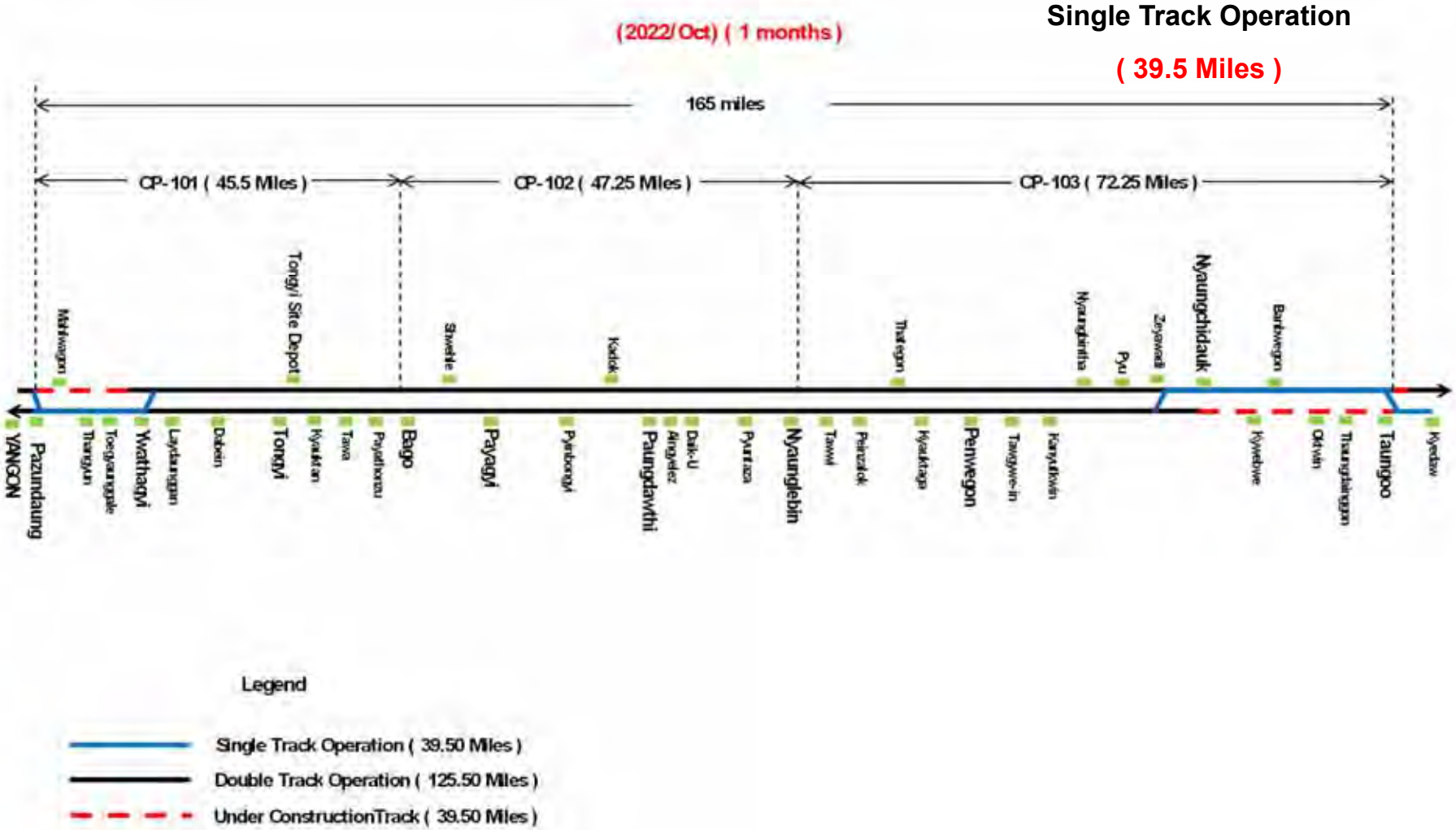
Single & Double Track Operation Plan Chart Step-9



