Republic of Indonesia
PT. JASA MARGA (PERSERO) Tbk.

Preparatory Survey on Patimban Port Toll Road Project (PPP Infrastructure Project) (First Phase) in Republic of Indonesia

Final Report

August 2019

Japan International Cooperation Agency

Toyota Tsusho Corporation
Kamigumi Co., Ltd.

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JR(P)
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List of Abbreviations

AASHTO	:	American Association of State Highway and Transportation Officials
AEC	:	AMDAL Evaluation Committee
AMDAL	:	*Analisis Mengenai Dempak Lingkungan* (Environmental Impact Assessment)
ANDAL	:	*Analisis Dampak Lingkungan* (Environmental Assessment Report)
AP	:	Availability Payment
ATR/BPN	:	Kementarian Agraria dan Tata Ruang /Badan Pertanahan Nasional (Ministry of Agrarian Affairs and Spatial Planning/National Land Agency)
BAPPEDA	:	*Badan Perencanaan Pembangunan Daerah* (Regional Planning and Development Agency)
BAPPENAS	:	*Badan Perencanaan Pembangunan Nasional* (National Development Planning Agency)
Bina Marga	:	*Direktorat Jenderal Bina Marga, PUPR* (Directorate General of Highways, Ministry of Public Works and Housing)
BLU-LMAN	:	*Badan Layanan Umum - Lembaga Manajemen Aset Negara* (Public Service Agency – State Asset Management Agency)
BOT	:	Build – Operate – Transfer
BPJT	:	*Badan Pengatur Jalan Tol* (Indonesia Toll Road Authority)
CAGR	:	Compound Annual Growth Rate
CAPEX	:	Capital Expenditure
CBU	:	Complete Build-up Unit
CCS	:	Cross-currency Swap
CMEA	:	Coordinating Ministry for Economic Affairs
CMMA	:	Coordinating Ministry for Maritime Affairs
DED	:	Detailed Engineering Design
DGR	:	Directorate General of Railways, Ministry of Transport
DGST	:	Directorate General of Sea Transportation, Ministry of Transport
DJPPR	:	*Direktolat Jenderal Pengelolaan Pembiayaan dan Risiko, Kementerian Keuangan* (Directorate General of Budget Financing and Risk Management, Ministry of Finance)
DLH	:	*Dinal Lingkungan Hidup* (Environmental Department)
DPRD	:	*Dewan Perwakilan Rakyat Daerah* (Regional People's Representative Council)
DSCR	:	Debt Service Coverage Ratio
EIA	:	Environmental Impact Assessment
EMP	:	Environmental Management Plan
EMoP	:	Environmental Monitoring Plan
EPC	:	Engineering, Procurement and Construction
Equity IRR	:	Equity Internal Rate of Return
FIRR	:	Financial Internal Rate of Return
FO	:	Flyover
F/S	:	Feasibility Study
GCA	:	Government Contracting Agency
GOI	:	Government of Indonesia
Gol	:	*Golongan* (Vehicle Category)
GRDP	:	Gross Regional Domestic Product
IC	:	Interchange
IDR	:	Indonesian Rupiah
IIGF	:	Indonesia Infrastructure Guarantee Fund
JICA	:	Japan International Cooperation Agency

JM	:	PT. Jasa Marga
KA-ANDAL	:	*Kerangka Acuan AMDAL* (Terms of Reference of ANDAL)
Kamigumi	:	KAMIGUMI Co., Ltd.
KLHS	:	*Kajian Lingkungan Hidup Strategis* (Strategic Environmental Assessment)
KPPIP	:	*Komite Percepatan Penyediaan Infrastruktur Prioritas* (Committee for Acceleration of Priority Infrastructure Delivery)
LAC	:	Land Acquisition Committee
LAPD	:	Land Acquisition Planning Document
LARAP	:	Land Acquisition and Resettlement Action Plan
LKPP	:	*Lembaga Kebijakan Pengadaan Barang Jasa Pemerintah* (National Public Procurement Agency)
LMAN	:	*Lembaga Manajemen Aset Negara* (State Asset Management Agency)
MCA	:	Multi Criteria Analysis
MOEF	:	Ministry of Environment and Forestry
MOF	:	Ministry of Finance
MOHA	:	Ministry of Home Affairs
MOT	:	Ministry of Transport
MSS	:	Minimum Service Standard
NDA	:	Non-disclosure Agreement
NEXI	:	Nippon Export and Investment Insurance
NH	:	National Highway
OBC	:	Outline Business Case
OD	:	Origin - Destination
ODA	:	Official Development Assistance
O&M	:	Operation and Maintenance
OPEX	:	Operation and Maintenance Expenditure
PCU	:	Passenger Car Unit
PLN	:	PT. Persahaan Listrik Negara (Persero) (State Electricity Company)
PMO	:	Project Management Office
PPP	:	Public-Private Partnership
PQ	:	Prequalification
PR	:	Presidential Regulation
Pre-F/S	:	Pre-Feasibility Study
PSIF	:	Private Sector Investment Finance
PSN	:	*Proyek Strategis Nasional* (National Strategic Project)
PT	:	Preparation Team
PT.	:	*Perseroan Terbatas* (Limited Liability Company)
PUPR	:	*Kementarian Pekerjaan Umum dan Permahan Rakyat* (Ministry of Public Works and Housing)
RIP	:	*Rencana Induk Pelabuhan Patimban Provinsi Jawa Barat* (Master Plan of Patimban Port, West Java Province)
RKL-RPL	:	*Rencana Pengelolaan Lingkungan Hidup/ Rencana Pemantauan Lingkungan Hidup* (Environmental Management and Monitoring Plan)
SAEC	:	Secretariat of AMDAL Evaluation Committee
SPC	:	Special Purpose Company
TEU	:	Twenty-foot Equivalent Unit
TOR	:	Terms of Reference

TTC	:	Toyota Tsusho Corporation
UKL-UPL	:	*Upaya Pengelolaan Lingkungan – Upaya Pemantauan Lingkungan* (Environmental Management and Monitoring Program)
USD	:	United States Dollar
VAT	:	Value Added Tax
VGF	:	Viability Gap Fund

1. Background and Objectives of the Study

1.1 Project Scope and Objectives

(1) Background of the Project

As the commercial operation of Patimban New Port is planned to commence in 2023, Toyota Tsusho Corporation (TTC) and KAMIGUMI Co., Ltd. (Kamigumi) have strong interest to participate Patimban Port Project as terminal operator.

Drastic hike in westbound cargo transport is expected on the National Road-1 from the Jakarta and Bekasi area to the new port. Although, without access roads with enough capacities to the port developed on time, the port will lose its competitiveness against the existing Tanjung Priok Port. Taking strategic importance of the access toll road, TTC and Kamigumi also intends to participate Patimban Port Access road project as investor and as operator.

After the discussion with the Indonesian sides, the preparatory study of the toll road has been proposed to JICA by TTC and Kamigumi. The Indonesian side and JICA agreed to adopt these as the objectives of the Project, and further examine them over the course of the Survey.

(2) Project Formulation Status

1) Project formulation on Indonesian side

Based on proposal from PT. Jasa Marga Consortium (consisting of PT. Jasa Marga, PT. Surya Semester Internusa, PT. Daya Mulia Turangga and PT. Jasa Sarana; hereafter JM Consortium), the project is identified as an unsolicited project based on the new presidential decree No.38/2015. The project follows stipulations of the National Development Planning Agency (BAPPENAS) regulation No.4/2015 for implementation. JM Consortium is currently preparing the feasibility study (F/S).

JM consortium has submitted feasibility study report to Bina Marga in October 2018 to obtain approval of Ministry of Public Works and Housing (hereafter PUPR) to ensure preferential treatment in the bidding process as the Project Initiator such as “right to match”.

In February 2019Then, Bina Marga issued a letter to JM Consortium, regarding adjustment of the Patimban Port Access Toll Road alignment plan, it is necessary to review the toll road alignment referred to as the starting point on IC Subang KM 109 + 900 Cikampek - Palimanan Toll Road and point at the end of the Pusakanegara Junction connected with the Patimban Port Access Road and the Pantura Road to the Pamanukan - Sewo City Border Section.

In reply to this request, JM Consortium is currently revising the feasibility study. The study is expected to be completed in January 2019.

Source: Study team based on Information from JM Consortium

Figure 1.1-1 Map of the Study Area

2) Involvement of Japanese companies

TTC and Kamigumi, the proposing Japanese companies of the present survey, has agreed with PT. Jasa Marga on future cooperation in the project implementation. As TTC and Kamigumi consider their involvement in the Patimban New Port development project as well, the present toll road project has strategic importance to ensure smooth access to, and robust transport demand of, the new port.

1.2 Objectives of the Study

The survey will confirm legal grounds of the project as well as important assumptions such as land acquisition, concession, and various permits for project implementation and examine the technical and financial feasibility of the project. It will also consider route options, project scheme and financing scheme in order to form agreement with Indonesian partners and government authorities.

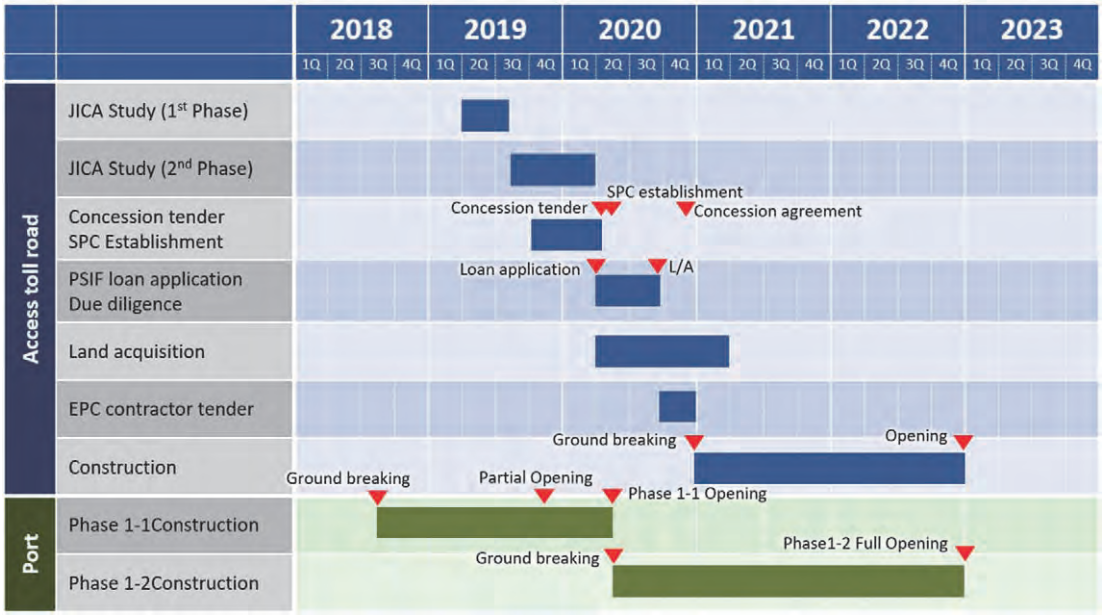
1.3 Implementation Schedule

The JICA's study will be divided into two phases. The first phase study was commenced in late April 2019, and will complete in July 2019. The second phase of the Survey will commence only when the expected outcomes for the first phase as defined have been agreed upon between the government of Indonesia (GOI) and the JICA Study Team. The Conditions Precedent below shall be satisfied and presented to JICA within 90 days after the end of the first phase of the survey to start the second phase of the Survey.

- Substantial agreement between the Indonesian Consortium and the JICA Study Team on basic conditions of the Project such as sponsors of special purpose company (SPC) and business scheme.
- A letter of expression of interest for JICA's PSIF is sent to JICA by SPC related to both Indonesian Consortium and the JICA Study Team.

- Initial screening of social and environmental consideration in the Project area, listing up the necessary procedures according to JICA Guidelines for Environmental and Social Considerations.
- Ministry of Foreign Affairs of Japan and JICA consider it appropriate to commence the second phase in terms of Japanese policy, etc.

Figure 1.3-1 shows project implementation schedule of the toll road project. The Consortiums will submit the survey report to BPJT following the Public-Private Partnership (PPP) process for unsolicited projects. It is expected they will establish the SPC and apply for financing by JICA in the third quarter of 2020. After the land acquisition, the construction of road facilities is planned for two years through the end of 2022. The commencement of the toll road concession for 35 years is scheduled in January 2023.



Source: JICA Study Team

Figure 1.3-1 Project Implementation Schedule

2. Conceptual Design and Preliminary Cost Estimate

2.1 Review of the Existing Study (Jasa Marga, KPPIP, JICA)

The Government of Indonesia (GOI) has determined the construction of Patimban New Port in Subang Regency, West Java Province under Japanese ODA loan through JICA. Construction of access road (Port Access Road, L=8km) which connects the port to the existing National Road No.1 (Pantura Road) is a package of the port construction project. However, it is to be desired to establish a direct access to toll road by constructing a new road that connects Pantura to Cikopo - Palimanan Toll Road (Cipali Road), a part of Trans Java Toll Road, to make the new port more competitive and attractive to users. This section of the report describes the past studies on the project for construction of Patimban Access Toll Road, a new toll road connecting the Port Access Road to be constructed under the Patimban Port Development Project and Cipali Road. Major past studies on the project are listed in Table 2.1-1.

Table 2.1-1 List of Major Past Studies on the Project

No.	Study Title	Month/Year	Implementing Agency
1	Preparatory Survey on Patimban Port Development Project	Feb. 2017	Japan International Cooperation Agency (JICA)
2	A Study for the Development of an Integrated Intermodal Access	Dec. 2017	Committee for the Acceleration of Infrastructure Priority Projects Delivery (KPPIP)
3	Feasibility Study and Preliminary Design on the Patimban Access Toll Road	Oct. 2018	Consortium of Jasa Marga - Surya Semesta Internusa -Daya Mulia Turangg - Jasa Sarana (JM Consortium)

Source: JICA Study Team

(1) Preparatory Survey on Patimban Port Development Project (JICA)

1) Study Objectives

Due to a rapid economic growth, the volume of cargoes handled at Tanjung Priok Port in the Greater Jakarta Metropolitan Area is reaching the terminal capacity causing serious traffic congestion in the vicinity. Under such a situation and the policy of GOI to prioritize the development of traffic infrastructure, the Directorate General of Sea Transportation (DGST) of the Ministry of Transportation (MOT) conducted the Study for Selection of the New Port Construction Site in West Java (MOT F/S). As a result, the Patimban Port Development Project in Subang Regency of West Java Province was decided to be the National Strategic Project (PSN) in presidential decree No.47/2016.

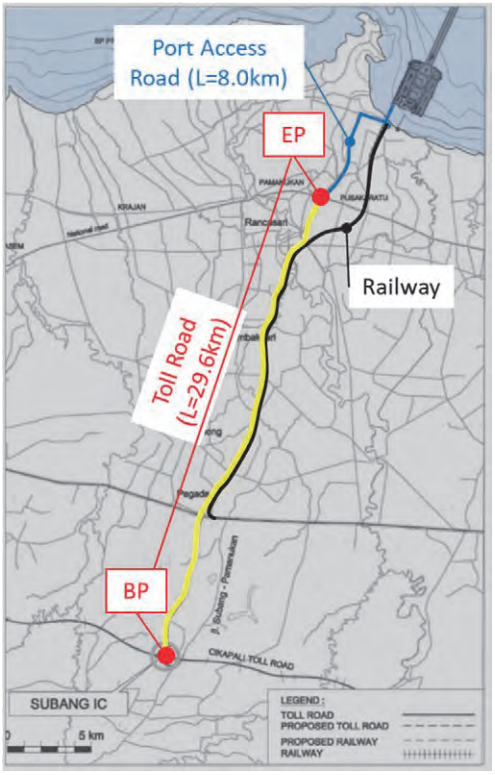
While the main objective of the Preparatory Survey on Patimban Port Development Project was to review MOT F/S for the appraisal of Japanese ODA loan, a preliminary study on the new toll road connecting Patimban Port and Cipali Road was also made in this survey.

2) Proposed Plan of Toll Road and Cost Estimate

JICA Preparatory Survey made an alignment study for the toll road taking the following approach:

- *Be the shortest route to the new port from interchange of Cipali Road*
- *Avoid residential villages to minimize land acquisition area and resettlement houses*
- *Take the same alignment with new access railway for land acquisition to be done together at one time*
- *Satisfy design criteria of both toll road and railway which is planned separately such as the minimum radius and others.*

Figure 2.1-1 presents the alignment of the toll road proposed in JICA Preparatory Survey. It starts at Subang IC on Cipali Road and ends at Pusakanegara on Pantura Road with a total length of 29.6km. The toll road alignment goes along with the planned railway in the section of more than half of the total length.



Source: JICA Preparatory Survey

Figure 2.1-1 Alignment of Toll Road proposed by JICA Preparatory Survey

The project cost estimated in JICA Preparatory Survey is shown in Table 2.1-2.

Table 2.1-2 Project Cost estimated in JICA Preparatory Survey

Item		Cost (IDR mil)	Remarks
Civil Works	1. At Grade	2,326,000	78.7%
	2. Bridge and FO	156,000	5.3%
	3. FO over Railway	82,000	2.8%
	4. IC (Pantura)	74,000	2.5%
	5. IC (Subang)	317,000	10.7%
	Sub Total	2,955,000	100.0%
Engineering		150,000	5% of Civil Cost
Operation/Maintenance (per year)		15,000	0.5% of Civil Cost
Land Acquisition/Resettlement		466,700	by break down
Grand Total		3,586,700	

Note: 2016 price
Source: JICA Preparatory Survey

Table 2.1-3 Land Acquisition and Resettlement Cost

Item	Q'ty	Unit Cost (IDR/m2)	Cost (IDR bil)	Remarks
Residential	6.8ha	750,000	51.0	
Paddy Field	263.6ha	150,000	395.3	
Other (Fishpond, plantation, etc.)	16.0ha	90,000	14.4	
Sub Total	286.4ha		460.6	
Structure	49nos	2,500,000	6.1	50m2/Structure
Grand Total			466.7	

Note: 2016 price
Source: JICA Preparatory Survey

(2) A Study for the Development of an Integrated Intermodal Access (KPPIP)

1) Study Objectives

After JICA Preparatory Survey, KPPIP conducted the Study on the Development of an Integrated Intermodal Access for the Patimban Port. The objectives of the study are to estimate the traffic demand to be generated by cargoes handled at the Patimban Port, propose the best solution for development of roads and railway to address the traffic demand increasing with the staged construction of Patimban Port, and evaluate the project in consideration of the Public Private Partnership (PPP) scheme.

For the integrated intermodal access to the port, three routes and two routes were proposed for the toll road and for the railway respectively, and one combination among them was recommended as the optimum development option. Furthermore, Capital Expenditure (CAPEX) and Operation & Maintenance Expenditure (OPEX) were estimated for the various alternatives and presented for the financial analysis.

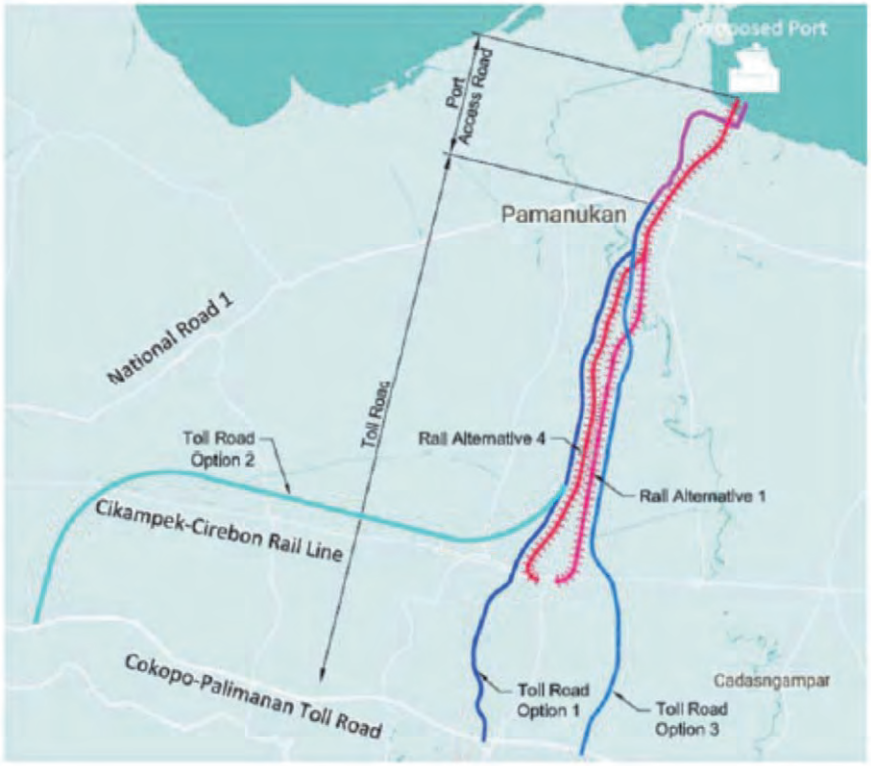
2) Proposed Plan of Toll Road and Cost Estimate

KPPIP Study considered route alternatives for the toll road of Options 1, 2 and 3 while considering those for the railway of Options 1 and 4 as shown in Figure 2.1-2. For evaluation, those route alternatives were grouped into three options as follows:

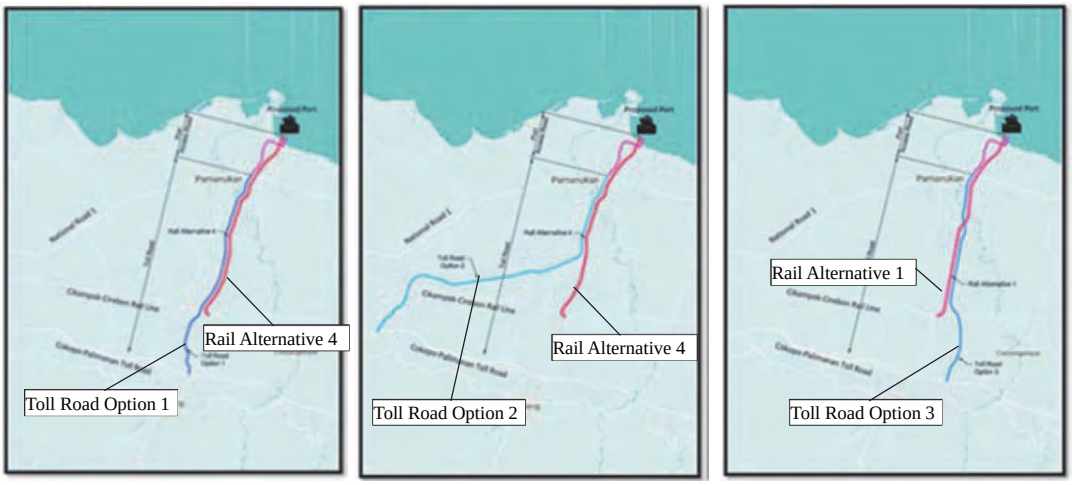
Option A: Toll Road from Subang IC at KM110 of Cipali Road (Toll Road Option 1)
Railway West Route (Railway Option 4)
Port Access Road

Option B: Toll Road from New IC located at KM88 of Cipali Road (Toll Road Option 2)
Railway West Route (Railway Option 4)
Port Access Road

Option C: Toll Road from New IC located at KM115 of Cipali Road (Toll Road Option 3)
Railway East Route (Railway Option 1)
Port Access Road



Option A **Option B** **Option C**



Toll Road Option 1 L= 27km, Cipali IC: KM110 (Subang IC)

Toll Road Option 2 L= 45km, Cipali IC: KM88

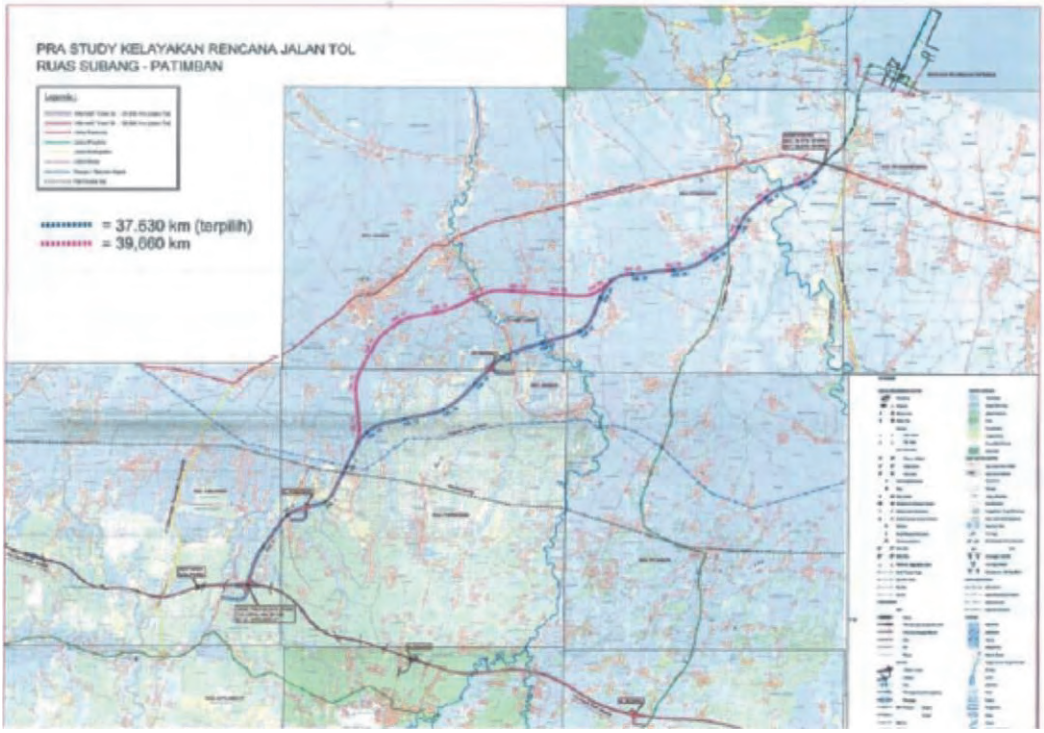
Toll Road Option 3 L= 26km, Cipali IC: KM115

Source: JICA Study Team based on KPPIP Study

Figure 2.1-2 Route Alternatives of Toll Road and Railways studied in KPPIP Study

KPPIP Study explains that the concept designs for the Toll Road Options 1 and 3 were prepared in KPPIP Study in accordance with AASHTO[1] Policy on Geometric Design of Highways and Streets as well as the design standard of Bina Marga while the alignment of Toll Road Option 2 was prepared by Jasa Marga Consultant. Figure 2.1-3 presents two alternatives for Toll Road Option 2.

[1] American Association of State Highway and Transportation Officials



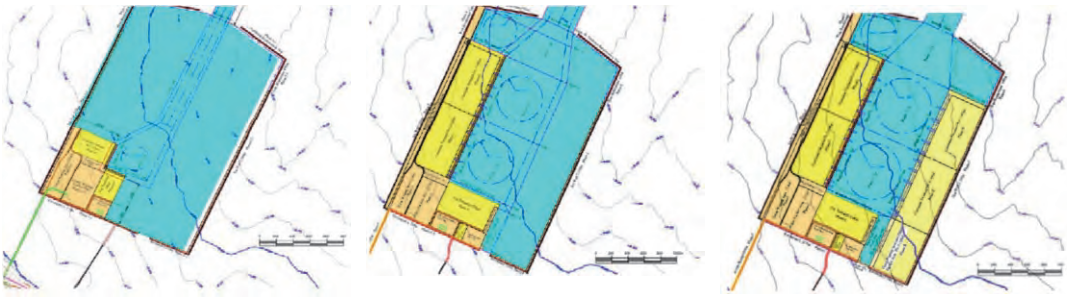
Source: KPPIP Study

Figure 2.1-3 Two Alternatives for Toll Road Option 2 designed by Jasa Marga Consultant

KPPIP Study emphasized the importance of phased development of particular transportation infrastructure to ensure optimum benefit assuming three phases of development as follows:

I) Port Access Road from Pantura Road for the Port Development Phase 1-1
II) Toll Road from Cipali Road for the Port Development Phase 1-2
III) Toll Road and Railway from the existing railway for the Port Development Phase 2

Phase 1-1 **Phase 1-2** **Phase 2**



Source: JICA Study

Figure 2.1-4 Phased Development of Patimban Port

Based on a comprehensive study that considered various aspects of economic evaluation, public expectations hearing through various focused group discussion and coordination meetings, traffic and logistic study, KPPIP Study finally recommended Option A (Leftmost in Figure 2.1-2) as the best option for the integrated intermodal access to the Patimban Port as shown in Table 2.1-4.

Table 2.1-4 Evaluation Result of Development Options in KPPIP Study

No.	Criteria	Weighting (%)	Option-A		Option -B		Option-C	
			Score (1-10)	Weight x Score	Score (1-10)	Weight x Score	Score (1-10	Weight x Score
1.	Technic & Logistic Aspects	25	7	1.75	3	0.75	8	2
2.	Environment, Social & Spatial Aspects	35	10	3.5	1	0.35	8	2.8
3.	Aspects of Benefit to the community	20	8	1.6	6	1.2	7	1.4
4.	Financial Aspects (investment)	20	8	1.6	3	0.6	9	1.8
	Total	100		8.45		2.9		8

Note: Option A is a combination of Toll Road Option No.1 and Railway Option No.4
Option B is a combination of Toll Road Option No.2 and Railway Option No.4
Option C is a combination of Toll Road Option No.3 and Railway Option No.1
Source: KPPIP Study

KPPIP Study estimated the Project Cost of Toll Road Option 1 of which the alignment is similar to the one proposed by JICA Preparatory Survey as shown in Table 2.1-5.

Table 2.1-5 Project Cost estimated in KPPIP Study

Item		Cost (USD)	Remarks
Direct Cost	Embankment (1 Lane)	2,116,788	1.4%
	Embankment (2 Lane)	551,095	0.4%
	Bridge (2 Lane)	3,214,286	2.1%
	Embankment (4 Lane)	47,333,333	31.6%
	Bridge (4 Lane)	63,000,000	42.1%
	Piled (4 Lane)	25,577,714	17.1%
	Flood Plain (4 Lane)	3,863,946	2.6%
	Tolling System	4,000,000	2.7%
	Sub Total	149,657,162	100.0%
Indirect Cost (Inclusive of overheads, margin, contingency)		70,338,866	47% of Direct Cost
Grand Total		219,996,028	

Note: 2017 price
Source: KPPIP Study

(3) Pre-Feasibility /Feasibility Study and Preliminary Design on the Patimban Access Toll Road (Jasa Marga)

1) Study Objectives

The Consortium of Jasa Marga - Surya Semesta Internusa -Daya Mulia Turangg - Jasa Sarana (JM Consortium) prepared a Pre-F/S (JM Pre-F/S) to propose the implementation of the Project for Partimban Access Toll Road as an unsolicited PPP project. The JM Consortium obtained approval from the Minister of Public Works and Housing (PUPR) and was designated as the initiator of the project by the letter No. JL.03.04-Mn/1214 dated 2 November 2017. JM Pre-F/S made a comparison study on the toll road route. Figure 2.1-5 shows route alternatives for the toll road studied in JM Pre-F/S. After multi-criteria analysis, Route No.3 which is represented in red color in the figure connecting Pusakanegara on Pantura Road and Cipeundeuy on Cipali Road at KM89+125 was

selected as the optimum route.

JM Pre-F/S explains that Cipendeuy Sub-District was designated as one of the industrial areas in the District Spatial Plan and thus the direct access to the Patimban Port shall be important. Since JICA Study Team has not yet received the details of multi-criteria analysis on the route selection, a review of the route selection is not made in this report.

Source: JM F/S (Summary)

Figure 2.1-5 Route Alternatives for Toll Road Studied in JM Pre-F/S

In accordance with the Indonesian regulation on the PPP project, JM Consortium prepared an F/S for the project (JM F/S) in October 2018 for evaluation of the governmental regulatory agencies of Bina Marga and BPJT. JM F/S focused on the selected alignment, Route No.3 and the final report includes the contents of review of related development plans, traffic analysis, aerial photo survey, geological and geotechnical surveys, hydrological survey, preliminary design, cost estimate, economic and financial analyses, and land procurement plan.

2) Proposed Plan of Toll Road and Cost Estimate

The design criteria (major items) applied in JM F/S is summarized in Table 2.1-6.

