The Orientation Seminar of the study and review of project feasibility.
Preparing tender documents and operation according to The Public-Private Partnership Act, A.D. 2019

The Commuter Train system (Red-Line) Project
The Commuter Train (RED LINE) Project is one of projects under the Mass Rapid Transit Master Plan in Bangkok Metropolitan Region (M-MAP) to effectively connect the North-South and East-West network and support passengers and travelers from metropolitan areas to Bangkok. It also connects mass rapid transit system with long distance train and high-speed train network altogether. This network will increase the convenience, fastness and safety for passengers and to promote sustainable economic in Thailand. The State Railway of Thailand (SRT) will study business and investment suitability of commuter train (Red-Line) project which comprised of SRT Dark Red Line suburban railway system, north—south line, and SRT Light Red Line suburban railway system, east—west line.

The scope of work are operation and maintenance including all station management in Red-Line Commuter Train project. The private sectors are welcome to join under the conditions of The Public-Private Partnership Act, B.E 2019 (B.E. 2562 หรือ A.D. 2019). The study covers Red-Line Commuter Train Phase 1, the completed construction of Bang Sue-Rangsit-Taling Chan, Phase 2, the extension Rangsit-Thammasat University Rangsit Campus, Taling Chan-Salaya, Taling Chan-Siriraj and Bang Sue-Makkasan-Hua mak-Hua Lampong, and Phase 3, full system operation of Commuter Train (Red-Line) to continually develop Red-Line Commuter Train project as well as effectively enhancing the basic transportation infrastructure with maximum benefits.

**Phase 1**

<table>
<thead>
<tr>
<th>Route</th>
<th>Total distance</th>
<th>Investment</th>
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</thead>
<tbody>
<tr>
<td>Bang Sue – Rangsit – Taling Chan (completed construction)</td>
<td>41.60 kms</td>
<td>108,833.01 millions baht</td>
</tr>
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</table>

**Phase 2 : Extension**

<table>
<thead>
<tr>
<th>Route</th>
<th>Total distance</th>
<th>Investment</th>
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</thead>
<tbody>
<tr>
<td>Rangsit – Thammasat University Rangsit Campus</td>
<td>8.84 kms</td>
<td>6,570.40 millions baht</td>
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<tr>
<td>Taling Chan – Salaya</td>
<td>14.8 kms</td>
<td>10,202.18 millions baht</td>
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<tr>
<td>Taling Chan – Siriraj</td>
<td>5.70 kms</td>
<td>6,645.03 millions baht</td>
</tr>
<tr>
<td>Bang Sue – Phaya Thai – Makkasan – Hua mak – Hua Lampong</td>
<td>25.90 kms</td>
<td>44,157.76 millions baht</td>
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</tbody>
</table>
The study of System Operation Plan will respond to the need of travelling and to align with existing transportation route. Covering every type of SRT’s train which required shared track by considering the arrangement of time slot in order to avoid the redundancy. Time slot will be arranged according to 3 operational phases as follow;

**Phase 1:** The operation of commuter train (Red-Line) project between Bang Sue-Rangsit and Bang Sue-Taling Chan. Commuter train operation will be partially paralleled with SRT’s train.

**Phase 2:** The operation of extension commuter train (Red-Line) project between Rangsit- Thammasat University Rangsit Campus, Taling Chan - Siriraj, Taling Chan-Salaya, Bang Sue-Hua Mak and Bang Sue-Hua Lampong. In these extension, there might be some changes in SRT’s train operation in duplicate stations in Bangkok area. And/or the service at only interchange stations might be considered.

**Phase 3:** The operation of commuter train (Red-Line) project full system. Commuter train operation will be fully operated in Bangkok and metropolitan areas. Bang Sue Grand Station will be hub for all SRT train system. The commuter train (Red-Line) will completely operates in Bankok and suburban area.
**Investment Approach**

an opportunity to co-invest in Red-Line project

The Public-Private partnership model in operating commuter train (Red-Line) project will be analyzed in order to welcome private sector to be part of this project. The benefit allocation models are divided into 3 types as follows:

1. **Net Cost**
   - Private sector
   - Divided income
   - Fare revenue and commercial activities revenue
   - Cost

2. **Gross Cost**
   - Private sector
   - Divided income
   - Fare revenue and commercial activities revenue
   - Cost

3. **Modified Gross Cost**
   - Private sector
   - Wage and bonus
   - Fare revenue and commercial activities revenue
   - Cost

<table>
<thead>
<tr>
<th>Condition</th>
<th>PPP</th>
<th>Net Cost</th>
<th>Gross Cost</th>
<th>Modified Gross Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue collection</td>
<td>Private sector</td>
<td>Government</td>
<td>Government</td>
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</tr>
<tr>
<td>Operation and Maintenance</td>
<td>Private sector</td>
<td>Private sector</td>
<td>Private sector</td>
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<tr>
<td>Compensation and wages</td>
<td>Private sector will be paying concession fee to Government (or getting subsidized fund)</td>
<td>Government will be paying the flat fare rate</td>
<td>Government will be paying the flat fare rate plus bonus</td>
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</table>
Advantages and benefits of Public-Private Partnerships (PPP)