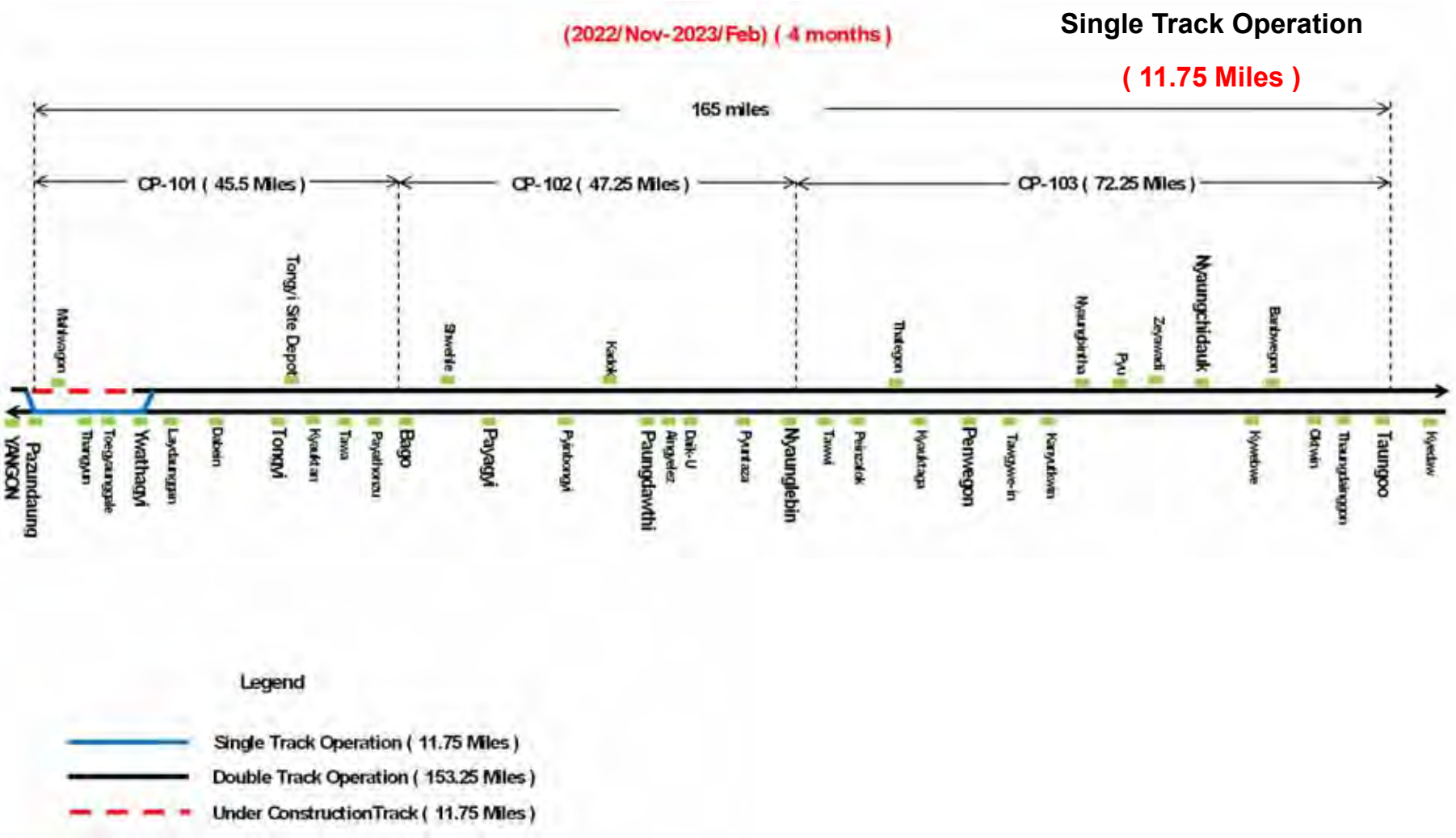
Single & Double Track Operation Plan Chart Step-10