Table 2.1-6 Proposed Design Criteria applied in JM F/S

Item	Unit	Value
Design Speed	Km/h	80
No. of Lane /Direction	No.	2
Lane Width	m	3.60
Outer Shoulder Width	m	3.00
Inner Shoulder Width	m	1.50
Median Width (including Inner Shoulder and Separator)	m	3.80
Road Width	m	24.20
Normal Crossfall for Carriageway	%	2.0
Normal Crossfall for Outer Shoulder	%	4.0
Maximum Superelevation	%	8.0
Vertical Clearance		

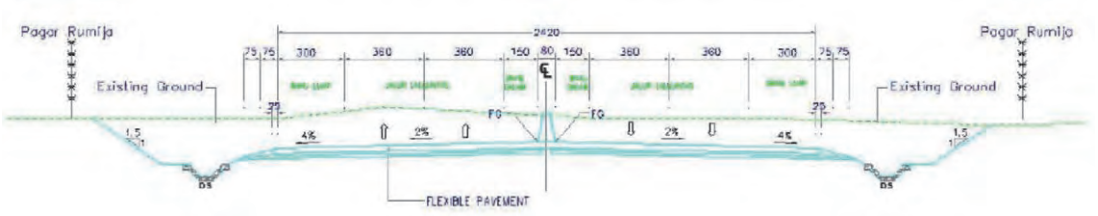
- Road	m	5.10
- Railway	m	6.50
- Electric Line 66kV	m	8.00
- Electric Line 150kV	m	9.00
- Electric Line 500kV	m	15.00
Minimum Stopping Sight Distance	m	110
Minimum Horizontal Curve Radius	m	400
Minimum Horizontal Curve Radius without Transition	m	1,000
Minimum Horizontal Curve Radius with Normal Crossfall	m	3,500
Minimum Horizontal Curve Length	m	1,000/θ or 140
Minimum Transition Curve Length	m	70
Maximum Gradient	%	4.0
Minimum Vertical Curve Radius		
- Crest	m	4,500
- Sag	m	3,000
Minimum Vertical Curve Length	m	70

Source: JICA Study Team based on JM F/S

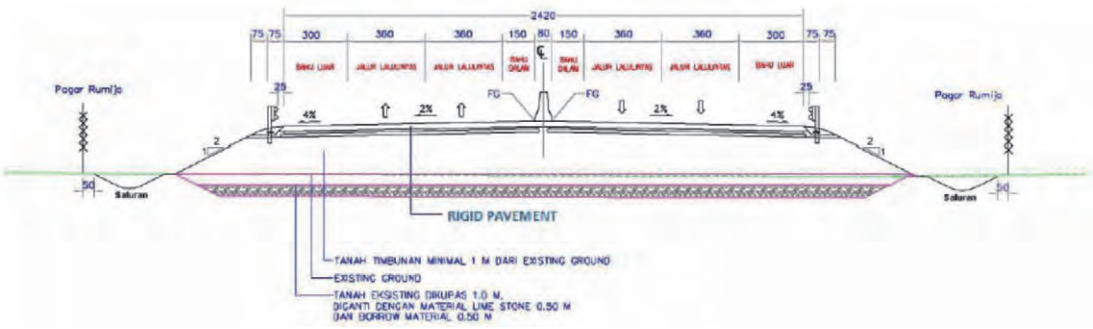
JM F/S clarifies the rationale for application of design speed of 80km/h as follows:

- The gap from the design speed of the Port Access Road of 60km/h that the Patimban Access Toll Road is planned to be connected to is acceptable.
- The Patimban Access Toll Road is a “branch” section of the “main” Trans-Java, Cipali Road and it plays a role of the second hierarchy in the road network.

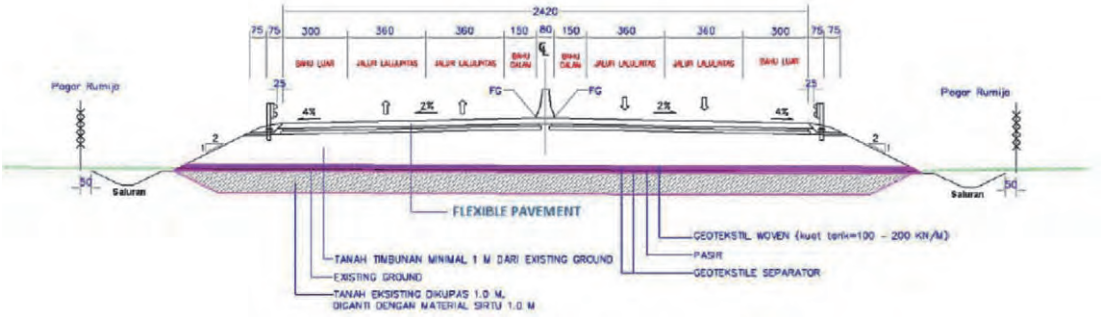
Typical cross sections of the Toll Road (Main Road) designed in JM F/S are presented in Figure 2.1-6. The flexible pavement of asphalt concrete is adopted for cut section and fill section (KM8+000-KM37+700), while the rigid pavement of cement concrete is adopted for fill section (KM0+000-KM8+000).



Typical Cross Section for Cut Section



Typical Cross Section for Fill Section (KM 0+000-KM 8+000)

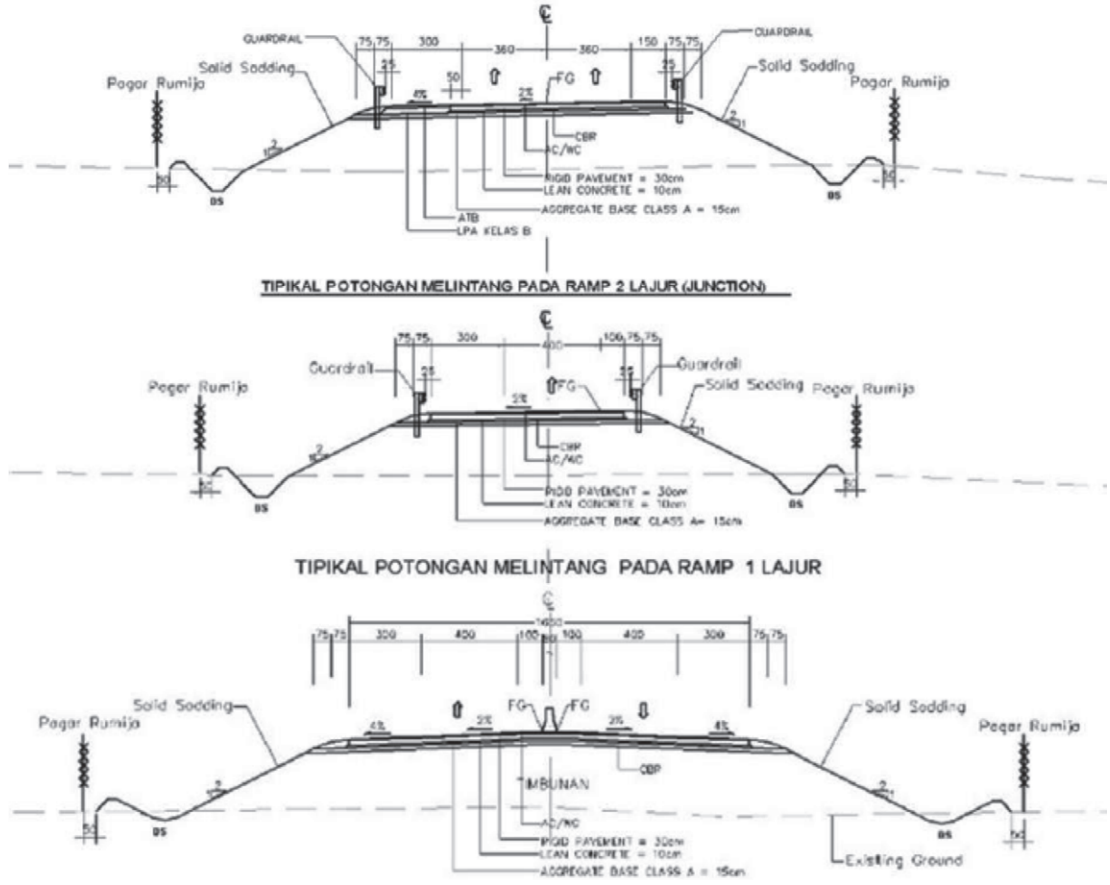


Typical Cross Section for Fill Section (KM 8+000-KM 37+700)

Source: JM F/S

Figure 2.1-6 Typical Cross Sections of Toll Road (Main Road) in JM F/S

Typical cross sections of the Toll Road (Rampways) designed in JM F/S are presented in Figure 2.1-7.



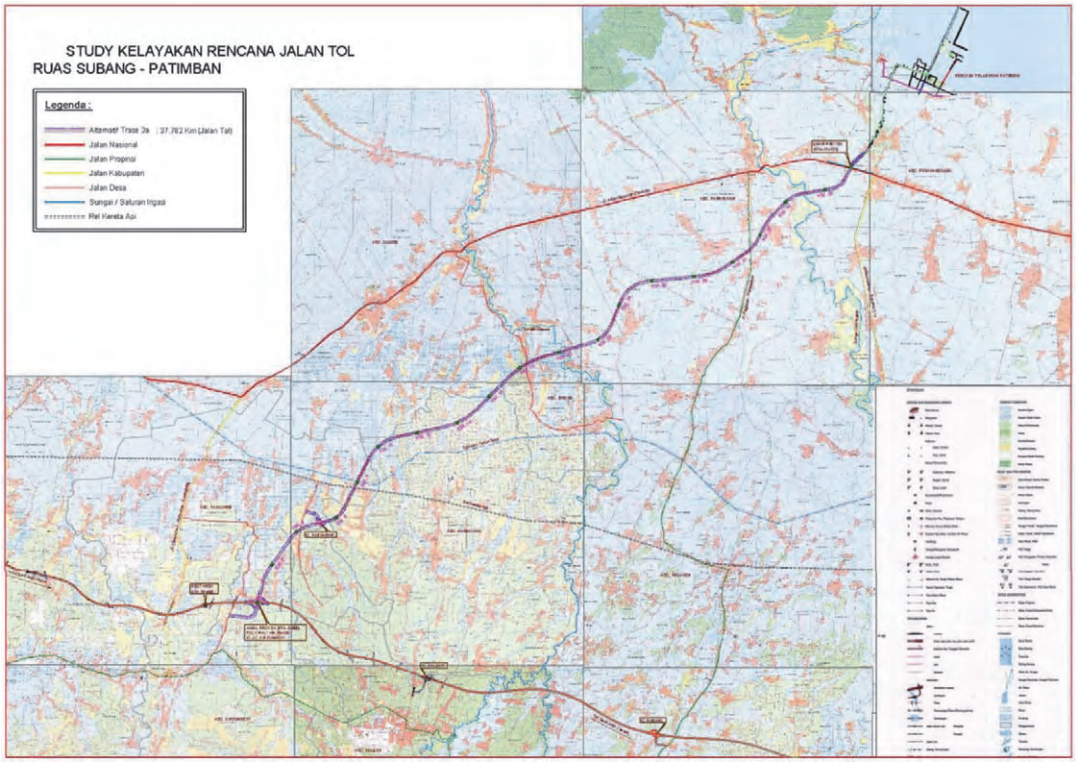
Source: JM F/S

Figure 2.1-7 Typical Cross Sections of Toll Road (Rampways) in JM F/S

Figure 2.1-8 and Figure 2.1-9 present the horizontal alignment (Plan) and the vertical alignment (Profile) of the toll road designed in JM F/S, respectively. In accordance with the design criteria, horizontal curves with radius of 1,000m to 3,450m and gradient of -4.0% to 4.0% are adopted.

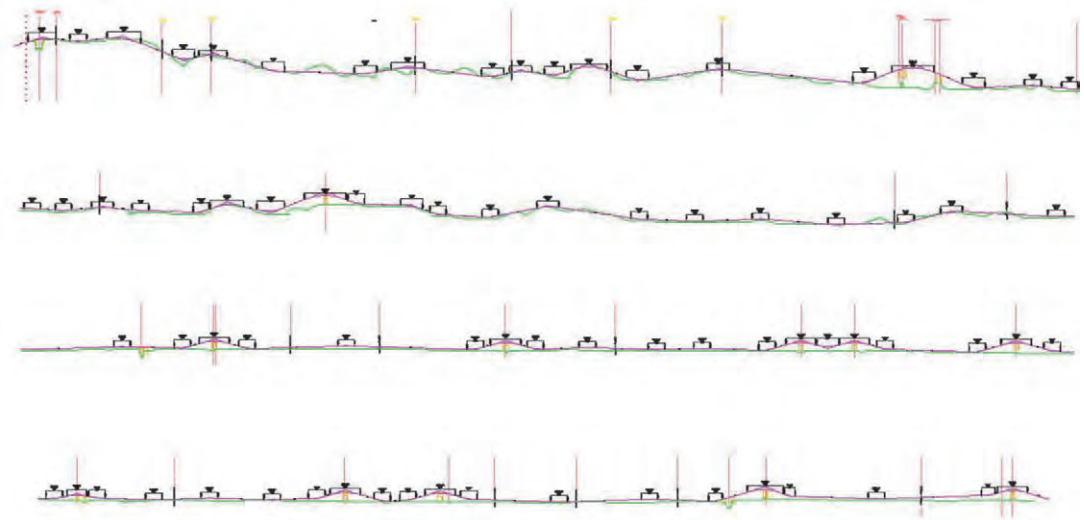
The maximum gradient is 4.0%, however, considering that some of the large vehicles used in

Indonesia are old models and their climbing abilities are not sufficient, the effort shall be made to apply milder gradient than the upper limit of the technical standard.



Source: JM F/S

Figure 2.1-8 Alignment Plan of Toll Road in JM F/S

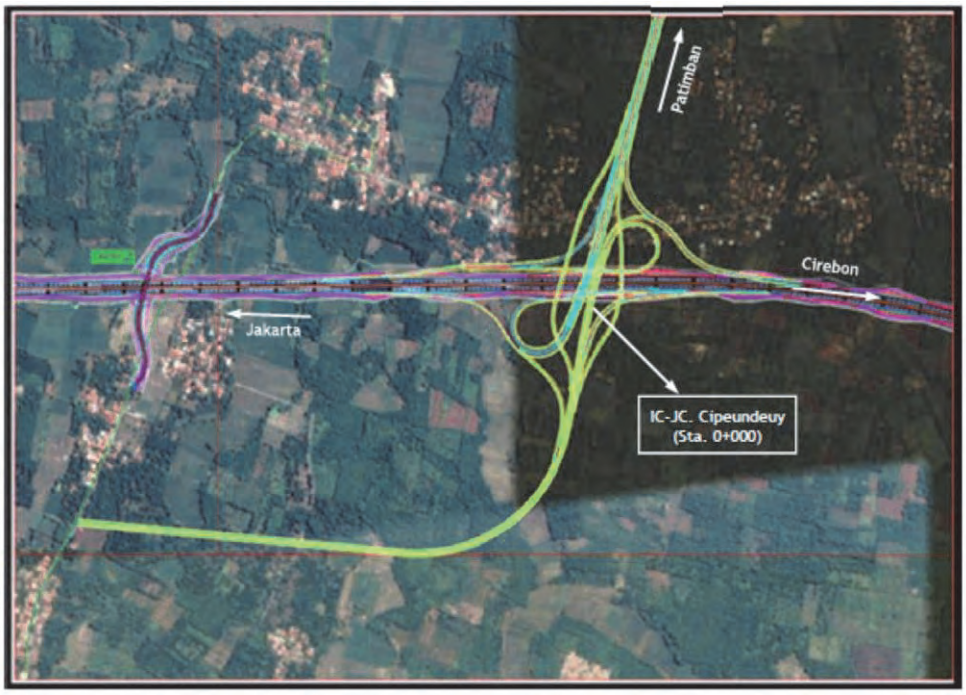


Source: JM F/S

Figure 2.1-9 Profile of Toll Road in JM F/S

Since the Patimban Access Toll Road is planned as the access-controlled freeway, the entry and exit to/from other toll road or local roads are limited to the points where the interchanges (ICs) are constructed. Figure 2.1-10, Figure 2.1-11 and Figure 2.1-12 show three ICs proposed in JM F/S. It is recommended by JM F/S that among these ICs, Pabuaran IC shall be developed in the later stage

when the planned industrial development will realize.



Source: JM F/S

Figure 2.1-10 Cipeundey IC at Cipali Road proposed in JM F/S

Source: JM F/S

Figure 2.1-11 Pabuaran IC at KM5+100 proposed in JM F/S

Source: JM F/S

Figure 2.1-12 Pusakanegara IC at Pantura Road proposed in JM F/S

In addition to ICs, 38 structures were planned in JM F/S to cross local roads, railway, rivers and irrigation canals as listed in Table 2.1-7.

Table 2.1-7 List of Structures Proposed in JM F/S

NO	STATION		COORDINATE		REMARKS	ROAD CROSSING	RIVER	IC
	FROM	TO	X	Y				
1	00+000	00+000	788539.044	9283978.601	JALAN TOL CIPALI KM. 89+125			ICJC
2	00+150	00+283	788616.254	9284250.903	JALAN DESA	OVERPASS		
3	01+096	01+096	788832.412	9285035.013	JALAN DESA SAWANGAN 1	OVERPASS		
4	01+520	01+534	789010.935	9285433.657	JALAN DESA SAWANGAN 2	OVERPASS		
5	03+359	03+359	790053.631	9286931.223	JALAN DESA CIJENGKOL	OVERPASS		
6	04+218	04+218	790652.966	9287529.92	JALAN DESA KOSAR	OVERPASS		
7	05+103	05+103	791492.126	9287808.712	IC PABUARAN			IC
8	06+095	06+095	792421.341	9288128.826	JALAN DESA PANYINGKIRAN	OVERPASS		
9	07+701	07+701	793213.486	9289513.331	REL KA DOUBLE TRACK	BRIDGES		
10	08+041	08+041	793364.584	9289818.033	SALURAM TARUM TIMUR + INSPEKSI	BRIDGES		
11	10+098	10+098	794433.327	9291554.023	JALAN DESA RANCABANGO	OVERPASS		
12	12+147	12+147	796359.936	9292180.8	JALAN KABUPATEN	BRIDGES		
13	13+750	13+794	797964.381	9292550.778	JALAN DESA/ PERKEBUNAN PASIR BUNGUR	OVERPASS		
14	18+335	18+335	801465.781	9295406.144	JALAN DESA MEKARSARI 1	OVERPASS		
15	18+937	18+982	802007.6	9295758.917	JALAN DESA MEKARSARI 2	OVERPASS		
16	20+120	20+120	803080.601	9296122.188	SUNGAI CIASEM		BRIDGES	
17	20+761	20+761	803709.302	9296264.116	SALURAN IRIGASI DAN INSPEKSI	BRIDGES		
18	21+475	21+461	804390.213	9296419.093	JALAN DESA TANJUNGRASA 1	OVERPASS		
19	22+269	22+269	805112.446	9296758.97	JALAN DESA TANJUNGRASA 2	OVERPASS		
20	23+417	23+417	805685.686	9297736.432	SAL. IRIGASI + JL. INSPEKSI TANJUNG RAJA TAMBAK DAHAN	BRIDGES		
21	24+412	24+412	806065.268	9298654.846	JALAN DESA/ KABUPATEN WANAJAYA	OVERPASS		
22	26+125	26+137	807498.221	9299425.125	SALURAN IRIGASI DAN INSPEKSI	BRIDGES		
23	26+598	26+598	807976.666	9299473.598	SALURAN IRIGASI DAN INSPEKSI	BRIDGES		
24	28+064	28+064	809434.778	9299622.496	SALURAN IRIGASI DAN INSPEKSI	BRIDGES		
25	28+993	28+993	810347.125	9299785.601	JALAN DESA	BOX UNDERPASS		
26	29+064	29+064	810414.235	9299809.289	SUNGAI KAMAL		BRIDGES	
27	29+421	29+421	810739.652	9299953.455	SUNGAI KIARA		BRIDGES	
28	29+873	29+873	811121.053	9300194.716	JALAN DESA KERTAJAYA	OVERPASS		
29	31+420	31+420	812184.716	9301313.719	JL. PROVINSI PAMANUKAN - PEGADEN	BRIDGES		
30	32+275	32+268	812744.925	9301950.034	JL. INSPEKSI PERTAMINA	BRIDGES		
31	32+779	32+779	813083.788	9302333.711	JALAN DESA BONGAS	OVERPASS		
32	33+522	33+522	813576.498	9302889.8	JALAN DESA RANCAHILIR 1	OVERPASS		
33	34+441	34+441	814305.451	9303428.004	JALAN DESA RANCAHILIR 2	OVERPASS		
34	34+906	34+906	814758.053	9303538.56	SUNGAI CIPUNEGARA		BRIDGES	
35	35+244	35+244	815087.429	9303610.072	SALURAN IRIGASI DAN INSPEKSI	BRIDGES		
36	36+650	36+650	816315.45	9304240.676	IC PUSAKANEGARA			IC
37	37+375	37+375	816821.149	9304759.536	SALURAN IRIGASI DAN INSPEKSI	BRIDGES		
38	37+475	37+475	816891.769	9304831.333	JL. NASIONAL SUBANG - INDRAMAYU	BRIDGES		

Source: JM F/S

Furthermore, JM F/S proposed to develop a rest area in accordance with toll road regulations.

The proposed rest area is located at KM27+100 and categorized as Type A with the area of 6ha.

Source: JM F/S

Figure 2.1-13 Rest Area at KM27+100 proposed in JM F/S

JM F/S estimated the project cost as presented in Table 2.1-8. Total construction cost is IDR 3,876 bil. excluding value added tax (VAT), land acquisition and resettlement cost.

Table 2.1-8 Project Cost estimated in JM F/S

NO.	ITEM	COST (IDR)	SHARE
	CONSTRUCTION COST		
I	GENERAL	149,000,000,000	3.8%
II	EARTH WORK	1,140,986,611,005	29.4%
III	DRAINAGE	152,050,000,000	3.9%
IV	ROAD	1,203,423,188,567	31.1%
V	STRUCTURE	859,905,034,344	22.2%
VI	OTHERS	293,307,157,705	7.6%
VII	LIGHTING AND TOLL FACILITIES	76,943,286,791	2.0%
	SUB TOTAL	**3,875,615,278,412**	**100.0%**
	VALUE ADDED TAX (10%)	387,561,527,841	
	TOTAL	**4,263,176,806,253**	
	ROAD LENGTH (km)	37.7	
	UNIT COST PER KM (w/o TAX)	102,801,466,271	
	UNIT COST PER KM (w TAX)	113,081,612,898	
	LAND ACQUISITION AND RESETTLEMENT COST	**752,977,343,857**	

Source: JM F/S (P10-8)

(4) Summary of Change in Selected Alignment Options

The alignment options selected in past studies are summarized as follows:

Table 2.1-9 Summary of Alignment Options selected in Past Studies

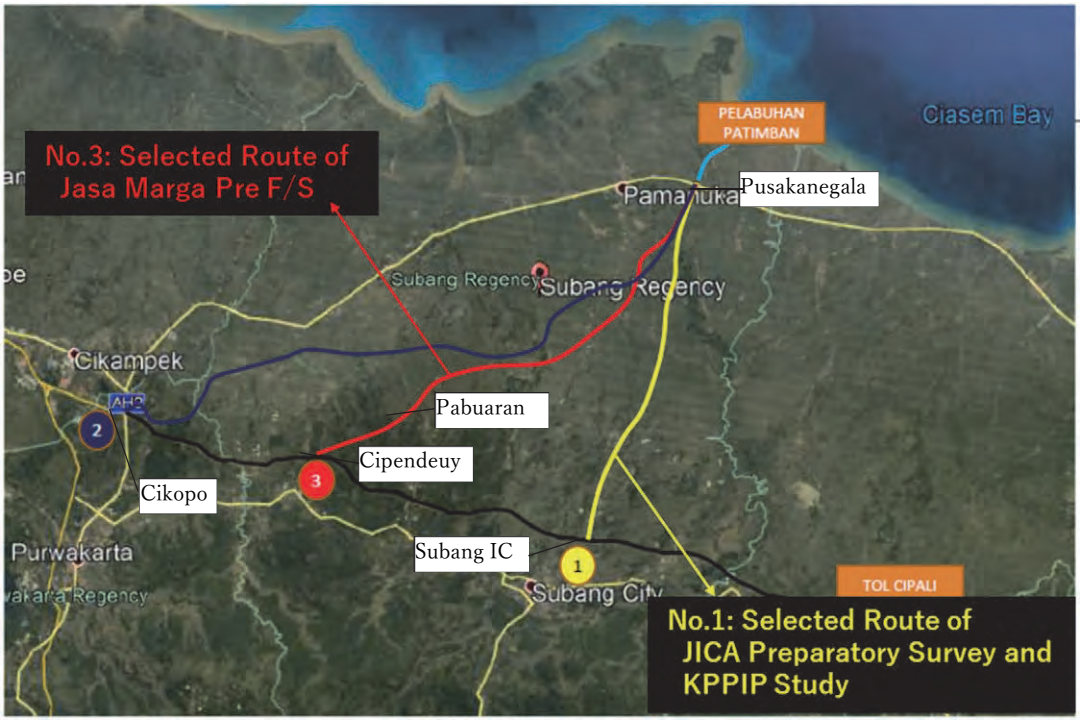
Item	JICA Study	KPPIP Study	JM Pre-F/S JM F/S
Report Submission	Feb. 2017	Dec. 2017	Oct. 2018
Beginning Point-Ending Point	Subang IC-Pusakanegala	Subang IC-Pusakanegala	Cipendeuy-Pusakanegala
Remarks	No.1 in Figure 2.2-1	No.1 in Figure 2.2-1	No.3 in Figure 2.2-1

Source: Summarized by JICA Study Team based on each study report

2.2 Conceptual Design and Alignment Options

(1) Consideration on Comparison of Alignment Options

As described earlier, several alignment options were proposed in the past studies. Since each study selected one option and two options selected by JICA Preparatory Survey and KPPIP Study have a common concept in their basic approaches, past discussions have resulted in two representative alignments (No.1 and No.3) shown in Figure 2.2-1.



Source: JICA Study Team based on JM F/S (Summary)

Figure 2.2-1 Route Options selected in Past Studies

In this study, a simple review on the secondary data of past study reports was made. Consequently, Alignment No.1 was considered to be more feasible for implementation than the other as shown in Figure 2.2-1.

Table 2.2-1 Review Result on Alignment Studies

Item	Alignment No.1	Alignment No.3
Traffic	Give well-balanced traffic function for all direction 67,132 pcu/day (2037)	Focus on the traffic for Patimban-Cipeundey and Cikampek/Jakarta 40,704 pcu/day (2037)
Patimban-Cikampek/Jakarta	Moderate contribution	Large contribution
Patimban-Palimanan/Cirebon	Moderate contribution	Small contribution
Patimban-Cipeundey	Moderate contribution	Large contribution
Construction Cost (incl. VAT) *2	IDR 3,619 bil (84.9%) – IDR 4,103 bil (96.2%)	IDR 4,263 bil (100%)
Environment and Social Impact		
Impact on conservation area	Does not pass	Does not pass
Land Acquisition *3	213ha	272ha
Preparation Status	The Supervisory Agency, Bina Marga instructed Jasa Marga Consortium to additionally evaluate Alignment No.1 in addition to Alignment No.3 which is considered to contribute more sharply to strengthening competitiveness of Patimban Port and relatively larger scale of impact on paddy fields due to longer road length.	
Preliminary Evaluation	Supports future development to be planned in the east of Subang IC.	Supports future development to be planned in the east of Subang IC.

Source: JICA Study Team based on JICA Preparatory Survey, KPPIP Study and JM F/S
Note: *1: Traffic volumes were estimated in JICA Preparatory Survey for Alignment No.1 and in JM F/S for Alignment No.3
*2: Construction cost of Alignment No.1 was estimated with reference to cost estimate made in JM F/S.
*3: Although the length of Alignment No.1 is 29.6km and that of Alignment No.3 is 37.7km, the land acquisition area of 286.4ha and resettlement no. of 49 houses for Alignment No.1 are reported by JICA Preparatory Survey and the land acquisition area of 271.91ha for Alignment No.3 is reported by JM F/S (no information of resettlement is available in JM F/S). The cause of this reverse correlation is not clear, but it might be caused by the difference in calculation method of Right of Way. Therefore, the land acquisition area of Alignment No.1 was calculated here by the ratio of road length (29.6/37.7=0.785) only for comparison purpose.

(2) Site Observation

JICA Study Team conducted the site visit to observe the actual situation along the Alignment No.1 on 24 April 2019 and 19 May 2019. The site visit was made by travelling along the existing provincial road and village road and observing the site condition of major points of the proposed alignment that are considered to be the design controls.

Typical site conditions along the Alignment No.1 are presented in Figure 2.2-2.


Operation Office for Cipali Road


Local Road (KM0+900)


Fish Pond (KM0+900)


Irrigation Canal and Inspection Road (KM12+140)


Riece Field (KM15+140)


Irrigation Canal and Inspection Road (KM16+100)


Chicken Farm House (KM18+180)


River (KM20+740)


River (KM25+040)


Pantura Road (KM29+600)

Source: JICA Study Team

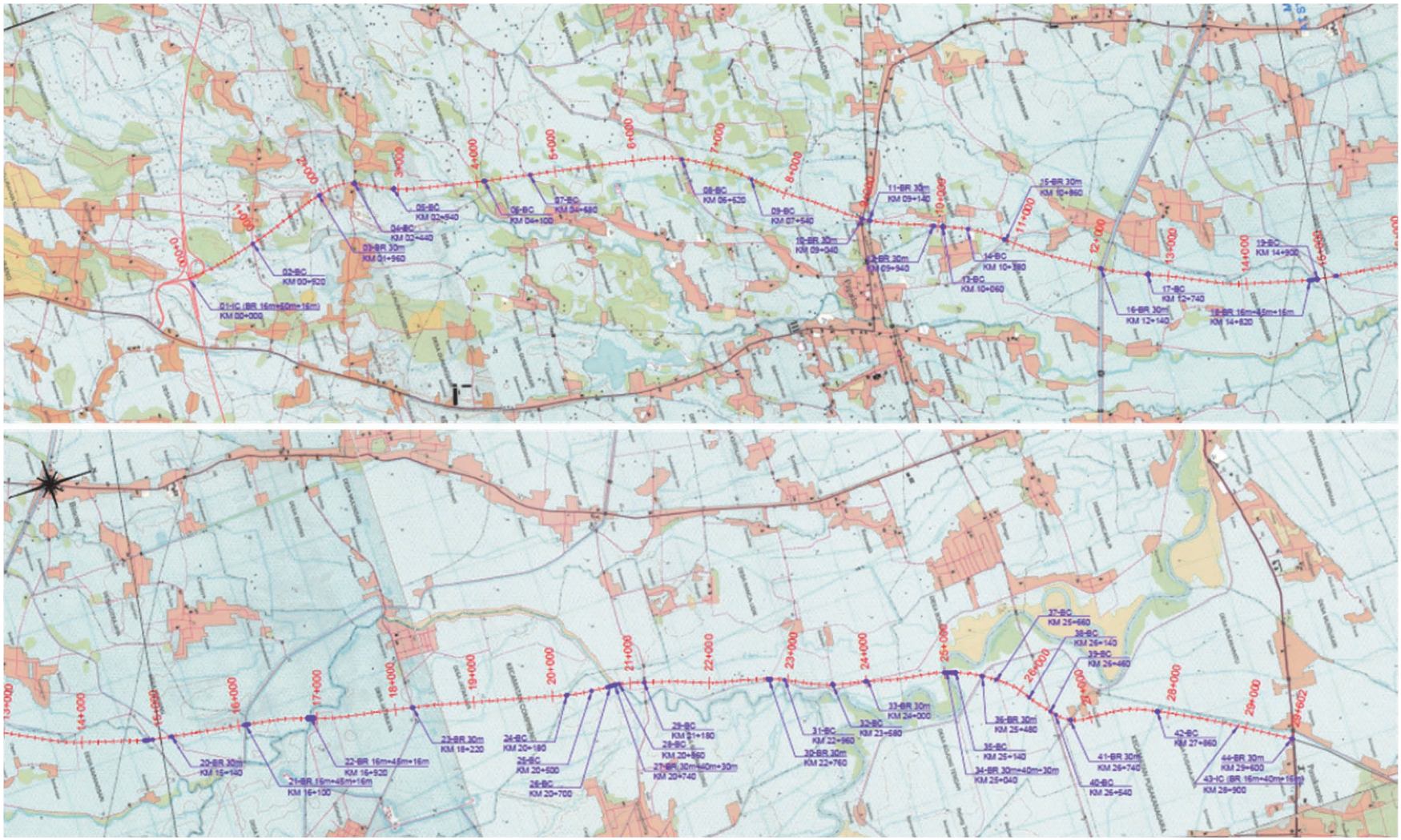
Figure 2.2-2 Typical Site Conditions along Alignment No.1

(3) Consideration on Alignment Design

JICA Study Team made a review on Alignment No.1 based on the desktop study using 1/25,000 topographic map as well as the results of the site observation. Major findings of the review are as follows:

- The alignment is avoiding almost all villages and is considered feasible.
- Nevertheless, the impacts on the livelihood such as rice fields and plantations, fish ponds and chicken farm houses are assumed, and thus every effort shall be made to minimize the scale of the impacts.

