



**AGENSI PENGANGKUTAN AWAM DARAT**  
**LAND PUBLIC TRANSPORT AGENCY**

**APAD GUIDELINE  
RAILWAY SCHEME APPROVAL**

Date : February 2021

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## 1.0 INTRODUCTION

This document is to provide guidelines on the process of handling the submission of railway scheme in compliance with Section 83 and 84 of Land Public Transport Act 2010.

## 2.0 PROCEDURE DETAILS

Person In Charge	Process Flow	Description	Duration
Rail Planning Division (APAD)	4.1 Receive application	<ul style="list-style-type: none"> <li>Receive submission of railway scheme from Licensed Railway Operator (LRO)/applicant.</li> <li>LRO/applicant to comply with all requirements of federal and state agencies. LRO/applicant to carry out the Detailed Environment Impact Assessment (DEIA), Social Impact Assessment (SIA) and Heritage Impact Assessment (HIA).</li> </ul>	
Rail Planning Division (APAD)	4.2 Review railway scheme. Meeting/ discussion with LRO/applicant	<ul style="list-style-type: none"> <li>Review the railway scheme by using <b>Railway Scheme Document Checklist</b> to ensure all issues are closed.</li> </ul>	1 month
Rail Planning Division (APAD)	4.3 Presentation to Director General of Land Public Transport for conditional approval	<ul style="list-style-type: none"> <li>LRO/applicant along with Rail Planning Division (APAD) to present on the updated railway scheme for consideration and conditional approval from Director General Land Public Transport.</li> </ul>	1 month
Rail Planning Division (APAD)	4.4 Memorandum to MOT for conditional approval by Minister	<ul style="list-style-type: none"> <li>Seek consideration and approval from Director General Land Public Transport prior to recommendation to Minister to grant the conditional approval.</li> </ul>	1 months
Rail Planning Division (APAD)	4.5 Public inspection	<ul style="list-style-type: none"> <li>Inform LRO/applicant to conduct public inspection for three (3) months. Detail requirements are as per <b>Public Inspection SOP</b>.</li> </ul>	3 months

Person In Charge	Process Flow	Description	Duration
Rail Planning Division (APAD)	<div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>4.6 Engagement with affected residents and stakeholders</p> </div>	<ul style="list-style-type: none"> <li>Review of Public Inspection feedback and engagement with public/ authorities to address issues raised during public inspection.</li> <li>LRO/applicant to submit approval documentation for EIA, HIA and SIA to APAD as part of the requirement prior for approval of the Final Railway Scheme.</li> </ul>	1-2 months
Rail Planning Division (APAD)	<div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>4.7 Memorandum to MOT for railway scheme final approval by Minister</p> </div>	<ul style="list-style-type: none"> <li>Seek consideration and approval from Director General of Land Public Transport prior to recommendation to Minister for approval of the final railway scheme.</li> </ul>	1-2 months
Rail Planning Division (APAD)	<div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>4.8 Inform LRO/ Applicant</p> </div>	<ul style="list-style-type: none"> <li>Inform LRO/Applicant of the Minister's decision</li> </ul> <p><b>*Estimated time required for Railway Scheme Approval</b></p>	<b>*8-10 months</b>

(\* Note: Depending on the complexity/any issue arise during the engagement session with stakeholders)

### 3.0 FORMS & OTHER RELATED DOCUMENTS

This procedure must be read together the following documents:

- i. Appendix A: Checklist - Railway Scheme Document Checklist
- ii. Appendix B: Document Review Form

## APPENDIX A - RAILWAY SCHEME DOCUMENT CHECKLIST

### **GUIDELINE FOR RAILWAY SCHEME APPROVAL**

#### **1. APPLICATION LETTER**

- |     |  |
|-----|--|
| 1.1 | Application letter for railway scheme approval |
|-----|--|

#### **2. GENERAL**

- |     |   |
|-----|---|
| 2.1 | Background & description of project         |
| 2.2 | Project needs, justification & alternatives |
| 2.3 | Project approval                            |
| 2.4 | Operational objectives                      |
| 2.5 | Scope of works                              |
| 2.6 | Project Programme                           |

#### **3. PLANNING**

- |     |  |
|-----|--|
| 3.1 | Corridor descriptions & route selection                                |
| 3.2 | Connectivity & accessibility plan                                      |
| 3.3 | Network & terminal integration   |
| 3.4 | Environmental Impact Assessment (EIA) & Social Impact Assessment (SIA) |
| 3.5 | Traffic management plan  |
| 3.6 | Heritage Impact Assessment (HIA)                                       |
| 3.7 | Infrastructure interfacing & migration plan                            |