Single & Double Track Operation Plan Chart Step-11

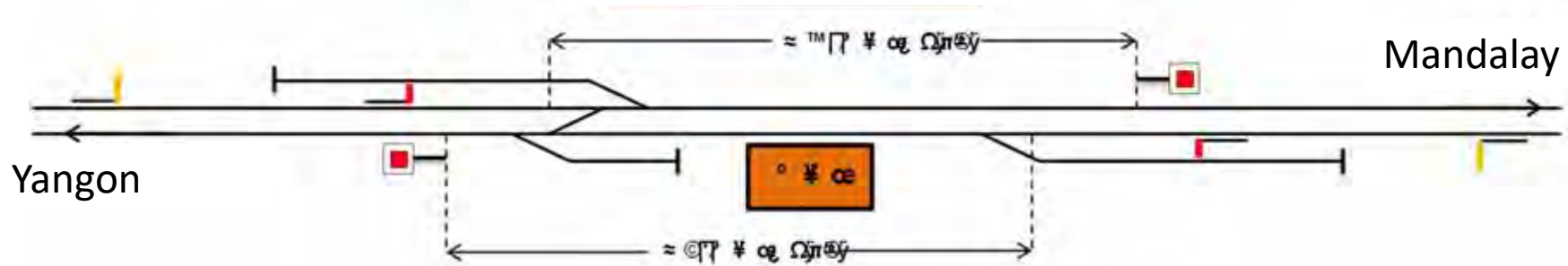


Single & Double Track Operation Plan Chart Step-12

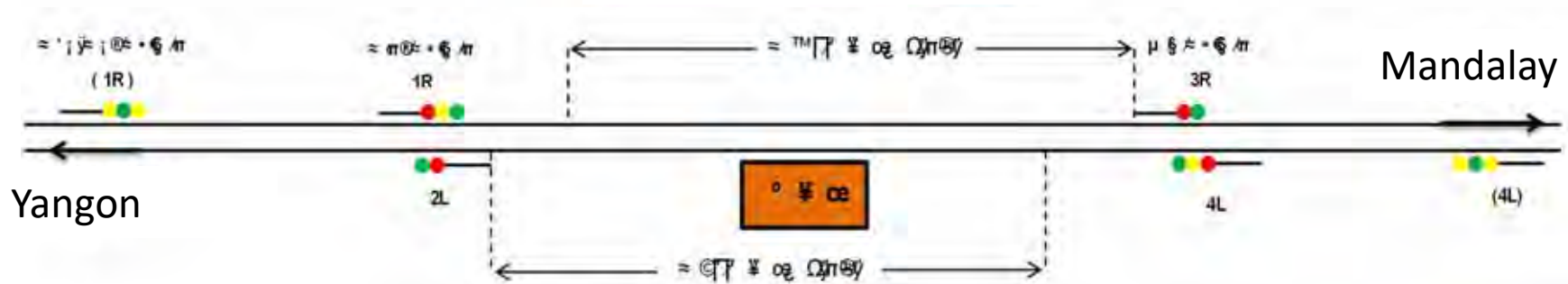


Sample Station Yard

Before



After



Carriage & Loco Distribution Plan for Contractors

Contractor	Loco	Carriage		
		Flat Wagon	Ballast Wagon	Total Wagon
CP - 101	2 + 1 reserve	44	12	56
CP - 102	2	18	10	28
CP - 103	2 + 1 reserve	15	19	34
Total	6 + 2 reserve	77	41	118

Process of Work at Complex Process Station

Station	Process of Work	Period		Duration
		From	To	
Bago	56	October, 2019	September,2022	3 Years
Pyuntaza	24	October, 2019	September,2021	2 Years
Nyaunglebin	24	October, 2019	September,2021	2 Years

Train Operating Plan for First Year

(October 2019 to September 2020)