Alignment No.1 with small-scale adjustments made from the viewpoint of geometry on 1/25,000 topographic maps is shown in Figure 2.2-3. Furthermore, Table 2.2-2 shows the list of structures along the alignment that were considered for the preliminary cost estimate.



Source: JICA Study Team

Figure 2.2-3 Plan of Alignment No.1

Table 2.2-2 List for Structures for Preliminary Cost Estimate

NO	STATION	CROSSING	STRUCTURE		
			ROAD	RIVER	IC
1	00+000	IC SUBANG			BR 16m+50m+16m
2	00+920	JALAN DESA	BC		
3	01+960	JALAN DESA	BR 30m		
4	02+440	JALAN DESA	BC		
5	02+940	SALURAN IRIGASI DAN INSPEKSI	BC		
6	04+100	JALAN DESA	BC		
7	04+680	JALAN DESA	BC		
8	06+620	JALAN DESA	BC		
9	07+540	SALURAN IRIGASI DAN INSPEKSI	BC		
10	09+040	JALAN KABUPATEN	BR 30m		
11	09+140	SALURAN IRIGASI DAN INSPEKSI	BR 30m		
12	09+940	SALURAN IRIGASI DAN INSPEKSI	BR 30m		
13	10+060	JALAN DESA	BC		
14	10+380	JALAN DESA	BC		
15	10+860	JALAN DESA	BR 30m		
16	12+140	SALURAN IRIGASI DAN INSPEKSI	BR 30m		
17	12+740	JALAN DESA	BC		
18	14+820	SALURAN IRIGASI DAN INSPEKSI	BR 16m+45m+16m		
19	14+900	JALAN DESA	BC		
20	15+140	SALURAN IRIGASI DAN INSPEKSI	BR 30m		
21	16+100	SALURAN IRIGASI DAN INSPEKSI	BR 16m+45m+16m		
22	16+920	ANAK SUNGAI CIPUNEGARA		BR 16m+45m+16m	
23	18+220	JALAN DESA	BR 30m		
24	20+180	SALURAN IRIGASI DAN INSPEKSI	BC		
25	20+500	JALAN DESA	BC		
26	20+700	JALAN DESA	BC		
27	20+740	ANAK SUNGAI CIPUNEGARA		BR 30m+40m+30m	
28	20+860	JALAN DESA	BC		
29	21+180	SALURAN IRIGASI DAN INSPEKSI	BC		
30	22+760	JALAN DESA	BR 30m		
31	22+960	JALAN DESA	BC		
32	23+580	JALAN DESA	BC		
33	24+000	JALAN DESA	BR 30m		
34	25+040	SUNGAI CIPUNEGARA		BR 30m+40m+30m	
35	25+140	JALAN DESA	BC		
36	25+480	SALURAN IRIGASI DAN INSPEKSI	BR 30m		
37	25+660	JALAN DESA	BC		
38	26+140	JALAN DESA	BC		
39	26+460	SALURAN IRIGASI DAN INSPEKSI	BC		
40	26+540	JALAN DESA	BC		
41	26+740	SALURAN IRIGASI DAN INSPEKSI	BR 30m		
42	27+860	JALAN DESA	BC		
43	28+900	IC PUSAKANEGARA			BR 16m+40m+16m
44	29+600	JL. NASIONAL SUBANG - INDRAMAY	BR 30m		

Source: JICA Study Team

3. Preliminary Demand Forecast

3.1 Review of the existing Demand Forecast

(1) Existing demand forecast

Existing demand forecast results of Patimban Port Access Toll Road are submitted by JICA Study in 2017 and Jasa Marga Study in 2018. These two reports are as follows;

- The Preparatory Survey on Patimban Port Development Project, February 2017, JICA
- Studi Kelayakan dan Desain Awal Jalan Tol Akses Patimban (Feasibility Study of Toll Road Access Plan for Patimban Port), Oktober 2018, Jasa Marga

(2) Comparison of Results, Route, Methodologies, and Parameters of Existing Demand Forecast

1) Route selection

Route of Patimban Port Access Toll Road for calculating traffic demand forecasts are different from JICA Study and Jasa Marga Study. The route of JICA Study is shorter length than another one by approximately eight kilometers, these route plane alignments are shown in Figure 3.1-1, the former shown in yellow dotted line, the latter in red. However, Jasa Marga will study additionally similar route which was studied by JICA Study. The additional study seems to be complete by late of this year (2019) or early next year (2020).

Source: Studi Kelayakan dan Desain Awal Jalan Tol Akses Patimban

Figure 3.1-1 Plane alignments of two studies

2) Methodology

Basically, both studies were calculated by adding local traffic given by traffic survey with port activity traffic given by port demand forecast. According to the Jasa Marga report, traffic demand forecast is calculated by Four-step model and Road network analysis.

3) Parameters

Main parameters used traffic demand forecasts are shown table below.

Table 3.1-1 Main parameters used traffic demand forecasts

	JICA Study	Jasa Marga Study
Container Cargo volume Forecast at Patimban Port	6,193,787 TEUs in 2037	7,500,000 TEUs in 2037
Vehicle (or Land) transportation share ratio of container cargo	68 %	65 %
Toll Road Utilization Ratio for Cargo	100% (But, 90％ in opening year, 100% in 11 years)	100 %
Local traffic demand growth rate	3.0 %	Unidentified According Light vehicles growth rate is 9.0 % (CAGR)

Source: JICA Study Team

4) Traffic Demand Forecast

The results of these two studies are shown different traffic demands. This difference is considered that the differ of the route alignment, assumption cargo volume at Patimban Port, and traffic volume on existing local roads by each counting survey are affecting. The degrees of different value are shown table below.

Table 3.1-2 The results of Traffic Demand on Toll Road between two studies

Forecast Year	JICA Study (PCU/day)	Jasa Marga Study (PCU/day)	Diff.
2025	14,812	12,903	1,909 (13%)
2030	45,344	20,386	24,958 (55%)
2035	61,352	33,995	27,357 (45%)
2037	67,132	40,704	26,428 (39%)

Source: JICA Study Team

(3) Validity assessment of assumptions

1) Demand and Capacity of Patimban Port

For the Container demand forecast on JICA Study, the demand is over port handling capacity, planed by RENCANA INDUK PELABUHAN PATIMBAN PROVINSI JAWA BARAT (RIP) from 2032 to 2036. In otherwise Jasa Marga study has two cases namely unconstrained case and constrained case with capacity by planed RIP, the former is over the capacity almost though the forecast period, the latter is over from 2034 to 2036.

2) Correlation of Port Demand and Traffic Demand

The cargo demand of Patimban port and the traffic demand has correlate because the traffic demand is generated by unit of container (i.e. per TEU) and other cargos (e.g. per CBU).

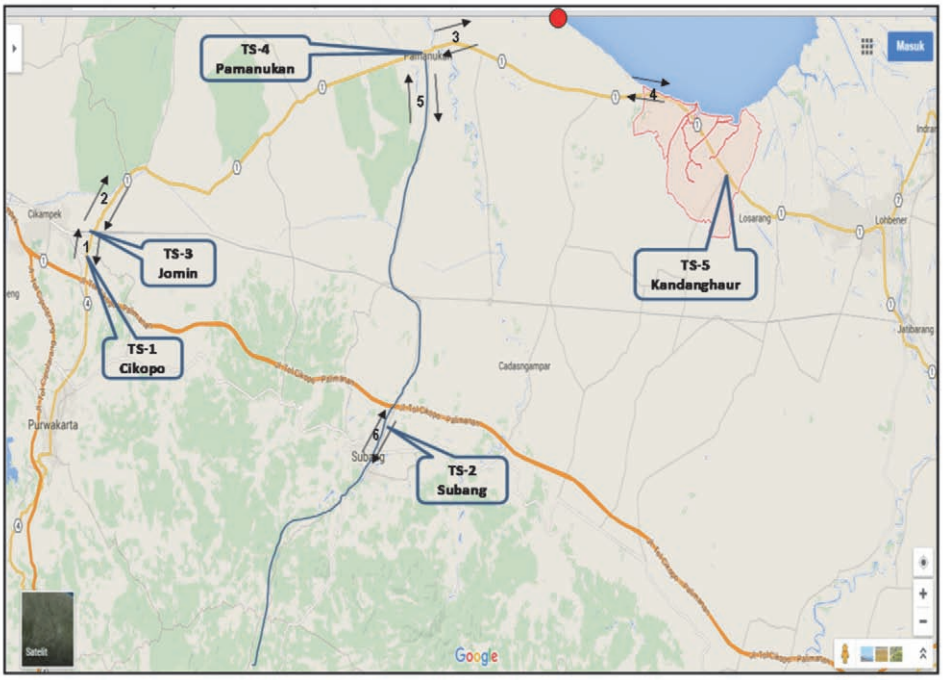
3) Traffic Volume on Existing Road and Future Demand

Traffic volume on existing road had been counted by each study in near location is shown table below. But the unit of traffic volume had been different, and the volume could not be compared correctly.

Table 3.1-3 The results of Traffic counting survey between two studies

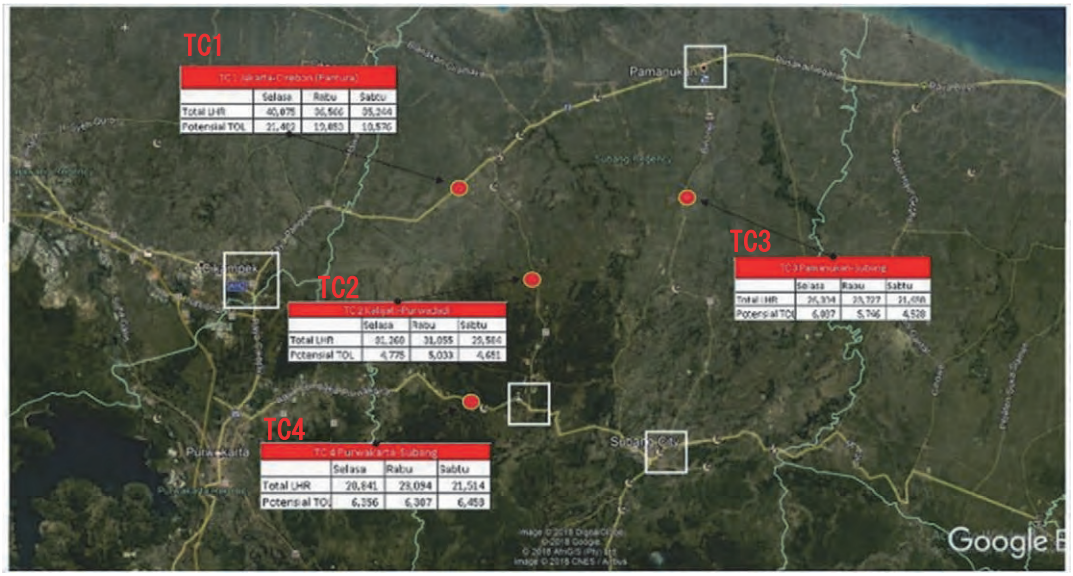
Road	JICA Study (PCU/day in 2016)	Jasa Marga Study (vehicles/day in 2016)
NH1	63,854 TS-3: Jomin intersection east	37,295 (Average in three-day) TC1
Province Road (Pamanukan-Subang)	31,514 TS-2: Subang	23,913 (Average in three-day) TC3

Source: JICA Study Team



Source: The Preparatory Survey on Patimban Port Development Project

Figure 3.1-2 Traffic survey locations in JICA Preparatory Study

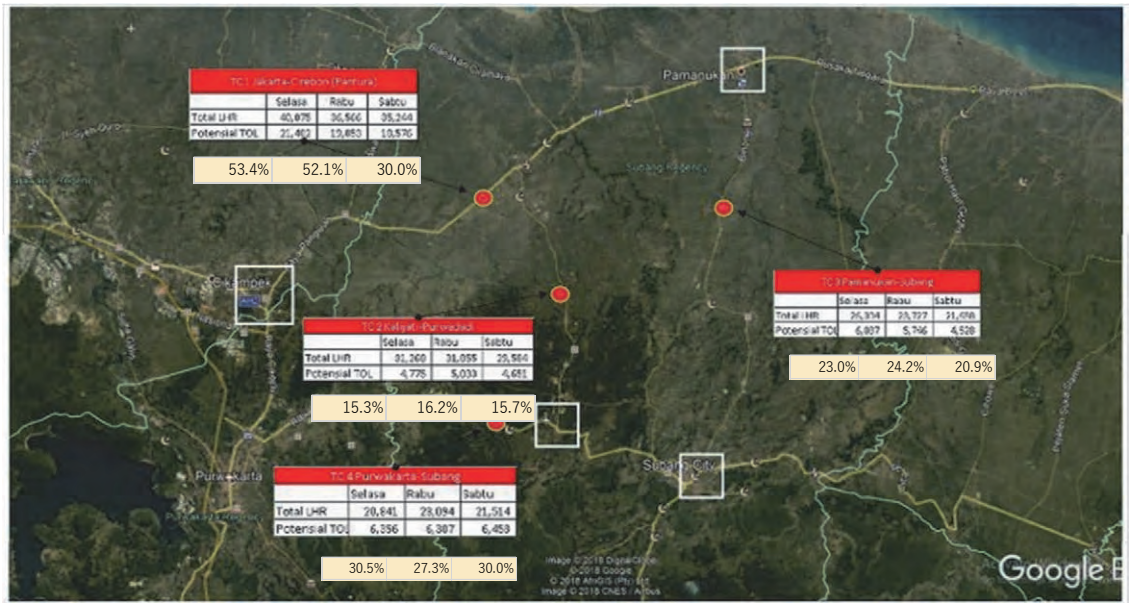


Source: Studi Kelayakan dan Desain Awal Jalan Tol Akses Patimban

Figure 3.1-3 Traffic survey locations in Jasa Marga Study

4) Patimban Port Access Toll Road Usage Ratio

All traffic generated by port is assumed to use toll road and local traffic is set the conversion rate by roads in Jasa Marga Report, shown figure below. In JICA Report, for the concerning port traffic is same as it but for the local traffic conversion rate is shown unclearly.



Source: Studi Kelayakan dan Desain Awal Jalan Tol Akses Patimban

Figure 3.1-4 Conversion rate by each road

5) Development Plan of Subang Area

According to Subang Government, existing 7 industrial areas within Subang Regency which are Cipendeuy, Pabuaran, Kalijadi, Purwadadi, Pegaden, Cibogo, and Cipunagara. The total area of these industrial area is 11.250 ha. Subang Regency has a plan to expand these existing industrial areas to be 19.250 ha. These areas have potential to use Patimban Port Access Toll Road.

3.2 Results of the Logistics Survey

(1) Overview

The purpose of this logistic survey at Tanjung Priok Port was understanding the location of origin and destination using the port and make key parameters for calculate the traffic demand forecast on the Patimban Port Access Toll Road. The logistics survey was conducted on the components are shown Table 3.2-1.

Table 3.2-1 Logistics Survey Components

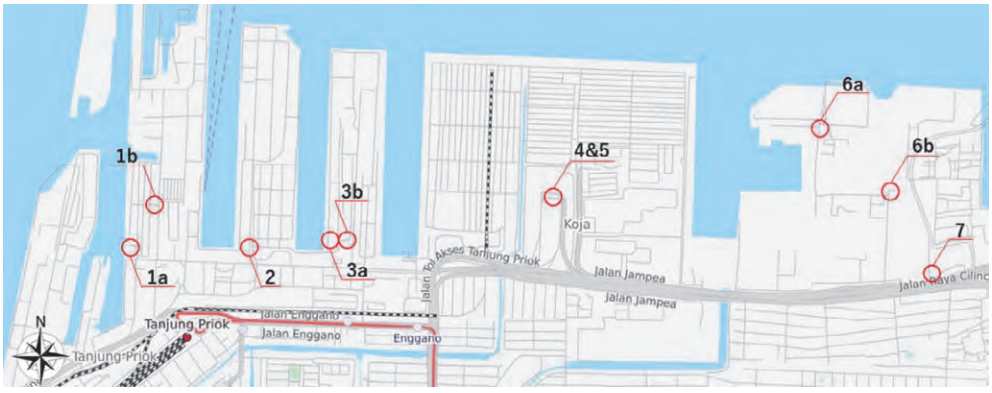
Component	Objective, Method	Location	Survey Date
Traffic Count Survey	To grasp the traffic volume and split of vehicle type at the Tanjung Priok Port	10 Gates at The Tanjung Priok Port	From 9th May 11:00am to 10th May 11:00am (24hours) ※Traffic Survey and The OD Interview Survey were conducted at the same time and same locations.
OD (Origin-Destination) Interview Survey	To Grasp the basic parameters necessary to traffic demand forecast. Implemented random sampling to drivers who passing the Gate.		

Source: JICA Study Team

(2) Traffic Count Survey

1) Methodology

Traffic Count Survey was conducted at each gate as shown in the following Figure 3.2-1 and using the 10 classifications of the vehicle type listed in Table 3.2-2. It was conducted 24 hours from 11:00 in the morning 9th May (Thu) to 11:00 in the morning at 10th May (Fri), 2019.



Source: JICA Study Team

Figure 3.2-1 Location of Traffic Count and Interview Survey

Table 3.2-2 Type of Vehicle

No.	Type of Vehicle	
1	Less than 20 feet Truck, No Container	
2	20 feet Container Truck	
3	40 feet Container Truck	
4	20 feet & 20 feet Container Truck (two containers)	
5	More than 40 feet Truck	
6	Car Carrier Trailer (Car Hauler)	
7	Light Truck (less than 2 tons)	
8	Medium Truck (4 tons class)	
9	Conventional Truck (10 tons class)	
10	Other vehicles	
	10-1	Passenger Car
	10-2	Ambulance
	10-3	Dump truck
	10-4	Lowbed Trailer
	10-5	Tank Lori
	10-6	Motorcycle
	10-7	Pax
	10-8	Motorcycle

Source: JICA Study Team

2) Summary of the Results of the Traffic Count Survey

Traffic volume at every gate are summarized in Table 3.2-3, Table 3.2-4 and Figure 3.2-2 show the total amount of traffic volume by all the gates. 15,872 vehicles used the Tanjung Priok Port in a day. In terms of type of vehicle, container transportation trucks account for 42.9% of all traffics. The breakdown of container trucks are 20 feet container transportation truck, 40 feet container transportation truck, and 20 feet & 20 feet container (2 containers) transportation truck (6 or more axles trucks are included in 20 feet & 20 feet container truck).

Table 3.2-3 Total Amount of Traffic Volume Each Gate

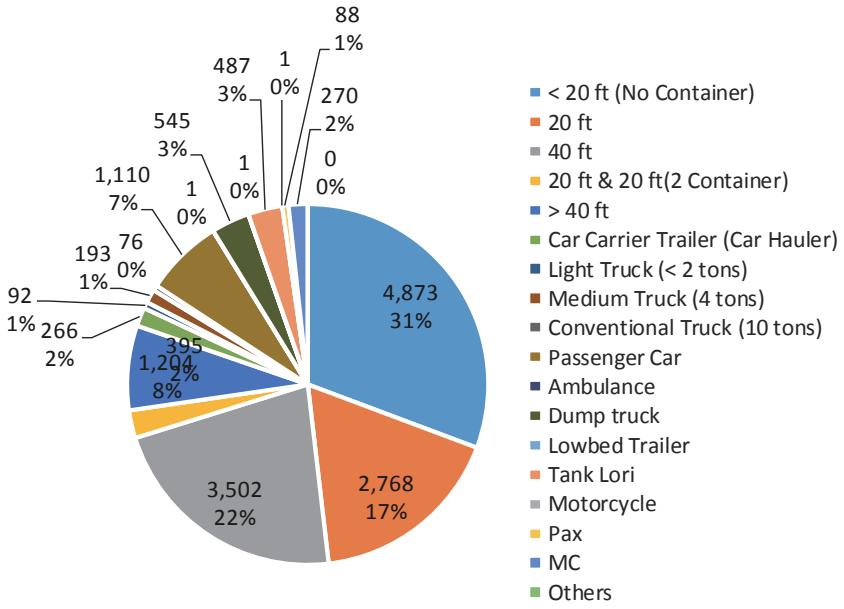
Gate No.	Number of Vehicle	Type of Gate
1a	435	Domestic
1b	436	Domestic
2	2,254	Domestic
3a	1,497	Domestic
3b	1,966	International
4	3,958	International
5	1,675	International
6a	261	Domestic
6b	325	International
7	3,065	Domestic
Total	15,872	

Source: JICA Study Team

Table 3.2-4 Total Amount of Traffic Volume

type	1	2	3	4	5	6	7	8	9	10-1	10-2	10-3	10-4	10-5	10-6	10-7	10-8	Total
Total per 11:00-11:00	4,873	2,768	3,502	395	1,204	266	92	193	76	1,110	1	545	1	487	1	88	270	15,872
	30.7%	17.4%	22.1%	2.5%	7.6%	1.7%	0.6%	1.2%	0.5%	7.0%	0.0%	3.4%	0.0%	3.1%	0.0%	0.6%	1.7%	100%

Source: JICA Study Team



Source: JICA Study Team

Figure 3.2-2 Total Amount of Traffic Volume

(3) OD Interview Survey

1) Methodology

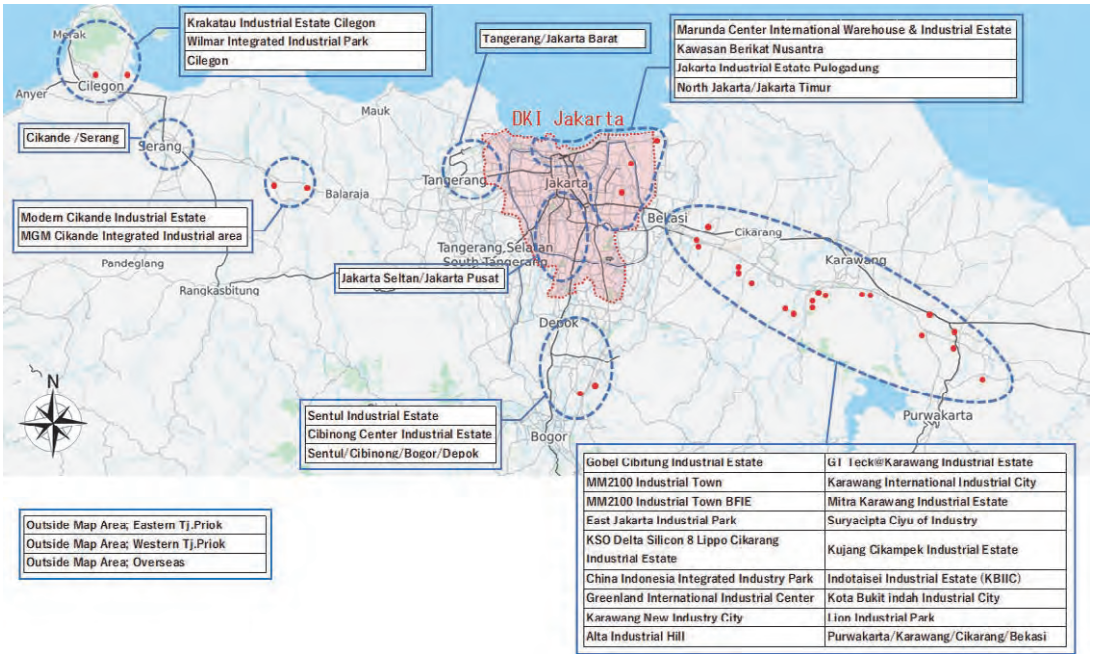
The OD Interview Survey was conducted at the same locations as traffic count survey. And this survey items are summarized in Table 3.2-5. The surveyors carried out the survey to vehicles stopped in a row each gate.

The location of Origin and Destination was grasped by Figure 3.2-3.

Table 3.2-5 OD survey Interview items

Category	Interview Items
Personal Attributes	Type of Vehicle, Type of Contract
Trip Information	Origin & Destination, Commodity, Trip time & Waiting time, Purpose of Visit, Utilization of Highway

Source: JICA Study Team



Source: JICA Study Team

Figure 3.2-3 Location of Industrial Estates

Source: JICA Study Team

Figure 3.2-4 Situation of Logistics Survey Implementation

2) Summary of the Results of the OD interview Survey

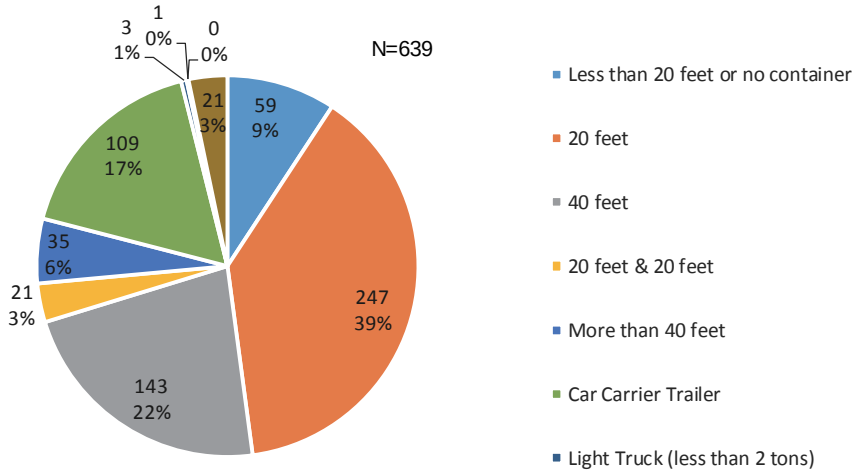
a). The Numbers of Sample and Type of Vehicle

The result of the OD Interview Survey is shown below, and total numbers of Interview is 818, however, Gate 7 is used when vehicles move inside the port. Therefore, the Gate 7 is excluded in the tallying and analysis, the total amount of OD Interview Survey samples is 639 (See Table 3.2-6). The total of each vehicle type by the OD Interview survey is summarized in Figure 3.2-5. Container transportation trucks account for 70% of the samples. The breakdown of container trucks are 20 feet container transportation truck, 40 feet container transportation truck, and 20 feet & 20 feet container (2 containers) transportation truck. (6 or more axles trucks are included in 20 feet & 20 feet container truck).

Table 3.2-6 Summary of Survey Record

Gate No.	Number of Interview	Percentage of Sample
1a	144	33.1%
1b	140	32.1%
2	26	1.2%
3a	75	5.0%
3b	24	1.2%
4	46	1.2%
5	61	3.6%
6a	86	33.0%
6b	37	11.4%
Total	639	5.0%

Source: JICA Study Team

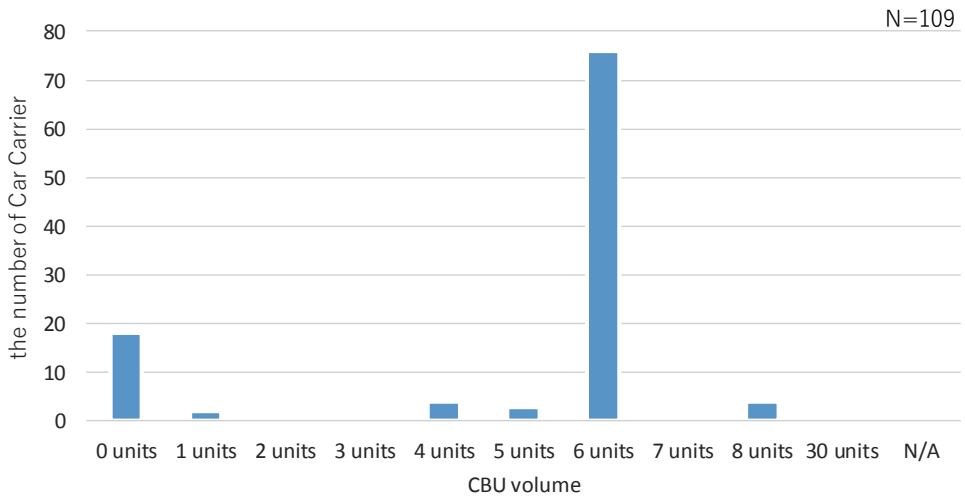


Source: JICA Study Team

Figure 3.2-5 Type of Vehicles

b). The Numbers of CBUs on each Car Carrier

The results of the numbers of CBUs (Complete Build-up Units) on each car carrier was six CBUs is the mode numbers. Figure 3.2-6 shows the ratio of CBU transported by the Car Carrier.



Source: JICA Study Team

Figure 3.2-6 The Number of Transported CBU

c). The area of logistics using the Tanjung Priok Port

To analyze the OD area of using the Tanjung Priok Port. the using samples are the trucks transporting container via the Tanjung Priok Port by round trip (vehicles that answered "unloading" in the questionnaire). Magnification factor and Conversion factor are summarized in Table 3.2-7 and Table 3.2-8 respectively.

The amount of container of vehicles transporting from the port to the next Destination is not obvious at the time of Interview. Therefore, it is estimated by the composition ratio of the container transportation truck.

The Result of OD interview survey was classified into 4 areas, “West of Jakarta” “Around Jakarta” “East of Jakarta” and “Overseas” represented as shown in Figure 3.2-7. “East of Jakarta” is including the Bekasi city

As a result, “Around Jakarta” is the largest amount of departure site at 72%, while the largest rate of the Destination is East of Jakarta at 59% (See Figure 3.2-8).

Table 3.2-7 Magnification Factor of Traffic Volume

Gate No.	Sample Quantity	Traffic Volume	Magnification Factor
1a	144	435	3.0
1b	140	436	3.1
2	26	2,254	86.7
3a	75	1,497	20.0
3b	24	1,966	81.9
4	46	3,958	86.0
5	61	1,675	27.5
6a	86	261	3.0
6b	37	325	8.8

Source: JICA Study Team

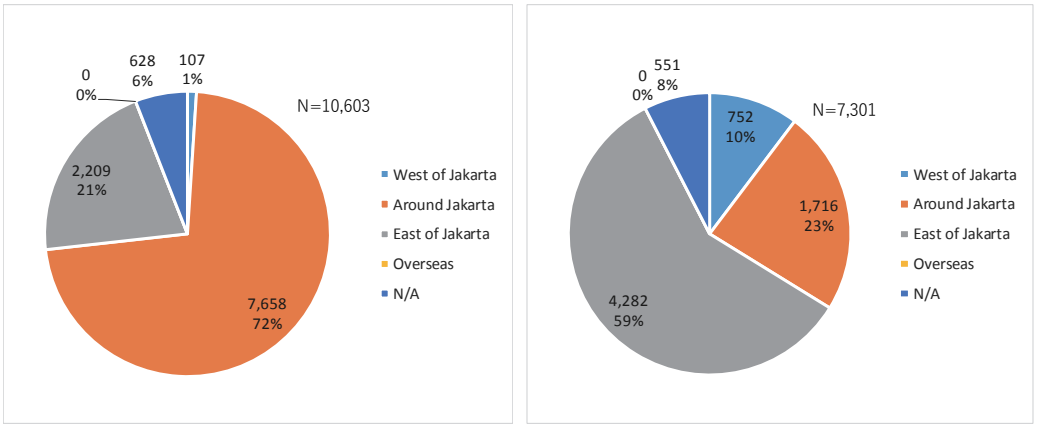
Table 3.2-8 Converted Factor of Logistics

Vehicle Type	Converted Factor
Less than 20 feet or no container	1.65
20 feet	1
40 feet	2
20 feet and 20 feet (two container)	2
More than 40 feet	2
Car Carrier Trailer	1
Light Truck (less than two tons)	1
Medium Truck (4 tons class)	1
Conventional Truck (10 tons class)	1
Other Vehicles	1

Source: JICA Study Team

Source: JICA Study Team

Figure 3.2-7 Classification of the Departure and the Destination Site



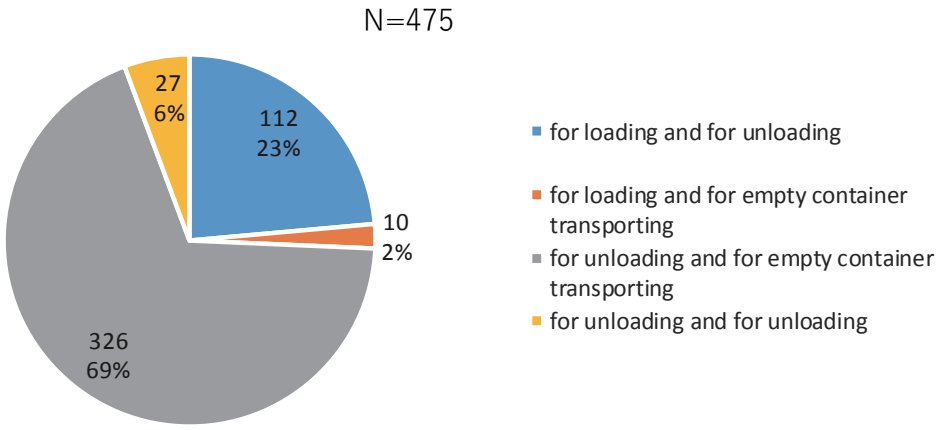
Source: JICA Study Team

Figure 3.2-8 The Departure Site and Destination Site of the logistics vehicles (left hand: Departure site, right hand: Destination site)

d). The Basic Unit of Traffic Volume Generation per handled Container.