#### **4. PROJECT DEMAND**

- |     |                                    |
|-----|------------------------------------|
| 4.1 | Town planning & land use study     |
| 4.2 | Ridership forecast                 |
| 4.3 | Methodology & basis for forecast   |
| 4.4 | Catchment areas                    |
| 4.5 | Population & employment projection |

#### **5. FINANCIAL**

- |      |                                 |
|------|---------------------------------|
| 5.1  | Project Cost                    |
| 5.2  | Operational Cost                |
| 5.3  | Financial Analysis              |
| 5.4  | Sensitivity Analysis            |
| 5.5  | Cost Benefit Analysis           |
| 5.6  | Financing Plan                  |
| 5.7  | Concession/ Franchise Agreement |
| 5.8  | Fare Structure                  |
| 5.9  | Conditions of Carriage          |
| 5.10 | Project Risk Management         |

## GUIDELINE FOR RAILWAY SCHEME APPROVAL

### 6. OPERATION & MAINTENANCE

6.1	Description of the strategy to operate and maintain the railway such as trains, maintenance facilities and vehicles etc.
6.2	Train operation plan (type of service, minimum service to be provided)
6.3	Information of railway operator
6.4	Service frequency and pphpd
6.5	Estimation length including duration between each station
6.6	Proposed fare structure including justification of fare calculation

### 7. STANDARDS & CODES

7.1	List of standards applicable for infrastructure and system
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### 8. RAILWAY SYSTEM TECHNICAL DESCRIPTIONS

8.1	Description of technical aspects of the project including alignment, station, depot, rolling stock etc.
8.2	<p>Trackwork</p> <ul style="list-style-type: none"><li>• Description of the design and rail components</li><li>• Layer and height of formation</li><li>• Type of rail, rail length, type of sleeper</li><li>• Turnout</li><li>• Track gauge</li><li>• Maximum design speed</li><li>• Maximum operation speed</li><li>• Axle Load on Maximum Operation</li><li>• Maximum gradient vertically<ul style="list-style-type: none"><li>o At the station</li><li>o The Main Line</li><li>o In Yard / Depot</li></ul></li><li>• Minimum radius vertical curve</li><li>• Minimum radius horizontal curve</li><li>• Maximum cant</li><li>• Maximum cant deficiency</li><li>• Emergency siding and pocket track</li><li>• Track cross section (at grade and elevated)</li></ul>
8.2	<p>Tunnel</p> <ul style="list-style-type: none"><li>• Location, length</li><li>• Design features and safety requirement</li><li>• Fire protection system</li><li>• Emergency equipment</li><li>• Ventilation system and lighting</li><li>• Signaling and communications systems</li><li>• Cross section drawings</li></ul>
8.3	<p>Level crossing</p> <ul style="list-style-type: none"><li>• Location of crossing</li><li>• Safety features</li></ul>



## GUIDELINE FOR RAILWAY SCHEME APPROVAL

	<ul style="list-style-type: none"> <li>• Gate control system</li> <li>• Facilities</li> </ul>
8.4	<p>Station</p> <ul style="list-style-type: none"> <li>• Location, size, type of platform, station facilities</li> <li>• Design features and safety requirement</li> <li>• Number of parking (car, motorcycle)</li> <li>• Bus access/stop/parking</li> <li>• Cross section drawings</li> </ul>
8.5	<p>Automated Fare Collection System</p> <ul style="list-style-type: none"> <li>• Description of the system including design features, functions / capabilities of the main component</li> <li>• Interfacing with TnGO and ticketing systems of other rail operators</li> </ul>
8.6	<p>Passenger Information Display System (PIDS)</p> <ul style="list-style-type: none"> <li>• Description of the system including design features, functions / capabilities of the main component</li> <li>• Type of information to be displayed automatically</li> <li>• Show the time train arrival</li> </ul>
8.7	<p>CCTV system</p> <ul style="list-style-type: none"> <li>• Description of the system including design features, functions / capabilities of the main component</li> <li>• The location and type of camera to be installed</li> <li>• The location and ability to keep records</li> </ul>
8.8	<p>Passenger Address (PA) System</p> <ul style="list-style-type: none"> <li>• Description of the system including design features, functions / capabilities of the main component</li> <li>• Integration/broadcast within station and control centre by manually and automatically</li> </ul>
8.9	<p>Communication System</p> <ul style="list-style-type: none"> <li>• Description of the system including design features, functions / capabilities of the main component</li> <li>• Communication equipment at train control center, station, depot and inside the train</li> <li>• Ability to record the conversation in the control center / train/ driver</li> </ul>
8.10	<p>Signalling &amp; Telecommunication (S&amp;T) System</p> <ul style="list-style-type: none"> <li>• Location, size, type of platform, station facilities</li> <li>• Description of the system including design features, functions / capabilities of the main component</li> <li>• The components of the signalling system at the central train control, track, stations, depots and inside the train</li> <li>• Protection system of signaling key components from damage caused by lightning / overcurrent</li> <li>• Uninterruptible Power Supply (Uninterrupted Power Supply)</li> </ul>
8.11	<p>Train operation control center</p> <ul style="list-style-type: none"> <li>• The location of operations control center</li> <li>• Design features, functions / capabilities of the main components</li> </ul>
8.12	<p>Electric power supply system</p> <ul style="list-style-type: none"> <li>• The location of operations control center</li> <li>• Description of the power supply system for traction power, Supervisory Control and Data Acquisition (SCADA) and station</li> <li>• Features designed including redundancy and protection system to protect major components train</li> </ul>