Current Operating Train at Project Area

❖	Yangon - Mandalay		
	▪ Express Train UP/DN (6) Nos. 3/4	-	11/12 5/6
	▪ Mail Train UP/DN (2) Nos.	-	1/2
	➤ Local Train		
	▪ Yangon- Bago UP/DN (2) Nos. (Daily)	-	13/14
	▪ Thingangyun - Taungoo UP/DN (2) Nos.(Alternate Day)	-	19/20
	▪ Taungoo - Thazi UP/DN (2) Nos.(Alternate Day) 21/22		-
	▪ Tharzi - Mandalay UP/DN (2) Nos.(Daily)	-	23/24
❖	Yangon - Naypyitaw		
	▪ Express Train UP/DN (4) Nos.	-	7/ 8 31 /32
❖	Yangon - Malamyine		
	▪ Express Train UP/DN (4) Nos.	-	89/90 35/36
❖	Yangon - Dawei		
	▪ Express Train UP/DN (2) Nos.	-	175/ 176
❖	Yangon - Tharzi		
	▪ Mail Train UP/DN (2) Nos.	-	9 / 10
❖	Naypyitaw- Malamyine		
	▪ Express Train UP/DN (2) Nos.	-	16/ 17

Train List to be Operated during the project implementation

- ❖ **Yangon - Mandalay**
 - Express Train UP/DN (6) Nos. 3/4 – 11/13 | 5/6 |
 - **Local Train**
 - Yangon– Bago UP/DN (2) Nos. (Daily) – 13/14
 - Bago – Taungoo UP/DN (2) Nos. (Alternate Day) – 19/20
 - Taungoo – Tharzi UP/DN (2) Nos. (Alternate Day) – 21 / 22
 - Tharzi – Mandalay UP/DN (2) Nos. (Daily) – 23/ 24
 - Parcel Train (1)No (Daily)
- ❖ **Yangon – Naypyitaw**
 - Yangon– Bago UP/DN (2) Nos. – 13/14
 - (8 DN Friday, 7 Up Sunday)
- ❖ **Yangon -Malamyine**
 - Express Train UP/DN (6) Nos. 89/90 –
- ❖ **Yangon - Dawei**
 - Express Train UP/DN (6) Nos. / 176 – 175
- ❖ **Freight Train Operating**
 - UP(3) to (4),DN (3) to (4)

Train List to be cancelled on temporary basis during the project implementation

- 1 Up/ 2 Dn (Yangon – Mandalay Mail Train)
- 9 Up/ 10 Dn (Yangon – Tharzi)
- 31 Up/ 32 Dn (Yangon – Naypyitaw)
- 35 Up/ 36 (Yangon – Mawlamyine)
- 16 Up/ 17 Dn (Naypyitaw – Mawlamyine)

Window Time for the Project Implementation Works

Section		Working Time					
		Day Time			Night Time		
		From	To	Duration	From	To	Time
CP-101	Ywarthargyi – Htonegyi	0930	1330	4 Hours	2300	0300	4 Hours
	Htonegyi – Bago	0930	1330	4 Hours	2200	0200	4 Hours
CP-102	Phayargyi - Phaungdawthi	1000	1400	4 Hours	-	-	-
	Phaungdawthi - Nyaunglebin	1100	1500	4 Hours	-	-	-
CP-103	Nyaunglebin - Penwegone	1200	1600	4 Hours	-	-	-
	Penwegone- Nyaungchidauk	0600	1000	4 Hours	-	-	-

- **Ballast (Total-326100 Sud)**

	18-19	19-20	20-21
CP-101	30600	35000	23500
CP-102	36500	34000	21000
CP-103	42000	58000	45500
Total	109100	127000	90000

Unit -Sud

Ballast Requirement (Unit-Sud)

■ 18-19 ■ 19-20 ■ 20-21



- **Ballast (Total-326100 Sud)**

18-19	Scheduled	Receive
CP-101	30600	40400
CP-102	36500	53000
CP-103	42000	107000
Total	109100	200400

Unit -Sud

18-19 Requirement(Unit-Sud)