In order to calculate the basic unit of traffic volume to the container cargo handling volume, the combinations of trip purpose (arrival and departure) per one container transportation truck were summarized in Figure 3.2-9. It can be seen that only 6% of the trucks loaded commodities by roundtrip, and most trucks are in one way.

Table 3.2-9 indicates the amount and the rate of the trip purpose of the arrival at the port and departure to the Destination, the traffic volume is generated 1.94 trips of 20 feet Container truck equivalent per one handling TEU.



Source: JICA Study Team

Figure 3.2-9 Purpose for Visiting of Container Transportation Truck

Table 3.2-9 Generation of 20 feet Container truck equivalent

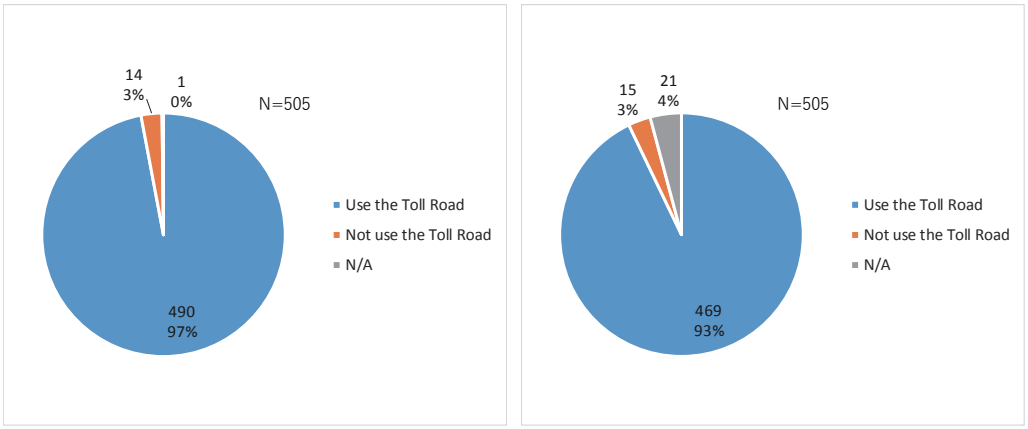
	20 feet Container truck equivalent		Total
Purpose	unloading & unloading (container loading by round trip)		27
	Others (container loading on one way)		448
	Rate	unloading & unloading (one Trip/TEU)	6%
		Others (two Trips/TEU)	94%
			1.94 Trips/TEU

Source: JICA Study Team

e). The Utilization Rate of Toll Road

Figure 3.2-10 and Figure 3.2-11 show the toll road utilization condition of the container trucks using the Tanjung Priok Port. The rate of loading commodities by roundtrip is low, however, 95% drivers use the toll road by round trip including no-loading commodities. Meanwhile, the rate of Car Carrier using the toll road by round trip is 77%, it is low proportion relatively.

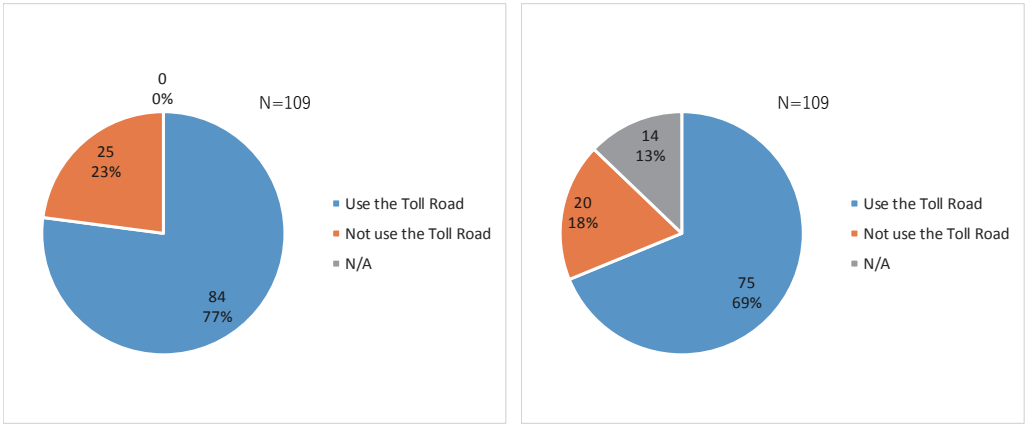
The Departure site of 12 out of all the 14 Container Transportation Truck visited at the Tanjung Priok Port without using the toll road is located within 10 km. Therefore, it was found that the toll road was not used because there was no need to use the toll road or there was no interchange between the departure place and the Tanjung Priok port. As a result, it seems that the traffics using the port almost use the toll road if they have cargo or not.



Source: JICA Study Team

Figure 3.2-10 Utilization of Toll Road: Container Transport Truck

(Left hand: from the Origin, Right hand: to the Destination)



Source: JICA Study Team

Figure 3.2-11 Utilization of Toll Road: Car Carrier

(Left hand: from the Origin, Right hand: to the Destination)

4. Analysis on Legal Frameworks

4.1 Outline of the PPP Regulations in Indonesia

(1) PPP Basic Framework

Basic PPP framework in Indonesia is stipulated in revised Presidential Regulation (PR) No. 38/2015 (The Cooperation Between the Government and Business Enterprises in Providing Infrastructures). PR No.38/2015 regulate the scope of PPP (Economic & Social Infrastructure), PPP Scheme (e.g. Availability Payment), Government Contracting Agency (GCA), and Government Guarantee etc.

Unsolicited project was used to be admitted only for the project which does not stipulated in the sector master plan; however, revised PR No.38/2015 does not limit the unsolicited project to the non-listed projects on sector master plan. Also, PR No.38/2015 clarifies that the unsolicited project can also be covered by government guarantee (Article 14 9.). RP No.38/2015 stipulates the criteria of unsolicited proposal as follows (Article 14 3.).

1) Technically integrated with the Main Plan (master plan) in the relevant sector;
2) Economically and financially feasible; and
3) The Business Enterprise that submits the initiative has sufficient financial capacity to fund the Provision of Infrastructure.

PR No.38/2015 also regulates the compensation methods for private proponent which conduct Feasibility Study (herein after “F/S”).

1) Value increase of 10% (ten percent);
2) Right to match the Business Enterprise’s bid with the bid made by the best bidder, according to the results of bid assessment[2]; or
3) Purchase of the Cooperation between the Government and Business Enterprises initiative, such as the intellectual property rights that accompany it, by the Minister/Head of Agency/Head of Region or the bid winner.

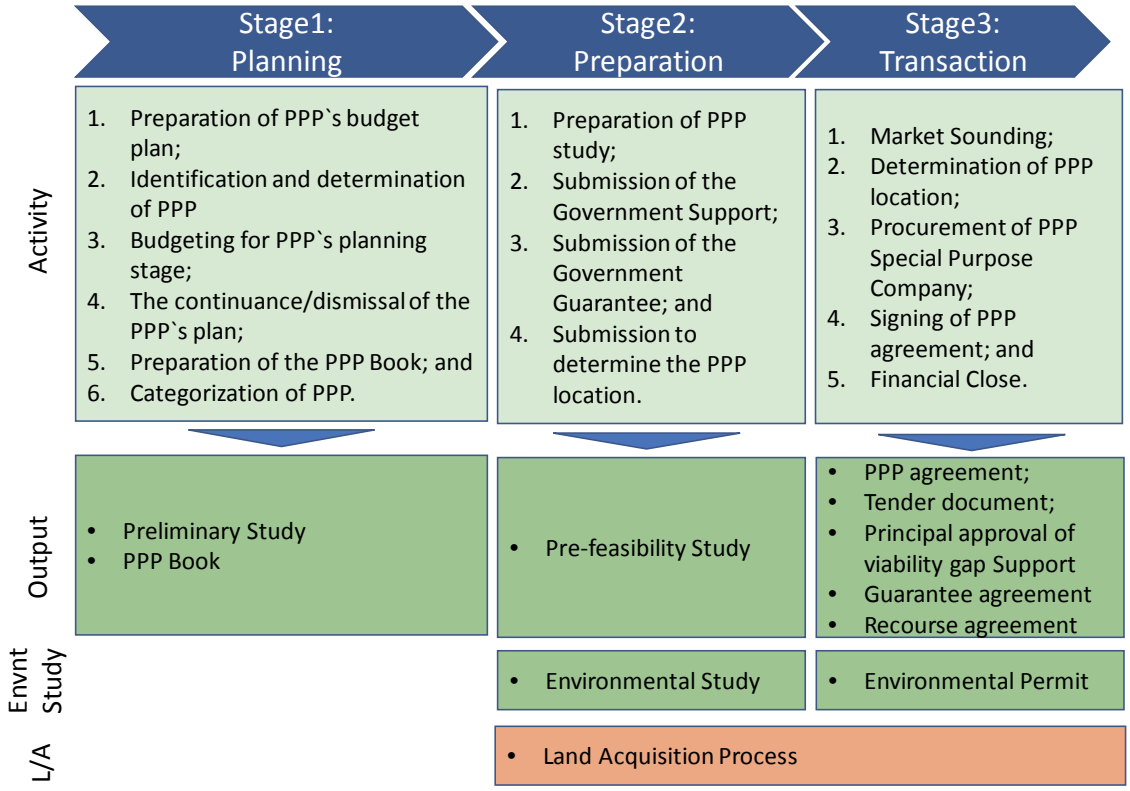
Above mentioned principles are described in details within the ministerial regulations under PR No.38/2015.

(2) PPP Implementation Procedure

PPP implementation procedure is stipulated in Regulation of the Minister of National Development Planning / Head of National Development Planning Agency (BAPPENAS) No.4/2015 (Implementation Procedure for the Cooperation between the Government and Business Entities in the Provision of Infrastructure).

[2] If the Business Enterprise that submits the initiative were not selected as best bidder, the Business Enterprise would be given the right to propose the better offer than the best bidder.

PPP implementation procedure for solicited project is shown in the figure below.



Source: BAPPENAS Regulation No.4/2015

Figure 4.1-1 Outline of PPP Implementation Procedure in Indonesia

In case of unsolicited project, Stage I Planning and Stage II Preparation would be led by private business entity.

(3) PPP Procurement Procedure

PPP Procurement is stipulated in Regulation of National Public Procurement Agency (LKPP) No.29/2018 (The Procedure of Procurement of Implementing Business Entity for the Infrastructure Delivery through Public Private Partnership based on the Initiative of the Minister/ Institutional head/ Regional Head).

Original LKPP regulation was issued in 2015 under PR No.38/2015 and amended in 2018 specifying 2 stage procurement. There is no detail description for unsolicited project procurement in this regulation.

Regarding the procurement on toll road sector is stipulated in Ministry of Public Work and Public Housing (PUPR) Regulation No.1/2017 regarding the procedure of Toll Road Business Entity Procurement. The procurement of private business entity for toll road PPP project follows the PUPR Regulation No.1/2017.

(4) Government Support (Viability Gap Fund)

Government Support (VGF) is stipulated in Ministry of Finance (MOF) Regulation No.170/2018 (Granting of Viability Gap Funding on Partial Construction Cost in the Public Private Partnership Project in Infrastructure Delivery).

Basically, the government is able to provide subsidy up to 49% of capital expenditure for the project which private business entity receives income from users (herein after "User Pay Method").[3] VGF cannot be given to unsolicited project since one of the criteria of unsolicited project is not requiring monetary support from the government.

(5) Availability Payment

Availability Payment (AP) is introduced in RP No.38/2015. Details are stipulated in MOF Regulation No.260/2016 (Procedure of Availability Payment Scheme in Public Private Partnership Project regarding Infrastructure Delivery) and Ministry of Home Affairs (MOHA) Regulation No.96/2016 (Availability Payment regarding Local Government and Private partnership (PPP) in Local Infrastructure Delivery). Both regulations do not clarify the possibility of utilization of AP for unsolicited project; however, AP might be difficult to implement to unsolicited project from the purpose of unsolicited project, which prohibit government fiscal support.

(6) Land Acquisition

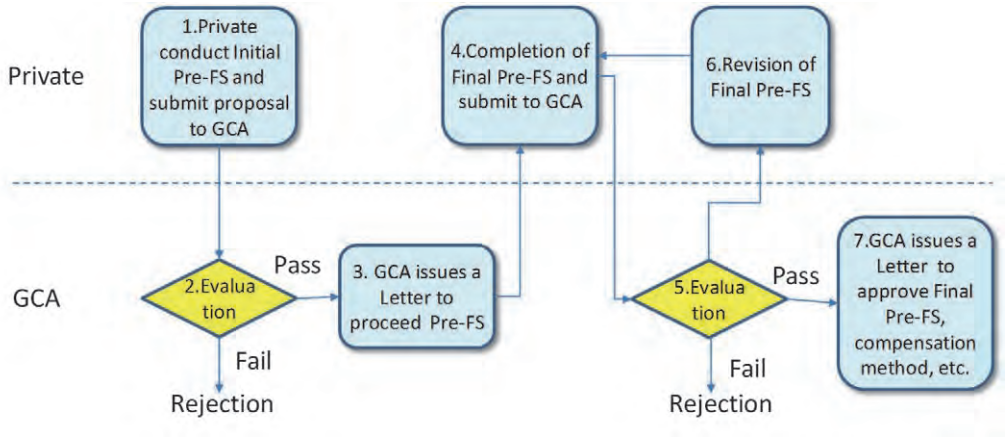
Land acquisition for public project can be done by public sector based on Law No.2/2012. However, funding would be done by business entity at first and repaid by public later.

4.2 Unsolicited Project Procedures

(1) Implementation Procedure Flow

Implementation procedure of unsolicited project is stipulated in BAPPENAS Regulation No.4/2015 Appendix. Implementation procedure (before prequalification (PQ)) is shown as below. Solicited project implementation procedure form PQ is almost same as solicited project except evaluation method.

[3] VGF can be provided for AP project only for local government project.



Source: JICA Study Team

Figure 4.2-1 Implementation Procedure of Unsolicited Project (Before PQ)

1) Potential initiator conveys letter of intent to submit PPP development proposal to GCA

2) Evaluation by GCA on pre-feasibility study (herein after "Pre-F/S")

   a) Evaluation of initial Pre-FS with following criteria:

      - the project is technically integrated with master plan on related sector;
      - the project is economically and financially worthy; and
      - the private business entity who submit the initiative has an adequate financial capability to finance the implementation of infrastructure provision.

   b) Evaluation of potential initiator

      - GCA shall assess the potential initiator by evaluating its capability and track record in preparation, transaction, financing, development, operation and maintenance of PPPs.

3) Approval letter issuance from GCA containing:

   - Potential initiator exclusive rights for a certain period of time to complete PPP Pre-F/S;
   - obligation to prepare Pre-F/S and to obey procedures for unsolicited PPPs in accordance with general guidelines; and
   - obligation to convey compensation form proposal.

4) Completion of Final Pre-F/S

   - PPP form Plan;
   - project financing plan and source of funds;
   - PPP tender plan which covers schedule, process, and assessment method;
   - environmental study which follows AMDAL mechanism or UKL-UPL report mechanism[4] in accordance with laws and regulations concerning environmental protection and

[4] AMDAL (*Analysis Mengenai Dampak Lingkungan*): Environmental Impact Assessment, UKL-UPL(*Upaya Pengelolaan Lingkungan - Upaya Pemantauan Lingkungan*): Environmental Management and Monitoring Program

management;

- land acquisition and resettlement study which results in land acquisition and resettlement planning documents.

5) Evaluation by GCA

GCA shall evaluate Pre-F/S and qualification as follows.

a) Evaluation of Pre-F/S

- economically and financially worthy; and
- does not require Government Support of fiscal contributions in the form of financial support.

b) GCA evaluates potential initiator qualification based on submitted document.

Revision of Final Pre-F/S

Issue of Approval Letter form GCA

- Feasibility Study approval;
- stipulation of PPP proposal as unsolicited PPP;
- stipulation of potential initiator as business entities initiator;
- stipulation of compensation form; and
- SPC procurement prequalification eligibility

(2) Compensation to Private Proponent

1) In the event that compensation by GCA is a provision of 10 % (ten percent) additional value or right to match in accordance with assessment from the bidding process provision:

a) it remains mandatory for the SPC to participate in tender as required on the procurement document.

b) the entire Feasibility Study along with its supporting documents immediately become GCA property without receiving a fee or compensation in any form.

2) In the event that the compensation is an unsolicited project right purchase including the accompanying intellectual property rights by GCA or bidding winner,

a) Business entity initiator is allowed to participate in tender as required on the procurement document which is further governed by the head of institution regulation which organizes government affairs policy sector for the government procurement of goods/services.

b) PPP initiative purchase is a reimbursement from the GCA or tender winner for an amount of direct cost in relation to the PPP preparation which had been issued by SPC;

c) The amount of cost spent by the SPC stipulated by the GCA based on the assessment conducted by the independent appraiser which was appointed by GCA;

d) SPC which has obtained compensation in the form of initiative purchase, is restricted to utilize or reveal a part of as well as the entire documents for any purposes to anyone without written approval first from GCA;

(3) Procurement of Private Proponent

Implementation of unsolicited SPC procurement follows the SPC procurement provision which is regulated by the head of institution regulation which organizes the government affairs policy sector for the government procurement of goods/services.

(4) Documents

Significant documents resulting from the implementation of unsolicited PPP project are:

- Pre-F/S document
- AMDAL document or UKL-UPL Report which has been filled out
- land acquisition and resettlement plan document
- Feasibility Study document
- tender demand document
- PPP agreement document
- security agreement document
- recourse agreement document

F/S documents includes followings

- PPP design build plan
- PPP form plan
- PPP financing plan and source of funds and
- PPP tender plan (cover schedule, process, and assessment method)

(5) Change of Consortium Member

1) Before PPP tender

Based on the interview to BAPPENAS, there is no specific regulation for consortium member changes before tender; however, the qualification which previous consortium members have need to be possessed by the new consortium members as well.

Also, based on the interview to BPJT, the consortium member changes are required for the consortium to re-submit the proposal which submitted to the minister.

2) After PPP tender

The member of SPC changes after PPP tender is stipulated in BAPPENAS regulation No.4/2015. The procedure is as follows.

a) SPC will propose the shareholder changes to PPP Node[5]

b) the PPP Node can conduct activity which includes;

- criteria stipulation of transfer of shares by GCA which covers;
  - transfer of shares should not delay the commencement of PPP operation schedule; and
  - shareholders control whereby the consortium leader shall be prohibited to transfer its shares up until the PPP is commercially operated.
- conduct qualifications towards potential new shareholders of SPC which at least fulfil the requirements which stipulated on the SPC tender pre-qualification implementation;
- submit approval to GCA, if the potential new shareholders have fulfilled all stipulated transfer of shares criteria and fulfilled qualification requirements; and
- prepare transfer of shares approval concept which will be signed by GCA.

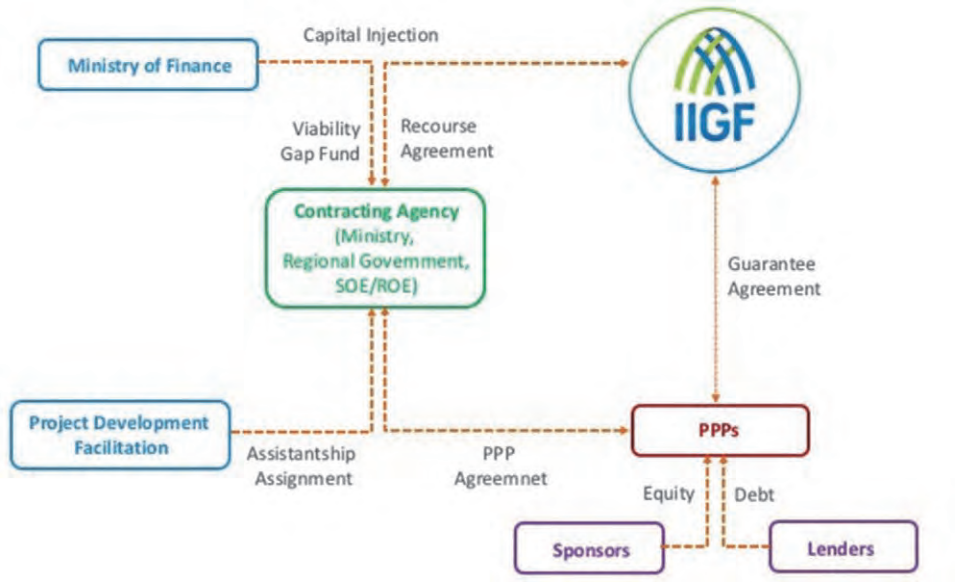
In case of toll road project, the PPP Node is Directorate of Infrastructure Investment Development under DG Construction Development of PUPR.

[5] PPP Node is mentioned in BAPPENAS regulation No.4/2015, which would be established in central and local governments to regulate and coordinate the plan, preparation and transaction of PPP project.

4.3 IIGF's Guarantee Provided for a Toll Road Project

(1) Outline of IIGF Guarantee

In Indonesia, Indonesia Infrastructure Guarantee Fund (IIGF), which is 100% subsidiary of Ministry of Finance (MOF), is able to provide guarantee for the government obligation on PPP project. Basic framework of IIGF guarantee is as follows.



Source：IIGF Web Site

Figure 4.3-1 IIGF Guarantee Framework

IIGF would provide guarantee for GCA obligation (e.g. delay of AP provision by GCA, termination penalty caused by GCA) based on PPP agreement. IIGF will make guarantee agreement with private proponent and recourse agreement with GCA. IIGF will compensate for private proponent in the event of government obligation non-fulfilment but will be collected from GCA later.

IIGF guarantee also can be utilized for unsolicited project (PR No.38/2015, Article 14).

Based on the interview to IIGF, IIGF already have around 10 track records of providing guarantee to toll road project including unsolicited project. The scope of guarantee is basically depending on the requests from GCA; however, the following scope can be included.

1) Guarantee for the land acquisition repayment to private business entity

In case of national strategic project (PSN)[6], private proponent would pay the land acquisition cost but will be repaid by the land acquisition fund called LMAN[7] (See the detail in Section 5.5 "Procedure of Penlok issuance and payment of land acquisition cost"). If the repayment from LMAN were delay, IIGF would pay to private business entity. In case of non-PSN project, the

[6] 83 toll roads are listed on PSN, but this project has not been listed. https://kppip.go.id/en/national-strategic-projects/a-road-sector/

[7] LMAN (*Lembaga Manajemen Aset Negara*, or State Asset Management Agency)：Established by MOF Ministerial Regulation No.219/2015 for the purpose of national asset management

National Highway Agency (BPJT) would repay the land acquisition cost to private business entity, which also can be guaranteed by IIGF. (Based on the interview to BPJT, land acquisition cost in case of unsolicited project shall be paid by private proponent.)

2) Guarantee for the toll tariff revision

The toll tariff would be adjusted every 2 years based on concession agreement. If the toll tariff adjustment would be delay, private business entity would be compensated by IIGF for the revenue loss during the period of tariff adjustment delay. Based on the Government Regulation No.15/2005, the toll tariff adjustment shall be done based on inflation (cannot be adjusted based on the foreign exchange rate changes.).

3) Guarantee of termination penalty payment caused by government's default

The termination penalty amount is based on concession agreement. Above mentioned items are the example of IIGF's guarantee scopes. IIGF cannot guarantee the demand risk or foreign exchange risks. There is no difference for guarantee scope between solicited and unsolicited project. However, in case of unsolicited project, private business entity need to prepare for IIGF guarantee application.

(2) Documents to be submitted for IIGF guarantee

The application to acquire IIGF guarantee needs to be prepared by private business entity. Followings are the assumed documents needs to be prepared and submitted by private business entity to IIGF.

1) Risk allocation between public and private and risk mitigation plan
2) Government Support (e.g. VGF)
3) Scope of Guarantee (Proposed scope of guarantee, financial obligation of the guarantee. Guarantee period)
4) Sector master plan
5) Detail capital and operation cost
6) Tariff related date
7) Basic design
8) Financial model
9) Environmental and social study result
10) Public consultation report
11) Land acquisition related information
12) Request letter for registration of PPP project to BAPPENAS
13) Pre-F/S report
14) PPP agreement

5. Analysis on Project Implementation Procedure and Permits

5.1 KPPIP Priority Projects and National Strategic Projects

(1) Definition of KPPIP Priority Projects and National Strategic Projects

In 2016, the government determined 225 projects and 1 electricity program as National Strategic Projects (PSN) through Presidential Regulation No.3/2016. PSN projects are selected from list of line ministry projects registered within RPJMN or projects specially stipulated under presidential or ministerial regulation. It is selected based on strategic criteria (role for economic development, social welfare, national defense, and national sovereignty) and operational criteria (e.g. investment value, timing of ground break, F/S quality). PSN projects will receive acceleration benefits in areas of spatial planning, AMDAL, land acquisition and other government permits.

In 2017, KPPIP has selected 37 Priority Projects out of the PSN, which was stipulated under Coordinating Minister of Economic Affairs Regulation No.5/2017. It is selected based on rigid economic benefit analysis, implementing agency commitment level and clarity of implementation plan. In addition to the PSN benefits, KPPIP priority projects will receive OBC supplementary support, funding scheme determination support and monitoring and debottlenecking support from KPPIP PMO.

(2) Prospects for the project to be included as part of KPPIP priority projects and/or PSN

Since Patimban International Port project is PSN and KPPIP priority, there is a logical basis to request for the access toll road to be included as well. Based on our discussion with KPPIP, while access toll road is not defined as part of Patimban Port project, it was positioned as part of "Acceleration Team" scope for Patimban port related infrastructure requiring coordination. This Acceleration Team was officially launched under MOT decree No.255/2017. It consists of Steering Team by Echelon 1 and Assisting Team by Echelon 2. It includes ministries outside MOT including PUPR (Bina Marga), Coordinating Ministry for Maritime Affairs (CMMA) and MOF (Directorate General of Budget Financing and Risk Management (DJPPR)). Therefore, in KPPIP's view, monitoring and debottlenecking could be done via this team. Since KPPIP's role under President Jokowi's second term is not yet clarified, it would be difficult to officially add new KPPIP priority project or modify existing project scope.

In terms of PSN, official inclusion into PSN list will require request from Bina Marga. However, based on meeting with Bina Marga, they have no plan to include Patimban Access Toll Road Project into the PSN project because currently there are a lot of toll road projects in the PSN list already.

Therefore, given current situation, it is not the right timing to rush and push for inclusion into KPPIP priority project and/or PSN.

(3) Suggested Next Steps

President Jokowi's second term will start in October. Successful implementation of Patimban

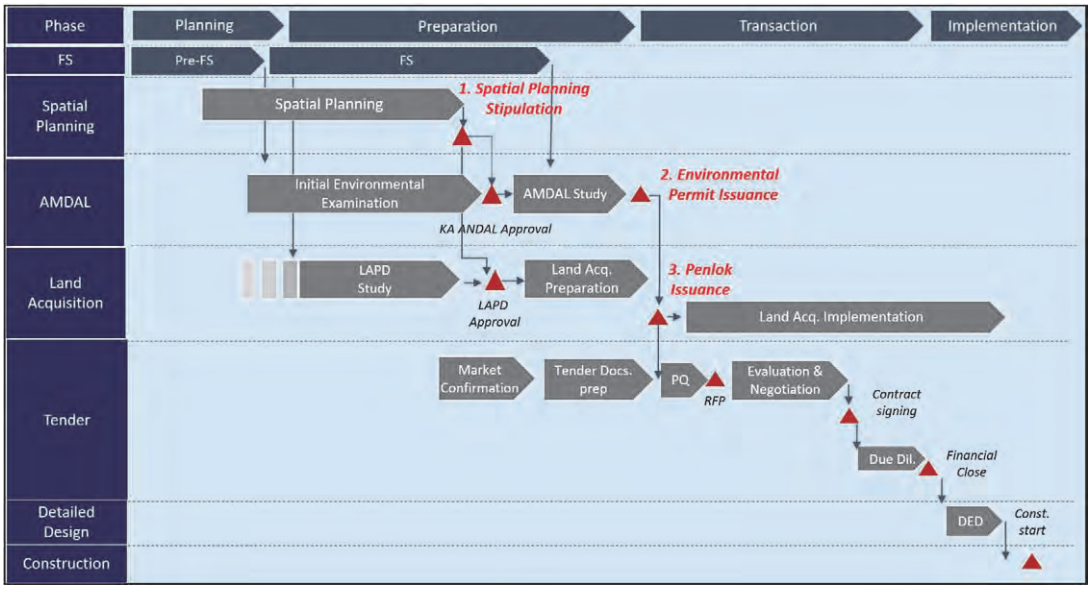
International Port and Access Toll Road should be positioned as one integrated priority milestone for the second term. This top-down milestone positioning could trigger actions for this project to be part of the new PSN list. To do this, there are several short-term suggested actions prior to the start of next regime.

1) Activation of Patimban "Acceleration Team": KPPIP can initiate meetings to activate the team, which includes DGST, DGR and Bina Marga. It is the right forum to discuss topics such as coordination between back up area plan, access road plan and access railway plan.

2) Socialization with CMEA/CMMA: President Jokowi will most likely maintain PSN framework. In this case, CMEA/CMMA will need to start preparing for the new PSN list, to be announced most likely by year end. Therefore, it would be important to update the acceleration team discussion result and to explain the need for an integrated Patimban Project component (including back up area, access road, access railway) to be all registered together with port project as PSN.

5.2 Procedure and permits

The PPP process chart below shows necessary permits and its order to be obtained, to trigger tender process. In principle, 1) Spatial Planning stipulation, 2) Environmental Permit, 3) Location Determination (Penlok) are preconditions of PQ implantation[8]. The preparation works to obtain them can be done in parallel, but Penlok issuance needs Environmental Permits, and AMDAL (Environmental Impact assessment) needs Spatial Planning stipulation.



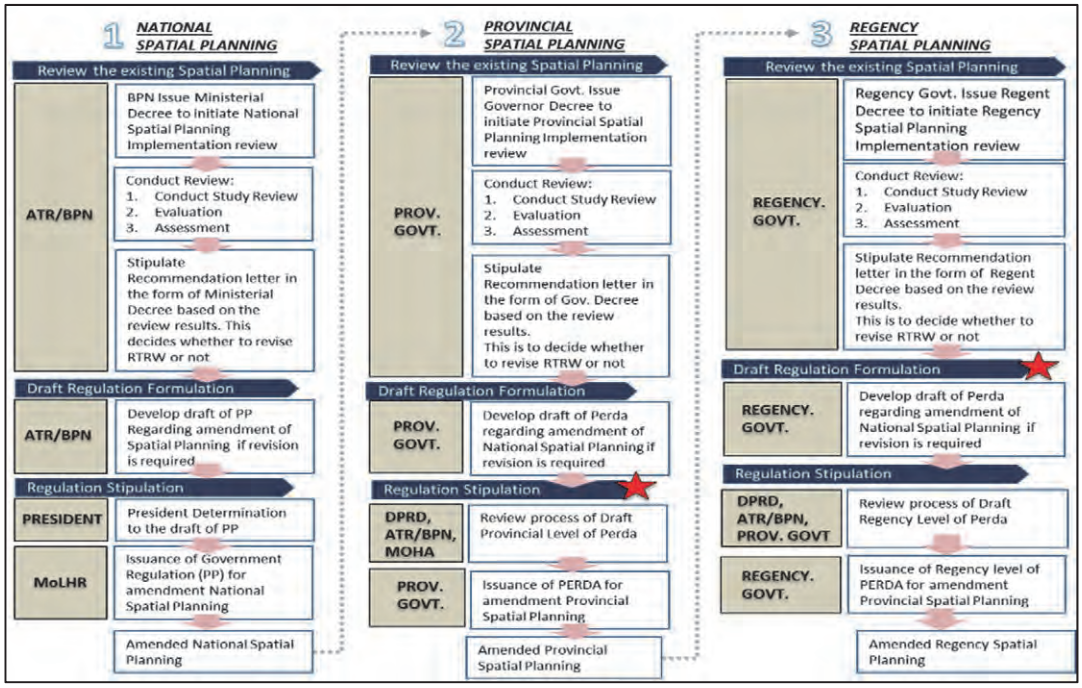
Source: JICA Study Team based on Presidential Regulation No.4/2015, Govt. Regulation No.27/2012 and No.71/2012

Figure 5.2-1 Permits and Procedure for the project implementation

[8] According to the interview to BPJT, PUPR regulation No.1/2017 allows tender process to be initiated prior to Penlok issuance. This acceleration treatment can be considered only when Bina Marga has requested Penlok issuance to the Governor based on all the necessary documents (LAPD and AMDAL).

5.3 Spatial Planning Stipulation

Spatial planning has 3 layers namely national, provincial and Regency(city), and stipulation of a project is done in the same order. As the figure shows, spatial planning which has been approved by designated authority will be reflected in regulation. As to provincial and regency level, the project needs to be reflected in each Spatial Planning map therefore location and alignment of the project need to be fixed.