Government will benefit by
- Reducing the risk of accumulated loss from operation
- Fully continuing the extension project
- Having budget for developing other basic infrastructure projects

Private contractor will benefit by
- Having revenue from operations in government affairs
- Having profit from train operation and commercial activities for the project

Passenger
- Experiencing convenience and high level of effective service
Economic and Financial Analysis

Economic and Financial analysis, the essence part of the project, shall be performed according to the processes as follow;

- **Economic Feasibility Study**
  - **Investment and Project Expenditure**
    - Land ownership and property compensation
    - Construction and supervision costs
    - Operation and Maintenance cost
    - Environmental impact mitigation cost
    - Other costs e.g. electrical and mechanical system installation cost, utilities cost etc.
  - **Project Benefits**
    - Direct benefits
      - Vehicle Operating Cost (VOC)
      - Value of Time (VOT)
      - Accident Cost (ACC)
    - Indirect benefits
      - City Development

- **Economic Feasibility**
  - Net Present Value (NPV)
  - Benefit Cost Ratio: B/C Ratio
  - Economic Internal Rate of Return: EIRR
  - Payback Period
  - Sensitivity Analysis

- **Financial Feasibility Study**
  - **Investment & Operational Cost**
    - Civil Works Cost
    - Land Acquisition Cost
    - Operational Cost
    - Maintenance Cost
    - Environmental Cost
  - **Project Benefits**
    - Fare
    - Commercial Activities at Station
    - Other Income

- **Financial Feasibility**
  - Net Present Value (NPV)
  - Benefit Cost Ratio: B/C Ratio
  - Financial Internal Rate of Return: FIRR
  - Payback Period
  - Sensitivity Analysis
Environmental Impact Assessment (EIA) impact in accordance with the project development.

The study on Environmental Impact Assessment (EIA) including EIA Report will be focussed. In case of any changes in project details as reported in original EIA report, the public participation activities will be held in order to publish the new information. Public opinions will be taken to account for delivering an efficient operation and minimize public environmental impact. The environmental impact assessment processes are as follow;

### Preparing EIA Report in Case of Changing in Project Details

#### Insignificant change on the essence of original EIA report
- The Office of Natural Resources and Environmental Policy and Planning (ONEP) approve / permit / Project owner
- Record the revised project details according to required criteria
- Deliver to ONEP

#### Significant change on the essence of original EIA report
- The Office of Natural Resources and Environmental Policy and Planning (ONEP) approve / permit / Project owner
- Deliver revised project details according to required criteria to ONEP
- Cabinet Approval is not Required
- The Expert Committee of transportation environmental impact has approval authority.
- Cabinet Approval Required
- The Expert Committee of transportation environmental impact together with the National Environment Board will consider and approve before proposing to the Cabinet.
### Project Implementation Plan of Public-Private Partnerships (PPP) for Commuter Train (Red-Line) Project

The implementation plan of this Public-Private Partnerships (PPP) project where Private Sector is responsible for civil construction, electrical and mechanical systems installation, procurement of rolling stock and operation & maintenance is as follow:

#### Project operation
- **Project Feasibility Study**
- **Selection Process**

#### Completed construction part of Commuter train system (Red-Line) project
- Bang Sue – Rangsit
- Bang Sue – Taling Chan

#### The extension of Commuter train system (Red-Line) Project
- Rangsit – Thammasat University
- Rangsit Campus
- Taling Chan – Saraya
- Taling Chan – Siriraj

#### The extension of Commuter train system (Red-Line) project
- Bang Sue – Phaya Thai – Makkasan
- Hua Mak and Bang Sue – Hua Lampong

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<th>Time Line</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>2026</th>
<th>2027</th>
<th>2028</th>
<th>2029</th>
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<th>2056</th>
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<tbody>
<tr>
<td>Study</td>
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<td>12 months (Jun 2021-May 2022) according to MOT opinion</td>
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<td>PPP Selection</td>
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<td>14 months (Jun 2022-Jul 2023) according to MOT opinion</td>
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<td>Due Diligence</td>
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<td>12 months (Jul 2023-Jun 2024)</td>
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<td>Operation by SRTET</td>
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<td>57 months</td>
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<td>Operation by Private Sector</td>
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<td>&gt;360 months (&gt;30 years)</td>
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<td>Construction</td>
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<td>36 months (Aug 2023–Jul 2026) according to cabinet resolution</td>
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<td>Operation by Private Sector</td>
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<td>360 months (30 years)</td>
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<td>Operation by Private Sector</td>
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<tr>
<td>Construction</td>
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<td>54 months (Aug 2023–Jan 2028) according to cabinet resolution</td>
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<tr>
<td>Operation by Private Sector</td>
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<td>342 months (28.5 years)</td>
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**PPP Selection**
- Private contractor manages station, develops commercial space and operates O&M, in late 2024

**Rolling Stock & Trial Run**
- Open in late 2026

**Construction**
- Open in early 2028