■ Scheduled ■ Received

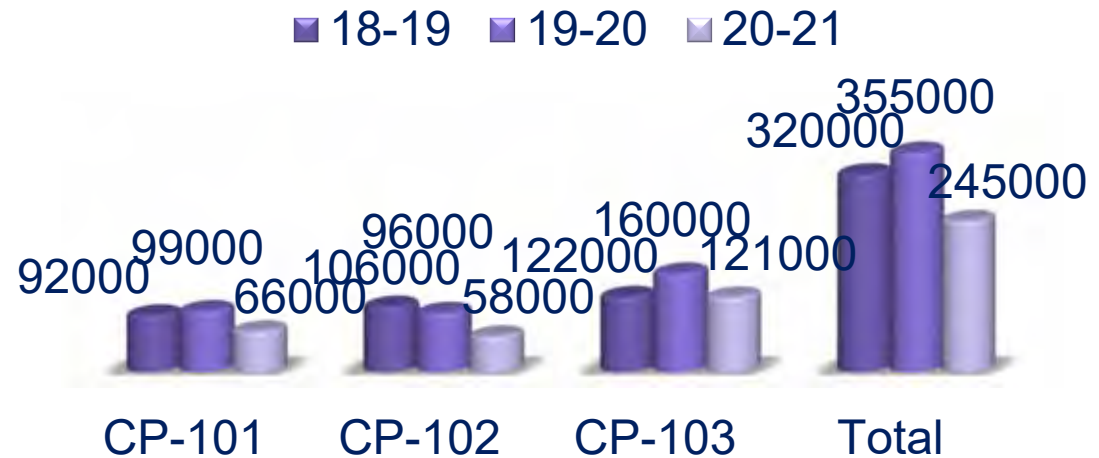


- PC Sleeper (Total-920000 Nos)

	18-19	19-20	20-21
CP-101	92000	99000	66000
CP-102	106000	96000	58000
CP-103	122000	160000	121000
Total	320000	355000	245000

Unit -Nos

PC Sleeper Requirement(Unit-Nos)

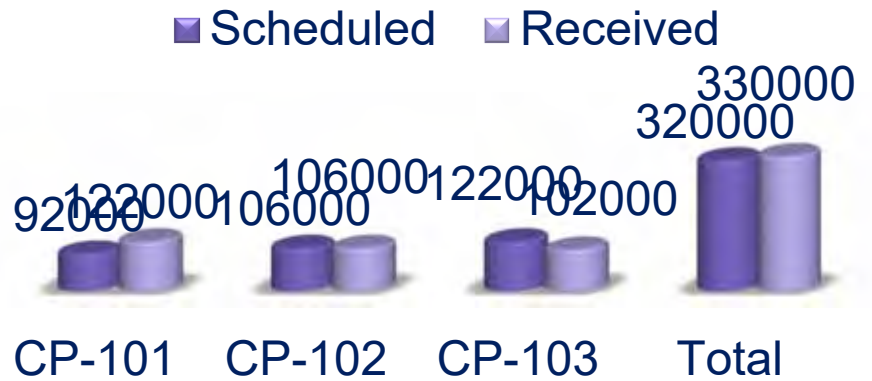


- **Ballast (Total-326100 Sud)**

18-19	Scheduled	Received
CP-101	92000	122000
CP-102	106000	106000
CP-103	122000	102000
Total	320000	330000

Unit -Nos

PC Sleeper Requirement (Unit-Nos)