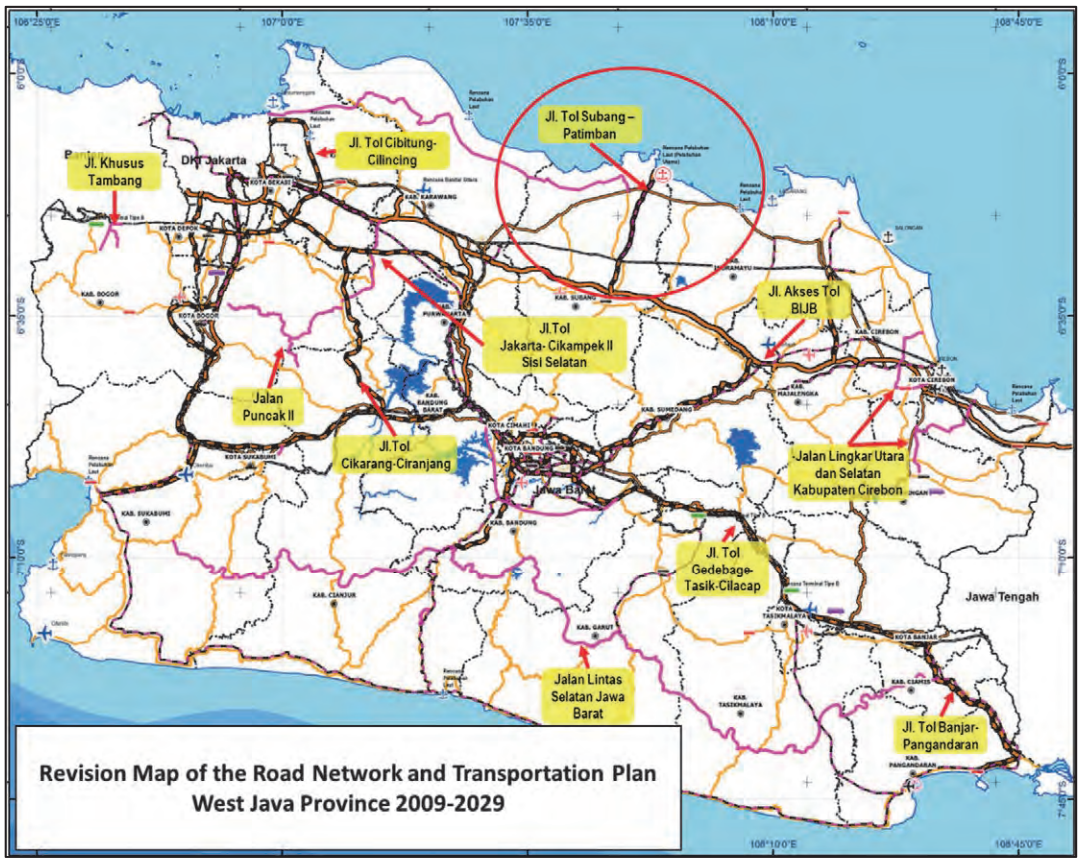
Source：JICA Study Team based on ATR/BPN Regulation No.6/2017

Figure 5.3-1 Process of Spatial Planning Revision

The designated authority to stipulate this project is ATR/BPN for national level, West Java for provincial level, and Suban for regency level. On national level, the stipulation has been completed. Through this study period, the JICA Study Team has collected information from Regional Planning and Development Agency (BAPPEDA) of West Java and Subang Regency on the current status of Spatial Planning revision as well as implementation schedule.

(1) Spatial Planning revision of West Java province

The JICA Study Team has confirmed that drafting of revised spatial planning (regulation and map) has been done and this access toll road project is reflected in the draft. Currently, the draft is under review of provincial parliament (DPRD). Going forward, review of strategic environmental assessment (KLHS) will be conducted followed by review of the draft map, then recommendation letter to the Governor will be issued. After passing review by ATR/BPN and Ministry of Home Affairs (MOHA), regional regulation (PERDA) will be issued thus complete the Special Planning revision. According to interview, West Java BAPPEDA aims to complete the revision by the end of 2019.



Source: BAPPEDA West Java

Figure 5.3-2 Draft revision map of West Java Spatial Planning

(2) Spatial Planning revision of Subang Regency

On regency level, the JICA Study Team was informed that Subang BAPPEDA is currently drafting the revised regulation. Draft map already contains this project; however, the alignment was based on the KPPIP Intermodal study (Route which starts from east of Subang city) and slightly different from the alignment which Bina Marga (Directorate General of Highways, PUPR) recommended to Jasa Marga.

During the meeting, Subang BAPPEDA expressed that they do not have objection to the updated alignment and will modify the draft map accordingly. Subang BAPPEDA also mentioned that the new alignment has less government owned land compared to the current draft, and also less paddy field compared to the route which Jasa Marga proposed[9].

Although regency level Spatial Planning is being revised in parallel with provincial level, finalization will be done only after the provincial level has completed its revision. Based on the interview, the completion of Sugang Spatial Planning revision will be six months to one year after West Java Spatial Planning revision (targeted to end of 2019), which means June 2020 at earliest.[10]

[9] Based on interview to BAPPEDA Subang (22th May 2019)
[10] ibid

Source: BAPPEDA Subang

Figure 5.3-3 Draft revision map of Subang Regency Spatial Planning

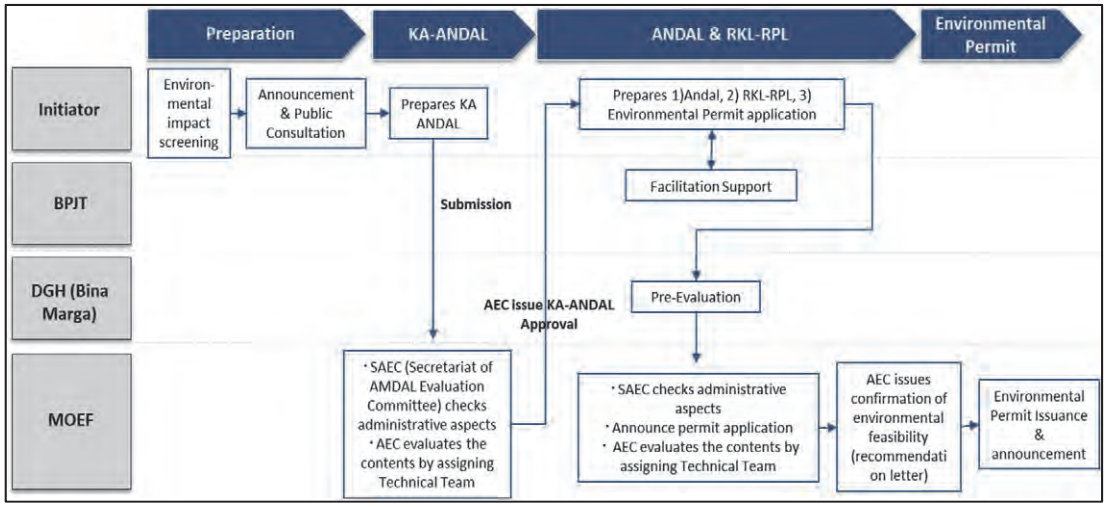
(3) Acceleration through recommendation letter

Spatial Planning revision is conducted every 5 years but often cases project cannot wait this circle to happen. Presidential Regulation No.58/2017 enables acceleration of PSN project preparation by recommendation letter. When this project becomes PSN, Bina Marga can issue request letter to provincial and regency government to stipulate this project in their Spatial Planning. In response, Governor and Regent can issue recommendation letters (to PUPR) which state this project will be stipulated in the next revision and the project location conforms with their Spatial Planning. The recommendation letters enable initiator to move forward with AMDAL process without waiting for the completion of Spatial Planning revision.

According to BAPPEDA West Java, they regard this project as a part of Patimban Port project (KPPIP priority project and PSN), and JICA Study Team was advised to consult with ATR/BPN, Bina Marga and BPJT to explore the possibility of receiving such treatment.

5.4 Environmental Permit

Law No.3/2009 requires Environmental Permit prior to project implementation, and detailed procedure of AMDAL (Environmental Impact Assessment) is stipulated under Government regulation (PP) No.27/2012. AMDAL consists of KA-ANDAL (TOR of ANDAL), ANDAL (Environmental Impact Assessment Report) and RKL-RPL (Environmental management & monitoring plan). It is initiator's responsibility to prepare the documents.



Source: JICA Study Team based on Government regulation No.27/2012

Figure 5.4-1 Procedure of Environmental Permit Issuance

Evaluation of KA-ANDAL includes reconfirmation of project location conformity with Spatial Planning (MOEF regulation No.16/2012), therefore at this point the revision of Spatial Planning needs to be done, or conformity letter from Governor and Regent will be needed.

Upon the receival of KA-ANDAL, Secretariat of AMDAL Evaluation Committee (SAEC) checks whether the document is administratively thorough. Then, AMDAL Evaluation Committee (AEC)[11] assigns Technical Team to evaluate the contents. When contents are accepted, AEC issues approval and initiator proceed to develop ANDAL and RKL-RPL. According to PUPR Regulation No.6/2018, Bina Marga pre-evaluates the documents before submitting to the Ministry of Environment. The same evaluation procedure by SAEC (on administration) and AEC's Technical Team (on contents) will be conducted, and Environmental Permit will be issued.

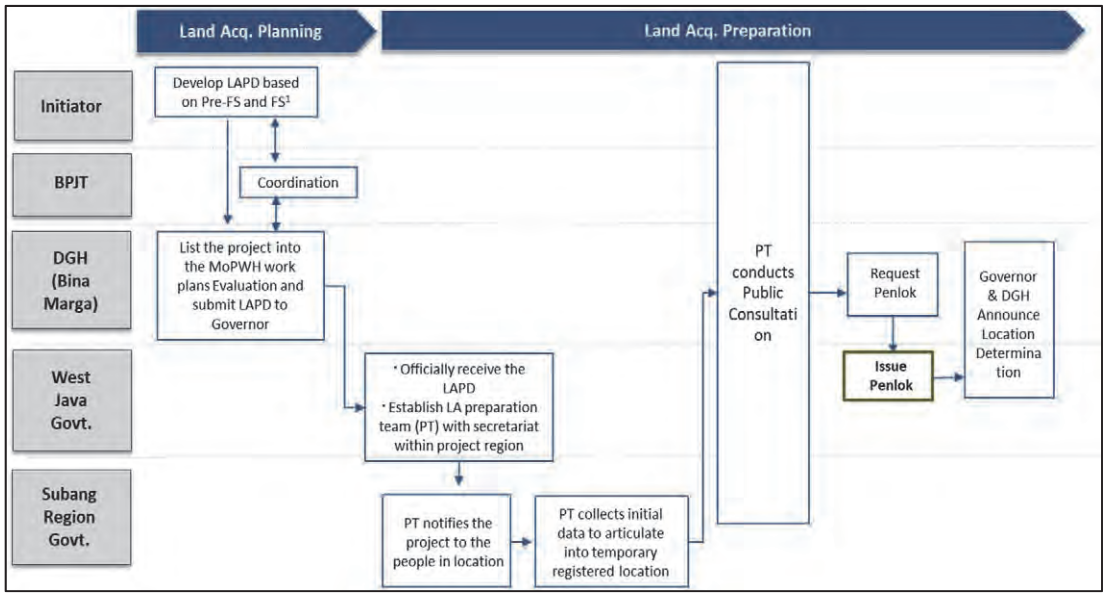
5.5 Procedure of Penlok Issuance and payment of land acquisition cost

Securing land for the project implementation requires Penlok. In principle, Penlok is issued by Governor, then public implements land acquisition and owns the land. Private (initiator) is entitled to use the land but does not own it.

[11] AEC is a temporary entity which is established project by project whereas SAEC is a permanent committee to handle administration of AMDAL documents.

(1) Procedure of Penlok issuance

The land acquisition process is stipulated under Law No.2/2012 and Presidential Regulation No.71/2012, and is divided into four phases:1) Planning, 2) Preparation, 3) Implementation, 4) Delivery (Hand over). Penlok issuance takes place during the 2) preparation phase.



Source: JICA Study Team based on Presidential Regulation No.71/2012

Figure 5.5-1 Procedure of Penlok Issuance

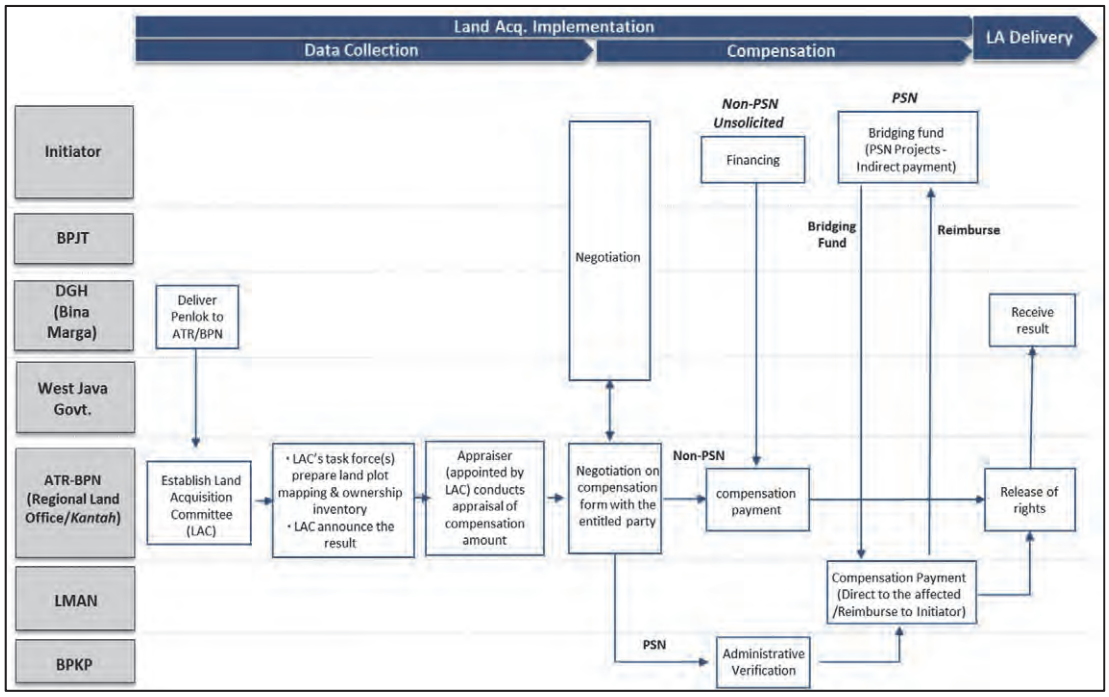
The LAPD (land acquisition planning document) which is prepared during the 1) Planning phase includes information on the objectives and purpose of the project, location consistency with Spatial Planning, land size, characteristics and budget plan as well as implementation schedule. For solicited toll road project, Bina Marga prepares and submits LAPD to the Governor (Presidential Regulation No.71/2012). For this project case, as BAPPENAS regulation No.4/2015 stipulates, initiator prepares LAPD based on its Feasibility Study.

To obtain acceptance for LAPD, the project location needs to be consistent with Spatial Planning, thus its revision needs to be complete at this stage, otherwise recommendation (location conformity) letter from governor and regent needs to be issued.

Once LAPD is officially accepted, Governor establishes Preparation Team (PT). PT member consists of Regent, task force (regional government and officials of West Java province), agency requiring the land (i.e. Bina Marga), and other related agencies. PT notifies the project to the people in the location, and collects initial data of land and ownership to articulate into a form of temporary registered location. Then PT leads to conduct Public Consultation, followed by Bina Marga application for Penlok issuance to the Governor. Once the Penlok is issued by the Governor, it is valid for two years.

(2) Land acquisition process

From the issuance of Penlok, ATR/BPN regional office will lead land procurement process through establishing Land Acquisition Committee (LAC). LAC forms task force(s) to collect and make inventory of physical land plot and ownership data, then notifies to people in target location. LAC assigns Appraiser who will evaluate the land and propose compensation value. Negotiation between LAC and land owners will be conducted based on the appraiser's proposal. In case negotiation does not reach to an agreement, land owners can submit objections to local district courts.



Source: JICA Study Team based on Presidential Regulation No.71/2012 and interview to LMAN

Figure 5.5-2 Procedure of Land Acquisition

For this project (being non-PSN and unsolicited), SPC bears the cost of land acquisition, and compensation payment will be made through LAC. If this project becomes a PSN, the compensation cost would be eventually born by Public Service Agency- State Asset Management Institution (BLU-LMAN). For Patimban port land procurement, LMAN made direct payment to the affected people, however that was a pilot case: existing road projects show SPC provides bridging fund to compensate, and LMAN reimburses.

(3) Flexibility of LMAN land acquisition budget (PSN project)

The cost of land acquisition for toll road project is borne by different entity depending on project nature. For PSN project, whether solicited or unsolicited, the cost is borne by LMAN. For non-PSN toll road project, solicited is born by Bina Marga and unsolicited is born by SPC. This project being non-PSN and unsolicited, it is SPC which bears the cost and the cost will be reflected to toll tariff.

Table 5.5-1 Bearer of Land Acquisition Cost

	Solicited	Unsolicited
PSN	State Asset Management Agency（LMAN）	
Non-PSN toll road	Bina Marga	SPC

Source: JICA Study Team based on interview to LMAN, Bina Marga, BPJT

To secure land acquisition budget of PSN projects, Bina Marga submits budget request to KPPIP through Ministry of Public Works and Housing (PUPR) by November. KPPIP compiles budget request and submits to LMAN. After scrutiny, LMAN requests to Ministry of Finance (MoF), and it will be around January the next year after (i.e. 2021 if requested in November 2019) when LMAN secures the budget[12].

As for a PSN project which has begun land acquisition prior to budget securing, LMAN cannot top up its budget. However, LMAN has flexibility of diverting its budget within projects under Bina Marga, as long as Bina Marga requests so and MoF approves.

It needs attention that the expense by SPC on land acquisition prior to acquiring PSN status cannot be reimbursed by LMAN[13].

5.6 Coordination with Access Railway Project

The alignment of access railway is already reflected in the draft map of provincial and regional Spatial Planning. Based on the interview to General Directorate of Railway, detailed design (DED) has been submitted to West Java province as well as Subang regency, and is waiting for approval. On the other hand, BAPPEDA Subang was not aware of receiving the DED. Also, it turns out that the alignment of railway was designed without consideration of toll road alignment, and Bina Marga was not aware of the development plan of access railway. Bina Marga expressed its view that the coordination between stakeholders should be led by initiator.

Since both toll road and railway project will need land acquisition, possibility of joint acquire of Penlok is worth exploring. It is understood that there was a precedent case (Trans Sumatra: Bakauheni – Palembang), however, close coordination between relevant agencies is essential to jointly proceed the land acquisition preparation phase.

[12] Interview to LMAN (May 15th 2019)
[13] ibid

6. Preliminary Risk Analysis and Mitigation Measures

Risk evaluation is quite important for sponsor companies to judge whether they should invest for the infrastructure project or not. Typically, project risk analysis is based on the following steps:

- information collection, which enable to identify and evaluate risks
- identification of project risks and categorized these risks into several risk group
- allocation of risks (to the extent possible) to appropriate parties to the project
- considering the acceptability of the residual risks that remain with the SPC, and with its lenders.

The various risks may occur in case of the infrastructure business such as toll road business. The seven major risks such as i) site risks, design, ii) construction and commissioning risks, iii) sponsor risks, iv) financial risks, v) operating risks, vi) revenue risks, vii) political risk, viii) force majeure risks, and asset ownership risks are identified.

This section also made preliminary assessment on risk allocation, risk mitigation measure examination and evaluate magnitude of each risk from view point of private investors. Magnitude of the risks were classified into low, middle, high and very high.

As a result, foreign exchange rate risk and traffic demand risk were evaluated as “very high”. Also, land acquisition delay/cost overrun risk, unaccomplished land acquisition, interest rate risk, initial tariff setting risk were regarded as “high”.

Results of preliminary risk analysis for this project were shown in the from Table 6.1-1 to Table 6.1-8 below.

Table 6.1-1 Preliminary Risk Analysis - 1. Site Risks (1/2) -

Risk Category	Profile of the Risk	Risk Mitigation Measures	Risk Allocation	Degree of Risk
Land Acquisition Delay/ Cost Overrun Risk	Delay and costs increase due to unclear and then prolonged land acquisition process (Pre-Construction Stage) In case of toll road project, land acquisition implementation process will be made by local governments and National Land Office (BPN) in accordance with Law No.2/2012 regarding "land acquisition for development in public interest".	PSN Project: Land cost needs to be borne by public sector by the State Assets Management Agency (LMAN). If the project company requested to first cover the land acquisition cost, the cost will be eventually payback from LMAN. Payment from LMAN to the project company could be made every two to three months. And this payment will be guaranteed by IIGF. Also, LMAN could potentially make direct payment to compensation cost to land owners, in this case, risk of reimbursement could be alleviated	Public	Low
		Non-PSN Project: Since this project is already designated as unsolicited project, land acquisition cost needs to be borne by the project company. In this case, risk of cost overrun and subsequent additional fund procurement needs to be borne by the project company and its sponsor companies. Inclusion into PSN project list will be the key to reduce land acquisition related risks. Delay in land acquisition risk could be alleviated by adopting new land acquisition law (Law No.2/2012), which clearly stipulate time line of each process and compensation price determination by independent appraiser.	SPC	High
Land Acquisition could not be completed	Unable to acquire project land site due to difficult land acquisition process (pre-construction stage)	PSN Project: SPC need to have close coordination with land acquisition implementation team to clarify land legal status and procedure in project land clearance by public sector. Even if land acquisition could not be accomplished, land acquisition cost first cover by SPC will eventually payback by LMAN. And this payment will be guaranteed by IIGF. SPC should procure EPC contractor only after completion of the land acquisition.	Public	Low
		Non-PSN Project: SPC need to have close coordination with land acquisition implementation team to clarify land legal status and procedure in project land clearance by public sector. Inclusion into PSN project list will be the key to reduce land acquisition related risks.	SPC	High
Protester's Risk	Road construction may be the subject of public protest, which may seriously affect the construction schedules.	Government and SPC needs to socialize this project from early stage. Establish communication strategy, and formulate social issues mapping.	SPC	Low

Source: JICA Study Team

Table 6.1-1 Preliminary Risk Analysis - 1. Site Risks (2/2) -

Risk Category	Profile of the Risk	Risk Mitigation Measures	Risk Allocation	Degree of Risk
Unforeseen difficulties of site conditions	Unidentified of utilities and difficulties on utilities reallocation process, resulting delays and the possibility of route change (construction stage)	The utility identification at planning stage supported by an adequate data. (There are numbers of irrigation canals along the proposed alignment, while no major utility facilities)	SPC	Low
Contamination/ pollution to the site environment	Contamination/pollution to the environments that interfere the project implementation (all stage)	Comply with good environment impact analysis. While no measure issue observed so far.	SPC	Low
Disruption of biodiversity of forest/conservation area	Project through the forest/conservation area could potentially cause disruption to flora & fauna, especially endemic and protected status (all stages)	Proposed alignment will not be crossing forest nor conservation area.	SPC	Low
Obstruction of access to the public transportation	Project which cut the residential areas may cause impact of communication access and economic society disruptions (construction & operation stages)	Develop a new access path (such as underpass) that mutually agreed	SPC	Low

Source: JICA Study Team

Table 6.1-2 Preliminary Risk Analysis - 2. Design, Construction and Commissioning Risks -

Risk Category	Profile of the Risk	Risk Mitigation Measures	Risk Allocation	Degree of Risk
Unclear output specifications	Time and cost overruns due to unclear output specification (pre-construction stage)	Since this project is designated as unsolicited project, output specification to be stipulated in the tender document is based on feasibility study done by the project initiator.	SPC	Low
Failure to maintain security and safety within the location	Accident during the construction works (construction stage)	Selecting experienced EPC contractor. Base on EPC contract, EPC contractor will be obliged to formulate stringent safety measures and all construction risk insurance.	EPC Contractor	Low
Increase in EPC cost as a result of tender	As a result of tender, EPC cost is higher than the owners estimate	Detailed cost estimate. Execute market sounding prior to the tender, to judge whether the too much risk allocated to contractor or not.	SPC	Mid
Increase in construction cost during construction	Increases due to workload changes or material prices (construction stage)	Fix lump-sum contract with EPC contractor (or cost reimbursable contract with threshold changes approval procedures).	EPC Contractor	Low
Delay in completing construction works	Completion of construction activities will be delayed due to lack of worker's/management staff's expertise, and lack of material & tools availability (construction stage)	Selecting qualified contractors and contract based on Time-Certain Lump Sum Contract, including the penalty clauses of delay LD (liquidity damages)	EPC Contractor	Mid
Contractors/subcontractors bad performances	Contractors/subcontractors cannot fulfill their works as well as the contract (construction stage)	The construction contractor's competence should be reviewed carefully by the SPC as part of the prequalification process. EPC contract agreement clearly stipulate single point responsibility on EPC contractor. EPC contract clearly stipulate performance LD (liquidity damage)	EPC Contractor	Low
Credit risk of contractors/ subcontractor	Failure of the contract completion by contractors /subcontractors due to internal & financial management factors (construction stage)	The selecting process of a credible contractors & subcontractors (financially unstable contractor needs to be disqualified at PQ stage). EPC contract agreement clearly stipulate single point responsibility on EPC contractor.	EPC Contractor	Low
Design faults	Caused design extra/revise which asked by operator (pre-construction and construction stage)	Selecting qualified consultants for detail design. Alternatively procure qualified EPC contractors based on design-build contract. EPC contract agreement clearly stipulate d standard contract clauses, completion inspection procedure, and the penalty clauses of Liquidity Damages	EPC Contractor	Low

Source: JICA Study Team

Table 6.1-3 Preliminary Risk Analysis - 3. Sponsor Risks -

Risk Category	Profile of the Risk	Risk Mitigation Measures	Risk Allocation	Degree of Risk
Credit risk of Sponsor	Failure of the contract completion due to member of sponsor's internal & financial management factors	Financial stability of the sponsors needs to be examined prior to finalizing consortium members. In order to prepare cash deficiency support requirement, responsibility sharing among sponsors needs to be clearly stipulated in the sponsor agreement.	SPC	Low
Lack of know how in managing toll road PPP contract	Failure to conclude PPP/ concession agreement due to lack of know how in managing toll road PPP contract	Jasa Marga already has rich experiences in managing toll road PPP contract in Indonesia. This risk could be alleviated through procurement of PPP advisors.	SPC	Low
Lack of knowhow in supervising toll road construction activity	SPC fail to supervise construction activities of EPC contractor, which will be resulted in cost overrun and/or non-compliance of design standard	Jasa Marga already has rich experiences in supervising toll road construction activity. Also this risks could be mitigated by procuring experienced owner's engineer.	SPC	Low
Lack of expertise in operating toll road project	Operation and maintenance could not perform properly due to lack of expertise and experience of the sponsors.	Jasa Marga already has rich experiences in operating toll road project. SPC also could outsource part of operation and maintenance activities to third party having rich experience in this field.	SPC	Low

Source: JICA Study Team

Table 6.1-4 Preliminary Risk Analysis - 4. Financial Risks -

Risk Category	Profile of the Risk	Risk Mitigation Measures	Risk Allocation	Degree of Risk
Fail to achieve financial close	Inability to achieve financial close due to market uncertainty or the project capital structure is not optimal	Formulate bankable project structure, prepare well-prepared contractual documents, and close coordination between consortium with potential and credible lenders.	SPC	Mid
Foreign exchange rate risk	SPC's financial viability will be sacrificed due to unforeseen exchange rate fluctuation. Such risks arise where mismatches exist between cash flows in differing currencies, for example financing flows of debt payments in foreign currencies and revenues in a differing local market currency	The toll revenue of this project is collected in local currency. Most of operation and routine maintenance cost as well as periodic maintenance cost (such as re-pavement) will be paid by local currency. On the other hand, taking terms and conditions of PSIF loan in local currency into consideration, SPC will most probably procure JPY or USD based PSIF loan for construction activity. In this case, repayment of principle and payment of interest will be made by USD or JPY. Existing Ministry of Transport regulation allow to adjust toll tariff every two years, while the regulation allow to adjust toll tariff only based on regional inflation rate published by BPS (Statistics Indonesia). The regulation not allow to adjust tariff based on exchange rate between IDR and other currencies (such as USD and JPY). In order to mitigate this risk cross-currency swap (CCS) could be considered, although swap cost is quite high and swap coverage period between USD-IDR is only 10 years.	SPC	Very High (if CCS not utilized)
Inflation rate risk	Increase of inflation rate used for estimating lifecycle costs (all stages)	Concession agreement to be signed between BPJT shall clearly stipulate tariff adjustment formula using regional inflation rate. IIGF could provide guarantee in the event of delay of tariff revision approval originate from BPJT's fault. Tariff revision will be executed every two years, while the timing of revision will be delayed when SPC could not fulfil minimum service standard stipulated in the concession agreement. Inflation risk during construction needs to transfer to EPC contractor through fixed lump-sum contract.	SPC	Mid
Interest rate risk	Increase of interest rate of the loan compared with originally estimated one (all stages)	JICA's PSIF loan could provide concessional fixed interest rate loan with relatively long tenor (in case of JPY and USD). JICA could provide maximum 50% of loan portion, thus SPC needs to procure loan from commercial bank or public financial institution (such as PT. SMI and IIF). SMI and IIF could provide Rupiah based long tenor loan with 10 – 15 years repayment period, while the loan is floating interest rate. SPC could consider to utilize interest rate swap for fixing interest rate. Interest rate swap available in the market could fix interest only up to 5 years. In case reference interest rate will be changed prior to financial close, modification of toll tariff calculation might be allowed by BPJT.	SPC	High

Source: JICA Study Team

Table 6.1-5 Preliminary Risk Analysis - 5. Operating Risks -

Risk Category	Profile of the Risk	Risk Mitigation Measures	Risk Allocation	Degree of Risk
Availability of facilities	Facility could not fulfill minimum service standard (MSS, e.g surface roughness index, etc.) stipulated in the concession agreement. If SPC fail to comply MSS, tariff revision will be delayed.	Procure operation and maintenance sub-contractor based on long-term performance based-contract. Develop control and monitoring plans and periodic evaluations of the operation and maintenance effectiveness. Maintenance activities could be done by SPC through their own staffs, since Jasa Marga, consortium member, already has rich experiences in operating toll road project.	SPC (O&M contractor)	Mid
Poor performance of Equipment	The technology used (such as e-toll gate, traffic monitoring system) cannot be reliable, so disturbed the operation (operation stage)	Selecting reliable and experienced facility supplier having competent technologies, and make long-term maintenance contract, if deemed necessary. Electricity back-up facilities/ other utilities.	SPC (supplier)	Low
Traffic accident or safety issues	Frequent traffic accident	Third party liability insurance. Careful alignment and junction design to ensure visibility of the road users.	SPC	Low
Maintenance Cost Overrun Risk	Maintenance cost is more expensive than originally envisaged.	Cost estimate for feasibility analysis should include the appropriate cost of periodic and preventative maintenance, emergency maintenance work, work stemming from design or construction errors, rehabilitation work based on the past projects in the country. Maintenance cost increase originated from inflation could be alleviated based on toll tariff inflation adjustment.	SPC	Mid
Asset loss event risk	Toll road, toll gate, and/or traffic monitoring equipment, will be damaged / lost due to traffic accidents, fire, explosion, etc (operation stage)	Could be covered by the prevailing insurance	SPC	Low
Asset transfer after the PPP contract ends	The asset transfer process has been hampered because there is a difference in the mechanism of transfer or assessment (operation stage)	The asset transfer process has been hampered because there is a difference in the mechanism of transfer or assessment (operation stage) The assessment carried out by mutually agreed independent appraisers	SPC	Low

Source: JICA Study Team

Table 6.1-6 Preliminary Risk Analysis - 6. Revenue Risks -

Risk Category	Profile of the Risk	Risk Mitigation Measures	Risk Allocation	Degree of Risk
Traffic Demand Risk	Traffic demand is lower than expected. Since this project is green-field toll road project connected to green field port, demand during ramp up period might be quite low.	Accurate traffic survey and cargo movement survey for demand forecast. Capture bulk cargo using this toll road as well as Patimban port, in corroboration with port terminal operator. Partnership agreement with inland container deport operator and port terminal operator to secure more cargo.	SPC	Very High
Development of competitive road and/or railway	Road and/or railway running parallel with this toll road developed, and then part of traffic will be utilized competitive route	Concession agreement could stipulate not to develop of new road running parallel with this toll road. On the other hand, Director general Railway (DGR) under Ministry of Transport currently finalizing detailed engineering design on Patimban Port Access railway. Alignment of the access railway will be running besides this toll road. Although, implementation and funding scheme of the railway project has not determined yet, this access railway project will be eventually realized. Demand forecast of this toll road project already incorporate modal share between road and railway, percentage of modal share needs to be carefully forecasted.	SPC	Mid
Initial tariff setting risk	Owing to optimistic demand forecast /cost estimate/ other assumptions and/or error in financial model, initial toll tariff is inadequate	Utilize most probable assumptions for financial model taking investors and lenders view into consideration (also refer to traffic demand risk and cost overrun risk).	SPC	High
Delay in periodical tariff adjustment	Facility could not fulfill minimum service standard (MSS, e.g surface roughness index, etc.) stipulated in the concession agreement. If SPC fail to comply MSS, tariff revision will be delayed.	Procure operation and maintenance sub-contractor based on long-term performance based-contract. Develop control and monitoring plans and periodic evaluations of the operation and maintenance effectiveness. Compensation payment due to delay in tariff adjustment from BPJT to PSC needs to be clarified in the concession agreement. And then, such payment needs to be covered by IIGF guarantee.	SPC	Mid

Source: JICA Study Team

Table 6.1-7 Preliminary Risk Analysis - 7. Political Risks -

Risk Category	Profile of the Risk	Risk Mitigation Measures	Risk Allocation	Degree of Risk
Currency inconvertibility	Unavailability and/or inconvertibility of local currency to the investor's home currency (all stages)	Guarantee could be provided from the Central Bank	SPC	Low
Currency non-transfer	Inability to transfer funds in foreign currency to the investor's home country (all stages)	Guarantee could be provided from the Central Bank	SPC	Low
Expropriation risk	Nationalization/ expropriation of the project assets and concession rights without adequate compensation (all stages)	The risk in the country was rated to be "4" (1=low, 7=high) by Credendo Group, one of Europe's largest credit insurance groups. In case of the toll road project in the past, termination clause with clear compensation mechanism are stipulated in the concession agreement. In addition, sovereign guarantee for compensation payment from government contracting agency, BPJT, was provided from IIGF to make project bankable. Same arrangement for this project is required.	SPC (guaranteed by IIGF)	Low
General change in law (include tax)	The risk of law changing and affecting the project's financial viability	The SPC may receive protection against changes in law, however the level of protection will reflect the SPC's ability to mitigate this risk (through the tariff or inflation, if applicable) and whether the risk is of general application to the market (e.g. an increased corporate tax or dividends). SPC has to take the risk of changes in law and technical standards leading to increased capex to the extent such change was foreseeable at the time of submission of bid.	Shared between SPC - Govt.	Mid
Delay in Feasibility Study approval	Approval of the feasibility study.	JM Consortium had submitted F/S report to Bina Marga in 2018, while in February 2019, Bina Marga issue letter to JM Consortium for requesting alignment revision. Revision of F/S based on new alignment will be completed in Jan. 2020. Since there are no critical comments on the previous F/S other than alignment, the revised F/S will be approved relatively soon.	SPC	Low
Delay in inclusion into spatial plans	The risk that the project will not be listed in provincial / regency Spatial Planning	National spatial plan already includes this project, while provincial and regency level have not. According to interview to BAPPEDA West Java and Suban, they agree on the new alignment, and draft regulation and map for spatial plan already includes this project. Revision will be completed by the end of this year (provincial) and next year (regency)	SPC	Mid

JICA Study Team

Table 6.1-8 Preliminary Risk Analysis - 8. Force Majeure Risks -

Risk Category	Profile of the Risk	Risk Mitigation Measures	Risk Allocation	Degree of Risk
Natural disasters	The occurrence of natural disasters and therefore cannot operate normally (all stages)	While the risk of earthquake is not high in the project area, according to inundation map prepared by BAPPEDA Subang, there are four flooding prone area along the proposed toll road alignment. In order to prevent inundation of the project facility, SPC needs to make the measurement for the flood such as raising the road by embankment and the measures again the flood at the construction. Natural disaster risk is covered by SPC as long as the prevailing insurance could cover the risk. On the portion that not covered by the insurance, then it taken over by the Government.	Shared between SPC – Govt.	Low
Political force majeure	Events of war, riots, civil disturbance (all stages)	There are protesting and riots took place on 21 and 22 May 2019 in Jakarta. The unrest followed former general Prabowo Subianto's refusal to accept that he had lost the 2019 Indonesian presidential election. Although these risks are not quite high in rural area including Subang regency, it is necessary to reduce these risks with the foreign investment insurance to cover the investment amount by NEXI (Nippon Export and Investment Insurance)	Shared between SPC – Govt.	Low
Prolonged force majeure	If above 6 to 12 months, may cause economic problems on the affected party (esp. if insurance not exist) (all stages)	Either party should be able to terminate the contract and trigger an early termination. Compensation payment due to prolonged force majeure needs to be clearly stipulated in the concession agreement, and the compensation payment from BPJT needs to be guaranteed by IIGF.	Shared between SPC – Govt.	Low

Source: JICA Study Team

7. Environment and Social Considerations

7.1 Relevant Regulations on AMDAL

The major laws and regulations related to AMDAL are listed in table below.