## GUIDELINE FOR RAILWAY SCHEME APPROVAL

	<ul style="list-style-type: none"><li>• Schematic diagram of the electric power supply system</li></ul>
8.13	Rolling stock <ul style="list-style-type: none"><li>• Design features include among others but not limited to:-<ul style="list-style-type: none"><li>o Capacity (sitting, standing)</li><li>o Traction power system</li><li>o Power acceleration, maximum speed</li><li>o Weight train (minimum, maximum)</li><li>o Axle load (minimum, maximum)</li><li>o Size of the wheel</li><li>o Braking system</li><li>o Type gangway / coupler</li><li>o Facilities in train<ul style="list-style-type: none"><li>o Automatic Train Operation (ATO)</li></ul></li></ul></li><li>• Safety devices including ATP, deadman switch, the train radio system)</li></ul>
8.14	Depot and maintenance facilities <ul style="list-style-type: none"><li>• Washing plant</li><li>• Details of the depot, including location, size and type of maintenance work</li><li>• Design features and safety requirement</li></ul>

## 9. SAFETY & SECURITY

9.1	Description of the safety and security aspects of the project at stations, inside rolling stock or at permanent way, during construction and operation
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## 10. LAND ACQUISITION & STAKEHOLDERS MANAGEMENT

10.1	Acquisition plan
10.2	List of buildings to be demolished or relocated
10.3	Land matters i.e. co-existence
10.4	Community and Stakeholders Engagement
10.5	Public Inspection

## 11. LEGAL

11.1	List of approval required
11.2	Cross border consideration
11.3	Accident/incident reporting
11.4	Train driver's vocational licensing
11.5	Operator's license
11.6	Limits of deviation

## 12. TRAINING

12.1	Training Needs Analysis
12.2	Transfer of Technology

## 13. INDEPENDENT CHECKING ENGINEER



<b>GUIDELINE FOR RAILWAY SCHEME APPROVAL</b>	
13.1	Responsibilities of ICE
13.2	Scope of works of ICE
<b>14. TESTING &amp; COMMISSIONING</b>	
14.1	Test & Commissioning Strategy
14.2	Test Procedures
<b>15. SYSTEM SAFETY CERTIFICATION</b>	
15.1	Certification Strategy
15.2	Scope of works
15.3	Certification programme
15.4	Safety assessment
15.5	Safety/technical audits
15.6	Reporting
<b>16. RAMS</b>	
16.1	Reliability, Availability, Maintainability And Safety Certification Strategy
<b>17. ANCILLARY ACTIVITIES</b>	
17.1	Ancillary activities and locations
17.2	Revenue Forecast from Ancillary Activities
<b>18. PLAN &amp; DRAWINGS</b>	
18.1	Map of the proposed route and station
18.2	Plans & sections
18.3	Station & Depot Layout
18.4	Signaling Layout
18.5	Electrification Layout
18.6	Track Formation Layout
18.7	Vehicle Dynamic Envelope
18.8	Cross section of track
<b>19. REFERENCE AND DATA SOURCES</b>	
19.1	The information of which the references are made
<b>20. APPENDICES</b>	
20.1	Book of reference (Land acquisition details)
20.2	List of design standards

**APPENDIX B - DOCUMENT REVIEW FORM**

<b>DOCUMENT REVIEW</b>			
<b>COMMENT SHEET INFORMATION</b>			
Reference			
Date			
<b>DOCUMENT INFORMATION</b>			
Document Title			
Document Reference			
Received Date			
<b>DOCUMENT REVIEWED BY</b>			
Name		Signature	
Organization		Date	

**REVIEW COMMENTS (ADD EXTRA LINES IF NECESSARY)**

ITEM NO.	SECTION & PAGE NO.	PARAGRAPH, FIGURE, TABLE OR OTHER REF.	COMMENTS	RESPONSE	STATUS

Remarks:

*(\*) 1 = Info/Minor Issue, NO Response Required | 2 = Moderate, Response Required | 3 = Major Issue, Response Required*

<b>OVERALL ACCEPTANCE STATUS</b>		
<input type="checkbox"/> Accepted	<input type="checkbox"/> Accepted with comments	<input type="checkbox"/> Rejected