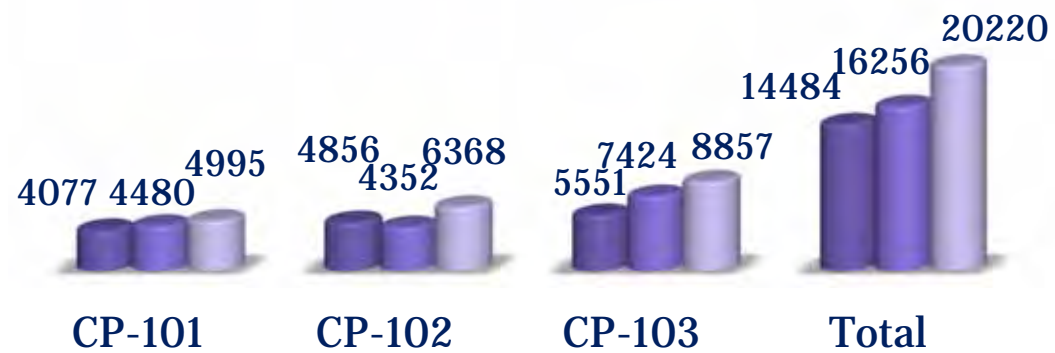
▪ **Rail Transportation-50960 Nos**

	18-19	19-20	20-21
CP-101	4077	4480	4995
CP-102	4856	4352	6368
CP-103	5551	7424	8857
Total	14484	16256	20220

Unit -Nos

Rail Requirement(Unit-Nos)

■ 18-19 ■ 19-20 ■ 20-21

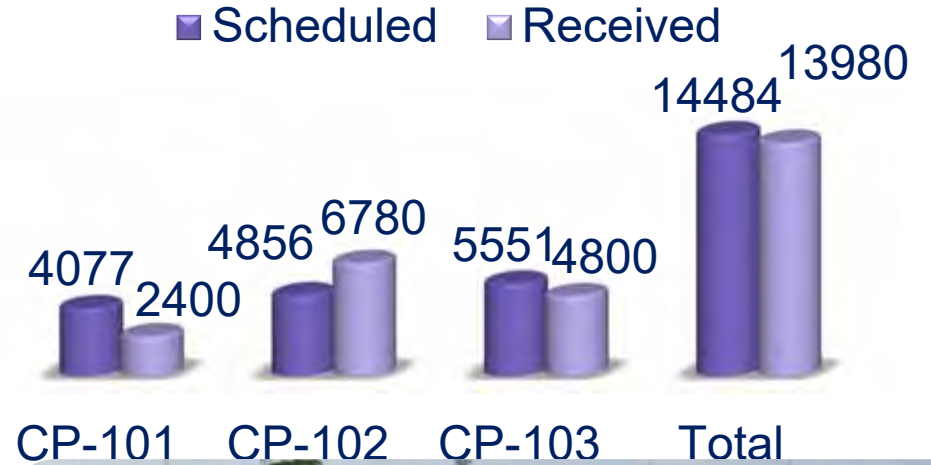


- Rail Transportation-50960 Nos

18-19	Scheduled	Received
CP-101	4077	2400
CP-102	4856	6780
CP-103	5551	4800
Total	14484	13980

Unit -Nos

Rail Transportation(Unit-Nos)