Table 7.1-1 Major Regulations on AMDAL

Major Relevant Laws	Outline
Environmental Protection and Management Act No.32/2009	Fundamental law to show the policy on environmental protection and management
Governmental Regulation No.27/2012 on Environmental Permission	Regulation on environmental permit
Ministry of Environment Regulation No.16/2012 on Guideline of Preparation of Environment Document	Guideline to prepare EIA (AMDAL) report, environmental management plan and environmental monitoring plan
Ministry of Environment Regulation No.17/2012 on Guideline of Public Involvement in EIA and Environmental Permit Process	Guideline on public participation and the procedure of environmental permit
Ministry of Environment Regulation No.8/2013 on Procedure for Assessment and Examination of EIA and Publishing of Environmental Permit	Regulation to define the procedure on evaluation of the EIA (AMDAL) report and issuing an environmental permit

Source: JICA Study Team

Gap analysis between JICA Guidelines and the law in Indonesia is summarized in table below.

Table 7.1-2 Gap Analysis on AMDAL

Item	JICA Guidelines	Law in Indonesia	Gap between JICA Guidelines and Law in Indonesia
Underlying Principles	- Environmental impacts that may be caused by projects must be assessed and examined in the earliest possible planning stage. - Alternatives or mitigation measures to avoid or minimize adverse impacts must be examined and incorporated into the project plan. (JICA Guidelines, Appendix 1.1)	- The government and regional government are required to conduct strategic environmental assessment in the process of formulating spatial plan. (Law 32/2009, Art. 15). - Every business or activity entailing substantial impact on the environment shall be required to have environmental impact assessment (Law 32/2009, Art. 22) - Alternative examination is requested to be explained in KA-ANDAL (Min. Regulation 17/2017, Appendix I).	There is no gap.
Information Disclosure	- EIA reports (which may be referred to differently in different systems) must be written in the official language or in a language widely used in the country in which the project is to be implemented. - When explaining projects to local resident, written materials must be provided in a language and form understandable to them. - EIA reports are required to be made available to the local resident of the country in which the project is to be implemented.	- AMDAL documents area prepared in Indonesian language (Bahasa Indonesia). - AMDAL documents are made available to public throughout the review process; from announcement of the project plan up to announcement of issuing the environmental clearance).	There is not stipulation to use local languages. However, since Bahasa Indonesia is the common language for Indonesian people, there is not significant difference.

Item	JICA Guidelines	Law in Indonesia	Gap between JICA Guidelines and Law in Indonesia
	- The EIA reports are required to be available at all time for perusal by project stakeholders such as local residents and copying must be permitted. (JICA Guidelines, Appendix 2)		
Public Consultation	- For projects with a potentially large environmental impact, sufficient consultations with local stakeholders, such as local resident, must be conducted via disclosure of information at an early stage, at which time alternatives for project plans may be examined. - The outcome of such consultations must be incorporated into the contents of project plans. (JICA Guidelines, Appendix 1, Social Acceptability.1) - In preparing EIA reports, consultations with stakeholders, such as local resident, must take place after sufficient information has been disclosed. Records of such consultations must be prepared. - Consultations with relevant stakeholders, such as local resident, should take place if necessary throughout the preparation and implementation stages of a project. Holding consultations is highly desirable, especially when the items to be considered in the EIA are being selected, and when the draft report is being prepared (JICA Guidelines, Appendix 2. EIA Reports for Category A Projects)	- AMDAL required projects must hold a consultation meeting before the submission of the draft TOR for AMDAL. After submission of AMDAL, AMDAL review committee holds public hearing during the review process.	Public consultation at the draft EIA stage is not practically held.
Items to be assessed	- The impacts to be assessed with regards to environmental and social considerations include impacts on human health and safety, as well as on the natural environment, that are transmitted through air, water, soil, waste, accidents, water usage, climate change, ecosystems, fauna and flora, including trans-boundary or global scale impacts. - These also include social impacts, including migration of population and involuntary resettlement, local economy such as employment and livelihood, utilization of land and local resources, social institutions such as social capital and local decision-making institutions, existing social infrastructures and services, vulnerable social groups such as poor and indigenous peoples, equality of benefits and losses and equality in the development process, gender, children's rights, cultural heritage, local conflicts of interest, infectious diseases such as HIV/AIDS, and working conditions	- There is no stipulation on assessment of derivative, secondary and cumulative impact.	Assessment of derivative, secondary and cumulative impact is gap.

Item	JICA Guidelines	Law in Indonesia	Gap between JICA Guidelines and Law in Indonesia
	including occupational safety. (JICA Guidelines, Appendix 1. Scope of Impacts to Be Assessed.1） - In addition to the direct and immediate impacts of projects, their derivative, secondary, and cumulative impacts as well as the impacts of projects that are indivisible from the project are also to be examined and assessed to a reasonable extent. It is also desirable that the impacts that can occur at any time throughout the project cycle should be considered throughout the life cycle of the project. (JICA Guidelines, Appendix 1, Scope of Impacts to Be Assessed.2)		
Monitoring, Grievance	- Project proponents etc. should make efforts to make the results of the monitoring process available to local project stakeholders. (JICA Guidelines, Appendix 1, Monitoring.3) - When third parties point out, in concrete terms, that environmental and social considerations are not being fully undertaken, forums for discussion and examination of countermeasures are established based on sufficient information disclosure, including stakeholders' participation in relevant projects. - Project proponents etc. should make efforts to reach an agreement on procedures to be adopted with a view to resolving problems. (JICA Guidelines, Appendix 1, Monitoring.4)	- Environmental Management Plan and Environmental Monitoring Plan are required to be prepared as a part of AMDAL. - There is no stipulation on disclosing the monitoring results.	Disclosing the monitoring results is gap.
Ecosystem and Biota	- Projects must not involve significant conversion or significant degradation of critical natural habitats and critical forests.	AMDAL is required if a project is implemented in important ecosystem.	There is no description about not involving significant conversion or degradation of critical ecosystem,
Indigenous Peoples	- Any adverse impacts that a project may have on indigenous peoples are to be avoided when feasible by exploring all viable alternatives. - When, after such an examination, avoidance is proved unfeasible, effective measures must be taken to minimize impacts and to compensate indigenous peoples for their losses.	There is no stipulation on examination of impact to indigenous people.	Examination of impact to indigenous people is gap.

Source: JICA Study Team

7.2 Relevant Regulations on Land Acquisition and Resettlement

The laws and regulations related to land acquisition and resettlement is listed in table below.

Table 7.2-1 Major Regulations on Land Acquisition and Resettlement

Major Relevant Laws	Outline
Law No.2/2012 on Land Acquisition	It defines procedure for land acquisition for public interest/
Presidential Regulation No.71/2012 on Management of Land Acquisition for Public Interest	It defines detailed procedure for land acquisition for public interest stipulated in Law No.2/2012
Regulation of the Head of National Land Agency No.5/2012 on Technical Guidelines for Implementation of Land Acquisition	It defines technical guidelines for land acquisition.

Source: JICA Study Team

Gap analysis between JICA Guidelines and the law in Indonesia is summarized in table below.

Table 7.2-2 Gap Analysis on Land Acquisition and Resettlement

	JICA Guidelines	Law in Indonesia	Gap
1	Involuntary resettlement and loss of means of livelihood are to be avoided when feasible by exploring all viable alternatives.	There is no stipulation of minimization of involuntary resettlement.	No gap
2	When population displacement is unavoidable, effective measures to minimize impact and to compensate for losses should be taken.	There is no precise stipulation to examine effective measures to minimize impact to compensate for loss.	Examination of effective measures to minimize impact on land acquisition/ compensation is gap.
3	People who must be resettled involuntarily and people whose means of livelihood will be hindered or lost must be sufficiently compensated and supported, so that they can improve or at least restore their standard of living, income opportunities and production levels to pre- project levels.	There is stipulation to provide reasonable and fair compensation. Appraisal of the compensation amount by the independent appraiser shall be made on a parcel-by-parcel basis, including: a. land; b. over ground and underground space; c. buildings; d. plants; e. objects related to land; and/or f. other appraisable loss. Other appraisable loss means nonphysical loss equivalent to money value, for example, loss due to loss of business or job, cost of change of location, cost of change of profession, and loss of value of the remaining property.	The law does not precisely stipulate to improve or at least restore their standard of living, income opportunities and production levels to pre-project levels.
4	Compensation must be based on the full replacement cost as much as possible.	Compensation will be provided based on valuation of independent appraiser for a parcel by parcel of land that include i) land; ii) over ground and underground spaces; iii) building; iv) plants; v) objects related to land and/or; vi) other appraisable loss such loss of business, jobs, change of profession, and moving costs. For affected buildings, MAPPI applies solatium (emotional compensation) of 10% - 30% of the total compensation for physical loss.	The law does not precisely mention whether depreciation is considered or not.
5	Compensation and other kinds of assistance must be provided prior to displacement.	When compensation and release of Titles have been made, or the compensation given has been deposited with the district court, such land shall be in the direct possession of the state.	The law does not precisely mention the timing of compensation payment and displacement.
6	For projects that entail large- scale involuntary resettlement,	Initial data collection is conducted in the process of preparing Land Acquisition Planning	The law does not require to disclose a resettlement action.

	JICA Guidelines	Law in Indonesia	Gap
	resettlement action plans must be prepared and made available to the public.	Document (LAPD), and the result of initial data collection is disclosed for 14 days.	
7	In preparing a resettlement action plan, consultations must be held with the affected people and their communities based on sufficient information made available to them in advance.	The law stipulates to hold consultation meeting with PAPs to explain development plan in the process of preparation of LAPD. In addition, the law secures the rights of entitled party to know the implementation plan of land acquisition, to obtain information on land acquisition, to contribute for providing suggestion related to land procurement, and to contribute for supporting on the implementation of land procurement.	Although participation of PAPs is secured, opinion exchanging on compensation policy is not stipulated.
8	When consultations are held, explanations must be given in a form, manner, and language that are understandable to the affected people.	There is no precise stipulation in the law on a form, manner and language to be used for consultations.	No clear guidance about the form, manner, and language in the consultations.
9	Appropriate participation of affected people must be promoted in the planning, implementation, and monitoring of resettlement action plans.	The law stipulates to hold consultation meeting with PAPs to explain development plan in the process of preparation of LAPD. In addition, the law secures the rights of entitled party to know the implementation plan of land acquisition, to obtain information on land acquisition, to contribute for providing suggestion related to land procurement, and to contribute for supporting on the implementation of land procurement.	There is no precise explanation on participation of PAPs in monitoring of resettlement action plans.
10	Appropriate and accessible grievance mechanisms must be established for the affected people and their communities.	There are three timings of raising objections. 1. At the timing of explanation on development plane 2. At the timing of disclosing the result of data collection 3. At the timing of deliberation of the compensation amount	Timing and method of filing grievance are clearly stated. Those who are not the owner of land or asset to be affected can not file grievance in the latter 2 timings.
11	Affected people are to be identified and recorded as early as possible in order to establish their eligibility through an initial baseline survey (including population census that serves as an eligibility cut- off date, asset inventory, and socioeconomic survey), preferably at the project identification stage, to prevent a subsequent influx of encroachers of others who wish to take advantage of such benefits. (WB OP4.12, Para. 6)	Ownership and utilization of land are confirmed through inventory. In this inventory, name, address and occupation of the party owns land are confirmed.	There is no precise stipulation on conducting census, socio-economic survey and cut-off date. However, the initial date of inventory is considered as equivalent to the cut-off date.
12	Eligibility of benefits includes, the PAPs who have formal legal rights to land (including customary and traditional land rights recognized under law), the PAPs who don't have formal legal rights to land at the time of census but have a claim to such land or assets and the PAPs who have no recognizable legal right to the land they are occupying. (WB OP4.12 Para. 15)	The eligible parties for compensation are: Those entitled shall be, inter alia: a. landholders; b. land concessionaires; c. waqf organizers, in the case of waqf land; d. ex-customary land owners; e. indigenous people; f. parties in possession of the state land in good faith (customary residents/ occupants on public land without registration); g. land tenure holders; and/or h. owners of buildings, plants or other objects related to land. Compensation shall be given to the landholder. In the case that the right to build or the right to	No gap.

	JICA Guidelines	Law in Indonesia	Gap
		use over the land is not his/her own, compensation shall be given to the holder of the right to build or the right to use over the building, plants or other objects related to land owned by or belong to the him/her, whereas compensation for his/her land shall be given to the title holder or the concessionaire. Compensation for indigenous land shall be distributed in the form of replacement land, resettlement, or other forms agreed by the respective indigenous society.	
13	Preference should be given to land-based resettlement strategies for displaced persons whose livelihoods are land-based. (WB OP4.12 Para. 11)	The giving of compensation may be made in the form of: a. money; b. substitute land; c. resettlements; d. share ownership; or e. other forms as agreed upon by both parties.	Although no preference is stated, substitute land can be the form of compensation. No gap.
14	Provide support for the transition period (between displacement and livelihood restoration). (WB OP4.12 Para. 6)	No provision of support during the transition period.	No provision of support during the transition period.
15	Particular attention must be paid to the needs of the vulnerable groups among those displaced, especially those below the poverty line, landless, elderly, women and children, ethnic minorities etc. (WB OP4.12 Para. 8)	No particular description about handling of the vulnerable groups.	No particular description about handling of the vulnerable groups.

Source: JICA Study Team

7.3 Collecting Baseline Data

Environmental and social baseline data at the study area (i.e. the area along the blue line shown in the Figure 7.3-1 was confirmed through collecting secondary data (i.e. monitoring results prepared by the environmental department, monitoring results prepared by projects currently implementing at the surrounding area, and statistic data). Finding are explained below.

(1) Air Quality

The Environmental Department (Dinal Lingkungan Hidup: DLH) in Subang Regency conducted air quality monitoring 4 times in 2018 (i.e. March, May, August and November) at 2 locations shown as Air-1 and Air-2 in the figure below. All monitoring parameters of air quality (i.e. SO_2, CO, NO_2, O_2, PM2.5, PM10, TPS, NH_3 and H_2S) were within the national standard value.

Toll road between Cikampek and Palimanan is under operation, and air quality is being monitored periodically for the parameters of CO, NO2, SO_2 and TSP at 2 points shown in OP-5 and OP-6 in the figure below. The monitoring result in the 2nd semester of 2018 shows that all parameters were within the national standard value.

It was found at the site reconnaissance that no significant pollution sources of air quality were existed in the study area. Therefore, referring to collected information at the starting and end points of the proposed alignment, it is assumed that air quality in the study area is under the national standard value. Conducting site measurement will be necessary at the next study stage to confirm air quality.

Source: JICA Study Team based on information DLH and monitoring information on toll road between Cikampek - Palimanan obtained from Bina Marga

Figure 7.3-1 Monitoring Points for Air Quality and Noise

(2) Water Quality

There are 3 major rivers in Subang Regency namely Cipunagara River, Ciasem River and Cilamaya River. Water quality monitoring of upstream and downstream at 3 rivers is conducted by DLH as shown the monitoring points in the figure below.

As for Cipunagera River, Hexavalent Chrome at downstream in March 2018 was slightly exceeded the national standard value. Regarding Ciasem River, Mercury at upstream and downstream, BOD and Hexavalent Chrome at downstream in February 2018 were exceeded the national standard value. with respect to Cilamaya River, BOD, COD, DO, Total Phosphate were exceeded at upstream and downstream. In addition, Cadmium, Copper and Mercury were exceeded at downstream.

Since water quality data in or around the study area was not confirmed and monitoring points of collected data were far from the study area, it is not possible to evaluate water quality in the study area. Accordingly, conducting site measurement will be necessary at the next study stage to confirm water quality.

Source: JICA Study Team based on information from DLH

Figure 7.3-2 Monitoring Points for Water Quality

(3) Noise

DLH conducted noise monitoring at the same location and timing of air quality monitoring. Noise level at all monitoring points exceeded the national standard value. Same as air quality, along toll road between Cikampek and Palimanan is monitored at the same location and timing of air quality monitoring. monitoring level at 2 points were slightly exceeded the national standard.

Same as air quality, no significant pollution sources of noise were confirmed in the study area during the site reconnaissance. Therefore, it is assumed that noise level at the study area is within the national standard value.

(4) Soil

According to the soil classification map issued by BAPPEDA in Subang Regency, alluvial soil, bluish-gray subsurface layer of clay in some waterlogged soils and yellow red podzolic soil were distributed in the study area.

(5) Flood

The study area is consisted of 6 sub-districts. Among them 4 sub-districts located at the northern parts area classified as the flood area according to the flood area map prepared by BAPPEDA in Subang Regency.

(6) Protected Area and Protected Flora and Fauna

The study area does not contain the protected area or protected forest designated by the national law or international treaties. Habitation of valuable flora and fauna in the existing studies in and around the study area was not confirmed. Therefore, field survey to conform flora and fauna in the study area is necessary in the next study stage.

(7) Cultural Heritage

The cultural heritage around the study area is the sacred tombs of *Ny Subang Larang*, the wife of the king of Siliwang. The tombs are located in Biong sub-district and Cikaum Sub-district. The studied route passes through Biong sub-district, but the distance between the proposed route and the tombs are approx. 6 to 7 km.

(8) Ethnic Groups

According to interview to the Education Office of Suban Regency (Dinas Pendidikan Kabupaten Subang), the majority of ethnicity in Suban Regency is Sundanese. In addition, Batik ethnic group, Javanese and Chinese ethnic group are in Suban Regency. However, information of ethnic distribution specially at the survey area was not available. Further confirmation at the next study stage is necessary.

(9) Water Use

It was confirmed at the site reconnaissance that surface water sources in the study area were river and canal and surface water was used for irrigation to the rice field, fish bonds, bathing and washing. As for irrigation to the rice field, it was found during the site reconnaissance that irrigation in the study area was systematically organized by the irrigation project namely Perum Jasa Tirta II project.

(10) Land Use

According to the land use map issued by BAPPEDA in Subang Regency, the major land uses in the regency are rice field, forest, gardens/plantations, swamps, vacant land, ponds and residential land. In the site reconnaissance, it was confirmed that land uses in the survey area were rice field, plantation and small size of residential area.

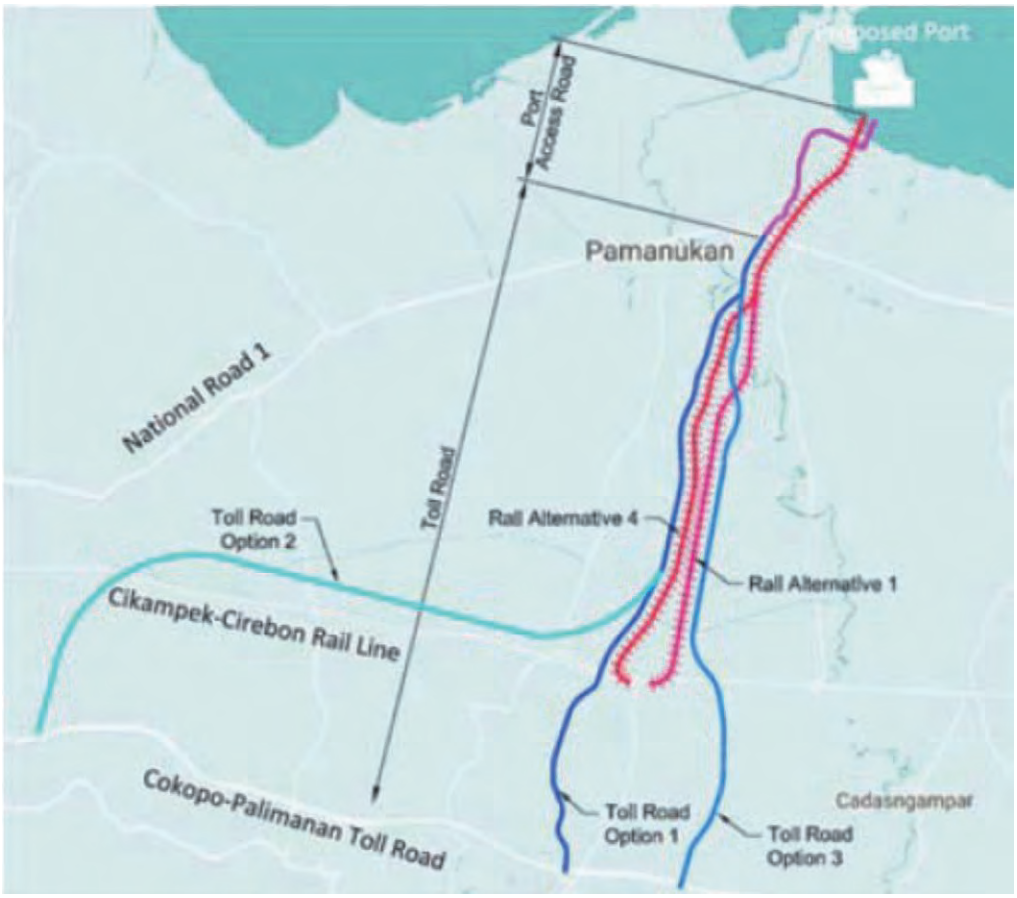
7.4 Review of Existing Alternative Examinations

(1) JICA Preparatory Survey on Patimban Port Development Project

The study on toll road was conducted as a port of JICA Preparatory Survey on Patimban Port Development Project (February 2017). The study report shows one route of toll road (i.e. the same route of this study) but did not explain alternative examinations.

(2) KPPIP Feasibility Study

3 alternative routes (i.e. combination of railway alternatives and toll road alternatives) shown in table below were examined from the economic viewpoint. The combination of Toll Road Option 1 and Rail Alternative 4 and the combination of Toll Road Option 3 and Rail Alternative 1 were selected as the recommended alternatives since the 2 combinations do not have much difference. There was no explanation on environmental and social evaluation.



Source: KPPIP Final Report (December 2018)

Figure 7.4-1 Alternative Routes Examined by KPPIP Feasibility Study

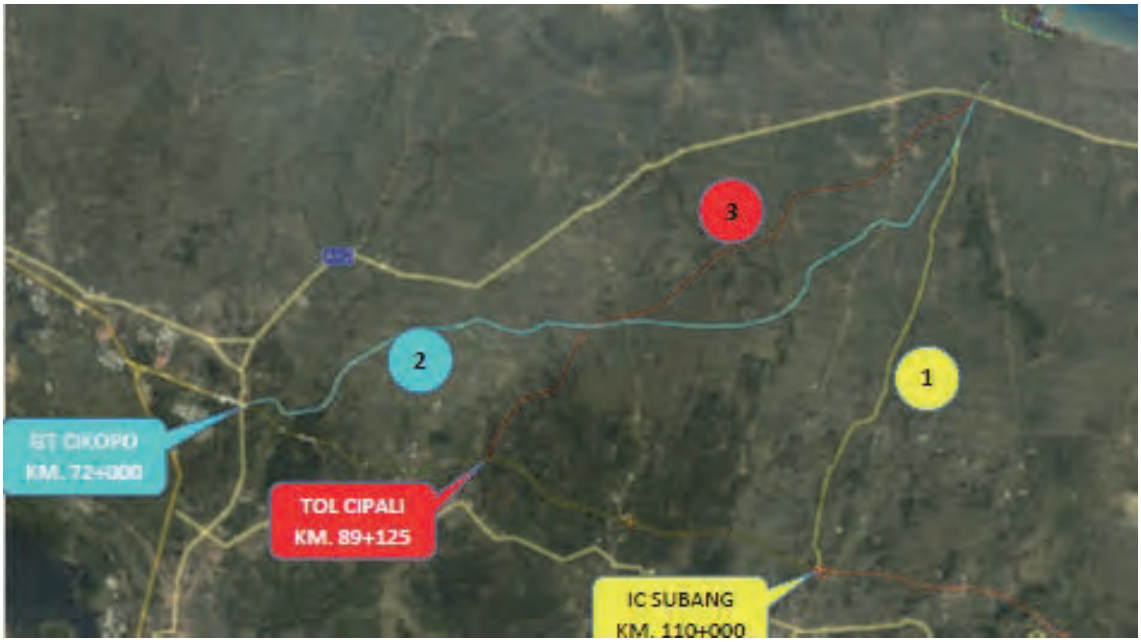
(3) Jasa Marga Feasibility Study

3 alternative routes as shown in the figure below was examined at Feasibility Study by using Multi Criteria Analysis (MCA). In MCA, following items at each alternative was evaluated with the scoring.

- Logistic accessibility to/from Patimban Port

- Role of toll road in the regional development
- Technical characteristics
- Connectivity to the surrounding road network
- Land acquisition and social environmental aspects

In land acquisition and social environmental aspects, necessary land acquisition area by category (e.g. farmland, residential area), land ownership and scale of impact to relocation were evaluated. According to evaluation, No. 2 route might acquire the largest land though No. 1 might need the smallest land. As for impact on relocation, No. 3 route might be the smallest while No. 1 and No. 2 routes might have similar scale of impact. Based on these examinations of above 5 items, No. 3 route was selected as the best route.



Source: Jasa Marga Consortium

Figure 7.4-2 Alternative Routes Examined by Jasa Marga Feasibility Study

7.5 Gender Considerations

(1) Current Situation on Gender Considerations

Presidential Instruction No.9/2000 on Gender Mainstreaming in National Development was issued. According to Country Gender Profile: Indonesia issued by JICA (January 2011), this Instruction defines that gender mainstream shall be implemented at all steps of national development policies and national development program. Based on interview to the officer of Ministry of Public Works and Housing, job opportunities related to public interest works are provided to the both sexes equally at the construction stage and the operation stage based on capability.

(2) Gender Considerations to be Further Examined

To be a gender friendly project, the project proponent needs to consider the gender approach during the construction stage and operation stage. As for the construction stage, following measures are needed to be

further examined.

- Provide equal job opportunities between male and female applicants
- Applying gender related stipulations such as maternal leave or menstrual leave in Labour Law (Law No.13/2003) properly
- Arrangement of the rest room and the praying room for female workers

The recent number of female car drivers are considered as quite small than male drivers, and female truck drivers were not confirmed during the traffic count survey. However, there is a possibility that number of female car drivers and truck drivers may be increased in the future. Therefore, examinations of safety and accessible toll road for female drivers including the following points are considered as important.

- Provide traffic information such as traffic congestion or road access by visually understandable methods
- Arrangement of the rest room and the praying room for female drivers
- Safety management by controlling exceeding speed and frequent lane changing

7.6 Preliminary Scoping

Based on the current natural and social environmental conditions in the study area and planned features of the project, preliminary scoping was conducted as shown the result in the table below.