Oktwin Station Overall Condition



Oktwin Station Overall Condition

Photos of Project Implementation



Photos of Project Implementation



Photos of Project Implementation



Photos of Project Implementation

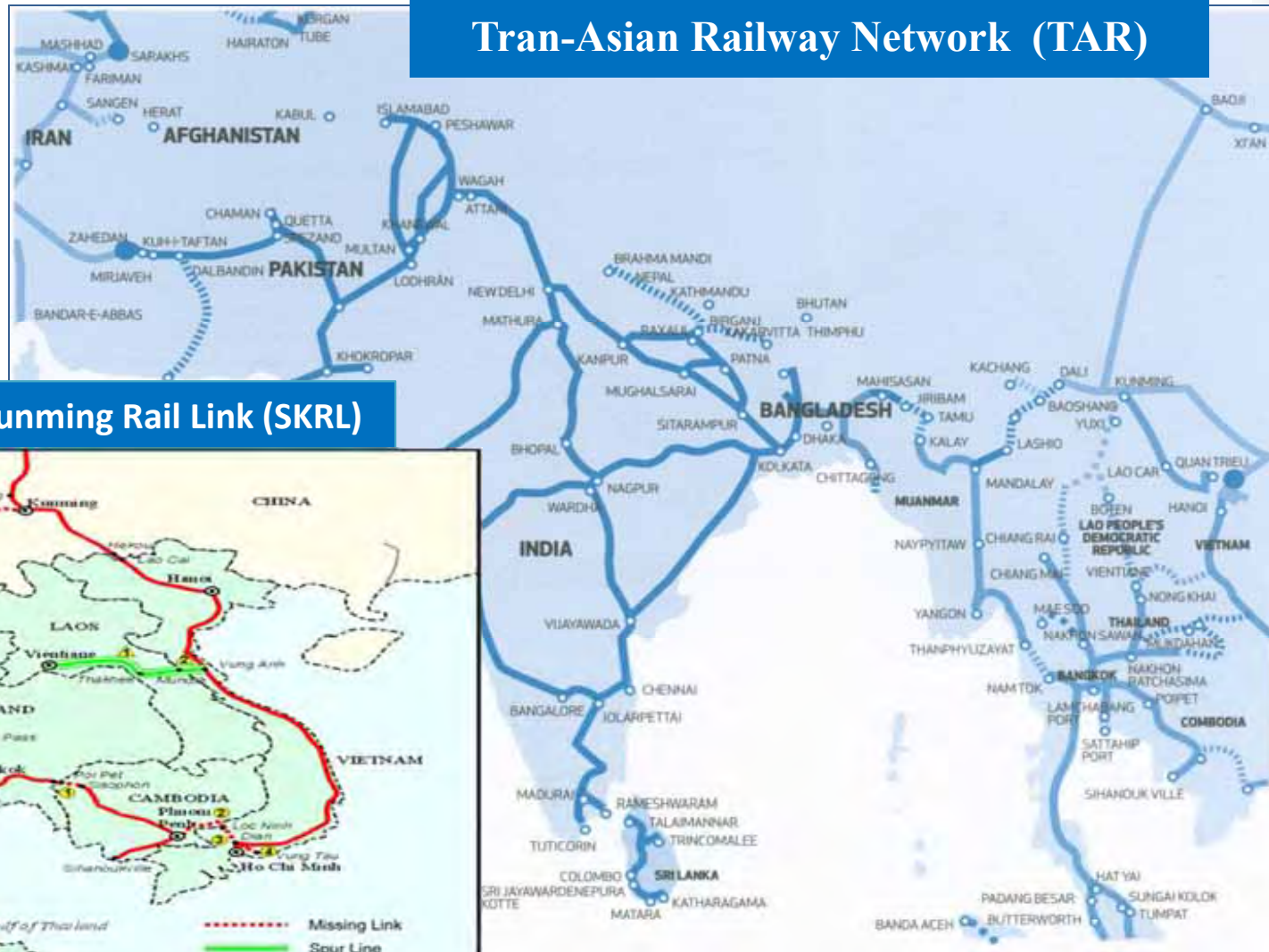


Temporary Access Road – Bridge No. 158 (Down)

Planning for International Railway Connectivity in Myanmar

Tran-Asian Railway Network (TAR)

Singapore - Kunming Rail Link (SKRL)



Missing Links in the Trans-Asia Railway Network



Railway Lines of International Importance in Myanmar

Existing lines

Mandalay-Yangon	-	617 km
Mandalay-Lashio	-	313 km
Mandalay-Kalay	-	539 km
Bago-Thanyuzayat	-	270 km
Total Route Length	-	6110.5 Km

Missing lines

Kalay-Tamu	-	127.4 km
Lashio- Muse	-	126.1 km
Thanbyuzayat-		
Three Pagoda Pass	-	110 km

Railway Links of International Importance in Myanmar



Missing link with China

- Lashio – Muse
- Conducting F/S for Muse-Mandalay new railway line project.

Missing link with Thailand

Three Options;

- Dawai – Kanchanaburi
- Thanbyuzayat-Three Pagoda Pass
- Thathon- Myawaddi-Mesaut

Missing link with India

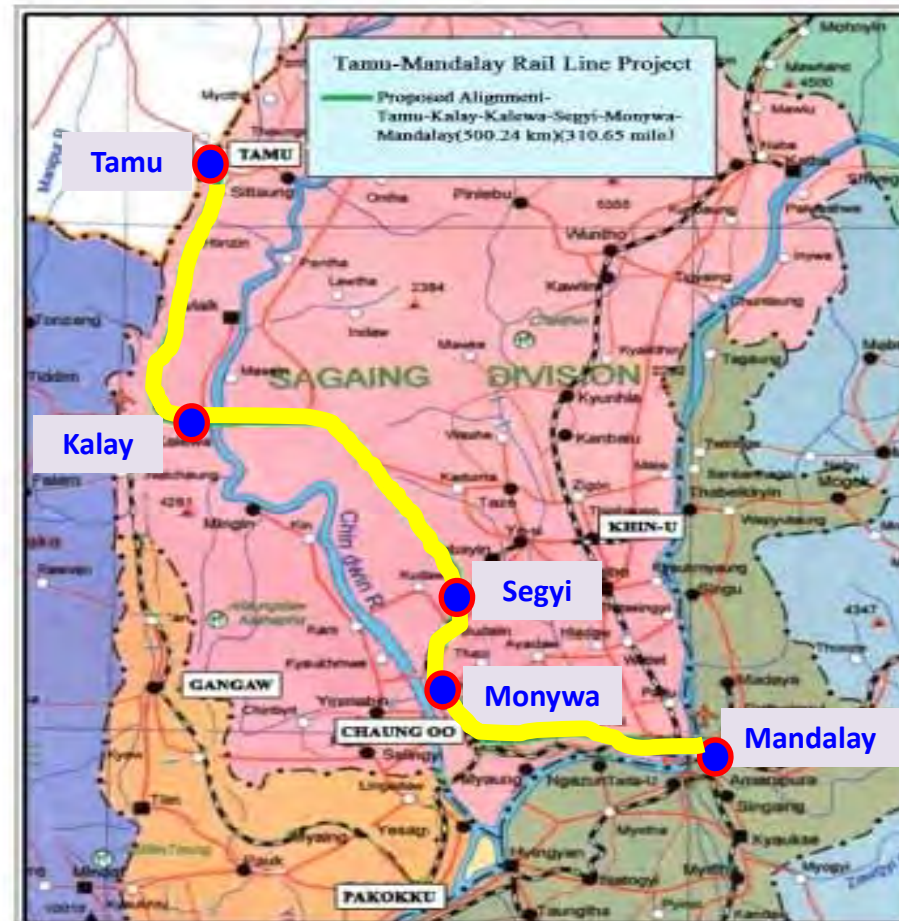
- Tamu (border with India) - Kalay ,
- Proposed to conduct F/S (Tamu - Mandalay) New alignment

Mandalay - Muse New Railway Line Project



- MR and CREEC signed MoU on 22nd October, 2018.
- CREEC shall submit F/S Report within (12) months after signed MOU.
- Route Length-431 Km
- Standard Gauge, Electrified and Speed 160Km
- If the project is feasible, MR will invite ICB for Project Implementation stage.

Tamu – Mandalay New Railway Line Project



- Tamu (border with Moreh, India) - Kalay , 127 Km in Myanmar Territory.
- RITES conducted F/S at 2004-2005 estimated cost 97.68 mil USD.
- Furthermore, GoM requested to GoI to conduct F/S from Tamu to Mandalay through Monywa, Segyi Kalay with new alignment.

Myanmar - Thailand Railway Connectivity



- KOICA conducted F/S on Thanbyuzayat-Three Pagoda Pass (border NamTok, Thailand) - 110 km at 2005-2007.
- Three Options to choose for future possible connection;
 - Dawei – Kanchanaburi
 - Thanbyuzayat-Three Pagoda Pass
 - Thathon- Myawaddi-Mesaut

Conclusion





Thank for Your Kind Attentions.

**Presented by;
Ba Myint
Managing Director
Myanma Railways
Ministry of Transport and Communications
MYANMAR**