Table 7.6-1 Preliminary Scoping

		Item	Evaluation		Reason for evaluation
			PC/CP	OP	
Pollution	1	Air pollution	B-	B-	**CP**：Temporary air pollution by equipment operation is expected. **OP**：Air pollution causing of the increase of traffic amount is expected.
	2	Water pollution	B-	C	**CP:** Piers will not be installed in rivers and assumed construction technique to install culvert into irrigation canal will not cause degradation of water quality. However, degradation of water quality by drainage from construction sites or worker's camp is expected at some decree. **OP:** Rain water on the road and bridge surface may be consolidated in the drainage to be installed along the road and bridge, and it may be discharged into the river. Although significant negative impact on water quality is not anticipated, further study is necessary.
	3	Waste	B-	D	**CP:** Generation of construction waste is assumed though amount of soil or wood to be generated is assumed as small. **OP:** Any waste affecting surrounding environment are not expected.
	4	Soil contamination	C	D	**CP:** Soil contamination may be diffused if the soil in the study area is originally contaminated. In addition, there is a risk of soil contamination from leakage of toxic material. **OP:** Significant negative impact is not anticipated.
	5	Noise and Vibration	B-	B-	**CP:** Noise from construction materials and vehicles are expected. **OP:** The planning alignment passes near the residential area. Impact to the residential area due to increase of traffic amount and speed of traffic is expected at some decree.
	6	Ground subsidence	C	C	**CP/OP:** Some of areas in the study route are assumed as the soft soil condition. Accordingly, ground subsidence is assumed in those areas. Further study is necessary.
	7	Offensive odor	D	D	**CP:** Offensive odor is not expected from the construction works. **OP:** Activities which may cause offensive odor are not expected during the operation.
	8	Bottom Sediment	D	D	**CP:** Constructing bridge is planned at some areas to pass through the river and canal. However, construction works will not be conducted inside the

		Item	Evaluation		Reason for evaluation
			PC/CP	OP	
					river or canal. Thus, impact to bottom sediment is not expected. **OP:** The flowing in the river of herbicide which is sprinkled to the road and dust and oils with rainfall are expected, its amount is assumed as not significant to cause impact to bottom sediment.
Natural environment	9	Protected areas	D	D	**CP/OP:** There are no national park and protected area in the study area.
	10	Ecosystem	C	C	**CP/OP:** The study area is agriculture land (i.e. paddy field and a plantation area) but not the native forest. Therefore, it is assumed that the study area does not include the important habitation of flora and fauna, but confirmation in field is necessary.
	11	Hydrology	D	D	**CP:** The construction works does not include activities changing direction of river flow and riverbed. **OP:** The project does not install any structures in the river or canal. Thus, changing the hydrology condition is not expected.
	12	Topography and geology	D	D	**CP/OP:** Although some of sections in the study route will require embankment or cut, it will not change topography or geology in the area.
Social environment	13	Land acquisition/ Involuntary resettlement	B-	D	**PC:** Land acquisition of agriculture land (i.e. paddy field, fish ponds and plantation) and small residential area is assumed. In accordance with the land acquisition, about 10 to 20 houses in rough estimation based on the site reconnaissance are expected for the involuntary resettlement. In addition, a few chicken huts might be affected by the proposed alignment. Thus, relocation of the huts might be necessary. **OP:** Additional land acquisition and involuntary resettlement are not expected after the commencement of the operation.
	14	Poverty	B-/B+	D	**PC:** For PAPs classifies as the poverty group, their livelihood will be affected due to land acquisition or involuntary resettlement. **CP:** The project will provide job opportunities to local communities. Thus, it is expected that livelihood of people classified as the poverty will be improved with the job opportunities. **OP:** Operation of the project will not cause any impact to poverty.
	15	Ethnic minority and indigenous people	C	C	**CP/ OP:** Information on ethnic minority and indigenous people in and around the project area is not available.
	16	Local economy (Living and livelihood)	B-/B+	B+	**PC:** Income source will be decreased for people whose agriculture land or plantation will be acquired. **CP:** The project will provide job opportunities to the local communities during the construction phase. **OP:** Due to construction of the planning road, cargo transportation from the port area to the city areas will be improved.
	17	Land use and local resources	B-	B-	**CP/ OP:** Land use at the limited area (i.e. within right-of-way) will be changed due to construction of new road.
	18	Water usage	C	C	**CP:** Water pollution by drainage from construction sites or worker's camp is assumed at some degree. **OP:** Rain water on the road and bridge surface may be consolidated in the drainage to be installed along the road and bridge, and it may be discharged into the river. Although significant negative impact on water use is not anticipated, further study is necessary.
	19	Existing social infrastructure and service	B-	D	**CP:** The temporal traffic jam is expected during the construction phase, and access to social infrastructure or social service is assumed as disturbed due to the temporal traffic jam. **OP:** Disturbance of access to existing social infrastructure and service is not assumed at the operation phase.
	20	Social institutions such as social infrastructure and local decision-making institutions	D	D	**CP/ OP**: The project is construction of new road and will require land acquisition and involuntary relocation along the proposed alignment. However, land acquisition and involuntary relocation will not cause impact to social institutions or local decision-making in the area.
	21	Misdistribution of damage and benefit	D	D	**CP/ OP:** The project will cause both of damage (i.e. acquisition of cultivating land/pound) and benefit (i.e. provide job opportunities) in the area. Thus, misdistribution of damage and benefit is not assumed.

		Item	Evaluation		Reason for evaluation
			PC/CP	OP	
	22	Local conflict of interest	D	D	**CP/ OP:** Although land acquisition and involuntary resettlement are assumed, it will not be a factor to cause conflict of interest within local communities. Thus, impact to local conflict of interest is not assumed.
	23	Cultural heritage	D	D	**CP/ OP:** There is no cultural heritage in and around the project area.
	24	Landscape	B-	B-	**CP/ OP:** Changing the landscape is assumed at some decree since the project is new construction of road in agriculture land.
	25	Gender	D	D	**CP/ OP:** The special damage to the gender on this project is not expected. In addition, job opportunities will be provided equally to both genders according to interview.
	26	Children's right	D	D	**CP/ OP:** The special damage for children's right on this project is not assumed.
	27	Infectious disease such as HIV/AIDS	B-	D	**CP:** The expanding of the infectious disease is expected from the influx of construction workers. **OP:** The impact of the infectious diseases is not expected at the operation phase.
	28	Occupational Health and safety	B-	D	**CP:** There is a risk of health and safety due to the construction works. **OP:** The works which has the damage to the workers are not expected.
Others	29	Accident	B-	B-	**CP/ OP:** The accidents under construction are assumed at the operation phase due to driving error or driving over the limit. **OP:** The traffic accidents are expected. However, since entrance or exit is not planned in the proposed alignment, traffic accident involving local people is not assumed.
	30	Cross-border impact, climate change	D	D	**CP/ OP:** Significant increase of traffic volume due to implementation of the project is not assumed, through traffic to the Partimban port will be changed from the existing route to the new route. Thus, total volume of traffic (i.e. total volume of GHG to be exhausted from vehicles) is assumed as not increased significantly to impact climate change.

A+/-: Significant positive/negative impact is expected.
B+/-: Positive/negative impact is expected to some extent.
C: Extent of impact is unknown. (A further examination is needed, and the impact could be clarified as the study progresses)
D: No impact is expected.
PC: Pre-construction, CP: Construction phase, OP: Operation phase
Source: JICA Study Team

7.7 Action Plan for Implementing the Project

(1) AMDAL

Based on the scoping results and reviewing collected data, it is necessary to conduct survey by taking the below items into considerations in the process of AMDAL.

- Measures to fill identified gaps between JICA Guidelines and laws in Indonesia
- Field study to the items evaluated as B- and C in Preliminary Scoping
- Ethnic groups in the study area
- Alternative examinations conducted in the previous studies
- Gender Considerations

Work items, steps and responsibility to conduct AMDAL is summarized in the table below. Work schedule is shown in Figure 7.7-1 and Figure 7.7-2 respectively.

Table 7.7-1 Necessary Actions for AMDAL

Steps	Work Items	Responsibilities
1. KA-ANDAL Stage		
(1) Socialization	➢ Explain project outline to the local communities	Project executing body
(2) Preparation of KA-ANDAL	➢ Collecting secondary data of natural/social environment ➢ Conducting scoping to select items to be further studied	Project executing body
(3) Approval of KA-ANDAL	➢ Approving KA-ANDAL	AMDAL Committee (MOEF)
2. ANDAL Stage		
(1) Field Survey	➢ Conducting field survey (e.g. field measurement on air quality, water quality, noise and vibration, flora and fauna) to the items selected at KA-ANDAL	Project executing body
(2) Assessment	➢ Evaluating environmental impact based on project outline and the survey results at each project stage	Project executing body
(3) Mitigation Measures	➢ Examining mitigation measures to the items evaluated as negative impact	Project executing body
(4) Preparation of EMP[/1] and EMoP[/2]	➢ Examination of EMP and EMoP based on results of assessment and mitigation measures	Project executing body
(5) Socialization (Consultation)	➢ Holding stakeholder meetings to explain assessment results, EMP and EMoP	Project executing body
(6) Report Compilation	➢ Compiling all results into ANDAL	Project executing body
3. Approval Stage		
(1) AMDAL Review Committee	➢ Consultation of submitted ANDAL ➢ Revising ANDAL as per comments from the committee	AMDAL Committee (MOEF)
(2) Approval of ANDAL	➢ Approval of ANDAL	AMDAL Committee (MOEF)

[/1] EMP: Environmental Management Plan, [/2] EMoP: Environmental Monitoring Plan
Source: JICA Study Team

(2) LARAP

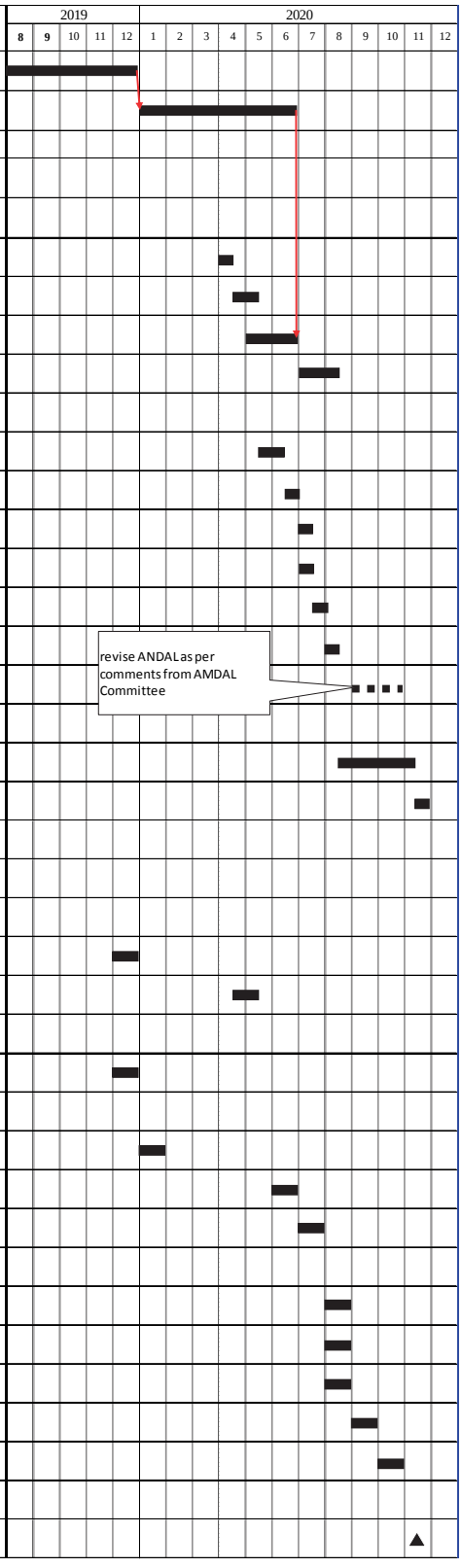
Acquisition of privately using land and small scale of involuntary resettlement is assumed based on findings at site reconnaissance. Accordingly, preparation of LARAP may be required to implement the project with financial support by JICA. Work items, steps and responsibility to conduct LARAP is summarized in the table below. Work schedule is shown in Figure 7.7-3 and Figure 7.7-4 respectively.

Table 7.7-2 Necessary Actions for LARAP

Steps	Work Items	Responsibilities
1. Preparation Stage		
(1) Preliminary examination of land acquisition impact	➢ Examine scale of land acquisition and resettlement	Project executing body
(2) Consultation	➢ Explain project outline to the local communities	Project executing body
2. Field Survey Stage		
(1) Preparation of Questionnaire for survey	➢ Preparation of questionnaires for field survey	Project executing body
(2) Field Survey	➢ Conducting census, socio-economic survey & asset inventory ➢ Conducting market price survey	Project executing body
3. Report Preparation Stage		
(1) Examination of Compensation Policy	➢ Examining compensation policy based on the result of field survey	Project executing body
(2) Examination of Other Items	➢ Examining livelihood restoration program, support for the vulnerable groups, grievance redress mechanism and monitoring and evaluation	Project executing body
(3) Estimation of Budget	➢ Estimating compensation amount in full replacement cost	Project executing body
(4) Consultation	➢ Holding consultation meetings to the identified PAPs	Project executing body
(5) Report Compilation	➢ Compilation of all results in LARAP ➢ Reflecting comments from JICA Advisory Committee	Project executing body
4. Approval Stage		
(1) Approval	➢ Approval of LARAP by Bina Marga (and the local authority as necessary)	Project executing body (and the local authority as necessary)

Source: JICA Study Team

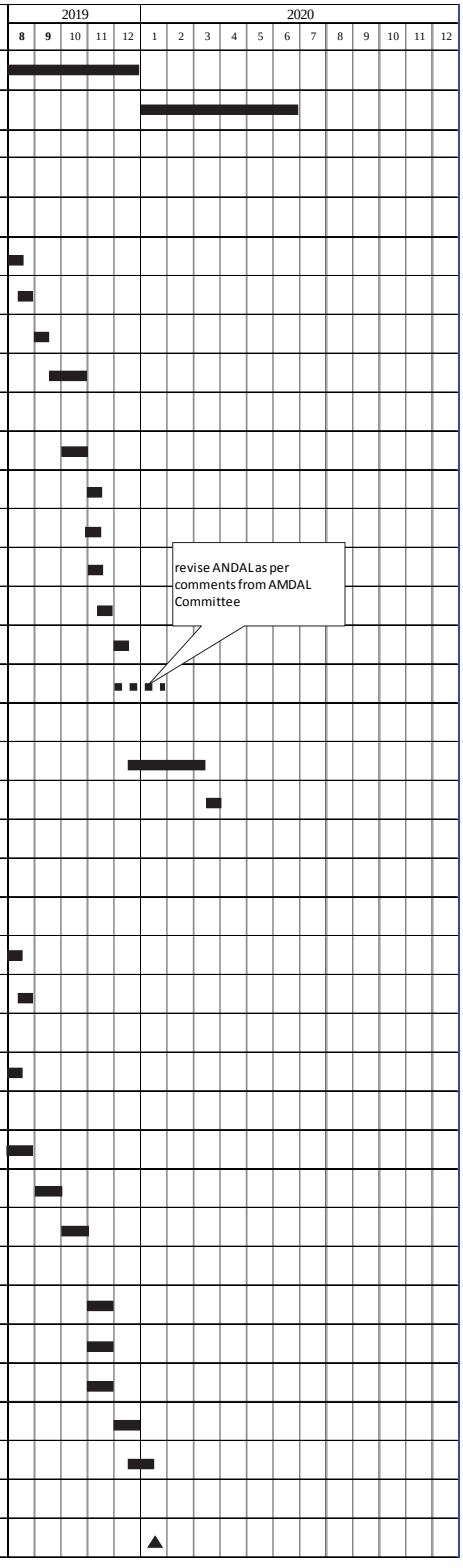
	Work Items	Responsibility
	Approval of Spatial Planning	West Java Province
	Approval of Spatial Planning	Suban Regency
1	**AMDAL Procedure under Indonesian Regulation**	
(1)	KA-ANDAL Stage	
1)	Public notice/announcement of the project	Project executing body
2)	Socialization (holding a consultation meeting)	Project executing body
3)	Preparation of KA-ANDAL	Project executing body
3)	Review and Approval of KA-ANDAL (30 working days: 1.5 months)	AMDAL Committee
(2)	ANDAL Stage	
1)	Field Survey	Project executing body
2)	Impact Assessment	Project executing body
3)	Examination of Mitigation Measures	Project executing body
4)	Preparation of Environemntal Management Plan, Environemntal Monitoring Plan	Project executing body
5)	Socialization (holding a consultation meeting as per requirement in JICA Guidelines)	Project executing body
6)	Report Compilation	Project executing body
7)	Report Revision	Project executing body
(3)	Approval Stage	
1)	Review of ANDAL (75 working days: 3 months)	AMDAL Committee
2)	Approval of ANDAL (10 working days for issuing Environmental Permit)	AMDAL Committee
2	**LAPD/LARAP Procedure**	
(1)	Preparation Stage	
1)	Preliminary examination of land acquisition and impact	Project executing body
2)	Socialization (holding a consultation)	Project executing body
(2)	Field Survey Stage	
1)	Prepration of Questionnaires	Project executing body
2)	Field Survey Stage	Project executing body
	Check cadastral map (confirmation of land ownership)	Project executing body
	conduct census, socio-economic survey, asset inventory, market price survey	Project executing body
3)	Compilation of collected data	Project executing body
(3)	Report Preparation Stage	
1)	Examination of compensation policy	Project executing body
2)	Examination of other items (livelihood restoration program, support for vulnerable groups, grievance redress mechanism, monitoring and evaluation)	Project executing body
3)	Examination of budget	Project executing body
4)	Socialization (holding a consultation)	Project executing body
5)	Report Compilation	Project executing body
(4)	Approval Stage	
1)	Approval of LARAP	Project executing body (and local government as necessary)



Note: This figure shows the detailed schedule of AMDAL and LARAP preparation shown in Figure 8.2-1.
Source: JICA Study Team

Figure 7.7-1 Schedule for Preparation of AMDAL/LARAP (Normal Schedule)

	Work Items	Responsibility
	Approval of Spatial Planning	West Java Province
	Approval of Spatial Planning	Suban Regency
1	**AMDAL Procedure under Indonesian Regulation**	
(1)	KA-ANDAL Stage	
1)	Public notice/announcement of the project	Project executing body
2)	Socialization (holding a consultation meeting)	Project executing body
3)	Preparation of KA-ANDAL	Project executing body
3)	Review and Approval of KA-ANDAL (30 working days: 1.5 months)	AMDAL Committee
(2)	ANDAL Stage	
1)	Field Survey	Project executing body
2)	Impact Assessment	Project executing body
3)	Examination of Mitigation Measures	Project executing body
4)	Preparation of Environemntal Management Plan, Environemntal Monitoring Plan	Project executing body
5)	Socialization (holding a consultation meeting as per requirement in JICA Guidelines)	Project executing body
6)	Report Compilation	Project executing body
7)	Report Revision	Project executing body
(3)	Approval Stage	
1)	Review of ANDAL (75 working days: 3 months)	AMDAL Committee
2)	Approval of ANDAL (10 working days for issuing Environmental Permit)	AMDAL Committee
2	**LAPD/LARAP Procedure**	
(1)	Preparation Stage	
1)	Preliminary examination of land acquisition and impact	Project executing body
2)	Socialization (holding a consultation)	Project executing body
(2)	Field Survey Stage	
1)	Prepration of Questionnaires	Project executing body
2)	Field Survey Stage	Project executing body
	Check cadastral map (confirmation of land ownership)	Project executing body
	conduct census, socio-economic survey, asset inventory, market price survey	Project executing body
3)	Compilation of collected data	Project executing body
(3)	Report Preparation Stage	
1)	Examination of compensation policy	Project executing body
2)	Examination of other items (livelihood restoration program, support for vulnerable groups, grievance redress mechanism, monitoring and evaluation)	Project executing body
3)	Examination of budget	Project executing body
4)	Socialization (holding a consultation)	Project executing body
5)	Report Compilation	Project executing body
(4)	Approval Stage	
1)	Approval of LARAP	Project executing body (and local government as necessary)



Note: This figure shows the detailed schedule of AMDAL and LARAP preparation shown in Figure 8.2-2.
Source: JICA Study Team

Figure 7.7-2 Schedule for Preparation of AMDAL/LARAP (Accelerated to Achieve Toll Road Opening in Early 2023)

8. Implementing Schedule

Figure 8.2-1 and Figure 8.2-2 shows project implementation schedule starting from preparation stage and up until opening of this toll road project. These schedules include all necessary permits process (such as spatial planning, ANDAL, LAPD, Penlok), concession tender process (PQ, RfP, evaluation, contract negotiation and concession agreement signing), loan application procedures (appraisal, due diligence, loan agreement and loan effectuation), EPC tender process, land acquisition process and construction. There table also indicates relationship between each process.

8.1 Normal Schedule

Figure 8.2-1 shows schedule based on normal procedures. In this case, Penlok will be obtained in Nov. 2020. Soon after Penlok issuance, PQ for concession tender to be executed by BPJT will be stared. After the six months tender process and subsequent two months negotiation, concession agreement will be signed in Jul. 2021. Land acquisition will be started in the same month and expected to be completed in Jul. 2022.

In parallel to land acquisition process, SPC will be established in Aug. 2021, and it will submit loan application to JICA and other lenders in the same month. After the loan agreement and EPC contractor procurement, construction activity will be started in Aug. 2022. After 2 years construction period, this Toll Road will open traffic in Jun. 2024.

On the other hand, since Patimban port project will face full opening in Jan. 2023 (in case all the construction activities of the port completed with no delay). In order to synchronize port opening and toll road opening, implementation acceleration will be required.

8.2 Accelerated Schedule to Achieve Toll Road Opening in Early 2023

Figure 8.2-2 shows accelerated schedule to achieve toll road opening in Jan. 2023. In this case various acceleration measures will be required, such as

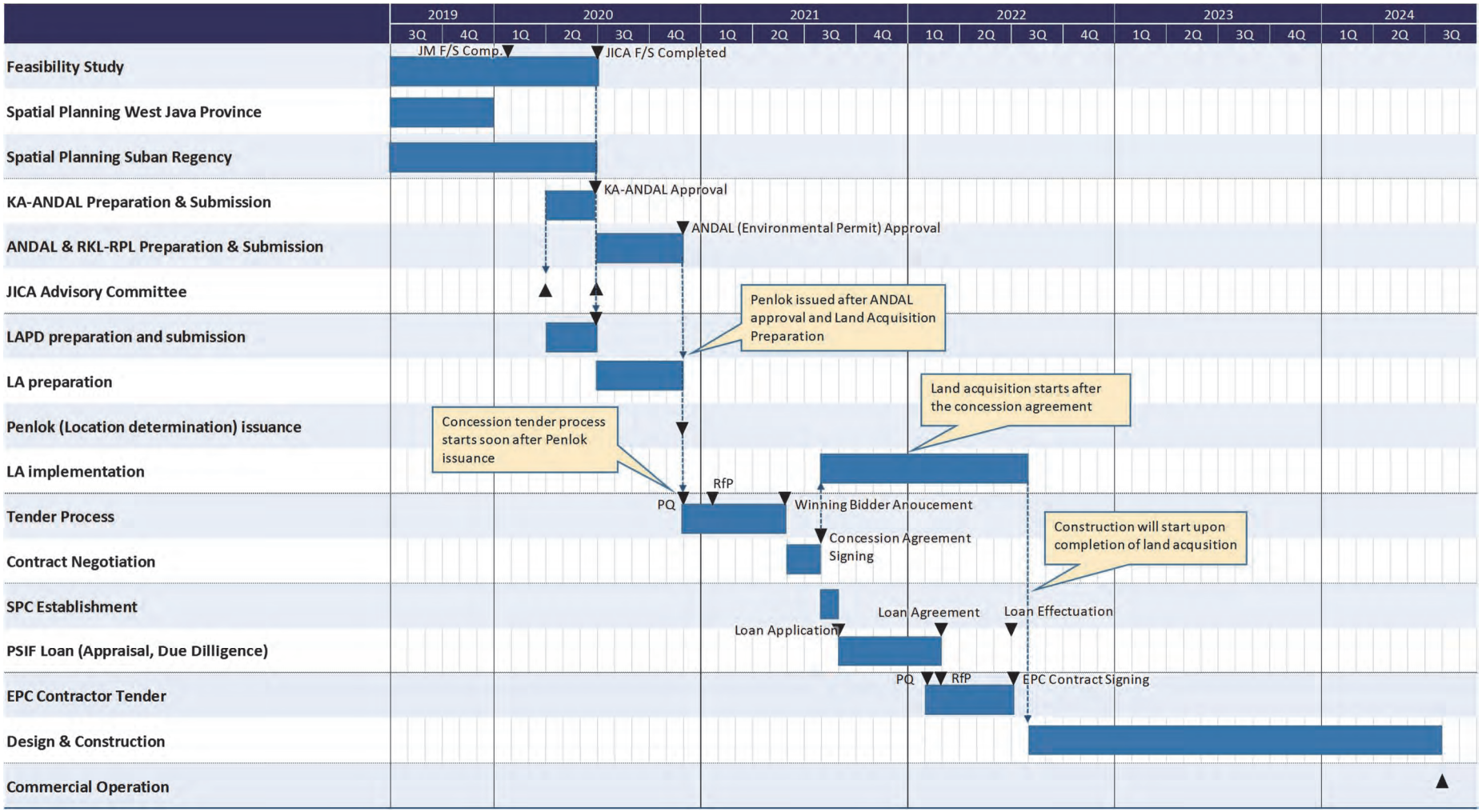
i) AMDAL will be execute only based on information obtained from revised Jasa Marga F/S (JICA F/S second phase will be completed 5 month later than Jasa Marga F/S),

ii) Obtain approval of ANDAL and LAPD before listed this project into provincial and regency spatial plan (this will be made possible based on location conformity letter to be issued by governors of West Java province and Suban Regency.

iii) Start concession tender process before issuance of Penlok (based on special treatment stipulated in PU regulation No.1/2017 on tender procedures of toll roads)

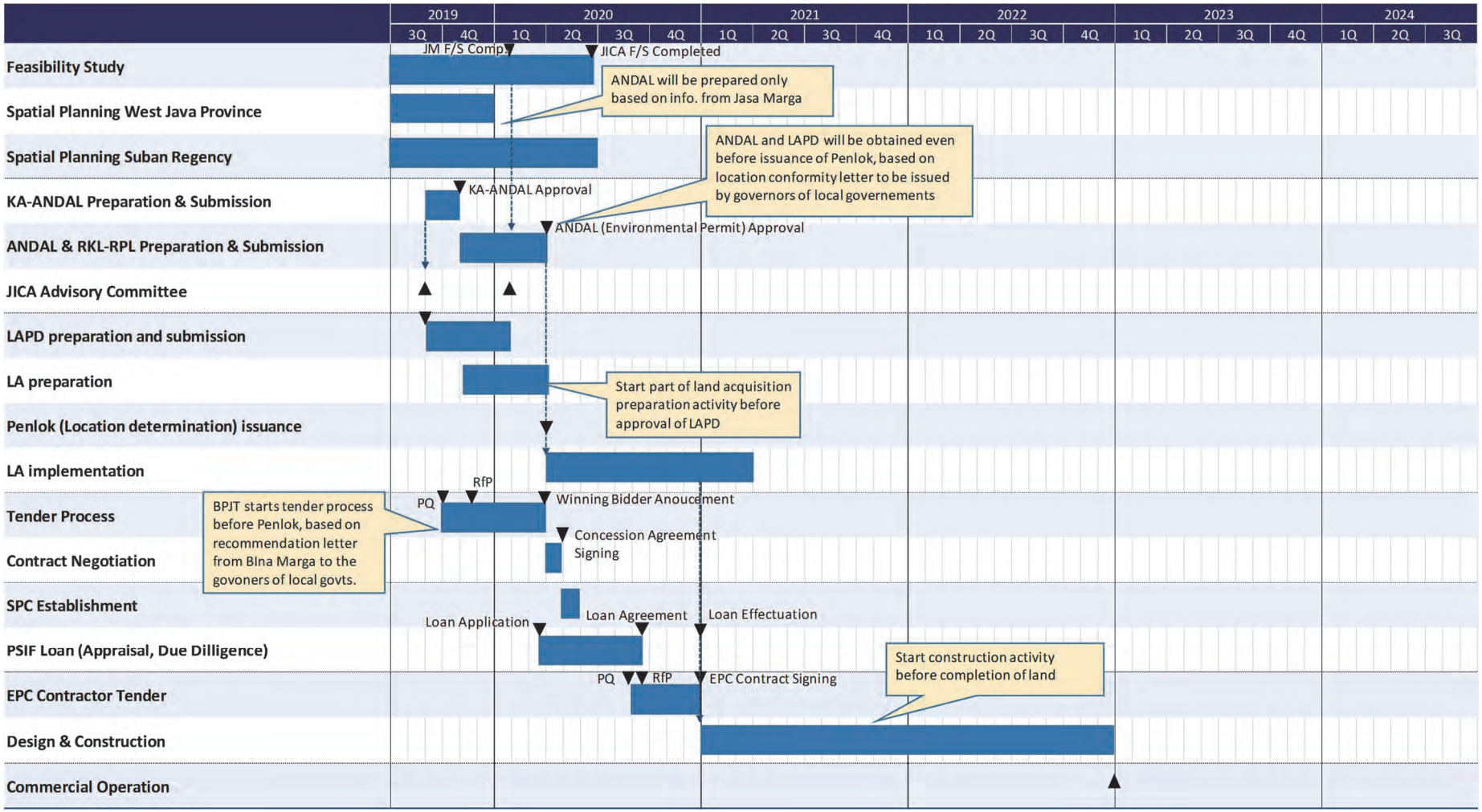
iv) Construction will start before completion of land acquisition

If all of these acceleration procedures are resulted in success without any delay, this toll road will open traffic in Jan. 2023. However, in reality, it is judged to be quite hard to realize.



Source: JICA Study Team

Figure 8.2-1 Project Implementation Schedule (Normal Schedule)



Source: JICA Study Team

Figure 8.2-2 Project Implementation Schedule (Accelerated to Achieve Toll Road Opening in Early 2023)

9. Preliminary Analysis on Investment Feasibility

This chapter summarize results of preliminary analysis on investment feasibility based on the following aspects; i) laws, regulation and licenses for project implementation, ii) technical feasibility and iii) environmental and social feasibility.

Base on the information collected during the survey, this project is judged to be worth continuing to study towards implementation. In the course of next survey, more detailed examination on engineering feasibility, detailed cost estimate, traffic demand forecast, clarification on terms and conditions of loans and swap products available in the market, and etc. will be required for examining investment feasibility.

9.1 Legal Feasibility (law, regulation and licenses for implementation)

This project is recognized as unsolicited project and will be implemented based on Presidential regulation No.38/2015 on PPP. JM Consortium had submitted F/S report to Bina Marga in 2018 based on Route 3, which connecting between Cipeundeuy on Cipali Road and the Patimban Port). However, in February 2019, Bina Marga had issue a letter to JM Consortium for requesting execution of further study based on Route 1, which connecting between Subang IC on Cipali Road and the Patimban Port. JM consortium will complete Pre-F/S and F/S based on Route 1 in Nov. 2019 and Feb. 2020, respectively. Then, taking results of these additional studies into consideration, JM consortium intends to re-submit F/S based on selected route. JM consortium agrees to share results of Pre-F/S and F/S occasionally, and is willing to discuss about route selection with Japanese investor side. Since initiator status for JM consortium will be officially provided only after the Bina Marga's approval on the F/S (including alignment), Bina Marga's preference on route selection needs to be monitored continuously.

National spatial plan already includes this project, while provincial and regency level have not. According to interview to BAPPEDA West Java and Subang, they agree on the new alignment (Route 1), and draft regulation and map for spatial plan already includes this project. In case of Route 1, revision will be completed by the end of this year (provincial) and next year (regency). On the other hand, if investor side intends to implement based on Route 3 and its F/S will be approved by Bina Marga, spatial plan inclusion based on Route 3 needs to be accelerated in close coordination with West Java province and Subang regency.

If this project is listed as National Strategic Project (PSN), various powerful incentive will be given, such as land acquisition cost will be borne by BLU-LMAN, KPPIP/ CMEA/ CMMA could provide inter-ministerial coordination to accelerate project implementation, and etc. There by continuous efforts towards inclusion this project into PSN projects will be required to improve project's feasibility.

9.2 Technical Feasibility

JICA study team have reviewed the past studies executed by JM consortium, JICA's Patimban Port F/S study team and KPPIP, also executed site reconnaissance survey along Route 1.

As a result, Route 1 is judged to be reasonable, because of its lower construction cost and less negative impacts on agricultural area and residents due to shorter route length. Also Route 1 has well balanced accessibility to Cikampek/Jakarta, Palimanan/Cirebon and Cipeundey, thereby reasonable traffic demand could be expected.

Since the new alignment is avoiding almost all villages, the alignment is considered feasible. Nevertheless, the impacts on the livelihood such as rice fields and plantations, fish ponds and chicken farm houses are assumed, and thus every effort shall be made to minimize the scale of the impacts.

9.3 Environmental and Social Feasibility

Based on the current natural and social environmental conditions in the study area and planned features of the project, preliminary scoping was conducted. The team, so far identified no serious environmental and social issues, which might prevent smooth project implementation.

APPENDIX

Results of the Traffic Survey

Logistics Survey

i: Traffic Counting Survey

Table A-1 Total Amount of Traffic Counting Survey

No	Gate	< 20 ft (No Container)	20 ft	40 ft	20 ft & 20 ft(2 Container)	> 40 ft	Car Carrier Trailer (Car Hauler)	Light Truck (< 2 tons)	Medium Truck (4 tons)	Conventional Truck (10 tons)
1	Gate 1a	113	172	100	29	0	0	0	0	0
2	Gate 1b	58	209	106	22	20	0	0	0	0
3	Gate 2	143	27	81	5	210	11	47	185	76
4	Gate 3a	569	417	318	89	1	0	17	5	0
5	Gate 3b	712	522	526	86	0	0	17	3	0
6	Gate 4	2,108	468	1,086	149	5	3	0	0	0
7	Gate 5	0	500	582	6	587	0	0	0	0
8	Gate 6a	1	0	0	0	0	185	0	0	0
9	Gate 6b	7	0	0	0	0	65	8	0	0
10	Gate 7	1,162	453	703	9	381	2	3	0	0
	Total	4,873	2,768	3,502	395	1,204	266	92	193	76

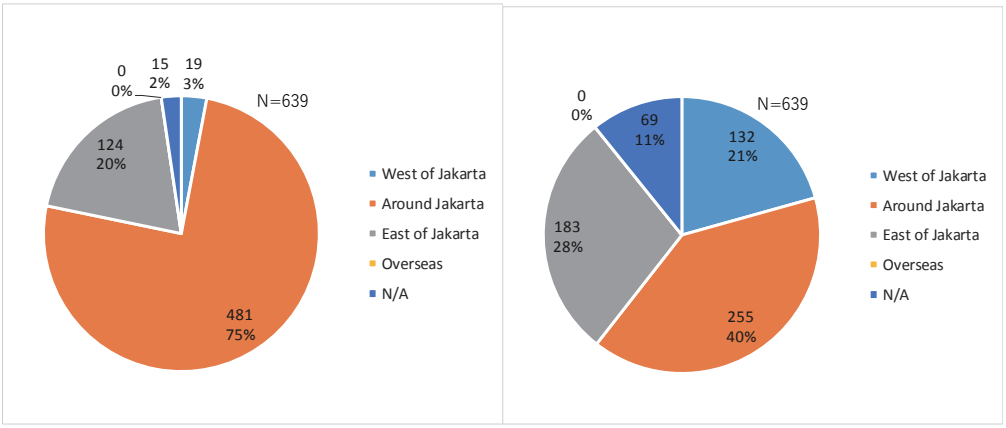
No	Gate	Other Vehicles						Total Vehicle	Note
		Passenger Car	Dump truck	Tank Lori	Lowbed Trailer	Pax car	Motorcycle		
1	Gate 1a	10	11	0				414	domestic
2	Gate 1b	21	0	0				415	domestic
3	Gate 2	384	444	487			154	785	domestic
4	Gate 3a	81	0					1,416	domestic
5	Gate 3b	100	0	0				1,866	International
6	Gate 4	86	1	49		1	2	3,819	International
7	Gate 5	0	0	0	0	0		1,675	International
8	Gate 6a	34			41			186	domestic
9	Gate 6b	244			1			80	International
10	Gate 7	150				86	116	2,713	domestic
	Total	1,110	456	536	42	87	272	13,369	

Table A-2 Rate of each Container type

	20 ft	40 ft	20 ft & 20 ft(2 Container)	> 40 ft
11:00	29.2%	45.8%	7.1%	17.9%
12:00	25.1%	46.8%	16.4%	11.7%
13:00	33.6%	50.2%	5.8%	10.5%
14:00	34.2%	45.2%	6.8%	13.9%
15:00	46.7%	37.7%	4.0%	11.6%
16:00	39.5%	40.3%	5.2%	15.1%
17:00	36.9%	37.4%	4.0%	21.7%
18:00	38.8%	38.1%	7.5%	15.6%
19:00	43.4%	34.9%	5.7%	16.0%
20:00	36.7%	39.3%	6.2%	17.9%
21:00	39.6%	37.3%	4.1%	18.9%
22:00	40.0%	39.7%	4.0%	16.3%
23:00	33.3%	45.7%	6.9%	14.1%
00:00	34.1%	46.3%	6.5%	13.1%
01:00	34.2%	46.6%	2.3%	17.0%
02:00	27.7%	53.6%	4.8%	13.9%
03:00	27.3%	55.7%	4.4%	12.5%
04:00	14.3%	78.6%	7.1%	0.0%
05:00	36.2%	50.3%	2.8%	10.7%
06:00	41.5%	41.8%	2.9%	13.7%
07:00	36.3%	43.9%	4.5%	15.2%
08:00	26.4%	54.5%	2.8%	16.3%
09:00	37.4%	39.9%	5.0%	17.7%
10:00	27.7%	47.7%	4.9%	19.7%
Total per 11:00-10:00 (24 hours)	35.2%	44.5%	5.0%	15.3%

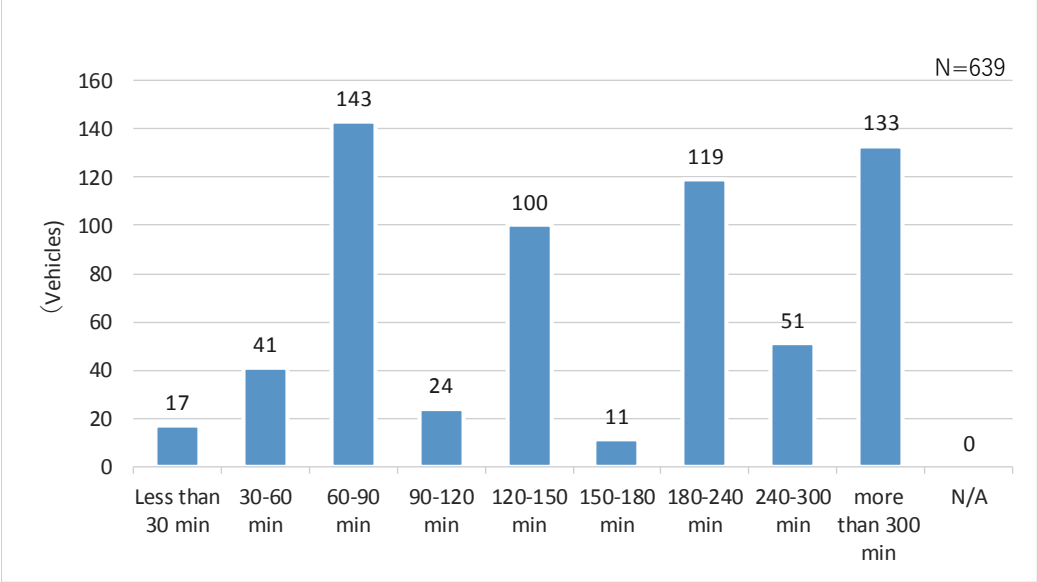
Ii: OD Interview Survey

As shown in main report, the Gate 7 is excluded in the tallying and analysis because vehicles passed the Gate 7 move inside the Port.



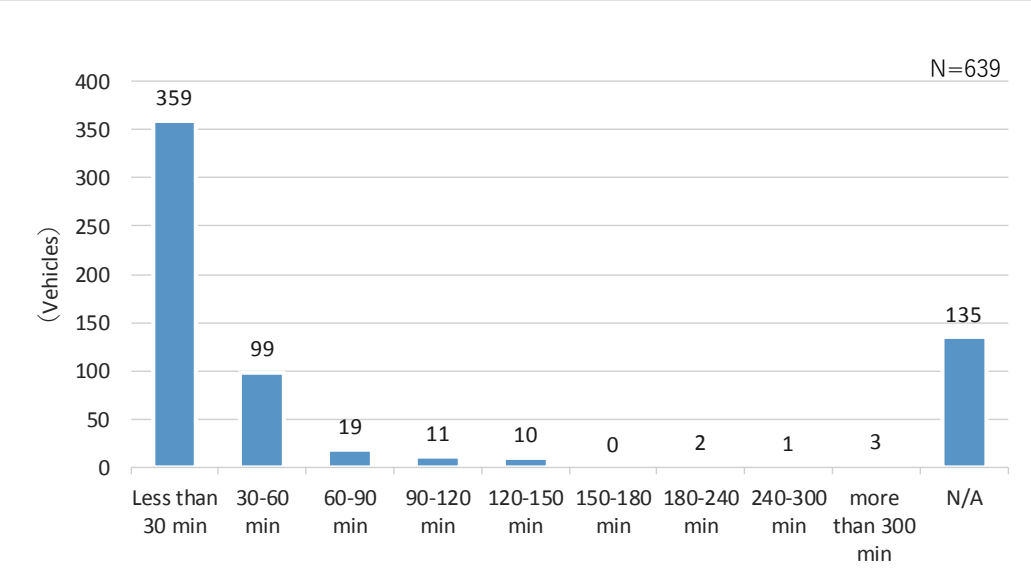
Source: JICA Study Team

Figure A-1 The Departure Site and Destination Site of the Original Volume (left hand: Departure site, right: Destination site)



Source: JICA Study Team

Figure A-2 Trip Time from the Departure Site to the Tanjung Priok Port



Source: JICA Study Team

Figure A-3 Waiting Time at the Tanjung Priok Port

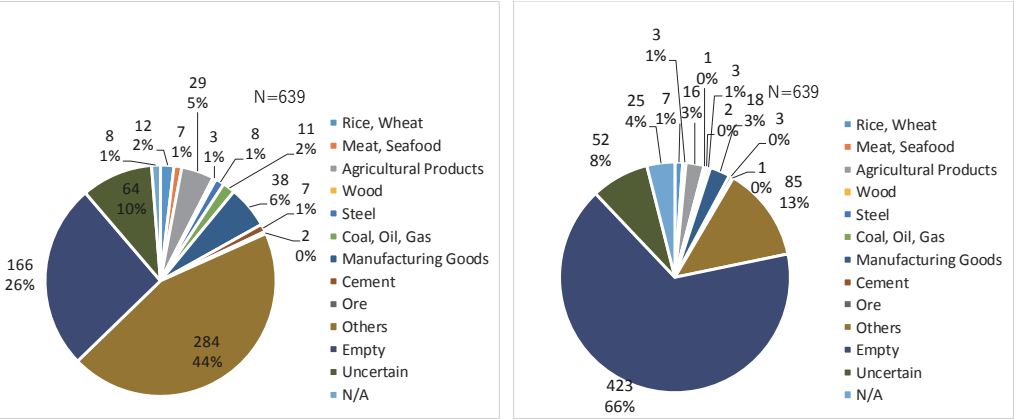
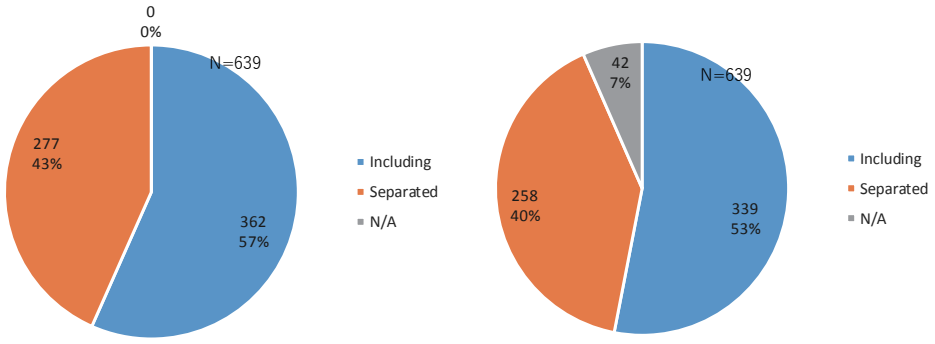


Figure A-4 Type of Transported Commodity

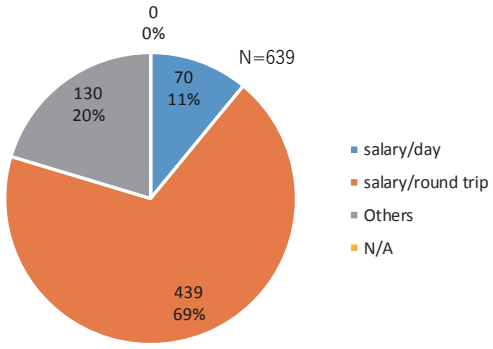
(Left hand: from the Origin, Right hand: to the Destination)



Source: JICA Study Team

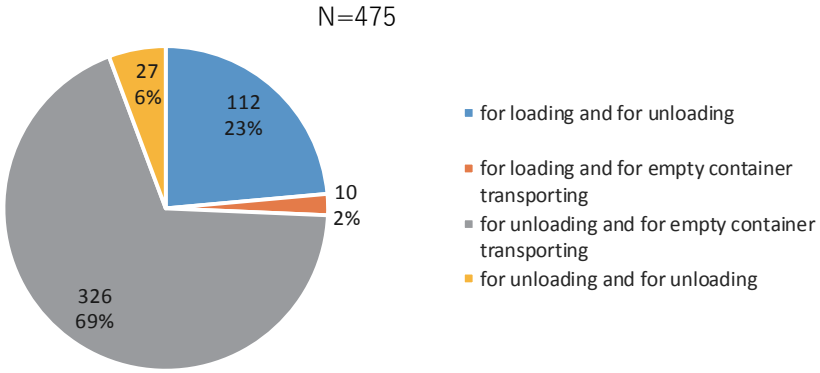
Figure A-5 The Salary Including the Fee of Toll Road

(Left hand: from the Origin, Right hand: to the Destination)



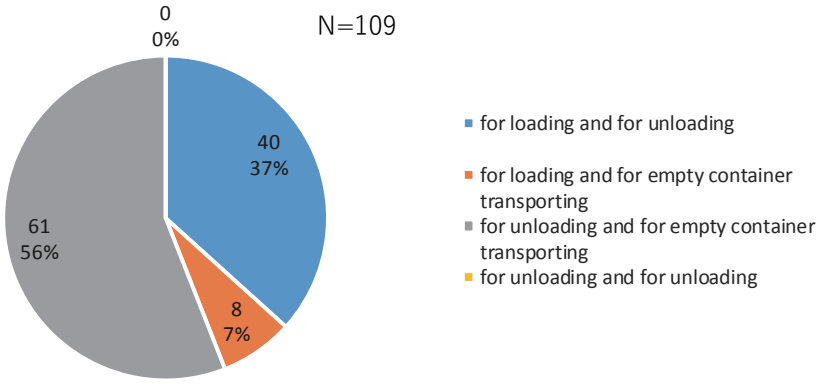
Source: JICA Study Team

Figure A-6 Type of Driver's Contract for Commodity Transportation



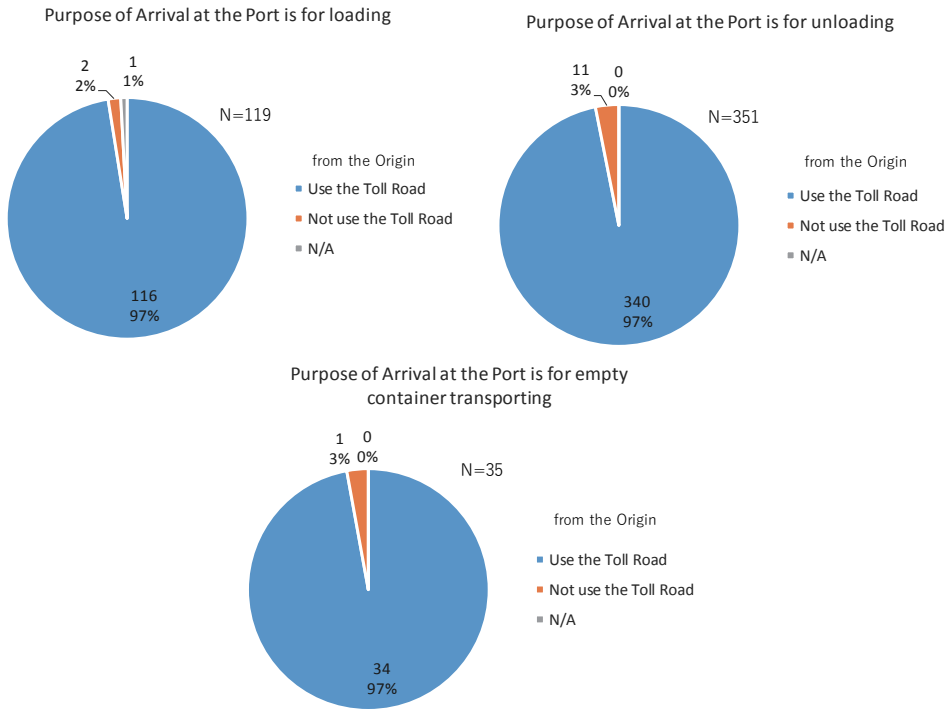
Source: JICA Study Team

Figure A-7 The Conbination of Pupose for Vsiting: Container Transportation Truck



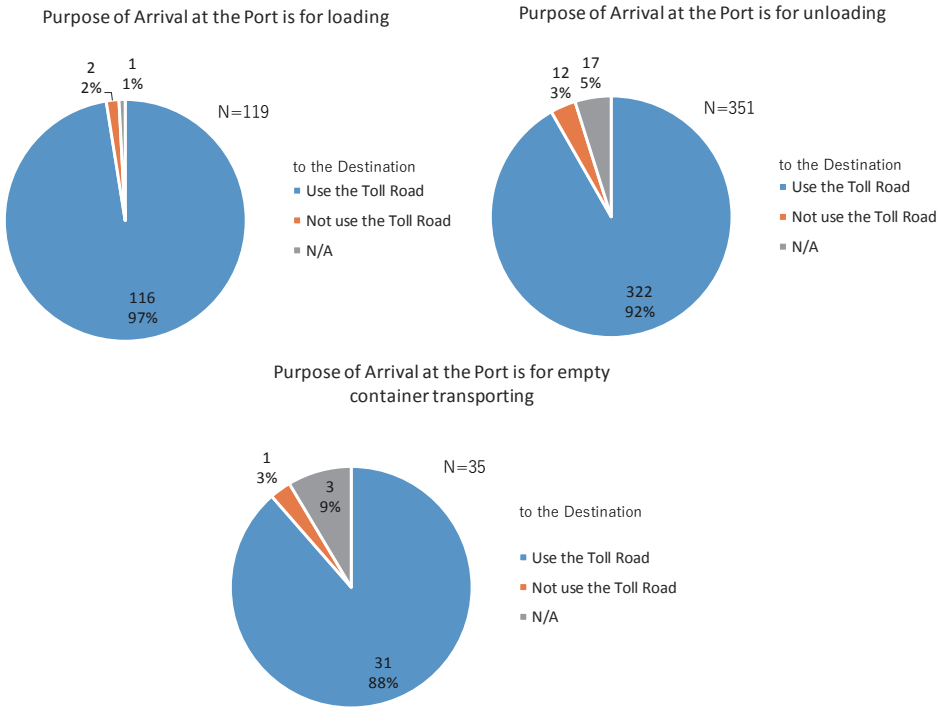
Source: JICA Study Team

Figure A-8 The Conbination of Pupose for Vsiting: Car Carrier



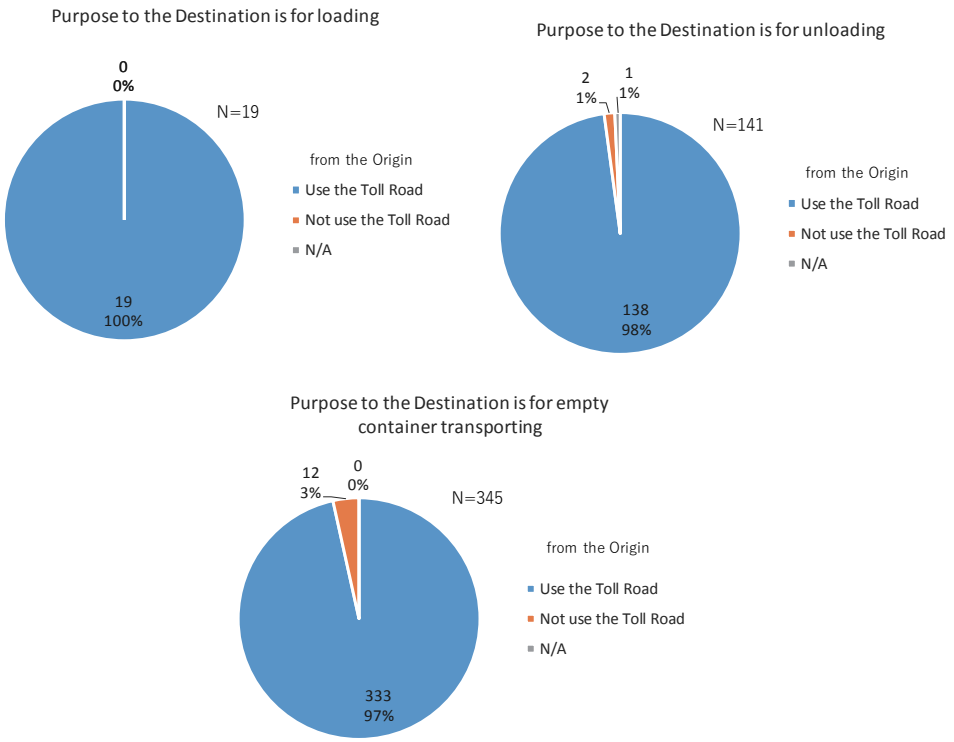
出典：JICA Source: JICA Study Team

Figure A-9　Utilization of the Toll Road from the Origin: Container Transportation Truck



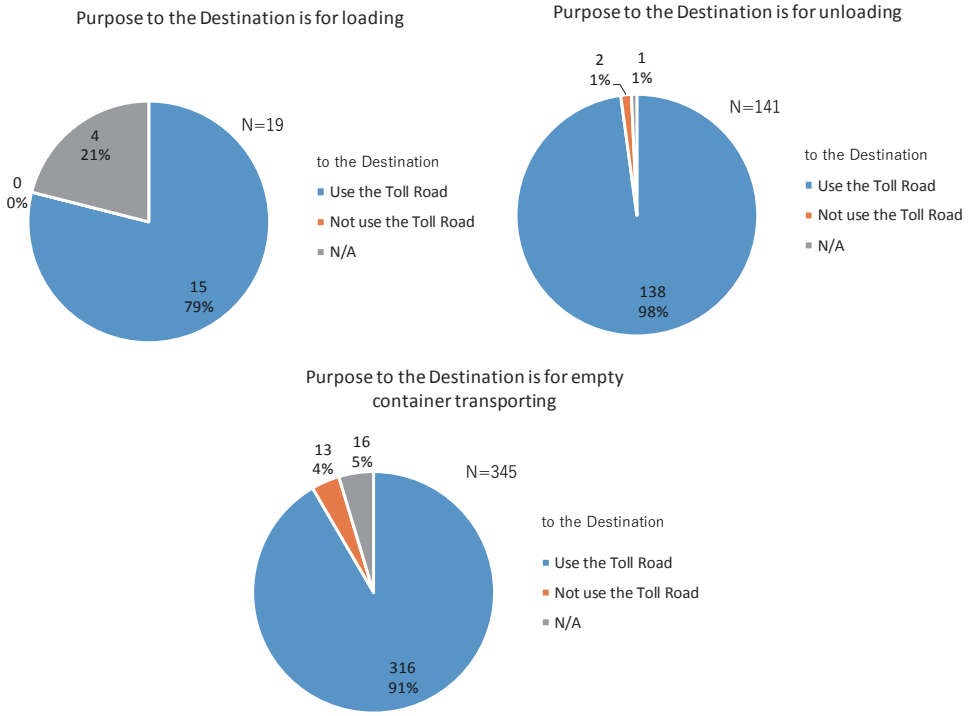
Source: JICA Study Team

Figure A-10　Utilization of the Toll Road to the Destination: Container Transportation Truck



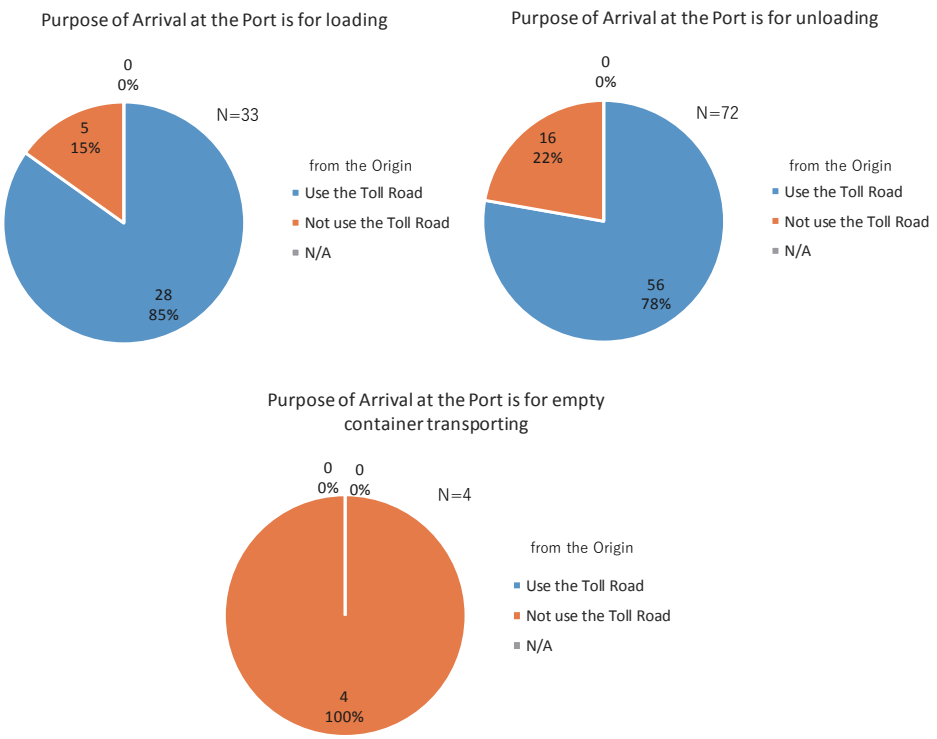
Source: JICA Study Team

Figure A-11 Utilization of the Toll Road from the Origin: Container Transportation Truck



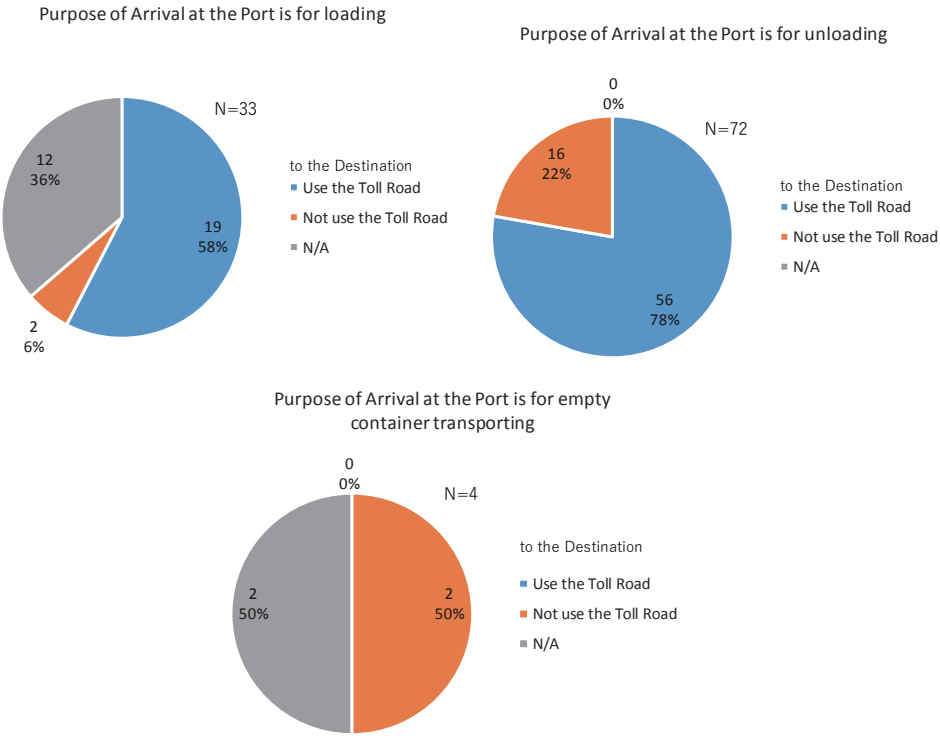
Source: JICA Study Team

Figure A-12 Utilization of the Toll Road to the Destination: Container Transportation Truck



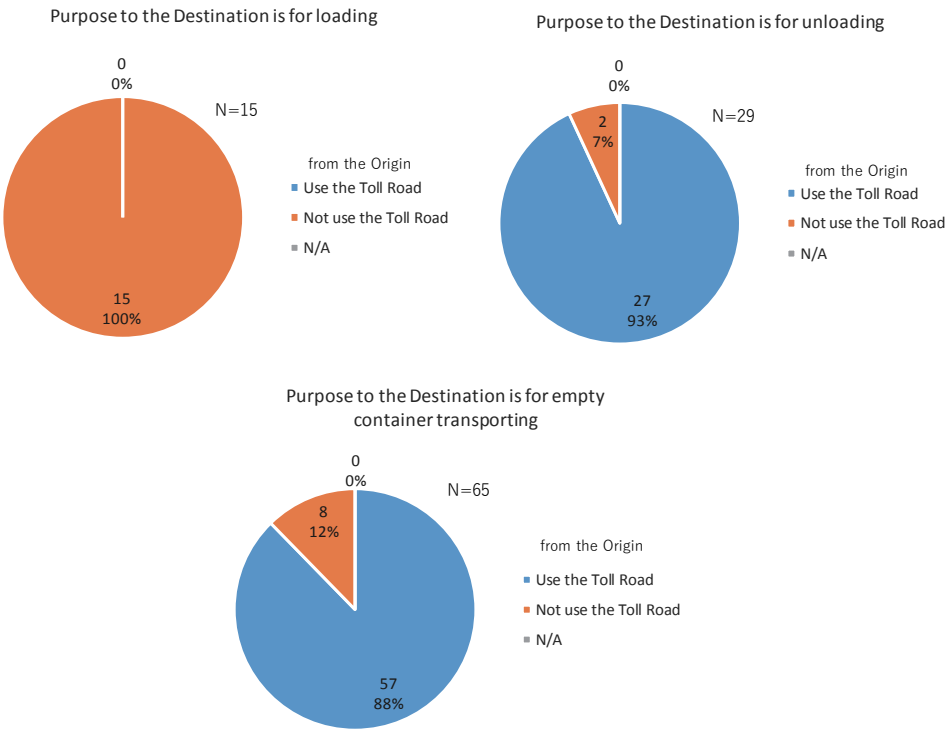
Source: JICA Study Team

Figure A-13 Utilization of the Toll Road from the Origin: Car Carrier



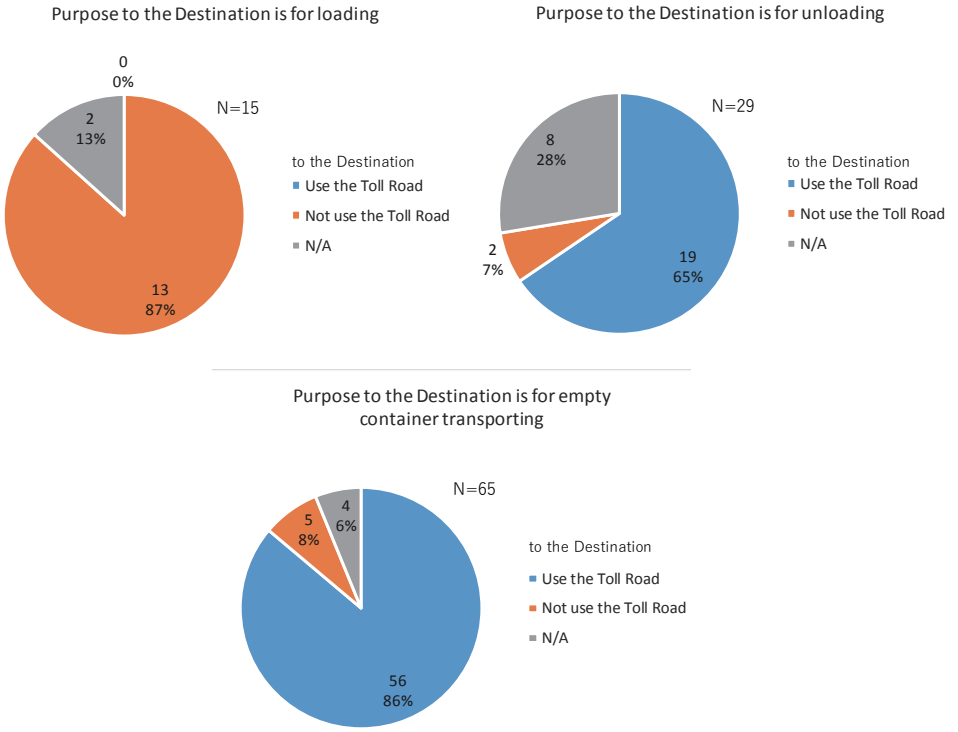
Source: JICA Study Team

Figure A-14 Utilization of the Toll Road to the Destination: Car Carrier



Source: JICA Study Team

Figure A-15 Utilization of the Toll Road from the Origin: Car Carrier



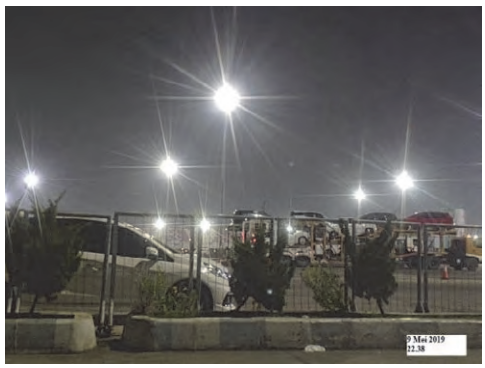
Source: JICA Study Team

Figure A-16 Utilization of the Toll Road to the Destination: Car Carrier

iii : Survey Photo of each Gates

Gate No.	Survey Photo	
1a		
1b		
2		
3a		

3b		
4	 Jakarta International Container Terminal	 27724
5	 Terminal Petikemas KOJA	
6a		

6b		
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